Heritage Impact Assessment (including a Palaeontological Assessment) in Terms of Section 38(8) of the National Heritage Resources Act (No 25 of 1999) for the Proposed Installation of Dual Flue Gas Conditioning Plant at Tutuka Power Station near Standerton, Mpumalanga Province

Prepared by

Edward Matenga

(Ph.D. Archaeology & Heritage, MPhil, Archaeology; Uppsala/Sweden)

14 Aug 2022

(AHSA) Archaeological and Heritage Services Africa (Pty) Ltd

Reg. No. 2016/281687/07

P O Box 2702, The Reeds 0158, Pretoria

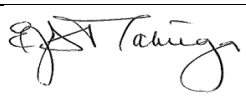
Email: e.matenga598@gmail.com.

Cell: +27 73 981 0637

Website: www.archaeologicalheritage.co.za

DOCUMENT CONTROL

	CLIENT	ENVIRONMENTAL CONSULTANTS
	Eskom Holdings SOC Ltd	Green Gold Group (Pty) Ltd
Contact Details	**Name:** Mpho Muswubi **Tel:** 011 800 2346 **Email**: Muswubmd@eskom.co.za	**Name:** Lebohang Moiloa **Tel:** 012 844 0248/073 232 4312 **Email**: EIAs@greengoldgroup.co.za

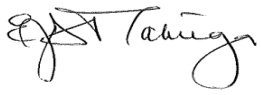
	NAME	QUALIFICATIONS	
Field Work & Report	Edward Matenga	Ph.D. Archaeology & Heritage, MPhil, Archaeology; Uppsala/Sweden	
Signature			14 August 2022

DECLARATION OF INDEPENDENCE

AHSA (Pty) Ltd is an independent consultancy: I hereby declare that I have no interest, be it business, financial, personal, or other vested interest in the undertaking of the proposed activity, other than fair remuneration for work performed, in terms of the National Heritage Resources Act (No 25 of 1999).

DISCLAIMER

All possible care was taken to identify and document heritage resources during the survey in accordance with best practices in archaeology and heritage management. However, it is always possible that some hidden or subterranean sites are overlooked during a survey. AHSA will not be held liable for such oversights and additional costs thereof.



Full Name: Edward J. Matenga

Title / Position: Heritage Management Consultant

Qualifications: Ph.D. (Archaeology & Heritage, Uppsala University, Sweden), MPhil (Uppsala), Certificate in the Integrated Conservation of Territories and Landscapes of Heritage Value (ICCROM, Rome)

CONTENTS

EXECUTIVE SUMMARY

1. This Heritage Impact Assessment (HIA) report has been prepared in terms of Section 38 of the National Heritage Resources Act (25 of 1999) for the proposed installation of a Dual Flue Gas Conditioning (DFGC) Plant at Tutuka Power Station near Standerton in Mpumalanga Province.

2. An HIA is a precaution taken to make sure that the proposed development does not impact heritage resources that might occur in the footprint of the development.

3. A ground survey was undertaken on 20 June 2022 to locate and document heritage elements of the receiving environment.

4. *General observations*
5. The two sites which have been proposed for the DFGC are located on the foot of the giant power plant complex. Site 1 is close to one of the meg-tubes transporting the flue gas. Site 2 is located close to one of the boilers. The two sites are 120m apart in a straight. There is nothing of heritage significance that can be expected to be found on the footprint of the plant that dates before 1980 when the plant was constructed (Figures 5-7).

6. *Built Environment of Cultural Landscape Significance*

   Tutuka Power Station was commissioned in 1985. The Power Station and other associated built elements are therefore less than 60 years old, hence below the threshold of recognition in terms of the Heritage Act as industrial heritage of significance. The six cooling towers and two chimneys are iconic structures dominating the landscape and skyline. They represent coal power generating technology of the period from the late 19th century through to the late 20th century. Such an industrial landscape may be treasured in the future (Figure 7). The impact of the proposed installations on the visual character of this cultural landscape is considered to be negligible. The proposed DFGC plant is very small in both its vertical and horizontal dimensions; it is dwarfed by the power plant, and as such its impact on the existing landscape is insignificant.

7. Ranking of Sites and Risk Assessment

The ranking system is adapted from Bauman and Winter 2005.[1]

GRADE	RANKING	SIGNIFICANCE	NO OF SITES
1a	National	Of high intrinsic, associational, and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources	0
1b		Burial Grounds and Graves. Public sensibilities about the sanctity of graves	0
2	Provincial	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 2 heritage resources	0
3A	Local	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 3A heritage resources	0
3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources	0
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources	0
		TOTAL	**0**

8. Recommendations and conclusion

The project must be given a green light to go ahead given the absence of cultural material and the low impact of the proposed installations on the visual character of the landscape. As a standard precaution, in the event of other heritage resources being discovered in the future

[1] Baumann, N. and S Winter. 2005. Guidelines for involving heritage specialists in Environmental Impact Assessment Processes. Western Cape Government.

phases of the project, the Provincial Heritage Resources Authority or SAHRA must be alerted immediately and an archaeologist or heritage expert called to attend.

GLOSSARY

Archaeology: The study of the humans' past through their material remains.

Archaeological material: remains resulting from human activity left as evidence of their presence which, as proscribed by South African heritage legislation, are older than 100 years, which are in the form of artefacts, food remains and other traces such as rock paintings or engravings, burials, fireplaces and structures.

Artefact/Ecofact: Any movable object that has been used, modified or manufactured by humans.

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

Catalogue: An inventory or register of artefacts and/or sites.

Conservation: All the processes of looking after a site/heritage place or landscape including maintenance, preservation, restoration, reconstruction and adaptation.

Culture: A contested term, "culture" could minimally be defined as the learned and shared things that people have, do and think.

Cultural Heritage Resources: refers to physical cultural properties such as archaeological sites, palaeontological sites, historic and prehistorical places, buildings, structures and material remains, cultural sites such as places of rituals, burial sites or graves and their associated materials, geological or natural features of cultural importance or scientific significance. This includes intangible resources such religious practices, ritual ceremonies, oral histories, memories and indigenous knowledge.

Cultural landscape: "the combined works of nature and man" and demonstrate "the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external".

Cultural Significance: is the aesthetic, historical, scientific and social value for past, present and future generations.

Early Stone Age: Predominantly the Oldowan and Acheulean hand axe industry complex dating to + 1Myr yrs – 250 000 yrs. before present.

Early Iron Age: Refers cultural period of the first millennium AD associated with the introduction of metallurgy and agriculture in Eastern and Southern Africa

Later Iron Age: Refers to the period after 1000AD marked by increasing social and political complexity. Evidence of economic wealth through trade and livestock keeping especially cattle

Excavation: A method in which archaeological materials are extracted, involving systematic recovery of archaeological remains and their context by removing soil and any other material covering them.

Grave: a place of burial that includes materials such as tombstones or other marker such as crosses etc.

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

Intangible heritage: Something of cultural value that is not primarily expressed in a material form e.g. rituals, knowledge systems, oral traditions, transmitted between people and within communities.

Historical archaeology: the study of material remains from both the remote and recent past in relationship to documentary history and the stratigraphy of the ground in which they are found; or archaeological investigation on sites of the historic period. In South Africa it refers to the immediate pre-colonial period, contact with European colonists and the modern industrial period.

***In situ* material:** means material culture and surrounding deposits in their original location and context, for instance archaeological remains that have not been disturbed.

Later Iron Age: The period from the beginning of the 2nd millennium AD marked by the emergence of complex state society and long-distance trade contacts.

Late Stone Age: The period from ± 30 000-yr. to the introduction of metals and farming technology

Middle Stone Age: Various stone using industries dating from ± 250 000 yr. - 30 000 yrs. ago

Monuments: architectural works, buildings, sites, sculpture, elements or structures of an archaeological nature, inscriptions, cave dwellings that are outstanding from the point of view of history, art and science.

Place: means site, area, building or other work, group of buildings or other works, together with pertinent contents, surroundings and historical and archaeological deposits.

Preservation: means protecting and maintaining the fabric of a place in its existing state and retarding deterioration or change, and may include stabilization where necessary.

Sherd: ceramic fragment.

Significance grading: Grading of sites or artefacts according to their historical, cultural or scientific value.

Site: a spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

Site Recoding Template: Site recording form.

1. INTRODUCTION

This Heritage Impact Assessment (HIA) report has been prepared in terms of Section 38 of the National Heritage Resources Act (25 of 1999) for the proposed installation of a Dual Flue Gas Conditioning Plant at Tutuka Power Station near Standerton in Mpumalanga Province. An HIA is a precaution taken to make sure that the proposed development does not impact heritage resources that might occur in the footprint of the development.

1.1. Location and physical setting

Tutuka Power Station is situated on the high plains of southern Mpumalanga province 20km northeast of the town of Standerton (Lat: 26°46'34.84"S, Long: 29°21'10.39"E). Standerton is of important geographical reference. It is situated on the eastern Highveld, the eastern part of the plateau which is flanked by the Drakensberg mountain range. The area is characterised by rolling plains covered with Savanna grass. Woodland cover tends to be confined to sheltered river valleys. The rolling plains are host to large reserves which have been exploited to supply power stations in the province including Tutuka.

Figure 1: Google Earth map shows the location of Tutuka Power Station northeast of the town of Standerton

Figure 2: Close – up Google Earth overview of the power station shows the location of the two sites proposed for the Flue Gas Cleaning Plant

2. NATURE OF PROPOSED DEVELOPMENT

Preferred Option (Option 1)

The aim of installing DFGC plants is to reduce the Particulate Emissions at the power station by increasing the existing Electrostatic Precipitator (ESP) efficiency. It has been established through physical testing that the injection of SO_3 will reduce particulate emissions by 23%. Flue gas is produced during various combustion processes and can contain different dust particles, oil vapours and acid vapours, carbon monoxide as well as other toxic substances. Given the environmental contamination arising from gas emissions, Eskom intends to install DFGC plana t at Tutuka Power Station. The goal of flue gas conditioning is to enhance these properties via injecting SO_3 or NH into the flue gas stream. There will be storage of hazardous materials on-site, including SO_3 and NH_3. The volume of hazardous materials stored to be injected into the DFGC will be approximately 254^3 at any given time during the operation of the DFGC plants.

Two areas have been identified suitably located near the boilers and tubing that transport the flue gas (Site 1: 26°46'38.60"S, 29°21'1.50"E; Site 2: 26°46'35.10"S 29°20'59.40"E). A similar emission cleaning plant has been installed on the east side of the power station (Figure 3).

Figure 3: A flue gas cleaning plant installed on the eastern flank of the power station

3. LEGAL FRAMEWORK

A Heritage Impact Assessment is governed by the NHRA and of particular relevant application are Sections 38, 34, 35, and 36. In this instance, it is necessary to provide details of the legal provisions.

3.1. Heritage Impact Assessment

Section 38 of the NHRA specifies the nature and scale of development projects which require a Heritage Impact Assessment as mitigation:

38. (1) Subject to the provisions of subsections (7), (8), and (9), any person who intends to undertake a development categorised as—

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site—

*(i) exceeding 5 000m² in extent**; or***

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000 m2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

An impact assessment is necessary given the distance threshold set in Section 38(1)(a).

3.2. Protection of Historic Buildings

Section 34 of the NHRA provides for automatic provisional protection of all structures/buildings and features older than 60 years unless proof can be furnished that they do not carry heritage value.

3.3. Protection of Archaeological and Palaeontological Sites

Section 35 (4) of the NHRA prohibits the destruction of archaeological, palaeontological and meteorite sites. A palaeontological desktop survey was undertaken and a report is appended to this heritage report.

3.4. Protection of Graves and Burial Grounds

Section 36 of the NHRA gives priority to the protection of Graves and Burial Grounds of victims of conflict and graves and burial grounds more than 60 years old. Within this frame cautious approaches are considered including managed exhumations and re-interment to pave way for development.
Graves are generally classified under the following categories:

- Graves younger than 60 years;
- Graves older than 60 years, but younger than 100 years;
- Graves older than 100 years;
- Graves of victims of conflict;
- Graves of individuals of royal descent; and
- Graves that have been specified as important by the Ministers of Arts and Culture.

This study is however mindful of public sensibilities about the sanctity of graves and burial grounds whether they are protected by the law or not.

The **World Archaeological Congress (WAC**) has set international ethical standards for the treatment of human remains. In 1989 the WAC Inter-Congress in South Dakota (USA) adopted the **Vermillion Accord on Human Remains**. Accordingly, respect for the mortal remains of the dead shall be accorded to all, irrespective of origin, race, religion, nationality, custom and tradition.

3.5. The National Environmental Management Act (No 107 / 1999)

This act states that a survey and evaluation of cultural resources must be done in areas where development projects that will affect the environment will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made. Environmental management is a much broader undertaking to cater to cultural and social needs of people. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

3.6. The Burra Charter on Conservation of Places of Cultural Significance

Some generic principles and standards for the protection of heritage resources in South Africa are drawn from international charters and conventions. In particular, South Africa has adopted the **Australia Charter for the Conservation of Places of Cultural Significance (the Burra Charter 1999)** as a benchmark best practice in heritage management.

4. APPROACH AND METHODOLOGY

International best practice in archaeology and heritage management underpins our theoretical approach and methodology. The following tasks define the streams of work that were undertaken:

4.1. Literature Study

A desktop study means a search for relevant literature to provide a preliminary understanding of a subject or situation, identify potential risks and inform the detail, scope and methodology of subsequent investigations. To build context a variety of data is needed, including physical and human geography, as well as archaeology and history. The documentary analysis encompassed a wide range of sources including books, reports, articles, and previous impact assessments in the broader area. The internet is an important portal for accessing reports of previous research in the broader area. In particular heritage impact assessment reports are

published on the SAHRIS platform managed by the South African Resources Agency (SAHRA). An outline of the cultural sequence in South Africa based on available literature provided context for the identification of heritage resources in the study area.

Van Der Walt, J. 2015. *Archaeological Impact Assessment for the Proposed Establishment of the Proposed solar PV Facility at Tutuka, Mpumalanga Province.*
The study was undertaken on Portions 4, 11, 12 of the Farm Pretorius Vley 374 IS on the south side of Tutuka Power Station. The area had been under cultivation for some time. No archaeological sites or relics were found (page 24).

Schalkwyk, J. A. 2012. *Heritage Impact Assessment for the Proposed Continuation of Tutuka Ash Disposal Facilities, Mpumalanga province.*
No sites or objects of archaeological and historical significance were found (page 9).

4.2. Local Community Involvement

People who live in the area that will be affected by the development are important to the impact study in two respects; as people interested in and/or affected by the project, and as informants. Notices informing the public about the project and its potential impact on heritage were placed at the site as well as the same notice being published in a locally circulating newspaper.

4.3. Ground Survey

A ground survey was undertaken on 20 June 2022 to locate and document heritage elements of the receiving environment. A ground survey is a systematic procedure for the identification and documentation of archaeological, historical and heritage sites. I walked about the two sites proposed for the installation of the DFGC plant. I was also taken to the flue gas plant which was recently installed on the eastern side of the power station. See below the map of the tracklog (Figure 4).

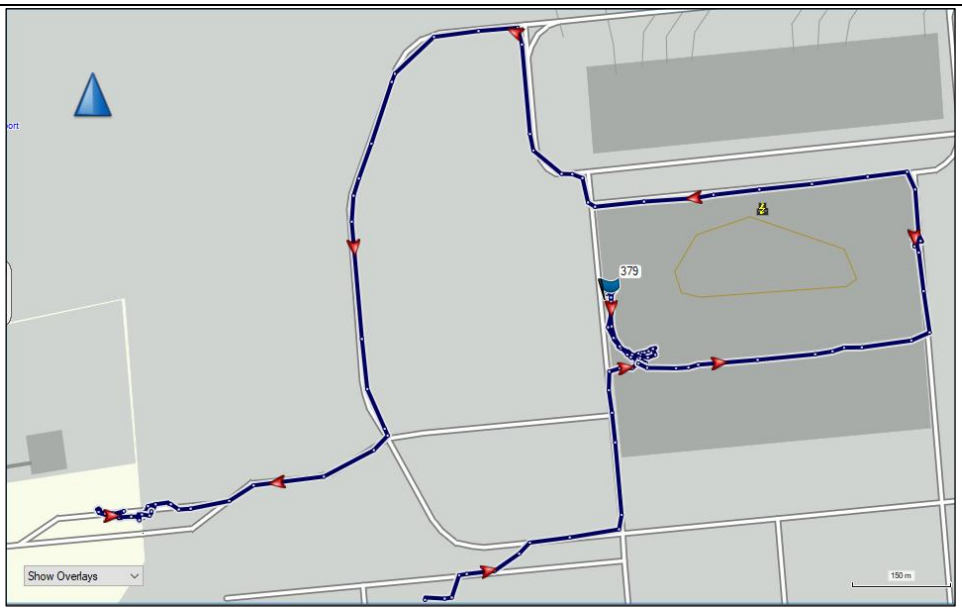


Figure 4: Map of the tracklog

4.4. Ranking of Finds

The Table below is used for ranking the significance of the findings.

GRADE	RANKING	SIGNIFICANCE	NO OF SITES
1a	National	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources	
1b		Burial Grounds and Graves. Public sensibilities about the sanctity of graves	
2	Provincial	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 2 heritage resources	
3A	Local	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 3A heritage resources	

3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources	
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources	
		TOTAL	

5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

The cultural sequence in South Africa begins with the Stone Age and spans nearly four million years. The cultural sequence has specific attributes or identifiers that we look for in an HIA such as stone tools (Stone Age) and pottery and metal implements (Iron Age).

5.1. Cultural Sequence Summary

Table 1: Cultural Sequence Summary

PERIOD	EPOCH	ASSOCIATED CULTURAL GROUPS	TYPICAL MATERIAL EXPRESSIONS
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominids: *Australopithecines* *Homo habilis* *Homo erectus*	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First *Homo sapiens* species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	*Homo sapiens* including San people	Typically small to minute stone tools such as arrowheads, points and bladelets.
Early Iron Age / Early Farmer Period c300 – 900 AD (or earlier)	Holocene	Iron Age Farmers	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Ntshekane Facies (950 to 1050 AD)	Holocene	Iron Age Farmers, the emergence of complex state systems	Typically distinct ceramics, evidence of long-distance trade and contacts
Blackburn Facies	1050 – 700AD		Defined by ceramics
Moor Park Facies	1350 – 700AD		Defined by ceramics
(ii) Historical period	Nguni / Sotho people	Iron Age Farmers	Mfecance / Difaqane
(iii) Colonial period	19th Century	European settlers / farmers / missionaries/ industrialisation	Buildings, Missions, Mines, metals, glass, ceramics

5.2. Hominids

The area around Tutuka is rich in fossils, which is the reason why we mention hominids in the cultural context of the area. South Africa's human history and heritage span more than three million years. The stage is set with the appearance of hominids in the proto-Stone Age era. Hominid sites and their fossil remains are found in limestone caves on the highveld in Gauteng, Limpopo and Northwest Provinces.[2] Hominid refers to primate species that are the immediate ancestors of man. These sites in the Sterkfontein Caves, Makapansgat, and Taung respectively have been inscribed on the UNESCO World Heritage List in a serial nomination.

5.3. The Stone Age

5.3.1. Early Stone Age [c. 2 million – 250 000 yrs BP]

The Early Stone Age marks the earliest appearance of stone artefacts about 1.4 million years ago. Such tools bore a consistent shape such as the pear-shaped handaxe, cleavers and core tools (Deacon & Deacon, 1999). These tools, which have been called Acheulian after a site in France, were probably used to butcher large animals such as elephants, rhinoceros and hippopotamus. Acheulian artefacts are usually found near sites where they were manufactured and thus close to the raw material or at butchering sites. The early hunters are classified as hominids meaning that they had not evolved to the present human form.

5.3.2. Middle Stone Age (MSA) [250 000yrs – 40 000yrs BP]

The Middle Stone Age (MSA), which appeared 200 000 years ago, is marked by the introduction of a new tool kit that included prepared cores, parallel-sided blades, and triangular points hafted to make spears. By then humans had become skillful hunters, especially of large grazers such as wildebeest, hartebeest and eland. It is also believed that by then, humans had evolved significantly to become anatomically modern. Caves were used for shelter suggesting permanent or semi-permanent settlement. Furthermore, there is archaeological evidence from some of the caves indicating that people had mastered the art of making fire. These were two remarkable steps in human cultural advancement.[3]

---

[2] Deacon, J. and N. Lancaster. 1986. *Later Quaternary Palaeo-environments of Southern Africa*. Oxford: Oxford University Press.

[3] Deacon, J & H. Deacon. 1999. *Human Beginnings in South Africa*. Cape Town: David Philip.

5.3.3. Later Stone Age (LSA) [40 000 yrs to c. 2000 yrs BP]

By the beginning of the LSA, humans are classified as *Homo sapiens* which refers to the modern physical form and thinking capabilities. Several behavioural traits are exhibited, such as rock art and purposeful burials with ornaments, which became a regular practice. The practitioners of rock art are the ancestors of the San and sites abound in the whole of Southern Africa. LSA technology is characterised by microlithic scrapers and segments made from very fine-grained rock. Spear hunting continued, but LSA people also hunted small game with bows and poisoned arrows. Because of poor preservation, open sites become of less value compared to rock shelters.

5.4. The Iron Age Culture [ca 2000 years BP]

5.4.1. Early Iron Age Culture

The Iron Age culture, which supplanted the Stone Age at least 2000 years ago, is associated with the introduction of farming and the use of several metals and pottery, with one of the oldest better-known sites at Silver Leaves southeast of Tzaneen dating to AD 270.[4]

Popular theory tends to see a rapid north-south movement of speakers of Bantu languages into eastern and southern Africa from a hypothetical source in West Africa.[5] The concept of migration itself has been vehemently questioned, since these people are indigenous to Africa. An alternative position is in favour of a gradual “expansion” or “spread” theory (rather than migration in the strict sense). Pottery classification has been used to characterize and identify archaeological traditions within the broad Iron-using culture and to further isolate geographical variations, which have been called *facies*.[6]

Metal working represented a new technology not found among the Stone Age hunters. As mixed farmers, iron-using peoples practiced agriculture and kept domestic animals such as cattle, sheep, goats, and chicken amongst others. There is however increasing evidence that sheep might have moved into the area much earlier than the Iron Age.

[4] Schalkwyk, J. 2014. Cultural Heritage Impact Assessment for the Proposed Swaziland Rail Link, Western Section, Mpumalanga Region. p13.
[5] Phillipson, D. W. 2005. *African Archaeology*. Cambridge: University of Cambridge Press. p249.
[6] Evers, T. M. 1988. *Recognition of Groups in the Iron Age of Southern Africa*. Unpublished PhD Thesis, University of Witwatersrand. Huffman 2007. *A Handbook on the Iron Age*. Scottsville: UKZN Press

According to Huffman (2007), there was two streams of Early Iron Age (EIA) expansion converging in South Africa, one originating in eastern Africa which has been called the *Urewe-Kwale Tradition* (or the eastern stream) and another from the west, spreading through Zambia and Angola, which he termed the *Kalundu Tradition* (or western stream).

5.5. The Mfecane (The Upheavals)

The Mfecane triggered migrations culminating in the establishment of the Swati Kingdom in present-day eSwatini, formerly the Kingdom of Swaziland (east of the study area). Historically the area is home to the Swati with their territory contiguous with present-day eSwatini. The path of Mzilikazi's Ndebele in their great flight from Tshaka's *impis* following the historic fallout around 1820/1821 lies in the region of Ermelo and Carolina.

5.6. European Contact Period

The Voortrekkers settled in the area in the middle of the 19th century. The town of Standerton was founded in 1878 and received municipal status in 1903. There were some skirmishes in the area during the Anglo-Boer War (1899-1902). Construction of the Tutuka Power Station commenced in 1980 and the first unit was commissioned on 1 June 1985 and the last unit on 4 June 1990. Tutuka was established on the farm, Pretorius Vley 374 IS was registered in 1875 (Van Schalkwyk 2012, p7).

6. FINDINGS OF THE SURVEY

6.1. General observations

The two sites which have been proposed for the Flue Gas Cleaning Plant lie on the foot of the giant power plant complex. Site 1 is close to one of the meg-tubes transporting the flue gas. Site 2 is located close to one of the boilers. The two sites are 120 m apart in a straight line. There is nothing that can be expected to be found in the footprint of the plant that dates before 1980 when the plant was constructed (Figures 5-7).

Figure 5: A view of Site 1 facing ESE. The space which will be utilised in front of the camera is bounded in the foreground by the flue gas transportation tube

Figure 6: Site 1, close view of conditions of the surface

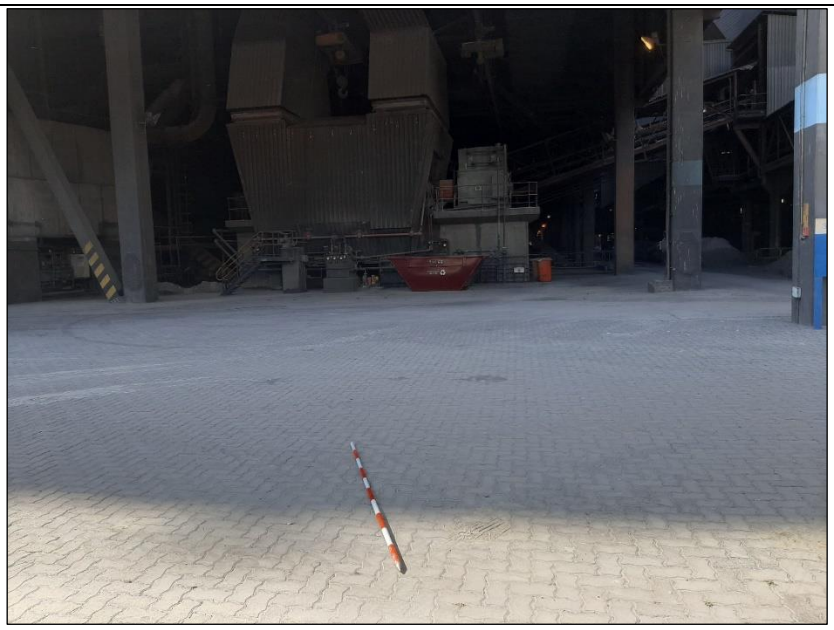


Figure 7: Site 2, the pavement is in the foreground and the boiler (blurred) in the background

6.2. Built Environment of Cultural Landscape Significance

Tutuka Power Station was commissioned in 1985. The Power Station and other associated built elements are therefore less than 60 years old, hence below the threshold of recognition in terms of the Heritage Act as industrial heritage of significance. The six cooling towers and two chimneys are iconic structures dominating the landscape and skyline. They represent coal power generating technology of the time from the late 19th century through to the late 20th century. Such an industrial landscape may be treasured in the future (Figure 7). The impact of the proposed installations on the visual character of this cultural landscape is considered to be negligible. The proposed Dual Flue Gas plant is very small in both vertical and horizontal dimensions; it is dwarfed by the power plant, and as such its impact on the existing landscape is insignificant (Figures 8-110).

Figure 8: Two of the six cooling towers viewed from Site 2

Figure 9: A view from Site 1 shows some of the structural components of the existing power station.

Figure 10: A view of the chimneys from Site 1 shows the chimney

6.3. Ranking of Sites and Risk Assessment

The ranking system is adapted from Bauman and Winter 2005.[7]

Table 3 Significance Ranking

GRADE	RANKING	SIGNIFICANCE	NO OF SITES
1a	National	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources	0
1b		Burial Grounds and Graves. Public sensibilities about the sanctity of graves	0
2	Provincial	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 2 heritage resources	0
3A	Local	Of high intrinsic, associational and contextual heritage value within a national, provincial and local	0

[7] Baumann, N. and S Winter. 2005. Guidelines for involving heritage specialists in Environmental Impact Assessment Processes. Western Cape Government.

		context, i.e. formally declared or potential Grade 3A heritage resources	
3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources	0
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources	0
		TOTAL	**0**

6.4. Assessment of Impacts using the Heritage Impact Assessment Statutory Framework

Section 38 of the NHRA

Section 38 (Subsection 3) of the NHRA also provides a schedule of tasks to be undertaken in an HIA process:

Section 38(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

(a) The identification and mapping of all heritage resources in the area affected

No archaeological or historical relics were found.

(b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7

N/A

(c) An assessment of the impact of the development on such heritage resources

N/A

(i) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development

While coal-fired power stations continue to be in use, there is growing local and international concern that they are a major cause of air and ground pollution. The introduction of modern

technology to scale down the level of pollution from power stations gives them a chance to continue to operate going into the future, while efforts are being made to turn to clean energy sources.

(e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources

Two public notices were placed at Tutuka Power Station on 20 June 2022 and a newspaper advertisement was published in a local weekly newspaper on 1 July 2022 (Figure 11). No public objections have been received.

1 July 2022 | Standerton

SPORT 7

STANDERTON ADVERTISER

CLASSIFIEDS

Booking deadline: Monday 09:00

017-712-2204 or 010-971-3301 classifiedsdtp@caxton.co.za or logang@caxton.co.za

View your classifieds advert and terms and conditions on ridgetimes.ads.caxton.co.za

0100 Home Improvement

0105 BLINDS / CURTAINS

Philri Blinds
We sell, repair & clean all makes of blinds.
Rika:
072-372-4191
rikamaurin5803@gmail.com
We have card facilities

0163 PLUMBERS

AQUA PLUMBING & HOME IMPROVEMENT
For all LPG gas installations
- All general plumbing work.
Aqua Plumbing
083-637-3706
083-232-0555

CLEAR WATER PLUMBING
"For all your plumbing needs!"
Tel: 017-712-6143
Cell: 074-928-6998
General Maintenance
New Installations
Pool Care
Water Purifying

0290 Services

0288 REMOVALS / STORAGE

Klopper Meubel Verwer
Professionele dienste, lang-en kortafstand meubelverwer. Verskillende vragmotors beskikbaar.
www.kloppermeubelverwer.co.za
E-pos: hdklopper@gmail.co.za
Skakel Conrad
082-774-6952

0500 Property for sale

0509 BUSINESS PREMISES/OFFICES/ SHOPS

VAN WYK EIENDOMME / PROPERTIES

FOR SALE
R1 060 000
Business Property
HANLIE: 083 378 9709

Property features
Smack in the middle of Standerton CBD lies this 250sqm Office space ripe with opportunity.
The layout would allow you to divide the building in two seperate Offices each with their own entrance, which could be rented for an extra income.

0900 Legals

NOTICE TO CREDITORS AND DEBTORS IN TERMS OF SECTION 29(1) OF THE ADMINISTRATION OF ESTATES ACT, NO 66 OF 1956

In the Estate of the Late: Mafika Hlase
Identity number: 6005095635085
a major male person residing at :
25 Brits Street, Meyerville, Standerton, 2430,
who passed away on 09 March 2019
Estate number: 14578/2021

Creditors and Debtors are hereby requested to lodge their claims and pay their debts within a period of 30 (thirty) days from date of publication of this notice.

Signed by René van der Merwe
Nel, van der Merwe &
van der Wath Attorneys Inc
t/a Langevelдt & Nel Attorneys
16 Mbonani Mayisela Street
Standerton
Tel: 017-712-5311
E-mail: proki@langeveldt.co.za
Reference: 1034

Place your legal notice in your local newspaper.
017-712-2204
010-971-3301
logang@caxton.co.za

NOTICE TO CREDITORS IN DECEASED ESTATES

All persons having claims against the under-mentioned estate must lodge it with Executor/Agent concerned within 30 days from the date of publication hereof.

Estate No: 007914/2021
Master's Office: Nelspruit.
Surname: Mothe
Names: Wille Lindiwe
Date of birth: 1959-05-15
ID No: 590515 5864 08 0
Last address: 2000 Dladla Sakhile, Standerton
Date of death: 2021-07-05
Lodgement period: 30 days
Advertiser and Address:
Matthew Buti Dlamini Attorneys: 1 Sc Mbonani Mayisela Street Standerton 2430.

Tel: 017-712-3342 Fax: 017-712-1525

LIQUIDATION AND DISTRIBUTION ACCOUNTS IN DECEASED ESTATES LYING FOR INSPECTION

In the Estate of the late:
Surname: Hogan
First name: Marie Elizabeth
Estate number: 003536/2021
Identity / passport number: 4301160018089
Date of death: 13/04/2021
Last address: 9 Ivan Street, Meyerville, Standerton.

The first and final Liquidation and Distribution Account in this estate will be open for inspection for a period of 21 days from 1 July 2022 at the office of the Master of the High Court Nelspruit and the Magistrate's Office, Standerton.
Name and address of Authorised Agent: Samuel Pieter van Niekerk, PO Box 39, Standerton, 2430.

Billing Details:
Advertiser Name: Van Heerden Schoeman
Advertiser Address: PO Box 39, Standerton, 2430.
Advertiser e-mail: rboer@vhslaw.co.za
Advertiser telephone: 017-712-5211
Reference: SP Van Niekerk/hs

Eskom

NOTICE OF BASIC ASSESSMENT PROCESS AND HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED INSTALLATION OF THE DUAL FLUE GAS CONDITIONING AT THE TUTUKA POWER STATION IN MPUMALANGA

Eskom Holdings SOC Ltd (Eskom), intends to implement various emission reduction strategies at their Tutuka Power Station (PS) in order to meet current and future emission licence requirements. One of the strategies proposed is to install storage tanks for Dual Flue Gas Conditioning (DFGC) which utilises sulphur trioxide and Ammonia injection into their six units. Tutuka PS is in the Lekwa Local Municipality, which falls under the Gert Sibande District Municipality, Mpumalanga province.

This project requires a Basic Assessment process in terms of the National Environmental Management Act, Act No. 107 of 1998 (NEMA) read in conjunction with Chapter 4 of the EIA Regulations 2014 as amended.

Green Gold Group (Pty) Ltd has been appointed as an independent Environmental Assessment Practitioner (EAP) to undertake the Basic Assessment process. The application will be submitted to the competent authority according to Regulation 21 to 24 of the EIA Regulations of 2014, as amended and is deemed substantive as it triggers the listed activity stated below:

GNR 327: Listing Notice 1	
Activity 14	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.

This notice is also published in terms of Section 38(8) of the National Heritage Resources Act (NHRA) (No 25 of 1999). Since the footprint of the proposed project will be about 300 m², a Heritage Impact Assessment study will be conducted.

The public is invited to express their interest and participate in the Public Participation Process (PPP). Kindly register and raise any concerns or interest on the proposed development before **01 August 2022.**

In order to register or obtain further information, please contact Matome Davhana of Green Gold Group, EIAs at P.O. Box 65384, Erasmusrand, 0165, Pretoria. Tel: 012 844 0248
Email: EIAs@greengoldgroup.co.za

Eskom

[SAZISO MAYELANA NOCWANINGO LWEZEMVELO NGAMAFUPHI | ENVIRONMENTAL (EIA) KANYE NOCWANINGO LOKUBHEKA UKUTHONTEKA KWEZAMAGUGU PHECELEZI | HERITAGE LOKHU KULANDELA ISIPHAKAMISO SIKA ESKOM SOKUFAKA UHLELO LWE DUAL FLUE GAS CONDITIONING ESITESHINI SIKAGES | TUTUKA POWER STATION IN MPUMALANGA

[Inhlangano ka geti u Eskom Holdings SOC Ltd (Eskom), uhlongoza ukwenza izithintelo kwiziphethi zalahe zika geti ukuvikela ukuvukuvuneka kumoya nokuvikela imvelo kwizipheth i zase Tutuka Power Station,ukuze kukwazi ukuhlonela imigomo ekhikhwe kwilayisensi yaba yamanje ukuyophamba[. Ngokhuke kuhlongoza ukufaka uthelo olusha olubizwa Dual Flue Gas Conditioning (DFGC) olunzelela amakhemikhali e-SO3 kanye ne-Ammonia kwizipheth i zaba eziziziwa ngamayunithi ayisithupha. iTutuka Ingaphandi kwe Lekwa Local Municipality, engena ngaphansi kumhlanelu omkhulu wase Gert Sibande District Municipality, Mpumalanga province.

Lolukhetho lokuhlongozwayo ludinga kwenziwe ucwaningo lwezemvelo olubizwa nge (EIA) Basic Assessment ngokwezomthetho wokuvikelwa kwezemvelo obizwa nge National Environmental Management Act, Act No. 107 of 1998 (NEMA) ufundwa kanye na Chapter 4 of the EIA Regulations 2014 eyadlulisiwe.

U-Eskom usqoshe u-Green Gold Group (Pty) Ltd ukuyinkampani yezemvelo ezimele ukuze yenze kunoxebeziwe we EIA. Lesisicelo sizahunjiswa ennyanganeni ubheke ezemvelo ngaphansi kwe Gert Sibande District ngakulandela imithetho eguyazayo ebizwa nga Regulation 21 to 24 of the EIA Regulations of 2014, ngoba lokho okuhlongozwayo kungena ngaphansi kwezinto ezithinta imvelo ezibhalwe ngezansi:

GNR 327: Listing Notice 1	
Activity 14	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres. Ukwakhiwa kwesizinda esiphatha izinto ezinobungozi,futhi beyonto inosayizi onukhulu kune 80 cubic wamamitha kodwa angaqukethi ku 500 cubic wamamitha.

Lesisimemezelo ke sifakwe ngokomthetho wezamaguga u section 38 (8) we National Heritage Resources Act (NHRA) (No 25 of 1999), njengoba usayiza wendawo ingaphezulu kuka 300m² wama mitha kusho ukuthi kumele kwenziwe ucwaningo lwezamaguga olubizwa nge Heritage Impact Assessment study.

Njengoba sikwenzi khobelelo nelithintekayo (I&AP), umenyiwe ukuthi uveze intshisekelo futhi ubambe iqhaza kwinqubo yokubamba iqhaza komphakathi (e-PPP),kumele uphawule angakushoyi e **01 August 2022.**
Ukuze uthole ulwazi olwengeziwe, siyala uthinte uMatome Davhana of Green Gold Group, EIAs at P.O. Box 65384, Erasmusrand, 0165, Pretoria. Tel: 012 844 0248 Email: EIAs@greengoldgroup.co.za

Figure 11: Tear-sheet from the local newspaper

(f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives

N/A

(g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.

In the event of the discovery of other heritage resources during site preparation and construction, the Provincial Heritage Resources Authority or SAHRA will be informed immediately and an archaeologist or heritage expert called to attend.

6.5. Risk Assessment of the Findings

Table 2: Risk assessment of findings

EVALUATION CRITERIA	RISK ASSESSMENT
Description of the potential impact	Negative impacts range from partial to total destruction of surface and under-surface movable/immovable remnants.
Nature of Impact	Negative impacts can both be direct or indirect.
Legal Requirements	Sections 34, 35, 36, 38 of **NHRA**
Stage/Phase	Foundation excavations
Extent of Impact	Excavations will result in the damage or destruction of heritage resources if they exist.
Duration of Impact	Any accidental destruction of surface or subsurface relics is not reversible, but can be mitigated.
Intensity	Uncertain.
Probability of occurrence	Low.
Confidence of assessment	High.
Level of significance of impacts before mitigation	Medium.
Mitigation measures	If archaeological or other heritage relics are found during the construction phase, heritage authorities will be advised immediately and a heritage specialist will be called to attend. This is a standard precaution given the inherent limitations of archaeological fieldwork.
Level of significance of impacts after mitigation	Low.

Cumulative Impacts	None.
Comments or Discussion	None.

7. RECOMMENDATIONS AND CONCLUSION

The project must be given a green light to go ahead given the absence of cultural material and the low impact of the proposed installations on the visual character of the landscape. As a standard precaution, in the event of other heritage resources being discovered in future phases of the project, the Provincial Heritage Resources Authority or SAHRA must be alerted immediately and an archaeologist or heritage expert called to attend.

8. REFERENCES

Baumann, N. and S Winter. 2005. Guidelines for involving heritage specialists in Environmental Impact Assessment Processes. Western Cape Government.

Deacon, H.J. & Deacon, J. 1999. Human Beginnings in South Africa. Cape Town: David Philip.

Evers, T. M. 1988. *Recognition of Groups in the Iron Age of Southern Africa*. Unpublished Ph.D. Thesis, University of Witwatersrand.

Huffman, T. N. 2007. *A Handbook on the Iron Age*: *The Archaeology of Precolonial Farming Societies in Southern Africa.:* Scottsville: UKZN Press

Matenga, E. 2020. Heritage Impact Assessment for the Proposed Improvements to the Existing Waste Reticulation system at Camden Power Station in Ermelo, Mpumalanga Province

Phillipson, D. W. 2005. *African Archaeology*. Cambridge: University of Cambridge Press: 249.

Van Der Walt, J. 2015. Archaeological Impact Assessment for the Proposed Establishment of the Proposed solar PV Facility at Tutuka, Mpumalanga Province.

Van Schalkwyk, J. A. 2012. Heritage Impact Assessment for the Proposed Continuation of Tutuka Ash Disposal Facilities, Mpumalanga province

The National Heritage Resource Act (25 of 1999).

ICOMOS Australia Charter for the Conservation of Places of Cultural Significance (the Burra Charter 1999.

The WAC Vermillion Accord (USA Dakota) 1989.

9. DETAILS OF SPECIALIST

(i) Personal details

Surname	:	Matenga
First names	:	Edward
Position	:	Director & Principal Researcher, AHSA Archaeological and Heritage Services Africa (Pty) Ltd, Centurion, Pretoria
Cell	:	073 981 0637
E-mail	:	e.matenga598@gmail.com

(ii) Academic qualifications

1990 - 1993: MPhil in Archaeology (Uppsala University, Sweden) with a published Thesis
2009 – 2011: Ph.D. in Archaeology & Heritage (Uppsala University, Sweden) with a published Thesis
2002: Certificate in the Integrated Conservation of Territories and Landscapes of Heritage Value (ICCROM, Rome)

(iii) Professional experience

1988-1993: Curator of Archaeology, Museum of Human Sciences, Harare
1994-1997: Senior Curator / Conservator, Great Zimbabwe World Heritage Site
1997-2004: Director, Great Zimbabwe World Heritage Site
2005 – 2016: Heritage Management Consultant (associateship with various other specialists), South Africa
2016 – present. Director & Principal Researcher, AHSA Archaeological and Heritage Services Africa (Pty) Ltd

iv) **Membership in professional bodies/associations**

ASAPA – Association of Southern African Professional Archaeologists
ICOMOS – International Council of Monuments and Sites
WAC – World Archaeological Congress

(iv) Heritage Impact Assessments &

Edward Matenga has undertaken more than 100 heritage impact assessments and written as many reports. He has a footprint in the Northern Cape and Limpopo Provinces. Matenga has

also been involved in the preparation of Heritage Management Plans for sites otherwise known as Conservation Management Plans. He has undertaken exhumations and relocations and has gained considerable experience in handling community issues relating to the treatment of human remains. Over the last 2 decades UNESCO and its affiliated bodies (ICOMOS and ICCROM) sent Matenga on World Heritage advisory missions to Cameroon (2002), Kenya (2006), Mauritius (2007), Ghana (2008) and Ethiopia (2010).