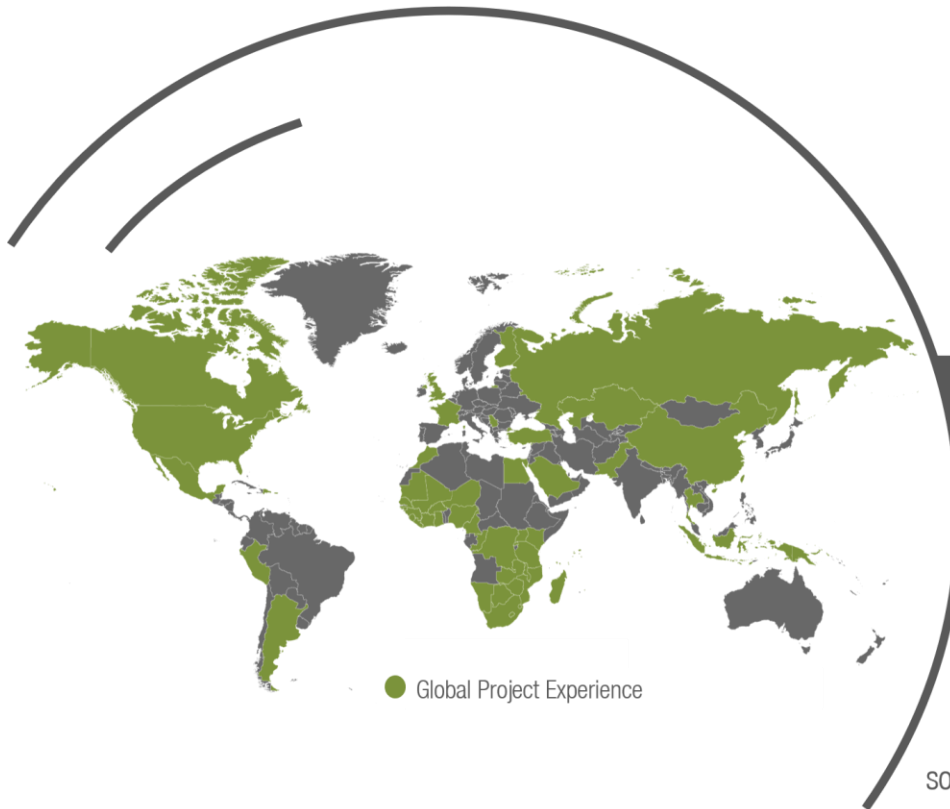


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## Environmental Impact Assessment Process for the Proposed Iphiva 400/132 kV Substation, KwaZulu-Natal`

### Heritage Scoping Report

**Prepared for:**  
SiVEST SA (Pty) Ltd

**Project Number:**  
PEC7505




December 2022



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<b>Report Type:</b>	Heritage Scoping Report
<b>Project Name:</b>	Environmental Impact Assessment Process for the Proposed Iphiva 400/132 kV Substation, KwaZulu-Natal
<b>Project Code:</b>	PEC7505

<b>Name</b>	<b>Responsibility</b>	<b>Signature</b>	<b>Date</b>
Nokubonga Dlamini Heritage Specialist (Historian)	Baseline Compilation		May 2022
Shannon Hardwick HRM Consultant ASAPA Member: 451	Report Compilation Pre-disturbance Survey		December 2022
Johan Nel Manager: Heritage Services ASAPA Member 095	Technical Review		December 2022

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## DETAILS AND DECLARATION OF THE SPECIALIST

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<b>Title/ Position:</b>	Tea, Lead: Heritage
<b>Qualification(s):</b>	Master of Science (MSc) Archaeology
<b>Experience (years):</b>	5 years
<b>Registration(s):</b>	ASAPA, ICOMOS

I, Shannon Hardwick, declare that: –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
  - I declare that there are no circumstances that may compromise my objectivity in performing such work;
  - I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist 

Date: December 2022

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## EXECUTIVE SUMMARY

Eskom Holdings SOC Ltd (Eskom) initiated the “Northern KwaZulu-Natal (KZN) Strengthening Project” in 2017, aimed at alleviating existing and future network constraints in Northern KZN through “de-loading” the primary sub-transmission network and improving voltage regulation. Eskom intended to achieve this through the establishment and operation of two 400 kV powerlines, an additional 165 km of 135 kV distribution powerlines and a substation. Eskom appointed an independent Environmental Assessment Practitioner (EAP) to complete an Environmental Impact Assessment (EIA) process in 2018 and thereafter received Environmental Authorisation (EA) to go ahead with the Project.

Following subsequent investigations, the authorised footprint for the Iphiva Substation has been deemed not financially viable due to the terrain and the cost of making this site suitable for the construction of the substation. Eskom is therefore assessing an additional footprint, potentially more suitable for construction (the Project). The substation must be close to the load centre and existing 132 kV powerline network. One 400 kV powerline and seven 132 kV powerlines will enter and leave the station. These lines will route in different ways, depending on the final location of the substation.

Eskom intends to construct the substation within a 1 km by 1 km study area near Mkuze<sup>1</sup> in KwaZulu-Natal. The substation will cover a footprint of 600 m by 600 m (33 ha) and will be fenced off. The substation will include standard electrical equipment. All open areas between the infrastructure will be covered by a layer of crushed stone to prevent insect activity and the growth of weeds and other plants in the high-voltage yard. Oil and fuel storage facilities will be bunded and there will be an oil bund to contain any transformer oil spills. The substation will need to be lit at night for security and safety reasons. Construction is expected to start in 2023 and will take about 24 months to complete.

The establishment and operation of the substation triggers Listed Activities in terms of the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R 982 of 4 December 2014 as amended by GN R 326 of 7 April 2017) (EIA Regulations, 2014) promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). Such a process will need to assess the proposed (not yet authorised) option for the substation and supporting infrastructure Eskom has therefore appointed SiVEST SA (Pty) Ltd (SiVEST), through Margen Industrial Services CC (Margen), as the EAP to undertake the required EIA process required for the EA.

The EIA process includes a specialist Heritage Resources Management (HRM) process in compliance with the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No. 5 of 2018) (KZNARIA) and National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA). This document comprises the specialist Heritage Scoping Report (HSR) to inform the Draft Scoping Report (DSR) required as a milestone within the EIA process.

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<sup>1</sup> Also known as Mkhuze or uMkhuze

During this HRM process, two study areas were considered. The first study area was considered as an alternative to the authorised substation footprint area and was assessed during the pre-disturbance survey. Subsequently, this site has been amended to provide a more suitable alternative in terms of the land profile. Eskom have additionally included an access road to be considered in this process. These footprints will be assessed in the HIA process.

The local and broader cultural landscape is predominantly characterised by a mix of cultural heritage resources including archaeological artefacts and burial grounds and graves. The cultural landscape in proximity to the authorised substation footprint also represents a historical battlefield, monuments and memorials, historical built environment resources and intangible / living heritage resources.

Digby Wells assessed the original study area within which the proposed substation will be located through a pre-disturbance survey focused on areas covered by proposed infrastructure not investigated in the previous surveys and was predominantly pedestrian. During this survey, ten additional heritage resources were identified - five burial grounds and graves and five archaeological findspots. Based on the Project description, Digby Wells is of the opinion that there is potential to alter the current *status quo* of heritage resources identified within the site-specific study area.

These potential impacts will be assessed during the Heritage Impact Assessment (HIA) process. The HIA will also include a pre-disturbance survey of the portion of the updated study area not assessed during the scoping phase.

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Appendix A: Glossary of Terms	
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## ACRONYMS, ABBREVIATIONS AND DEFINITION

Abbreviation	Meaning
<b>ASAPA</b>	Association of Southern African Professional Archaeologists
<b>BA</b>	Bachelor of Arts, or Basic Assessment ( <i>the applicable term will be defined in the report</i> )
<b>BCE</b>	Before Common Era (also: Before Christ or BC)
<b>BID</b>	Background Information Document
<b>BSc</b>	Bachelor of Science
<b>c.</b>	Circa, meaning approximately
<b>CE</b>	Common Era (also: <i>Anno Domini</i> or AD)
<b>CFP</b>	Chance Find Protocol
<b>CRR</b>	Comments and Response Report
<b>CS</b>	Cultural Significance
<b>Digby Wells</b>	Digby Wells Environmental
<b>EA</b>	Environmental Authorisation
<b>EAP</b>	Environmental Assessment Practitioner
<b>EFC</b>	Early Farming Community ( <i>also known as Early Iron Age, see below</i> )
<b>EIA</b>	Environmental Impact Assessment. <i>Please note that EIA can also refer to the 'Early Iron Age'; however, in this document, this time period is referred to as 'Early Farming Community'.</i>
<b>EMP</b>	Environmental Management Plan
<b>EMPr</b>	Environmental Management Programme
<b>ESA</b>	Early Stone Age
<b>GIS</b>	Geographical Information System
<b>GN R</b>	Government Notice Regulation
<b>GPS</b>	Global Positioning System
<b>HIA</b>	Heritage Impact Assessment
<b>Hons</b>	Honours degree
<b>HRAs</b>	Heritage Resources Authorities
<b>HRM</b>	Heritage Resources Management
<b>HSMP</b>	Heritage Site Management Plan
<b>ICOMOS</b>	International Council on Monuments and Sites

<b>Abbreviation</b>	<b>Meaning</b>
<b>Kya</b>	Thousand years ago
<b>KZNARIA</b>	KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No. 05 of 2018)
<b>LED</b>	Local Economic Development
<b>LFC</b>	Late Farming Community also known as Late Iron Age
<b>LSA</b>	Late Stone Age
<b>MIA</b>	Middle Iron Age
<b>MPRDA</b>	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
<b>MR</b>	Mining Right (boundary)
<b>MRA</b>	Mining Right Application
<b>MSA</b>	Middle Stone Age
<b>MSc</b>	Master of Science
<b>Mtpa</b>	Million tonnes per annum
<b>Mya</b>	Million years ago
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)
<b>NHRA</b>	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
<b>NID</b>	Notification of Intent to Develop
<b>PCD</b>	Pollution Control Dam
<b>PHRA</b>	Provincial Heritage Resources Authority
<b>RoD</b>	Record of Decision
<b>SAHRA</b>	South African Heritage Resources Agency
<b>SAHRIS</b>	South African Heritage Resources Information System
<b>SCF</b>	Statutory Comment Feedback
<b>SEP</b>	Stakeholder Engagement Process
<b>SoW</b>	Scope of Work
<b>ToR</b>	Terms of Reference
<b>Wits</b>	University of the Witwatersrand
<b>Werf</b>	A farmstead or multiple outbuildings associated with a farmhouse or agricultural activities. Plural: <i>werwe</i> (Afrikaans).

Refer to Appendix A for a Glossary of Terms.

## 1. Introduction

Eskom Holdings SOC Ltd (Eskom) initiated the “Northern KwaZulu-Natal (KZN) Strengthening Project” in 2017. This project aimed to alleviate existing and future network constraints in Northern KZN through “de-loading” the primary sub-transmission network and improving voltage regulation. Eskom intended to achieve this through the establishment and operation of two 400 kV powerlines, an additional 165 km of 135 kV distribution powerlines and a substation. Eskom appointed an independent Environmental Assessment Practitioner (EAP) to complete an Environmental Impact Assessment (EIA) process in 2018 and thereafter received Environmental Authorisation (EA) to go ahead with the Project.

Following subsequent investigations, the authorised footprint for the Iphiva Substation has been deemed not financially viable due to the terrain and the cost of making this site suitable for the construction of the substation. Eskom is therefore assessing an additional footprint, potentially more suitable for construction (the Project).

The establishment and operation of the substation triggers Listed Activities in terms of the Environmental Impact Assessment (EIA) Regulations, 2014 (GN R 982 of 4 December 2014 as amended by GN R 326 of 7 April 2017) (EIA Regulations, 2014) promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). Such a process will need to assess the proposed (not yet authorised) option for the substation and supporting infrastructure. Eskom has therefore appointed SiVEST SA (Pty) Ltd (SiVEST), through Margen Industrial Services CC (hereinafter Margen), as the EAP to undertake the required EIA process required for the EA.

The EIA process includes a specialist Heritage Resources Management (HRM) process in compliance with the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No. 5 of 2018) (KZNARIA) and National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA). This document comprises the specialist Heritage Scoping Report (HSR) to inform the Draft Scoping Report (DSR) required as a milestone within the EIA process.

### 1.1. Terms of Reference

SiVEST appointed Digby Wells as the independent EAP to undertake various specialist studies, including the HRM process, in support of the EIA process required through the triggering of Listed Activities as per the EIA Regulations, 2014, as amended. This HRM process includes the compilation and submission of an HSR to inform the DSR.

## 1.2. Scope of Work

The Scope of Work (SoW) for the specialist HRM process included the compilation of an HSR to inform the DSR. Digby Wells completed the following activities as part of the SoW:

- Description of the predominant cultural landscape supported through primary and secondary data collection;
- High-level identification of potential impacts to heritage resources based on the Project description and Project activities to be assessed in more detail in the Heritage Impact Assessment (HIA) report; and
- Submission of the HSR to the Environmental Assessment Practitioner (EAP) for inclusion into the DSR.

## 1.3. Expertise of the Specialist

Table 1-1 presents a summary of the expertise of the specialists involved in the compilation of this report. Appendix A includes the full curriculum vitae (CVs) of these specialists.

**Table 1-1: Expertise of the Specialists**

Team Member	Bio Sketch
<p><b>Nokubonga Dlamini</b></p> <p><b>SACPLAN Member: C/9387/2021</b></p> <p><b>HASA Associate</b></p> <p><b>Years of experience: 3</b></p>	<p>Nokubonga joined the Digby Wells team in May 2022 as a Heritage Specialist (Researcher) under the Social and Heritage Services Division. Nokubonga is a professional Town Planner who obtained a Master of Town Planning (MTRP) degree from the University of KwaZulu-Natal in 2018, specialising in Integrated Development Planning (IDP) and Land-Use Management (LUM).</p> <p>Since joining Digby Wells, Nokubonga has gained generalist experience through the compilation of various heritage assessments, including Heritage Scoping Reports (HSRs), Heritage Impact Assessment (HIA) reports, Heritage Basic Assessment Reports (HBARs), Section 38 and Section 34 permit applications. Her other experience includes compiling various heritage baselines studies, reviewing and commenting on Basic Assessment Reports (BAR), reviewing HIA reports, Paleontological Impact Assessments (PIA), and Archaeological Impact Assessments (AIA) reports. Nokubonga's experience in the field includes pre-disturbance surveys in South Africa, conducting heritage surveys, Section 34, Section 36, and Section 38 applications for Heritage Western Cape (HWC). She has also worked briefly with the Amafa &amp; Research Institute doing baseline assessments, cultural and heritage research and various HIA applications.</p>

Team Member	Bio Sketch
<p><b>Shannon Hardwick</b></p> <p><b>ASAPA Member: 451</b></p> <p><b>ICOMOS Member 38048</b></p> <p><b>Years' Experience: 5</b></p>	<p>Shannon joined the Digby Wells team in May 2017 as a Heritage Management Intern and has most recently been appointed as a Heritage Resources Management Consultant. Shannon is an archaeologist who obtained a Master of Science (MSc) degree from the University of the Witwatersrand in 2013, specialising in historical archaeobotany in the Limpopo Province. She is a published co-author of one paper in <i>Journal of Ethnobiology</i>.</p> <p>Since joining Digby Wells, Shannon has gained generalist experience through the compilation of various heritage assessments, including Heritage Scoping Reports (HSRs), HIAs, Heritage Basic Assessment Reports (HBARs) and Section 34 permit applications. Her other experience includes compiling a Community Health, Safety and Security Management Plan (CHSSMP) and various social baselines. Shannon's experience in the field includes pre-disturbance surveys in South Africa, Malawi and the Democratic Republic of the Congo and other fieldwork in Malawi.</p>
<p><b>Johan Nel</b></p> <p><b>ASAPA Member 095</b></p> <p><b>ICOMOS Member</b></p> <p><b>Years' Experience: &gt;20</b></p>	<p>Johan is a qualified archaeologist, heritage specialist and Manager of the Heritage Services department in Digby Wells. He obtained a BA Honours degree in Archaeology from the University of Pretoria in 2001. He also completed a Professional Development Certificate in Integrated Heritage Resources Management through Rhodes University in 2016. Johan is a professional and accredited member of the Association of Southern African Professional Archaeologists (ASAPA) and a member of the International Council on Monuments and Sites (ICOMOS) South Africa. He has more than 20 years' extensive and diverse experience in heritage resource management. Johan has worked in numerous African settings including South Africa, Botswana, the Democratic Republic of Congo, Liberia, and Sierra Leone. His current interests include ways to empower local communities to use, conserve, and manage heritage resources themselves, as well as integrating living and intangible heritage practices with the more traditional heritage approaches to heritage management. Key concepts he is exploring include cultural humility and so-called People-centred Approaches to conservation of both natural and cultural heritage.</p>

## 2. Project Description

Eskom intends to construct the 400/132 kV substation within a 1 km by 1 km study area located off the N2 National Highway near Mkuze<sup>2</sup> in KwaZulu-Natal. During this HRM process, two study areas have been considered. The first study area was considered as an alternative to the authorised substation footprint area and was assessed during the pre-disturbance survey. Subsequently, this site has been amended to provide a more suitable alternative in terms of the land profile. Eskom have additionally included an access road to be considered in this process. These footprints will be assessed in the HIA process.

The substation will cover a footprint of 600 m by 600 m (33 ha) and will be fenced off. The substation will include standard electrical equipment, such as busbars, isolators, reactors and transformers as well as a microwave radio communication mast that can reach 70 m high. Oil and fuel storage facilities will be bunded and there will be an oil bund to contain any transformer oil spills. The substation will need to be lit at night for security and safety reasons.

All open areas between the transformer plinths and other switchgear foundations will be covered by a layer of 25 mm to 38 mm sized crushed stone. This layer will be about 100 mm deep and the stone will be treated to strict specifications with insecticide and herbicides to prevent insect activity and the growth of weeds and other plants in the high-voltage yard.

The substation must be close to the load centre and existing 132 kV powerline network. One 400 kV powerline and seven 132 kV powerlines will enter and leave the station. These lines will route in different ways, depending on the final location of the substation. The site will need to be levelled before construction can begin. The current land-use on the site will not be able to continue once construction commences.

Construction is expected to start in 2023 and will take about 24 months to complete. Staff will be transported to site each day during construction and operation – no staff will be accommodated on site.

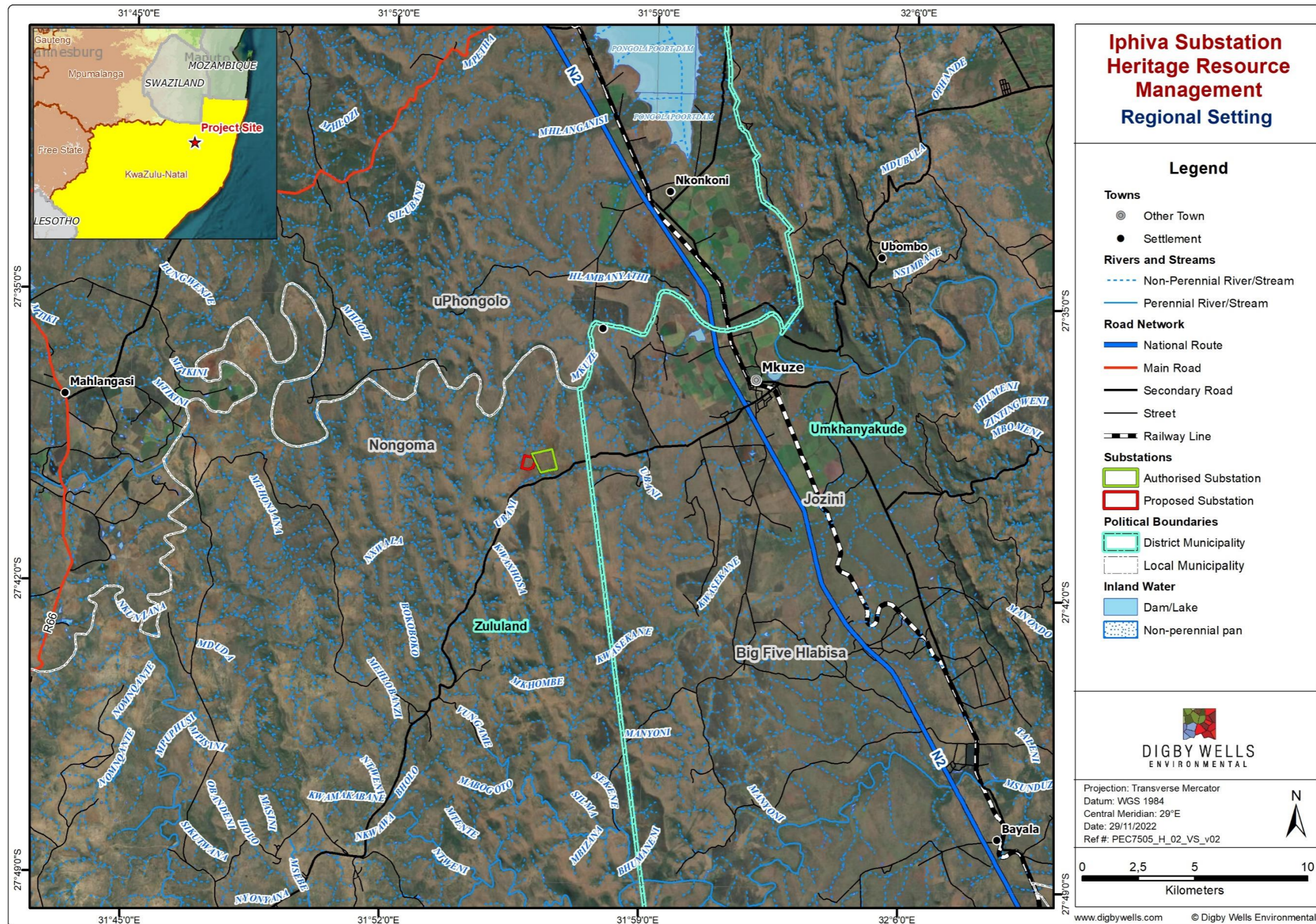
Table 2-1 presents a summary of the Project-related activities for the construction, operation and decommissioning of the proposed substation.

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<sup>2</sup> Also known as Mkhuze or uMkhuze

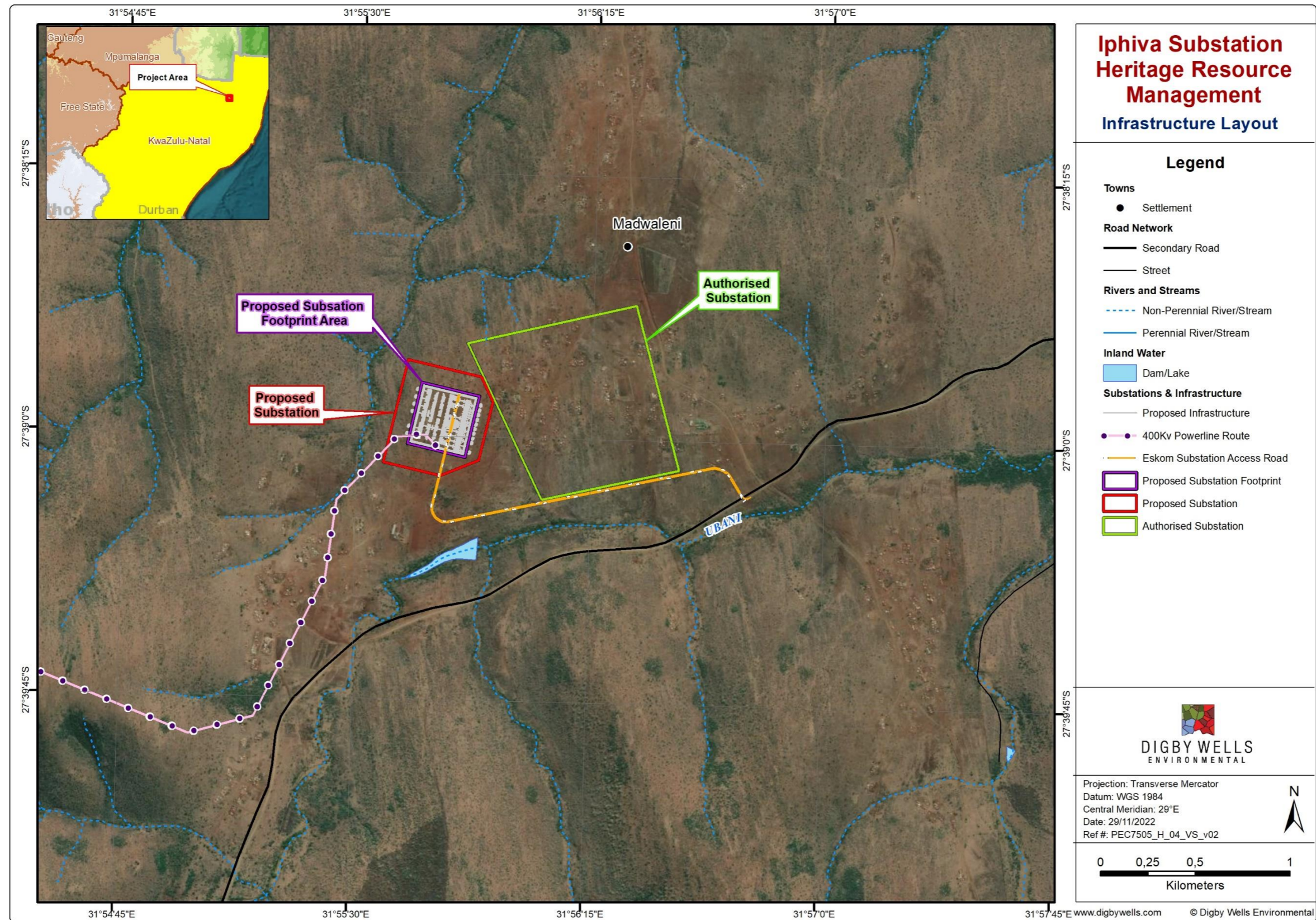
**Table 2-1: Project Phases and Associated Activities**

<b>Project Phase</b>	<b>Activity</b>
Construction Phase	Clearing of vegetation.
	Levelling and terracing of the land surface.
	Road upgrades or construction of access roads. Water crossings may require upgrades.
	Construction of foundations and concrete works, including stormwater drainage pipes, concrete slabs, bund walls, a control room and a small building and storage area.
	Installation of crushed stone in open areas between transformer plinths and other switchgear foundations.
	Erection of steelworks.
	Delivery and installation of transformers.
Operational Phase	Operation of the substation and powerlines.
	Maintenance activities (unspecified)
Decommissioning Phase	Demolition and rehabilitation Activities (unspecified)



Plan 1: Regional and Local Setting of the Project





Plan 2: Proposed Project Infrastructure and Layout

### 3. Methodology

The following section presents a summary of the methodologies employed in the HRM process. The HIA report will include a more detailed description of these methodologies.

#### 3.1. Definition of Study Areas

Heritage resources do not exist in isolation to the greater natural and social environment (which includes the socio-economic, socio-political, and socio-cultural aspects). To develop an applicable cultural heritage baseline for the Project, Digby Wells defined three nested study areas to be considered. These include:

- The *site-specific study area*: the farm portions extent associated with the proposed Project and proposed infrastructure, including a 500 m buffer area. The site-specific study area may extend linearly, in which case the site-specific study area will include the linear development and a 200 m buffer on either side of the footprint. In this case, the site-specific study area refers to the 1 km by 1 km study area considered for the potential location of the proposed substation;
- The *local study area*: the area most likely to be influenced by any changes to heritage resources in the Project area, or where project development could cause heritage impacts. The local study area is defined as the area bounded by the local municipality and includes particular reference to the immediate surrounding properties or farms. The local study area is specifically examined to offer a backdrop to the socio-economic conditions within which the proposed development will occur. The local study area furthermore provides the local development and planning context that may contribute to cumulative impacts. The Project area is situated within the Nongoma Local Municipality (NLM); and
- The *regional study area*: the area bounded by the district municipality demarcation. In this case, the Project is located in the Zululand District Municipality (ZDM). Where necessary, the regional study area may be extended outside the boundaries of the district municipality to include areas closest to the Project area. The aim of this is to include much wider expressions of specific types of heritage resources and historical events. The regional study area also provides the regional development and planning context that may contribute to cumulative impacts.

#### 3.2. Secondary Data Collection

Data collection assists in the development of a cultural heritage baseline profile of the study area under consideration. Qualitative data was collected to inform this report and was primarily obtained through secondary information sources, i.e., desktop literature review.

A survey of relevant information repositories was made to identify appropriate information sources. These sources were analysed for credibility and relevance. These credible, relevant sources were then reviewed. The objectives of the literature review include:

- Gaining an understanding of the cultural landscape within which the proposed Project is located; and
- Identify any potential fatal flaws, sensitive areas, current social complexities and issues and known or possible tangible heritage.

Repositories that were surveyed included the South African Heritage Resources Information System (SAHRIS), online/electronic journals and platforms and select internet sources. This report includes a summary and discussion of the most relevant findings. Table 3-1 lists the sources consulted in the literature review (refer to Section 7 for more detailed references).

**Table 3-1: Qualitative Data Sources**

Reviewed Qualitative Data		
Databases		
Genealogical Society of South Africa (GSSA) database (2011)	SAHRIS Palaeosensitivity Map (PSM)	
Statistics South Africa (2011)	Wazimap (2017)	
Cited Text		
Anderson & Anderson, 2014	Anonymous., 2016	Anonymous, 2016b
Bancroft, 1988	Behrens & Swanepoel, 2008	Bishop, n.d.
Clark, 1982	Deacon & Deacon, 1999	Eastwood, et al., 2002
Esterhuysen, 2007	Esterhuysen & Smith, 2007	Fourie, 2012
Garstang, et al., 2014	Golan, 1990	Gold, 2006
Hamilton, 1985	Huffman, 2004, 2007	Johnson, et al., 2006
Kopytoff, 1987	Lewis-Williams, 1998	Mitchell, 2002
Ngubane, 2005	Smith, 2007	The African Rock Art Digital Achive, 2016
Uys, 200	van Schalkwyk,, 2013	Von der Heyde, 2013
Wilson & Anhaeusser, 1998	Wright, 1994	

### 3.3. Primary Data Collection

Shannon Hardwick and Tyron Hopf undertook a pre-disturbance survey of the original proposed Project area on 18 May 2022. The survey was predominantly a pedestrian survey, which aimed to survey a representative subsection of the study area. The survey was non-intrusive (i.e., no sampling was undertaken).

The aim of the survey was to:

- Visually record the current state of the cultural landscape; and
- Record a representative sample of the visible, tangible heritage resources present within the development footprint area, site-specific study area and greater study area.

Identified heritage resources were recorded as waypoints using a handheld GPS device. These heritage resources were also recorded through written notes and photographs. Plan 3 below presents the results of the pre-disturbance survey, including the waypoints and GPS tracks.

The updated proposed Project area will be surveyed during the Impact Assessment phase of the EIA and the results will be included in the HIA report.

### 3.4. Site Naming Convention

Following the naming convention used in the original HRM process, heritage resources identified by Digby Wells during the field survey are prefixed by the project code and followed by a site number (e.g., PEC7505-001).

Heritage resources identified through secondary data collection are prefixed by the relevant SAHRIS case or map identification number (*where applicable*) and the original site name as used by the author of that assessment (e.g., 11829/BGG-001).

## 4. Baseline Description

This section defines the cultural landscape through providing a brief description that offers the reader contextual information, as well as assists the identification of potential risks and impacts to the heritage resources.

The cultural heritage baseline description considered the predominant landscape based on the identified heritage resources within the regional and local study area. Table 4-1 presents the broad timeframes for the major periods of the past in South Africa. The Farming Community period is more commonly referred to the Iron Age.

**Table 4-1: Archaeological Periods in South Africa**

<b>The Stone Age</b>	Early Stone Age (ESA)	2 million years ago (mya) to 250 thousand years ago (kya)
	Middle Stone Age (MSA)	250 kya to 20 kya
	Later Stone Age (LSA)	20 kya to 500 CE (Common Era <sup>3</sup> )

<sup>3</sup> Common Era (CE) refers to the same period as *Anno Domini* ("In the year of our Lord", referred to as AD): i.e. the time after the accepted year of the birth of Jesus Christ and which forms the basis of the Julian and Gregorian calendars. Years before this time are referred to as 'Before Christ' (BC) or, here, BCE (Before Common Era).

<b>Farming Communities</b>	Early Farming communities (EFC)	500 to 1400 CE
	Late Farming Communities (LFC)	1100 to 1800 CE
<b>Historical Period</b>	-	1500 CE to 1994 (Behrens & Swanepoel, 2008)

Adapted from Esterhuysen &amp; Smith (2007)

## 4.1. Cultural Heritage Landscape Description

### 4.1.1. Geological and Palaeontological Context

The proposed site-specific study area is underlain by several different geological stratigraphic units. This section only considers lithostratigraphic units that are known to have high palaeontological sensitivities, as provided in the Palaeontological Sensitivity Map (PSM) available on the SAHRIS.

The site-specific study area comprises lithologies associated with the Karoo and Pongola Supergroups. The Pongola Supergroup dates to the Mesoproterozoic Eon (~3000 million years ago [Ma]) and developed in two separate basins. The main Pongola Basin extends from Amsterdam in the north through the Hartland area south of Swaziland as far as the White Mfolozi Inlier in the south. The second basin, known as the Nkandla Basin, only preserved rocks of the Nsuze Group (Gold, 2006). Lithostratigraphic units associated with the Pongola Supergroup identified in the transmission line routing options, are considered to have negligible to low palaeontological sensitivity (SAHRA, 2022) and are not considered further in this assessment.

This region of KZN is also underlain by lithostratigraphic units associated with the Karoo Supergroup (Main Karoo Basin), ranging in age from the Late Carboniferous to the Middle Jurassic. The bulk of the Karoo strata occur in the main basin, covering an area of approximately 700 000 km<sup>2</sup>, which was much more extensive during the Permian Period. The Karoo Supergroup is famously known for its terrestrial vertebrate fossils, distinctive plant assemblages, thick glacial deposits and extensive dolerite dykes and sills. Identified lithostratigraphy underlying the proposed transmission line routing options include units of the Dwyka, Ecca and Beaufort Groups, as well as the Durban-Lebombo Belt (Johnson, et al., 2006).

Based on the PSM, this section considers the geology of the Karoo Supergroup with a high to very-high palaeontological sensitivity. These include the Emakhwezini, Ntabene and Nyoka Formations of the Beaufort Group, and the Volksrust and Vryheid Formations of the Ecca Group (Uys, 2007).

- **The Emakhwezini Formation** comprises alternating blue-grey, grey-green and black mud rocks and subordinate fine-to-coarse grained feldspathic sandstones. This formation is associated with 11 low-grade coal seams, and plant fossils are thought to

be fairly common, primarily plant fossils of *Glossopteris* (Johnson, et al., 2006; SAHRA, 2022).

- **The Ntabeni Formation** comprises medium- to coarse-grained, cross bedded sandstones and subordinate grey to green shales deposited by braided rivers. This formation is commonly associated with *Dicroidium* ferns and most diverse plant and insect assemblages in the Gondwana Geological Terrain<sup>4</sup>.
- **The Nyoka Formation** comprises primarily of red or purple mudstone with calcareous concretions. Grey, blue-grey or greenish shale and siltstone, as well as thin beds of fine- to coarse grained sandstone are also present, though to have been deposited on the floodplains of slow-flowing meandering rivers under arid conditions (Johnson, et al., 2006). The fossil heritage includes reptilian species associated with the lower *Euskelosaurus* range zone and upper *Massospondylus* range zone. These include *Ornithischia* and *Saurischia*, *Thecodontia* and *Crocodylia* (SAHRA, 2022).
- **The Volksrust Formation** is a predominantly argillaceous unit that interfingers with the overlying Beaufort Group. The formation consists of grey to black silty shale with thin, usually bioturbated siltstone and sandstone lenses and beds. The substantial thickness, fine grained lithology and great lateral extent suggest it represents a transgressive, open “shelf” sequence. Palaeontologically, the Volksrust Formation is associated with a low diversity of marine and non-marine trace fossil assemblages including rare temnospondyl amphibian remains, invertebrates (bivalves, insects), minor coals with plant remains, petrified wood, and organic microfossils (SAHRA, 2022).
- **The Vryheid Formation** rests directly on Pre-Karoo rocks or the Dwyka Group, its lithofacies mainly arranged in upward-coarsening cycle essentially deltaic in origin (Johnson, et al., 2006). This formation consists of sandstone, shale, mudstone and coal (Wilson & Anhaeusser, 1998). The Vryheid Formation has a high potential to contain fossil heritage inclusive of Permian *Glossopteris* flora, diverse palynomorphs, rare insects and fossil woods, and non-marine bivalves.

#### 4.1.2. Archaeological Context

The Stone Age is broadly defined as a pre-historic development period when weapons and tools were made of stone and/or organic materials such as bone, wood and horn. In southern Africa, these developments are divided into three chronological periods, the Early Stone Age ( $\pm 2$  ma – 250 000 thousand years ago [kya]) (ESA), the Middle Stone Age (300 kya – 20 kya) (MSA) and the Later Stone Age (40 kya – historical period) (LSA). The principal characteristics of these are briefly presented in this section.

The ESA is generally associated with the first *Homo* species (e.g., *H. habilis*), and possibly with some *Australopithecus* species. Large hand axes and cleavers produced from coarse-

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<sup>4</sup> *Dicroidium* is an extinct genus of fork-leaved seed ferns that were widely distributed over Gondwana during the Triassic. Their fossils are known from South Africa, the Arabian Peninsula, Australia, New Zealand, South America, Madagascar, the Indian subcontinent and Antarctica.

grained material dominate ESA assemblages (Esterhuysen & Smith, 2007). Early MSA industries are characterised by high proportions of minimally modified blades, represented by the Levallois technique (Clark, 1982).

The MSA is generally associated with ancient *H. sapiens* (e.g., *H. rhodesiensis*) through to early anatomically modern *H. sapiens sapiens*. In general, the MSA can be broadly defined by the occurrence of blades and points produced from good quality raw material (Deacon & Deacon, 1999). Noteworthy sites associated with MSA deposits in KZN include Border Cave, Sibudu Cave, iNkolimhashi Shelter and the Umhlathuzana Shelter.

The LSA dates from approximately 40 kya to the historical period and is wholly associated with anatomically modern *H. sapiens*. Lithics associated with the LSA are specialised: specific tools being created for specific purposes, and the inclusion of bone tools into the assemblages (Mitchell, 2002). LSA sites commonly contain diagnostic artefacts, such as microlithic scrapers and segments. In a southern African context, the LSA is closely associated with hunter-gatherer groups, (i.e., the San). Due to the nomadic nature of LSA people, open sites are difficult to identify and usually poorly preserved. In addition to the production of LSA lithics, this period is characterised by evidence of ritual practises and complex societies, as well as rock art (Deacon & Deacon, 1999).

#### 4.1.3. Rock Art

In southern Africa, rock art can comprise paintings and engravings. Three predominant rock painting traditions occur within southern Africa (The African Rock Art Digital Archive, 2016). Each of these is associated with particular cultural groups and comprise the following:

- Hunter-gatherers i.e., San: Fine line paintings associated with autochthonous LSA hunter-gatherer groups;
- Early pastoralists and herders i.e., Khoe: Finger paintings associated with the later arrival of pastoralists; and
- Bantu-speaking farming communities: Finger paintings associated with much later and possibly historic farming communities.

The Project region primarily includes San hunter-gatherer rock art. This form of rock art is broadly described as produced using fine brushes, quills or sticks largely done in red, white and black, and more rarely bichrome and polychrome (Smith, 2007). This category of rock art is understood and explained in terms of aspects of hunter-gatherer knowledge systems. The images comprise realistic and proportionally correct animals, such as various antelope species, human figures and more symbolic beings associated with a range of shamanistic beliefs, rituals and experiences (Eastwood, et al., 2002).

These depictions can be identified as isolated images on rock surfaces, or compositions made by one or more painters that include complex groupings and superimpositions that show the overlap of the spirit realm with the material world (Lewis-Williams, 1998). This suggests that rock art is not only a tangible heritage resource that can be recorded visually, but also includes intangible aspects associated with the spirituality of some groups.

In comparison to the San tradition, Khoi and Bantu-speaking rock art is not as prolific in the region. Broadly, the Khoi tradition is typified by finger-painted geometric images, composed entirely of circles, finger lines, finger dots, and handprints that are red and white in colour (Fourie, 2012; van Schalkwyk, 2013). Bantu-speaking art was created by the ancestors of Nguni-speakers in this region and formed part of their expressive culture. Research suggests that the Nguni art is almost exclusively engravings.

At least four rock art sites have been identified in the area under consideration. These have generally been described as poorly preserved, comprising red pigment. Panels associated with WAA051 are described as including human figures in seated positions and dancing postures (Anderson & Anderson, 2014).

#### 4.1.4. Farming Community Period

The Stone Age, in a southern African context, is followed by the Farming Community period (more commonly known as the Iron Age), associated with various Bantu-speaking groups and their migration through the landscape. Southern African Farming Community archaeology is subdivided primarily into two periods to distinguish between widespread events:

- Early Farming Communities (EFC) (200 CE – 1000 CE); and
- Late Farming Communities (LFC) (1000 CE – 1840 CE).

With reference to early Nguni-speakers (i.e., farming community of KZN), historical interpretations are based on linguistic, anthropological and archaeological evidence. For the purposes of this discussion, focus is on the archaeological context<sup>5</sup>. The most common visible indicators for Farming Community sites are material cultural remains (such as ceramics or evidence of domesticated animals) and stonewalled settlements. Archaeological artefacts associated with these settlements can be difficult to study as related ceramics are seldom decorated, and beehive huts do not preserve well. These limitations notwithstanding, an abbreviated account of the relevant ceramic sequence is presented here.

The early Nguni ceramic sequence contains four phases: Blackburn (AD 1050-1500), Moor Park (AD 1350-1700), Nqabeni (AD 1700-1850) and Ntsuanatsatsi (AD 1450-1650) (Huffman, 2007). Considering the accepted distribution of these facies, Blackburn and Nqabeni occur within the regional study area. Blackburn ceramics have been recorded along the north and south coasts of KZN. These ceramics are sparsely decorated, and include rim-notching, appliqué bumps, incised parallel lines and oblique panels of punctate and stamping (Huffman, 2004; 2007). The precise ceramic origin of this facies is unknown, but it is proposed that similarities with the Kalambo Branch of the Urewe Tradition suggest a likely. Nqabeni ceramics emphasise a high buff with black or red colouring, appliqué decoration and panels of fingernail impressions (Anderson & Anderson, 2014). The ceramic style centres on northern KZN and is described as being indirectly derived from Blackburn. These ceramic facies, unlike Blackburn, is associated with stonewalled settlements that emphasise a centre / side access that align kraal entrances facing uphill. It has been noted that regional variances in the

<sup>5</sup> For detailed discussions on linguistic and anthropological evidence, refer to Huffman (2004)



stonewalled patterns exist, but these primarily attest to the small scale of Nguni group identities.

#### 4.1.5. Historical Context

The pre-colonial historical context of northern KZN is intrinsically associated with the movement, control and assimilation of various Nguni clans through time. This, in part, has been demonstrated through the archaeological record introduced in the section above, and expanded upon here based on historical oral and written records.

Within northern KZN, the territories initially comprised several relatively small chiefdoms. These forms of socio-political structures changed during the eighteenth century when political consolidation processes were well underway, resulting in the emergence of a number of power blocks (Ngubane, 2005). The political consolidation can be understood in terms of an African Frontier Model where mechanisms within social systems trigger repeated fission, migration and fusion of polities leading to the formation of new polities on the margins of, or in the spaces between more established societies (Kopytoff, 1987). The balance between political and economic power shifts between chiefdoms produced a myriad of frontier like interactions. Relevant polities within the regional context include the Mthethwa Paramountcy (c. 1780 – 1817), Ndwandwe Chiefdom (c. 1780 – 1817) and the Zulu Kingdom (c. 1818 – 1897).

Trade in ivory increased and later, these communities participated more in the in the Delagoa Bay trade (Hamilton, 1985; Ngubane, 2005). This was accompanied by greater degree of militarisation with more active expansion and failed attempts to assimilate new subjects. The establishment of the *Amabutho*<sup>6</sup> system at this time provided the institutional framework necessary for the co-ordination of the activities of large numbers of men and could be used to expand the territorial area and under the chief authority to extend the control of natural resources and labour (Ngubane, 2005).

Dingiswayo embarked on a course of consolidation and expansion to stabilise the northern, coastal and inland reaches of the society. This was facilitated by a policy of Dingiswayo to remove unruly chiefs and replace them with minors or known loyalists (Golan, 1990). It is also during this time that the Mthethwa Chiefdom was relocated from the Mfolozi confluence into the coastal lowlands. This campaign is thought to be an attempt to secure superior grazing (during a period of climatological crisis) and maintenance of the trade monopoly now based on cattle rather than ivory. While the cattle areas in the east and south were clearly the main focus of Mthethwa activities, expansion into the interior was also occurring in response to the threat of the Buthelezi, who had defeated their neighbours, the Zulu under Senzangakhona. Dingiswayo ultimately integrated the Buthelezi and Zulu through a sort of coalition.

The processes seen in the formation of the Mthethwa Chiefdom is echoed in the Ndwandwe to the north. Here too, domination of the region in an attempt to control trade networks and natural resources facilitated the Ndwandwe to become centralised and militarised (Wright, 1994; Anonymous., 2016a; Ngubane, 2005). The history and origins of the Ndwandwe, however, have largely been overshadowed by the rise of the Zulu Kingdom under Shaka and was under researched.

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<sup>6</sup> Military regiments made of ranks based on a person's age.

Following a power vacuum created by the collapse of the Mthethwa Chieftdom, Shaka assumed the leadership of the various tributary chieftdoms of the Mthethwa alliance (Wright, 1994; Anonymous., 2016a; Ngubane, 2005). Notably, Shaka integrated clans on the basis of equality, promoting personnel within the army and civil service on a basis of merit. This approach facilitated indebted relations and dependence on Shaka (Ngubane, 2005).

To prevent the impending threat of the Zulu Chieftdom under Shaka, the Ndwandwe under Chief Zwide launched an attack at Gqokli Hill in 1818. Knowing the advantage held by Zwide in terms of the number of warriors (in excess of 12 000), Shaka strategically placed his 5 000 strong forces in positions on the summit and around the base of the hill, as well as deploy a decoy of 500 warriors to draw away and deplete the ranks of the Ndwandwe (Wright, 1994; Anonymous., 2016a; Ngubane, 2005). From the ensuing battle, the Zulu lost approximately 2000 men, far less than the 7 500 of the Ndwandwe. This victory set the stage for Shaka to conquer and absorb surrounding chieftdoms, consolidating his power in the area north of the Tugela (Von der Heyde, 2013). The Ndwandwe Chieftdom, however, did not collapse until the death of Zwide after the two-day running Battle of Mhlatuze River in 1819, which saw most of the Ndwandwe abandon their lands and migrate northwards. This period of great upheaval and violence within the region has been collectively termed as the *Mfecane* (Garstang, et al., 2014).

The colonial context refers to the initial contact between European settlers and the local indigenous inhabitants of the region. The *Voortrekkers* (later known as *Boers*) had been populating the interior of South Africa since approximately 1815 in scattered farms. From approximately 1824, British colonists began to arrive in significant numbers with considerable interest making contact with the Zulu Kingdom (Bishop, n.d.). Shaka, himself, is believed to have heard of the “white tribe” and was interested in finding out as much information about them as possible. To this affect, Shaka granted permission to Europeans to enter and operate within the Zulu territory on rare occasions.

The reign of Shaka did not last long, as he turned his aggression inward on his kingdom, inflicting atrocities on his own people (Bancroft, 1988). In September of 1828, in retaliation of his actions and drive of succession, Shaka was assassinated by his younger brothers, Dingane and Mhlangana at his KwaDukuza kraal (Ngubane, 2005). Dingane ultimately succeeded Shaka as the King of the Zulus, embarking on an extensive campaign to purge pro-Shaka elements and chieftains. During the reign of Dingane, he fought many battles against his brother Mpande, and resisted the expansion of the Boers into the interior and the establishment of the Boer Republics on the borders of Zulu Kingdom. At this time, the established trade network and market was economically attractive to the Boers and other exiles from the Cape. The prospect of establishing profitable trade relations with the Portuguese held for the Boers the promise of wealth and independence from British rule (Esterhuysen, 2007).

Piet Retief, one of the principal Voortrekker<sup>7</sup> leaders, led his group across the Drakensberg Mountains in the hope of settling in the fertile lands of the Zulu Kingdom and exploiting the

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<sup>7</sup> Voortrekkers: were Afrikaner emigrants during the 1830s and 1840s who left the Cape Colony moving into the interior of what is now South Africa. This movement called The Great Trek which was an eastward migration of Dutch-speaking settlers who

established trade network. While efforts were made by Retief to settle in the region with the approval of Dingane through the signing of a treaty, the Retief and his party were slaughtered by Dingane's men on 6 February 1838 at the Zulu royal homestead (Anonymous, 2016b). After the slaying, Dingane ordered his warriors to penetrate south of the Tugela River and drive out the remainder of the Voortrekkers (Von der Heyde, 2013). These actions ultimately saw the Voortrekkers, under the command of Andries Pretorius, retaliate at the Battle of Blood River marking the end of the Dingane's power and the brief dominance of the Boers in Natal.

Mpande forged an alliance with the European expansionists and succeeded to the throne in 1840. Mpande was considered a "peace-loving" ruler who enjoyed relations with the Boers, and the British after they annexed Natal in 1843. Mpande died in 1872 and was succeeded by his son, Cetshwayo who patterned his mode of rule on that of Shaka, strengthening his army to retain the independence of Zululand. This threat created unease amongst the British, ultimately seen as an obstacle to the confederation that resulted in several battles. The most notable in the regional study area under consideration being the Battle of Hlobane on 8 March 1879 and Battle of Ulundi on 4 July 1879.

Following the collapse of the Zulu Kingdom, the most notable historical events within KZN are associated with the South African War of 1899 – 1902 (i.e., Second Anglo-Boer War). The Second Anglo Boer War officially started on 9 October 1899 as a result of tensions and conflicting political agendas between the Boers and the British. Events associated with this time period occur on the peripheries of the areas under consideration, with only the Battlefield associated with the Battle of Blood River Poort (Esterhuysen, 2007), and the associated memorial falling within this area.

## 4.2. Site Specific Cultural Heritage Landscape

Digby Wells undertook a pre-disturbance survey of the then-proposed project-related infrastructure, including the now-authorized substation footprint area in May 2017. This survey identified 22 heritage resources. These resources included archaeological material, a historical battlefield, monuments and memorials, burial grounds and graves, historical built environment resources and intangible / living heritage resources.

Of the identified heritage resources, two were located in the authorized substation. None of these heritage resources occur within the current site-specific study area.

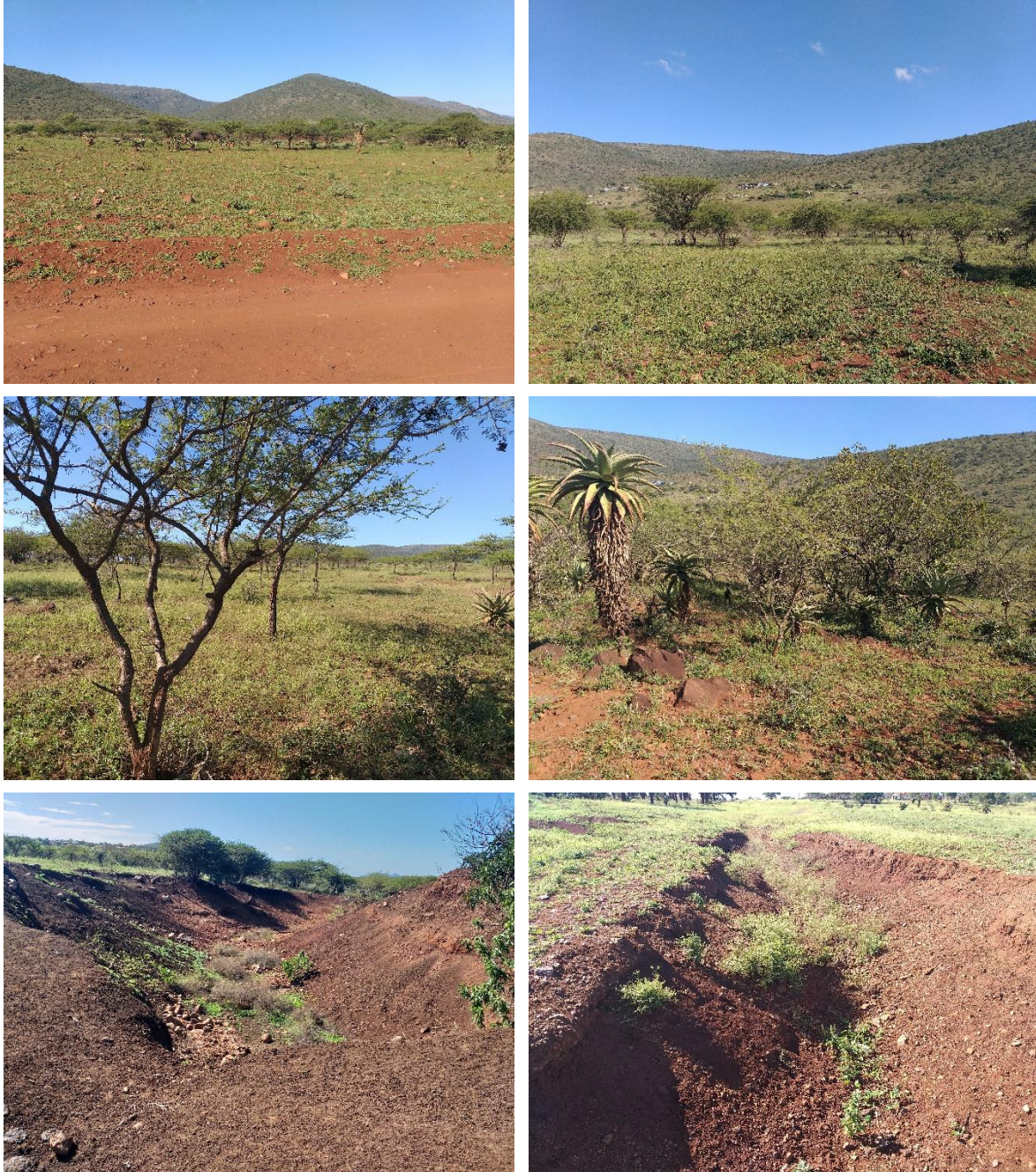
## 4.3. Results of the Pre-disturbance Survey

Shannon Hardwick and Tyron Hopf undertook a pre-disturbance survey of the site-specific study area on 18 May 2022. This survey focused on areas covered by proposed infrastructure not investigated in the previous surveys and was predominantly pedestrian. The survey was recorded as GPS tracks and identified heritage resources were marked as waypoints. Identified heritage resources were also recorded through written notes and photographs. The

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travelled by wagon trains from the Cape Colony into the interior of modern South Africa from 1836 onwards, seeking to live beyond the Cape's British colonial administration (Anonymous, 2016c).

GPS data are provided in Plan 3 and Figure 4-1 below presents an overview of the environment at the time of the pre-disturbance survey.



**Figure 4-1: State of the Environment during the Pre-disturbance Survey**

During the pre-disturbance survey 10 additional heritages resource were identified. Table 4-2 includes a summary of this heritage resource and Figure 4-2 includes photographs.

A preliminary assessment of the Genealogical Society of South Africa (2011) database did not indicate additional burial grounds are known to exist within the Project area.

It must be noted that although the burial grounds and graves noted below are tangible heritage resources, these resource carry with them intrinsic intangible heritage and living heritage value.

**Table 4-2: Heritage Resources identified during the Survey**

Heritage Resource	Description
<b>PEC7505-001</b>	Burial ground of 12 visible graves. One of these graves is marked with a cement headstone (in the shape of a cross) and cement border. No inscription is visible on the headstone. This grave is longer than average and may include multiple interments or someone of social standing such as a family head, induna or chief. The other graves are marked by stone piles and do not have headstones. Three of the graves in this burial ground are smaller and may represent child graves. The burial ground is not demarcated by a fence or signage and is not overgrown. At the time of the survey, grave goods, including an enamel cup, were present within the burial ground.
<b>PEC7505-002</b>	Single grave marked by a stone pile with no headstone. The grave is not demarcated by a fence or signage.
<b>PEC7505-003</b>	Isolated archaeological findspot – an individual lithic found on a slope near a fence post. This artefact is likely not in its original context.
<b>PEC7505-004</b>	Isolated archaeological findspot – an individual stone flake found downslope of PEC7505-003. This artefact is likely not in its original context.
<b>PEC7505-005</b>	Isolated archaeological findspot – a potential core.
<b>PEC7505-006</b>	Single grave marked by a stone pile with no headstone, although an aloe is present at the head. The grave is not demarcated by a fence or signage.
<b>PEC7505-007</b>	Isolated archaeological findspot – an upper grinding stone.
<b>PEC7505-008</b>	Single grave marked by a stone pile. This grave was located in someone's yard and so the team did not enter to record this heritage resource in detail. The grave is not demarcated by a fence or signage.
<b>PEC7505-009</b>	Single grave marked by a stone pile. There is no headstone, but an upright stone may serve this purpose. The grave is not demarcated by a fence or signage.
<b>PEC7505-010</b>	Isolated archaeological findspot – a lower grinding stone. There was minimal use wear but some polish evident on the stone.



**Graves at PEC7505-006 and PEC7505-008**

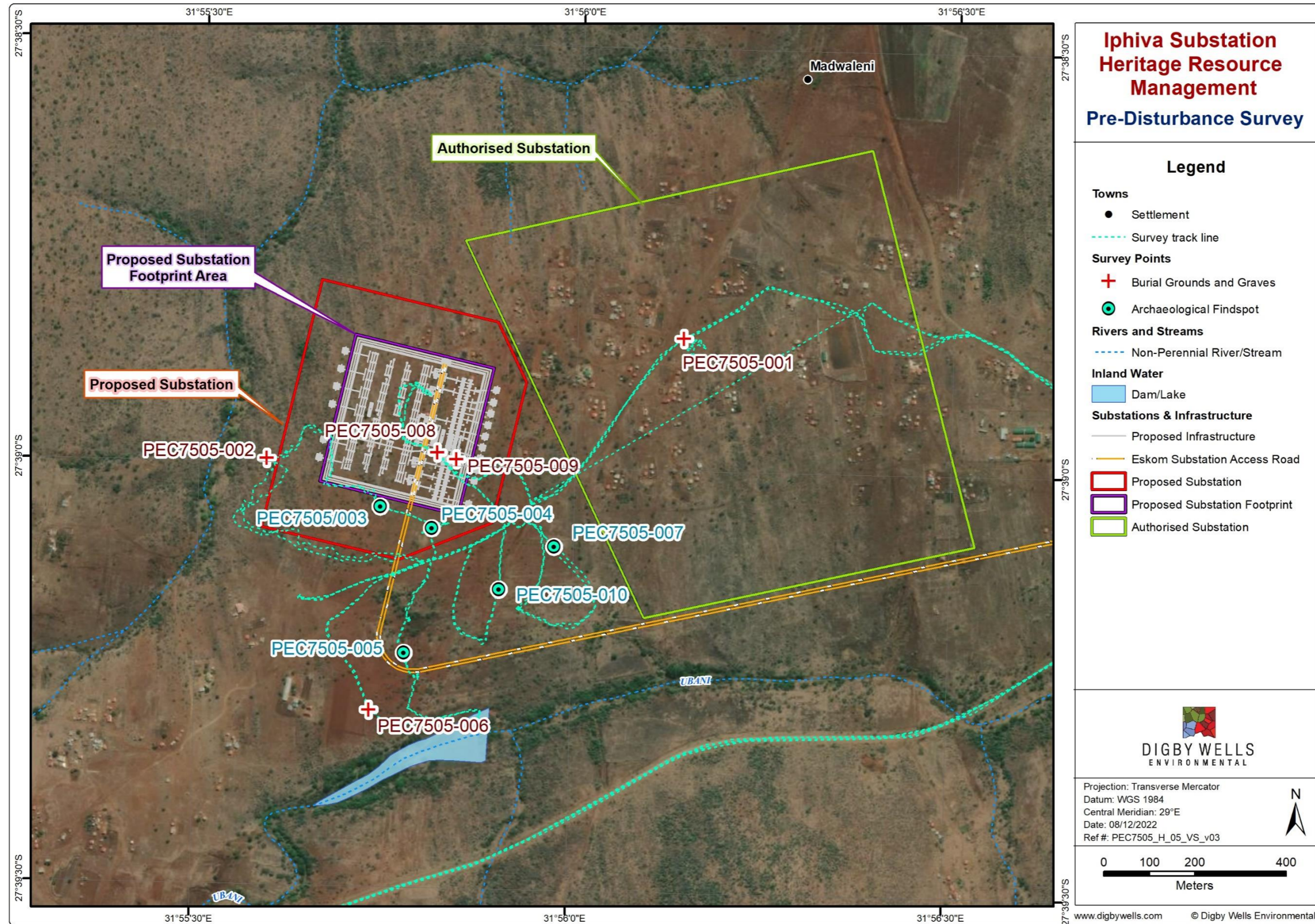


**Stone tools at PEC7505-003 and at PEC7505-005**



**Upper and lower grinding stones at PEC7505-007 and PEC7505-010**

**Figure 4-2: Select Photographs of the Newly Identified Heritage Resources identified during the Pre-disturbance Survey**



Plan 3: Results of the Pre-disturbance Survey

## 5. Potential Impacts Identified and Mitigation Measures

Table 5-1 includes a high-level overview of the predicted impacts to heritage resources considering the cultural landscape and the understanding of the proposed Project. Specific mitigation measures to achieve the outcomes described by the mitigation type will be included in the HIA report following the assessment of impacts to the identified heritage resources.

**Table 5-1: Predicted Impacts and Potential Mitigation Measures**

Activities	Potential impacts	Mitigation type	Potential for residual risk
Establishment of infrastructure described in Section 2.	The establishment of the Iphiva substation and associated infrastructure may damage or destroy identified heritage resources afforded general protection under Sections 39 and 40 of the KZNARIA (i.e., burial grounds and graves and archaeological sites respectively).	Proactive – avoid	Low Risk
Resettlement of community members which may be required for the Project to continue.	The resettlement of community members may impact intangible heritage and living heritage practices within the site-specific study area, community and/or surrounds.	Proactive – avoid or manage	Medium Risk
Establishment of infrastructure described in Section 2.	The establishment of the Iphiva substation and associated infrastructure may damage or destroy unidentified heritage resources afforded general protection under Sections 39 and 40 of the KZNARIA (i.e., burial grounds and graves and archaeological sites respectively).	Reactive – minimise or manage	Low to High Risk

## 6. Conclusions and Recommendations

The local and broader cultural landscapes are predominantly characterised by a mix of cultural heritage resources including archaeological artefacts and burial grounds and graves. The cultural landscape in proximity to the authorised substation footprint also represents a historical battlefield, monuments and memorials, historical built environment resources and intangible / living heritage resources.

Based on the Project description, Digby Wells is of the opinion that there is potential to alter the current *status quo* of heritage resources identified within the site-specific study area. The potential impacts posed by Project activities to the heritage resources require an assessment



to provide reasonable and feasible mitigation and management measures aimed at removing or reducing the intensity of the potential impacts. The HIA report will consider impacts to such cultural heritage resources, including potential impacts to the living and intangible cultural heritage.

Digby Wells assessed the proposed 1 km by 1 km study area within which the proposed substation will be located through a pre-disturbance survey. During this survey, ten additional heritage resources were identified. These include five burial grounds and graves and five archaeological findspots. The proposed study area has now been shifted to include a more suitable area for the proposed infrastructure. There is some overlap between the original and the updated study areas. The portion of the study area not assessed to date will be subject to a pre-disturbance survey in the HIA phase.

The HIA process will include the following:

- In-field assessment of the Project area with specific reference to the updated study area. This will entail a pre-disturbance survey aimed at identifying cultural heritage resources within the Project area that may be impacted by the Project specifically within the area not assessed to date;
- Assigning Cultural Significance values to heritage resources identified in the pre-disturbance survey considering Sections 3 and 7 of the NHRA respectively;
- Assessing the impacts to heritage resources, considering the Cultural Significance of the affected heritage resources; and
- Developing reasonable and feasible management measures and mitigation strategies.

The outcomes of these activities will be consolidated into the HIA report which will be submitted to SAHRA and The Institute for Statutory Comment.

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Heritage Scoping Report

Environmental Impact Assessment Process for the Proposed Iphiva 400/132 kV Substation,  
KwaZulu-Natal

PEC7505



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## Appendix A: Glossary of Terms

## GLOSSARY OF TERMS

Term	Definition
<b>Archaeological</b>	Material remains resulting from human activity that are in a state of disuse and older than 100 years, including artefacts, human and hominid remains and artificial features and structures. Rock art created through human agency older than 100 years, including any area within 10 m of such representation. Wrecks older than 60 years - either vessels or aircraft - or any part thereof that was wrecked in South Africa on land, internal or territorial waters, and any cargo, debris or artefacts found or associated therewith. Features, structures and artefacts associated with military history that are older than 75 years and the sites on which they are found, e.g. battlefields.
<b>Archaeologist</b>	A trained professional who uses scientific methods to excavate, record and study archaeological sites and deposits.
<b>Artefact</b>	Any object manufactured or modified by human beings.
<b>Burial Grounds and Graves Consultation (BGGC)</b>	The regulated consultation process required in terms of Section 36 of the NHRA and Regulation GNR 548 to the Act when burial grounds and graves are identified within a project area.
<b>Ceramic (syn. pottery)</b>	In an archaeological context any vessel or other object produced from natural clay that has been fired. Indigenous ceramics associated with Farming Communities are low-fired wares, typically found as potsherds. Imported and more historic ceramics generally include high-fired wares such as porcelain, stoneware, etc.
<b>Ceramic facies / facies</b>	Subgroups of a primary ceramic tradition or sequence. Typically used in ceramic analyses. Various facies are attributed to different temporal periods based of radiometric dates obtained from archaeological contexts. Facies are often used to infer cultural identity of archaeological groups. However, in context of this study identified ceramic facies merely provide a relative temporal context for archaeological sites in the landscape.
<b>Ceramic tradition</b>	The sequence of ceramic styles that develop out of each other and form a continuum. A tradition is the primary group to which subsequent ceramic facies belong. A ceramic tradition can be broadly associated with various linguistic and cultural groups, but do not represent any given ethnic identity, especially during the LFC period.
<b>Conservation</b>	In relation to heritage resources includes the protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance.

Term	Definition
<b>Cultural significance</b>	<p>The aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. A heritage may have cultural significance or other special value because of its:</p> <ul style="list-style-type: none"> <li>● Importance in the community, or pattern of South Africa's history;</li> <li>● Possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;</li> <li>● Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;</li> <li>● Importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects:</li> <li>● Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;</li> <li>● Importance in demonstrating a high degree of creative or technical achievement at a particular period;</li> <li>● Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</li> <li>● Strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and</li> <li>● Significance relating to the history of slavery in South Africa.</li> </ul>
<b>Development</b>	<p>Any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including:</p> <ul style="list-style-type: none"> <li>● Construction, alteration, demolition, removal or change of use of a place or a structure at a place;</li> <li>● Carrying out any works on or over or under a place;</li> <li>● Subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;</li> <li>● Constructing or putting up for display signs or hoardings;</li> <li>● Any change to the natural or existing condition or topography of land; and</li> <li>● Any removal or destruction of trees, or removal of vegetation or topsoil.</li> </ul>
<b>Early Farming Community/ies</b>	<p>The first Farming Communities (also known as Early Iron Age) that appear in the southern archaeological record during the early first millennium CE. The EFC period is generally dated from c. 200 CE to 1000 CE.</p>

Term	Definition
<b>Early Stone Age</b>	The South African ESA dates from ~3 Mya to c. 250 Kya. This period is associated with later <i>Australopithecus</i> and early <i>Homo</i> species. The lithic industries that characterise the ESA include Oldowan and Early Acheulian, typically as simple core tools, choppers hand axes and cleavers.
<b>Excavation</b>	The scientific excavation, recording and retrieval of archaeological deposit and objects through the use of accepted archaeological procedures and methods, and excavate has a corresponding meaning.
<b>Farming Community(ies)</b>	Term signifying the appearance in the southern African archaeological of Bantu-speaking agriculturally based societies from the early first millennium CE. The term replaces the <i>Iron Age</i> as a more accurate description for groups who practiced agriculture and animal husbandry, extensive manufacture and use of ceramics, and metalworking. The Farming Community period is divided into an Early and Late phase. The use of Later Farming Communities especially removes the artificial boundary between archaeology and history.
<b>Field Rating</b>	SAHRA requires heritage resources to be provisionally rated in accordance with Section 7 of the NHRA that provides a three-tier grading system of resources that form part of the national estate. The rating system distinguishes between four categories: <ul style="list-style-type: none"> <li>● Grade I: Heritage resources with qualities so exceptional that they are of special national significance;</li> <li>● Grade II: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region;</li> <li>● Grade III: Other heritage resources worthy of conservation; and</li> <li>● General Protected: i.e., generally protected in terms of Sections 33 to 37 of the NHRA.</li> </ul>
<b>Formal protection</b>	Places with qualities so exceptional that they are of special national significance as national heritage sites or that have special qualities as provincial heritage sites.
<b>General protection</b>	General protections are afforded to: <ul style="list-style-type: none"> <li>● Objects protected in terms of laws of foreign states;</li> <li>● Structures older than 60 years;</li> <li>● Archaeological and palaeontological sites and material and meteorites;</li> <li>● Burial grounds and graves; and</li> <li>● Public monuments and memorials.</li> </ul>



Term	Definition
<b>Grave</b>	A place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place.
<b>Heritage Impact Assessment (HIA)</b>	An assessment of the cultural significance of, and possible impacts on, diverse heritage resources that may be affected by a proposed development. A HIA may include several specialist elements such as archaeological, built environment and palaeontological studies. The HIA must supply the heritage authority with sufficient information about the sites to assess, with confidence, whether or not it has any objection to a development, indicate the conditions upon which such development might proceed and assess which sites require permits for destruction, which sites require mitigation and what measures should be put in place to protect sites that should be conserved. The content of HIA reports are clearly outlined in Section 38(3) of the NHRA and SAHRA Minimum Standards.
<b>Heritage resource</b>	Any place or object of cultural significance.
<b>Heritage resources management</b>	<p>Process required when development is intended categorised as:</p> <ul style="list-style-type: none"> <li>● Any linear development exceeding 300 m in length;</li> <li>● Construction of a bridge or similar structure exceeding 50 m in length;</li> <li>● Any activity which will change the character of a site exceeding 0.5 hectares in extent or involving three or more existing erven or subdivisions thereof or that have been consolidated within the past five years or costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;</li> <li>● Re-zoning of a site exceeding one hectare in extent; and</li> <li>● Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.</li> </ul>
<b>Heritage site</b>	Any place declared to be a national heritage site by SAHRA or a place declared to be a provincial heritage site by a provincial heritage resources authority.
<b>Late Farming Community(ies)</b>	Farming Communities who either developed / evolved from EFC groups, or who migrated into southern African from the late first millennium / early second millennium CE. The LFC period provides evidence for distinct changes in socio-political organisation, settlement patterns, trade and economic activities, including extensive trade routes. The LFC period is generally dated from c. 1000 CE well into the modern historical period of the nineteenth century.

Term	Definition
<b>Late Stone Age</b>	The South African LSA dates from ~30 Kya. This period is associated with modern <i>Homo sapiens sapiens</i> and the complex hunter-gatherer societies, ancestral to the Bushmen / San and Khoi. The LSA lithic assemblage contains microlithic technology and composite tools such as arrows commonly produced from fine-grained cryptocrystallines, quartz and chert. The LSA is also associated with archaeological rock art including both paintings and engravings.
<b>Living / intangible heritage</b>	The intangible aspects of inherited culture that could include cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge systems, the holistic approach to nature, society and social relationships.
<b>Management</b>	In relation to heritage resources, includes the conservation, presentation and improvement of a place protected in terms of the NHRA.
<b>Middle Stone Age</b>	The South African MSA dates from ~300 Kya to c. 30 Kya. This period is associated with the changing behavioural patterns and the emergence of modern cognitive abilities in early <i>Homo sapiens species</i> . The lithic industries that characterise the MSA are typically more complex tools with diagnostic identifiers, including convergent flake scars, multi-faceted platforms, retouch and backing. Assemblages are characterised as refined lithic technologies such as prepared core techniques, retouched blades and points manufactured from good quality raw material.

Term	Definition
<b>National estate</b>	<p>The national estate as defined in Section 3 of the NHRA, i.e., heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations. The national estate may include:</p> <ul style="list-style-type: none"> <li>● Places, buildings, structures and equipment of cultural significance;</li> <li>● Places to which oral traditions are attached or which are associated with living heritage;</li> <li>● Historical settlements and townscapes;</li> <li>● Landscapes and natural features of cultural significance;</li> <li>● Geological sites of scientific or cultural importance;</li> <li>● Archaeological and palaeontological sites;</li> <li>● Graves and burial grounds, including ancestral graves, royal graves and graves of traditional leaders, graves of victims of conflict, graves of individuals designated by the Minister by notice in the Gazette, historical graves and cemeteries, and other human remains which are not covered in terms of the National Health Act, 2003;</li> <li>● Sites of significance relating to the history of slavery in South Africa;</li> <li>● Movable objects, including objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens; objects to which oral traditions are attached or which are associated with living heritage; ethnographic art and objects; military objects; objects of decorative or fine art; objects of scientific or technological interest; and</li> <li>● Books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).</li> </ul>
<b>Palaeontological</b>	Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.
<b>Palaeontologist</b>	A trained professional who uses scientific methods to excavate, collect, record and study palaeontological sites and fossils.
<b>Pedestrian survey</b>	A method of examining a site in which surveyors, spaced at regular intervals, systematically walk over the area being investigated.

Term	Definition
<b>Phase 1 Archaeological Impact Assessment (AIA)</b>	Phase 1 AIAs generally involve the identification and assessment of sites during a field survey of a portion of land that is going to be affected by a potentially destructive or landscape-altering activity.
<b>Phase 2 Archaeological Impact Assessment (AIA)</b>	Phase 2 AIAs are primarily based on salvage or mitigation excavations preceding development that will destroy or impact on a site. This may involve collecting of artefacts from the surface and / or excavation of representative samples of the artefactual material to allow characterisation of the site and the collection of suitable materials for dating the sites. Phase 2 AIAs aim to obtain a general idea of the age, significance and meaning of the site that is to be lost and to store a sample that can be consulted at a later date for research purposes. Phase 2 excavations can only be done under a permit issued by SAHRA, or other appropriate heritage agency, to the appointed archaeologist.
<b>Phase 3 Management Plan / Conservation Management Plan (CMP)</b>	On occasion, a site may require a Phase 3 programme involving the modification of the site or the incorporation of the site into the development itself as a site museum, a special conservation area or a display. Alternatively it is often possible to relocate or plan the development in such a way as to conserve the archaeological site or any other special heritage significance the place may have. For example, in a wilderness area or open space when sites are of public interest the development of interpretative material is recommended and adds value to the development. Permission for the development to proceed can be given only once the heritage resources authority is satisfied that measures are in place to ensure that the archaeological sites will not be damaged by the impact of the development or that they have been adequately recorded and sampled. Careful planning can minimise the impact of archaeological surveys on development projects by selecting options that cause the least amount of inconvenience and delay. The process as explained above allows the rescue and preservation of information relating to our past heritage for future generations. It balances the requirements of developers and the conservation and protection of our cultural heritage as required of SAHRA and the provincial heritage resources authorities (ASAPA).
<b>Pre-disturbance survey (syn. reconnaissance)</b>	A survey to record a site as it exists, with all the topographical and other information that can be collected, without excavation or other disturbance of the site.

Term	Definition
<b>Reconnaissance</b>	A broad range of techniques involved in the location of archaeological sites, e.g. surface survey and the recording of surface artefacts and features, the sampling of natural and mineral resources, and sometimes testing of an area to assess the number and extent of archaeological resources. However, in terms of South African practice, reconnaissance during a so-called Phase 1 AIA never includes sampling as this is a permitted activity, usually undertaken during so-called Phase 2 AIAs (ASAPA).
<b>Site</b>	Any area of land, including land covered by water, and including any structures or objects thereon.
<b>Structure</b>	Any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.
<b>Tangible heritage</b>	Physical heritage resources such as archaeological sites, historical buildings, burial grounds and graves, fossils, etc. Tangible heritage may be associated with intangible elements, e.g. the living cultural traditions, rituals and performances associated with burial grounds and graves and deceased persons.