DIGBY WELLS
ENVIRONMENTAL

Sun International Environmental Authorisation Process for Developments on the Farms Doornhoek 910 JQ and Ledig 909 JQ

Heritage Basic Assessment Report

Project Number:

SUN4270

Prepared for:

Sun International (Pty) Ltd

June 2018

Digby Wells and Associates (South Africa) (Pty) Ltd
Co. Reg. No. 2010/008577/07. Turnberry Office Park, 48 Grosvenor Road, Bryanston, 2191. Private Bag X10046, Randburg, 2125, South Africa
Tel: +27 11 789 9495, Fax: +27 11 069 6801, info@digbywells.com, www.digbywells.com

Directors: AJ Reynolds (Chairman) (British)*, GE Trusler (C.E.O), GB Beringer, LF Koeslag, J Leaver*, NA Mehlomakulu, MJ Morifi*, DJ Otto
*Non-Executive

This document has been prepared by Digby Wells Environmental.

Report Type:	**Heritage Basic Assessment Report**
Project Name:	**Sun International Environmental Authorisation Process for Developments on the Farms Doornhoek 910 JQ and Ledig 909 JQ**
Project Code:	**SUN4270**

Name	Responsibility	Signature	Date
Justin du Piesanie Manager: HRM ASAPA Member 270	HBAR Compilation		12 December 2016
Johan Nel The Heritage Foundation ASAPA Member 095	External Technical Peer Review		13 December 2016
Barbara Wessels	Reviewer		13 December 2016

This report is provided solely for the purposes set out in it and may not, in whole or in part, be used for any other purpose without Digby Wells Environmental prior written consent.

GLOSSARY

Term	Definition
Alter	Any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or other decoration or any other means.
Archaeological	Material remains resulting from human activity that are in a state of disuse and older than 100 years, including artefacts, human and hominid remains and artificial features and structures. Rock art created through human agency older than 100 years, including any area within 10 m of such representation. Wrecks older than 60 years - either vessels or aircraft - or any part thereof that was wrecked in South Africa on land, internal or territorial waters, and any cargo, debris or artefacts found or associated therewith. Features, structures and artefacts associated with military history that are older than 75 years and the sites on which they are found, e.g. battlefields.
Archaeologist	A trained professional who uses scientific methods to excavate, record and study archaeological sites and deposits.
Artefact	Any object manufactured or modified by human beings.
Ceramic (syn. pottery)	In an archaeological context any vessel or other object produced from natural clay that has been fired. Indigenous ceramics associated with Farming Communities are low-fired wares, typically found as potsherds. Imported and more historic ceramics generally include high-fired wares such as porcelain, stoneware, etc.
Ceramic classification	Ceramic classification is universally used by archaeologists to establish relative cultural-historical temporal sequences within southern African Farming Communities. In this way, relative dates can be assigned to sites, as well as inferring tenuous cultural similarities or associations. Huffman (1970) postulated that the migration of farming communities could be recognised via a technique of 'ceramic seriation'. Ceramic seriation is based on the premise that certain styles of ceramics, including vessel shape and decorative motifs, follow each other chronologically, and can be attributed to certain archaeological 'cultures' (Huffman, 1970; 1980). Huffman (1970) and Phillipson (1977) demonstrated that Bantu-speaking groups may have migrated southwards in three 'streams' from a possible central homeland, over different periods. These streams are generally associated with diverse Eastern Bantu-speaking societies and various farming community periods. Although these hypotheses have since undergone meaningful reviews and received significant opposition, a general consensus remains that ceramic seriation can be used to reconstruct population movements.
Ceramic facies / facies	Subgroups of a primary ceramic tradition or sequence. Typically used in ceramic analyses. Various facies are attributed to different temporal periods based of radiometric dates obtained from archaeological contexts. Facies are often used to infer cultural identity of archaeological groups. However, in context of this study identified ceramic facies merely provide a relative temporal context for archaeological sites in the landscape.
Ceramic tradition	The sequence of ceramic styles that develop out of each other and form a continuum. A tradition is the primary group to which subsequent ceramic facies belong. A ceramic tradition can be broadly associated with various linguistic and cultural groups, but do not represent any given ethnic identity, especially during the LFC period.

Term	Definition
Chance Find Protocols (CFPs)	The purpose of the CFPs is to establish procedures that aim to minimise damage and destruction to any heritage resources that may be accidentally exposed during the course of development activities. The CFPs must clearly describe the type of heritage resources that may occur within the site specific project area, the protocol to follow in the event of accidental exposure of previously unidentified heritage resources, and the appropriate management measures and reporting structures to be adhered to. The CFP at a minimum should include the following: - Definitions as defined by Section 2 and 38(1) of the NHRA; - Proactive archaeological monitoring procedures; - Procedures that detail the following: - How to spot a chance find; - Steps to be undertaken when a chance find is made; - Internal reporting structures; - Recording of chance finds; and - Legal processes and requirements. The CFPs must be defined and established as a condition of authorisation
Conservation	In relation to heritage resources includes the protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance.
Cultural significance (CS)	The aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. A heritage resource may have cultural significance or other special value because of its: ■ Importance in the community, or pattern of South Africa's history. ■ Possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage ■ Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage. ■ Importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects. ■ Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group. ■ Importance in demonstrating a high degree of creative or technical achievement at a particular period. ■ Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons. ■ Strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa. ■ Significance relating to the history of slavery in South Africa.
Development	Any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including: ■ Construction, alteration, demolition, removal or change of use of a place

Term	Definition
	or a structure at a place. ■ Carrying out any works on or over or under a place. ■ Subdivision or consolidation of land comprising, a place, including the structures or airspace of a place. ■ Constructing or putting up for display signs or hoardings. ■ Any change to the natural or existing condition or topography of land. ■ Any removal or destruction of trees, or removal of vegetation or topsoil.
Excavation	The scientific excavation, recording and retrieval of archaeological deposit and objects through the use of accepted archaeological procedures and methods, and excavate has a corresponding meaning.
Farming Community/ies	Term signifying the appearance in the southern African archaeological record of Bantu-speaking agricultural based societies from the early first millennium CE. The term replaces the *Iron Age* as a more accurate description for groups who practiced agriculture and animal husbandry, extensive manufacture and use of ceramics, and metalworking. The Farming Community period is divided into an Early and Late phase. The use of Later Farming Communities especially removes the artificial boundary between archaeology and history.
Formal protection	Places with qualities so exceptional that they are of special national significance as national heritage sites or that have special qualities as provincial heritage sites.
General protection	General protections are afforded to: ■ Objects protected in terms of laws of foreign states. ■ Structures older than 60 years. ■ Archaeological and palaeontological sites and material and meteorites. ■ Burial grounds and graves. ■ Public monuments and memorials.
Heritage resource	Any place or object of cultural significance.
Heritage resources management	Process required when development is intended categorised as: ■ Any linear development exceeding 300m in length. ■ Construction of a bridge or similar structure exceeding 50 m in length. ■ Any activity which will change the character of a site exceeding 0.5 hectares in extent or involving three or more existing erven or subdivisions thereof or that have been consolidated within the past five years or costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority. ■ Re-zoning of a site exceeding one hectare in extent. ■ Any other category of development provided for in regulations by

Term	Definition
	SAHRA or a provincial heritage resources authority.
Heritage site	Any place declared to be a national heritage site by SAHRA or a place declared to be a provincial heritage site by a provincial heritage resources authority.
Late Farming Community/ies	Farming Communities who either developed / evolved from EFC groups, or who migrated into southern African from the late first millennium / early second millennium CE. The LFC period evidences distinct changes in socio-political organisation, settlement patterns, trade and economic activities, including extensive trade routes. The LFC period is generally dated from c. 1000 CE well into the modern historical period of the nineteenth century.
Late Stone Age	The South African LSA dates from ~30 Kya. This period is associated with modern *Homo sapiens sapiens* and the complex hunter-gatherer societies, ancestral to the Bushmen / San and Khoi. The LSA lithic assemblage contains microlithic technology and composite tools such as arrows commonly produced from fine-grained cryptocrystalline, quarts and chert. The LSA is also associated with archaeological rock art including both paintings and engravings.
Management	In relation to heritage resources, includes the conservation, presentation and improvement of a place protected in terms of the NHRA.
Middle Stone Age	The South African MSA dates from ~300 Kya to c. 30 Kya. This period is associated with the changing behavioural patterns and the emergence of modern cognitive abilities in early *Homo sapiens species.* The lithic industries that characterise the MSA are typically more complex tools with diagnostic identifiers, including convergent flake scars, multi-faceted platforms, retouch and backing. Assemblages are characterised as refined lithic technologies such as prepared core techniques, retouched blades and points manufactured from good quality raw material.
Palaeontological	Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.
Palaeontologist	A trained professional who uses scientific methods to excavate, collect, record and study palaeontological sites and fossils.
Place	A place includes: a site, area or region; a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure; a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures; an open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.
Pre-disturbance survey (syn. reconnaissance)	A survey to record a site as it exists, with all the topographical and other information that can be collected, without excavation or other disturbance of the site.
Public monuments / memorials	All monuments and memorials: erected on land belonging to any branch of central, provincial or local government; on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government; which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.

Term	Definition
Stop work order	An order served on a person by the Minister on advice of SAHRA or MEC to immediately cease all work in and around a heritage site for a period not exceeding 10 years. The order attached to land is binding on the current owner and any future owner.
Structure	Any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.
Tangible heritage	Physical heritage resources such as archaeological sites, historical buildings, burial grounds and graves, fossils, etc. Tangible heritage may be associated with intangible elements, e.g. the living cultural traditions, rituals and performances associated with burial grounds and graves and deceased persons.

EXECUTIVE SUMMARY

Sun International (Pty) Ltd (hereinafter Sun International) is currently in a process of renovation and refurbishment of its Sun City complex. As such, they appointed Digby Wells Environmental (hereinafter Digby Wells) to complete a Heritage Resources Management (HRM) process in support of proposed developments within the Sun City Complex. These included the following:

- A feasibility analysis for proposed developments on the northern slope of the so-called “Sun City Mountain” (*Refer to Appendix B*); and
- Environmental Authorisation (EA) application for the proposed construction and operation of the UNREAL chair lift and hiking trail.

This report constitutes the Heritage Basic Assessment Report (HBAR) in support of EA application for the proposed development of the chair lift and hiking trail (“the Project”) as required in terms of the national regulatory framework.

The site-specific study area forms part of the *Pilanesberg Alkaline Province*. This geology has zero palaeontological sensitivity and is **not considered further.** According to the South African Heritage Resources Information System (SAHRIS) Palaeo-Sensitivity Map (PSM), the Pilanesberg is interdigitated with geological strata with moderate palaeontological sensitivity. The Council of Geosciences has defined this as Quaternary Aged Sands. Known fossil remains within Quaternary Age Sands include, but are not limited to:

- Mammalian bones;
- Tortoise remains;
- Non-marine mollusc shells;
- Ostracods;
- Microfossils;
- Trace fossils; and
- Plant material.

The proposed development footprint, however, is not underlain by Quaternary Aged Sand, and it is envisaged that the possible associated fossil heritage will not be impacted upon by project related activities. Therefore, a recommendation and Request for Exemption (RfE) from further palaeontological studies is made.

From a heritage perspective, the development footprint is associated with the Late Farming Community (LFC) stonewalled settlement *Itlholanoga*. The determined Cultural Significance (CS) of the site demonstrates that *Itlholanoga* is a heritage resources with very high CS based on its importance or contribution to four broad value categories, i.e. aesthetic, historical, scientific and social.

This assessment considered the possible direct and indirect impacts on *Itlholanoga* by the identified listed activities relative to the aforementioned CS. A summary of the assessment is presented in the following table:

Impact	Pre-mitigation:						Post-mitigation:					
	Duration	Extent	Intensity	Conse-quence	Probability	Signifi-cance	Duration	Extent	Intensity	Conse-quence	Probability	Signifi-cance
Damage / Destruction of surface and sub-surface features	Permanent	Very limited	High - negative	Moderately detrimental	Certain	Moderate - negative	Beyond project life	Province/ Region	Very high - positive	Highly beneficial	Unlikely	Minor - positive
Increased human traffic through the site that may result in damage	Project Life	Local	Extremely high - negative	Highly detrimental	Certain	Moderate - negative	Project Life	Very limited	Very high - positive	Moderately beneficial	Highly probable	Minor - positive

To manage the identified impacts to *Itlholanoga*, Digby Wells recommended the following mitigation measures:

- Sun International must commission a Heritage Site Management Plan (HSMP) for *Itlholanoga* as a condition of authorisation for approval by the South African Heritage Resources Agency (SAHRA). The HSMP must be developed in support of a Grade II Site Nomination and for the appropriate management of the site during the construction and operation of the Project. The HSMP must include project specific Chance Find Protocols (CFPs) and aim to control the elements that make up the physical and social environment of the site, i.e. its physical condition, public visitors and interpretation, and promote / enhance its conservation and maintenance through deliberate and thoughtful design; and
- A Watching Brief by a qualified archaeologist during the construction phase of the Project which will entail the on-site supervision of all activities to guide the development and record any exposed sub-surface features or material culture.

Through the analysis, Digby Wells is of the opinion that if the recommended management measures are implemented, positive impacts through the sustainable use and development of *Itlholanoga* can be achieved.

DECLARATION OF THE SPECIALIST

Digby Wells and Associates (South Africa) (Pty) Ltd

Contact person: Justin du Piesanie

Digby Wells House	Tel:	011 789 9495
48 Grosvenor Road	Fax:	011 789 9498
Turnberry Office Park, Bryanston	E-mail:	Justin.dupiesanie@digbywells.com
2191		

I, Justin du Piesanie , as duly authorised representative of Digby Wells and Associates (South Africa) (Pty) Ltd., hereby confirm my independence (as well as that of Digby Wells and Associates (South Africa) (Pty) Ltd.) and declare that neither I nor Digby Wells and Associates (South Africa) (Pty) Ltd. have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of Sun International (Pty) Ltd, other than fair remuneration for work performed, specifically in connection with the Heritage Resources Management (HRM) Process for the Basic Assessment process for the proposed chair lift and hiking trail within the Sun City Resort Complex. I am fully aware of and meet all the requirements for specialist assessment, and that failure to comply may result in disqualification of this assessment. I have disclosed to the applicant all material information that has or may have the potential to influence the decision of the Department or the objectivity of this report as part of the application.

In signing this declaration, I am aware that a false declaration is an offence in terms of Regulation 48 of the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations, as amended.

_____

Full Name:	Justin du Piesanie
Title/ Position:	Divisional Manager: Social and Heritage
Qualification(s):	MSc
Experience (Years):	12 years
Registration(s):	Association of Southern African Professional Archaeologists (ASAPA) International Council on Monuments and Sites (ICOMOS) South Africa International Association for Impact Assessment South Africa (IAIAsa)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF PLANS

1 Introduction

Sun International (Pty) Ltd (hereinafter Sun International) appointed Digby Wells Environmental (hereinafter Digby Wells) to complete a Heritage Resources Management (HRM) process in support of proposed developments within the Sun City Complex. These included the following:

- A feasibility analysis for proposed developments on the northern slope of the so-called “Sun City Mountain” (*Refer to Appendix B*); and
- Environmental Authorisation (EA) application for the proposed construction and operation of the UNREAL chair lift and hiking trail.

This report constitutes the Heritage Basic Assessment Report (HBAR) in support of EA application for the proposed development of the chair lift and hiking trail (“the Project”) as required in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the Government Notice Regulation 982 of 8 December 2014 (Environmental Impact Assessment [EIA] Regulations). The HBAR complies in part with the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) to inform the South African Heritage Resources Agency (SAHRA) and North West Provincial Heritage Resources Authority (NW-PRHA) of the proposed Project.

1.1 Project overview

Sun International is currently in a process of renovation and refurbishment of its Sun City complex. The approximate R 800 000 000.00 project is aimed at retaining Sun City’s status as an iconic leisure destination offering clients a superior holiday experience. The Sun City refurbishment primarily includes:

- Revitalisation of four hotels;
- Renovations to the Entertainment Centre;
- Upgrading of the Valley of the Waves; and
- Development of food and beverage outlets at the resort.

Building on the success of the joint ventures between UNREAL – The Company (UNREAL) and Sun International at their Sun City Resort, UNREAL proposes to construct and operate an approximate 900 m long chair lift from the Sun City Welcome Centre to the top of the Sun City Mountain (location of the site “*Itlholanoga*”) and establish a 1 100 m long hiking trail on its northern slope.

The chair lift will be constructed and operated by UNREAL. It is envisaged that the operation will allow for 200 pax capacity per hour through the bottom station adjacent to the current workers’ housing and top stations located next to the established UNREAL Zip Line attraction. The planned pylons to support the chair lift will be spaced approximately 100 m

apart and will have an impact footprint of less than 3 m^2. A trail will be created directly beneath the chair lift route to allow for maintenance access.

The chairlift top station will include an ablutions facility, catered toward 200 guests, but with provision for a maximum of 400 guests. This facility will include a supply of hot and/or cold water, air-conditioning, electrical connections, extraction and a sewerage line which will connect to the existing Sun City Complex sewerage network. An additional pumping station and pipeline will be required to pump water from the existing fresh water storage reservoir, which is located less than 1 km from the top of the mountain. The pipelines are planned to fall within the existing service road servitudes.

In addition to the chair lift, a hiking trail extending approximately 1 100 m will be established on the northern slope of the Sun City Mountain. Two options have been proposed, a northern and southern routing.

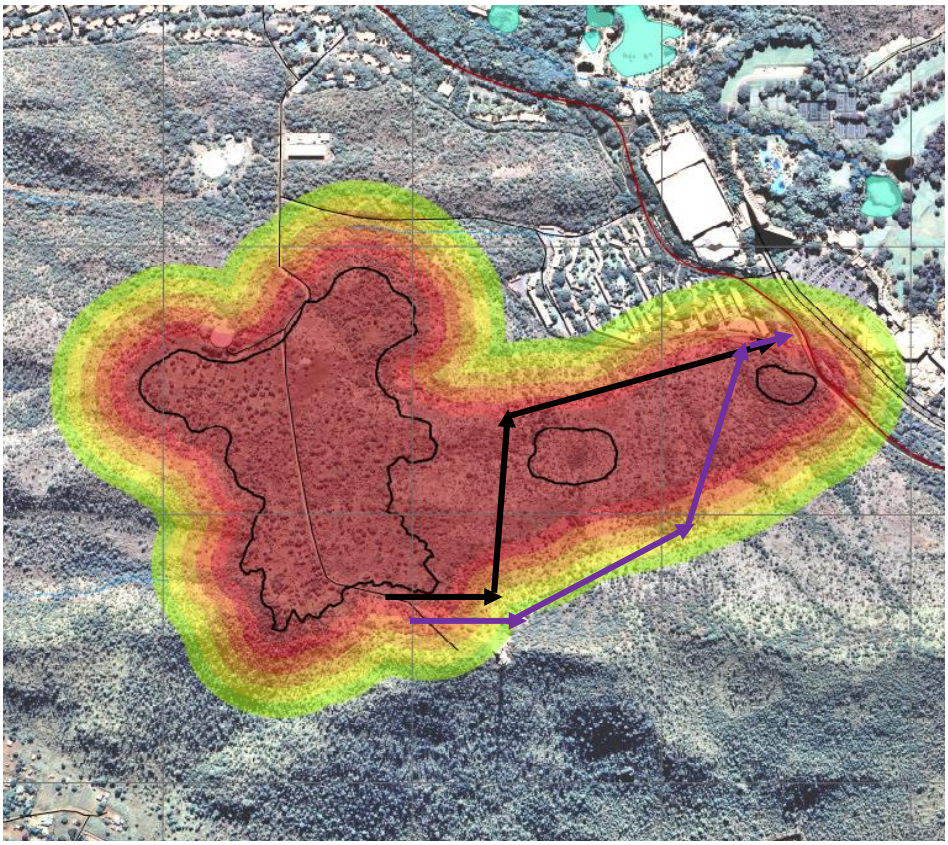


Figure 1-1: Proposed hiking trail routings adapted from the Heritage Mapping Report (See Appendix B)

The construction of the Project will focus on low impact construction methods over a period not exceeding eight months. Existing infrastructure will be utilised to access the top station and all construction material will be hand carted to the pylon locations. No new access routes/ roads will be created. Additionally, clearing activities and trimming of vegetation will be kept to a minimum, and a 0.5 m wide path cleared along natural contour lines for the hiking trail. It is proposed to utilise natural bio-engineering methods to control erosion.

1.2 Project location

The Project is located within the Sun City Resort north of Rustenburg in the Moses Kotane Local Municipality (MKLM), North West Province.

Table 1-1: Project location details

Town	Rustenburg
Name of property	Sun City Resort
Location	Off the R556 regional road
Erf or farm number/s	Portion 7 of the farm Ledig 909 JQ Remaining Extent of Portion 1 of the farm Doornhoek 910 JQ
Coordinates of approximate centre of project area	25° 20' 56.936" S
	27° 05' 32.869" E
District Municipality	Bojanala Platinum District Municipality
Local Municipality	Moses Kotane Local Municipality
Extent of property	Total area = 1400.472969 ha
Maximum extent of proposed development	Chair lift – 900 m Hiking trail – 1 100 m
Current use	Natural/ Undisturbed
Predominant land use/s of surrounding properties	Leisure and Residential

1.3 Listed activities

The table below details the Listed Activities relevant to the project as per the NEMA EIA Regulations, 2014:

Table 1-2: Identified listed activities as per Listing Notice 3

Listing Notice and Activity No.	Description	NHRA Section 38(1) Threshold
GNR 985 Activity 8	The development and related operation of above ground cableways and funiculars	38(1)(a)
GNR 985 Activity 12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan	38(1): N/A – area less than 5 000 m^2 38(8)

Listing Notice and Activity No.	Description	NHRA Section 38(1) Threshold
GNR 985 Activity 17	The expansion of a resort, lodge, hotel and tourism or hospitality facilities where the development footprint will be expanded	38(1)(a)

1.4 Terms of reference

Sun International enlisted the services of Digby Wells to complete an HRM process in support of EA for the proposed development to comply with the requirements of the NEMA, NEMA EIA Regulations (2014) and NHRA.

1.5 Scope of work

Commensurate with the nature of the Project, the Scope of Work (SoW) included compiling an HBAR to comply with Section 38(3)[1] of the NHRA. This included the following activities:

- Detailing the nature and location of the project;
- Developing a cultural heritage baseline[2];
- Identifying and mapping of heritage resources within the affected area;
- Determining the Cultural Significance (CS) of the identified heritage resources;
- Assessing the identified potential impacts to heritage resources by the Project related activities;
- Assessing the identified potential impacts in relation to the socio-economic benefits that will be derived from the Project;
- Consideration of alternatives to the project; and
- Providing suitable management and/ or mitigation measures or conditions of authorisation considering the determined CS and general protections in terms of the NHRA (Chapter II).

[1] This report was compiled prior to the distribution of the Basic Assessment Report (BAR) for public review and comment. As such, this report does not consider the results of consultation as required by Section 38(3)(e) of the NHRA.

[2] During the pre-disturbance survey undertaken by Digby Wells as part of the Heritage Sensitivity Mapping exercise, a large stonewalled complex generally protected under Section 35 was identified and recorded. No heritage resources generally protected under Section 34 or 36 of the NHRA were recorded in the development footprint areas or surrounds. This report will focus on the archaeo-historical context of the Late Farming Community (LFC) period to inform the impact assessment.

1.6 Expertise of the specialist

The expertise of the HRM specialist is presented in Table 1-3.

Table 1-3: Expertise of the specialist

Team Member	Bio Sketch
Justin du Piesanie ASAPA Member 270 AMAFA Registered ICOMOS Member 14274 Years' Experience: 12	Justin is the Divisional Manager for Social and Heritage Services at Digby Wells. Justin joined the company in August 2011 as an archaeologist and was subsequently made HRM Manager in 2016 and Divisional Manager in 2018. He obtained his Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. Justin also attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2013. Justin is a professional member of the Association of Southern African Professional Archaeologists (ASAPA), and accredited by the association's Cultural Resources Management (CRM) section. He is also a member of the International Council on Monuments and Sites (ICOMOS), an advisory body to the UNESCO World Heritage Convention. He has over 12 years combined experience in HRM in South Africa, including heritage assessments, archaeological mitigation, grave relocation, NHRA Section 34 application processes, and Conservation Management Plans (CMPs). Justin has gained further generalist experience since his appointment at Digby Wells in Botswana, Burkina Faso, Cameroon, the Democratic Republic of Congo, Liberia, Mali and Senegal on projects that have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. Furthermore, Justin has acted as a technical expert reviewer of HRM projects undertaken in Cameroon and Senegal. Justin's current focus at Digby Wells is to develop the HRM process as an integrated discipline following international HRM principles and standards. This approach aims to provide clients with comprehensive, project-specific solutions that promote ethical heritage management and assist in achieving strategic objectives.

1.7 Structure of the report

The remainder of the report is structured as per the below.

Section	Description
2	Summarises the relevant legislative and policy framework that guided the compilation of this report.
3	Identifies the constraints and limitations experienced by the author in compiling the HBAR.
4	Describes the methodology employed in the data collection and impact assessment.
5	Provides a cultural baseline profile relevant to the site, *Itlholanoga.*
6	Outlines identified impacts and assess the intensity of predicted heritage impacts relative to the determined Cultural Significance.

Section	Description
7	Considers the real and potential sensitivities of the site in relation to the various alternatives under consideration in this assessment.
8	Examines the identified heritage impacts against the sustainable socio-economic benefits of the Project.
9	Describes the identified cumulative impacts of the Project that may manifest through time.
10	Summarises heritage related mitigation and management plans.
11	Collates the recommended mitigation and management measures.
12	Concludes the report with the most salient points of the heritage assessment.
13	Lists the source material used in the compilation of the report.

2 Legislative and policy framework

The HRM process is governed by the national legislative framework. This section provides a brief summary of the relevant legislation pertaining to the conservation and responsible management of heritage resources.

Table 2-1: Applicable legislation for the HRM process

Applicable legislation used to compile the report	Reference where applied
Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996 Section 24 of the Constitution states that everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures, that – i. Prevent pollution and ecological degradation; ii. Promote conservation; and iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development Sections 30 and 31 states that all individuals have the right to use and participate in their cultural life, to enjoy their and maintain cultural associations.	The BA and associated HRM processes are being undertaken to identify heritage resources and determine heritage impacts associated with the Project. As part of the HRM process, mitigation measures and monitoring plans will be recommended to ensure that any potential impacts are managed to acceptable levels to support the rights as enshrined in the Constitution.
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) The NEMA, as amended was set in place in accordance	The BA process is being undertaken in accordance with the principles of Section 2 of NEMA as well as with the EIA 2014 Regulations, promulgated in terms

Applicable legislation used to compile the report	Reference where applied
with Section 24 of the Constitution of the Republic of South Africa. Certain environmental principles under NEMA have to be adhered to, to inform decision making for issues affecting the environment. Section 24 (1)(a) and (b) of NEMA state that: *The potential impact on the environment, cultural heritage and socio-economic conditions of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity.* The EIA Regulations, Government Notice Regulation (GN) R.982 were published on 04 December 2014 and promulgated on 08 December 2014. Together with the EIA Regulations, the Minister also published GN R.983 (Listing Notice No. 1), GN R.984 (Listing Notice No. 2) and GN R.985 (Listing Notice No. 3) in terms of Sections 24(2) and 24D of the NEMA, as amended.	of NEMA. These Listed Notices have been reviewed against the project activities to determine the likely triggers. Based on the activities listed, it has been identified that a BA process is required for the Project. An application for the listed activities will be submitted to the Rural Enterprise and Industrial Development (REID) who is the relevant Competent Authority in terms of this application for Environmental Authorisation.
<u>GN R. 982: Environmental Impact Assessment Regulations, 2014</u> These three Listing Notices set out a list of identified activities which may not commence without an Environmental Authorisation from the relevant Competent Authority through one of the following processes: ▪ Regulation GN R. 983 - Listing Notice 1: This listing notice provides a list of various activities which require environmental authorisation and which must follow a BA process. ▪ Regulation GN R. 984 – Listing Notice 2: This listing notice provides a list of various activities which require environmental authorisation and which must follow an environmental impact assessment process. ▪ Regulation GN R. 985 – Listing Notice 3: This notice provides a list of various environmental activities which have been identified by provincial governmental bodies which if undertaken within the stipulated provincial boundaries will require environmental authorisation. The basic assessment process will need to be followed.	Refer to Table 1-2 above for the listed activities which could potentially be triggered by the Project.
<u>National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)</u> The NHRA is the overarching legislation that protects and regulates the management of heritage resources in	A Notification of Intent to Develop (NID) will be submitted, as part of this HBAR, to the SAHRA and NW-PHRA. The HBAR was compiled to comply with subsection 3(3) of the NHRA.

Applicable legislation used to compile the report	Reference where applied
South Africa, with specific reference to the following Sections: ▪ 5. General principles for HRM ▪ 6. Principles for management of heritage resources ▪ 7. Heritage assessment criteria and grading ▪ 38. Heritage resources management The Act requires that Heritage Resources Authorities (HRAs), in this case the SAHRA and NW-PHRA, be notified as early as possible of any developments that may exceed certain minimum thresholds in terms of Section 38(1), or when assessments of impacts on heritage resources are required by other legislation in terms of Section 38(8) of the Act.	

Table 2-2: Applicable policies for the HRM process

Applicable policies used to compile the report	Reference where applied
South African Heritage Resources Agency (SAHRA) Archaeology, Palaeontology and Meteorites (APM) Guidelines: Minimum Standards for the Archaeological and Palaeontological Components of Impact Assessment Reports (2007) The guidelines provide the minimum standards that must be adhered to for the compilation of a Heritage Impact Assessment (HIA) Report. Chapter II Section 7 outlines the minimum requirements for inclusion in the heritage assessment as follows: ▪ Background information on the Project; ▪ Background information on the cultural baseline; ▪ Description of the properties or affected environs; ▪ Description of identified sites or resources; ▪ Recommended field rating of the identified sites to comply with Section 38 of the NHRA; ▪ A statement of Cultural Significance in terms of Section 3(3) of the NHRA; and ▪ Recommendations for mitigation or management of identified heritage resources.	The HBAR was compiled to adhere to the minimum standards as defined by Chapter II of the SAHRA APM Guidelines (2007)

3 Constraints and limitations

The following constraints and limitations influenced the compilation of the HBAR:

- The reviewed literature does not represent a comprehensive list of information sources for the greater cultural landscape of the Pilanesberg region. The assessment of this Project considered the developed high-level baseline based on the literature reviewed. The author therefore acknowledges that alternative interpretations to the pre-history of the region may be applicable, however, these fall outside of the ambit of this assessment;
- The HBAR does not present an exhaustive list of heritage resources that may be present in the greater regional context of the study area;
- Palaeontological and archaeological resources commonly occur at subsurface levels. These types of resources may not be adequately recorded or documented through pre-disturbance surveys without intrusive and destructive methodologies. Therefore, the reviewed literature and previously completed assessments are in themselves limited to surface observations;
- This report was compiled prior to the regulated public review period. This report therefore does not consider the results of consultation as required by Section 38(3)(e) of the NHRA; and
- The inclusion of the hiking trail in the EA process occurred subsequent to the pre-disturbance survey completed as part of the heritage sensitivity mapping exercise. A detailed walk-down of the proposed routings were therefore not undertaken. This assessment makes inferences based on the known and recorded extent of the known stonewalled settlement (hereinafter referred to as *Itlholanoga* after Huffman, 2007).

4 Methodology

4.1 Defining study areas

Heritage resources do not exist in isolation to the greater natural and social (including socio-cultural, -economic and -political) environment. In addition, the NHRA requires the grading of heritage resources in terms of national, provincial and local concern based on their importance and consequent official (i.e. State) management effort required. The type and level of baseline information required to adequately predict heritage impacts varies between these categories. Four ‘concentric’ study areas were defined for the purposes of this study. The four defined study areas include the following:

- The *development footprint* area – the immediate boundaries of the proposed infrastructure. The area where direct impacts to heritage resources are most probable;
- The *site-specific* study area – the extent of farm portions associated with the proposed project including a 500 m buffer area. The site-specific study area may extend linearly. In such instances, the defined site-specific study area includes the

linear development, e.g. a road, and a 200 m buffer either side of the development footprint;

- The *local* study area – the area most likely to be influenced by any changes to heritage resources in the project area, or where project development could cause heritage impacts. Defined as the immediate surrounding properties/ farms, as well as the affected local municipality. The local study area was specifically examined to offer a backdrop to the socio-economic conditions within which the proposed development will occur. The local study area furthermore provided the local development and planning context that may contribute to cumulative impacts; and
- The *regional* study area – defined as the area bounded by the district municipality demarcation. Where necessary, the regional study area was extended outside the boundaries of the district municipality to include much wider regional expressions of specific types of heritage resources and historical events. The regional study area also provided the regional development and planning context that may contribute to cumulative impacts.

Plan 1

Sun City HRM Process

Study Area

Legend

- Development Footprint
- City
- Major Town
- Site Specific Study Area
- Local Study Area
- Regional Study Area
- Main Road
- Arterial / National Route
- Local Municipal Boundary
- District Municipal Boundary

DIGBY WELLS ENVIRONMENTAL

• Sustainability • Service • Positive Change • Professionalism • Future Focused • Integrity

Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 27°E

Ref #: scm.SUN4270.201612.065
Revision Number: 1
Date: 09/12/2016

N

0 10 20 40

Kilometres

1:725 000

www.digbywells.com

© Digby Wells Environmental

4.2 Data collection

4.2.1 Secondary data collection

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

Diverse information repositories were surveyed to identify appropriate relevant information sources. These sources were analysed for credibility and relevance. Credible, relevant sources were then critically reviewed. The objectives of the literature review were to:

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

Repositories that were surveyed included the South African Heritage Resources Information System (SAHRIS), online/ electronic journals and platforms, and certain internet sources. This HBAR only included a summary and discussion of the most relevant findings: Relevant sources were cited and included in the literature review's reference list.

Historical layering is a process whereby diverse cartographic sources from various time periods are layered chronologically using Geographic Information System (GIS). The rationale behind historical layering was threefold, as it:

- Enabled a virtual representation of changes in the land use of a particular area over time;
- Provided relative dates based on the presence/ absence of visible features; and
- Identified potential locations where heritage resources may exist within an area.

Table 4-1: Qualitative data sources

Reviewed Qualitative Data		
Databases		
University of the Witwatersrand (Wits) Archaeological Database (2010)	Genealogical Society of South Africa (GSSA)	SAHRIS
SAHRIS Cases		
Case ID 358 Case ID 4924	Case ID 8838 Case ID 10202	Map ID 1804 Map ID 2322

Reviewed Qualitative Data		
Case ID 6463 Case ID 7967 Case ID 8148	Case ID 10225 Map ID 1186 Map ID 1193	Map ID 2373
Cited Text		
Anderson, 2009	Groenewald, 2016	Hall, Anderson, Boeyens, & Coetzee, 2008
Huffman, 2007	Mason, 1986	Verwoed, 2006

Table 4-2: Historical imagery sources

Historical Imagery						
Map Series			**Name / Number**		**Date**	
Jeppes			Jeppes Map of the Transvaal		1899	
Aerial photographs						
Job no.	**Flight plan**	**Photo no.**	**Map ref.**	**Area**	**Date**	**Ref.**
218	033	01478	2426, 2427, 2526, 2527	Thabazimbi / Rustenburg	1948	218/1948
729	005	00221	2527	Beestekraal	1974	729/1974
881	001	00084	2527, 2528, 2529, 2530, 2627, 2628, 2629, 2630	Central/ Eastern Transvaal	1984	881/1984

4.2.2 Primary data collection

Quantitative data was collected by Justin du Piesanie and Johan Nel through mapping of *Itlholanoga's* perimeter from 26 to 27 September 2016. The mapping exercise was non-intrusive (i.e. no sampling was undertaken). The following objectives were achieved:

- The extent of the known stonewalled settlement on the northern slope of Sun City Mountain was recorded;
- The *Itlholanoga* site perimeter was mapped;
- Sensitive areas and buffer zones associated with *Itlholanoga* based on visible surface features were defined; and
- A sensitivity plan to guide the decision-making process in regards to the proposed development was developed.

The extent of *Itlholanoga* was determined through pedestrian survey. An approximate extent was recorded as track logs using a handheld GPS. Mapping of the site perimeter was

completed utilising a Trimble R4 GNSS differential GPS to ensure maximum data recording accuracy (~20 mm accuracy).

Information collected during the field survey was collated and imported into an ArcGIS GIS. The geographic data was used to delineate the identifiable boundary of the site. From the delineation, buffer intervals of 25 m from the stonewalling were plotted to define the levels of sensitivity.

4.3 Developing cultural significance and field ratings

4.3.1 Cultural significance

CS was determined based on identified resources' importance or contribution to four broad value categories: aesthetic, historical, scientific and social values. These categories summarised the CS and other values described in subsection 3(3) of the NHRA. The resources' importance or contributions to these values were considered in terms of associative (qualitative) and/ or rarity (quantitative) attributes. These attributes were based on the data collected and collated into the cultural heritage baseline profile presented in Section 5 below.

The integrity or condition of resources further influenced the CS. Integrity is largely determined based on resources' current, observed state of conservation, as well as notable changes made to it over the years.

4.3.2 Field ratings

Field Ratings assist the responsible heritage resources authority to grade heritage resources into national (Grade I), provincial (Grade II) or local (Grade III) categories, and are required as a minimum under Chapter II Section 7(J) of the SAHRA APM Guidelines.

Field Ratings considered the assigned CS and their importance in these contexts are determined based in part on the presence of other similar resources within the defined study areas. The ratings were determined by the average sum of assigned weighting against aesthetic, historic, scientific and social criteria.

4.4 Impact assessment

Impacts to heritage resources can be broadly divided into three categories – direct, indirect and cumulative. The assessments of these impacts are done by assigning a numerical value to the significance of the identified impacts.

4.4.1 Impact terminology

Project activities can impact on heritage resources in a number of ways. For instance, although identified heritage resources may not be physically (i.e. directly) affected by project activities, the same activities could impact on the intangible nature of heritage resources.

An example that best illustrates the complexity of heritage impacts is where burial grounds occur within the site-specific project area, but will not be physically affected by any project activities. Access to such sites by descendants of the deceased or other parties may be restricted or lost; the intangible heritage associated with graves as places of memory, ritual, identity, etc., can therefore be impacted without actual, physical impact on the sites. Such impacts may manifest in social repercussions.

Heritage impacts are further compounded when the intensity of predicted impacts and the assigned CS of heritage resources differ significantly. Again, burial grounds are the best example. These resources are generally considered to be of very high CS; even low ranked impacts may therefore be detrimental to their tangible and intangible conservation.

Predicted heritage impacts were therefore placed into the following three broad categories:

- **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, induced 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.
- **Cumulative effects** on heritage resources result from in-combination effects on heritage resources acting with a host of processes that are insignificant when seen in isolation, but which collectively have a significant effect. Cumulative effects can be:
  - **Additive**: the simple sum of all the effects, e.g. the total number of new buildings within a historical rural landscape.
  - **Synergistic**: effects interact to produce a total effect greater than the sum of the individual effects, e.g. the visual effect of the increase of new buildings within a historical rural landscape.
  - **Time crowding**: frequent, repetitive impacts on a particular resource at the same time, e.g. the high rate of increase of new buildings within a historical rural landscape.
  - **Neutralizing**: where the effects may counteract each other to reduce the overall effect, e.g. the effect of changes in patterns of cultivation could reduce the overall visual impact of additional new buildings within a historical rural landscape.
  - **Space crowding**: high spatial density of impacts on a heritage resource, e.g. density of new buildings resulting in suburbanisation of a historical rural landscape.

(adapted from Winter & Baumann, 2005: 36)

4.4.2 Assessment methodology

The assessment of impacts inherently considered the CS and Field Ratings. The consequence of the potential impact was weighted against parameters of intensity, spatial scale and duration. To identify the significance of the impact, the consequence was measured against the probability of the impact occurring.

The magnitude of the potential impact was applied to both pre- and post-mitigation scenarios with the aim of removing all negative impacts on heritage resources, and enhancing positive ones.

4.5 Risk versus impacts

Risk is defined as the potential consequence(s) of an interaction combined with its likelihood. Should a risk eventuate, it will manifest as an impact. These concepts are often misconstrued and lead to disproportionate amounts of effort spent on assessing minor risks with potentially insignificant impacts, at the cost of overlooking more important ones.

Broad mitigation measures and monitoring were provided for low risks and unplanned events, however, they **were not assessed in detail** (i.e., with significance ratings). In general monitoring is an accepted form of mitigation for low risks.

5 Cultural heritage baseline description[3]

The site-specific study area forms part of the *Pilanesberg Alkaline Province*. Characterised by widespread alkaline volcanic and plutonic activity, this geology formed between ~1450 million years ago (Ma) and 1200 Ma. The Pilanesberg Complex has a circular outline and concentric ring structure with a 28 km east-west diameter and an areal extent of 530 km^2. It consists of dislocated remnants of phonolitic and trachytic lava flows, stratified volcaniclastic lacustrine sediments, debris flows, tuff, agglomerate and volcanic breccia (Verwoerd, 2006). This geology has zero palaeontological sensitivity and is **not considered further** in this report (Figure 5-1).

According to the SAHRIS Palaeo-Sensitivity Map (PSM), the Pilanesberg is interdigitated with geological strata with moderate palaeontological sensitivity. The Council of Geosciences has defined this as Quaternary Aged Sands associated with glacial-interglacial cycles from 2.6 Ma onwards. In general, these sands have the potential to contain fossil remains but are often sparse (Groenewald, 2016). Known fossil remains within Quaternary Age Sands include, but are not limited to:

- Mammalian bones;

[3] No heritage resources generally protected under Section 34 or 36 of the NHRA were recorded in the development footprint areas or surrounds during the pre-disturbance survey completed by Digby Wells. This section will therefore consider the palaeontological potential as required by SAHRA and focus on the archaeo-historical context of the local study area relevant to the Late Farming Community (LFC) period with specific reference to the Tlokwa.

- Tortoise remains;
- Non-marine mollusc shells;
- Ostracods;
- Microfossils;
- Trace fossils; and
- Plant material.

The proposed development footprint, however, is not underlain by Quaternary Aged Sand, and it is envisaged that the possible associated fossil heritage will not be impacted upon by project related activities. Therefore, a recommendation and Request for Exemption (RfE) from further palaeontological studies is made.

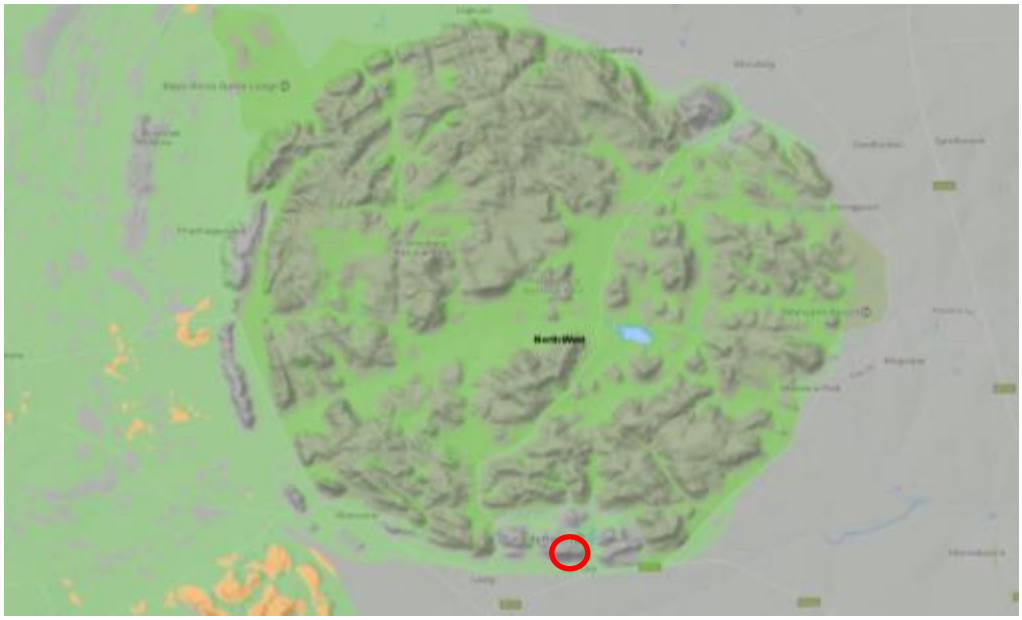


Figure 5-1: SAHRIS PSM for the Pilanesberg. Approximate site-specific study area indicated in red

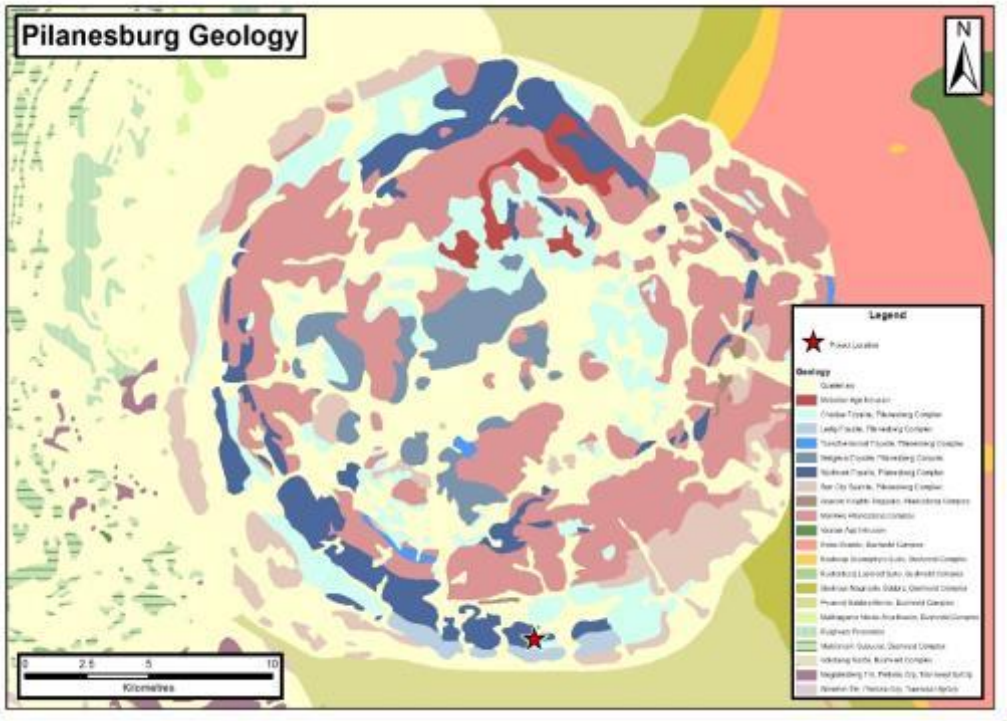


Figure 5-2: Geological context of the Pilanesberg (©Digby Wells)

The potential palaeontological sensitivity of the Quaternary Aged Sands notwithstanding, the local study area is predominantly associated with heritage resources dating to the Late Farming Community (LFC) period. The remainder of this section will focus on the archaeo-historical context of the LFC period within the local and site-specific study area to provide context and inform the CS and impact assessment.

The farming community period correlates to the movement of Bantu-speaking agro-pastoralists into southern Africa. This period is divided into two stages to distinguish between widespread events:

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

Literature review results demonstrated the majority of recorded heritage resources within the local study area are associated with LFC sites. These account for ~83% of the recorded sites within 5 km of the development footprint from the sources considered in this assessment.

Table 5-1: Identified heritage resources within the regional study area[4]

Identified Heritage Resource Types and Distance to Development Footprint	Number Identified
1 - 5 km	**30**
Archaeological - LFC	25
Burial Grounds & Graves	3
Historical Built Environment	2
10 - 20 km	**32**
Archaeological - LFC	20
Archaeological - MSA	2
Burial Grounds & Graves	8
Historical Built Environment	2
20 - 50 km	**113**
Archaeological - LFC	79
Archaeological - LSA	1
Burial Grounds & Graves	23
Historical Built Environment	10
50 - 100 km	**242**
Archaeological - EFC	2
Archaeological - LFC	119
Archaeological - LSA	4
Archaeological - MSA	9
Burial Grounds & Graves	97
Historical Built Environment	11
100 - 500 m	**1**
Archaeological - LFC	1
> 100 km	**20**
Archaeological - LFC	5
Archaeological - LSA	4
Archaeological - MSA	3
Burial Grounds & Graves	8
Grand Total	**438**

Identified LFC sites included the following:

- Surface scatters of both diagnostic and undiagnostic ceramics, upper and lower grinding stones, and daga; and
- Stonewalled LFC sites.

[4] This does not represent an exhaustive list of heritage resources within the study area.

These archaeological forms of evidence only provide general perspectives on the past that aid in anchoring oral histories. A historical narrative is required to address context. The archaeological material cultural is briefly considered with historical interpretation of the Tlokwa, as a dominant group in the Rustenburg/ Pilanesberg area[5] (Huffman, 2007; Hall, Anderson, Boeyens, & Coetzee, 2008).

Archaeological evidence[6] suggests that a simple Tswana origin for the Tlokwa is unlikely. Traditionally, the Tlokwa are linked to the Hurutshe, separated in time through a process of fission. Other interpretations include a western Sotho-Tswana origin in the Rustenburg region or Nguni origins south of the Vaal River (Mason, 1986; Huffman, 2007; Hall, Anderson, Boeyens, & Coetzee, 2008)[7]. Oral traditions as captured by Ellenberger (cited in Hall, Anderson, Boeyens, & Coetzee, 2008, p. 59) provide a relative distribution of the Tlokwa capitals through time. These are summarised in Table 5-2.

Table 5-2: Draft collation of place name and location as given by Ellenberger (adapted from Hall, Anderson, Boeyens, & Coetzee, 2008)

baTlokwa-ba-ga-Sedumedi			
Chief	**Date**	**Capital**	**Farm**
Tabane	16th cent. ?	Thaba Mogale	Magaliesberg
Khoadi			
Motonosi	Early 18th cent. ?	-	Wakkerstroom, Standerton, Harrismith
Tswaane		-	Harrismith, Tlkowe (Potchefstroom)
Marakadu		Tlokwe	Potchefstroom
Mosima Tsele	Mid-18th cent. ?	Bote	Houwater, Pilanesberg
Monaheng			
Matlhabana		**Itlholanoga,** Bopitiko?	Doornhoek 134

[5] The author acknowledges the baKgatla and baFokeng as dominant groups within the Rustenburg / Pilanesberg region and that complex processes of interaction occurred between the various groups through time. This section focusses on the Tlokwa specifically in terms of *Itlholanoga* as the identified heritage resource within the proposed development footprint.

[6] Ceramic classification is universally used by archaeologists to establish relative cultural-historical temporal sequences within southern African Farming Communities. In this way, relative dates can be assigned to sites, as well as inferring tenuous cultural similarities or associations. Huffman (1970) postulated that the migration of farming communities could be recognised via a technique of 'ceramic seriation'. Ceramic seriation is based on the premise that certain styles of ceramics, including vessel shape and decorative motifs, follow each other chronologically, and can be attributed to certain archaeological 'cultures' (Huffman, 1970; 1980).

[7] Refer to these readings for detailed discussions on the origins of the Tlokwa.

baTlokwa-ba-ga-Sedumedi			
Chief	**Date**	**Capital**	**Farm**
Mokgwa	Later 18th cent. ?	**Itlholanoga**	
Taukobong	1780	Mankwe, Maruping (Pilwe Hill)	Zwaarverdiend 502
Molefe	1810	Kolontwaneng	Silverkrans / Grootfontein 301
Bogatsu	1815 – 1820?	Marothodi	Bultfontein 712, Vlakfontein 207 JP
Kgosi	1820 – 1823?		
Leshage	1823 – 1825?		Ngwato country
Bashe	1825 – 1835	Letlhakeng or Legageng	Putfontein 559

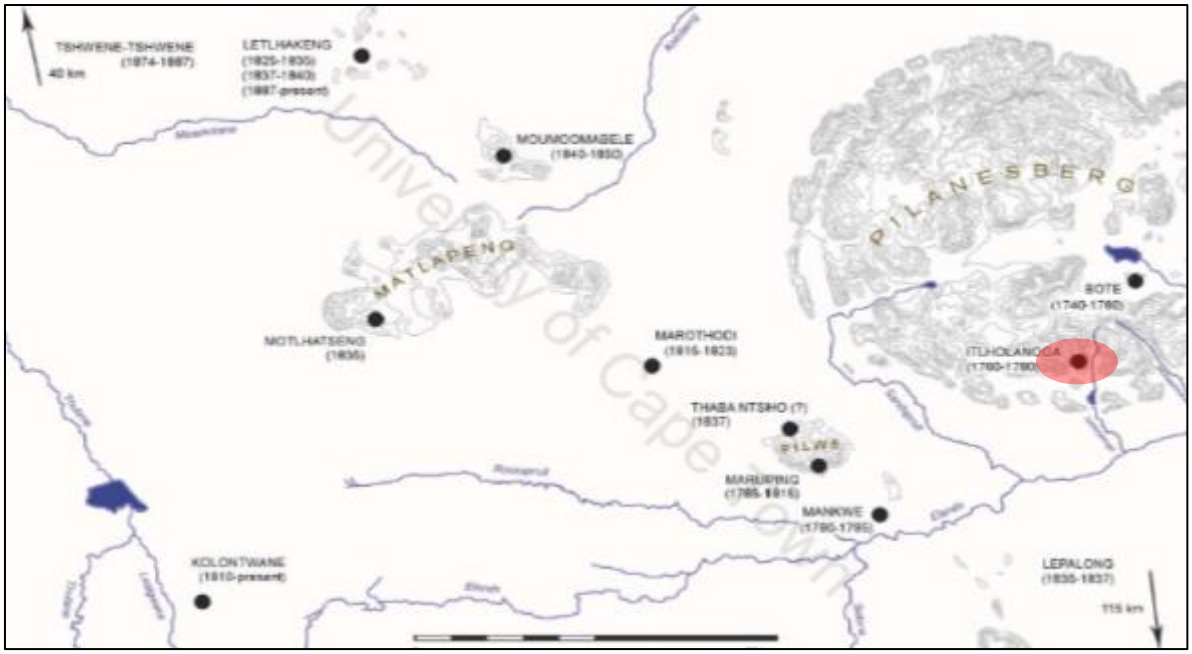


Figure 5-3: Distribution of main Tlokwa capitals and approximate dates, with *Itlholanoga* indicated in red (adapted from Anderson, 2009)

Situated within the site-specific study area within and adjacent to the proposed development footprint is the stonewalled settlement *Itlholanoga*. Recorded as Site 33/81, the settlement was excavated and reported by Mason (1986). Recovered diagnostic ceramics were reported as belonging to the *Uitkomst* and *Buispoort facies*. Huffman (2007) described

Uitkomst ceramics as a mixture of *Ntsuanatsatsi* and *Olifantspoort* characterised by stamped arcades, appliqué and blocks of parallel incisions, stamping and cord impressions. *Buispoort* comprises rim notching, broadly incised chevrons and white bands all with red ochre.

Furthermore, the site was partly mapped by Huffman and his team between 2005 and 2006. Huffman (2007, p. 437) classified the site as consisting of two distinct patterns, an earlier Type N and later Molokwane type. Type N comprises a few cattle kraals in the centre linked by other walls, the perimeter sometimes incorporates small stock enclosures. Molokwane consists of multiple arcs in the outer wall that marks the back courtyards of households surrounding the core of cattle kraals and small livestock enclosures.

Based on the results of the early excavations and recorded settlement pattern, Huffman (2007, p. 437) postulates *Itlholanoga* having two occupations, an early Tlokwa occupation as indicated by earlier Type N walling and *Uitkomst facies* ceramics, and a later Kgatla occupation marked by the Molokwane pattern and *Buispoort facies* ceramics. This assertion requires further study to provide meaningful conclusions to the occupation of *Itlholanoga.* Considering the oral histories, stonewalling pattern and macro settlement structure discussed by Anderson (2009, p. 94) in reference to *Marothodi* some 20 km due west, the similarity in spatial layout allow for certain inferences to be made (Figure 5-4, Figure 5-5 & Figure 5-6). These are briefly discussed below.

Ethnography suggests that a threefold division of the spatial layout of settlements was a common feature in the settlements of most Tswana chiefdoms. This will include three ‘zones’ of clustered settlement units/ homesteads. These ‘zones’ comprised:

1. A central zone – increased density of stonewalling, more complexity and greater quantity of identifiable homesteads;
2. An upper zone – outlying, less dense grouping of stonewalling; and
3. A lower zone – outlying, less dense grouping of stonewalling.

Furthermore, subsurface features exposed during excavations at *Itlholanoga* and *Marothodi* provide tangible examples of the type of resources associated with these stonewalled settlements. Notably these include preserved hut foundations, hearths (see Figure 5-7), ceramic vessels and shards, metal artefacts and beads.

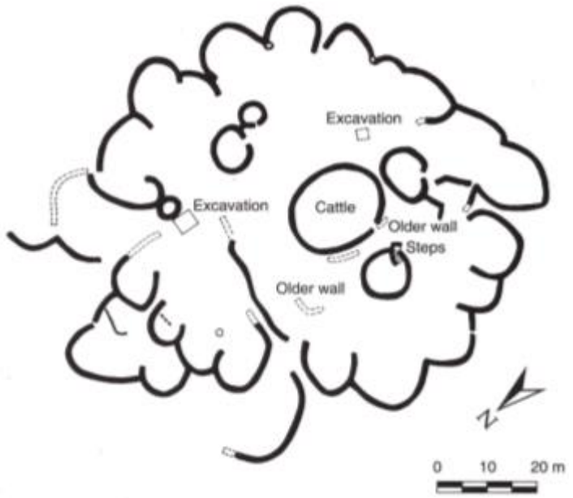


Figure 5-4: Layout plan of *Itlholanoga* settlement section (Huffman, 2007, p. 438)

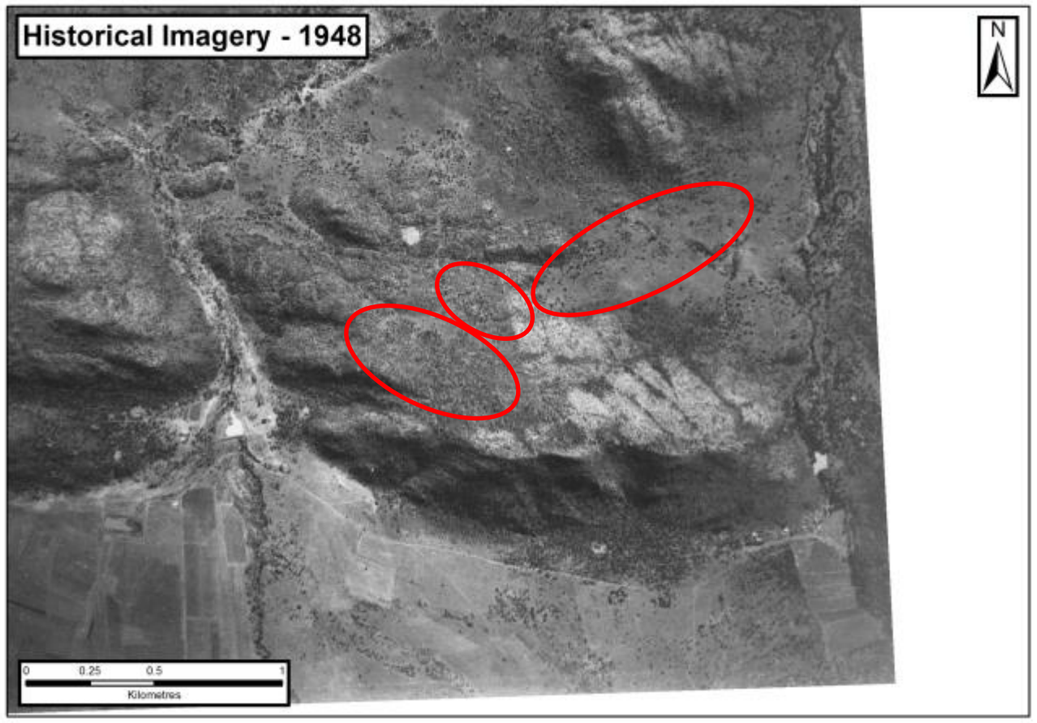


Figure 5-5: Aerial imagery dating to 1948. Three zones of stonewalling identifiable.

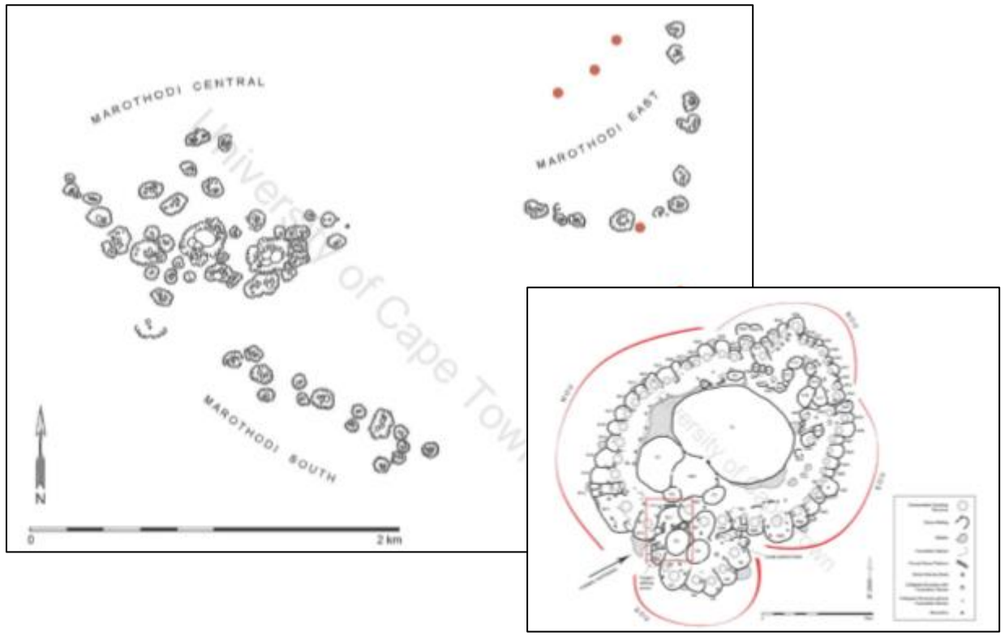


Figure 5-6: Spatial layout of *Marothodi* and zoom of the Central Zone (adapted from Anderson, 2009)

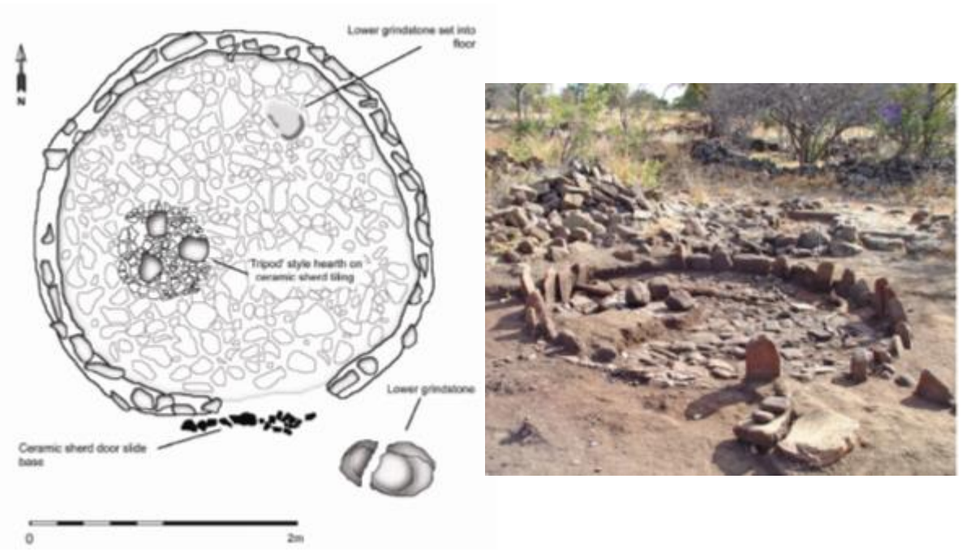


Figure 5-7: Example of exposed hut foundations and tiled hearth (adapted from Anderson, 2009)

Plan 2

Sun City HRM Process

Identified Heritage Resources

Legend

Identified Heritage Resources

- Archaeological - LFC
- Archaeological - MSA
- Burial Grounds & Graves
- Historical Built Environment
- Development Footprint
- Settlement
- Main Road
- National Road
- Railway Line
- River
- Dam

DIGBY WELLS ENVIRONMENTAL

• Sustainability • Service • Positive Change • Professionalism • Future Focused • Integrity

Projection: Transverse Mercator	Ref #: scm.SUN4270.201612.066
Datum: WGS 1984	Revision Number: 1
Central Meridian: 27°E	Date: 12/12/2016

N

0 1.5 3 6

Kilometres

1:120 000

www.digbywells.com

© Digby Wells Environmental

6 Impact assessment

This section provides the reader with an assessment of the CS of *Itlholanoga* and the potential impacts to the site by the Project. These are presented separately below.

6.1 Cultural significance assessment

The CS of the *Itlholanoga* was determined based on its importance or contribution to four broad value categories, i.e. aesthetic, historical, scientific and social. The assessment contributes to the development of appropriate management and mitigation measures commensurate to the determined CS in accordance with the published SAHRA minimum standards.

The CS assessment is summarised in Table 6-1:

Table 6-1: The CS assessment for *Itlholanoga*

Description	Aesthetic	Historic	Scientific	Social	INTEGRITY	Designation	Recommended Field Rating	Field Rating Description	Recommended Mitigation
Itlholanoga	5 The stonewalling demonstrate principle characteristics in terms of the development of Tswana capital settlements. These are considered irreplaceable	5 The site has relevance to the history of the Tlokwa their place in events in the pattern of South Africa's history	4 The site may yield scientific information that will contribute to an understanding of South Africa's cultural heritage.	4 The site has strong affiliations with the Tlokwa and their history in the region. It further has relevance to the scientific community for its potential contribution to understanding of historical groups, archaeological material culture and historical events within the region.	4 There is a high potential to yield information from the site. The identified extent of the site represents the last remaining elements of a much larger complex as evidence in the 1948 aerial imagery. The fabric of the site remains intact and has excellent preservation.	Very High	Grade II[8]	Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region	Project design must change to avoid all change to resource; Conserved in entirety, Conservation Management Plan (CMP). The CMP should be completed in support of a Grade II Site Nomination

6.2 Heritage impact assessment

The assessment considers the possible direct and indirect impacts on *Itlholanoga* by the identified listed activities, as presented in Table 1-2, relative to the aforementioned CS. This section presents the possible direct impacts to the site during the construction phase, and considers the possible indirect impacts that may manifest during the operation of the Project. These are discussed separately below.

[8] Notwithstanding that the NW-PHRA has not been assessed competent to manage NHRA Section 35 heritage resources, *Itlholanoga* should be considered as an important provincial heritage resource; the Grade II Field Rating therefore aims to highlight the importance of these resources and the required management thereof.

6.2.1 Construction

The construction phase of the Project presents the greatest likelihood for direct impacts on *Itlholanoga* to manifest. The identified impacts and management/ mitigation measures are discussed below.

6.2.1.1 Listed activities considered

Construction activities that may have a direct negative impact to *Itlholanoga* include GN R 985 Activity 12 – clearance of an area of 300 m^2 or more of indigenous vegetation.

6.2.1.2 Potential impact description

Construction activities may result in damage and/ or destruction to surface features, i.e. stonewalling, and possible sub-surface features associated with the settlement site.

6.2.1.3 Management objectives

The management objectives for the identified possible damage to and/or destruction of surface and sub-surface features of the site are to avoid the direct impact through implementation of project related management measures.

6.2.1.4 Management actions and targets

The management measures must be completed in accordance with the minimum levels prescribed in the published SAHRA minimum standards. Project design must change to avoid all direct impacts to the heritage resources and conserve the site in its entirety and managed through a Conservation Management Plan (CMP)/ Heritage Site Management Plan (HSMP). The following management measures are recommended:

- Sun International must commission an HSMP for *Itlholanoga* as a condition of authorisation for approval by SAHRA. The HSMP must be developed in support of a Grade II Site Nomination and for the appropriate management of the site during the construction and operation of the Project. The HSMP must aim to control the elements that make up the physical and social environment of the site, i.e. its physical condition, public visitors and interpretation, and promote/ enhance its conservation and maintenance through deliberate and thoughtful design; and
- A Watching Brief must be undertaken by a qualified archaeologist during the construction activities of the chair lift and hiking trail, specifically during the establishment of access, drilling of pylon foundations, and clearing of the proposed maintenance route and hiking trail.

6.2.1.5 Impact ratings

A summary of the impact assessment is presented in Table 6-2.

Table 6-2: Summary of the assessment for the damage or destruction of surface and sub-surface features of *Itlholanoga*

IMPACT DESCRIPTION: Damage / Destruction of surface and sub-surface features				
Dimension	**Rating**	**Motivation**		
PRE-MITIGATION				
Duration	Permanent (7)	Unmitigated/ managed construction activities may result in permanent damage to the site	Consequence: Moderately detrimental (-13)	Significance: Moderate - negative (-91)
Extent	Very limited (1)	Based on the nature of the Project, potential negative impacts will be limited to certain aspects of the site		
Intensity x type of impact	High - negative (-5)	Based on the nature of the construction activities, this may manifest as a minor change to a heritage resource with high CS		
Probability	Certain (7)	Without appropriate management, it is certain that construction activities will damage aspects of the site.		
MITIGATION:				
Develop a HSMP to manage the site, construction and operation activities to promote the responsible conservation of the site. Undertake a Watching Brief during the construction phase to guide activities and record any sub-surface features that may be exposed.				
POST-MITIGATION				
Duration	Beyond project life (6)	Where sub-surface features are exposed during the construction phase, these will be recorded and mitigated by the qualified archaeologists undertaking the Watching Brief, and guide construction activities to remove further negative impacts. This will be controlled and add value and information to the site that will extend beyond the project life	Consequence: Highly beneficial (17)	Significance: Minor - positive (51)
Extent	Very limited (1)	Based on the nature of the Project, potential negative impacts will be limited to certain aspects of the site. Exposed sub-surface material, however, will contribute to the value of the site and the context of archaeo-historical context of the Rustenburg/ Pilanesberg region		
Intensity x type of impact	Very high - positive (6)	Where impacts manifest, these are considered a minor change to a heritage resource with high CS. The value of the exposure of sub-surface material culture, however, is considered as a moderate positive change if managed through the HSMP		
Probability	Unlikely (3)	It is unlikely that damage to the site will occur with the implementation of proposed management measures. Where exposure of sub-surface features do occur, this will be controlled and add value to the understanding of the site		

6.2.2 Operation/ Use

The operational phase, i.e. use of the chair lift and specifically the hiking trail, may result in potential indirect impacts. As defined above, indirect impacts are those which are viewed in relation to the causal activity, but occur at a different time to that activity. In this instance, the establishment of the hiking trail (*causal activity*) will result in increased human traffic through the site (*indirect impact*) that may result in the erosion of the trail that may expose sub-surface features, possible looting and vandalism of the site (*direct impacts*). The identified potential impacts to the site are considered separately below.

6.2.2.1 Potential impact description

Operational activities through the expansion of a resort, lodge, hotel and tourism or hospitality facilities where the development footprint will be expanded include:

- Unmanaged human traffic through the site may exacerbate natural processes of erosion that may expose sub-surface features;
- Possible looting of archaeological material culture generally protected by Section 35 of the NHRA; and
- Vandalism to the stonewalled settlement that may degrade the integrity of the site and effect CS value.

6.2.2.2 Management objectives

The management objectives for the operation of the Project are to avoid identified impacts through implementation of project related management measures.

6.2.2.3 Management actions and targets

The management measures must be completed in accordance with the published SAHRA minimum standards. The aforementioned HSMP must be implemented prior to the construction and operation of the development.

6.2.2.4 Impact ratings

A summary of the impact assessment is presented in Table 6-3.

Table 6-3: Summary of the assessment for increased human traffic through the site

IMPACT DESCRIPTION: Increased human traffic through the site that may result in damage, including looting and vandalism				
Dimension	**Rating**	**Motivation**		
PRE-MITIGATION				
Duration	Project Life (5)	Increased human traffic through the site will continue throughout the life of the Project	Consequence: Highly detrimental (-15)	Significance: Moderate - negative (-105)
Extent	Local (3)	Damage to the site is envisaged to occur at one or more components of the site that through time could decrease the integrity of the entire site.		
Intensity x type of impact	Extremely high - negative (-7)	This will result in a major change to a heritage resources with very high CS		
Probability	Certain (7)	Unmanaged human traffic through the site will result in damage to surface and sub-surface features		
MITIGATION: Develop a HSMP to manage the site, construction and operation activities to promote the responsible conservation of the site.				
POST-MITIGATION				
Duration	Project Life (5)	Increased human traffic through the site will continue throughout the life of the Project	Consequence: Moderately beneficial (12)	Significance: Minor - positive (72)
Extent	Very limited (1)	Certain aspects of the site may be damaged by increased traffic, this will be limited to certain components of the site. Where the parts of the site through which the trail runs are recorded in detail, the impact will be reduced.		
Intensity x type of impact	Very high - positive (6)	The HSMP will result in a moderate positive change to the site through appropriate management		
Probability	Highly probable (6)	The implementation of the HSMP will promote positive change to the site and contribute to the objectives development plans (See Section 8 below)		

6.3 Low risk and unplanned events

Certain project activities may represent low risks to heritage resources or cause unplanned events. Low risks, where identified, can be monitored to gauge if the baseline changes and mitigation is required. Unplanned events are events that can occur on any project and cannot be monitored, but can, however, be planned for to reduce the severity of potential impacts if and where they occur.

Information on the potential impacts of these events and management plans are summarised in Table 6-4.

Table 6-4: Summary of potential unplanned events, potential impacts, and proposed mitigation and management

Unplanned event	Potential impact	Mitigation/ Management/ Monitoring
Accidental exposure of previously unidentified heritage resources during the construction of the Project.	Damage or destruction of heritage resources generally protected under Section 35 and 36 of the NHRA.	Undertake the recommended Watching Brief and develop project specific Chance Find Protocols (CFPs) as a condition of authorisation. The CFPs must clearly describe the type of heritage resources that may occur within the site specific project area, the protocol to follow in the event of accidental exposure of previously unidentified heritage resources, and the appropriate management measures and reporting structures to be adhered to. The CFPs must be defined and established prior to the construction phase of the proposed Project.

7 Sensitivity analysis and consideration of alternatives

As part of the requirements of the NHRA, consideration of alternatives to the project must be completed to assess the suitability of the Project in relation to the possible impacts to the identified heritage resources, in this instance *Itlholanoga*. Here, any proposed changes to *Itlholanoga* must be considered in relation to the integrity/ condition, CS/ special value as defined by subsection 3(3) of the NHRA, Field Ratings and the SAHRA Minimum Standards.

To this effect, the suitability of the Project was subjected to a Multi-Criteria Decision Analysis (MCDA) utilising a simple linear additive evaluation model. In this instance, the suitability was considered against the following criteria:

- Criteria 1: The level of existing anthropogenic disturbance to the site;
- Criteria 2: Potential for occurrence of unidentified heritage resources, both on the surface and at sub-surface levels that may be impacted upon;
- Criteria 3: The likelihood of *Itlholanoga* to be impacted upon and the loss of integrity of the site; and
- Criteria 4: The potential that permitting requirements will be applicable.

These criteria were rated on a scale from 1 (unsuitable) to 5 (most suitable) to quantifiably compare the suitability of the Project. Once the ratings were determined against the criteria above, these were calculated to determine the overall suitability ranking.

Alternatives assessed in this section include:

- The proposed chair lift route and stations;
- Hiking Trail – Northern route; and
- Hiking Trail – Southern route.

A summary and motivation of the various alternatives under consideration are presented Table 7-1.

Table 7-1: Multi-criteria decision analysis

Criteria	Chair Lift Suitable	[9]Hiking Trail – North Unsuitable	Hiking Trail – South Negligible
1 Level of existing disturbance	4 – Suitable The proposed top and bottom location of the stations have been altered through anthropogenic activities. A survey of the areas yielded no heritage resources that will be impacted upon. Furthermore, the development footprint of the pylons will be ~3 m^2 and no heritage resources were identified in the alignments.	1 – Unsuitable While there has been encroachment on the site, the proposed route is through the settlement that has remained intact through time and subject to minimal disturbance.	2 – Less suitable The proposed route occurs predominantly on the periphery of the recorded extent of the site, adjacent to areas disturbed through the construction of the road. This section, while partially disturbed, is considered still largely undisturbed, but more suitable than the northern routing option.
2 Potential for unidentified heritage resources	4 - Suitable A survey of the proposed station locations and routing option did not record any surface indicators for heritage resources. Installation of the pylons will also have a minimal impact footprint.	1 – Unsuitable The potential to identify sub-surface features during the construction and operation of the route is almost certain.	5 – This route is the most suitable as it avoids a large portion of the internal configuration of the site and decreases the potential for exposing unidentified sub-surface features.

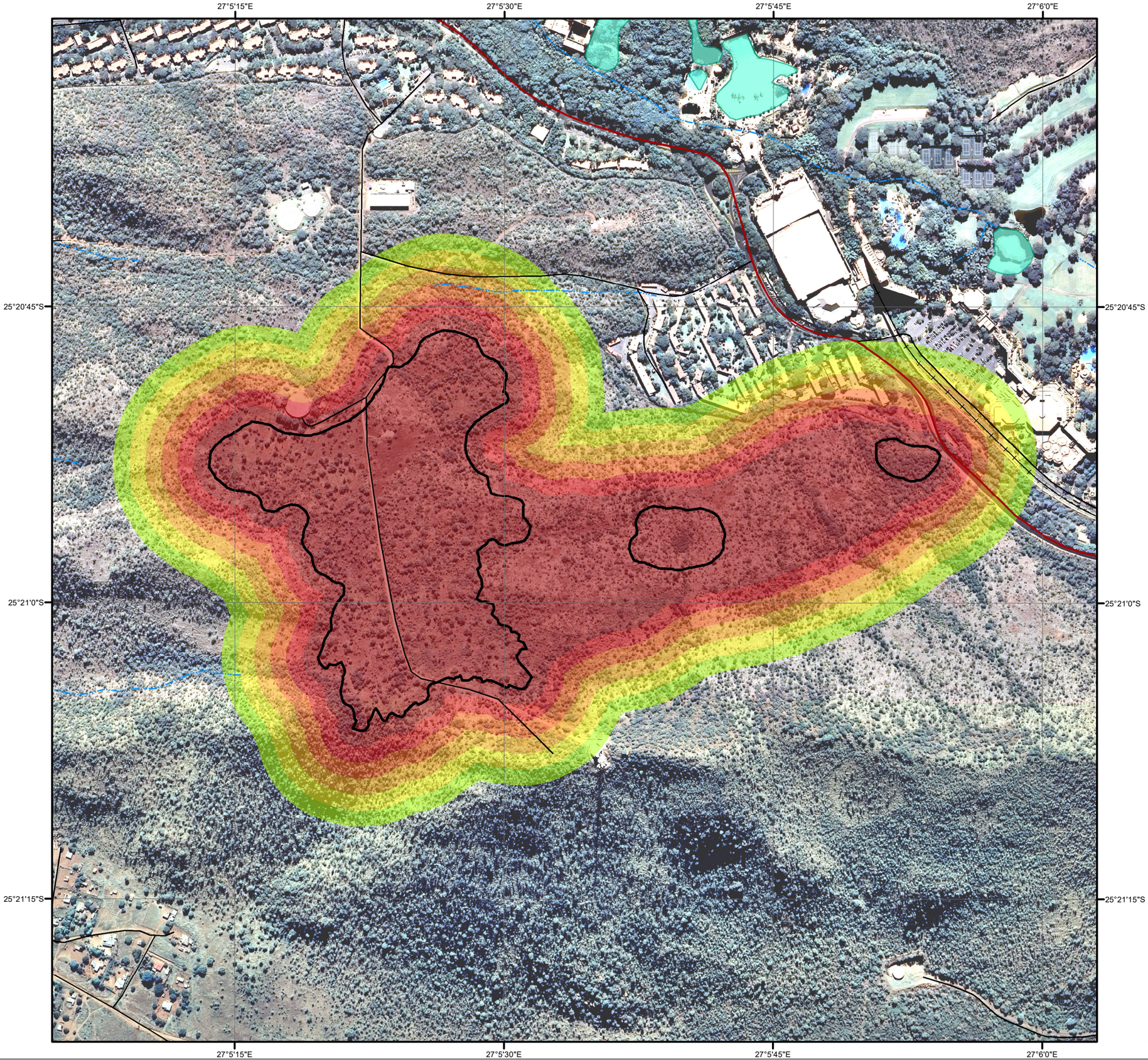
[9] The assessment of the hiking trails considered the recorded extent of *Itlholanoga* completed as part of the Heritage Sensitivity Mapping exercise and available in Appendix B. Please refer to Figure 1-1 and Plan 3 for reference.

Criteria	Chair Lift Suitable	[9]Hiking Trail – North Unsuitable	Hiking Trail – South Negligible
3 Likelihood of impacts and loss of integrity	5 – Most suitable The chair lift will be elevated and not impact upon the stonewalled site. It will also remove the element of human traffic through the site	1 – Unsuitable Unmitigated use of the site via the proposed route will increase the potential for impacts and loss of integrity to a point of certainty.	4 – Suitable Unmitigated use of the site via the proposed route will increase the potential for impacts and loss of integrity but to a lesser degree as it is primarily situated on the periphery of the site.
4 Potential permitting	4 – Suitable The potential for permitting requirements or restrictions by the relevant heritage resources authorities is low.	1 – Unsuitable The potential for permitting requirements or restrictions by the relevant heritage resources authorities is high.	1 – Unsuitable The potential for permitting requirements or restrictions by the relevant heritage resources authorities is high.

Plan 3

Sun City HRM Process

Sensitivity Analysis



Legend

- Site Extent
- Main Road
- Minor Road
- Track
- Railway Line
- Non-Perennial Stream
- Dam Wall
- Pool

Sensitivity

- 0 - 25 m (Very High)
- 25 - 50 m (High)
- 50 - 75 m (Medium High)
- 75 - 100 m (Medium)
- 100 - 125 m (Low)
- 125 - 150 m (Very Low)

DIGBY WELLS ENVIRONMENTAL

• Sustainability • Service • Positive Change • Professionalism • Future Focused • Integrity

Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 27°E

Ref #: scm.SUN4270.201610.010
Revision Number: 1
Date: 04/10/2016

N

0 50 100 200 300

Metres

1:6 000

www.digbywells.com

© Digby Wells Environmental

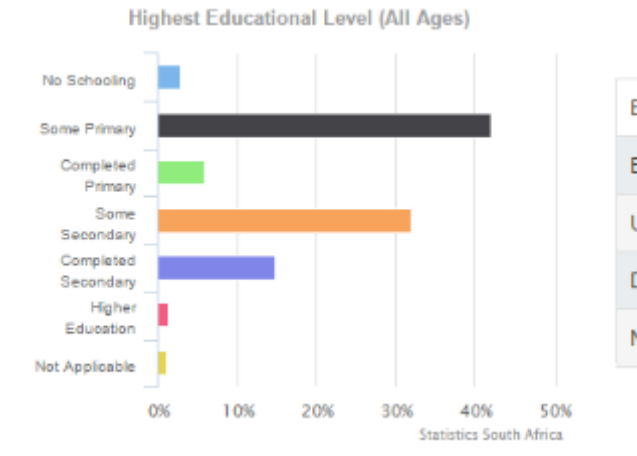
Through the analysis of the various alternatives, the proposed chairlift and stations are suitable from a heritage perspective. Of the hiking trails, the southern routing is the preferred option as it has less potential to impact upon the identified site, *Itlholanoga.*

The final alternative consideration for the proposed Project is the 'no-go' option, where the development is not undertaken, and the current *status quo* remains intact. Access and use of the site will remain undeveloped and natural processes of decay and degradation will remain unmitigated. This approach, however, does not consider the use of places of cultural significance for public enjoyment, research and tourism as encompassed in Section 44(1) of the NHRA. To this effect, Section 8 below considers the identified impacts and sensitivity analysis against the socio-economic benefits that may be derived from the Project.

8 Heritage impacts vs sustainable socio-economic benefits

This section presents an abbreviated summary of information contained within the Moses Kotane Local Municipality Integrated Development Plan, with specific focus on tourism and cultural heritage (Moses Kotane Local Municipality, 2016) **supplemented by statistical information from Statistics South Africa** (StatsSA, 2016)**.**

The site-specific study area is located within the MKLM in the North West Province. Statistically, the MKLM comprises a population of 242 554 (*as of the 2011 census*). Education levels of the local population consist primarily of those who have completed "some primary" and "some secondary", amounting to 42% and 32% respectively. Only 14.8% of the population have completed secondary school, suggesting that the skill base within the MKLM is relatively low.



Employment Status	Number
Employed	46416
Unemployed	28328
Discouraged Work Seeker	8369
Not Economically Active	69859

Figure 8-1: Education and employment levels for the MKLM (adapted from StatsSA, 2016)

The MKLM Integrated Development Plan (IDP) recognises the challenge of the low education levels and its contribution to an unemployment rate of 51%. As such, Local Economic Development (LED) initiatives aimed at skills development and job creation across various economic sectors are considered a priority.

The development of tourism initiatives within the MKLM as a catalyst for greater economic investment and job creation is considered here. Sun City and the Pilanesberg National Park are the main tourism anchors for the province. The MKLM IDP refers to the "Heritage Park" development to link the Pilanesberg in the east with Madikwe in the west to promote eco-tourism and cultural historic heritage development. One Key Performance Area (KPA) considered by the MKLM is the need to preserve cultural heritage through reaching a balance between the need to enhance the built environment with measures that reduce the impact of the development.

Considering the proposed Project relative to tourism development as described in the MKLM IDP the appropriate use and management of the site *Itlholanoga* can contribute sustainable socio-economic benefits for the local population and the proposed "Heritage Park" development. This is motivated by the following:

- The Project, as currently proposed, will have a minimal direct impact to the site and may partially contribute to sustainable employment of local community members through possible integration with the Mphebatho Museum for example; and
- *Itlholanoga* provides tangible evidence of the history of the dominant groups of the Pilanesberg region that will contribute to the "Heritage Park" development.

The use of the site *Itlholanoga*, however, must consider the identified potential impacts and align with the aforementioned KPA to minimise these.

9 Cumulative impacts

Cumulative impacts occur from in-combination effects of various impacts on heritage resources acting within a host of processes that result in an incremental effect. The importance of identifying and assessing cumulative impacts is that the whole is often greater than the sum of its parts. This implies that the total effect of multiple stressors or change processes acting simultaneously on a system may be greater than the sum of their effects when acting in isolation.

It has been determined that the regional and, more specifically, local study area is rich in cultural and natural history. In light of this, the Project cannot be viewed in isolation from the greater cultural landscape, and the current existing and proposed developments surrounding the site-specific study area as relative to the proposed development context, tourism and cultural heritage presented in Section 8 above.

Subsequent to the drafting of this report, Sun International is proposing a series of resort expansion, utilities and services and maintenance projects within the Sun City complex. Collectively, these are subject to a separate HIA[10] in support of an EIA. These developments include an additional reservoir in close proximity to *Itlholanoga*. These developments could

[10] SAHRIS Case ID: 12431. Accessible at: http://www.sahra.org.za/sahris/cases/sun4642-sun-city-developments

also potentially impact other heritage resources identified within the site-specific study area, including STW-001, STW-002 and STW-006[11].

Individually, these developments do not constitute a major impact on *Itlholanoga.* When considered in combination, and including the developments described in Section 1.1, these projects will be encroaching on the site and present a risk to the integrity of the site as a whole. *Itlholanoga* has been disturbed previously, through prior developments to the site. This includes the existing reservoir which removed a portion of the site and the concrete road which runs through the site.

A summary of identified cumulative impacts of the Project are presented in Table 9-1:

Table 9-1: Summary of potential cumulative impacts

Type	Cumulative Impact	Direction of Change	Extent of Impact
Additive, Synergistic Time-crowding	Increased human traffic that may impact on the integrity of the site over time. While the individual impacts will be limited to certain aspects of the site, the frequent and repetitive impacts will interact to produce a total impact greater than the individual effects. This will result in the degradation of the integrity and value of the site. Furthermore, the repetitive use of the site through time is envisaged to increase.	Negative	Local
Additive Synergistic	The development will result in an additive cumulative impact when considered in relation to the development of the chair lift and hiking trail combined, as well as the number of developments within the Sun City complex and surrounds that continue to reduce the 'sense-of-place'.	Negative	Local
	The appropriate use of the site through development will result in an increased awareness of the archaeo-historical context of the region through the frequent and repetitive use. Furthermore, the development will result in the management of the site that would not have occurred otherwise.	Positive	Regional

10 Mitigation and management measures

This section provides a summary of the project activities relevant to this study, the environmental aspect and impacts on the receiving environment. Information on the

[11] Refer to Section 6 of the Heritage Scoping Report (HSR) for a description of the CS of these resources and Section 6 in the HIA report for a description of the potential impacts. SAHRIS Case ID: 12431.

recommended mitigation, relevant legal requirements, recommended management plans and timing of implementation is presented in Table 10-1 and Table 10-2.

Table 10-1: Mitigation and management plan

Activities	Potential Impact	Size and scale of disturbance	Aspects Affected	Phase	Mitigation Type/Measures	Compliance with standards/Standard to be achieved	Time period for Implementation
Activity 12 – Clearing	Damage / Destruction of surface and sub-surface features	900 m 1 100 m (~900 m^2)	*Itlholanoga* Section 35 Resource	Construction	Avoid/ reduce through developing a HSMP, inclusive of CFPs and undertaking a Watching Brief	Section 35 of the NHRA and SAHRA Minimum Standards	Pre-construction and construction
Activity 17 – Expansion of resort				Operation	Avoid/ reduce through the development of a HSMP for the Project	Section 35 and 47 of the NHRA, SAHRA Minimum Standards, and SAHRA Site Management Plans Guidelines	Pre-construction

Table 10-2: Prescribed environmental management standards, practice, guideline, policy or law

Applicable Standard, Practice, Guideline, Policy or Law		
Title	**Description of Requirements**	**Relevance to Project**
Legislation (National, Provincial, Local)		
The National Heritage Resources Act, 1999 (Act No. 25 of 1999)	Heritage resources within the Project development footprint are protected under Section 35 of the NHRA, and may not be impacted upon without the approval and necessary permits issued by SAHRA	Heritage resources protected under Section 35 have been identified.
Regulations to the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (GN R 548) (SAHRA Regulations)	Provisions for permit applications are regulated under Chapter II of GN R 548. Furthermore, applications for heritage resources protected under Section 35 of the NHRA are regulated by Chapter IV.	Mitigation of archaeological sites is a permitted activity regulated by GN R 548. These activities must be cognisant of and adhere to the regulations to ensure compliance with the legislative framework.
Applicable Guideline/Standards		
SAHRA Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports	The guidelines provide the minimum standards for recommended mitigation under Section 7(1)(L)(d).	Specialist recommendations were considered against the minimum standards provided.
SAHRA Site Management Plans: Guidelines for the Development of Plans for the Management of Heritage Sites or Places	The guidelines provide for the requirements of a HSMP.	Specialist recommendations were considered against the objectives provided.

11 Recommendations

Through a review of the available information and the results of the preceding assessments, Digby Wells recommends the following management measures for the Project:

- Sun International must commission an HSMP for *Itlholanoga* as a condition of authorisation for approval by SAHRA. The HSMP must be developed in support of a Grade II Site Nomination and for the appropriate management of the site during the construction and operation of the Project. The HSMP must include project specific CFPs and aim to control the elements that make up the physical and social environment of the site, i.e. its physical condition, public visitors and interpretation, and promote / enhance its conservation and maintenance through deliberate and thoughtful design; and
- A Watching Brief by a qualified archaeologist during the construction phase of the Project which will entail the on-site supervision of all activities to guide the development and record any exposed sub-surface features or material culture.

The HRM process undertaken in support of the EIA for the additional infrastructure described above includes a CMP component. These recommendations will be incorporated into the CMP where feasible.

12 Conclusion

Sun International through a joint venture with UNREAL plan to construct and operate a chair lift and hiking trail on the northern slope of the Sun City Mountain. In support of EA for the Project, Sun International procured the services of Digby Wells to provide specialist HRM input required in terms of Section 38(8).

The proposed development will occur within proximity to the stonewalled settlement *Itlholanoga*. This site is a known capital of the Tlokwa and has been designated with a high CS. This report considered the potential impacts of the Project to the site against the potential positive outcomes and socio-economic benefits that can be derived.

Through the analysis, Digby Wells is of the opinion that if the recommended management measures are implemented, positive impacts through the sustainable use and development of *Itlholanoga* can be achieved.

13 Bibliography

Anderson, M. S. (2009). *The Historical Archaeology of Marathodi: Towards and understanding of space, identity and the organisation of production at an early 19th century Tlokwa capital in the Pilanesberg region of South Africa.* University of Cape Town: Unpublished PhD Thesis.

Groenewald, G. (2016). *Palaeontological Desktop Assessment for the proposed Tweelaagte Prospecting Application on Farm 175, Moses Kotane Local Municipality, Bojanala District Municipality, North West Province.* EcoPartners: Unpublished report (CaseID: 8838).

Hall, S., Anderson, M., Boeyens, J., & Coetzee, F. (2008). Towards an outline of the oral geography, historical identity and political economy of the late precolonial Tswana in the Rustenburg region. In N. Swanepoel, A. Esterhuysen, & P. Bonner, *Five Hundred Years Rediscovered: Southern African Precedents and Prospects* (pp. 55 - 86). Johannesburg: Wits University Press.

Huffman, T. N. (2007). *Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa.* Durban: University of KwaZulu-Natal Press.

Mason, R. J. (1986). *Origins of the Black People of Johannesburg and the Souther Western Central Transvaal, AD 350-1880.* Johannesburg: Witwatersrand University Press.

Moses Kotane Local Municipality. (2016). *Reviewed IDP for the Financial Year 2016/2017.* Moses Kotane Local Municipality: Unpublished report.

StatsSA. (2016, 12 12). *Moses Kotane*. Retrieved from Statistics South Africa: http://www.statssa.gov.za/?page_id=993&id=moses-kotane-municipality

Verwoerd, W. J. (2006). The Pilanesberg Alkaline Province. In M. R. Johnson, C. R. Anhaeusser, & R. J. Thomas, *The Geology of South Africa* (pp. 381 - 394). Johannesburg: Geological Society of South Africa and Council for Geosciences.

Appendix A: Specialist CV

Mr. Justin du Piesanie

Manager: Heritage Resources Management

Social and Heritage Services Department

Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2015	Continued Professional Development, Intermediate Project Management Course	PM.Ideas: A division of the Mindset Group
2013	Continued Professional Development Programme, Architectural and Urban Conservation: Researching and Assessing Local Environments	University of Cape Town
2008	MSc	University of the Witwatersrand
2005	BA (Honours) (Archaeology)	University of the Witwatersrand
2004	BA	University of the Witwatersrand
2001	Matric	Norkem Park High School

2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Proficient	Good

3 Employment

Period	Company	Title/position
2016 to present	Digby Wells Environmental	Unit Manager: Heritage Resources Management
2011-2016	Digby Wells Environmental	Heritage Management Consultant: Archaeologist
2009-2011	University of the Witwatersrand	Archaeology Collections Manager
2009-2011	Independent	Archaeologist
2006-2007	Maropeng & Sterkfontein Caves UNESCO World Heritage Site	Tour guide

4 Experience

I joined the company in August 2011 as an archaeologist and was subsequently made unit manager in the Social and Heritage Services Department in 2016. I obtained my Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. I further attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2013. I am a professional member of the Association of Southern African Professional Archaeologists (ASAPA), and accredited by the association's Cultural Resources Management (CRM) section. I am also a member of the International Council on Monuments and Sites (ICOMOS), an advisory body to the UNESCO World Heritage Convention. I have over 10 years combined experience in HRM in South Africa, including heritage assessments, archaeological mitigation, grave relocation, and NHRA Section 34 application processes. I gained further generalist experience since my appointment at Digby Wells in Botswana, Burkina Faso, the Democratic Republic of Congo, Liberia and Mali on projects that have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. Furthermore, I have acted as a technical expert reviewer of HRM projects undertaken in Cameroon and Senegal. My current focus at Digby Wells is to develop the HRM process as an integrated discipline following international HRM principles and standards. This approach aims to provide clients with comprehensive, project-specific solutions that promote ethical heritage management and assist in achieving strategic objectives.

5 Project Experience

Please see the following table for relevant project experience:

Project Title	Project Location	Date:		Description of the Project	Name of Client
Klipriviersberg Archaeological Survey	Meyersdal, Gauteng, South Africa	2005	2006	Archaeological surveys	ARM
Sun City Archaeological Site Mapping	Sun City, Pilanesberg, North West Province, South Africa	2006	2006	Phase 2 Mapping	Sun International
Witbank Dam Archaeological Impact Assessment	Witbank, Mpumalanga, South Africa	2007	2007	Archaeological survey	ARM
Archaeological Assessment of Modderfontein AH Holdings	Johannesburg, Gauteng, South Africa	2008	2008	Heritage Basic Assessment	ARM
Heritage Assessment of Rhino Mines	Thabazimbi, Limpopo Province, South Africa	2008	2008	Heritage Impact Assessment	Rhino Mines
Cronimet Project	Thabazimbi, Limpopo Province, South Africa	2008	2008	Archaeological surveys	Cronimet
Eskom Thohoyandou SEA Project	Limpopo Province, South Africa	2008	2008	Heritage Statement	Eskom
Wenzelrust Excavations	Shoshanguve, Gauteng, South Africa	2009	2009	Phase 2 Excavations	Heritage Contracts Unit
University of the Witwatersrand Parys LIA Shelter Project	Parys, Free State, South Africa	2009	2009	Phase 2 Mapping	University of the Witwatersrand
Transnet NMPP Line	Kwa-Zulu Natal, South Africa	2010	2010	Heritage survey	Umlando Consultants
Archaeological Impact Assessment – Witpoortjie Project	Johannesburg, Gauteng, South Africa	2010	2010	Archaeological Impact Assessment	ARM
Der Brochen Archaeological Excavations	Steelpoort, Mpumalanga, South Africa	2010	2010	Phase 2 Excavations	Heritage Contracts Unit
De Brochen and Booysendal Archaeology Project	Steelpoort, Mpumalanga, South Africa	2010	2010	Phase 2 Mapping	Heritage Contracts Unit
Eskom Thohoyandou Electricity Master Network	Limpopo Province, South Africa	2010	2010	Heritage Statement	Strategic Environmental Focus
Batlhako Mine Expansion	North-West Province, South Africa	2010	2010	Phase 2 Mapping	Heritage Contracts Unit
Kibali Gold Project Grave Relocation Plan	Orientale Province, Democratic Republic of Congo	2011	2013	Grave Relocation	Randgold Resources Limited

Project Title	Project Location	Date:		Description of the Project	Name of Client
Kibali Gold Hydro-Power Project	Orientale Province, Democratic Republic of Congo	2012	2014	Heritage Impact Assessment	Randgold Resources Limited
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012	2012	Heritage Impact Assessment	Aquarius Resources
Environmental Authorisation for the Gold One Geluksdal TSF and Pipeline	Gauteng, South Africa	2012	2012	Heritage Impact Assessment	Gold One International
Platreef Burial Grounds and Graves Survey	Mokopane, Limpopo Province, South Africa	2012	2012	Burial Grounds and Graves Survey	Platreef Resources
Resgen Boikarabelo Coal Mine	Limpopo Province, South Africa	2012	2012	Phase 2 Excavations	Resources Generation
Bokoni Platinum Road Watching Brief	Burgersfort, Limpopo Province, South Africa	2012	2012	Watching Brief	Bokoni Platinum Mine
SEGA Gold Mining Project	Burkina Faso	2012	2013	Socio Economic and Asset Survey	Cluff Gold PLC
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012	2015	Heritage Impact Assessment	Aquarius Resources
SEGA Gold Mining Project	Burkina Faso	2013	2013	Technical Reviewer	Cluff Gold PLC
Consbrey and Harwar Collieries Project	Breyton, Mpumalanga, South Africa	2013	2013	Heritage Impact Assessment	Msobo
New Liberty Gold Project	Liberia	2013	2014	Grave Relocation	Aureus Mining
Falea Uranium Mine Environmental Assessment	Falea, Mali	2013	2013	Heritage Scoping	Rockgate Capital
Putu Iron Ore Mine Project	Petroken, Liberia	2013	2014	Heritage Impact Assessment	Atkins Limited
Sasol Twistdraai Project	Secunda, Mpumalanga, South Africa	2013	2014	Notification of Intent to Develop	ERM Southern Africa
Daleside Acetylene Gas Production Facility	Gauteng, South Africa	2013	2013	Heritage Impact Assessment	ERM Southern Africa
Exxaro Belfast GRP	Belfast, Mpumalanga, South Africa	2013	-	Grave Relocation	Exxaro Coal Mpumalanga (Pty) Ltd
Nzoro 2 Hydro Power Project	Orientale Province, Democratic Republic of Congo	2014	2014	Social consultation	Randgold Resources Limited
Eastern Basin AMD Project	Springs, Gauteng, South Africa	2014	2014	Heritage Impact Assessment	AECOM
Soweto Cluster Reclamation Project	Soweto, Gauteng, South Africa	2014	2014	Heritage Impact Assessment	Ergo (Pty) Ltd

Project Title	Project Location	Date:		Description of the Project	Name of Client
Klipspruit South Project	Ogies, Mpumalanga, South Africa	2014	2014	Heritage Impact Assessment	BHP Billiton
Klipspruit Extension: Weltevreden Project	Ogies, Mpumalanga, South Africa	2014	2014	Heritage Impact Assessment	BHP Billiton
Ergo Rondebult Pipeline Basic Assessment	Johannesburg, South Africa	2014	2014	Heritage Basic Assessment	Ergo (Pty) Ltd
Kibali ESIA Update Project	Orientale Province, Democratic Republic of Congo	2014	2014	Heritage Impact Assessment	Randgold Resources Limited
GoldOne EMP Consolidation	Westonaria, Gauteng, South Africa	2014	2014	Gap analysis	Gold One International
Yzermite PIA	Wakkerstroom, Mpumalanga, South Africa	2014	2014	Palaeontological Assessment	EcoPartners
Sasol Mooikraal Basic Assessment	Sasolburg, Free State, South Africa	2014	2014	Heritage Basic Assessment	Sasol Mining
Oakleaf ESIA Project	Bronkhorstspruit, Gauteng, South Africa	2014	2015	Heritage Impact Assessment	Oakleaf Investment Holdings
Rea Vaya Phase II C Project	Johannesburg, Gauteng, South Africa	2014	2014	Heritage Impact Assessment	ILISO Consulting
Imvula Project	Kriel, Mpumalanga, South Africa	2014	2015	Heritage Impact Assessment	Ixia Coal
Sibanye WRTRP	Gauteng, South Africa	2014	2016	Heritage Impact Assessment	Sibanye
VMIC Vanadium EIA Project	Mokopane, Limpopo, South Africa	2014	2015	Heritage Impact Assessment	VM Investment Company
NLGM Constructed Wetlands Project	Liberia	2015	2015	Heritage Impact Assessment	Aureus Mining
ERPM Section 34 Destruction Permits Applications	Johannesburg, Gauteng, South Africa	2015	2015	Section 34 Destruction Permit Applications	Ergo (Pty) Ltd
JMEP II EIA	Botswana	2015	2015	Heritage Impact Assessment	Jindal
Gino's Building Section 34 Destruction Permit Application	Johannesburg, Gauteng, South Africa	2015	2016	Heritage Impact Assessment and Section 34 Destruction Permit Application	Bigen Africa Services (Pty) Ltd
EDC Block Refurbishment Project	Johannesburg, Gauteng, South Africa	2015	2016	Heritage Impact Assessment and Section 34 Permit Application	Bigen Africa Services (Pty) Ltd
Namane IPP and Transmission Line EIA	Steenbokpan, Limpopo Province, South Africa	2015	2016	Heritage Impact Assessment	Namane Resources (Pty) Ltd
Temo Coal Road Diversion and Rail Loop EIA	Steenbokpan, Limpopo Province, South Africa	2015	2016	Heritage Impact Assessment	Namane Resources (Pty) Ltd
Groningen and Inhambane PRA	Limpopo Province, South Africa	2016	2016	Heritage Basic Assessment	Rustenburg Platinum Mines Limited

Project Title	Project Location	Date:		Description of the Project	Name of Client
NTEM Iron Ore Mine and Pipeline Project	Cameroon	2014	2016	Technical Review	IMIC plc
Palmietkuilen MRA	Springs, Gauteng, South Africa	2016	2016	Heritage Impact Assessment	Canyon Resources (Pty) Ltd
Copper Sunset Sand Mining S.102	Free State, South Africa	2016	2016	Heritage Basic Assessment	Copper Sunset Sand (Pty) Ltd
Grootvlei MRA	Springs, Gauteng, South Africa	2016	2016	Notification of Intent to Develop	Ergo (Pty) Ltd
Lambda EMP	Mpumalanga, South Africa	2016	2016	Palaeontological Impact Assessment	Eskom Holdings SOC Limited
Kilbarchan Basic Assessment and EMP	Newcastle, KwaZulu-Natal, South Africa	2016	2016	Heritage Basic Assessment	Eskom Holdings SOC Limited
Grootegeluk Amendment	Lephalale, Limpopo Province, South Africa	2016	2016	Notification of Intent to Develop	Exxaro
Garsfontein Township Development	Pretoria, Gauteng, South Africa	2016	2016	Notification of Intent to Develop	Leungo Construction Enterprises
Massawa EIA	Senegal	2016	2017	Technical Reviewer Heritage Impact Assessment	Randgold Resources Limited
Louis Botha Phase 2	Johannesburg, Gauteng, South Africa	2016	2016	Phase 2 Excavations	Royal Haskoning DHV
Beatrix EIA and EMP	Welkom, Free State, South Africa	2016	2017	Heritage Impact Assessment	Sibanye Gold Ltd
Sun City Heritage Mapping	Pilanesberg, North-West Province, South Africa	2016	2016	Phase 2 Mapping	Sun International
Sun City Chair Lift	Pilanesberg, North-West Province, South Africa	2016	2017	Notification of Intent to Develop and Heritage Basic Assessment	Sun International
Hendrina Underground Coal Mine EIA	Hendrina, Mpumalanga, South Africa	2016	2017	Heritage Impact Assessment	Umcebo Mining (Pty) Ltd
Elandsfontein EMP Update	Clewer, Mpumalanga, South Africa	2016	2017	Heritage Impact Assessment	Anker Coal
Eskom Northern KZN Strengthening	KwaZulu-Natal, South Africa	2016	-	Heritage Impact Assessment	ILISO Consulting
Thabametsi GRP	Lephalale, Limpopo Province, South Africa	2017	-	Grave Relocation	Exxaro Resources Ltd
Grootegeluk Watching Brief	Lephalale, Limpopo Province, South Africa	2017	2017	Watching Brief	Exxaro Resources Ltd
Matla HSMP	Kriel, Mpumalanga Province, South Africa	2017	2017	Heritage Site Management Plan	Exxaro Coal Mpumalanga (Pty) Ltd
Ledjadja Coal Borrow Pits	Lephalale, Limpopo Province, South Africa	2017	2017	Heritage Basic Assessment	Ledjadja Coal (Pty) Ltd
Exxaro Belfast Implementation Project PIA	Belfast, Mpumalanga, South Africa	2017	2017	Palaeontological Impact Assessment	Exxaro Coal Mpumalanga (Pty) Ltd

Project Title	Project Location	Date:		Description of the Project	Name of Client
Lanxess Chrome Mine Archaeological Mitigation	Rustenburg, North West Province, South Africa	2017	2017	Phase 2 Excavations	Lanxess Chrome Mine (Pty) Ltd
Goulamina EIA Project	Goulamina, Sikasso Region, Mali	2017	2017	Heritage Impact Assessment	Birimian Limited
Zuurfontein Residential Establishment Project	Ekurhuleni, Gauteng, South Africa	2017	2017	Notification of Intent to Develop	Shuma Africa Projects
Kibali Grave Relocation Training and Implementation	Orientale Province, Democratic Republic of Congo	2017	-	Grave Relocation	Randgold Resources Limited
Exxaro Matla HRM	Kriel, Mpumalanga	2017	-	Heritage Impact Assessment	Exxaro Coal Mpumalanga (Pty) Ltd

6 Professional Registrations

Position	Professional Body	Registration Number
Member	Association for Southern African Professional Archaeologists (ASAPA); ASAPA Cultural Resources Management (CRM) section	270
Member	International Council on Monuments and Sites (ICOMOS)	14274
Member	Society for Africanist Archaeologists (SAfA)	N/A
Member	International Association of Impact Assessors (IAIA) South Africa	5494

7 Publications

Huffman, T.N. & du Piesanie, J.J. 2011. Khami and the Venda in the Mapungubwe Landscape. Journal of African Archaeology 9(2): 189-206

du Piesanie, J.J., 2017. Book Review: African Cultural Heritage Conservation and Management. South African Archaeological Bulletin 72(205)

Appendix B: Heritage Sensitivity Mapping Report

DIGBY WELLS
ENVIRONMENTAL

Heritage Resources Management Process

Heritage Sensitivity Mapping Report

Project Number:

SUN4270

Prepared for:

Sun International

October 2016

Digby Wells and Associates (South Africa) (Pty) Ltd
Co. Reg. No. 2010/008577/07. Turnberry Office Park, 48 Grosvenor Road, Bryanston, 2191. Private Bag X10046, Randburg, 2125, South Africa
Tel: +27 11 789 9495, Fax: +27 11 069 6801, info@digbywells.com, www.digbywells.com

Directors: AJ Reynolds (Chairman) (British)*, GE Trusler (C.E.O), GB Beringer, LF Koeslag, J Leaver*, NA Mehlomakulu, MJ Morifi*, DJ Otto
*Non-Executive

This document has been prepared by Digby Wells Environmental.

Report Type:	**Heritage Sensitivity Mapping Report**
Project Name:	**Heritage Resources Management Process**
Project Code:	**SUN4270**

Name	Responsibility	Signature	Date
Justin du Piesanie ASAPA Member: 270	Site Mapping Report Compilation		October 2016
Johan Nel ASAPA Member: 095	Site Mapping Technical Review		

This report is provided solely for the purposes set out in it and may not, in whole or in part, be used for any other purpose without Digby Wells Environmental prior written consent.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF APPENDICES

LIST OF PLANS

1 Introduction

Digby Wells Environmental (hereinafter Digby Wells) was appointed by Sun International to undertake a heritage sensitivity analysis exercise in support of a feasibility study for proposed developments within the Sun City complex.

This report consolidates the findings of the study to provide Sun International with sufficient information to consider the legal obligations and / or restrictions, sensitivities and buffer zone applicable.

1.1 Project background

Sun International is currently in a process of renovation and refurbishment of its Sun City complex. The approximate R 800 000 000.00 project is aimed at retaining Sun City's status as an iconic leisure destination offering clients a superior holiday experience. The Sun City refurbishment primarily includes:

- Revitalisation of four hotels;
- Renovations to the Entertainment Centre;
- Upgrading of the Valley of the Waves; and
- Development of food and beverage outlets at the resort.

As part of this process, Sun International are investigating the feasibility of an exclusive property development within the Sun City Complex. Presently, the preferred location for 65 units of this development is the northern slope of the so-called "Sun City Mountain". Cognisant of the heritage areas associated with the northern slope, Sun International commissioned Digby Wells to map a known stonewalled settlement (hereinafter referred to as *Itlholanoga* after Anderson, 2009) within the proposed development footprint to guide its decision making process.

1.2 Terms of reference

The Terms of Reference (ToR) for this component was to conduct a Heritage Sensitivity Mapping exercise in support of a feasibility study for the development of a luxury bush lodge on the northern slope of the "Sun City Mountain".

1.3 Scope of work

The Scope of Work (SoW) completed to comply with the ToR included:

- Field survey of the northern slope of the Sun City Mountain;
- Mapping of the perimeter of *Itlholanoga* and identified outlying features;
- Development of a Geographic Information System (GIS) based heritage sensitivity plan;

- A review of applicable legislation to provide a project-specific legal framework; and
- Compilation of a Heritage Sensitivity Report in support of the feasibility study.

1.4 Expertise of the specialists

The relevant expertise of the specialists involved in the HRM process is summarised in Table 1-1.

Table 1-1: Expertise of specialists[1]

Justin du Piesanie ASAPA Member 270 ICOMOS Member 14274	Justin holds the position of Heritage Resources Management Unit Manager at Digby Wells. He obtained his Master of Science (MSc) degree in Archaeology from the University of the Witwatersrand in 2008, specialising in the Southern African Iron Age. Justin also attended courses in architectural and urban conservation through the University of Cape Town's Faculty of Engineering and the Built Environment Continuing Professional Development Programme in 2013. Justin is a professional member of the Association of Southern African Professional Archaeologists (ASAPA), and accredited by the association's Cultural Resources Management (CRM) section. He is also a member of the International Council on Monuments and Sites (ICOMOS), an advisory body to the UNESCO World Heritage Convention. He has over 10 years combined experience in HRM in South Africa, including heritage assessments, archaeological mitigation and grave relocation. Justin has gained further generalist experience since his appointment at Digby Wells in Botswana, Burkina Faso, the Democratic Republic of Congo, Liberia and Mali on projects that have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage.
Johan Nel ASAPA Member 095 ICOMOS Member 13839	Johan has more than 17 years of combined experience in the field of HRM including archaeological and heritage assessments, grave relocation, social consultation and mitigation of archaeological sites. He has gained experience both within urban settings and remote rural landscapes. Since 2010 he has been actively involved in environmental management that has allowed him to investigate and implement the integration of heritage resources management into EIAs. Many of the projects since have required compliance with IFC requirements such as Performance Standard 8: Cultural Heritage. This exposure has allowed Johan to develop and implement a HRM approach that is founded on international best practice, leading international conservation bodies such as the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and ICOMOS and aligned to the South African legislation. Johan has worked in most South African Provinces, as well as Swaziland, the Democratic Republic of the Congo, Liberia and Sierra Leone.

2 Legislative framework

This section provides a brief summary of the relevant legislation pertaining to the conservation and responsible management of *Itlholanoga* on the northern slope of the "Sun City Mountain".

[1] Please refer to Appendix A for the Curriculum Vitae of the relevant specialists.

Table 2-1: Applicable legislation in terms of *Itlholanoga*

Legislative Requirements	Relevance	Risk Level and Description	
National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)			
Chapter I – Part 1			
3 (1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance (CS) or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.	*Itlholanoga* is considered part of the national estate based on its CS / special value (cf. subsection 3(3)). Heritage resources that form part of the national estate falls within the sphere of operations of the heritage resources authorities (HRAs), in this instance the South African Heritage Resources Agency (SAHRA)[1].	High	*Itlholanoga* is considered part of the national estate and is afforded general protection under the Act (cf. Section 35). The general protection afforded to the site poses a high risk to the successful implementation of the proposed project.
3(2) Without limiting the generality of subsection (1), the national estate may include-- (a) places, buildings, structures and equipment of cultural significance; (f) archaeological and palaeontological sites.	*Itlholanoga* is considered part of the national estate based on its CS / special value (cf. subsection 3(3)). The site is categorized as an archaeological site dating to approximately 1760 -1780 (cf. Section 5 of the report below)		

[1] Currently North-West Provincial Heritage Authority (NWPHRA) is only competent to manage and issue permits on NHRA Section 34 heritage resources, and no local (i.e. local government) competency exists within the province. All decisions relating to archaeology therefore fall under the ambit of SAHRA.

Legislative Requirements	Relevance	Risk Level and Description	
3(3) Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of-- (a) its importance in the community, or pattern of South Africa's history; (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage; (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage; (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects; (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group; (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;	Notwithstanding the absence of a detailed assessment of Cultural Significance (CS), *Itlholanoga* fulfils certain criteria defined in subsection 3(3) of the Act. Therefore, the site has CS / special value that designates it as part of the national estate (cf. Sections 5 and 6 of the report below).		

Legislative Requirements	Relevance	Risk Level and Description	
(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and (i) sites of significance relating to the history of slavery in South Africa.			
5 (1) All authorities, bodies and persons performing functions and exercising powers in terms of this Act for the management of heritage resources must recognise the following principles: (a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival; (b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage	Reasonable consideration must be given to the fact that *Itlholanoga* has lasting value, it is finite, non-renewable and irreplaceable. Management of the site in terms of the proposed development must take cognizance of the principles of Section 5 (1) of the Act to ensure the lasting value of the heritage resource and its appropriate use. Any foreseen or proposed alteration to the site will have a direct bearing on the integrity of the site, and in turn, to the greater cultural landscape.		

Legislative Requirements	Relevance	Risk Level and Description	
resources in the interests of all South Africans; (c) heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and (d) heritage resources management must guard against the use of heritage for sectarian purposes or political gain.			
Chapter II – Part 1			
27 (5) SAHRA may, by notice in the Gazette, declare any place referred to in subsection (1) to be a national heritage site.	SAHRA and / or NWPHRA may consider the site as a national or provincial heritage site and may take the necessary steps to declare it as such.	High	*Itlholanoga* may be declared a national / provincial heritage site and afforded formal protection under the Act (cf. Section 28). Formal protection that may be afforded to the site poses a high risk to the successful implementation of the proposed project.
27 (6) A provincial heritage resources authority may, by notice in the Provincial Gazette, declare any place referred to in subsection (2) and described in the notice to be a provincial heritage site.			
27 (18) No person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site	Any activity within the archaeological site and determined buffer zones will be subject to permits issued by the SAHRA		

Legislative Requirements	Relevance	Risk Level and Description	
without a permit issued by the heritage resources authority responsible for the protection of such site.	Archaeology, Palaeontology and Meteorites (APM) unit.		
28 (1) SAHRA may, with the consent of the owner of an area, by notice in the Gazette designate as a protected area-- a) such area of land surrounding a national heritage site as is reasonably necessary to ensure the protection and reasonable enjoyment of such site, or to protect the view of and from such site.			
28 (2) A provincial heritage resources authority may, with the consent of the owner of an area, by notice in the Provincial Gazette designate as a protected area-- a) such area of land surrounding a provincial heritage site as is reasonably necessary to ensure the protection and reasonable enjoyment of such site, or to protect the view of and from such site; or b) such area of land surrounding any archaeological or palaeontological site or meteorite as	Should *Itlholanoga* be declared a national or provincial site, SAHRA and / or NWPHRA may designate a protected area surrounding the site	High	Formal protection that may be afforded in terms of Section 28 to the site poses a high risk to the successful implementation of the proposed project through restriction of activities on the site and the surrounding land.

Legislative Requirements	Relevance	Risk Level and Description	
is reasonably necessary to ensure its protection.			
28 (3) No person may damage, disfigure, alter, subdivide or in any other way develop any part of a protected area unless, at least 60 days prior to the initiation of such changes, he or she has consulted the heritage resources authority which designated such area in accordance with a procedure prescribed by that authority.	Should *Itlholanoga* be declared a national or provincial site, SAHRA and / or NWPHRA may designate a protected area surrounding the site		
28 (5) A heritage resources authority may make regulations providing for specific protections for any protected area which it has designated, including the prohibition or control of specified activities by any person in the designated area.			
29 (1) SAHRA, or a provincial heritage resources authority, may, subject to subsection (4), by notice in the Gazette or the Provincial Gazette, as the case may be-- a) provisionally protect for a maximum period of two years any-- i) protected area;	Through the submission of the Notification of Intent to Develop (NID) for the proposed chairlift development required in terms of Section 38(8) of the Act, SAHRA and / or NWPHRA may afford *Itlholanoga* provisional protection.	High	Provisional protection that may be afforded to the site in terms of Section 29 poses a high risk to the successful implementation of the proposed project.

Legislative Requirements	Relevance	Risk Level and Description	
ii) heritage resource, the conservation of which it considers to be threatened and which threat it believes can be alleviated by negotiation and consultation; or iii) heritage resource, the protection of which SAHRA or the provincial heritage resources authority wishes to investigate in terms of this Act;			
30 (1) A provincial heritage resources authority must compile and maintain a heritage register listing the heritage resources in the province which it considers to be conservation-worthy in terms of the heritage assessment criteria set out in section 3(3) and prescribed under section 7.	Based on the work completed, *Itlholanoga* may be inscribed into the heritage register and awarded provisional protection (cf. Section 29)	High	Should Itlholanoga be listed in a heritage register developmental restrictions will apply that will pose a high risk to the successful implementation of the proposed project.
Chapter II – Part 2			
35 (4) 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	*Itlholanoga* is protected under the provisions of the Act. It is a criminal offence to destroy, damage, excavate, alter, deface or otherwise disturb any archaeological site	High	The general protection afforded to the site in terms of Section 35 of the Act poses a high risk to the successful implementation of the proposed project.

Legislative Requirements	Relevance	Risk Level and Description	
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.	without a permit issued by the SAHRA APM. Any activity within the archaeological site and determined buffer zones will be subject to permits issued by the SAHRA APM unit.		
35 (5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and	*Itlholanoga* is protected under the provisions of the Act. It is a criminal offence to destroy, damage, excavate, alter, deface or otherwise disturb any archaeological site		

Legislative Requirements	Relevance	Risk Level and Description	
where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may-- (a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order; (b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary; (c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph (a) to apply for a permit as required in subsection (4); and (d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or	without a permit issued by the SAHRA APM. Should development proceed without the required permits issued by the SAHRA APM, the developer may be issued Cease Work Order until such time as appropriate investigations have been completed.		

Legislative Requirements	Relevance	Risk Level and Description	
from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.			
(6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or a meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.	*Itlholanoga* is protected under the provisions of the Act. It is a criminal offence to destroy, damage, excavate, alter, deface or otherwise disturb any archaeological site without a permit issued by the SAHRA APM. Without the appropriate approvals, the SAHRA APM has the authority to restrict or prevent the proposed development.		
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 300 m in length;	The proposed development exceeds the thresholds contained in Section 38 (1) of the Act. It is necessary for Sun International to follow a regulatory process in terms of the Act.	High	In terms of the EA and EIA processes, the SAHRA APM is a commenting authority in accordance with Section 38(8) and environmental approval may be granted notwithstanding comments made by SAHRA. However, *Itlholanoga* is a protected archaeological site in terms of Section 35(4); the SAHRA APM is therefore the responsible consenting authority in respect of permitting authorisations.

Legislative Requirements	Relevance	Risk Level and Description	
c) any development or other activity which will change the character of a site-- i) exceeding 5 000 m2 in extent; or 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.			
The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection (1)- a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment			

Legislative Requirements	Relevance	Risk Level and Description	
report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management			
38 (8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.			

Legislative Requirements	Relevance	Risk Level and Description	
Chapter III – Part 1			
48 (1) A heritage resources authority may prescribe the manner in which an application is made to it for any permit in terms of this Act and other requirements for permit applications, including-- (a) any particulars or information to be furnished in the application and any documents, drawings, plans, photographs and fees which should accompany the application; (b) minimum qualifications and standards of practice required of persons making application for a permit to perform specified actions in relation to particular categories of protected heritage resources; (c) standards and conditions for the excavation and curation of archaeological and palaeontological objects and material and meteorites recovered by authority of a permit; (d) the conditions under which, before a permit is issued, a financial deposit must be lodged and held in trust for the duration of the permit or	SAHRA prescribes the requirements for permit application in terms of Chapter IV of the Regulations to the Act ((cf. National Heritage Resources Act Regulations [GN R 548] below)	High	Notwithstanding that Sun International is committed to complying to all applicable legislated authorisation processes, the SAHRA APM may not grant approval to develop the proposed project.

Legislative Requirements	Relevance	Risk Level and Description	
such period as the heritage resources authority may specify, and conditions of forfeiture of such deposit; (f) the submission of reports on work done under authority of a permit; and (g) the responsibilities of the heritage resources authority regarding monitoring of work done under authority of a permit.			
51 (1) Notwithstanding the provisions of any other law, any person who contravenes-- b) sections 33(2), 35(4) or 36(3) is guilty of an offence and liable to a fine or imprisonment or both such fine and imprisonment as set out in item 2 of the Schedule; d) sections 27(22), 32(15), 33(1), 35(6) or 44(3) is guilty of an offence and liable to a fine or imprisonment or both such fine and imprisonment as set out in item 4 of the Schedule; e) sections 27(23)(b), 32(17), 35(3), 36(3) or 51(8) is guilty of an offence and liable to a fine or imprisonment	Any unauthorised activity is considered a contravention of the Act. Contravention of the requirements of the Act may result in prosecution or imposing of penalties by the relevant HRAs in terms of Section 51 and in accordance with the Schedules of the Act.	Negligible	Provided that Sun International follows all regulatory requirements in terms of the legislative framework prior to commencing with the project, and comply with directives issued by the SAHRA APM there is negligible risk of criminal liability.

Legislative Requirements	Relevance	Risk Level and Description	
or both such fine and imprisonment as set out in item 5 of the Schedule.			
NHRA Schedules			
Schedules 2 - A fine or imprisonment for a period not exceeding three years or to both such fine and imprisonment.	For noting	-	-
Schedule 4 - A fine or imprisonment for a period not exceeding one year or to both such fine and imprisonment.	For noting	-	-
Schedule 5 - A fine or imprisonment for a period not exceeding six months or to both such fine and imprisonment.	For noting	-	-

3 Constraints and limitations

The following constraints and limitations are applicable:

- The field survey was focussed on mapping the perimeter of *Itlholanoga* and any identified outlying features only. The specialists did not complete detailed mapping of the internal spatial layout of *Itlholanoga*;
- Detailed survey to identify tangible heritage resources associated with *Itlholanoga* was not completed;
- The sensitivity plan is based on 25 m intervals from tangible surface features of *Itlholanoga*. Sub-surface heritage resources may occur outside of the determined buffer zones;

4 Methodology

Quantitative data was collected by Justin du Piesanie and Johan Nel through mapping of *Itlholanoga's* perimeter from 26 – 27 September 2016. The mapping exercise was non-intrusive (i.e. no sampling was undertaken) with the objectives to:

- Record the extent of the known stonewalled settlement on the northern slope of Sun City Mountain;
- Map the *Itlholanoga* site perimeter;
- Define sensitive areas and buffer zones associated with *Itlholanoga* based on visible surface features; and
- Develop a sensitivity plan to guide the decision-making process in regards to the proposed development.

The extent of *Itlholanoga* was determined through pedestrian survey. An approximate extent was recorded as track logs using handheld GPS. Mapping of the site perimeter was completed utilising a Trimble R4 GNSS differential GPS to ensure maximum data recording accuracy (~20 mm accuracy).

Information collected during the field survey was collated and imported into ArcGIS Geographic Information System (GIS). The geographic data was used to delineate the identifiable boundary of the site. From the delineation, buffer intervals of 25 m were plotted to denote the levels of sensitivity based on the proximity to the stonewalling.

5 Brief cultural baseline profile

The site and region under consideration is associated with the Tlokwa, who are commonly considered to have moved into the Pilanesberg area from approximately 1740, settling at the site Bôte. Archaeological evidence associated with Tlokwa settlements suggest a link with the *Uitkomst* facies and initially Type N walling (after Mason, 1986 and Huffman, 2007 cited in Anderson, 2009). This archaeological evidence advocates a Nguni origin of the Tlokwa,

however, as summised by Anderson (2009) based on the spatial layout at *Marothodi*, they were "*Tswana-ised*" by the 19th century.

A brief sumary of the sequence of settlement of Tlokwa capitals is presented below and the geographical distribution in Figure 5-1:

- Bôte:1740 – 1780;
- **Itlholanoga: 1760 – 1780;**
- Mankwe: 1780 – 1785;
- Maruping: 1785 – 1815; and
- **Marothodi: 1815 – 1823.**

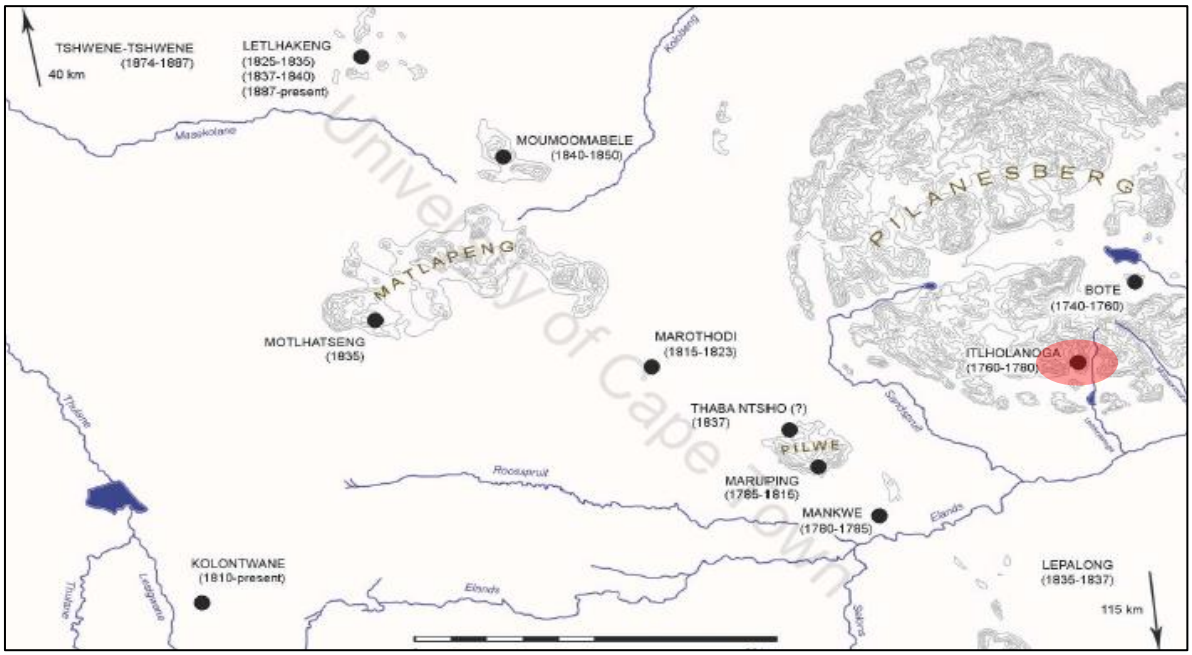


Figure 5-1: Distribution of main Tlokwa capitals and approximate dates, with Itlholanoga indicated in red (adapted from Anderson, 2009)

Considering the macro settlement structure discussed by Anderson (2009, p. 94) in reference to *Marothodi*, which is located around 20 km due west of *Itlhonanoga*, the similarity in spatial layout allow for certain inferences to be made. These are briefly discussed below.

Ethnography suggests that a threefold division of the spatial layout of settlements was a common feature in the settlements of most Tswana chiefdoms. This will include three 'zones' of clustered settlement units / homesteads. These 'zones' comprised:

1. A central zone – increased density of stonewalling, more complexity and greater quantity of identifiable homesteads;
2. An upper zone – outlying, less dense grouping of stonewalling; and
3. A lower zone – outlying, less dense grouping of stonewalling.

Furthermore, subsurface features exposed during excavations at *Marothodi* provide tangible examples of the type of resources associated with these stonewalled settlements. Notably these include preserved hut foundations, hearths (see Figure 5-3), ceramic vessels and shards, metal artefacts and beads.

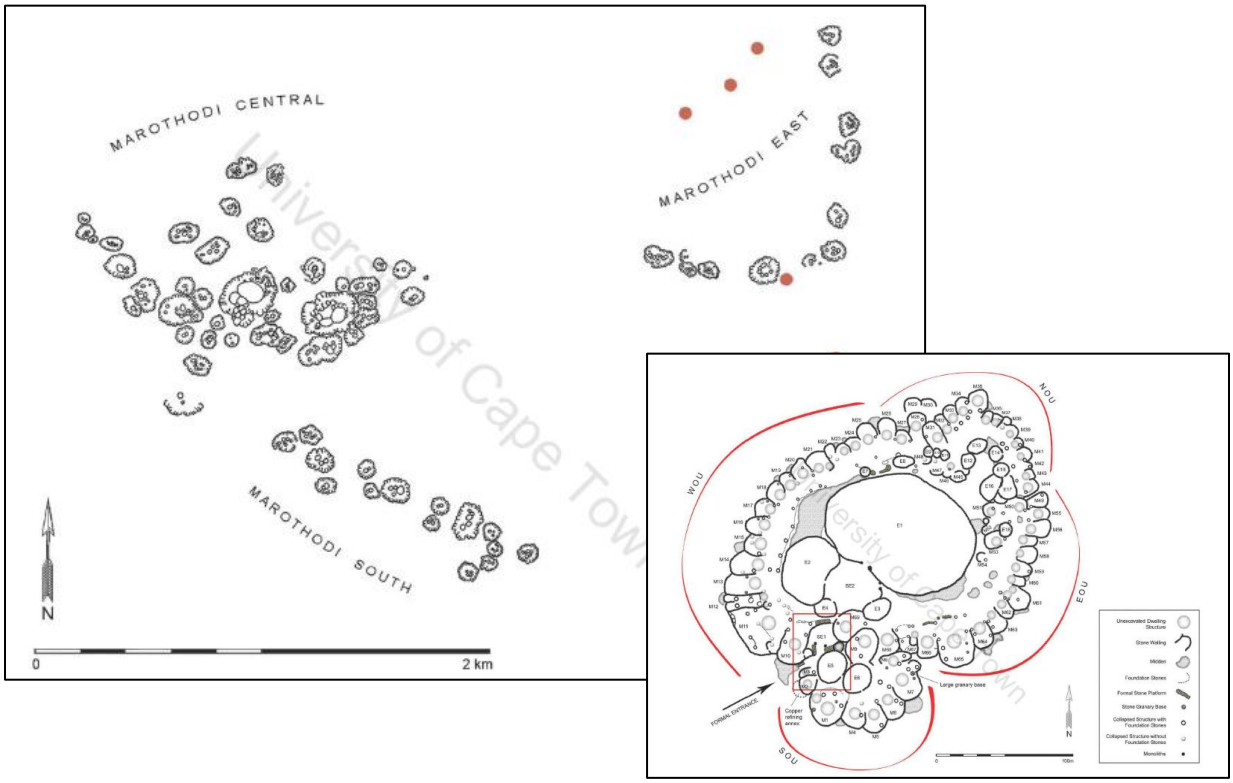


Figure 5-2: Spatial layout of *Marothodi* and zoom of the Central Zone (adapted from Anderson, 2009)

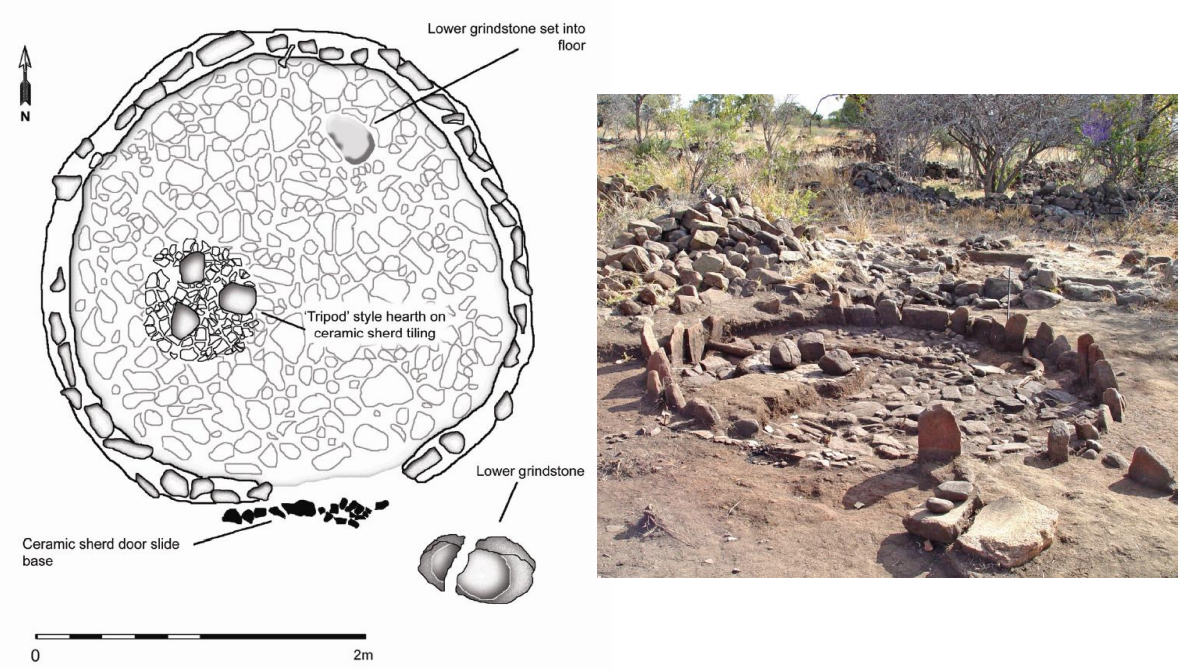


Figure 5-3: Example of exposed hut foundations and tiled hearth (adapted from Anderson, 2009)

6 Sensitivity analysis

The legislative framework demonstrates that *Itlholanoga* is subject to the protections afforded by Section 35 of the NHRA. Additionally, historic and archaeological research from the Pilanesberg region provide evidence that *Itlholanoga* is associated with the Tlokwa and served as the capital between 1760 – 1780. Similarities between *Itlholanoga* and *Marothodi* briefly presented in Section 5 above allow for inference to be made that support the assertion that the site has a significant CS / special value. Therefore, any proposed changes to *Itlholanoga* must be considered in relation to the integrity / condition, CS / special value as defined by subsection 3(3) of the Act, Field Ratings and the SAHRA Minimum Standards.

Notwithstanding the absence of a detailed assessment of CS of *Itlholanoga*, the site is considered to:

1. Have relevance to the pattern of South Africa's history, specifically in relation to the Tlokwa and the associated historic events in the Pilanesberg region (S.3(3)(a));
2. Possess uncommon aspects of South Africa's cultural heritage based on the understanding of the spatial layout of Tswana capital settlements (S.3(3)(b));
3. Potentially yield information that will contribute to an understanding of South Africa's cultural heritage when compared to the results of excavations completed at *Marothodi* (S.3(3)(c));
4. Demonstrate principle characteristics of a particular class of South Africa's cultural heritage (S.3(3)(d));

5. Have a high degree of technical achievement at a particular period when viewed in relation to the spatial layout and organisation of Tswana settlements (S.3(3)(f)); and
6. Be associated with groups of importance in the history of South Africa, i.e. the Tlokwa (S.3(3)(h)).

Based on this high level motivation, *Itlholanoga* is considered to have a high sensitivity. The suitability of this location was subjected to a multi-criteria decision analysis (MCDA) utilising a simple linear additive evaluation model. In this instance, the suitability was considered against the following criteria:

- Criteria 1: The level of existing anthropogenic disturbance to the site;
- Criteria 2: Potential for occurrence of unidentified heritage resources, both on the surface and at sub-surface levels that may be impacted upon;
- Criteria 3: The likelihood of *Itlholanoga* to be impacted upon and the loss of integrity of the site; and
- Criteria 4: The potential that permitting requirements will be applicable.

These criteria were rated on a scale from 1 (unsuitable) to 5 (most suitable) to quantifiably compare the suitability of the development footprint. Once the ratings were determine against the criteria above, these were calculated to determine the overall suitability ranking.

Table 6-1: Multi-criteria decision analysis

Criteria	Preferred Development Location Unsuitable
1.	2 – Less suitable Although some more recent anthropogenic activities has impacted on *Itlholanoga*, the site is still largely intact, covering an area of approximately 42.5 ha (*including a 50 m buffer zone*). Activities that have impact on the site include the service road that cuts through the site, and the water reservoir that removed a portion of the southern extent of the site. These impacts considered, a large portion of the site in terms of the defined zones discussed previously, remains intact.
2.	1 – Unsuitable The potential for sub-surface heritage resources (i.e. hut and hearth foundations, material culture, etc) occurring within the site is certain. The potential development will have an impact to these if approved and constructed.
3.	1 – Unsuitable The establishment of the units will have a direct impact to *Itlholanoga*. The proposed development is situated within the extent of the site that will have a physical impact to the stonewalled settlement. Furthermore, there will be indirect impacts resulting from increased foot and vehicular traffic within and surrounding the site during construction and occupation. Therefore, the physical development and long term use of the site will reduce its integrity to the point where meaning will no longer be evident, and authenticity will be lost.

Criteria	Preferred Development Location Unsuitable
4.	1 – Unsuitable The regulatory process and permitting requirements for the preferred site location make the development in this location unfeasible.

The results of the analysis demonstrate that the preferred location for the proposed development is unsuitable in light of the known heritage sensitivities.

Plan 1

Sun City HRM Process

Sensitivity Analysis

27°5'15"E 27°5'30"E 27°5'45"E 27°6'0"E

25°20'45"S 25°21'0"S 25°21'15"S

Legend

- Site Extent
- Main Road
- Minor Road
- Track
- Railway Line
- Non-Perennial Stream
- Dam Wall
- Pool

Sensitivity

- 0 - 25 m (Very High)
- 25 - 50 m (High)
- 50 - 75 m (Medium High)
- 75 - 100 m (Medium)
- 100 - 125 m (Low)
- 125 - 150 m (Very Low)

DIGBY WELLS ENVIRONMENTAL

• Sustainability • Service • Positive Change • Professionalism • Future Focused • Integrity

Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 27°E

Ref #: scm.SUN4270.201610.010
Revision Number: 1
Date: 04/10/2016

N

0 50 100 200 300

Metres

1:6 000

www.digbywells.com

© Digby Wells Environmental

Plan 2

Sun City HRM Process

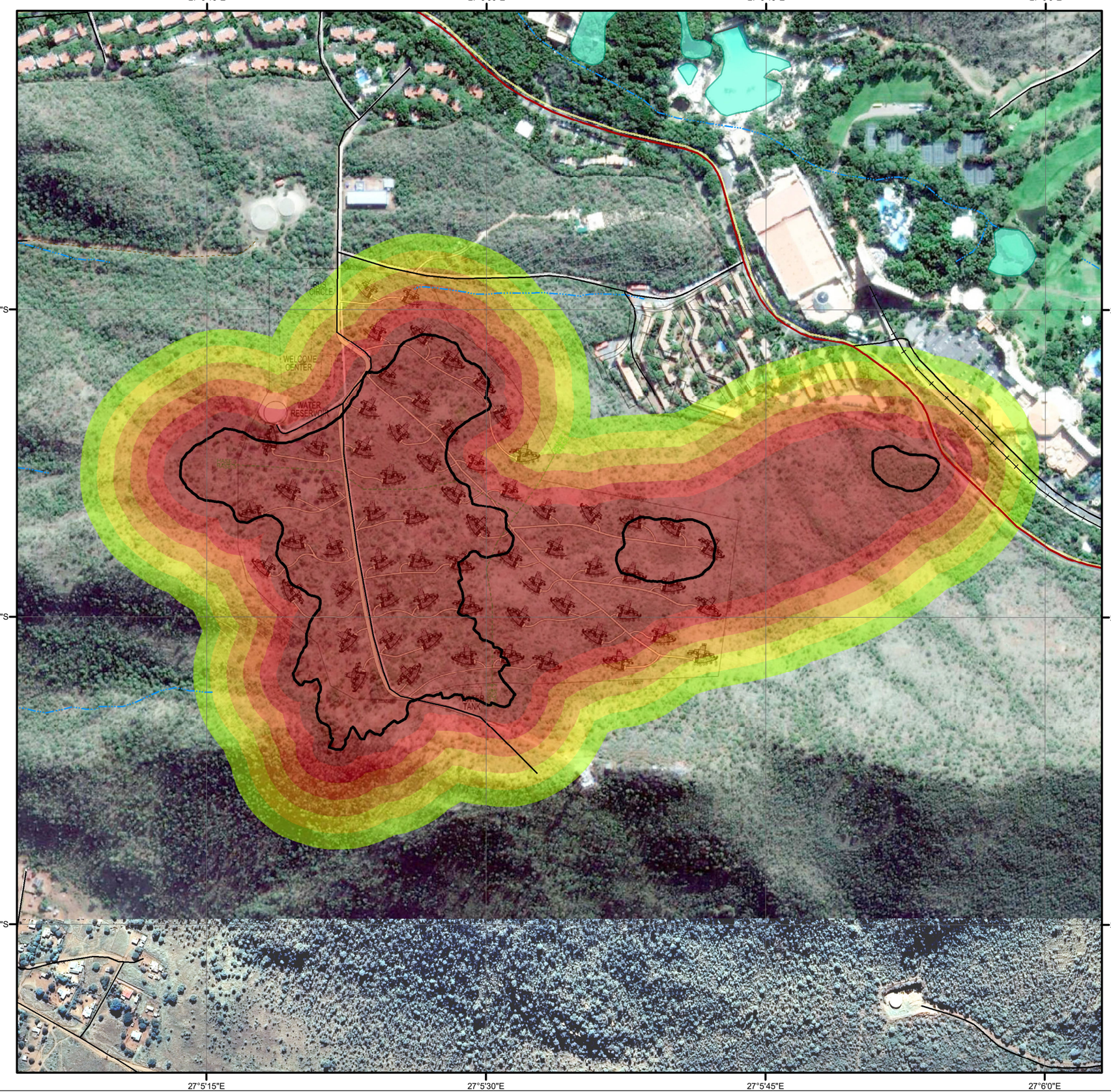
Sensitivity Analysis & Proposed Development

27°5'15"E 27°5'30"E 27°5'45"E 27°6'0"E

25°20'45"S

25°21'0"S

25°21'15"S



Legend

- Site Extent
- Main Road
- Minor Road
- Track
- Railway Line
- Non-Perennial Stream
- Dam Wall
- Pool

Sensitivity

- 0 - 25 m (Very High)
- 25 - 50 m (High)
- 50 - 75 m (Medium High)
- 75 - 100 m (Medium)
- 100 - 125 m (Low)
- 125 - 150 m (Very Low)

DIGBY WELLS ENVIRONMENTAL

• Sustainability • Service • Positive Change • Professionalism • Future Focused • Integrity

Projection: Transverse Mercator
Datum: WGS 1984
Central Meridian: 27°E

Ref #: scm.SUN4270.201610.011
Revision Number: 1
Date: 04/10/2016

N

0 50 100 200 300

Metres

1:6 000

www.digbywells.com

© Digby Wells Environmental

7 Discussion

Sun International is investigating the development of 65 “holiday” units on the northern slope of the Sun City Mountain to coincide with the current refurbishment of the Sun City Complex. Aware of the heritage related sensitivities of this preferred location, Sun International commissioned a heritage sensitivity mapping exercise to guide its decision making process.

A brief cultural baseline profile presented in Section 5 above demonstrates that *Itlholanoga* forms part of the larger cultural landscape. This site specifically provides tangible and contextual evidence the sequence of events associated with the arrival and movements of the Tlokwa that contributes the understanding of historic events within the Pilanesberg region. The site, therefore cannot be considered in isolation from the larger context of the Pilanesberg. A high level motivation presented in Section 6 above exhibits that the site corresponds to criteria stipulated in subsection 3(3) of the NHRA, and can be considered to have a high CS / special value. Thus, should the site be transformed the entire sequence of Tlkowa occupation from Bôte through the subsequent sites and settlements in the region will be affected.

The perimeter of *Itlholanoga* was mapped from 26 – 27 September 2016. The results of the sensitivity mapping show that the site covers an area of approximately 42.5 ha. The current proposed footprint of the planned development is primarily situated within *Itlholanoga*, or within a 50 m buffer zone (See Plan 2). An analysis of the suitability of the proposed development, considering the CS / special value of the site, as well as the legislative protections and requirements, was considered in relation to the proposed development.

Ultimately, current designs and placement of the planned units will have both a direct and indirect impact to *Itlholanoga*, sub-surface heritage resources, and the greater cultural landscape of the Pilanesberg region. Furthermore, the development will diminish the integrity of the site to the point that the meaning of the no longer be evident, and authenticity will be lost.

The results of the analysis indicate that the preferred development site is unsuitable. Motivation for this assessment are summarised in Table 6-1.

8 Conclusion

Digby Wells was appointed by Sun International to undertake a heritage sensitivity analysis exercise in support of a feasibility study for proposed developments within the Sun City complex.

The results of this study indicates that the preferred location of the planned development on the northern slope of the Sun City Mountain is unsuitable. Digby Wells is of the opinion that alternative locations for the development must be considered, and *Itlholanoga* conserved *in situ*.

Digby Wells further recommends that Sun International consider the development of a Heritage Site Management Plan (HSMP) for *Itlholanoga* to promote the active conservation of

the site, and appropriate development in accordance with the principles outlined in Section 5 of the NHRA.

9 Bibliography

Anderson, M. S., 2009. *The Historical Archaeology of Marathodi: Towards and understanding of space, identity and the organisation of production at an early 19th century Tlokwa capital in the Pilanesberg region of South Africa,* University of Cape Town: Unpublished PhD Thesis.

Huffman, T. N., 2007. *Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa.* Durban: University of KwaZulu-Natal Press.

Mason, R. J., 1986. *Origins of the Black People of Johannesburg and the Souther Western Central Transvaal, AD 350-1880.* Johannesburg: Witwatersrand University Press.

Appendix A: Specialist CV

Mr. Justin du Piesanie

Heritage Management Consultant: Archaeologist

Social Sciences Department

Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2013	Continued Professional Development Programme, Architectural and Urban Conservation: Researching and Assessing Local Environments	University of Cape Town
2008	MSc	University of the Witwatersrand
2005	BA (Honours) (Archaeology)	University of the Witwatersrand
2004	BA	University of the Witwatersrand
2001	Matric	Norkem Park High School

2 Language Skills

Language	Written	Spoken
English	Excellent	Excellent
Afrikaans	Proficient	Good

3 Employment

Period	Company	Title/position
08/2011 to present	Digby Wells Environmental	Heritage Management Consultant: Archaeologist

Period	Company	Title/position
2009-2011	University of the Witwatersrand	Archaeology Collections Manager
2009-2011	Independent	Archaeologist
2006-2007	Maropeng & Sterkfontein Caves UNESCO World Heritage Site	Tour guide

4 Professional Affiliations

Position	Professional Body	Registration Number
Member	Association for Southern African Professional Archaeologists (ASAPA); ASAPA Cultural Resources Management (CRM) section	270
Member	International Council on Monuments and Sites (ICOMOS)	14274
Member	Society for Africanist Archaeologists (SAfA)	N/A

5 Publications

- Huffman, T.N. & du Piesanie, J.J. 2011. Khami and the Venda in the Mapungubwe Landscape. Journal of African Archaeology 9(2): 189-206

6 Experience

I have 5 years experiences in the field of heritage resources management (HRM) including archaeological and heritage assessments, grave relocation, social consultation and mitigation of archaeological sites. During my studies I was involved in academic research projects associated with the Stone Age, Iron Age, and Rock Art. These are summarised below:

- Wits Fieldschool - Excavation at Meyersdal, Klipriviersberg Johannesburg (Late Iron Age Settlement).
- Wits Fieldschool - Phase 1 Survey of Prentjiesberg in Ugie / Maclear area, Eastern Cape.
- Wits Fieldschool – Excavation at Kudu Kopje, Mapungubwe National Park Limpopo Province.

- Wits Fieldschool – Excavation of Weipe 508 (2229 AB 508) on farm Weipe, Limpopo Province.
- Survey at Meyerdal, Klipriviersberg Johannesburg.
- Mapping of Rock Art Engravings at Klipbak 1 & 2, Kalahari.
- Survey at Sonop Mines, Windsorton Northern Cape (Vaal Archaeological Research Unit).
- Excavation of Kudu Kopje, Mapungubwe National Park Limpopo Province.
- Excavation of KK (2229 AD 110), VK (2229 AD 109), VK2 (2229 AD 108) & Weipe 508 (2229 AB 508) (Origins of Mapungubwe Project)
- Phase 1 Survey of farms Venetia, Hamilton, Den Staat and Little Muck, Limpopo Province (Origins of Mapungubwe Project)
- Excavation of Canteen Kopje Stone Age site, Barkley West, Northern Cape
- Excavation of Khami Period site AB32 (2229 AB 32), Den Staat Farm, Limpopo Province

Since 2011 I have been actively involved in environmental management throughout Africa, focusing on heritage assessments incompliance with International Finance Corporation (IFC) Performance Standards and other World Bank Standards and Equator Principles. This exposure to environmental, and specifically heritage management has allowed me to work to international best practice standards in accordance with international conservation bodies such as UNESCO and ICOMOS. In addition, I have also been involved in the collection of quantitative data for a Relocation Action Plan (RAP) in Burkina Faso. The exposure to this aspect of environmental management has afforded me the opportunity to understand the significance of integration of various studies in the assessment of heritage resources and recommendations for feasible mitigation measures. I have work throughout South Africa, as well as Burkina Faso, the Democratic Republic of Congo, Liberia and Mali.

7 Project Experience

Please see the following table for relevant project experience:

Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
Klipriviersberg Archaeological Survey	Meyersdal, Gauteng, South Africa	2005 2006	Survey of residential development in Meyersdal. This included the recording of identified stone walled settlements through detailed mapping and photographs. Included was the Phase 2 Mitigation of two stone walled settlements	Archaeological Impact Assessments	Researcher, Archaeological Assistant	2 Months		Completed survey, excavations and reporting	Archaeological Resource Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Sun City Archaeological Site Mapping	Sun City, Pilanesberg, North West Province, South Africa	2006 2006	Recording of an identified Late Iron Age stonewalled settlement through detailed mapping	Mapping	Archaeological Assistant, Mapper	1 Month	Sun City	Completed mapping	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Witbank Dam Archaeological Impact Assessment	Witbank, Mpumalanga, South Africa	2007 2007	Archaeological survey for proposed residential development at the Witbank dam	Archaeological Impact Assessment	Archaeological Assistant	1 Week		Completed Archaeological Impact Assessment report	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Archaeological Assessment of Modderfontein AH Holdings	Johannesburg, Gauteng, South Africa	2008 2008	Archaeological survey and basic assessment of Modderfontein Holdings	Archaeological Impact Assessment	Archaeologist	1 Month		Completed the assessment of 13 properties	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Heritage Assessment of Rhino Mines	Thabazimbi, Limpopo Province, South Africa	2008 2008	Heritage Assessment for expansion of mining area at Rhino Mines	Heritage Impact Assessment	Archaeologist	2 Weeks	Rhino Mines	Completed the assessment	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Cronimet Project	Thabazimbi, Limpopo Province, South Africa	2008 2008	Archaeological survey of Moddergat 389 KQ, Schilpadnest 385 KQ, and Swartkop 369 KQ,	Archaeological Impact Assessment	Archaeologist	1 Weeks	Cronimet	Completed field survey and reporting	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com

Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
Eskom Thohoyandou SEA Project	Limpopo Province, South Africa	2008 2008	Heritage Statement defining the cultural landscape of the Limpopo Province to assist in establishing sensitive receptors for the Eskom Thohoyadou SEA Project	Heritage Statement	Archaeologist	2 Months	Eskom	Completed Heritage Statement	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Wenzelrust Excavations	Shoshanguve, Gauteng, South Africa	2009 2009	Contracted by the Heritage Contracts Unit to help facilitate the Phase 2 excavations of a Late Iron Age / historical site identified in Shoshanguve	Excavation and Mapping	Archaeologist	1 Week	Heritage Contracts Unit	Completed excavations	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
University of the Witwatersrand Parys LIA Shelter Project	Parys, Free State, South Africa	2009 2009	Mapping of a Late Iron Age rock shelter being studied by the Archaeology Department of the University of the Witwatersrand	Mapping	Archaeologist	1 Day	University of the Witwatersrand	Completed mapping of the shelter	University of the Witwatersrand Karim Sadr karim.sadr@wits.ac.za
Transnet NMPP Line	Kwa-Zulu Natal, South Africa	2010 2010	Heritage Survey of the Anglo-Boer War Vaalkrans Battlefield where the servitude of the NMP pipeline	Heritage Impact Assessment	Archaeologist	1 Week	Umlando Consultants	Completed survey	Umlando Consultants Gavin Anderson umlando@gmail.com
Archaeological Impact Assessment – Witpoortjie Project	Johannesburg, Gauteng, South Africa	2010 2010	Heritage survey of Witpoortjie 254 IQ, Mindale Ext 7 and Nooitgedacht 534 IQ for residential development project	Archaeological Impact Assessment	Archaeologist	1 Week	ARM	Completed survey for the AIA	Archaeological Resources Management (ARM) Prof T.N. Huffman thomas.huffman@wits.ac.za
Der Brochen Archaeological Excavations	Steelpoort, Mpumalanga, South Africa	2010 2010	Phase 2 archaeological excavations of Late Iron Age Site	Archaeological Excavation	Archaeologist	2 Weeks	Heritage Contracts Unit	Completed excavations	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com

Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
De Brochen and Booysendal Archaeology Project	Steelpoort, Mpumalanga, South Africa	2010 2010	Mapping of archaeological sites 23, 26, 27, 28a & b on the Anglo Platinum Mines De Brochen and Booysendal	Mapping	Archaeologist	1 Week	Heritage Contracts Unit	Completed Mapping	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Eskom Thohoyandou Electricity Master Network	Limpopo Province, South Africa	2010 2010	Desktop study to identify heritage sensitivity of the Limpopo Province	Desktop Study	Archaeologist	1 Month	Strategic Environmental Focus	Completed Report	Strategic Environmental Focus (SEF) Vici Napier vici@sefsa.co.za
Batlhako Mine Expansion	North-West Province, South Africa	2010 2010	Mapping of historical sites located within the Batlhako Mine Expansion Area	Mapping	Archaeologist	1 Week	Heritage Contracts Unit	Completed Mapping	Heritage Contracts Unit Jaco van der Walt jaco.heritage@gmail.com
Kibali Gold Project Grave Relocation Plan	Orientale Province, Democratic Republic of Congo	2011 2013	Implementation of the Grave Relocation Project for the Randgold Kibali Gold Project	Grave Relocation	Archaeologist	2 Years	Randgold Resources	Successful relocation of approximately 3000 graves	Kibali Gold Mine Cyrille Mutombo Cyrille.c.mutombo@kibaligold.com
Kibali Gold Hydro-Power Project	Orientale Province, Democratic Republic of Congo	2012 2014	Assessment of 7 proposed hydro-power stations along the Kibali River	ESIA	Heritage Consultant	2 Years	Randgold Resources	Completed Heritage Impact Assessment	Randgold Resources Charles Wells Charles.wells@randgoldreources.com
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012 2012	Heritage Impact Assessment on the farm Vygenhoek	EIA and EMP	Heritage Consultant	6 Months	Aquarius Resources	Completed Heritage Impact Assessment	Aquarius Resources
Environmental Authorisation for the Gold One Geluksdal TSF and Pipeline	Gauteng, South Africa	2012 2012	Heritage impact Assessment for the proposed TSF and Pipeline of Geluksdal Mine	EIA and EMP	Heritage Consultant	4 Months	Gold One International	Completed Heritage Impact Assessment	Gold One International
Platreef Burial Grounds and Graves Survey	Mokopane, Limpopo Province, South Africa	2012 2012	Survey for Burial Grounds and Graves	Burial Grounds and Graves Management Plan	Heritage Consultant	4 Months	Platreef Resources	Project closed by client due to safety risks	Platreef Resources Gerick Mouton

Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
Resgen Boikarabelo Coal Mine	Limpopo Province, South Africa	2012 2012	Archaeological Excavation of identified sites	Archaeological Excavation	Heritage Consultant	4 Months	Resources Generation	Completed excavation and reporting, destruction permits approved	Resources Generation Louise Nicolai
Bokoni Platinum Road Watching Brief	Burgersfort, Limpopo Province, South Africa	2012 2012	Watching brief for construction of new road	Watching Brief	Heritage Consultant	1 Week	Bokoni Platinum Mine	Completed watching brief, reviewed report	Bokoni Platinum Mines (Pty) Ltd
SEGA Gold Mining Project	Burkina Faso	2012 2013	Socio Economic and Asset Survey	RAP	Social Consultant	3 Months	Cluff Gold PLC	Completed field survey and data collection	Cluff Gold PLC
SEGA Gold Mining Project	Burkina Faso	2013 2013	Specialist Review of Heritage Impact Assessment	Reviewer	Heritage Consultant	1 Week	Cluff Gold PLC	Reviewed specialist report and made appropriate recommendations	Cluff Gold PLC
Consbrey and Harwar Collieries Project	Breyton, Mpumalanga, South Africa	2013 2013	Heritage Impact Assessment for the proposed Consbrey and Harwar Collieries	EIA and EMP	Heritage Consultant	2 Months	Msobo	Completed Heritage Impact Assessments	Msobo
New Liberty Gold Project	Liberia	2013 2014	Implementation of the Grave Relocation Project for the New Liberty Gold Project	Grave Relocation	Heritage Consultant	5 Months	Aureus Mining	Grave Relocation completed	Aureus Mining
Falea Uranium Mine Environmental Assessment	Falea, Mali	2013 2013	Heritage Scoping for the proposed Falea Uranium Mine	Environmental Assessment	Heritage Consultant	2 Months	Rockgate Capital	Completed scoping report and recommended further studies	Rockgate Capital
Putu Iron Ore Mine Project	Petroken, Liberia	2013 2014	Heritage impact Assessment for the proposed Putu Iron Ore Mine, road extension and railway line	EIA and EMP	Heritage Consultant	6 Months	Atkins Limited	Completed Heritage Impact Assessment and provided recommendations for further studies	Atkins Limited Irene Bopp Irene.Bopp@atkinsglobal.com

Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
Sasol Twistdraai Project	Secunda, Mpumalanga, South Africa	2013 2014	Notification of intent to Develop and Heritage Statement for the Sasol Twistdraai Expansion	NID	Heritage Consultant	2 Months	ERM Southern Africa	Completed NID and Heritage Statement	ERM Southern Africa Alan Cochran Alan.Cochran@erm.com
Daleside Acetylene Gas Production Facility	Gauteng, South Africa	2013 2013	Project Management of the heritage study	NID	Project Manager	3 Months	ERM Southern Africa	Project completed	ERM Southern Africa Kasantha Moodley Kasantha.Moodley@erm.com
Exxaro Belfast, Paardeplaats and Eerstelingsfontein GRP	Belfast, Mpumalanga, South Africa	2013 2014	Grave Relocation Plan for the Belfast, Paardeplaats and Eerstelingsfontein Projects	GRP	Project Manager, Heritage Consultant	2 Years	Exxaro	Burial Grounds and Graves consultation complete and applications to authorities submitted for permitting	Exxaro Johan van der Bijl Johan.vanderbijl@exxaro.com
Nzoro 2 Hydro Power Project	Orientale Province, Democratic Republic of Congo	2014 2014	Social consultation for the Relocation Action Plan component of the Nzoro 2 Hydro Power Station	RAP	Social Consultant	2 Months	Randgold Resources	Completed introductory meetings – project has been placed on hold	Kibali Gold Mine Cyrille Mutombo Cyrille.c.mutombo@kibaligold.com
Eastern Basin AMD Project	Springs, Gauteng, South Africa	2014 2014	Heritage Impact Assessment for the proposed new sludge storage facility and pipeline	EIA and EMP	Heritage Consultant	2 Months	AECOM	Completed HIA and submitted to the authorities	AECOM
Soweto Cluster Reclamation Project	Soweto, Gauteng, South Africa	2014 2014	Heritage Impact Assessment for reclamation activities associated with the Soweto Cluster Dumps	EIA and EMP	Heritage Consultant	3 Months	ERGO	Completed HIA and submitted to the authorities	ERGO Greg Ovens greg.ovens@drdgold.com
Klipspruit South Project	Ogies, Mpumalanga, South Africa	2014 2014	NID and Heritage Statement for the Section 102 Amendment of the Klipspruit Mine EMP	EIA and EMP	Heritage Consultant	6 Months	BHP Billiton	HIA finalised and submitted to the authorities	BHP Billiton

Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
Klipspruit Extension: Weltevreden Project	Ogies, Mpumalanga, South Africa	2014 2014	NID and Heritage Statement for the expansion of the Klipspruit Mine	EIA and EMP	Heritage Consultant	6 Months	BHP Billiton	HIA finalised and submitted to authorities	BHP Billiton
Ergo Rondebult Pipeline Basic Assessment	Johannesburg, South Africa	2014 2014	NID and Heritage Statement for the construction of the Rondebult Pipeline	BA	Heritage Consultant	1 Week	ERGO	Completed screening assessment and NID	ERGO Greg Ovens greg.ovens@drdgold.com
Kibali ESIA Update Project	Orientale Province, Democratic Republic of Congo	2014 2014	Update of the Kibali ESIA for the inclusion of new open-cast pit areas	ESIA	Heritage Consultant	1 Month	Randgold Resources	Completed heritage assessment and input into the ESIA	Randgold Resources Charles Wells Charles.wells@randgoldresources.com
GoldOne EMP Consolidation	Westonaria, Gauteng, South Africa	2014 2014	Gap analysis for the EMP consolidation of operations west of Johannesburg	Gap Analysis	Heritage Consultant	1 Month	Gold One International	Gap analysis complete and proposed way forward submitted	Gold One International
Yzermite PIA	Wakkerstroom, Mpumalanga, South Africa	2014 2014	Palaeontological Assessment for the Yzermyne Project	PIA	Project Management	1 Month	EcoPartners	Completed report and submitted to authorities	EcoPartners San Oosthuizen san@ecopartners.co.za
Sasol Mooikraal Basic Assessment	Sasolburg, Free State, South Africa	2014 2014	Heritage Basic Assessment for the proposed Mooikraal Pipeline	HBA	Heritage Consultant	4 Months	Sasol Mining	Completed Heritage Basic Assessment and submitted to the authorities	
Everest North Mining Project	Steelpoort, Mpumalanga, South Africa	2012 2015	EIA and EMP for the Aquarius Everest North Mining Project	EIA and EMP	Project Manager	1 Year	Aquarius Resources	EIA and EMP amended and submitted to authorities. Authorisation received.	Aquarius Resources Robyn Mellett Robyn.Mellett@aquariussa.co.za
Oakleaf ESIA Project	Bronkhorstspruit, Gauteng, South Africa	2014 2015	Heritage impact Assessment for the Oakleaf Project	EIA and EMP	Heritage Consultant	4 Months	Oakleaf Investment Holdings	HIA report finalised and submitted to the authorities	

Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
Rea Vaya Phase II C Project	Johannesburg, Gauteng, South Africa	2014 2014	Heritage Impact Assessment on 2 structures along Rea Vaya Routing	HIA	Project Manager	1 year	Iliso Consulting	HIA report finalised and submitted to the authorities	Iliso Consulting
NTEM Iron Ore Mine and Pipeline Project	Cameroon	2014 2015	Review of Heritage Impact Assessment for the NTEM ESIA	EIA and EMP	Specialist Reviewer	1 Month	International Mining and Infrastructure Corporation plc	Specialist reports reviewed and comments provided	
Imvula Project	Kriel, Mpumalanga, South Africa	2014 2015	Heritage Scoping Report for Imvula EIA	EIA and EMP	Heritage Consultant	1 Year 4 Months	Ixia Coal	Project completed and submitted	
Sibanye WRTRP	Gauteng, South Africa	2014 2016	Heritage Impact Assessment for the Sibanye WRTRP	EIA and EMP	Heritage Consultant	On-going	Sibanye	Project is on-going	
VMIC Vanadium EIA Project	Mokopane, Limpopo, South Africa	2014 2015	Heritage Impact Assessment for the Vanadium Project	EIA and EMP	Heritage Consultant	1 Year	VM Investment Company	HIA report finalised and submitted to the authorities	
NLGM Constructed Wetlands Project	Liberia	2015 2015	Heritage Assessment for the proposed constructed wetlands	HIA	Heritage Consultant	1 Month	Aureus Mining	HIA report finalised and submitted	
ERPM Section 34 Destruction Permits Applications	Johannesburg, Gauteng, South Africa	2015 2015	Section 34 Destruction Permit Applications for the SEV and Cason Shafts	HIA and S.34 Applications	Project Manager	4 Months	Ergo Mining	Application submitted and permits received	Ergo Mining Greg Ovens greg.ovens@drdgold.com
JMEP II EIA	Botswana	2015 2015	Heritage Impact Assessment for the JMEP II Wellfields	HIA	Heritage Consultant	2 Months	Jindal	HIA completed and submitted to authorities	
Gino's Building Section 34 Destruction Permit Application	Johannesburg, Gauteng, South Africa	2015 2016	Heritage Impact Assessment and Section 34 Destruction Permit Application	HIA and S. 34 Applications	Project Manager	On-going	Bigen Africa Services (Pty) Ltd	Project is on-going	Bigen Africa Services (Pty) Ltd Kamantha Veerasamy Kamantha.Veerasamy@bigenafrica.com
EDC Block Refurbishment Project	Johannesburg, Gauteng, South Africa	2015 2016	Heritage Impact Assessment and Section 34 Permit Application	HIA and S. 34 Applications	Project Manager	On-going	Bigen Africa Services (Pty) Ltd	Project is on-going	Bigen Africa Services (Pty) Ltd Taka Sande Taka.Sande@bigenafrica.com

Project Title	Project Location	Date:	Description of the Project	Role of Firm in the Project	Own Role in the Project	Time involved (man months)	Name of Client	Contract Outcomes	Reference
Namane IPP and Transmission Line EIA	Steenbokpan, Limpopo Province, South Africa	2015 2016	Heritage Impact Assessment	EIA and EMP	Heritage Consultant	On-going	Namane Resources (Pty) Ltd	Project is on-going	
Temo Coal Road Diversion and Rail Loop EIA	Steenbokpan, Limpopo Province, South Africa	2015 2016	Heritage Impact Assessment	EIA and EMP	Heritage Consultant	On-going	Namane Resources (Pty) Ltd	Project is on-going	

Mr Johan Nel

Unit manager: Heritage Resources Management

Social Sciences

Digby Wells Environmental

1 Education

Date	Degree(s) or Diploma(s) obtained	Institution
2014	Integrated Heritage Resources Management Certificate, NQF Level 6	Rhodes University
2002	BA (Honours) (Archaeology)	University of Pretoria
2001	BA	University of Pretoria
1997	Matric with exemption	Brandwag Hoërskool

2 Language Skills

Language	Speaking	Writing	Reading
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

3 Employment

Period	Company	Title/position
2009/2011 to present	Digby Wells Environmental	Manager: Heritage Resources Management unit
2005/2010-2011	Digby Wells Environmental	Archaeologist
2010/2005-2005/2010	Archaic Heritage Project Management	Manager and co-owner
2003-2007		Freelance archaeologist

	Rock Art Mapping Project	Resident archaeologist
2002-2003	Department of Anatomy, University of Pretoria	Special assistant: Anthropology
2001-2002	Department of Anatomy, University of Pretoria	Technical assistant
1999-2001	National Cultural History Museum & Department of Anthropology and Archaeology, UP	Assistant: Mapungubwe Project

4 Experience

Johan Nel has 13 years of combined experience in the field of cultural heritage resources management (HRM) including archaeological and heritage assessments, grave relocation, social consultation and mitigation of archaeological sites. I have gained experience both within urban settings and remote rural landscapes. Since 2010 I have been actively involved in environmental management that has allowed me to investigate and implement the integration of heritage resources management into environmental impact assessments (EIA). Many of the projects since have required compliance with International Finance Corporation (IFC) requirements and other World Bank standards. This exposure has allowed me to develop and implement a HRM approach that is founded on international best practice and leading international conservation bodies such as UNESCO and ICOMOS. I have worked in most South African Provinces, as well as Swaziland, the Democratic Republic of the Congo, Liberia and Sierra Leone. I am fluent in English and Afrikaans, with excellent writing and research skills.

5 Project Experience

5.1 Archaeological Surveys and Impact Assessments

2003-2004. Freelance consulting archaeologist. Roodt & Roodt CC. RSA. Archaeological surveys. Specialist.

2004-2005. Resident archaeologist Rock Art Mapping Project. University of KwaZulu-Natal. Kwazulu-Natal, RSA. Rock art mapping & recording. Specialist.

5.2 Archaeological Mitigation

2007. Archaeological investigation of Old Johannesburg Fort. Johannesburg Development Agency. Gauteng, RSA. Archaeological mitigation. Project manager.

2008. Final consolidated report: Watching Brief on Soutpansberg Road Site for the new Head Offices of the Department of Foreign Affairs, Pretoria Gauteng. Imbumba-Aganang D & C Joint Venture. Gauteng, RSA. Watching Brief. Project manager.

2011. Sessenge archaeological site mitigation. Randgold Resources. Doko, DRC. Archaeological mitigation. Specialist.

2011. Mitigation of three sites, Koidu Kimberlite Project. Koidu Holdings SA. Koidu, Sierra Leone. Archaeological mitigation. Project manager.

2012. Boikarabelo Phase 2 Mitigation of Archaeological Sites. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Archaeological permitting and mitigation. Project manager.

2012. Additional Archaeology Mitigation of Sites. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Archaeological permitting and mitigation. Project manager.

2013. Archaeological Excavations of Old Well, Rhodes University, Grahamstown. Rhodes University. Eastern Cape, RSA. Archaeological mitigation. Specialist.

2014. Archaeological Site Destruction. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Archaeological permitting and mitigation. Project manager.

5.3 Heritage Impact Assessments

2005. Final consolidated Heritage Impact Assessment report: Proposed development of high-cost housing and filling station, Portion of the farm Mooiplaats 147 JT. Go-Enviroscience. Mpumalanga, RSA. Heritage Impact Assessment. Project manager.

2006. Final report: Heritage resources Scoping survey and preliminary assessment for the Transnet Freight Line EIA, Eastern Cape and Northern Cape. ERM Southern Africa (Pty) Ltd. Northern & Eastern Cape, RSA. Heritage Scoping Assessment. Project manager.

2007. Proposed road upgrade of existing, and construction of new roads in Burgersfort, Limpopo Province. AGES South Africa (Polokwane). Limpopo, RSA. Heritage Impact Assessment. Project manager.

2007. Recommendation of Exemption: Above-ground SASOL fuel storage tanks located at grain silos in localities in the Eastern Free State. Sasol Group Services (Pty) Ltd. Free State, RSA. Letter of Exemption. Project manager.

2008. Summary report: Old dump on premises of the new Head Offices, Department of Foreign Affairs, Pretoria, Gauteng. Imbumba-Aganang D & C Joint Venture. Gauteng, RSA. Archaeological Impact Assessment. Project manager.

2008. Van Reenen Eco-Agri Development Project. Go-Enviroscience. Kwazulu-Natal & Free State, RSA. Heritage Impact Assessment. Project manager.

2008. Heritage Impact Assessment for proposed water pipeline routes, Mogalakwena District, Limpopo Province. AGES South Africa (Polokwane). Limpopo, RSA. Heritage Impact Assessment. Project manager.

2008. Phase 1 Heritage and Archaeological Impact Assessment: Proposed establishment of an access road between Sapekoe Drive and Koedoe Street, Erf 3366 (Extension 22) and the Remainder of Erf 430 (Extension 4). AGES South Africa (Polokwane). Limpopo, RSA. Heritage Impact Assessment. Project manager.

2008. Heritage resources scoping survey and preliminary assessment: Proposed establishment of township on Portion 28 of the farm Kennedy's Vale 362 KT, Steelpoort, Limpopo Province. AGES South Africa (Polokwane). Limpopo, RSA. Heritage Scoping Assessment. Project manager.

2008. Randwater Vlakfontein-Mamelodi water pipeline survey. Archaeology Africa CC. Gauteng, RSA. Heritage Impact Assessment. Specialist.

2010. Heritage Impact Assessment for conversion of PR to MRA. Georock Environmental. Northwest, RSA. Heritage Impact Assessment. Project manager.

2010. Temo Coal Project. Namane Commodities (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.

2011. Marapong Treatment Works. Ceenex (Pty) Ltd. Limpopo, RSA. Archaeological Impact Assessment. Project manager.

2011. Complete Environmental Authorisation. Rhodium Reefs Ltd. Limpopo, RSA. Archaeological Impact Assessment. Specialist.

2011. Big 5 PV Solar Plants. Orlight (Pty) Ltd. Western and Northern Cape, RSA. Heritage Impact Assessment. Specialist.

2011. Heritage Impact Assessment for Koidu Diamond Mine. Koidu Holdings SA. Koidu, Sierra Leone. Heritage Impact Assessment. Specialist.

2012. TSF and Pipeline. Gold One. Gauteng, RSA. Heritage Impact Assessment. Project manager.

2012. Kangra Coal Heritage Screening Assessment. ERM Southern Africa (Pty) Ltd. Mpumalanga, RSA. Heritage Screening Assessment. Project manager.

2012. Environmental and Social Studies. Platreef Resources (Pty) Ltd. Limpopo, RSA. Heritage specialist advice. Project manager.

2012. ESKOM Powerline EIA. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Notification of Intent to Develop. Project manager.

2012. Falea Project ESIA. Denison Mines Corp. (Rockgate Capital Corp). Falea, Mali. Heritage Impact Assessment. Specialist.

2012. EIA for Proposed Emergency Measures to Pump and Treat. AECOM SA (Pty) Ltd. Gauteng, RSA. Heritage Impact Assessment. Specialist.

2012. Tonguma Baseline Studies. Koidu Holdings SA. Tonguma, Sierra Leone. Heritage Impact Assessment. Specialist.

2012. Vedanta IPP. Black Mountain Mining (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.

2012. Boikarabelo Railway Realignment. Ledjadja Coal (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.

2012. Platreef ESIA. Platreef Resources (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.

2012. Roodekop EIA. Universal Coal Development 4 (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.

2012. Kangala HIA. Universal Coal Development 1 (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment and permitting. Specialist.

2012. Roodepoort Strengthening. Eskom Holdings SOC Ltd. Gauteng, RSA. Notification of Intent to Develop. Specialist.

2012. Trichardtsfontein EIA / EMP. Xstrata Coal South Africa. Limpopo, RSA. Heritage Impact Assessment. Specialist.

2012. Zandbaken EIA/EMPR. Xstrata Coal South Africa. Limpopo, RSA. Heritage Impact Assessment. Specialist.

2013. ATCOM Tweefontein NID. Jones & Wagener (Pty) Ltd. Mpumalanga, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.

2013. Roodepoort Heritage Impact Assessment. Fourth Element Consulting (Pty) Ltd. Gauteng, RSA. Heritage Impact Assessment. Project manager.

2013. JHB BRT Phase 2 Heritage Impact Assessment. Iliso Consulting (Pty) Ltd. Gauteng, RSA. Heritage Impact Assessment. Project manager.

2013. Kangra Coal HIA. ERM Southern Africa (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Project manager.

2013. Slypsteen Bulk Sample Application. Summer Season Trading (Pty) Limited. Northern Cape, RSA. Heritage Impact Assessment. Project manager.

2013. Kempton Park Heritage Statement and NID. ERM Southern Africa (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Project manager.

2013. Sasol Twistdraai CFD. ERM Southern Africa (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Project manager.

2013. HRS & NID - River Crossings Upgrade. Iliso Consulting (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Project manager.

2013. Waterberg Prospecting Right Applications. Platinum Group Metals (Pty) Ltd. Limpopo, RSA. Notification of Intent to Develop. Project manager.

2013. Landau Waste Licence Application. Anglo Operations (Pty) Limited. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.

2013. Prospecting Right Consultation Report. Rustenburg Platinum Mines Limited. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.

2013. Witrand Prospecting EMP. Rustenburg Platinum Mines Limited. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.

2013. EMP Amendment for CST. Copper Sunset Trading (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.

2013. Maseve IFC ESHIA. Maseve Investment (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Reviewer / specialist.

2013. Dalyshope ESIA. Anglo Operations (Pty) Limited. Limpopo, RSA. Heritage Impact Assessment. Specialist.

2013. Klipfontein Opencast Project. Bokoni Platinum Mines (Pty) Ltd. Limpopo, RSA. Heritage Impact Assessment. Specialist.

2013. Consbrey and Harwar MPRDA EIA/EMP. Msobo Coal (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.

2013. Slypsteen 102 EMP Amendment. Summer Season Trading (Pty) Limited. Northern Cape, RSA. Heritage Impact Assessment. Specialist.

2013. Putu Iron Ore ESIA. Atkins Limited Incorporated. Putu, Liberia. Heritage Impact Assessment. Specialist.

2013. Ash backfilling at Sigma Colliery. Sasol Mining (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Specialist.

2013. Syferfontein Block 4 - Underground Coal Mining for Sasol. Sasol Mining (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Specialist.

2013. Prospecting Right Amendment to Include Bulk Sampling. Sikhuliso Resources (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Specialist.

2013. Nooitgedacht EIA, EMP Amendment & Gap Analysis. Xstrata Coal South Africa. Limpopo, RSA. Heritage Impact Assessment. Specialist.

2014. Gold One EMP Consolidation Phase 0. Gold One. Gauteng, RSA. Heritage Impact Assessment. Reviewer / specialist.

2014. Kilbarchan Audit and EIA. Eskom Holdings SOC Ltd. Kwazulu-Natal, RSA. Heritage Impact Assessment. Reviewer / specialist.

2014. Klipspruit Extension Environmental Assessment. BHP Billiton Energy Coal South Africa Limited. Mpumalanga, RSA. Heritage Impact Assessment. Reviewer / specialist.

2014. Klipspruit South BECSA EIA. BHP Billiton Energy Coal South Africa Limited. Mpumalanga, RSA. Heritage Impact Assessment. Reviewer / specialist.

2014. EIA/EMP Soweto Cluster. DRD GOLD ERGO (Ergo Mining (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Reviewer / specialist.

2014. London Road Heritage Statement. ERM Southern Africa (Pty) Ltd. Gauteng, RSA. Notification of Intent to Develop. Reviewer / specialist.

2014. Grootegeluk MPRDA, NEMA and IWULA. Exxaro Coal (Pty) Ltd. Limpopo, RSA. Notification of Intent to Develop. Reviewer / specialist.

2014. Kibali ESIA & EMP Update. Randgold Resources. Doko, DRC. Heritage Impact Assessment. Specialist.

2014. Nokuhle Colliery NEMA Process. HCI Coal (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.

2014. HRM Process for Hendrina Wet Ashing. Lidwala Consulting Engineers (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.

2014. Weltevreden NEMA. Northern Coal (Pty) Ltd. Mpumalanga, RSA. Heritage Impact Assessment. Specialist.

2014. Sasol Sigma Mooikraal Pipeline BA. Sasol Mining (Pty) Ltd. Mpumalanga, RSA. Notification of Intent to Develop. Specialist.

5.4 Burial Grounds and Graves Consultation and Relocation

2005. Report on exhumation, relocation and re-internment of 49 graves on Portion 10 of the farm Tygervallei 334 JR, Kungwini Municipality, Gauteng D Georgiades East Farm (Pty) Ltd. Gauteng, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.

2005. Southstock Collieries Grave Relocation. Doves Funerals, Witbank. Mpumalanga, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.

2005. Social consultation for Smoky Hills Platinum Mine Grave Relocation. PGS (Pty) Ltd. Limpopo, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.

2005. Social consultation for Elawini Lifestyle Estate Grave Relocation. PGS (Pty) Ltd. Mpumalanga, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.

2006. Social consultation for Zonkezizwe Grave Relocation. PGS (Pty) Ltd. Gauteng, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.

2006. Social consultation for Motaganeng Residential Development Grave Relocation. PGS (Pty) Ltd. Mpumalanga, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.

2006. Social consultation for Zondagskraal Coal Mine Grave (Pty) Ltd. Mpumalanga, RSA. Stakeholder consultation on burial grounds and graves. Social consultant.

2007. Exploratory excavation of an unknown cemetery at Du Preezhoek, Fountains Valley, Portion 383 of the farm Elandspoort 357 JR, Pretoria, Gauteng. Bombela Civil Joint Venture. Gauteng, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.

2007. Final consolidated report: Phase 2 test excavations ascertaining the existence of alleged mass graves, Tlhabane West, Extension 2, Rustenburg, Northwest Province. Bigen Africa Consulting Engineers. Northwest, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.

2007. Repatriation of Mapungubwe Human Remains. Department of Environmental Affairs and Tourism. Limpopo, RSA. Repatriation. Project manager.

2008. Report on skeletal material found at Pier 30, R21 Jones Street off-ramp, Kempton Park. Bombela Civil Joint Venture. Gauteng, RSA. Heritage Scoping Assessment. Project manager.

2011. Kibali Grave Relocation. Randgold Resources. Doko, DRC. International grave relocation. Specialist.

2012. Platreef Platinum Mine Burial Grounds and Graves Census. Platreef Resources (Pty) Ltd. Limpopo, RSA. Stakeholder consultation on burial grounds and graves. Project manager.

2013. New Liberty Grave Relocation Process. Aureus Mining Inc. Kinjor, Liberia. International grave relocation. Project manager.

2013. Bokoni Burial Grounds and Grave Census and Grave Relocation Plan. Bokoni Platinum Mines (Pty) Ltd. Limpopo, RSA. Stakeholder consultation on burial grounds and graves. Project manager.

2014. Arnot Colliery Grave Relocation Project. Exxaro Coal (Pty) Ltd. Mpumalanga, RSA. Burial grounds and graves consultation, permitting and relocation. Project manager.

2014. Paardeplaats and Belfast RAPs. Exxaro Coal (Pty) Ltd. Mpumalanga, RSA. Burial grounds and graves consultation, permitting and relocation. Reviewer / specialist.

2014. Thabametsi EIA, EMP, IWULA, IWWMP and PPP. Exxaro Coal (Pty) Ltd. Limpopo, RSA. Stakeholder consultation on burial grounds and graves. Specialist.

5.5 Research Reports and Reviews

2007. Research report on cultural symbols. Ministry of Intelligence Services. RSA. Research report. Project manager.

2007. Research report on the remains of kings Mampuru I and Nyabela. National Department of Arts and Culture. RSA. Research report. Project manager.

2012. Baseline Scoping and Pre-feasibility Songwe Rare Earth Element Project. Mkango Resources Limited. Songwe, Malawi. Heritage Impact Assessment. Reviewer / specialist.

2013. Fatal Flaw Analysis and EIA Process for AMD Man in Eastern Basin. AECOM SA (Pty) Ltd. Gauteng, RSA. Heritage Impact Assessment. Reviewer / specialist.

6 Professional Registration

Position	Professional Body	Registration Number
Council member	Association for Southern African Professional Archaeologists (ASAPA); ASAPA Cultural Resources Management (CRM) section	095
Member	International Association of Impact Assessors (IAIA)	N/A
Member	International Council on Monuments and Sites (ICOMOS)	13839
Member	Society for Africanist Archaeologists (SAfA)	N/A

7 Publications

Authors and Year	Title	Published in/presented at
Nel, J. (2001)	Cycles of Initiation in Traditional South African Cultures.	South African Encyclopaedia (MWEB).
Nel, J. 2001.	Social Consultation: Networking Human Remains and a Social Consultation Case Study	Research poster presentations at the. Bi-annual Conference (SA3) Association of Southern African Professional Archaeologists the National Museum, Cape Town

Nel, J. 2002.	Collections policy for the WG de Haas Anatomy museum and associated Collections.	Unpublished. Department of Anatomy, School of Medicine: University of Pretoria.
Nel, J. 2004.	Research and design of exhibition for Eloff Belting and Equipment CC	Institute of Quarrying 35th Conference and Exhibition on 24 – 27 March 2004
Nel, J. 2004.	Ritual and Symbolism in Archaeology, Does it exist?	Research paper presented at the Bi-annual Conference (SA3) Association of Southern African Professional Archaeologists: Kimberley
Nel, J & Tiley, S. 2004.	The Archaeology of Mapungubwe: a World Heritage Site in the Central Limpopo Valley, Republic of South Africa.	Archaeology World Report, (1) United Kingdom p.14-22.
Nel, J. 2007.	The Railway Code: Gautrain, NZASM and Heritage.	Public lecture for the South African Archaeological Society, Transvaal Branch: Roedean School, Parktown.
Nel, J. 2009.	Un-archaeologically speaking: the use, abuse and misuse of archaeology in popular culture.	The Digging Stick. April 2009. 26(1): 11-13: Johannesburg: The South African Archaeological Society.
Nel, J. 2011.	'Gods, Graves and Scholars' returning Mapungubwe human remains to their resting place.' In: Mapungubwe Remembered.	University of Pretoria commemorative publication: Johannesburg: Chris van Rensburg Publishers.
Nel, J. 2012	HIAs for EAPs.	. Paper presented at IAIA annual conference: Somerset West.
Nel, J. 2013.	The Matrix: A proposed method to evaluate significance of, and change to, heritage resources.	Paper presented at the 2013 ASAPA Biennial conference: Gaborone, Botswana.
Nel, J. 2013	HRM and EMS: Uncomfortable fit or separate process.	. Paper presented at the 2013 ASAPA Biennial conference:

Gaborone, Botswana.