

**APPENDIX C3 -
ARCHAEOLOGICAL IMPACT ASSESSMENT**



**CES: PROPOSED SANRAL NATIONAL ROUTE R52
SECTION 3 REHABILITATION PROJECT, BOJANALA
DISTRICT MUNICIPALITY, NORTH WEST PROVINCE**

Archaeological Impact Assessment



Prepared for: **CES**

Prepared by: **Exigo Sustainability**



ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) ON PORTIONS OF THE FARMS KOSTERFONTEIN 460JP, KORTFONTEIN 461JP, KLEINFONTEIN 463JP, ROODEWAL 322JQ, DOORNLAAGTE 318JQ, OLIEVENFONTEIN 434JP, MAGATHASHOEK 270JQ AND KRAALHOEK 269JQ FOR THE PROPOSED REHABILITATION OF NATIONAL ROUTE R52 SECTION 3 FROM KOSTER (KM 0.00) TO N4 RUSTENBURG (KM 38.70), BOJANALA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE

Conducted for:

CES

Compiled by:

Nelius Kruger (BA, BA Hons. Archaeology Pret.)

Reviewed by:

Aidan John Gouws (CES)

DOCUMENT DISTRIBUTION LIST

Name	Institution
Aidan John Gouws	CES

DOCUMENT HISTORY

Date	Version	Status
20 January 2020	1.0	Draft
8 June 2020	2.0	Final Draft

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- I declare that there are no circumstances that may compromise my objectivity in performing such work;
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Signature of specialist

Company: Exigo Sustainability

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EXECUTIVE SUMMARY

This report details the results of an Archaeological Impact Assessment (AIA) study subject to an Environmental Basic Assessment (BA) process for the proposed SANRAL National Route R52 Section 3 Rehabilitation Project on Portions of the farms Kosterfontein 460JP, Kortfontein 461JP, Kleinfontein 463JP, Roodewal 322J@, Doornlaagte 318JQ, Olievenfontein 434JP, Magathashoek 270JQ and Kraalhoek 269JQ in the Bojanala District Municipality of the North West Province. The proposed project entails the upgrade of National Road R52 Section 3 from Koster (KM 0.0) to the N4 turnoff near Rustenburg (KM 38.7). This linear project is located in the Kgetlengrivier Local Municipality along the R52, starting at the R52-R509 intersection in Koster and ending at the N4 turnoff to Rustenburg. The total length of the project is 38.7 km of single carriageway road with an existing surfaced width averaging 13.5m. The AIA report includes background information on the area’s archaeology, its representation in Southern Africa, and the history of the larger area under investigation, survey methodology and results as well as heritage legislation and conservation policies. A copy of the report will be supplied to the South African Heritage Resources Agency (SAHRA) and recommendations contained in this document will be reviewed.

Project Title	SANRAL National Route R52 Section 3 Rehabilitation Project
Project Location	S25.754442° E27.070757°
1:250 000 Map Sheet	2526
Farm Portion / Parcel	Portions of the farms Kosterfontein 460JP, Kortfontein 461JP, Kleinfontein 463JP, Roodewal 322J@, Doornlaagte 318JQ, Olievenfontein 434JP, Magathashoek 270JQ and Kraalhoek 269JQ
Magisterial District / Municipal Area	Bojanala District Municipality
Province	North West Province

The landscape around Rustenburg has always played an important ecological and cultural role in the history of South Africa. The natural environment of the area has established itself as an ideal occupational terrain; large rivers in the area have provided water, the fertile soil surrounding the rivers have provided food and the strategically situated Magaliesberg sheltered many groups of people and many generations. As a result of peculiar geo-processes, in particular the formation of the Bushveld Complex, the Rustenburg landscape is comprised of a latitudinal series of hills and valleys, which fostered early human settlement and later accommodated a series of communities and cultures. As such, a variety of heritage sites are known to occur in the larger region. These range from Stone Age sites, including rock engraving sites, Iron Age sites, mostly located in the flat areas where outcrops occur, as well as a large number of sites dating to Historic times. Thus, the area presents the most important time periods in the history of South Africa, the signs of which are still visible today in the hundreds of archaeological sites scattered across the landscape. These signs range from 300 000 year old handaxes from the Earlier Stone Age, microlithic tools from the Later Stone Age, pot sherds, grinding stones and spectacular stone walling of previous Tswana inhabitants, to rock paintings and engravings. War remnants and Colonial influence also dot the landscape around the town of Rustenburg.

In the project landscape, the vast Iron Age settlement at Molokwane, situated no more than 10km north of the project area on the adjacent Selonskraal property, is hugely significant in terms of early Tswana history in the Trans-Vaal. The site has been studied extensively and vast amounts of literature describe aspects of this mega-

town. A careful analysis of historical aerial imagery and archive maps indicate that portions of the project area subject to this assessment have been altered and transformed in past years. This inference was confirmed during an archaeological site assessment but significant archaeological remains were nonetheless encountered. The following recommendations are made based on general observations in the proposed SANRAL National Route R52 Section 3 Rehabilitation Project in terms of heritage resources management:

- The large Iron Age occupation (**Site EXIGO- R52UG-IA01**) in the project landscape is of medium significance in terms of its regional representation in the Iron Age farmer period landscape of the area. The site is probably related to the vast Iron Age settlement at Molokwane, situated no more than 10km north and west of the project area on the adjacent Selonskraal property. The Molokwane cultural horizon is notably significant in terms of early Tswana history in the Trans-Vaal. **Site EXIGO- R52UG-IA01** is located in the larger project landscape where it is bisected by the current R52 and it is primarily recommended that a heritage conservation buffer demarcated by the current road servitude be implemented for the heritage receptor. If this measure proves unachievable and impact on any features related to this site is foreseen, the historical fabric of the sites should be conserved by means of a Phase 2 Specialist study (mapping, site sampling and possible conservation management and protection) and the necessary permits should be obtained from the relevant Heritage Resources Authorities.
- A so-called “Feeshuis” or “Festival House” structure, potentially associated with the centenary of the Reformed church in 1958, is indicated on a historical topographic map dating to 1968 (**Site EXIGO-R52UG-HP02**). The site was probably destroyed in the last 40 years where agricultural fields were established and single stone features of unknown function remain at the site. Cognizance should nonetheless be taken of the historical presence of the feature in the landscape as it is possible that structural features and material culture could still be present in the immediate surroundings of the site. Generally, it is recommended that the site and its surrounds should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.
- The poorly preserved ruins of a Historical Period farmhouse (**Site EXIGO-R52UG-HP05**) and a late Historical Period road culvert (**Site EXIGO-R52UG-HP04**) occur along a southern section of the project. The sites are rated as low heritage significance and impact seems unlikely but legislation requires that an alteration / destruction permit be obtained from the relevant heritage resources authority (SAHRA, SAHRA Built Environment Unit) should the site be altered at any stage. It is recommended that the site and its surrounds be closely monitored by an informed ECO during development in order to avoid the destruction of previously undetected heritage remains.
- A Historical Period vehicular bridge (**Site Exigo-R52UG-HP01**) as well as a number of late Historical Period residential and farmhouse buildings and structures occur along the R52 and in the town of Koster (**Site Exigo-R52UG-HP03, Site Exigo-R52UG-HP06, Site Exigo-R52UG-HP07**). These features have the potential to provide an understanding of architectural, settlement and social developments in the Koster landscape and they are of medium heritage significance. The sites occur in close proximity of the project alignment but in Koster town, construction will be limited to the area between curb and curb with the construction of sidewalks. As such, it is recommended that a conservation buffer of 20m and / or a buffer demarcated by the boundary of the properties (in most cases demarcated by existing fencing around houses and buildings) be maintained. Temporary construction barricades should be erected where the proposed buffers are encroached

on. Should direct impact on any of the structures prove inevitable, the buildings and structures should be adequately documented by means of a Phase 2 Specialist Study. The study should minimally include the mapping, documentation and possible sampling of the sites in order to conserve the historical fabric of the heritage resources. The necessary excavation and destruction permits should be obtained from the relevant Heritage Resources Authorities prior to site sampling and destruction. Generally, the site should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.

- A small cemetery occurs in a southern portion of the project area on farmlands (**Site EXIGO-R52UG-BP01**). This highly significant heritage resource is protected in terms of heritage and social value by the National Heritage Resource Act (NHRA 1999) and it is essential that the long-term conservation of the site is ensured. The cemetery is located some distance from the R52 and the project alignment but it is nonetheless recommended that a heritage conservation buffer of at least 50m be implemented from the nearest graves in the cemetery, to the periphery of the impact buffer of construction activities. The cemetery and burials at the site should be monitored through all stages of development by an informed ECO or by the heritage Specialist in order to detect any impact on the resource at the earliest opportunity. **Should impact on any burial or cemetery in the project area prove inevitable at any stage of development, full grave relocation processes should be effected. This measure should be undertaken by a qualified archaeologist, and in accordance with relevant legislation, permitting, statutory permissions and subject to any local and regional provisions, laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials (see Addendum B).**
- It is recommended that the EIA public participation and social consultative process address the possibility of graves occurring in the project area.
- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.
- It is essential that cognisance be taken of the larger archaeological landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period occur on farms in the area and these resources should be avoided during all phases of construction and development, including the operational phases of the development.

It is essential that cognisance be taken of the larger archaeological landscape of the North West region in order to avoid the destruction of previously undetected heritage sites. Should any previously undetected heritage resources be exposed or uncovered during construction phases of the proposed project, these should immediately be reported to the heritage consultant or SAHRA. Since the intrinsic heritage and social value of graves and cemeteries are highly significant, these resources require special management measures. This report

details the methodology, limitations and recommendations relevant to these heritage areas, as well as areas of proposed development. It should be noted that recommendations and possible mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment (e.g. uncovered during the construction process).

NOTATIONS AND TERMS/TERMINOLOGY

Absolute dating: Absolute dating provides specific dates or range of dates expressed in years.

Archaeological record: The archaeological record minimally includes all the material remains documented by archaeologists. More comprehensive definitions also include the record of culture history and everything written about the past by archaeologists.

Artefact: Entities whose characteristics result or partially result from human activity. The shape and other characteristics of the artefact are not altered by removal of the surroundings in which they are discovered. In the Southern African context examples of artefacts include potsherds, iron objects, stone tools, beads and hut remains.

Assemblage: A group of artefacts recurring together at a particular time and place, and representing the sum of human activities.

Context: An artefact's context usually consists of its immediate *matrix*, its *provenience* and its *association* with other artefacts. When found in *primary context*, the original artefact or structure was undisturbed by natural or human factors until excavation and if in *secondary context*, disturbance or displacement by later ecological action or human activities occurred.

Cultural Heritage Resource: The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural landscape: A cultural landscape refers to a distinctive geographic area with cultural significance.

Cultural Resource Management (CRM): A system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation designed to safeguard the past.

Feature: Non-portable artefacts, in other words artefacts that cannot be removed from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features

Impact: A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Lithic: Stone tools or waste from stone tool manufacturing found on archaeological sites.

Matrix: The material in which an artefact is situated (sediments such as sand, ashy soil, mud, water, etcetera). The matrix may be of natural origin or human-made.

Midden: Refuse that accumulates in a concentrated heap.

Microlith: A small stone tool, typically knapped of flint or chert, usually about three centimetres long or less.

Monolith: A geological feature such as a large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within, a monument or site.

Phase 1 CRM Assessment: An Impact Assessment which identifies archaeological and heritage sites, assesses their significance and comments on the impact of a given development on the sites. Recommendations for site mitigation or conservation are also made during this phase.

Phase 2 CRM Study: In-depth studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required. Mitigation / Rescue involves planning the protection of significant sites or sampling through excavation or collection (in terms of a permit) at sites that may be lost as a result of a given development.

Phase 3 CRM Measure: A Heritage Site Management Plan (for heritage conservation), is required in rare cases where the site is so important that development will not be allowed and sometimes developers are encouraged to enhance the value of the sites retained on their properties with appropriate interpretive material or displays.

Provenience: Provenience is the three-dimensional (horizontal and vertical) position in which artefacts are found. Fundamental to ascertaining the provenience of an artefact is *association*, the co-occurrence of an artefact with other archaeological remains; and *superposition*, the principle whereby artefacts in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.

Random Sampling: A probabilistic sampling strategy whereby randomly selected sample blocks in an area are surveyed. These are fixed by drawing coordinates of the sample blocks from a table of random numbers.

Scoping Assessment: The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.

Site (Archaeological): A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity. These include surface sites, caves and rock shelters, larger open-air sites, sealed sites (deposits) and river deposits. Common functions of archaeological sites include living or habitation sites, kill sites, ceremonial sites, burial sites, trading, quarry, and art sites,

Stratigraphy: This principle examines and describes the observable layers of sediments and the arrangement of strata in deposits

Systematic Sampling: A probabilistic sampling strategy whereby a grid of sample blocks is set up over the survey area and each of these blocks is equally spaced and searched.

Trigger: A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an *issue* and/or potentially significant *impact* associated with that proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement.

LIST OF ABBREVIATIONS

Abbreviation	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
BGG	Burial Grounds and Graves
CRM	Culture Resources Management
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
K2/Map	K2/Mapungubwe Period
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MRA	Mining Right Area
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PFS	Pre-Feasibility Study
PHRA	Provincial Heritage Resources Authorities
SAFA	Society for Africanist Archaeologists
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

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1 BACKGROUND

1.1 Scope and Motivation

Exigo Sustainability (Pty) Ltd (Exigo) was commissioned by CES to conduct an Archaeological Impact Assessment (AIA) study subject to an Environmental Basic Assessment (BA) process for the proposed SANRAL National Route R52 Section 3 Rehabilitation Project in the North West Province. The rationale of this AIA is to determine the presence of heritage resources; to consider the impact of the proposed project on such heritage resources, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

1.2 Project Direction

Exigo's expertise ensures that all projects be conducted to the highest international ethical and professional standards. As archaeological specialist for Exigo Sustainability, Mr Neels Kruger acted as field director for the project; responsible for the assimilation of all information, the compilation of the final consolidated AIA report and recommendations in terms of heritage resources on the demarcated project areas. Mr Kruger is an accredited archaeologist and Culture Resources Management (CRM) practitioner with the Association of South African Professional Archaeologists (ASAPA), a member of the Society for Africanist Archaeologists (SAFA) and the Pan African Archaeological Association (PAA) as well as a Master's Degree candidate in archaeology at the University of Pretoria.

1.3 Project Brief

SANRAL proposes the upgrade of National Road R52 Section 3 from Koster (KM 0.0) to the N4 turnoff near Rustenburg (KM 38.7). This linear project is located in the Kgetlengrivier Local Municipality of the Bojanala Platinum District in North West Province along the R52, starting at the R52-R509 intersection in Koster and ending at the N4 turnoff to Rustenburg (Figure 1). The total length of the project is 38.7 km of single carriageway road with an existing surfaced width averaging 13.5m. The carriageway is to be widened to accommodate passing lanes, where required, thus resulting in a carriageway of 15.4m surfaced width, inclusive of 3.0m surfaced shoulders. Included in the project are two river bridges, one road-over-rail Bridge and four major culverts that must be widened to accommodate the road cross-section improvement. Major aspects of this project include the following:

General road works:

- Strengthening the existing pavement.
- General widening of the existing road cross section for climbing lanes and 3.0m surfaced shoulders.
- Vertical and horizontal geometric improvements.
- Widening of existing river bridges and major and minor culverts.
- Possible horizontal re-alignment of the road between Km 0.00 to 0.500 and Km 38 to 38.70.
- Possible 6.5m wide temporary deviation to accommodate two-way traffic during construction.
- Possible opening of one hard-rock quarry and potential borrow pits.
- Stockpile areas and vegetation clearance inside or outside road reserve.

Drainage and culverts:

- Drainage forms an integral part of the rehabilitation and upgrade design.
- It is also assumed that the existing stormwater pipes and kerb inlets are not fully functional in Koster and will thus require replacement.



Figure 1-1: Aerial image indicating the proposed SANRAL National Route R52 Section 3 Rehabilitation Project area (map courtesy of CES).

1.4 Terms of Reference

Heritage specialist input into the Environmental Impact Assessment (EIA) process is essential to ensure that, through the management of change, developments still conserve our heritage resources. It is also a legal requirement for certain development categories which may have an impact on heritage resources. Thus, EIAs should always include an assessment of heritage resources. The heritage component of the EIA is provided for in the **National Environmental Management Act, (Act 107 of 1998)** and endorsed by section 38 of the **National Heritage Resources Act (NHRA - Act 25 of 1999)**. In addition, the NHRA protects all structures and features older than 60 years, archaeological sites and material and graves as well as burial sites. The objective of this legislation is to ensure that developers implement measures to limit the potentially negative effects that the development could have on heritage resources. Based hereon, this project functioned according to the following **terms of reference** for heritage specialist input:

- *Provide a detailed description of all archaeological artefacts, structures (including graves) and settlements which may be affected, if any.*
- *Assess the nature and degree of significance of such resources within the area.*
- *Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;*
- *Assess and rate any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.*
- *Propose possible heritage management measures provided that such action is necessitated by the development.*
- *Liaise and consult with the South African Heritage Resources Agency (SAHRA). A Notification of Intent to Develop (NID) will be submitted to SAHRA at the soonest opportunity.*

1.5 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

1.5.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and its provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

a. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act No 25 of 1999 (section 35) the following features are protected as cultural heritage resources:

- a. Archaeological artefacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography

- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

In addition, the national estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Archaeological and paleontological sites
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

With regards to activities and work on archaeological and heritage sites this Act states that:

“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority.” (34. [1] 1999:58)

and

“No person may, without a permit issued by the responsible heritage resources authority-

- (a) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
- (c) *trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (d) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58).”*

and

“No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

- (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;*
- (c) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

b. Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925

Graves and burial grounds are commonly divided into the following subsets:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

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 of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and Ordinance on Excavations (Ordinance no. 12 of 1980) 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.

c. National Heritage Resources Act No 25 of 1999, section 35

This act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made. Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

1.5.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

A detailed guideline of statutory terms and requirements is supplied in Addendum 1.

2 REGIONAL CONTEXT

2.1 Area Location

The proposed SANRAL National Route R52 Section 3 Rehabilitation Project occurs on Portions of the farms Kosterfontein 460JP, Kortfontein 461JP, Kleinfontein 463JP, Roodewal 322J@, Doornlaagte 318JQ, Olievenfontein 434JP, Magathashoek 270JQ and Kraalhoek 269JQ in the Bojanala District Municipality of the North West Province. The R52 road connects to the N4 route to the north and routes south to the town of Koster. The project area is situated approximately 15km west of the town of Rustenburg and Swartruggens occurs 40km to the west of the project.

The study areas appear on 1:250000 map sheet 2526 (see Figure 2-1) and coordinates for the proposed project are as follows:

- **Northern Offset** S25.63786° E27.13130°
- **Central Point** S25.77000° E27.05118°
- **Southern Offset** S25.86766° E26.89786°

2.2 Area Description: Receiving Environment

The project area is situated within the Savanna biome which is the largest biome in Southern Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants such as trees and shrubs. The most recent classification of the area by Mucina & Rutherford shows that the proposed development site is classified as Gold Reef Mountain Bushveld. The vegetation and landscape features of the Gold Reef Mountain Bushveld are rocky hills and ridges with more dense woody vegetation on the south-facing slopes associated with distinct floristic differences. A number of distinct ecological systems occur in the Rustenburg area. These include mountainous areas, wetlands, streams and river courses, dams, indigenous woodland and grassland floral communities. Two large drainages, the Selons River and the Koster River bisect the landscape.

2.3 Site Description

The Farms Kosterfontein 460JP, Kortfontein 461JP, Kleinfontein 463JP, Roodewal 322JQ, Doornlaagte 318JQ, Olievenfontein 434JP, Magathashoek 270JQ and Kraalhoek 269JQ subject to this assessment are situated on flat plains along the western foothills of the Magliesberg Mountain Range. Generally, the terrains consist of flatter parcels of developable in a landscape that has, in places, been transformed by historical and more recent crop and livestock farming. The farm portions under study has remained relatively pristine in recent years. Modern man-made structures such as farmstead buildings occurs on these farms and the Iron Age Tswana town of Molokwane occurs in the general landscape to the west (see later discussion).

The proposed road upgrade route generally follows the R52 road servitude and as such, natural surroundings in the study area have largely been altered and disturbed, which might have compromised the presence of heritage remains.

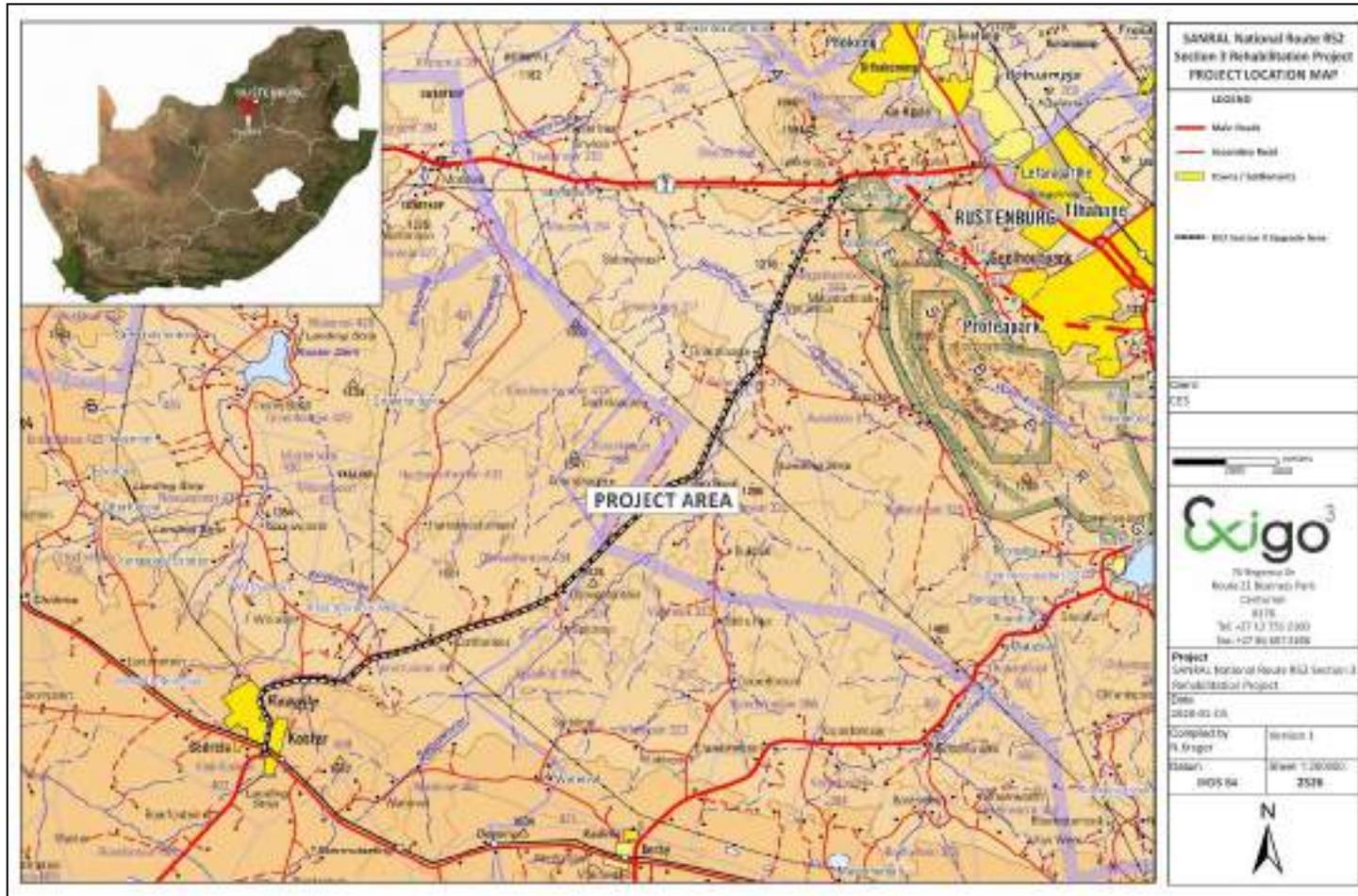


Figure 2-1: 1:2500 Map representation of the location of the proposed SANRAL National Route R52 Section 3 Rehabilitation Project (sheet 2526).



Figure 2-2: Aerial map providing a regional context for the proposed SANRAL National Route R52 Section 3 Rehabilitation Project area. Note the proximity of the Molokwane Iron Age site.

3 METHOD OF ENQUIRY

3.1 Sources of Information

Data from detailed desktop, aerial and field studies were employed in order to sample surface areas systematically and to ensure a high probability of heritage site recording.

3.1.1 Desktop Study

The larger landscape around Rustenburg has been well documented in terms of its archaeology and history. Numerous academic papers and research articles supplied a historical context for the proposed project and archival sources, aerial photographs, historical maps and local histories were used to create a baseline of the landscape's heritage. In addition, the study drew on available unpublished Heritage Assessment reports to give a comprehensive representation of known sites in the study area.

3.1.2 Aerial Survey

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. This method was applied to assist the foot and automotive site surveys where depressions, variation in vegetation, soil marks and landmarks were examined. Specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments. In addition, historical aerial photos obtained during the archival search were scrutinized and features that were regarded as important in terms of heritage value were identified and if they were located within the boundaries of the project area they were physically visited in an effort to determine whether they still exist and in order to assess their current condition and significance. By superimposing high frequency aerial photographs with images generated with Google Earth as well as historical aerial imagery, potential sensitive areas were subsequently identified, geo-referenced and transferred to a handheld GPS device. These areas served as reference points from where further vehicular and pedestrian surveys were carried out.

3.1.3 Mapping of sites

Historical and current maps of the project area were examined. By merging data obtained from the desktop study and the aerial survey, sites and areas of possible heritage potential were plotted on these maps of the larger Rustenburg area using GIS software. These maps were then superimposed on high definition aerial representations in order to graphically demonstrate the geographical locations and distribution of potentially sensitive landscapes.

3.1.4 Field Survey

Archaeological survey implies the systematic procedure of the identification of archaeological sites. An archaeological survey of the SANRAL National Route R52 Section 3 Rehabilitation Project area was conducted in January 2020. The process encompassed a systematic field survey in accordance with standard archaeological practice by which heritage resources are observed and documented. In order to sample surface areas systematically and to ensure a high probability of site recording, the proposed project area along the R52, its current servitude and surrounding areas (where possible) were surveyed on foot and by motor vehicle. GPS reference points identified during the aerial survey were also visited and random spot checks were made (see detail in previous section). Using a Garmin GPS, the survey was tracked and general

surroundings were photographed with a Samsung Digital camera. Real time aerial orientation, by means of a mobile Google Earth application was also employed to investigate possible disturbed areas during the survey.

3.2 Limitations

3.2.1 Access

The study area is demarcated by the R52 road and its current servitude. Access control is applied to properties along the R52 road and for the largest part, these areas were not included in the survey.

3.2.2 Visibility

The surrounding vegetation in the larger landscape around Rustenburg is mostly comprised out of grassland and scattered trees and bushes. The general visibility at the time of the AIA survey (January 2020) ranged from high in transformed areas, to low in more pristine and overgrown zones. In single cases during the survey sub-surface inspection was possible. Where applied, this revealed no archaeological deposits.



Figure 3-1: View of the northern offset of the project area at the N4 junction.

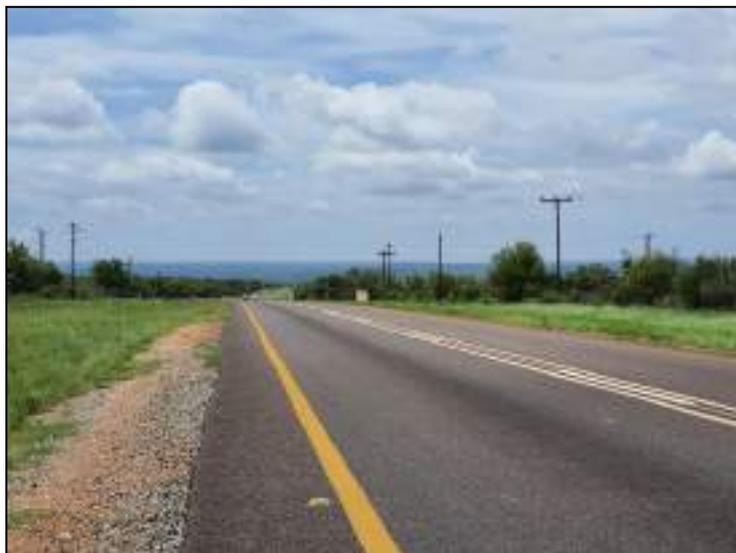


Figure 3-2: View of the R52 road towards Koster.



Figure 3-3: View of site clearing along the R52 upgrade project route.



Figure 3-4: A cleared section of the R52 road servitude in the project area.



Figure 3-5: View of the bridge carrying the R52 over the Selons River.



Figure 3-6: The R52 bisecting farmlands in the project area.



Figure 3-7: View of general surroundings in the project area along the R52 at the Derby Junction.



Figure 3-8: View of previous road cuttings along the R52 route.



Figure 3-9: View of dense vegetation along the R52 route in the project area.



Figure 3-10: The servitude of the R52 towards Koster, looking south.



Figure 3-11: View of a section of the R52 passing the settlement of Reagile near Koster.



Figure 3-12: View of Rissik Street (R52) as it routes through the town of Koster.



Figure 3-13: View of the southern offset of the project route at the R52 – R509 junction in Koster.

3.2.3 Summary: Limitations and Constraints

The site survey for the SANRAL National Route R52 Section 3 Rehabilitation Project AIA primarily focused around areas tentatively identified as sensitive and of high heritage probability (i.e. those noted during the aerial survey) as well as areas of high human settlement catchment. In summary, the following constraints were encountered during the site survey.

- **Visibility:** Visibility proved to be somewhat of a constraint in areas with denser surface cover, as well as portions where vegetation is more pristine.
- **Access:** Site access was not obtained for properties along the road upgrade route and the survey was limited to the current road and its servitude.

It should be noted that, even though it might be assumed that survey findings are representative of the heritage landscape of the project area, it should be stated that the possibility exists that individual sites could be missed due to the localised nature of some heritage remains as well as the possible presence of sub-surface archaeology. Therefore, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage resources identified during the study do not necessarily represent all the heritage resources present in the project area. The subterranean nature of some

archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

3.3 Impact Assessment

For consistency among specialists, impact assessment ratings by Exigo Specialist are generally done using the Plomp¹ impact assessment matrix scale supplied by Exigo. According to this matrix scale, each heritage receptor in the study area is given an impact assessment. The significances of the impacts were determined through a synthesis of the criteria below:

4 ARCHAEO-HISTORICAL CONTEXT

4.1 The archaeology of Southern Africa

Archaeology in Southern Africa is typically divided into two main fields of study, the **Stone Age** and the **Iron Age** or **Farmer Period**. The following table provides a concise outline of the chronological sequence of periods, events, cultural groups and material expressions in Southern African pre-history and history.

Table 1 Chronological Periods across Southern Africa

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period 300 – 900 AD (commonly restricted to the interior and north-east coastal areas of Southern Africa)	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD (commonly restricted to the interior and north-east coastal areas of Southern Africa)	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron / gold / copper objects, trade goods and grinding stones.
Late Iron Age / Later Farmer Period 1400 AD -1850 AD (commonly restricted to the interior and north-east coastal areas of Southern Africa)	Holocene	Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.
Historical / Colonial Period ±1850 AD – present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

¹ Plomp, H.,2004

4.2 Discussion: An archaeo-historical background of the Rustenburg Area

The landscape around Rustenburg has always played an important ecological and cultural role in the history of South Africa. The natural environment of the area has established itself as an ideal occupational terrain; large rivers in the area have provided water, the fertile soil surrounding the rivers have provided food and the strategically situated Magaliesberg sheltered many groups of people and many generations. As a result of peculiar geo-processes, in particular the formation of the Bushveld Complex, the Rustenburg landscape is comprised of a latitudinal series of hills and valleys, which fostered early human settlement and later accommodated a series of communities and cultures. As such, a variety of heritage sites are known to occur in the larger region. These range from Stone Age sites, including rock engraving sites, Iron Age sites, mostly located in the flat areas where outcrops occur, as well as a large number of sites dating to Historic times. Thus, the area presents the most important time periods in the history of South Africa, the signs of which are still visible today in the hundreds of archaeological sites scattered across the landscape. These signs range from 300 000 year old handaxes from the Earlier Stone Age, microlithic tools from the Later Stone Age, pot sherds, grinding stones and spectacular stone walling of previous Tswana inhabitants, to rock paintings and engravings. War remnants and Colonial influence also dot the landscape around the town of Rustenburg.

Various historical accounts, research reports as well as anthropological, archaeological and historical sources have compiled the pre-history and history of the Rustenburg area. In early years, L.V. Praagh produced his encyclopaedic work, *The Transvaal and its Mines in 1906*. In this publication he provided detailed information of the state of development in the region. This source serves as baseline for determining heritage features dating to early colonial times. Later research in the area includes important work by Government Ethnologist N.J van Warmelo in the first part of the 20th century as well as work by ethnographers such as P Breutz and Izaak Schapera. In recent years, the Northwest Province cultural landscape has been the subject of frequent archaeological and historical studies. Middle and Later Stone Age occurrences dating to the last two millennia, particularly Rock Art and stone implements have been extensively investigated by Maria Van Der Ryst, Bronwyn Van Doornum and Sven Ouzman. TM Evers, Revil Mason, Simon Hall, Jan Boeyens and Tom Huffman, amongst others informed on the history of Iron Age farming communities and the significant Tswana towns during the first and early second millennia AD in their research. Recent archaeological work by researchers such as Boeyens & Hall (2009) and Pistorius (1992, 1997, 2000, 2001) has greatly contributed to our understanding of the history of the various Tswana-speaking groups in the region. A vast number of Archaeological Impact Assessments by qualified archaeological specialists and consultancies have been conducted in the Marico area.

4.2.1 Early History and the Stone Ages

According to archaeological research, the earliest ancestors of modern humans emerged some two to three million years ago. The remains of Australopithecine and *Homo habilis* have been found in dolomite caves and underground dwellings in the Rustenburg Area at places such as Sterkfontein and Swartkrans near Krugersdorp. *Homo habilis*, one of the Early Stone Age hominids, is associated with Oldowan artefacts, which include crude implements manufactured from large pebbles. The Acheulian industrial complex replaced the Oldowan industrial complex during the Early Stone Age. This phase of human existence was widely distributed across South Africa and is associated with *Homo erectus*, who manufactured hand axes and cleavers from as early as one and a half million years ago. Middle Stone Age sites dating from as early as two hundred thousand years ago have been found all over South Africa. Middle Stone Age hunter-gatherer bands also lived and hunted in the Orange and Vaal River valleys. These people, who probably looked like modern humans, occupied campsites near water but also used caves as dwellings. They manufactured a wide range of stone tools, including blades and points that may have had long wooden sticks as hafts and were used as spears.

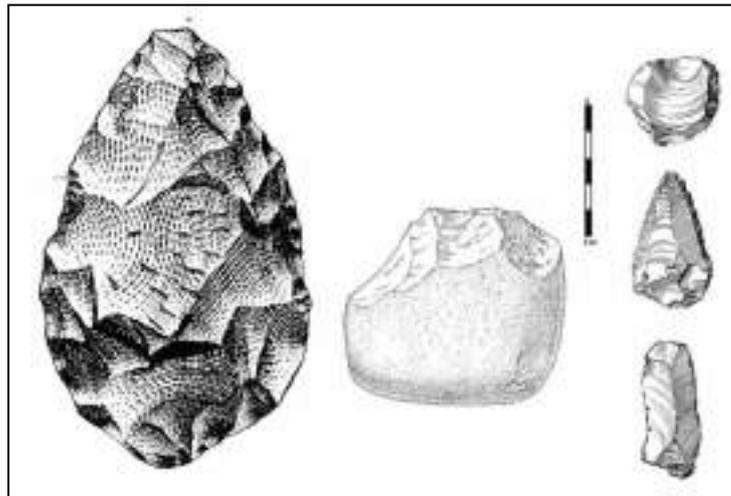


Figure 4-1: Typical ESA handaxe (left) and cleaver (center). To the right is a MSA scraper (right, top), point (right, middle) and blade (right, bottom).

The formation of the Rustenburg landscape began some 2300 million years ago, when quartzite, shale, dolomite and chert rocks were deposited in a series of layers, known as the Transvaal Sequence. An abundance of water, lush natural vegetation, large numbers of game, mild climate and the presence of quartzite for making tools and weapons were factors that attracted Stone Age communities to the area about half a million years ago. The first communities were hunters and gatherers who were able to make tools and weapons from stone, bone and wood, collectively constituted in the so-called Early Stone Age (ESA). The area is so far not known for major ESA sites but sites dating to the Middle Stone Age (MSA), which marked the transition from a more archaic Homo (*Homo ergaster*) to anatomically modern humans (*Homo sapiens*), have been documented. The Later Stone Age (LSA), which occurred from about 20 000 years ago, is signalled by a series of technological innovations and social transformations within these early hunter-gatherer societies. One of a small number of Middle Stone Age (MSA) sites in the Magaliesberg occurs at Kruger Cave near Olifantsnek Dam. On the contrary, the Magaliesberg contains major Later Stone Age (LSA) sites such as those at Jubilee Shelter, Kruger Cave, Silkaatsnek and Xanadu. The LSA is also associated with the advent of rock art and rock engravings are found to the south and east of Rustenburg (Bergh 1999).

4.2.2 Iron Age / Farmer Period

The expansion of early farmers occurred in this area between AD 400 and AD 1100 and brought the Early Iron Age (EIA) to South Africa. These communities migrated from the Lowveld and coastal areas to the higher regions in the interior (such as the Rustenburg landscape) during the latter part of the EIA. An important early settlement site with evidence of iron smelting and working is located near Broederstroom in the Brits area. Sites were found within 100m of water, either on a riverbank or at the confluence of streams. The close proximity to streams meant that the sites were often located on alluvial fans. The nutrient rich alluvial soils would have been favoured for agriculture. The availability of floodplains and naturally wetter soils would have been important for the practice of dry land farming. Iron Age Farmer occupation intensified from the 15th century onwards due to a gradually warmer and wetter climate. From here communities spread to other parts of the Highveld during the Late Iron Age (LIA) with settlements, which was accompanied by extensive stonewalled settlements, occurring at Kaditshwene (near Zeerust), Molokwane (east of Rustenburg) and Olifantspoort near Koster. By the 1700s, with growing trade wealth, economically driven centres of control began to emerge and the North-West landscape became an important thoroughfare for both local and foreign traders. The second phase of the Moloko Tradition is associated with the large number of stone-walled complexes found in Gauteng, North West and Mpumalanga, as well as the Free State. The stone walls were erected to construct stock byres and to demarcate residential units; huts were pole-and-

dagha structures except in some cases in the Free State, where corbelled stone huts were built. There is still no clarity about why the Late Iron Age inhabitants started building with stone or exactly when the Late Moloko phase commenced. According to Mike Evers (1988:129), the majority of radiocarbon dates indicate that the stone wall phase began in about the middle of the 17th century AD. The few dates which suggest that some of the stone-walled complexes had been occupied earlier derive from the base of ash heaps and, according to him, may not date the human occupation of the sites.

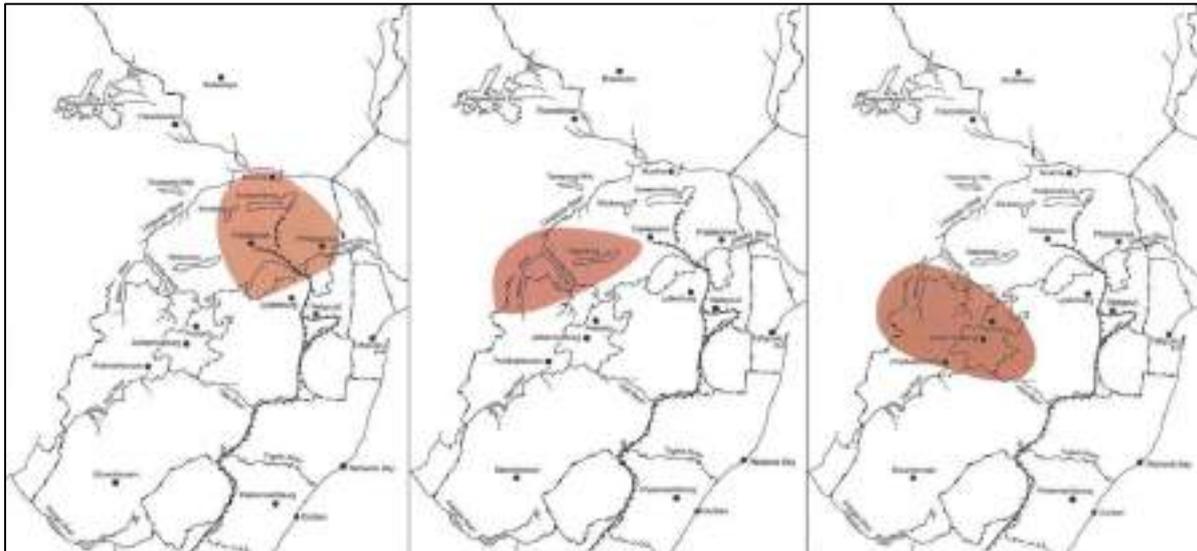


Figure 4-2: Map detailing the distribution of 16th century Moloko (left), 17th century Madikwe (centre) and 18th century Buispoort tradition sites (After Huffman 2007).



Figure 4-3: Ceramic decoration motives typical of 17th century Madikwe (left) and later Buispoort (right) facies (After Huffman 2007).

The most abundant heritage, however, are those that date from the Late Iron Age and which are associated with the numerous Tswana chiefdoms who occupied this region during the last four centuries. The interaction between the climate, geology, topography, and the fauna and flora of the Central Bankeveld established a milieu in which the first Tswana found a suitable living environment in order to practise herding, agriculture, metal working and trading. It was here that their chiefdoms flourished during AD1600 to 1840. The settlements of these early Tswana chiefdoms are characterised by an impressive and elaborate stone-built tradition. Hundreds and perhaps thousands of sites were built along the bases of the norite hills. The most formidable of these chiefdoms were the Kwena Mōgōpa, Kwena Mōgale (Bapō), Bakgatla and Fokeng. Further to the west, closer to Rustenburg was the Fōkeng chiefdom while several Kgatla spheres of influence emerged further to the west near Brits. The Kgatla were subjugated by Mzilikazi and were used as

labourers to built one of the Ndebele's villages, probably known as emHlalandlela. The Bapô, a people whose earliest ancestors were descended from the Amambô Nguni from Kwa Zulu/Natal, arrived in the Magaliesberg during the 16th or 17th centuries. One of their capitals was Tlhôgôkgôlô (Wolhuterskop). Several of the chiefs of this clan were known by the name of Môgale. The name of the Magalies Mountains (Magaliesberg) was derived from the name Môgale.

Numerous difaqane wars were fought during the last quarter of the 18th century and during the first quarter of the 19th century in the Central Bankeveld. These wars led to the displacement of large numbers of Tswana in the Bankeveld. The difaqane wars were caused by the Ndebele (Matabele) of Mzilikazi who arrived from the Vaal River region to occupy the Bankeveld in August 1827. The Ndebele destroyed the Kwena Môgôpa, the Kgatla and what had remained of the Bapô after an earlier defeat by the Pedi of Thulare. These wars exacerbated the havoc started earlier in the Bankeveld and gradually became a characteristic feature of historical events in this region during the early 19th century. Succession disputes also led to the splintering of the existing chiefdoms into a growing number of independent spheres of influence in the Bankeveld. During the early 19th century travellers, traders and missionaries visited the Central Bankeveld where they encountered the devastated Tswana chiefdoms. They also mentioned that numerous Tswana tribes were displaced. These travellers included the traders Robert Schoon and William McLuckie in August 1829. They were soon followed by the missionary Robert Moffat who visited Mzilikazi in an umuzi near what is today Pretoria. In June 1835 Charles Bell and other members of Andrew Smith's expedition visited a Ndebele village near Rustenburg which Bell subsequently painted. One year later, in December 1836, Cornwallis Harris also visited the Central Bankeveld where he painted emHlalandlela near Brits. The Bankeveld was rich in fauna which attracted the Griqua and the first white hunters to the region. Ivory was plentiful, with herds of elephants roaming the area. Ivory and the skins of the wide variety of fauna were sought after as precious trade commodities. Although the Tswana hunted the fauna of the Bankeveld, they were more renowned as agriculturists and cattle herders than as hunters. Complex causes led to the unfolding of the numerous Tswana chiefdoms and their spheres of influence throughout the Bankeveld during the last decades of the 18th century and during the first decades of the 19th century. These causes were multidimensional and included the ecological potential of the region, the social and political formation and expansion of different spheres of influence, the establishment of short and long-distance trade relations and local and regional wars. These causes and historical events were complex and are not fully recorded in oral traditions or in any other records. During the second half of the 18th century, some of these stone-walled complexes, especially those occupied by Tswana communities in what is now known as the North West Province, expanded into enormously large settlements covering several kilometres. Good examples of these "megasites", as they have been described by Revil Mason, are Molokwane, the capital of the Bakwena-ba-Modimosana-ba-Mmatau near present-day Rustenburg, Morothodi near Pilanesberg and Kaditshwene, the capital of the Hurutshe near the modern town of Zeerust. Factors which contributed to this process of aggregation include population growth, reduced access to unoccupied land, political centralisation, and the incorporation of foreign groups through the ward system. It has also been suggested that these large settlements among the Tswana were the outcome of military pressure as a result of raids by the Kora (Korana) and the Griqua from the south, as well as escalating conflicts among neighbouring Tswana chiefdoms, which preceded the upheavals of the so-called difaqane or mfecane. Both Molokwane and Kaditshwene were evacuated in the early 1820s during the difaqane, a period of conflict during which many African communities were attacked and dislodged, first, by refugee Sotho groups, who had been driven from the Free State and, finally, by the Ndebele (Matabele) of Mzilikazi, who had migrated from KwaZulu-Natal.

- **Molokwane**

Molokwane, situated no more than 4km south of the project area on the adjacent Selonskraal property, is a hugely significant Tswana Iron Age stone walled site. Using a combination of archaeology and oral tradition,

Julius Pistorius has shown that the site is associated with early Tswana settlement in the North West province, possibly as early as 1600, though this date has been described as tentative: by other scholars. It is notable for the extensive stone-wall constructions around the town. More specifically, he established that Molokwane was occupied by related Bakwena Bamodimosana communities, in particular the BaMmatau during the Late Iron Age. Furthermore, Molokwane has a settlement style that is representative of the settlement system of historical and contemporary Sotho-Tswana villages in its ground plan, composition and settlement layout. It is probable that Molokwane grew rapidly during the late eighteenth century, and is considered a prime example of a number of settlements associated with factions of the baKwena baModimosana which indicate the development of sizable towns ruled by men with significant political power. Molokwane is closely associated with the rise to power of the baKwena baMmatau ruler Kgaswane, who ruled between 1770 and 1828, a development that is reflected also in the oral record.

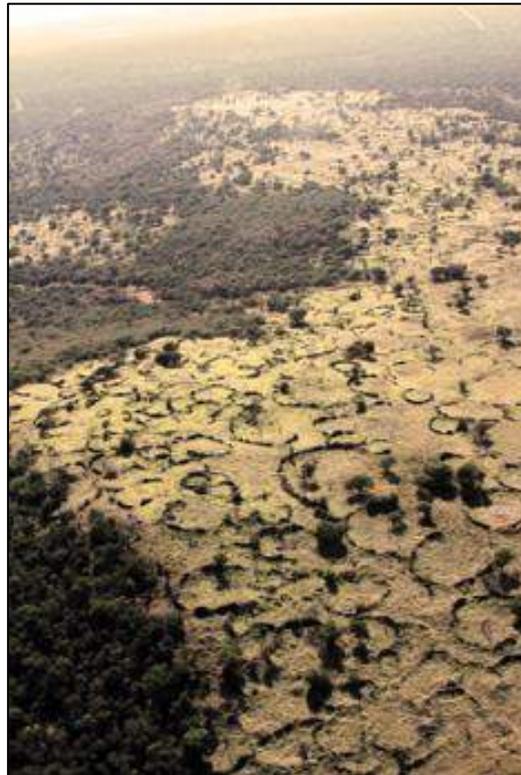


Figure 4-4: View of the vast Iron Age site at Molokwane.

- Marothodi

The site of Marothodi, an extensive Iron Age stone-walled site on the farm Vlakfontein, is situated to the southwest of the Pilanesberg. Mason (1986) noted that the site not only had “the largest cattle enclosures registered in the [then] Transvaal”, but also “some of the largest cattle enclosures known in the African Iron Age”. Although the site was generally ascribed to Tswana speakers, its real historical identity was uncovered only some twenty years later (Boeyens & Hall 2009) resulting from Tlokwa oral traditions, which recalled that a chiefly branch of this Tswana cluster had shifted their capital to a large plain close to the Pilwe Hills towards the end of the eighteenth century. The oral testimonies also vividly recalled the Tlokwa’s association with copper mining and their reputation as skilled manufacturers of copper wire, bracelets and other ornaments. Interestingly enough, most of the forty homesteads in the central complex of Marothodi were involved in either smelting copper or iron or both, or with forging metal. In addition, several copper and tin-bronze earrings were uncovered from house excavations in a prominent settlement unit in the largest chiefly ward (Hall et al 2006:7). The oral traditions ultimately suggest that at least two chiefs, Bogatsu and Kgosi, ruled at

Marothodi. This ties in well with the spatial organisation of the central section of Marothodi, which is dominated by two much larger homesteads with exceptionally large central cattle enclosures. The oral records also allude to a regional alliance between the Tlokwa and their near neighbours, the Kgafela.

4.2.3 Archaeo-Metallurgy and Prehistoric Mining

Africa is fortunate as its general geology is such that iron deposits exist almost everywhere in some level of mine-able ore - from solid nuggets of hematite to iron ore dust or clays rich in iron. In South Africa, the Later Iron Age is characterised by a greater degree of economic specialisation where villages were no longer self-sufficient units; instead, there was greater regional interdependency and more emphasis on trade. Iron smelting activities no longer occurred on most sites; instead, there were a number of main centres which specialised in the mining and production of iron. Phalaborwa in the Limpopo Province was one of the most important iron and copper production centres. Iron was used mainly to manufacture hoes, knife-blades, axes, spears, adzes, awls and metalworking tools. In addition, it also acted as currency and bridal wealth (lobola) as well as fulfilling ceremonial and political functions. Copper production was even more restricted and there is little evidence of copper-working south of the Vaal and the Nkomati Rivers. Copper and bronze were used to manufacture ornaments such as beads, earrings and arm bangles. Tin was mined at Rooiberg near Warmbaths/Bela-Bela in the Limpopo Province, while gold objects, particularly beads, were recovered from a few sites such as Mapungubwe and Machemma in the Limpopo Province and Thulamela in the Kruger National Park. Metal products were important trade items during the Late Iron Age. Furnaces were usually constructed in an oval shape with at least two vents that held the tuyères or blowpipes that were attached to bellows. Grass, charcoal and wood was used to reach temperatures of up to 1500°C inside the furnace, sufficient to reduce iron ore to iron.



Figure 4-5: Copper Smelting residues from a smelting site in the Pilanesberg area.



Figure 4-6: Copper Smelting tuyere fragments from a smelting site in the Pilanesberg area.

The role of metallurgy in the cultural life ways of metal workers in Africa is sophisticated and includes much more than just the practical value associated with metals. In unstratified societies metal smiths were free independent agents and part-time specialists that conserved their knowledge. In some instances smaller clans or settlements had their own metal smiths. Metal smiths were respected and did not easily share knowledge of the practise but they sometimes would employ helpers such as bellow operators. In stratified societies metal smiths were not independent and they had to pay dues to a chief or king. With the

appearance of large states in Africa, metal smiths were permanently hired by royalty in order to perform iron smelting practices. Iron smelting was almost without exception, a highly ritualised activity with a deep symbolic meaning. Communication and consent from the ancestors was crucial in order to successfully reduce iron ore. It was also believed that the furnaces and the iron smelting area had to be purified and that certain aspects would render it unclean.

The implication of the ritual association with iron smelting was that:

- the iron smelting areas were positioned outside settlement areas and usually out of line of sight of the villages and villagers. In many cases these areas were situated behind hills or kopjes.
- the metal smiths had to seclude themselves during the time of iron reduction. They had to abstain from sexual activities and they were not to come into contact with menstruating women (“unclean women”).
- *the iron smiths were supplied with food by young girls or older women. Any woman biologically capable of menstruation had to keep away from the activities*

4.2.4 Ethno-history and the Fokeng

Whereas it is impossible to correlate any living group of people to Early Iron Age communities, it is possible, by using ethnographic evidence, to identify some of the groups of people that entered the region in pre-colonial times (i.e. the Later Iron Age) and are currently settled in the larger region. The Tswana-speakers were located over most of the area, with some Ndebele (Nguni-speakers) to the east.

The Thaba-ea-Nape (also known as the Thaba-ea-Maralla) range of mountains was home to numerous ancestral rulers of the Fokeng people. According to oral tradition different branches (clans) of the Fokeng settled from the north to the south along this range of mountains from as early as the 17th century. The places of settlement were: Serutube, Marekana, Tsitsing (Kanana), Thekoane (Thekwana) and Photsaneng (Bleskop). The oldest legends state that the Fokeng entered the Transvaal through Tweedepoort, under the leadership of Nape, the earliest known Fokeng chief. This was before AD1700 AD. The group moved south-eastwards and settled on the banks of the Elands River (Kgetleng). Three Fokeng groups detached themselves from the main branch and moved southwards on different occasions. The Fokeng are therefore spread over the Orange Free State, Lesotho and even the former homeland of Transkei. The Fokeng are, next to the San people, the oldest inhabitants of the Orange Free State. The domain under Fokeng control during the last two centuries was the following: the northern border was the Kgetleng River (and the Tlôkwa and Kgatla Kgafêla chiefdoms); the western boundary was the Kwena Modimosana chiefdoms and the southern boundary the Magaliesberg. The eastern boundary was determined by the presence of the Kwena Môngôpa and the Kwena Mogale chiefdoms. The history of the Fokeng begins with Sekete III (Maleriba) who probably ruled in AD1700. He had three sons Kgantsi, Pitswe and Diale. (The last two had the same mother). Kgantsi was born from a Hurutshe father after the Hurutshe had abducted his mother. (Controversy surrounded Sekete's III position until his death, although he was the oldest son). Diale succeeded Sekete III and his reign probably began in AD1720. His sons were Mokuru, Mogotsi, Ramarwa, Ramogase, Tlase and Ntê. (The first two died young). Diale's sons freed the Fokeng from the Hurutshe's custom to castrate the Fokeng's bulls, an act that was considered offensive by the Fokeng as it indicated the Huruthse's seniority above the Fokeng. This particular incident put an end to the Huruthse's domination of the Fokeng. With the exception of Ramorwa all the known sons of Diale became leaders of dikgoro, Ntê, the progenitor of the kgoro Seloko, Tlase, of Mathebetswaane and Ramogware of Metlapeng. Ramorwa succeeded Diale as chief and had four sons: Mmutle, Sekete, Katane and Mpie. Sekete succeeded Ramorwa in about AD1790. He was a formidable warrior and is remembered as one of the greatest Fokeng chiefs. The following individuals were sons of Sekete: Thete, Nameng, Nôge, Mogotsi, Molefe, Pitswe, Ramarue, Mohue, Manaana, Rantsogwana and

Marahtsane (more can be added). Important individuals were Thete, Nameng and Nôge. Katane, or Raikane acted as regent for Thethe (also known as Mmakgongwana) who became the next chief. He had the following sons: Diale, Mokgatle, Molotlegi, Molefe, Liphatse and Pogwe. (The first, third and fifth died young). Môngkatle, Molefe and Pogwe played important parts in the next phase of Fokeng history. Thethe was very fond of his two younger brothers, Namemg and Nôge. The two brothers, however, turned against him. (The main concentration point in Thethe's time was at Makotshaneng [Makojaneng], east of Rustenburg near the Hex River). Thethe fled with his followers and took refuge with the Modimosana Mmatau. The Fokeng accepted Nameng as chief. Nameng reigned for only eight months after the enforced departure of Thethe as he was killed by the doings of Nôge, who now became chief.

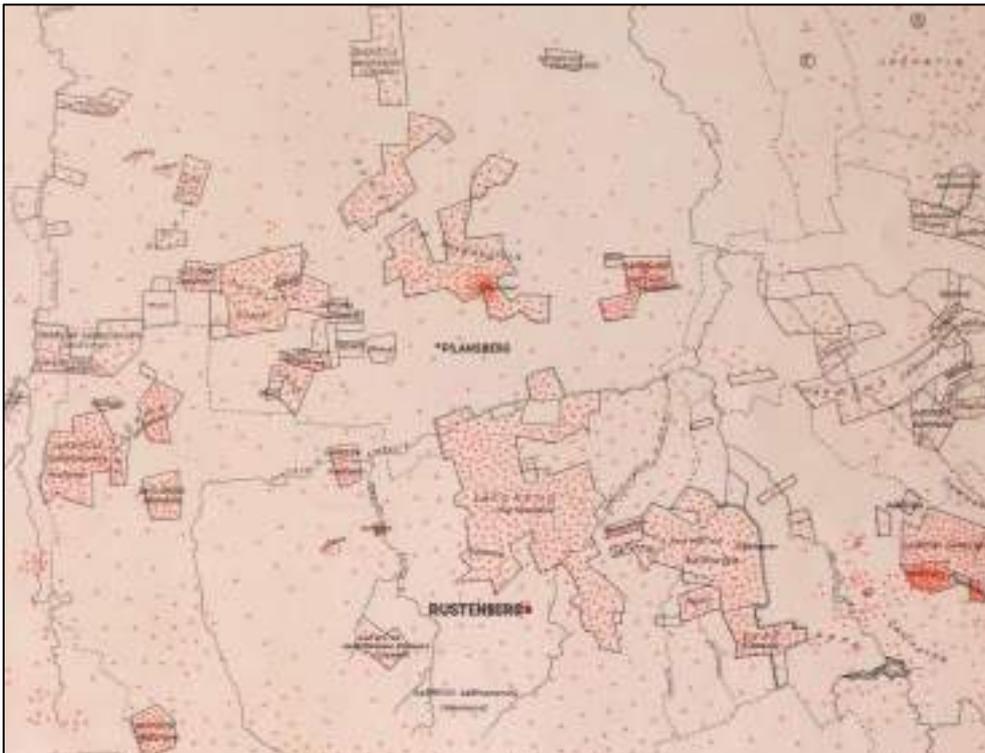


Figure 4-7: Map showing the historic distribution of the different Tswana-speaking groups. (Map: Van Warmelo 1925)

Nameng reigned for only eight months after the enforced departure of Thethe as he was killed by the doings of Nôge, who now became chief. Nôge's rule commenced in about 1820 and ended when he was ousted in 1829 to 1830. Nôge's reign represents a stormy period in Fokeng history. Thethe invited the Pedi to attack the Fokeng whereupon Malekutu destroyed the Fokeng in 1823 to 1824. The devastation caused by the Pedi accounts for the fact that Mzilikazi amassed very little from the Fokeng's territory in 1826 to 1829. Nôge became unpopular and fled to Moshoeshoe in the Orange Free State. Môngkatle's accession was somewhere between 1834 and 1836. His reign had hardly begun when the Voortrekkers drove the Ndebele out of the Transvaal. He remained in office until his death in 1891 when he was about eighty years old. His principal village was named Mmakgongwana (after Thethe), today located in Rustenburg and partly on Paardekraal. Dirêpotsana Hill, where Phokeng now stands, was also re-occupied as residential area in Mokgatle's time.

4.2.5 Ethno-history: King Mzilikazi

The history of King Mzilikazi, who founded the Matabele kingdom in what became Rhodesia and is now Zimbabwe, is intertwined with the Northwest Province. Mzilikazi was born ca. 1790 near Mkuze in Zululand. He was the son of Matshobana whom many had considered to be the greatest Southern African military

leader after the Zulu king Shaka. The territory of the Northern Khumalo was located near the Black Mfolozi River, squeezed between the lands of two strong rival groups: the expanding Mthethwa chiefdom of Dingiswayo and the land of the equally ambitious and much more ferocious Zwide of the Ndwandwe. Mzilikazi's boyhood was spent in the household of his grandfather Zwide. Inevitably, as he grew to manhood he observed the less powerful Khumalo being drawn into the conflict between Dingiswayo and Zwide. On the death of Chief Mashobane, who had been murdered by Zwide, Mzilikazi was duly installed as chief of the Northern Khumalo clan. But, after Dingiswayo's death, instead of siding with Zwide, in exchange for the protection of his people, Mzilikazi swore allegiance to Shaka, who had risen to power as a commander of Dingiswayo's army and had usurped the Zulu chieftainship and taken over the Mthethwa confederacy after Dingiswayo's death.

Proving himself a fearless warrior, Mzilikazi soon became one of Shaka's advisers. Shaka's trust, however, was misplaced. Mzilikazi dreamed of being a potentate himself. Dissatisfied with a life of subservience, he plotted to free himself and his people from Shaka's influence. In June 1822, Shaka sent Mzilikazi's regiments to attack the Sotho chief Ranisi. They pounced on the Sotho chief's defenceless rabble and drove away their herds. Defying Shaka, Mzilikazi refused to give up the spoils of battle and in June 1822, he bolted with his followers. Moving north and northwest, as he pillaged and slaughtered, Mzilikazi rounded up the strong men and women, turning the men into army recruits and the women into concubines for his warriors, his possessions increasing with his power and prestige, and his followers numbering, in due course, more Sotho youths than Zulu. Having cleared for himself a wide area, in about 1822-23 Mzilikazi temporarily joined forces with Nxaba, a chieftain of the Nguni-speaking Ndzundza Ndebele community who lived in the Middelburg area. Here, he built the royal kraal ekuPhumuleni. By then, the size of the Khumalo clan was swollen by other Nguni-speakers who had settled in the area. During the early years of their migrations Sotho-speakers of the highveld called Nguni-speakers 'maTebele', a name they used for all people who came from the coast, whereas the Nguni-speakers called themselves Ndebele. After the arrival of Mzilikazi on the highveld, the name Matabele became especially attached to his fearful hordes, and historians later wrote of this period referring to the Matabele wars. While living among the Ndzundza, Mzilikazi subjugated the old baPedi kingdom of Chief Thulare, killing five of his nine sons, but one son, Sekwati, fled north to the Soutpansberg Mountains, where his people were able to repulse Mzilikazi's attacks.

Mzilikazi settled for a while along the Vaal River until Korana cattle raiders became a threat. In the winter of 1827, Mzilikazi decided to move northwards. The Matabele army swept through the Magaliesberg via Kommandonek near the present Hartbeespoort Dam. Mzilikazi established temporary settlements near present-day Rustenburg, then launched into action against the baKwena, roasting some alive, clubbing most to death, and piling the infants onto mounds of brushwood, which were set ablaze. After falling on the Kwena at Silkaatsnek the Matabele turned on the Po who were easily overwhelmed. Kgatla Chief Pilane fled to the hills that now bear his name. Mzilikazi ruthlessly, massacred the remaining Tswana groups in the area. Using the Magaliesberg as his centre, Mzilikazi expanded his kingdom, which by then stretched from the Vaal River in the south to the confluence of the Crocodile and Limpopo Rivers. Between 1827 and 1832, Mzilikazi built himself three military strongholds. The largest was Kungwini, situated at the foot of the Wonderboom Mountains on the Apies River, just north of present day Pretoria. Another was Dinaneni, north of the Hartbeespoort Dam, while the third was Hlahlandlela in the territory of the Fokeng near Rustenburg. By 1829, the total Matabele population numbered about 70, 000, consisting of the Matabele elite and a vast number who had been enslaved. Most of the Tswana settlements were desolate.

In 1830, Mzilikazi received a visit from Robert Moffat (1795-1883), the Scottish missionary who worked among the Tswana from 1821 to 1870. Moffat's friendship with Mzilikazi is one of the most remarkable stories to emerge from Southern Africa. Moffat described the king as charming, dignified, good-looking, with

a ready smile; and added, had he not himself been present at some executions it would have been hard to believe the man's terrible reputation. Mzilikazi admired Moffat so much that he honoured him with the name of his own father, Mashobane, and called Moffat the King of Kuruman'. Henceforth, ordered Mzilikazi, all traders and hunters had to enter his country on the road that led from his friend Moffat's mission at Kuruman. In the spring of 1830, Dingane's Zulu regiments advanced on the Matabele. On the upper reaches of the Sand River, they fell on each other. Three Zulu regiments were wiped out before they fell back. Early in 1832, the Matabele razed the Rolong villages. Matabele raiding expeditions conquered the Hurutshe, whose capital Mosega became the king's most southern military headquarters guarding the route to Kuruman. At Tshwenyane, he built another military stronghold, and near the Great Marico River, he built the colossal settlement of eGabeni (Kapain).

In May 1835, Mzilikazi was overjoyed when he heard that Moffat wanted to visit him again, this time accompanied by a group of explorers who were undertaking a scientific expedition led by Dr Andrew Smith. Hoping to stay on good terms with the British and to learn more from them about the use of firearms, Mzilikazi gave the expedition permission to enter his country. The party's journey from Kuruman took them around the northern tip of the Magaliesberg, teeming with game. There, they encountered some Tswana survivors who had built grass huts on scaffolds within a gigantic tree as a safeguard against nocturnal visits of some rather bold lions. This old *Ficus ingens*, with long, massive branches drooping to the ground, where they have struck root, is now known as 'Moffat's Tree' or the 'Inhabited Tree'. It was identified in the 1960s and can be seen on the farm Bultfontein at Boshhoek, a farming area between Rustenburg and Sun City (See Section 5.2.5). The doting king feted Moffat. He allowed him to lecture him about his cruelty and ungodly ways. When Moffat said he was looking for timber for his new church at Kuruman, the king personally assisted him in finding good wood for his church, travelling with him in his wagon, enjoying the company of his esteemed friend and the surprising comfort of the mattress on his bed. During this visit, Moffat gained Mzilikazi's permission for missionaries of the American Board to settle at Mosega. Soon after Moffat's visit, in 1836, Mzilikazi welcomed William Cornwallis Harris, a captain in the Indian Army, who was hunting and sketching in Africa. His paintings and his diary became prized Africana.

Early in 1836 Louis Trichardt's company and the Van Rensburg trekkers moved into Matabele territory and were wiped out by fever and by hostile warriors. Hendrik Potgieter's party followed. They trekked north across the Vaal searching for a permanent place to settle. Captain Cornwallis Harris was still at the royal headquarters in August 1836 when Mzilikazi heard that the Voortrekkers were crossing the Vaal without his permission. Moffat records that Mzilikazi saw this as a threat to the Matabele state. When he heard they were poaching his game, his warriors were ordered to expel them as bandits. Mzilikazi's warriors butchered the Erasmus party, but were repulsed by the Steyn and Botha families in their laagers. The Liebenburgs were not so lucky, although the Matabele spared two girls and a boy who were carried off as gifts for Mzilikazi. Potgieter laagered the trekker wagons at Vegkop, between the Wilge and Renoster rivers, and waited for the Matabele to attack them. On 16 October 1836, the Matabele, led by Mzilikazi's general Kalipi, encircled the wagons. At noon, they charged; only to be met, repeatedly, with a viciously accurate fusillade. At length the Matabele called off the attack and retreated, taking with them all the trekkers' cattle. The Rolong eventually rescued the stranded trekkers and brought them to Thaba Nchu, where a large group of trekkers had assembled under Gert Maritz. Meanwhile, Cornwallis Harris was exchanging gifts with the king and was discreetly refrained from mentioning that he had heard about the massacre of the trekkers. His party had not continued far on their journey when they came upon a section of the Matabele army returning from the battle at Vegkop. The meeting was tense until Harris explained they had been the personal guests of the king himself.

While the Matabele army was away in the north, Potgieter's trekkers fell upon Mosega at dawn on January 17th, 1837, and destroyed it. Dingane, the Zulu king, seized the opportunity of attacking the weakened Matabele forces. But again, they were beaten off, though this time the Matabele suffered heavy losses. Mzilikazi then decided to move to eGabeni. In November 1837, Potgieter, Maritz and Uys launched another attack on the Matabele. In a battle lasting nine days, they destroyed eGabeni as well as other Matabele camps along the Marico River. Fearing utter destruction at the hands of the Boers who had gained dominance in the Transvaal, Mzilikazi decided to move much further north. His people, now numbering some 15,000, streamed out of the Marico valley, and after crossing the Limpopo River into the present Botswana, they split into two groups.

It was nearly two years before Mzilikazi's group met up with the other section, who having arrived in about 1837, had subjugated and incorporated the Shona, Kalanga and Rozwi. Believing they had lost sight of Mzilikazi forever, they appointed as successor, Mzilikazi's senior son. Meanwhile, Mzilikazi had halted his journey and established himself in the centre of the old Rozwi kingdom, at Nyathi, giving his new headquarters in the Matopo Hills the Zulu name kwaBulawayo. When Mzilikazi heard that his councillors had appointed a successor, he summoned them to Bulawayo, accused them of treason and had them all executed. Then he ordered the execution of all his own sons. But Fulatha, the daughter of a Swazi chief, managed to hide her son, Lobengula, who escaped death. Having killed his rivals, Mzilikazi reorganized his army and proceeded to subjugate the neighbouring tribes, most of whom in time adopted the Ndebele language and culture, which was in turn influenced by the conquered groups.

The remarkable friendship between Robert Moffat and Mzilikazi was resumed when Moffat visited the king at Nyathi in 1854, 1857 and 1859. Moffat surveyed the old king's swollen body and palsied legs with shock. He was saddened to note that though the king still enjoyed the devotion and respect of his followers, he was no longer the mighty Bull Elephant, the fearsome ruler of the past. As before, these visits opened the way to British hunters, traders and missionaries. The king allowed Robert Moffat's son John to become a missionary in Matabeleland. John Moffat and missionary colleagues were useful translators, but they achieved no converts because they refused to repair firearms and make bullets. After Mzilikazi's favourite wife Loziba died in 1861, Mzilikazi left Nyathi and moved to a new great place that he called Hlahlandlela after his previous stronghold.

Then followed a hard period for his people: they endured a great drought and were stricken by smallpox and measles; while lung-sickness, brought in by the infected cattle of missionaries and hunters, killed off the Matabele cattle. In 1863, prosperity returned to Matabeleland. Rains fell, harvests were plentiful, and the raiding Matabele regiments returned with large herds of cattle. Only white hunters who supplied the king with firearms and ammunition were allowed to hunt in the east of his territory. The big-game hunter, Henry Hartley became a good friend of Mzilikazi after treating the ailing king with success. During 1865, while hunting in Mashonaland, Hartley accidentally discovered gold. Soon afterwards, Hartley, Adam Renders and the geologist Carl Mauch, while exploring north of Great Zimbabwe, realized the extent of gold present around the old African mining villages along the Mfuli and Tati Rivers. At Potchefstroom, in December 1867, Hartley and Mauch announced the extent of gold present in Mashonaland, thus beginning the first gold rush as prospectors and miners from Europe and Australia began the long trek northward up the missionaries' road. The Transvaal Government did its utmost to get hold of the Tati goldfields, but the ailing king, remembering old enmity with the Boers, steadily refused to allow them a grant. King Mzilikazi died in 1868 at Ingama, Matabeleland (near Bulawayo, Zimbabwe) and Lobengula was installed as king in 1870, but strife between contesting groups led to civil war that weakened the Ndebele Empire. British imperial expansion later caused the collapse of Ndebele power, but the Zimbabwean Ndebele language and culture survived.

4.2.6 Colonial Contact and the Historical Period

The historic timeframe sometimes intermingles with the later parts of the Stone and Iron Age, and can loosely be regarded as times when written and oral recounts of incidents became available. The first Europeans to trek through the interior of South Africa north of the Vaal River were the expedition party of Dr Andrew Cowan who travelled from the Cape to the border of Botswana and from there eastwards to Delagoa Bay. The party however disappeared and was never heard of after a final report written by Cowan in 1808. The Voortrekkers crossed the Vaal River in 1836, and within a few years, began to spread north. The earliest European explorers of the Transvaal left behind a wealth of data on Iron Age peoples e.g. John Campbell. Early travellers have moved through this part of the Northwest Province, some of which were Coenraad de Buys in 1821 and 1825, David Hume in 1825, Robert Scoon and William McLuckie in 1827 and 1829 and Robert Moffat and Reverend James Archbell in 1829. The well-known explorer, Dr David Livingston passed through this area in 1847. In 1837, a Voortrekker commando moved out against Mzilikazi and was engaged in a battle with his impi to the north of Swartruggens. Permanent occupation by white settler-farmers in the mid-1840s and Voortrekker farmers established the farms that today form the area around Rustenburg (Bergh 1999). Some of the earliest Voortrekkers who moved across the Magaliesberg established themselves on the farms Kafferskraal and Witpensfontein and Schaapkraal, to the east of Rustenburg. Tobacco and citrus farming, together with cattle herding, became a subsistence pattern that has lasted to this day. Old farm homesteads, agricultural implements and other infrastructure such as tobacco drying sheds may still exist on farms adjacent to the study area.

The settlement of the Voortrekkers in the Pilanesberg area during the 1830s appears to have been largely peaceful and uncontested as the Tswana groups in the area had already been greatly weakened by the Matabele conflicts. The Boers named the area after the Kgatla chief Pilane. The superior weaponry of the Boers and the weakened state of the Tswana tribes made the Pilanesberg particularly easy to occupy. As the Voortrekkers had previously fought both the Zulu and Matabele on their journey from the Cape, they found a natural alliance with the Tswana, who shared their common enemy. After the defeat of the Ndebele the Boer settlers claimed the Western Transvaal area by right of conquest, despite the large number of Tswana, Griqua and Korana who had aided them in the struggle. Settlement of the area between Pilanesberg and Rustenburg had already occurred as early 1840 under the leadership of Andries Pretorius, seen by the purchase of the farm Doornkop (Rustenburg) by Potgieter and Paul Kruger's acquisition of Saulspoort in Pilanesburg. The farm Saulspoort became an arena for the often brutal treatment of local tribes by the Boer settlers. During this time enforced labour of the Kgatla on Boer farms, such as Saulspoort, became common practise, and an incident is recorded during which Kruger bound and flogged the Kgatla chief Kgamanyane in front of a public gathering.

4.2.7 The Anglo-Boer War

Possibly the most prominent colonial remnants in the Northwest Province landscape can be attributed to the South African War or the Anglo-Boer War (1899-1902), interestingly enough the first shots of both the 1st and 2nd Anglo-Boer Wars were fired in the Northwest Province. Thus, the various battles and skirmishes resulting from this influential conflict left a legacy of heritage sites scattered across the Transvaal where fortifications, war cemeteries and battlefields still remain.

Throughout the 19th century, after Great Britain had acquired the Cape of Good Hope in 1814 and expanded its possessions in southern Africa, ill feeling mounted between the Afrikaners, or Boers, and British settlers. This resulted in the Great Trek (1835-1843) and the consequent establishment of the Afrikaner republics: Natal, Orange Free State, and the South African Republic. Natal became a British colony in 1843, but the Transvaal territories were granted independence from Great Britain in 1852, and Orange Free State in 1854. In the late 1850s, the Transvaal territories formed the South African Republic. The stage for war was set in

1884, when gold was discovered in the Witwatersrand, a region then encompassing parts of the southern Transvaal. The discovery lured thousands of British miners and prospectors to settle in the area, the influx being so great that the city of Johannesburg was created almost overnight.

The Afrikaners, primarily farmers, resented the newcomers, whom they called Uitlanders (“foreigners”), and in token of their feeling, taxed them heavily and denied them voting rights. The resentment on both sides grew, ultimately leading to a revolt by the Uitlanders in Johannesburg against the Afrikaner government. This revolt was instigated by the British colonial statesman and financier Cecil Rhodes, then premier of the Cape Colony, who desired to bring all of southern Africa into the British Empire. In December 1895, Leander Starr Jameson, a friend of Rhodes, led a band of 600 British armed men in an unauthorized attempt to support the rebellious Uitlanders in the South African Republic. Called the Jameson Raid, the venture resulted in Jameson's capture and imprisonment and in Rhodes's resignation. Jameson later served as premier of the Cape Colony from 1904 to 1908. Direct negotiations to solve the South African problem proved unfruitful, and hostility between the Afrikaners and the Uitlanders continued unabated. The president of the South African Republic, Paul Kruger, was unyielding in his opposition to the Uitlanders. In 1899 the recently appointed British governor of Cape Colony, Alfred Milner, who strongly resented the Afrikaners' treatment of British subjects, issued orders to build up the 12,000-man British army contingent then in southern Africa into a force of at least 50,000 troops. On October 9, 1899, Kruger demanded the withdrawal of all British troops from the Transvaal frontiers within 48 hours, with the alternative of formal war. British non-compliance with Kruger's demands brought immediate action, and an alliance of the South African Republic and the Orange Free State declared war on October 12, 1899. Boer forces under the command of General De la Rey attacked the British garrison and railway siding at Kraaipan, south west of Mafikeng, thereby signalling the start of the Anglo-Boer War.

The North West province saw a number of important battles as both sides sought control of the main railway link to the north. The Afrikaner forces were initially successful, invading Natal and Cape Colony. Within days they succeeded in surrounding British forces at Ladysmith, Natal, and at Mafeking (now Mafikeng) and Kimberley, Cape Colony. In December the British commander in chief Sir Redvers H. Buller sent fresh troops to relieve besieged British forces in three areas of the war zone: Colenso, Natal; the hills of Magersfontein on the Orange Free State and Cape Colony borders; and the mountain range of Stormberge in the Cape Colony. Within a week's time, referred to as Black Week by the British, each of the new units had been defeated by Afrikaner forces.

On January 10, 1900, the British general Frederick S. Roberts was sent to replace Buller as commander in chief. (Buller, however, remained to fight throughout the war). Early in February, Roberts ordered the British commander John D. P. French north to relieve the city of Kimberley; French's objective was attained four days later. Simultaneously, Roberts undertook a north-eastward march from Cape Colony into the Orange Free State. Attacked by the Afrikaner general Piet Cronje on February 27, Roberts fought back successfully and forced the surrender of Cronje and his troops, altogether about 4000 men. On March 13, Roberts entered Bloemfontein, capital of the Orange Free State. Two months later, on May 17, besieged Mafeking, defended by troops under the command of the British soldier Robert Baden-Powell, was relieved. The Siege of Mafikeng commenced on 14 October 1899 and lasted for 217 days until 17 May 1900. The town became somewhat of an icon at the time.

Roberts captured Johannesburg on May 31 and Pretoria, the capital of the South African Republic, on June 5. Upon these defeats, President Kruger fled to Europe, and Roberts, believing the war to be won, returned to England in January 1901. The War saw Rustenburg and surroundings turned into a war zone. Numerous battles took place in the region, the most well-known being the siege of the British by the Boers near Mafikeng. Undoubtedly the area was affected by the British ‘Scorched Earth’ policy, and after the war many

families were left with virtually nothing. The Battle of Koster River, fought on 21/22 July 1900, is another major confrontational site in the region. Here the Australian Bushman Contingent, on their way to Rustenburg, was caught in an ambush by the Transvaal soldiers. 39 casualties were recorded and over 200 of their horses killed. The town of Koster was proclaimed in 1913. Near Swartruggens (founded in 1875) the Battlefield of Elandsriver can still be seen. This site marks some of the last conventional fighting in the Second Boer War before the *Boers* had to resort to guerrilla warfare, and their victory here allowed them access to British supplies.

5 RESULTS: ARCHAEOLOGICAL SURVEY

5.1 The Off-Site Desktop Survey

The Rustenburg landscape is comprised of a latitudinal series of hills and valleys, which fostered early human settlement and later accommodated a series of communities and cultures and a rich variety of heritage sites are known to occur in the larger region. These range from Stone Age sites, vast Iron Age towns, many of them displaying elaborate stone walling, as well as a large number of sites dating to Historic times. In the project area landscape, the vast Iron Age settlement at Molokwane, situated no more than 4km west of the northern portion of the project area on the adjacent Selonskraal property, is hugely significant in terms of early Tswana history in the Trans-Vaal. The site has been studied extensively and vast amounts of literature describe aspects of this mega-town.

In terms of the project area; the following inferences are drawn from a careful analysis of historical aerial imagery and archive maps (see Figure 5-1 to Figure 5-7):

- The project area occurs in an area that was known as “Ratsegaaï” towards the end of the 19th century with the farms “Steenbokfont” and “Kleinfontein” indicated on historical maps (see Figure 5-3).
- The project area and particularly the R52 road traverses the farms Kortfontein, Kleinfontein, Doornlaagte, Olievenfontein, Magathashoek and Kraaihoek which are indicated on an early map of the area (Jeppe, 1899).
- A number of structures, buildings and farmsteads are indicated on topographical maps of the project area dating to 1968, 1985 and 1996.
- A smaller regional road appears in the area on the 1968 map and the current R52 road alignment appears on later maps of the area, suggesting that the current road route was constructed in the late 1970’s.
- Similarly, aerial imagery dating to 1950 indicate the existence of farms, buildings and potential man-made structures in the area as well as an old road across the project area.
- A large Iron Age stonewalled archaeological site is visible on aerial imagery in a southern portion of the project area.

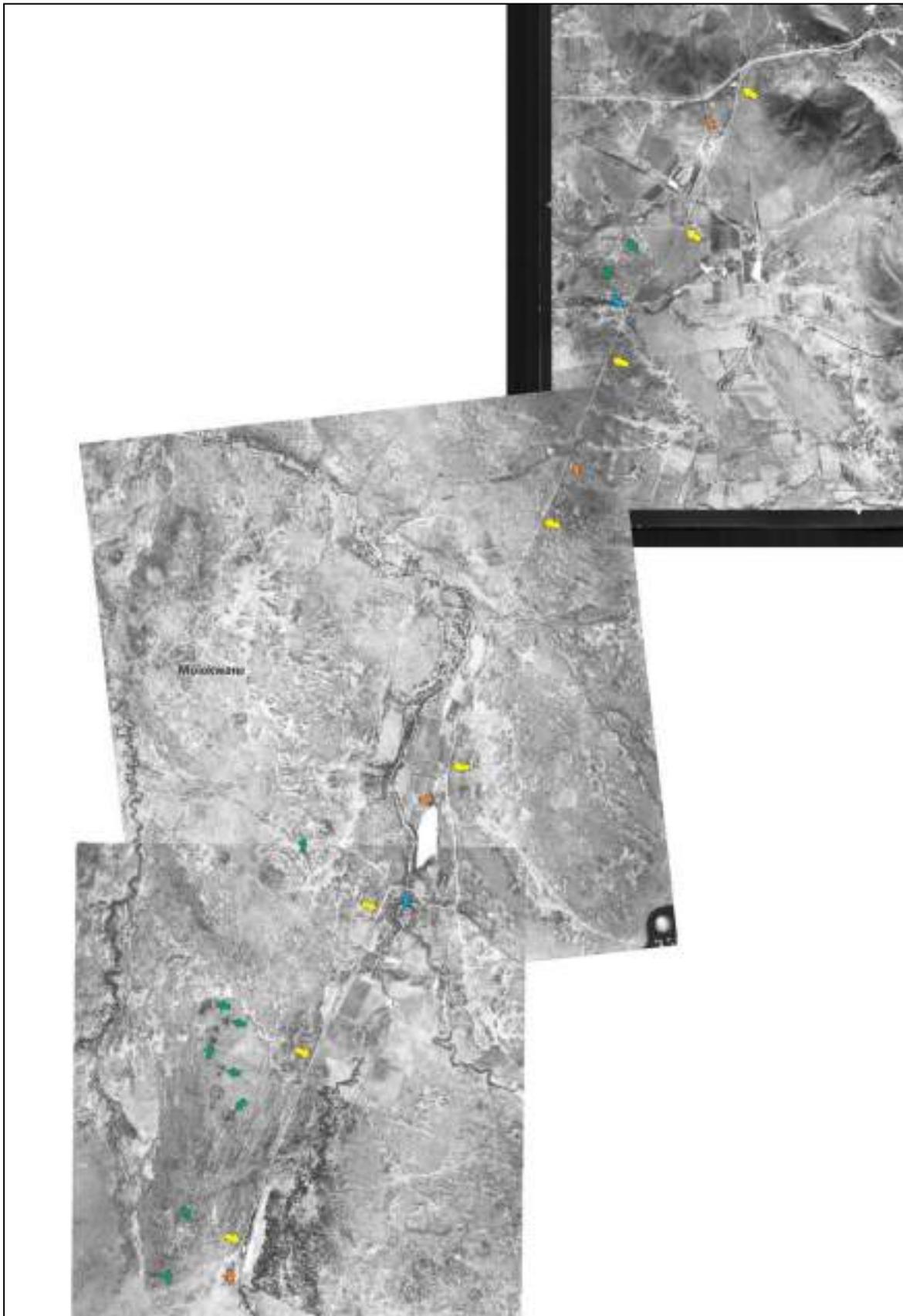


Figure 5-1: An aerial image of the northern section of the project area dating to 1950 indicating the location of the project area (yellow arrows). Iron Age sites are indicated by green arrows, Historical Period sites are indicated by orange arrows and the blue arrow indicates a river crossing.

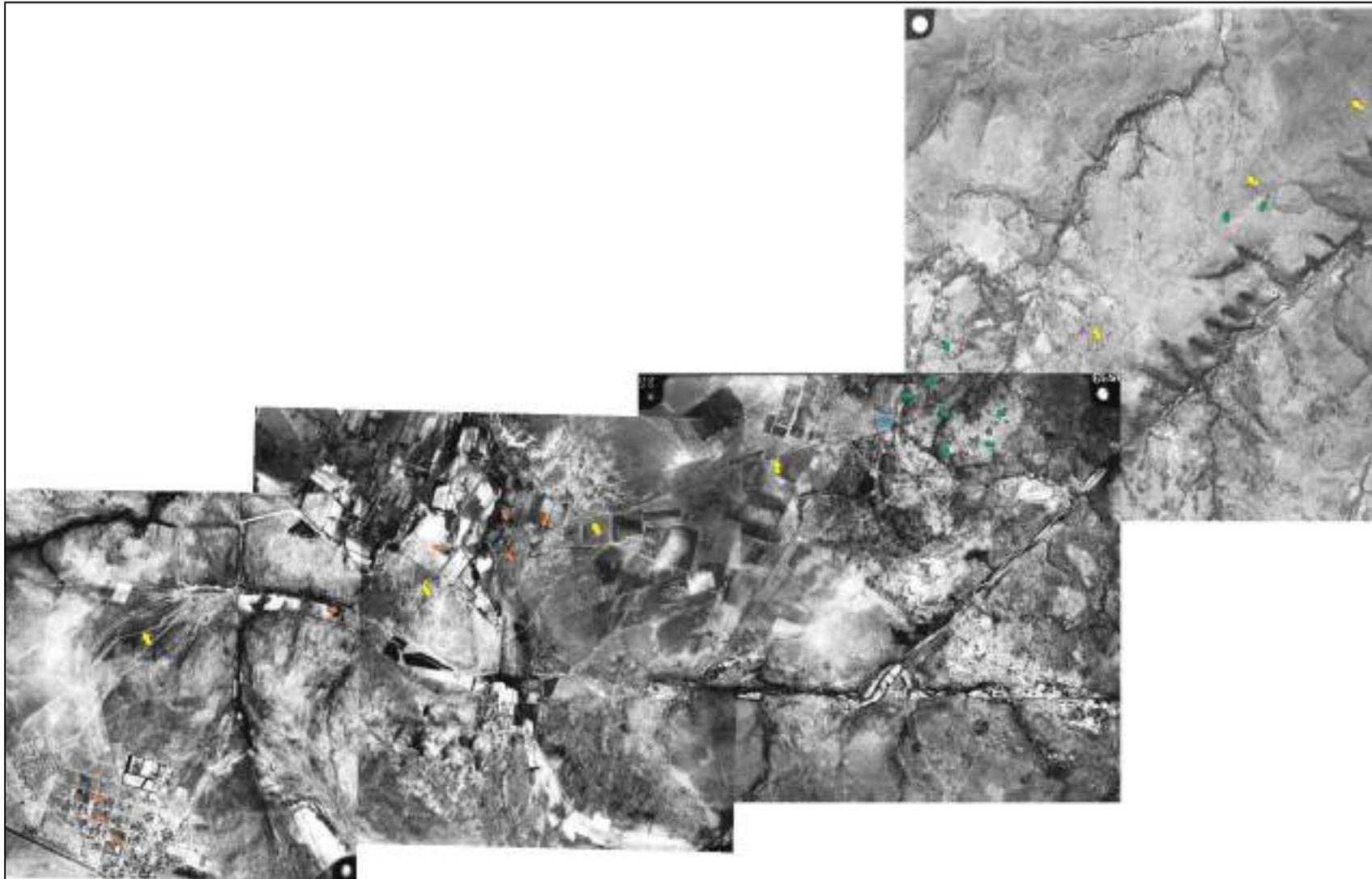


Figure 5-2: An aerial image of the southern section of the project area dating to 1950 indicating the location of the project area (yellow arrows). Iron Age sites are indicated by green arrows, Historical Period sites are indicated by orange arrows and the blue arrow indicates a river crossing.

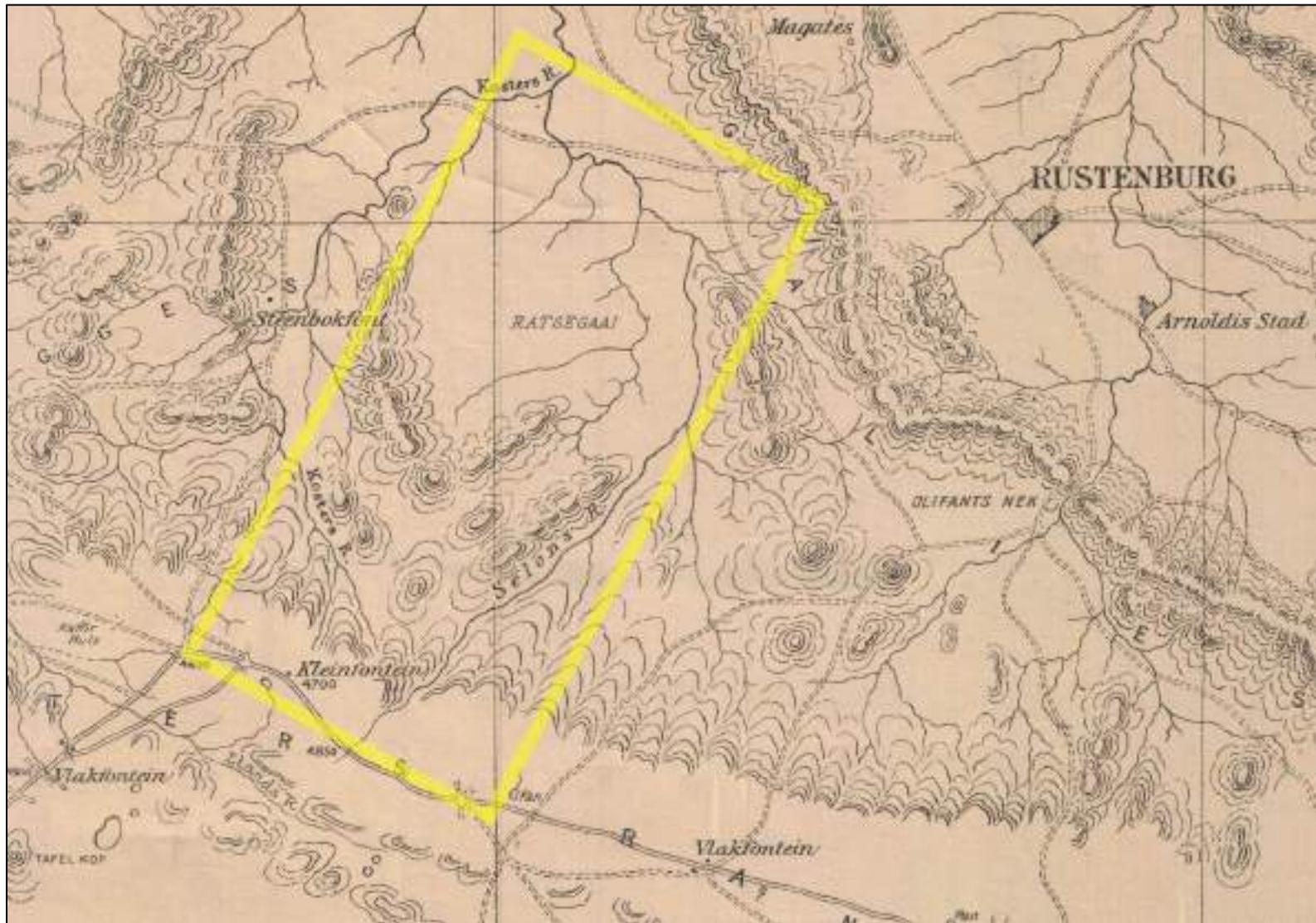


Figure 5-3: A historical map of “Transvaal and Orange Free State. Rustenburg” by the Ordinance Survey Office compiled in 1899. The general project area is indicated by the yellow outline.



Figure 5-4: The project alignment superimposed on Jeppe's Map of the Transvaal dating to 1899.

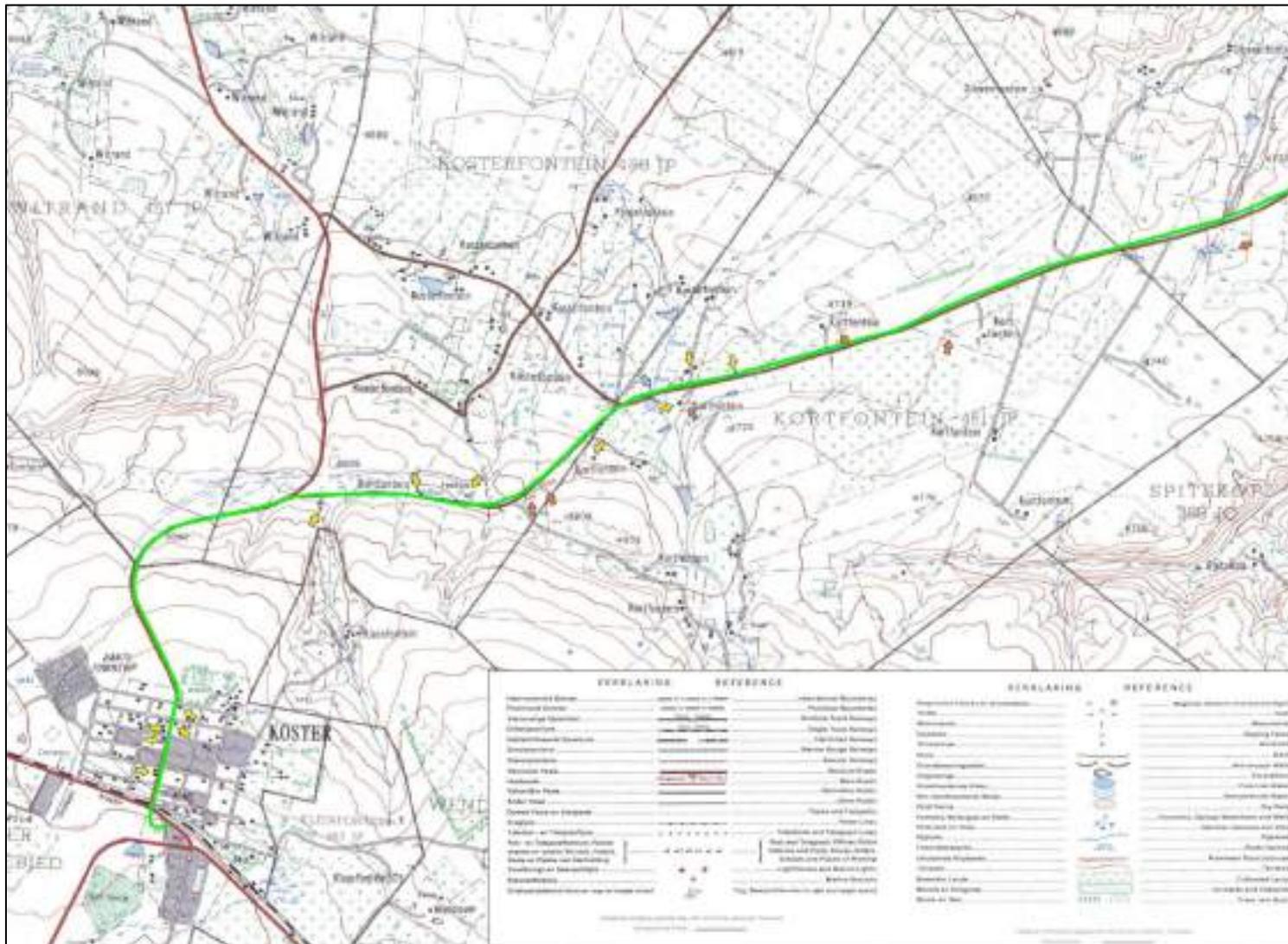


Figure 5-5: Historical topographic map of the southern section of the project area dating to 1968 indicating the location of the project area (green line). Historical Period sites are indicated by yellow arrows and so-called “huts” are indicated by orange arrows.

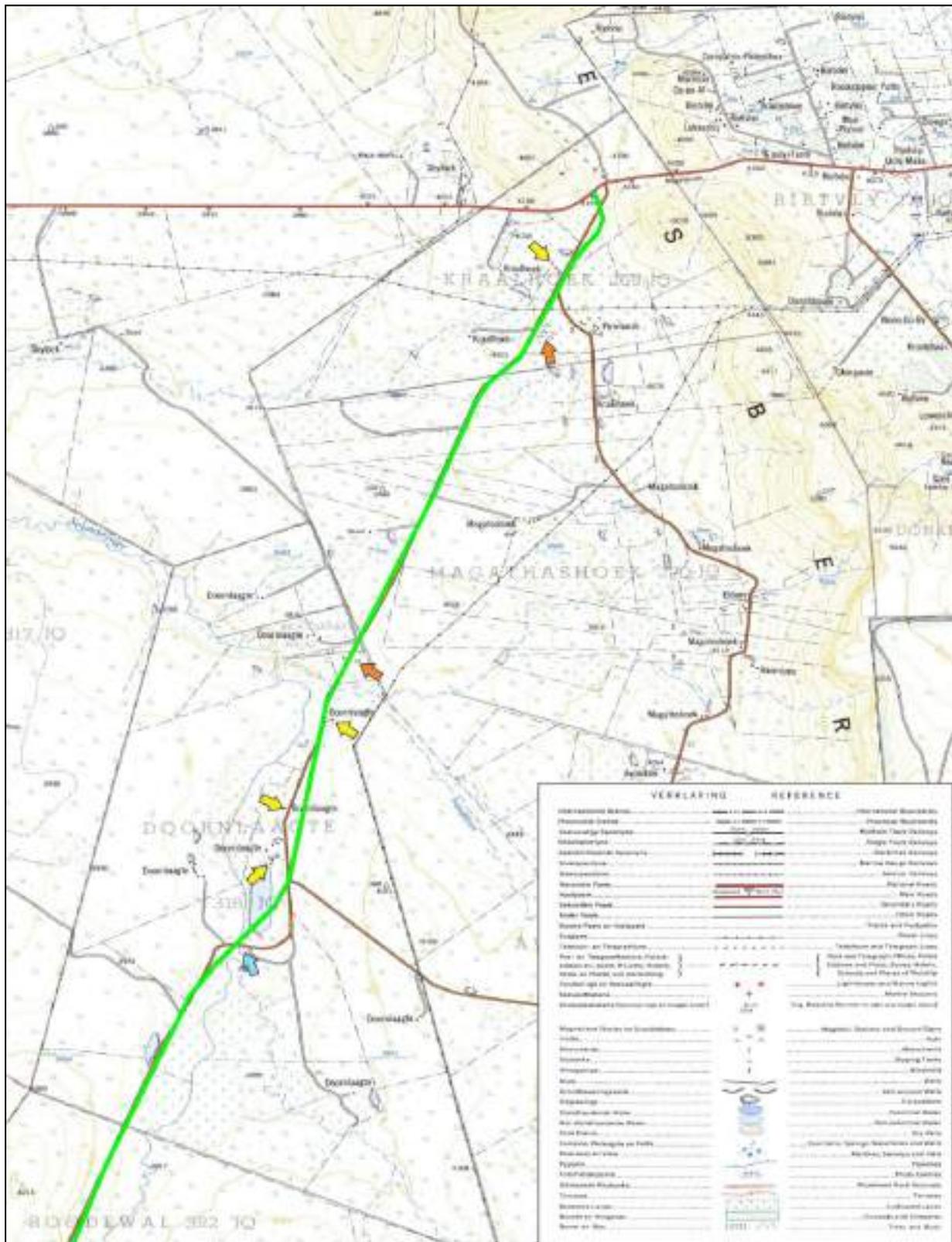


Figure 5-7: Historical topographic map of the northern section of the project area dating to 1968 indicating the location of the project area (green line). Historical Period sites are indicated by yellow arrows and so-called “huts” are indicated by orange arrows). The blue arrow indicates a river crossing.

5.2 The Archaeological Site Survey

- Site EXIGO-R52UG-IA01 Iron Age Stonewalled Site S25.80927° E27.00341°

A large Iron Age settlement consisting out of a number of stone walled sites arranged in large scalloping circular enclosures was identified from aerial imagery on the farm Olievenfontein in the southern section of the project area. The cluster of stone wall enclosures seems to extend for about 800m in all directions with the current R52 bisecting the site from east to west. Considering the proximity of the vast Molokwane Iron Age site 10km to the north on Selonskraal as well as the settlement history of Sotho-Tswana groups, the larger site probably dates to the late 18th early 19th century as part of the Molokwane Cultural Landscape. During the site inspection, corridors along the R52 road servitudes within the farm boundary were surveyed but no stone wall features were noted in these corridors. The larger complex is of scientific value in terms of its regional representation in the Iron Age farmer period landscape of the area and it is rated as of medium significance. Development activities should be limited to the road servitude and care should be taken to avoid impact to the Iron Age landscape during the upgrade of the road.



Figure 5-8: View of general surroundings at Site Exigo-R52UG-IA01 which is bisected by the current R52 route and servitude.

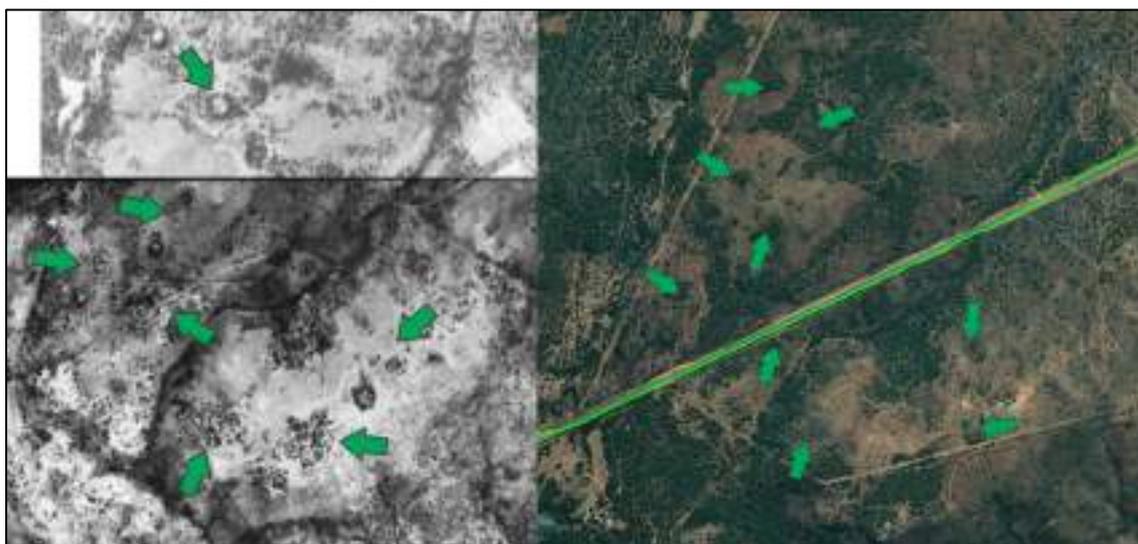


Figure 5-9: Extensive stone walling at Site Exigo-R52UG-IA01 visible on a historical aerial image (1950 – left) and on present-day image (2018 – right). Enclosures are indicated by green arrows.



Figure 5-10: View of general surroundings at Site Exigo-R52UG-IA01.



Figure 5-11: Poorly preserved stone features at t Site Exigo-R52UG-IA01in the project landscape.



Figure 5-12: A view of densely overgrown stone features at t Site Exigo-R52UG-IA01in the project landscape.



Figure 5-13: Stone walling, part of Site Exigo-R52UG-IA01 in the project landscape.



Figure 5-14: An Iron Age settlement on the farm Shylock west of the project area, similar to the settlement at Site Exigo-R52UG-IA01



Figure 5-15: Iron Age stone walling on the farm Shylock west of the project area, similar to the settlement in the project area.

- **Site EXIGO-R52UG-HP01 Historical Period Site / Feature**
S25.71767° E27.09154°

A vehicular bridge carries the old district road to Koster over the Selons River on the farm Doornlaagte in a northern portion of the project area. The single-lane bridge which occurs next to the existing vehicular bridge, was constructed out of concrete with metal posts and a cable installed as guard rail. The bridge is currently in use where it is used for farm access. An analysis of historical aerial photographs and topographic maps suggest that the structure was built before 1950 and the structure is thus older than 60 years. The feature is therefore generally protected under the National Heritage Resource Act (NHRA 1999). Since the bridge might contribute to an understanding of the rural historical development of bridge and culvert structures in the historical landscape of the area, the careful documentation of the structure will be necessary should it be altered or demolished. In addition, a permit for the alteration or destruction of the structure will be required, subject to terms stipulated in the NHRA. The site is located in close proximity of the project area (approximately 50m) and a **negative peripheral impact** on the site is anticipated.



Figure 5-16: The old vehicular bridge at Site Exigo-R52UG-HP01.

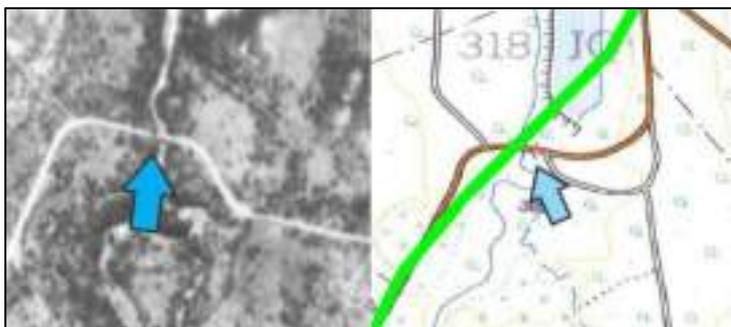


Figure 5-17: The river crossing and bridge at Site Exigo-R52UG-HP01 indicated on a historical aerial image (1950 – left) and on a historical topographical map (1968 – right).

- **Site EXIGO-R52UG-HP02 Historical Period Site / Feature**
S25.83833° E26.92398°

A building known as the “Feeshuis” or “Festival House” was identified from a historical topographic map dating to 1968 on the farm Kosterfontein. The feature is not indicated on later maps and it is also not visible on aerial imagery. At the site of the “huis” the surroundings have been converted into agricultural fields and only a few stone surface features, possibly foundations, remain. It is not clear if these foundations are those

of the house. A cultural context for the site is not clear but it is possible that the house was used for the Dutch Reformed Church Centenary in 1959 since other “Feeshuise” were known to be used in the area during these centenary celebrations. Even though the site is older than 60 years - and generally protected under the National Heritage Resource Act (NHRA 1999) little of its structure remains and the site is rated as of low significance. The site is located in the general landscape around the project area (approximately 100m) and **negative peripheral impact** on the site is anticipated.



Figure 5-18: View of the site of the “Feeshuis” at Site Exigo-R52UG-HP02.



Figure 5-19: The “Feeshuis” at Site Exigo-R52UG-HP02 indicated on a historical topographical map (1968 – left) and a current aerial image (2018 – right).

- **Site EXIGO-R52UG-HP03 Historical Period Site / Feature**
S25.83812° E26.91944°

A late Historical Period farmstead occurs directly north of the R52 on the farm Kosterfontein. The farmstead, indicated on topographic maps as “Kortfontein”, consists out of a farmhouse and outbuildings. The general preservation of the buildings, which are currently occupied, is good. An absolute temporal context for the farmstead could not be ascertained but it appears on an archive aerial photograph (1950) and historical topographical maps (for example, 1968). As such, the structure is older than 60 years - and generally protected under the National Heritage Resource Act (NHRA 1999). The site might afford a better understanding of architectural, settlement and social developments in the Koster landscape and it is rated as of medium heritage significance. Since the bridge might contribute to an understanding of the rural historical development of bridge and culvert structures in the historical landscape of the area, the careful documentation of the structure will be necessary should it be altered or demolished. In addition, a permit for the alteration or destruction of the structure will be required, subject to terms stipulated in the NHRA. The site is located in close proximity of the project area (approximately 30m) and a **negative impact** on the site could occur.



Figure 5-20: View of the Kortfontein farmstead at Site Exigo-R52UG-HP03.

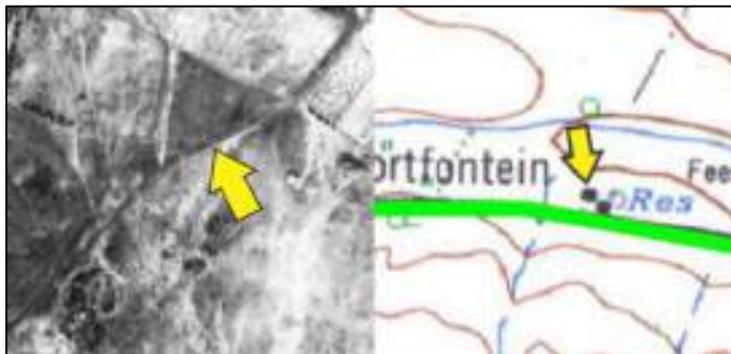


Figure 5-21: The farmstead complex at Site Exigo-R52UG-HP03 indicated on a historical aerial image (1950 – left) and on a historical topographical map (1968 – right).

- **Site EXIGO-R52UG-HP04 Historical Period Site / Feature**
S25.83950° E26.92574°

The remains of a concrete culvert carry the old district road to Koster over the Koster River on the farm Kortfontein. The road is not in use anymore and the preservation of the feature is poor. An absolute age for the feature is not known but it appears - in association with the old road - on a historical aerial photo dating to 1950. As such, the feature is older than 60 years - and generally protected under the National Heritage Resource Act (NHRA 1999) but no notable heritage or historical association could be established. The culvert is rated as of low significance. The site is located in close proximity of the project area (approximately 30m) and a **negative impact** on the site could occur.



Figure 5-22: The old concrete culvert at Site Exigo-R52UG-HP04.



Figure 5-23: The concrete culvert at Site Exigo-R52UG-HP04 visible on a historical aerial image (1950 – left) and on present-day image (2018 – right).

- **Site EXIGO-R52UG-HP05 Historical Period Site / Feature**
S25.83468° E26.93534°

The ruined remains of a Historical Period farmhouse occur south of the R52 on the farm Kortfontein. At the site, only the partially intact walls of the building remain. A small cemetery (Site EXIGO-R52UG-BP01) occurs directly north of the site. An absolute temporal context for the remains of the could not be ascertained but it appears on an archive aerial photograph (1952) and it is indicted as “Kortfontein” on a later topographical map (1968). The site is older than 60 years - and generally protected under the National Heritage Resource Act (NHRA 1999) but structures and features are poorly preserved and no notable heritage or historical association could be established. As such, the site is rated as of medium-low significance. The site is located in the general landscape around the project area (approximately 190m) and **negative peripheral impact** on the site is anticipated.



Figure 5-24: View of the remains of a farmhouse at Site Exigo-R52UG-HP05.

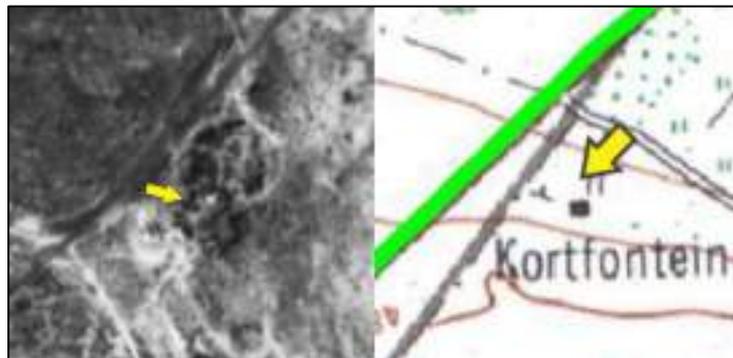


Figure 5-25: The farmstead building at Site Exigo-R52UG-HP05 indicated on a historical aerial image (1950 – left) and on a historical topographical map (1968 – right).

- Site EXIGO-R52UG-HP06 Historical Period Site / Feature
S25.86196° E26.89609°
- Site EXIGO-R52UG-HP07 Historical Period Site / Feature
S25.86711° E26.89553°

A number of Historical Period house structures and buildings occur in Rissik Street (R52) and at the junction with the R509 in Koster. Most of the structures are constructed from plastered brick walls with pitch roofs. In addition, other buildings are constructed out of red face-brick. Most of the dwellings are currently occupied as residences and well-preserved. An absolute temporal context for the buildings could not be ascertained but it appears on archive aerial photographs (1950) and historical topographical maps (for example, 1968). As such, the structures are older than 60 years - and generally protected under the National Heritage Resource Act (NHRA 1999). Since the dwellings might contribute to an understanding of the rural historical development of bridge and culvert structures in the historical landscape of the area, the careful documentation of the structure will be necessary should it be altered or demolished. In addition, a permit for the alteration or destruction of the structure will be required, subject to terms stipulated in the NHRA. These receptors are located in close proximity of the project area (approximately 50m) and a **negative impact** on the sites could occur.



Figure 5-26: View of a Later Historical Period house in Koster at Site Exigo-R52UG-HP06.



Figure 5-27: View of a Later Historical Period building at Site Exigo-R52UG-HP07.



Figure 5-28: Historical Period houses and structures at Site Exigo-R52UG-HP06 and Site Exigo-R52UG-HP07 indicated on a historical topographical map (1968) of Koster.

- **Site EXIGO-R52UG-BP01 Burial Site**
S25.83431° E26.93636°

A small farm cemetery was noted on the farm Kortfontein directly north of Site EXIGO-R52UG-HP05. The graves are dressed with marked marble headstones and the burials area positioned in a relative east-west orientation. The site is fenced off and the general preservation of the site is fair. The burial site, which is of high heritage significance, occurs within the project area and impact might occur. The site is located in the general landscape around the project area (approximately 250m) and **negative peripheral impact** on the site could occur.



Figure 5-29: View of the burial site at Site Exigo-R52UG-BP01.

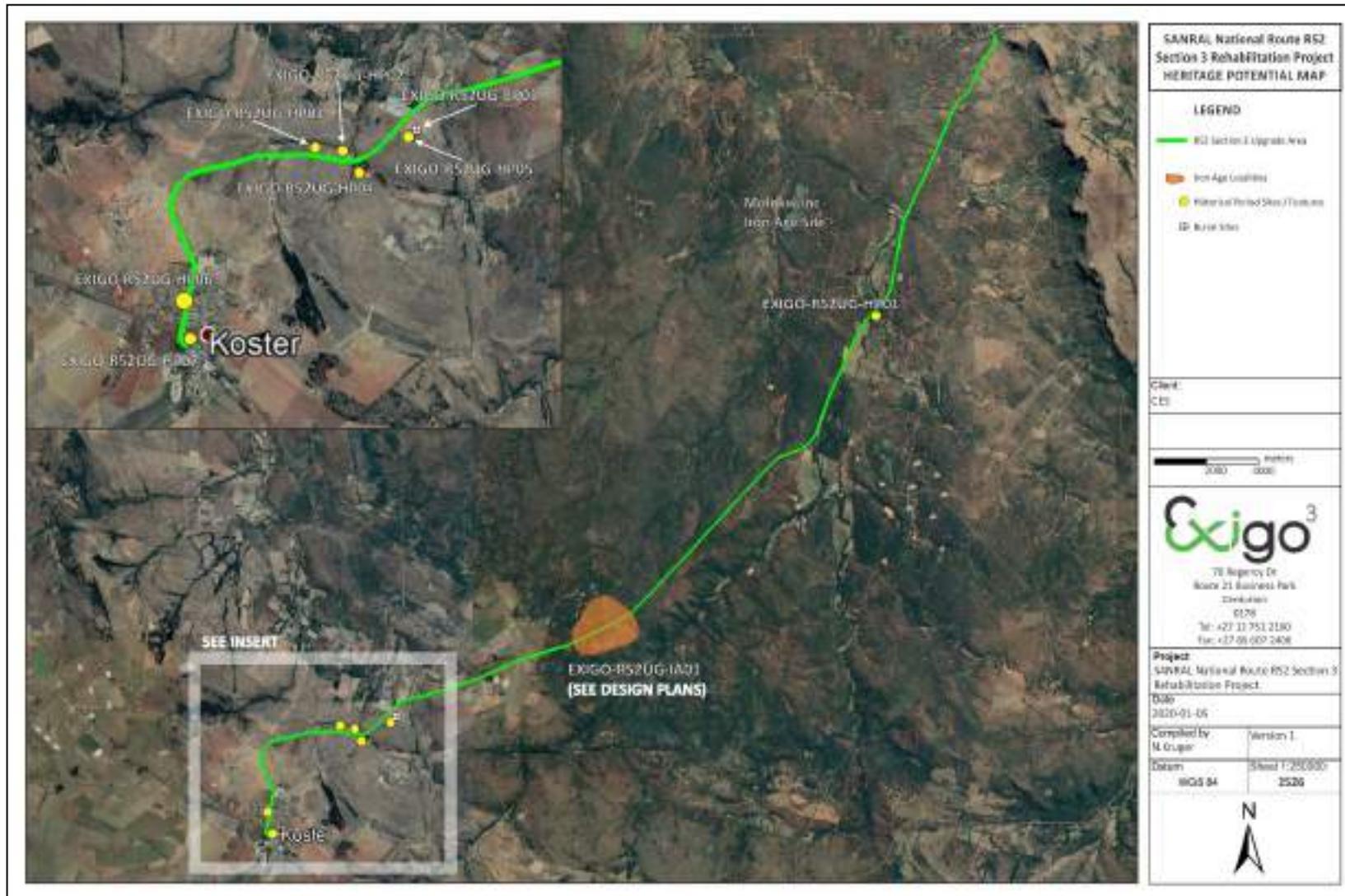


Figure 5-30: Aerial map indicating the location of the heritage site as discussed in the text.

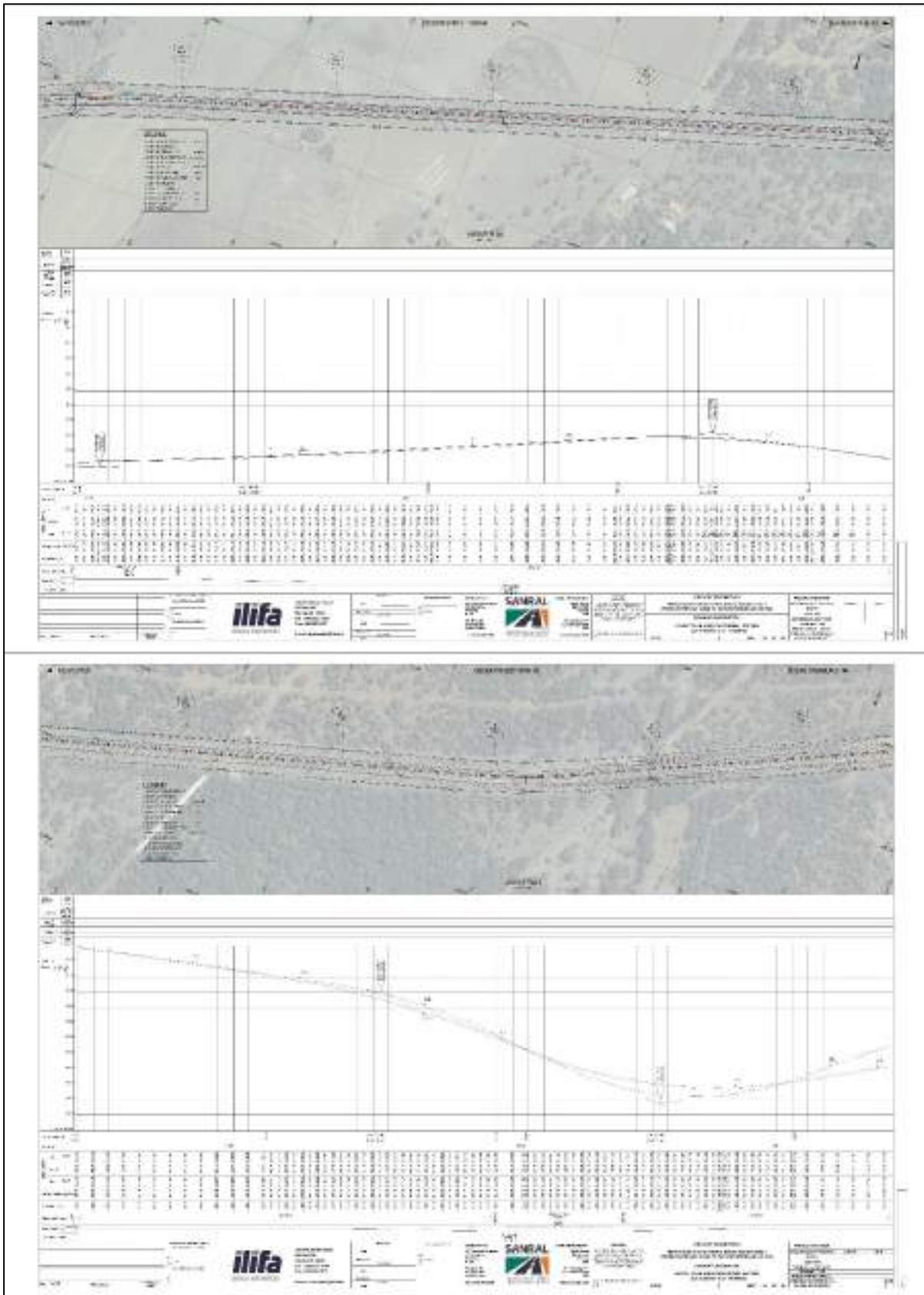


Figure 5-31: Project design plan of the road upgrade in relation to a western section of Site Exigo-R52UG-IA01.

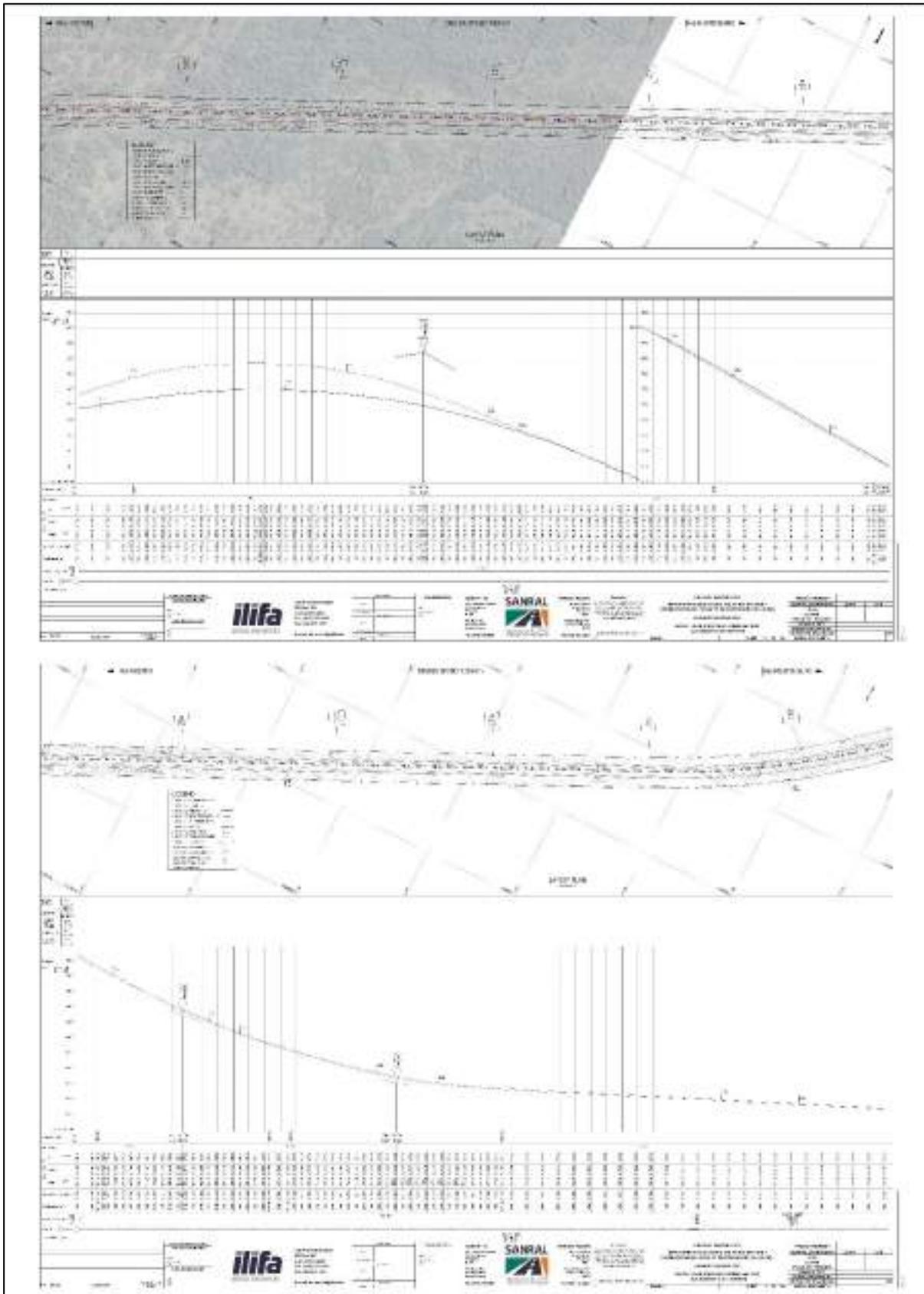


Figure 5-32: Project design plan of the road upgrade in relation to a central section of Site Exigo-R52UG-IA01.

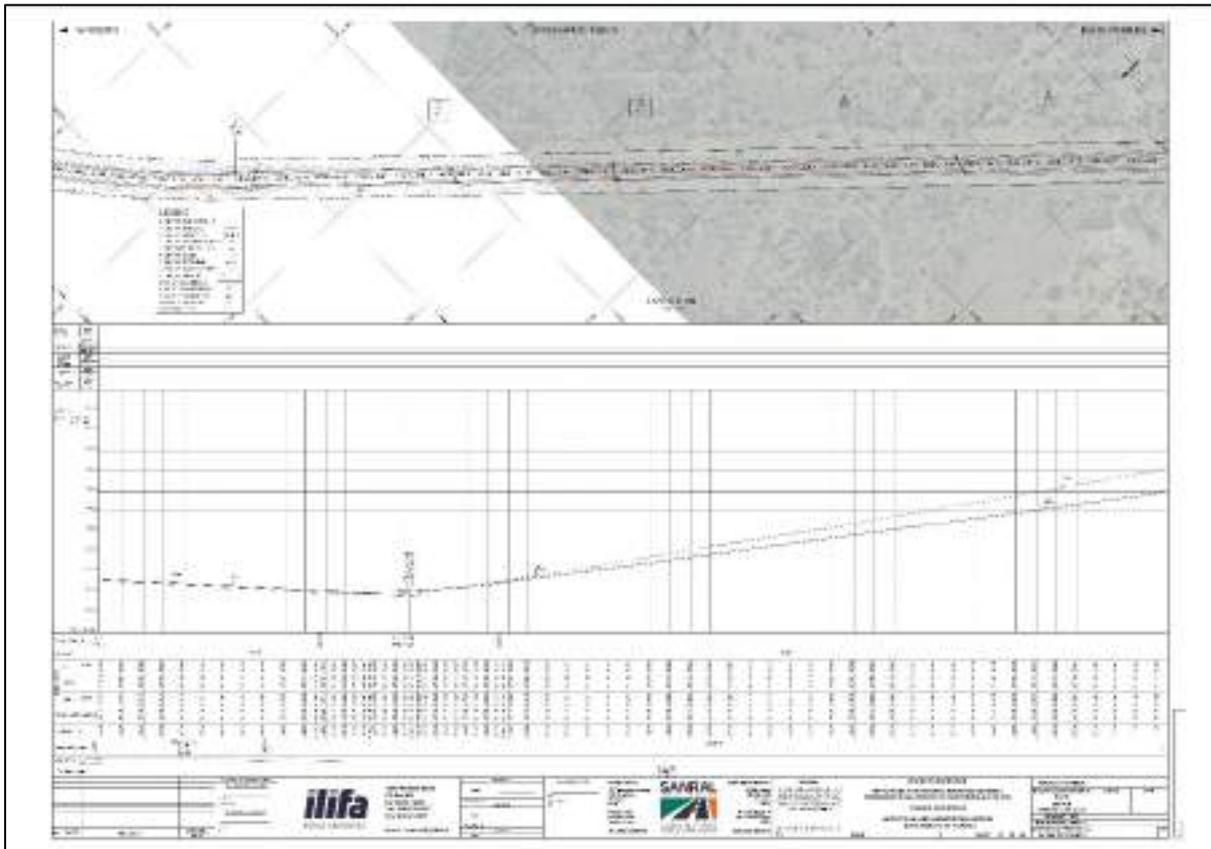


Figure 5-33: Project design plan of the road upgrade in relation to an eastern section of Site Exigo-R52UG-IA01.

6 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING

6.1 Potential Impacts and Significance Ratings²

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. A guideline for the rating of impacts and recommendation of management actions for areas of heritage potential within the study area is supplied in Section 10.2 of Addendum 3.

6.1.1 General assessment of impacts on resources

Generally, the value and significance of archaeological and other heritage sites might be impacted on by any activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, of any archaeological material or object (as indicated in the National Heritage Resources Act (No 25 of 1999)). Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts. The EIA process therefore specifies impact assessment criteria which can be utilised from the perspective of a heritage specialist study which elucidates the overall extent of impacts.

6.1.2 Direct impact rating

Direct or primary effects on heritage resources occur at the same time and in the same space as the activity, e.g. loss of historical fabric through demolition work. **Indirect effects or secondary effects** on heritage resources occur later in time or at a different place from the causal activity, or as a result of a complex pathway, e.g. restriction of access to a heritage resource resulting in the gradual erosion of its significance, which is dependent on ritual patterns of access (refer to Section 10.3 in the Addendum for an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected).

The following table summarizes impacts to the **medium** significance Iron Age site (**Site EXIGO-R52UG-IA01**) located in the project landscape

NATURE OF IMPACT: Impacts could involve displacement or destruction of Iron Age material in the project area.		
	Without mitigation	With mitigation
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGNITUDE	Major	Minor
PROBABILITY	Improbable	Very improbable
SIGNIFICANCE	Medium	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	No	No
CAN IMPACTS BE MITIGATED?	Yes	
MITIGATION: Avoidance, Phase 2 Specialist Analysis and Sampling, destruction permitting, monitoring by ECO.		

² Based on: Winter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

CUMULATIVE IMPACTS: No cumulative impact is anticipated.
RESIDUAL IMPACTS: n/a

The following table summarizes impacts to the **medium** significance Historical Period receptors (**Site Exigo-R52UG-HP01, Site Exigo-R52UG-HP03, Site Exigo-R52UG-HP06, Site Exigo-R52UG-HP07**) located in the project area.

NATURE OF IMPACT: Impacts could involve displacement or destruction of Iron Age material in the project area.		
	Without mitigation	With mitigation
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGINITUDE	Major	Minor
PROBABILITY	Highly Probable	Very improbable
SIGNIFICANCE	Medium	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	No	No
CAN IMPACTS BE MITIGATED?	Yes	
MITIGATION: Avoidance, Phase 2 Specialist Analysis and Sampling, destruction permitting, monitoring by ECO.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

The following table summarizes impacts to the **low** significance Historical Period receptors (**Site EXIGO-R52UG-HP02 Site EXIGO-R52UG-HP04 Site EXIGO-R52UG-HP05**) located in the project area.

NATURE OF IMPACT: Impacts could involve displacement or destruction of Iron Age material in the project area.		
	Without mitigation	With mitigation
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGINITUDE	Major	Minor
PROBABILITY	Improbable	Very improbable
SIGNIFICANCE	Low	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	No	No
CAN IMPACTS BE MITIGATED?	Yes	
MITIGATION: Monitoring by ECO, destruction permitting.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

The following table summarizes impacts to the **high** significance burial site (**Site EXIGO-R52UG-BP01**) located in the project area.

NATURE OF IMPACT: Impacts could involve displacement or destruction of Iron Age material in the project area.		
	Without mitigation	With mitigation
EXTENT	Local	Local
DURATION	Permanent	Permanent
MAGNITUDE	Major	Minor
PROBABILITY	Improbable	Very improbable
SIGNIFICANCE	High	Low
STATUS	Negative	Neutral
REVERSIBILITY	Non-reversible	Non-reversible
IRREPLACEABLE LOSS OF RESOURCES?	No	No
CAN IMPACTS BE MITIGATED?	Yes	
MITIGATION: Avoidance, Monitoring by ECO.		
CUMULATIVE IMPACTS: No cumulative impact is anticipated.		
RESIDUAL IMPACTS: n/a		

6.2 Evaluation Impacts

The landscape around Rustenburg has always played an important ecological and cultural role in the history of South Africa. A variety of heritage sites are known to occur in the larger region. These range from Stone Age sites, including rock engraving sites, Iron Age sites, mostly located in the flat areas where outcrops occur, as well as a large number of sites dating to Historic times. Portions of the project landscape have been altered in the past by recent site clearing. This inference was confirmed during an archaeological site assessment but significant archaeological remains were nonetheless encountered.

6.2.1 Archaeology

A large Iron Age occupation site in the project area is of medium significance in terms of its regional representation in the Iron Age farmer period landscape of the area. The site is located in the larger project landscape but impact on the site by the proposed development activities is improbable. Any potential impact on the site can be limited by the implementation of mitigation measures (avoidance, site management plan) for the sites, if / when required.

6.2.2 Built Environment

The project area is situated west of the town of Rustenburg and north of Koster where a number of Historical Period buildings and features, monuments and heritage sites are to be found. In the immediate surroundings of the project area is a number of Colonial Period farmsteads and Contemporary Period buildings, bridges and culverts of heritage value occur within the project area. Impact on the built environment might occur but the potential impact can be limited by the implementation of mitigation measures (avoidance, Phase 2 Study, monitoring relevant permitting) for the sites, if / when required.

6.2.3 Cultural Landscape

The larger Rustenburg area comprises a rich pre-colonial Iron Age and Colonial cultural landscape but the area immediately surrounding Shylock has been transformed by agriculture in places. In the project area landscape, the vast Iron Age settlement at Molokwane, situated no more than 10km north of the project area on the adjacent Selonskraal property, is hugely significant in terms of early Tshwana history in the Trans-Vaal. The site has been studied extensively and vast amounts of literature describe aspects of this megatown. The landscape in all its variation stretches over many kilometres but the proposed project is unlikely to result in a significant impact on the landscape sense of place.

6.2.4 Graves / Human Burials Sites

A small cemetery occurs in the general landscape in a southern portion of the project area. The receptor is of high significance in terms of social and cultural meaning and even though it will probably not be impacted on by the development, the implementation of mitigation measures (avoidance, site management, site monitoring) is required. In the rural areas of the North West Province, graves and cemeteries often occur around farmsteads in family burial grounds but they are also randomly scattered around archaeological and historical settlements. The probability of informal human burials encountered during development should thus not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, 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. Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from either SAHRA (for pre-colonial burials as well as burials later than about AD 1500). Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.

6.3 Management actions

Recommendations for relevant heritage resource management actions are vital to the conservation of heritage resources. A general guideline for recommended management actions is included in Section 10.4 of Addendum 3.

OBJECTIVE: ensure conservation of heritage resources of significance, prevent unnecessary disturbance and/or destruction of previously undetected heritage receptors.

- For the significant Iron Age Site (**Site EXIGO- R52UG-IA01**) occurring in the project area the following are required in terms of heritage management and mitigation:

PROJECT COMPONENT/S	All phases of construction and operation.		
POTENTIAL IMPACT	Damage/disturbance to sites and subsurface features and deposits.		
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.		
MITIGATION: TARGET/OBJECTIVE	To conserve the historical fabric of the sites and to locate undetected heritage remains as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
MITIGATION: ACTION/CONTROL	RESPONSIBILITY	TIMEFRAME	

Preferred Mitigation Procedure		
Avoidance: Implement a heritage conservation buffer demarcated by the road servitude around the heritage receptor, if/where necessary redesign infrastructure to avoid impact on the heritage landscape.	DEVELOPER QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.
Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)		
Phase 2 Study and Sampling: Full Phase 2 Specialist Assessment of sites including mapping, site sampling and possible conservation management and protection measures. Subject to authorisations and relevant permitting from heritage authorities and affected parties.	QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.
Fixed Mitigation Procedure (required)		
Site Monitoring: Regular examination of trenches and excavations.	ECO	Monitor as frequently as practically possible.
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.	
MONITORING	Successful location of sites by person/s monitoring.	

- For the poorly preserved remains of a Historical period features (**Site EXIGO-R52UG-HP02, Site EXIGO-R52UG-HP04, Site EXIGO-R52UG-HP0**) occurring in the landscape around the project footprint, the following are required in terms of heritage management and mitigation.

PROJECT COMPONENT/S	All phases of construction and operation.	
POTENTIAL IMPACT	Damage/destruction of sites.	
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.	
MITIGATION: TARGET/OBJECTIVE	To locate previously undetected heritage remains / graves as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.	
MITIGATION: ACTION/CONTROL	RESPONSIBILITY	TIMEFRAME
Fixed Mitigation Procedure (required)		
Site Monitoring: Regular examination of trenches and excavations. Alteration Permitting: The sites are older than 60 years and generally protected under the NHRA. Application for an alteration permit should be made with relevant heritage authorities (SAHRA, SAHRA Built Environment) should the site be alteration at any stage.	ECO HERITAGE PRACTITIONER	Monitor as frequently as practically possible.
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.	
MONITORING	Successful location of sites by person/s monitoring.	

- For the Historical Period structures and features of medium heritage significance (**Site Exigo-R52UG-HP01, Site Exigo-R52UG-HP03, Site Exigo-R52UG-HP06, Site Exigo-R52UG-HP07**) within the project area the following are required in terms of heritage management and mitigation:

PROJECT COMPONENT/S	All phases of construction and operation.	
POTENTIAL IMPACT	Damage/destruction of sites.	
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.	
MITIGATION: TARGET/OBJECTIVE	To conserve the historical fabric of the sites and to locate undetected heritage remains as soon as possible after disturbance so as to maximize	

	the chances of successful rescue/mitigation work.		
MITIGATION: ACTION/CONTROL		RESPONSIBILITY	TIMEFRAME
Fixed Mitigation Procedure (required)			
Site Monitoring: Regular examination of trenches and excavations.	ECO, HERITAGE ASSESSMENT PRACTITIONER	Monitor frequently as practically possible.	as as
Preferred Mitigation Procedure			
Avoidance: Implement a heritage conservation buffer of at least 20m around the heritage resource, redesign the proposed footprint to avoid the heritage resource and the proposed conservation buffer.	DEVELOPER	All phases of construction and operation.	
Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)			
Documentation of sites if features are to be impacted on by development (mapping, desktop study Phase 2 site sampling). Permitting if and when required.	HERITAGE ASSESSMENT PRACTITIONER	Prior to the commencement of construction and earth-moving.	
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
MONITORING	Successful location of sites by person/s monitoring.		

- For the highly significant burial site (**Exigo-NGP-BP01**) in the project area, the following are required in terms of heritage management and mitigation:

PROJECT COMPONENT/S	All phases of construction and operation.		
POTENTIAL IMPACT	Damage/disturbance to subsurface burials and surface burial features.		
ACTIVITY RISK/SOURCE	Digging foundations and trenches into sensitive deposits that are not visible at the surface.		
MITIGATION: TARGET/OBJECTIVE	To locate human burials as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
MITIGATION: ACTION/CONTROL		RESPONSIBILITY	TIMEFRAME
Preferred Mitigation Procedure			
Avoidance: Implement a heritage conservation buffer of at least 50m from the nearest graves in the cemetery. Implement a site management plan detailing strict site management conservation measures.	QUALIFIED SPECIALIST DEVELOPER	HERITAGE	Avoidance: Prior to the commencement of construction and earth-moving.
Site Monitoring: The project site in the vicinity of this receptor should be monitored by the heritage consultant or an ECO familiar with the heritage occurrences of the site: regular examination of trenches and excavations and site clearing in order to detect and preserve previously undocumented heritage receptors.	QUALIFIED SPECIALIST ECO	HERITAGE	Monitor monthly.
PERFORMANCE INDICATOR	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
MONITORING	Successful location of sites by person/s monitoring.		

7 RECOMMENDATIONS

The landscape around Rustenburg has always played an important ecological and cultural role in the history of South Africa. A variety of heritage sites are known to occur in the larger region. These range from Stone Age sites, Iron Age sites, mostly located in the flat areas where outcrops occur, as well as a large number of sites dating to Historic times. Portions of the project area subject to this assessment have been altered by recent site clearing. This inference was confirmed during an archaeological site assessment but significant archaeological remains were nonetheless encountered. The following recommendations are made based on general observations in the proposed SANRAL National Route R52 Section 3 Rehabilitation Project area:

- The large Iron Age occupation (**Site EXIGO- R52UG-IA01**) in the project landscape is of medium significance in terms of its regional representation in the Iron Age farmer period landscape of the area. The site is probably related to the vast Iron Age settlement at Molokwane, situated no more than 10km north and west of the project area on the adjacent Selonskraal property. The Molokwane cultural horizon is notably significant in terms of early Tswana history in the Trans-Vaal. **Site EXIGO- R52UG-IA01** is located in the larger project landscape where it is bisected by the current R52 and it is primarily recommended that a heritage conservation buffer demarcated by the current road servitude be implemented for the heritage receptor. If this measure proves unachievable and impact on any features related to this site is foreseen, the historical fabric of the sites should be conserved by means of a Phase 2 Specialist study (mapping, site sampling and possible conservation management and protection) and the necessary permits should be obtained from the relevant Heritage Resources Authorities.
- A so-called “Feeshuis” or “Festival House” structure, potentially associated with the centenary of the Reformed church in 1958, is indicated on a historical topographic map dating to 1968 (**Site EXIGO-R52UG-HP02**). The site was probably destroyed in the last 40 years where agricultural fields were established and single stone features of unknown function remain at the site. Cognizance should nonetheless be taken of the historical presence of the feature in the landscape as it is possible that structural features and material culture could still be present in the immediate surroundings of the site. Generally, it is recommended that the site and its surrounds should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.
- The poorly preserved ruins of a Historical Period farmhouse (**Site EXIGO-R52UG-HP05**) and a late Historical Period road culvert (**Site EXIGO-R52UG-HP04**) occur along a southern section of the project. The sites are rated as low heritage significance and impact seems unlikely but legislation requires that an alteration / destruction permit be obtained from the relevant heritage resources authority (SAHRA, SAHRA Built Environment Unit) should the site be altered at any stage. It is recommended that the site and its surrounds be closely monitored by an informed ECO during development in order to avoid the destruction of previously undetected heritage remains.
- A Historical Period vehicular bridge (**Site Exigo-R52UG-HP01**) as well as a number of late Historical Period residential and farmhouse buildings and structures occur along the R52 and in the town of Koster (**Site Exigo-R52UG-HP03**, **Site Exigo-R52UG-HP06**, **Site Exigo-R52UG-HP07**). These features have the potential to provide an understanding of architectural, settlement and social developments in the Koster landscape and they are of medium heritage significance. The sites occur in close proximity of the project alignment but in Koster, construction will be limited to the area between curb and curb with the construction of sidewalks. As such, it is recommended that a conservation buffer of 20m and / or a buffer demarcated by the boundary of the properties (in most cases demarcated by existing fencing around houses and buildings) be maintained. In addition, temporary construction barricades

should be erected where the proposed buffers are encroached on. Should direct impact on any of the structures prove inevitable, the buildings and structures should be adequately documented by means of a Phase 2 Specialist Study. The study should minimally include the mapping, documentation and possible sampling of the sites in order to conserve the historical fabric of the heritage resources. The necessary excavation and destruction permits should be obtained from the relevant Heritage Resources Authorities prior to site sampling and destruction. Generally, the site should be monitored by an informed ECO in order to avoid the destruction of previously undetected heritage remains.

- A small cemetery occurs in a southern portion of the project area on farmlands (**Site EXIGO-R52UG-BP01**). This highly significant heritage resource is protected in terms of heritage and social value by the National Heritage Resource Act (NHRA 1999) and it is essential that the long-term conservation of the site is ensured. The cemetery is located some distance from the R52 and the project alignment but it is nonetheless recommended that a heritage conservation buffer of at least 50m be implemented from the nearest graves in the cemetery, to the periphery of the impact buffer of construction activities. The cemetery and burials at the site should be monitored through all stages of development by an informed ECO or by the heritage Specialist in order to detect any impact on the resource at the earliest opportunity. **Should impact on any burial or cemetery in the project area prove inevitable at any stage of development, full grave relocation processes should be effected. This measure should be undertaken by a qualified archaeologist, and in accordance with relevant legislation, permitting, statutory permissions and subject to any local and regional provisions, laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials (see Addendum B).**
- It is recommended that the EIA public participation and social consultative process address the possibility of graves occurring in the project area.
- Considering the localised nature of heritage remains, the general monitoring of the development progress by an ECO or by the heritage specialist is recommended for all stages of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately.
- It is essential that cognisance be taken of the larger archaeological landscape of the area in order to avoid the destruction of previously undetected heritage sites. It should be stated that it is likely that further undetected archaeological remains might occur elsewhere in the Study Area along water sources and drainage lines, fountains and pans would often have attracted human activity in the past. Also, since Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits. Burials and historically significant structures dating to the Colonial Period occur on farms in the area and these resources should be avoided during all phases of construction and development, including the operational phases of the development.

In addition to these site-specific recommendations, careful cognisance should be taken of the following:

- As Palaeontological remains occur where bedrock has been exposed, all geological features should be regarded as sensitive.
- Water sources such as drainage lines, fountains and pans would often have attracted human activity in the past. As Stone Age material occur in the larger landscape, such resources should be regarded as potentially sensitive in terms of possible subsurface deposits.

8 GENERAL COMMENTS AND CONDITIONS

This AIA report serves to confirm the extent and significance of the heritage landscape of the proposed SANRAL National Route R52 Section 3 Rehabilitation Project area. The larger heritage horizon encompasses rich and diverse archaeological landscapes and cognisance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, during construction, any possible archaeological material culture discoveries are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. Such material culture might include:

- Formal Earlier Stone Age stone tools.
- Formal MSA stone tools.
- Formal LSA stone tools.
- Potsherds
- Iron objects.
- Beads made from ostrich eggshell and glass.
- Ash middens and cattle dung deposits and accumulations.
- Faunal remains.
- Human remains/graves.
- Stone walling or any sub-surface structures.
- Historical glass, tin or ceramics.
- Fossils.

If such sites were to be encountered or impacted by any proposed developments, recommendations contained in this report, as well as endorsement of mitigation measures as set out by AMAFA, SAHRA, the National Resources Act and the CRM section of ASAPA will be required. It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, represent the area's complete archaeological legacy. Many sites/features may be covered by soil and vegetation and might only be located during sub-surface investigations. If subsurface archaeological deposits, artefacts or skeletal material were to be recovered in the area during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately (*cf.* **NHRA (Act No. 25 of 1999)**, Section 36 (6)). It must also be clear that Archaeological Specialist Reports will be assessed by the relevant heritage resources authority (SAHRA).

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10 ADDENDUM 1: HERITAGE LEGISLATION BACKGROUND

10.1 CRM: Legislation, Conservation and Heritage Management

The broad generic term Cultural Heritage Resources refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

10.1.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

d. National Heritage Resources Act No 25 of 1999, section 35

According to the National Heritage Resources Act of 1999 a historical site is any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years. This clause is commonly known as the "60-years clause". Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. "Tell" refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts).

The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens
- visual art objects
- military objects
- numismatic objects
- objects of cultural and historical significance
- objects to which oral traditions are attached and which are associated with living heritage
- objects of scientific or technological interest
- any other prescribed category

With regards to activities and work on archaeological and heritage sites this Act states that:

"No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority." (34. [1] 1999:58)

and

"No person may, without a permit issued by the responsible heritage resources authority-

- (d) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (e) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*

- (f) *trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (g) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."*

and

"No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

- (h) *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;*
- (i) *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;*
- (j) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

e. 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 of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 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 MEC as well as the relevant Local Authorities.

10.1.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:

"38. (1) Subject to the provisions of subsections (7), (8) and (9), 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 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- (c) any development or other activity which will change the character of a site:
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (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 by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000 m² in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

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

And:

“The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

- (k) The identification and mapping of all heritage resources in the area affected;
- (l) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;
- (m) an assessment of the impact of the development on such heritage resources;
- (n) 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;
- (o) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- (p) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- (q) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64).”

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60

years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects. Heritage resources management and conservation.

10.2 Assessing the Significance of Heritage Resources

Archaeological sites, as previously defined in the National Heritage Resources Act (Act 25 of 1999) are places in the landscape where people have lived in the past – generally more than 60 years ago – and have left traces of their presence behind. In South Africa, archaeological sites include hominid fossil sites, places where people of the Earlier, Middle and Later Stone Age lived in open sites, river gravels, rock shelters and caves, Iron Age sites, graves, and a variety of historical sites and structures in rural areas, towns and cities. Palaeontological sites are those with fossil remains of plants and animals where people were not involved in the accumulation of the deposits. The basic principle of cultural heritage conservation is that archaeological and other heritage sites are valuable, scarce and *non-renewable*. Many such sites are unfortunately lost on a daily basis through development for housing, roads and infrastructure and once archaeological sites are damaged, they cannot be re-created as site integrity and authenticity is permanently lost. Archaeological sites have the potential to contribute to our understanding of the history of the region and of our country and continent. By preserving links with our past, we may not be able to revive lost cultural traditions, but it enables us to appreciate the role they have played in the history of our country.

- Categories of significance

Rating the significance of archaeological sites, and consequently grading the potential impact on the resources is linked to the significance of the site itself. The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences. The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3 are used when determining the cultural significance or other special value of archaeological or historical sites. In addition, ICOMOS (the Australian Committee of the International Council on Monuments and Sites) highlights four cultural attributes, which are valuable to any given culture:

- *Aesthetic value:*

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria include consideration of the form, scale, colour, texture and material of the fabric, the general atmosphere associated with the place and its uses and also the aesthetic values commonly assessed in the analysis of landscapes and townscape.

- *Historic value:*

Historic value encompasses the history of aesthetics, science and society and therefore to a large extent underlies all of the attributes discussed here. Usually a place has historical value because of some kind of influence by an event, person, phase or activity.

- *Scientific value:*

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality and on the degree to which the place may contribute further substantial information.

- *Social value:*

Social value includes the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a certain group.

It is important for heritage specialist input in the EIA process to take into account the heritage management structure set up by the NHR Act. It makes provision for a 3-tier system of management including the South Africa Heritage Resources Agency (SAHRA) at a national level, Provincial Heritage Resources Authorities (PHRAs) at a provincial and the local authority. The Act makes provision for two types or forms of protection of heritage resources; i.e. formally protected and generally protected sites:

Formally protected sites:

- Grade 1 or national heritage sites, which are managed by SAHRA
- Grade 2 or provincial heritage sites, which are managed by the provincial HRA (MP-PHRA).
- Grade 3 or local heritage sites.

Generally protected sites:

- Human burials older than 60 years.
- Archaeological and palaeontological sites.
- Shipwrecks and associated remains older than 60 years.
- Structures older than 60 years.

With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise and if the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low. The significance of archaeological sites is generally ranked into the following categories.

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, auguring), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinterment [including 2a, 2b & 3]

Furthermore, the significance of archaeological sites was based on six main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter),
- Social value,
- Uniqueness, and
- Potential to answer current and future research questions.

11 ADDENDUM 2: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE

11.1 Site Significance Matrix

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these. The following matrix is used for assessing the significance of each identified site/feature.

2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa's history or pre-colonial history.			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			
It has significance relating to the history of slavery in South Africa.			
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.			
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local			
Specific community			

11.2 Impact Assessment Criteria

The following table provides a guideline for the rating of impacts and recommendation of management actions for sites of heritage potential.

Significance of the heritage resource

This is a statement of the nature and degree of significance of the heritage resource being affected by the activity. From a heritage management perspective, it is useful to distinguish between whether the significance is embedded in the physical fabric or in associations with events or persons or in the experience of a place; i.e. its visual and non-visual qualities. This statement is a primary informant to the nature and degree of significance of an impact and thus needs to be thoroughly considered. Consideration needs to be given to the significance of a heritage resource at different scales (i.e. site-specific, local, regional, national or international) and the relationship between the heritage resource, its setting and its associations.

Nature of the impact

This is an assessment of the nature of the impact of the activity on a heritage resource, with some indication of its positive and/or negative effect/s. It is strongly informed by the statement of resource significance. In other words, the nature of the impact may be historical, aesthetic, social, scientific, linguistic or architectural, intrinsic, associational or contextual (visual or non-visual). In many cases, the nature of the impact will include more than one value.

Extent

Here it should be indicated whether the impact will be experienced:

- On a site scale, i.e. extend only as far as the activity;
- Within the immediate context of a heritage resource;
- On a local scale, e.g. town or suburb
- On a metropolitan or regional scale; or
- On a national/international scale.

Duration

Here it should be indicated whether the lifespan of the impact will be:

- Short term, (needs to be defined in context)
- Medium term, (needs to be defined in context)
- Long term where the impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or
by human intervention; or
- Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the
impact can be considered transient.

Of relevance to the duration of an impact are the following considerations:

- Reversibility of the impact; and
- Renewability of the heritage resource.

Intensity

Here it should be established whether the impact should be indicated as:

- Low, where the impact affects the resource in such a way that its heritage value is not affected;
- Medium, where the affected resource is altered but its heritage value continues to exist albeit in a modified way; and
- High, where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed.

Probability

This should describe the likelihood of the impact actually occurring indicated as:

- Improbable, where the possibility of the impact to materialize is very low either because of design or historic experience;
- Probable, where there is a distinct possibility that the impact will occur;
- Highly probable, where it is most likely that the impact will occur; or
- Definite, where the impact will definitely occur regardless of any mitigation measures

Confidence

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.
- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

Impact Significance

The significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature and degree of heritage significance and the nature, duration, intensity, extent, probability and confidence of impacts and can be described as:

- Low; where it would have a negligible effect on heritage and on the decision
- Medium, where it would have a moderate effect on heritage and should influence the decision.
- High, where it would have, or there would be a high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision;
- Very high, where it would have, or there would be high risk of, an irreversible and possibly irreplaceable negative impact on heritage. Impacts of very high significance should be a central factor in decision-making.

11.3 Direct Impact Assessment Criteria

The following table provides an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected

HERITAGE CONTEXT	TYPE OF DEVELOPMENT			
	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
CONTEXT 1 High heritage Value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
CONTEXT 2 Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected
CONTEXT 3 Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
CONTEXT 4 Low to no heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage value expected	Moderate heritage impact expected
NOTE: A DEFAULT "LITTLE OR NO HERITAGE IMPACT EXPECTED" VALUE APPLIES WHERE A HERITAGE RESOURCE OCCURS OUTSIDE THE IMPACT ZONE OF THE DEVELOPMENT.				
HERITAGE CONTEXTS		CATEGORIES OF DEVELOPMENT		
<p>Context 1: Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources</p> <p>Context 2: Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.</p> <p>Context 3:</p>		<p>Category A: Minimal intensity development</p> <ul style="list-style-type: none"> - No rezoning involved; within existing use rights. - No subdivision involved. - Upgrading of existing infrastructure within existing envelopes - Minor internal changes to existing structures - New building footprints limited to less than 1000m². <p>Category B: Low-key intensity development</p> <ul style="list-style-type: none"> - Spot rezoning with no change to overall zoning of a site. - Linear development less than 100m 		

<p>Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources</p> <p>Context 4: Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.</p>	<ul style="list-style-type: none"> - Building footprints between 1000m²-2000m² - Minor changes to external envelop of existing structures (less than 25%) - Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%). <p>Category C: Moderate intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site between 5000m²-10 000m². - Linear development between 100m and 300m. - Building footprints between 2000m² and 5000m² - Substantial changes to external envelop of existing structures (more than 50%) - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%) <p>Category D: High intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site in excess of 10 000m² - Linear development in excess of 300m. - Any development changing the character of a site exceeding 5000m² or involving the subdivision of a site into three or more erven. - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%)
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11.4 Management and Mitigation Actions

The following table provides a guideline of relevant heritage resources management actions is vital to the conservation of heritage resources.

<p>No further action / Monitoring</p> <p>Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.</p> <p>Avoidance</p> <p>This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.</p> <p>Mitigation</p> <p>This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.</p> <p>Compensation</p> <p>Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.</p> <p>Rehabilitation</p> <p>Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:</p> <ul style="list-style-type: none"> - The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation. - Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric. - Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource. <p>Enhancement</p>
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An EOH Company

Email: info@exigo3.com
Tel: +27 012 751 2160
Fax: +27 086 607 2406

Eutopia Corner Building 1,
38 Gen Van Rensburg St,
Pretorius Park,
Pretoria, 0020

Postnet Suite 74,
Private Bag X07,
Arcadia, 0007

Vat nr: 481034054
Registration nr: 2006/011434/07

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www.exigo3.com

NELIUS LE ROUX KRUGER

BHCS Hons. (Archaeology)
(Date compiled: 2018/02/10)

PERSONAL DETAILS

Nationality:	South African
Date of Birth:	3 April 1979
Postal Address:	Postnet Suite 74, Private Bag X07, Arcadia, 0007
Work Address:	The Village Office Block E, 309 Glenwood Road, Faerie Glen, Pretoria, 0081
Telephone numbers:	W: +27 12 751 2160 C: +27 82 967 2131
Identity number:	790403 5029 087
Languages:	English, Afrikaans, Sepedi (Basic)

HIGHER EDUCATION

University Attended:	University of the Pretoria
Degree Obtained:	BA Archaeology (<i>Cum Laude</i>) 2002
Major Subjects:	Anthropology, Archaeology, English, Afrikaans
University Attended:	University of the Pretoria
Degree Obtained:	BHCS Hons. Archaeology (<i>Cum Laude</i>) 2004

PROFESSIONAL AFFILIATIONS

Member of the Association for South African Professional Archaeologists (ASAPA).

Member of the CRM Section of the Association for South African Professional Archaeologists (ASAPA).

Member of the Society of Africanist Archaeologists (SAFA).

Member of the South African Museums Association (SAMA).

Accredited Professional Archaeologist & CRM Practitioner by the Association for South African Professional Archaeologists (ASAPA) & Heritage Natal (AMAFA).

HONOURS AND AWARDS

Aage V. Jensen Development Foundation (Denmark) grant for participation in the joint SAFA/PAA Congress, Dakar, Senegal (2010).

Five Hundred Years Initiative (NRF) Research Grant (2008 – 2009).

University of Pretoria post-graduate Merit Grant for MA studies in Archaeology (2004 – 2008).

University of Pretoria (CINDEK) bursary for post-graduate studies awarded by the Centre of Indigenous Knowledge (2003).

South African Archaeological Society's Hanisch Award for best graduate student in the Department of Anthropology and Archaeology at the University of Pretoria (2003).

University of Pretoria Academic Honorary Colours (2002).

University of Pretoria Graduate Merit Grant (2002).

University of Pretoria honorarium for archaeological collections management at the Department of Archaeology and Anthropology (2001).

CURRENT STATUS

- Heritage Resources Manager for Exigo Sustainability (formerly AGES Gauteng)
- Social impact Assessor and Research Associate for Exigo Sustainability (formerly AGES Gauteng)
- Associate and Unit Manager at Exigo Sustainability (formerly AGES Gauteng)
- Part-time Lecturer (Archaeology) Department Anthropology and Archaeology (University of Pretoria)

SPECIALITY FIELDS

- Integrated Heritage and Archaeological Impact Assessment (Phase 1, 2 & 3), complying to SAHRA, PHRA and industry standards for heritage impact assessments.
- Industry standard Heritage Resources Management Plans, complying to SAHRA & PHRA standards for heritage impact assessments.
- Heritage destruction / alteration / excavation permitting facilitation and associated research.
- General facilitation in consultation and negotiation with heritage resources authorities (SAHRA, PHRA's).
- Heritage-related social consultation and focus group facilitation (for example, with Interested and Affected parties).
- Historical and anthropological studies.
- Heritage and Social Spatial Development Frameworks & Strategic Development Area Frameworks for municipalities.
- Industry standard and compliant Social Impact Assessments (SIA's).
- Mine Social and Labour Plans (SLP's) and social facilitation.
- Socio-cultural baseline studies and research.
- GIS and geo-spatial referencing and data analysis, heritage and social mapping.

PROFESSIONAL SKILLS & EXPERIENCE

Nelius Le Roux Kruger, an associate at Exigo Sustainability, is an accredited ASAPA (Association of Southern African Professional Archaeologists) archaeologist and Culture Resources Management (CRM) Practitioner with over 14 years' experience in the fields of heritage resources assessment, conservation management and social studies. In addition, he is involved in various aspects of social research and social impact assessment. He holds a BHCS (Hons) Archaeology degree from the University of Pretoria specializing in the Iron Age Farmer and Colonial Periods of South Africa. In addition, he is a master's Degree candidate at the University of Johannesburg in Social Impact Assessment. He has worked extensively on archaeological and heritage sites of the time periods and cultural contexts present in Southern Africa, both in the commercial and academics spheres and he holds vast experience in human remains relocation and related social consultation. Nelius has conducted social research projects across Southern Africa involving Social Impact Assessments as well as the compilation and monitoring of mining social and labor plans, public meeting facilitation and socio-cultural studies. His experience is not limited to South Africa and he has worked on archaeological and socio-cultural research projects across Africa and the Middle East. His publication record includes a number of academic publications in peer reviewed journals and books as well as a vast number of Heritage Management Reports. Nelius' expertise includes CRM assessment and management, applications in heritage legislation, Social Impact Assessment, social consulting as well as geospatial and Geographical Information Systems (GIS) applications in archaeology and CRM. Nelius is a conscientious and committed archaeologist and social scientist who is dedicated to the professionalism of the discipline of archaeology and social studies. He approaches all aspects of his specialist fields with enthusiasm, maintaining best practise at all times. When working with people, he strives to manage interpersonal communication and group dynamics with dedication, promoting positive group cohesion.

SELECTED PUBLICATIONS

- Kruger, N. In Prep. Living the frontier: Ritual and Conflict in Ha-Tshirundu.
- Kruger, N. 2016. Forthcoming. The Crocodile in his Pool: Notes on a significant find in the Ha-Tshirundu area, Limpopo Valley, South Africa. Nyame Akuma Bulletin of the Association of Africanist Archaeologists.
- Antonites, A. & Kruger, N. et al. 2014. Report on excavations at Penge, a first-millennium Doornkop settlement. Southern African Humanities 26:177-92
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SELECTED PROJECTS

NATIONAL

- Phase 1 Heritage Impact Assessment (HIA) and further heritage management for the upgrading of the Warrenton Anglo Boer War blockhouse, Warrenton, Northern Cape Province
- Phase 1 Heritage Impact Assessment (HIA) and Phase 2 Site Investigation for the restoration of the old Johannesburg Fort, Constitution Hill, Johannesburg, Gauteng Province
- Phase 1 Heritage Impact Assessments (HIAs) for 20 PV Solar Parks on location at Upington, Kimberley, Vryburg, Kuruman, Kathu, Hotazel, Douglas, Groblershoop and Prieska, Northern Cape Province, South Africa.
- Phase 1 Heritage Impact Assessments (HIAs) for 18 large scale water supply projects on location at East London, Mthatha, Ngcobo, Barley East, Elliot, Cathcart, King Williams Town and Mdantsane, Eastern Cape Province, South Africa.
- Phase 1 Heritage Impact Assessments (HIAs) for more than 40 residential infrastructure developments across South Africa.
- Phase 2 Heritage Mitigation Projects for the Erasmus Park Residential Development, Nokeng Mining Project and the Bolubedu Solar Park.

INTERNATIONAL

- Heritage Impact Assessment for the Kitumba Copper-Gold Project (KCGP), Zambia
- Heritage Scoping Study for the BTR Kitumba Project, Mumbwa, Zambia
- Heritage Scoping Study for the Buckreef Gold Project, Geita, Tanzania
- Phase 2 mitigation and heritage assessment of the Koidu Monkey Hill Iron Age metallurgy site, Koidu Diamond Mine, Sierra Leone
- Phase 2 heritage site mitigation of the Sessenge archaeological site, Kibali Gold Mine, Democratic Republic of the Congo

SELECTED CULTURE RESOURCES MANAGEMENT (CRM) AND HERITAGE IMPACT ASSESSMENT (HIA) REPORTS

2018. Phase 1 Archaeological Impact Assessment for the Middenspruit Prospecting Project, Kroonstad, Free State Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Wright Park Development Development, Gauteng Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Bospoort Prospecting Project, Kroonstad, Free State Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Lanyon Vale Prospecting Project, Kroonstad, Free State Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Transnet Diepspruit Railway Loop, Limpopo Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Transnet Marakele Railway Loop, Limpopo Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Transnet Boshoeke Railway Loop, Northwest Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Transnet Heysterkrand Railway Loop, Northwest Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Bushbuck Ridge Township Development, Mpumalanga Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the proposed Noordgrens PV Station, Musina, Limpopo Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Nigel Diesel Pipeline Project. Gauteng Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the proposed Trompsburg Piggery, Free State Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the proposed Wilgeboom Chicken Farm and Hatchery, Potchefstroom, Northwest Province. Pretoria: Exigo Sustainability
2018. Phase 1 Archaeological Impact Assessment for the Libode Rosedale Bulk Water Supply Project, Eastern Cape Province. Pretoria: Exigo Sustainability.
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kragtens die Wet op Hoër Onderwys, 1997 en die Statuut van die Universiteit

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Visekanselier en Rektor

Namens die Fakulteit
Geesteswetenskappe

Dekaan



Registrateur

2002-04-11



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Scientiae Honores

(met lof)

met spesialisering in

Argeologie

met al die regte en voorregte daaraan verbonde by geleentheid
van 'n kongregasie van die Universiteit toegeken is aan

NELIUS KRUGER

kragtens die Wet op Hoër Onderwys, 1997 en die Statuut van die Universiteit

Namens die Raad en die Senaat

Visekanselier en Rektor

Namens die Fakulteit
Geesteswetenskappe

Dekaan



Registrateur

2003-04-11



Universiteit van Pretoria
University of Pretoria

**DIE VERTEENWOORDIGENDE STUDENTERAAD
THE STUDENT REPRESENTATIVE COUNCIL**

ken hiermee / hereby awards

**AKADEMIESE EREKLEURE
ACADEMIC HONORARY COLOURS**

toe aan / to

NELIUS KRUGER
BHCS (Hons): Argeologie
BHCS (Hons): Archaeology

namens die Studentegemeenskap van die Universiteit van Pretoria,
on behalf of the Student Community of the University of Pretoria.



A handwritten signature in black ink.

President

A handwritten signature in black ink.

Lid vir Kleure
Member for Colours

Datum
Date **11 April 2003**

<< archaeologists

THE ASSOCIATION OF SOUTHERN AFRICAN HISTORICAL ARCHAEOLOGISTS

ACCREDITED PROFESSIONAL ARCHAEOLOGIST FOR THE SADC REGION

Mr N Kruger
186

Professional Member



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

File Reference Number:	(For official use only)
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

SANRAL SOC Ltd UPGRADE OF NATIONAL ROAD R52 SECTION 3 FROM KOSTER (KM 0.0) TO N4 RUSTENBURG (KM 38.70), NORTH WEST

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name:	Exigo Sustainability		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	1	Percentage Procurement recognition
Specialist name:	Neels Kruger		
Specialist Qualifications:	BA (Archaeology), BA Hons (Archaeology, Anthropology)		
Professional affiliation/registration:	Association of Southern African Professional Archaeologists (ASAPA): Registered Archaeologist & Culture Resources Management Practitioner		
Physical address:	70 Regency Dr, Route 21 Business Park, Centurion, 0178		
Postal address:	Postnet Suite 74, Private Bag x04, Menlo Park, 0102		
Postal code:	0102	Cell:	082 967 2131
Telephone:	012 751 2160	Fax:	
E-mail:	neels@exigo3.com		

2. DECLARATION BY THE SPECIALIST

I, Neels Kruger, 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

Exigo Sustainability (Pty) Ltd
 Name of Company:

2020-07-30

 Date



3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Neels Kruger, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

Exigo Sustainability (Pty) Ltd

Name of Company

2020-07-30

Date



Signature of the Commissioner of Oaths

30 July 2020

Date

NACINDA COMBRINCK
COMMISSIONER OF OATHS (EX OFFICIO)
PRACTISING ATTORNEY
UNIT E1, 93 REGENCY DRIVE,
ROUTE 21 CORPORATE PARK,
IRENE, GAUTENG RSA