

# **Heritage Impact Assessment**

Heritage Impact Assessment for the Proposed Installation of Four Underground Tanks on Erf 854 in Thohoyandou-P Ext 1, Thulamela Local Municipality, Limpopo Province.

**Compiled for:**  
Tekplan Environmental

**Survey conducted & Report compiled by:**  
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# Executive Summary

**Site name and location:** Proposed installation of four x 46 000 litre underground tanks on Erf 854, Thohoyandou-P Ext 1 Thulamela Local Municipality, Limpopo Province.

**Local Authority:** Thulamela Local Municipality.

**Developer:** Autumn Property Investments 10 CC.

**Date of field work:** 25 May 2016.

**Date of report:** 27 June 2016.

**Findings:** Hutten Heritage Consultants was contracted by Tekplan Environmental to conduct a Heritage Impact Assessment (HIA) for the proposed installation of four x 46 000 litre underground tanks on Erf 854, Thohoyandou-P Ext 1 Thulamela Local Municipality, Limpopo Province.

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. This component indicated that the landscape within which the project area is located has a rich and diverse history. However, the desktop study did not reveal any historic or heritage sites from within the specific locations of the study area.

The Sahrís Palaeontological Sensitivity Map was also consulted and it was found that the palaeontological sensitivity for the study area was moderate and that a Palaeontological Impact Assessment is required.

Prof. Bruce Rubidge completed a desktop palaeontological study for the study area. He concluded that the entire study area is deeply underlain by Precambrian basaltic rocks of the Sibasa Formation of the Soutpansberg Group. There is no possibility that the basalts of the Sibasa Formation could contain fossils. He is also of the opinion that this development will not negatively affect palaeontological heritage.

He recommended that, from a palaeontological perspective, the proposed development should proceed. Should fossils be uncovered in superficial soil deposits during the course of construction activities, the developer must immediately contact a qualified palaeontologist to assess the situation and, if necessary, undertake excavation of the fossils.

The desktop studies were followed by a fieldwork component which comprised an inspection of the study area.

As for the proposed site, no site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area.

The proposed underground tank development on Erf 854, Thohoyandou-P Ext 1 Thulamela Local Municipality, can continue from a heritage point of view.

**Disclaimer:** *Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites and/or graves could be overlooked during the study. Hutten Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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## **1. Introduction**

Hutten Heritage Consultants was contracted by Tekplan Environmental to conduct a Heritage Impact Assessment (HIA) for the proposed installation of four x 46 000 litre underground tanks on Erf 854, Thohoyandou-P Ext 1 Thulamela Local Municipality, Limpopo Province.

The aim of the study was to identify all heritage sites, to document and to assess their significance within Local, Provincial and National context. The report outlines the approach and methodology implemented before and during the survey, which includes in Phase 1: Information collection from various sources and social consultations; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.

This HIA forms part of the Environmental Impact Assessment (EIA) as required by various Acts and Laws as described under the next heading and is intended for submission to the provincial South African Heritage Resources Agency (SAHRA) for peer review.

Minimum standards for reports, site documentation and descriptions are set by the Association of Southern African Professional Archaeologists (ASAPA) in collaboration with SAHRA. ASAPA is a legal body representing professional archaeology in the Southern African Development Community (SADC) region.

The extent of the proposed development site was determined as well as the extent of the areas to be affected by secondary activities (access routes, construction camps, etc.) during the development.

## **2. Legislative Requirements**

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

National Environmental Management Act (NEMA) Act 107 of 1998  
National Heritage Resources Act (NHRA) Act 25 of 1999  
Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002  
Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

National Environmental Management Act (NEMA) Act 107 of 1998  
Basic Environmental Assessment (BEA) – Section (23)(2)(d)

Environmental Scoping Report (ESR) – Section (29)(1)(d)  
Environmental Impacts Assessment (EIA) – Section (32)(2)(d)  
Environmental Management Plan (EMP) – Section (34)(b)  
National Heritage Resources Act (NHRA) Act 25 of 1999  
Protection of Heritage resources – Sections 34 to 36; and  
Heritage Resources Management – Section 38  
Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002  
Section 39(3)  
Development Facilitation Act (DFA) Act 67 of 1995  
The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

### **3. Project Area Description**

The proposed development will be situated on Erf 854 (figures 1 & 2), Thohoyandou-P Ext 1, adjacent and on the western side of the main road (R523) in the Thohoyandou CBD (figure 3), opposite the Game Shopping Centre. The proposed area measures approximately 2 hectares in size and will host 4 x 46 000 litre tanks for petroleum for a proposed service station.

A residential house is neighbouring the site to the north and a medical clinic (figure 4) is neighbouring the site to the south. A line of fruit trees (figure 5) and a residential road is situated on the western side of the site.

The site is flat and was previously occupied with residential homes which were demolished and cleared for the new proposed development. Some of the rubble can still be seen on the site (figure 6).

The proposed development will be situated on the Thohoyandou 2230 CD 1:50 000 topographical map.





Figure 1: General view of the study area from the south.



Figure 2: General view of the study area from the north.



Figure 3: View of the R523 road to the east of the study area.



Figure 4: View of the neighbouring medical clinic to the south of the study area.



Figure 5: View of the line of fruit trees on the western boundary of the study area.



Figure 6: View of some of the rubble left on site after demolition of the buildings.

# Thohoyandou Erf 854 Proposed Underground Tank Development

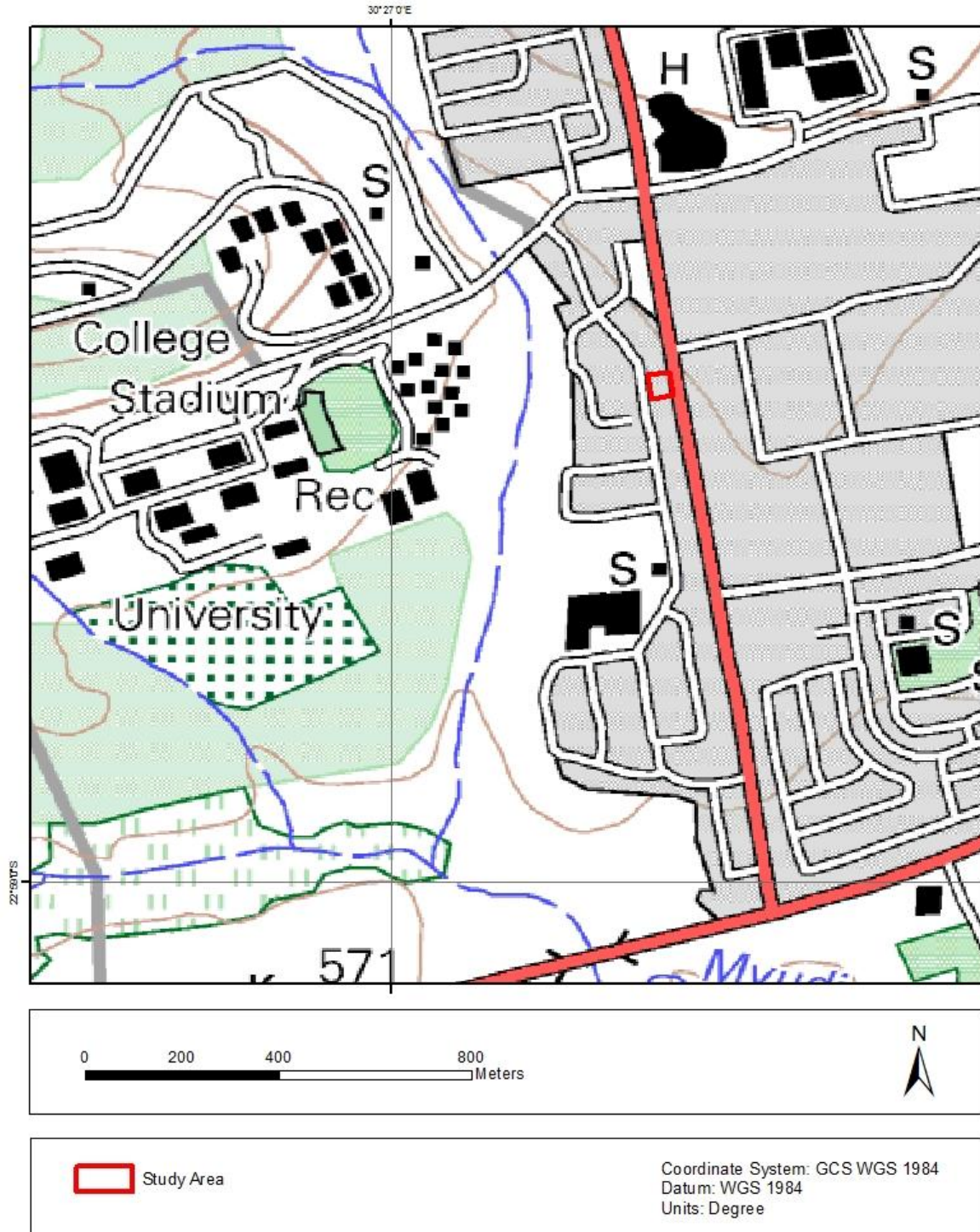


Figure 7: General topographical map of the proposed study area.

# Thohoyandou Erf 854 Proposed Underground Tank Development

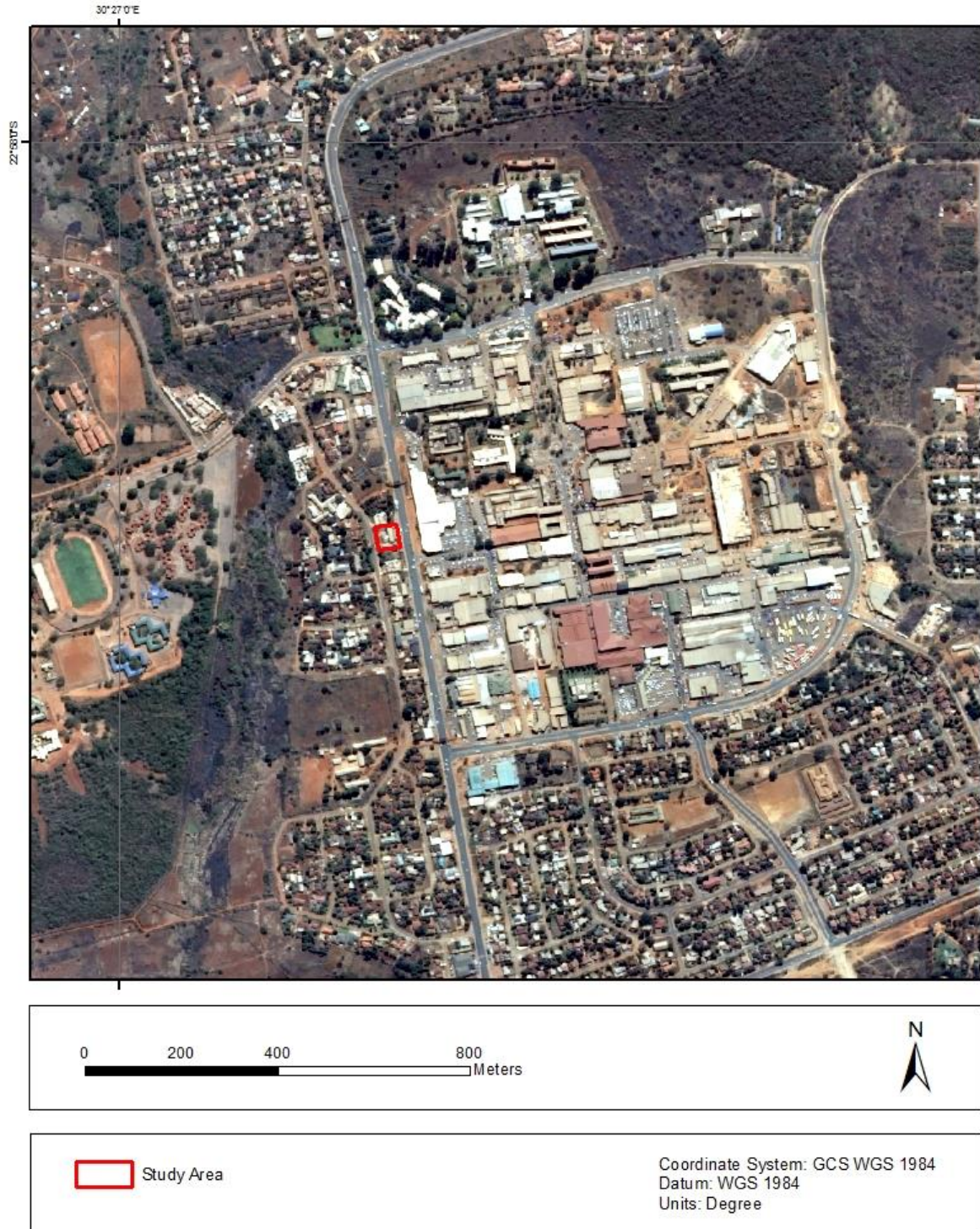


Figure 8: Satellite image of the proposed study area.

## Thohoyandou Erf 854 Proposed Underground Tank Development



Figure 9: Close up satellite image of the proposed study area.

## **4. Proposed Project**

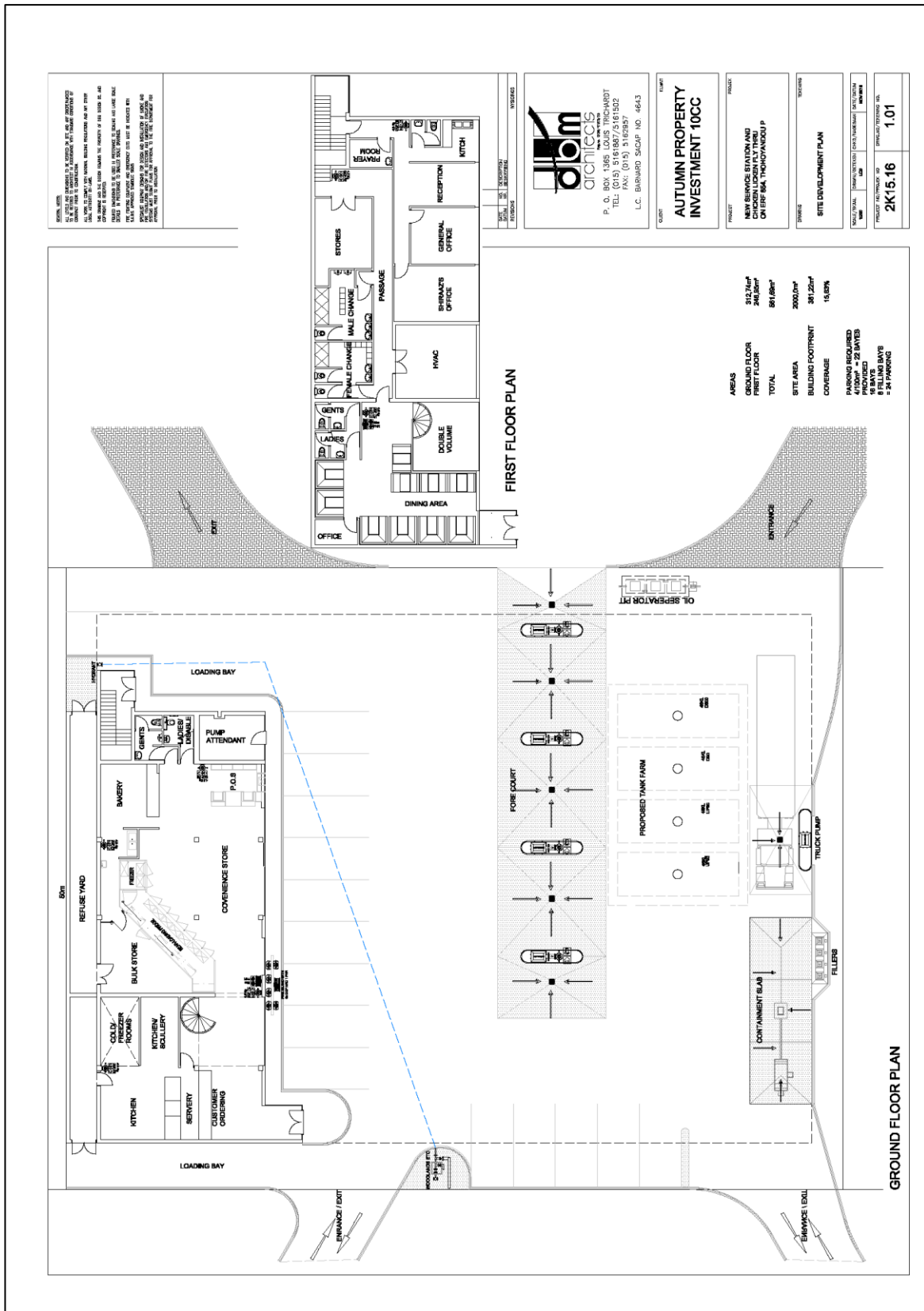
The developer, Autumn Property Investments 10 CC, has proposed the installation of four x 46 000 litre underground tanks on Erf 854, Thohoyandou-P Ext 1 Thulamela Local Municipality, Limpopo Province.

The proposed development entails the installation of 4 x 46 000 litre underground tanks for the storage and handling of a dangerous good (petroleum) to be used for retail purposes.

The proposed site for the installation of the underground tanks measures approximately 2 hectares in size. The proposed development will cover most of the area within the study area (see figure 10: development layout plan).

The purpose of the study was to determine if the proposed area was suitable for the student residences development from a heritage point of view.

The project was tabled during March 2016 and the developer intends to commence as soon as possible after receipt of the ROD from the Department of Environmental Affairs.



## 5. Desktop Study Findings

The examination of heritage databases, historical data and cartographic resources represents a critical additional tool for locating and identifying heritage resources and in determining the historical and cultural context of the study area. Therefore an internet literature search was conducted and relevant archaeological and historical texts were also consulted. Relevant topographic maps and satellite imagery were studied.

### 5.1. Previous Heritage Studies

Researching the SAHRA APM Report Mapping Project records and the SAHRIS online database (<http://www.sahra.org.za/sahris>), it was determined that a number of previous archaeological or historical studies had been performed within the wider vicinity of the study area.

Previous studies listed for the area in the APM Report Mapping Project included the following listed in chronological order:

Roodt, H. 1999. **Phase 1 Archaeological Impact Assessment Vodacom Mast Mckechnie, Giyani Northern Province.** An unpublished report by R & R Cultural Resource Consultants on file at SAHRA as 1999-SAHRA-0069.

Van Schalkwyk, J.A. 2001a. **Archaeological Investigation of Iron Smelting Site Mut 41, in the Nandoni Dam, Thohoyandou District, Northern Province.** An unpublished report by the National Cultural History Museum on file at SAHRA as 2001-SAHRA-0006.

Van Schalkwyk, J.A. 2001b. **A Survey of Cultural Resources in Two Relocation Areas of Nandoni Dam Thohoyandou, Northern Province.** An unpublished report by the National Cultural History Museum on file at SAHRA as 2001-SAHRA-0107.

Van Schalkwyk, J.A. 2001c. **A Survey of Cultural Resources in Three Areas of Nandoni Dam, Thohoyandou, Northern Province.** An unpublished report by the National Cultural History Museum on file at SAHRA as 2001-SAHRA-0040.

Hutten, M. 2001. **Proposed Development of a Cellular Base Station at the Village of Dzwerani.** An unpublished report by Marko Hutten on file at SAHRA as 2001-SAHRA-0110.

Van Schalkwyk, J.A. 2005a. **Heritage Impact Assessment: Mukumbane Area.** An unpublished report by the National Cultural History Museum on file at SAHRA as 2005-SAHRA-0258.



Van Schalkwyk, J.A. 2005b. **Heritage Impact Assessment: Phiphidi Waterfall.** An unpublished report by the National Cultural History Museum on file at SAHRA as 2005-SAHRA-0266.

Murimbika, M. 2006a. **Archaeological Impact Assessment Study for the Proposed Construction of Electricity Distribution Powerlines, Limpopo Province.** An unpublished report by Nzumbululo Heritage Solutions on file at SAHRA as 2006-SAHRA-0400.

Murimbika, M. 2006b. **Archaeological Impact Assessment Study for the Proposed Construction of Electricity Distribution Powerlines Within, Limpopo Province.** An unpublished report by Nzumbululo Heritage Solutions on file at SAHRA as 2006-SAHRA-0443.

Murimbika, M. 2008a. **Cultural and Archaeological Heritage Assessment Specialist Study for the Proposed Construction of 1.49 km of 16 kV at Tshintungulwane/Murzia Fera Village in Vhembe District, Limpopo Province.** An unpublished report by Nzumbululo Heritage Solutions on file at SAHRA as 2008-SAHRA-0494.

Murimbika, M. 2008b. **Phase 1 Cultural and Archaeological Heritage Impact Assessment Specialist Study for the Proposed Township Establishment at Malamulele in the Thulamela Local Municipality of Vhembe District, Limpopo Province.** An unpublished report by Nzumbululo Heritage Solutions on file at SAHRA as 2008-SAHRA-0501.

Researching the SAHRIS online database (<http://www.sahra.org.za/sahris>) accessed 26<sup>th</sup> May 2015) further studies were identified in the wider vicinity of the study area:

SAHRIS case number 605. 2012. **Draft Basic Assessment Report For the Construction of a 35km 132 KV Powerline from Mbahe Substation to Mhinga Substation in Thohoyandou, within the Thulamela Local Municipality of the Limpopo Province, South Africa.**

SAHRIS case number 1309. 2012, **Proposed 676.44m 22kV powerline on Mpapuli 278 MT, Thulamela Municipality, Limpopo.**

SAHRIS case number 1794. 2013. **Proposed establishment of a residential housing project on the farm Mpapuli 278 MT - situated in the Thulamela Local Municipality area, Limpompo [sic] Province.**

SAHRIS case number 2262. 2011. **Consultation in terms of Section 40 of the Mineral and Petroleum Resources Deevlopment [sic] Act 2002, (act 28 of 2002) for the approval of an Environmental Management Plan for mining permit in respect of the farm Kirsten 212 LT, situated in the Magisterial District of Malamulele, Limpompo region [sic].**

**SAHRIS case number 7416. 2015. Construction of the 387.82m power line to supply private business of Mrs G Matodzi. The power line will be constructed in the already disturbed area in the farm Mpapuli 278MT.**

Some of the studies listed above located a number of heritage sites of various categories whereas most did not locate any heritage sites or artefacts (e.g. Hutten 2001; Van Schalkwyk 2005a; Van Schalkwyk 2005b; Murimbika 2006a; Murimbika 2006b; Murimbika 2008a; Murumbika 2008b; SAHRIS case number 1309; SAHRIS case number 2262) although some studies noted that there were cultural practices associated with the development site, for example at the Phiphidi waterfall some 10 km to the north west of the current study area (Van Schalkwyk 2005b) and some noted the presence of recent abandoned homesteads and graves (e.g. SAHRIS case number 605; SAHRIS case number 1794). Some studies had no relevant heritage reports attached (e.g. SAHRIS case number 7416) and one report accessed was incomplete (Van Schalkwyk 2001c).

Approximately 25 km to the south east Roodt (1999) found a significant hilltop site characterised by stone walling, hut floors, tuyere fragments, slag and ceramics from the Letaba tradition, known to have been made by Venda people from the 16<sup>th</sup> Century onwards. Some 20 km to the south east where the Nandoni Dam on the Luvuvhu River is today, Van Schalkwyk documented important metal working sites including furnaces (Van Schalkwyk 2001a). Surveying relocation areas for the Nandoni Dam project some 10 km to the east of the current study area Van Schalkwyk (2001b) found a number of Iron Age sites and recommended that the developers totally avoid an old chief's kraal, or "Musanda".

## **5.2. Archaeological & Historical Sequence**

The historical background and timeframe of the study area and other areas in Southern Africa can be divided into the Stone Age, Iron Age and Historical period. These can be divided as follows:

### **Stone Age sites**

The Stone Age is divided into the Early; Middle and Late Stone Age. The *Early Stone Age* (ESA) includes the period from 2.5 million years B.P. to 250 000 years B.P. and is associated with Australopithecines and early *Homo* species who practiced stone tool industries such as the Oldowan and Acheullian. The *Middle Stone Age* (MSA) covers various tool industries, for example the Howiesons Poort industry, in the period from 250 000 years B.P. to 25 000 years B.P. and is associated with archaic and modern *Homo sapiens*. The *Late Stone Age* (LSA) incorporates the period from 25 000 years B.P. up to the Iron Age and Historical Periods and contact between hunter-gatherers and Iron Age farmers or European colonists. This period is associated with modern humans and characterised by lithic tool industries such as Smithfield and Robberg.

To the south west of the study area excavations at several well known sites in the region attest to ESA occupation in the region, for example at Makapansgat which provided evidence of long occupation, initially by *Australopithecus africanus* from approximately 3.3 million years B.P. (Bergh 1999). Both ESA and MSA sites are known from the Limpopo Valley as well as lithic industries that appear to be transitional between the two ages and with dates estimated at 300,000 years ago (Kuman et al. 2005). The presence of numerous rock art sites with associated stone tool assemblages in the Limpopo River basin, Blouberg, Makgabeng, Waterberg and Soutpansberg attests to the presence of Late Stone Age San/Bushman communities across the region (e.g. Pager, 1973; Eastwood et al., 2002). The Central Limpopo Basin, including the Soutpansberg, Limpopo Valley, the Blouberg-Makgabeng area and the Pafuri area, has over 700 documented rock art sites and is one of the few regions where paintings and engravings occur, sometimes at the same site (Eastwood and Hanisch 2003).

### **Iron Age**

The Iron Age incorporates the arrival and settlement of Bantu speaking people and overlaps the Pre-Historic and Historical Periods. It can be divided into three phases. The *Early Iron Age* includes the majority of the first millennium A.D. and is characterised by traditions such as Happy Rest and Silver Leaves. The *Middle Iron Age* spans the 10<sup>th</sup> to the 13<sup>th</sup> Centuries A.D. and includes such well known cultures as those at K2 and Mapungubwe. The *Late Iron Age* is taken to stretch from the 14<sup>th</sup> Century up to the colonial period and includes traditions such as Icon and Letaba.

The Early Iron Age in the wider area is significantly represented by the site at Silver Leaves some one hundred kilometres to the south west which has provided the oldest evidence for grain cultivation in southern Africa and represents the earliest phase of the Kwale Branch in South Africa (Klapwijk & Huffman 1996). In an excavation of the Mut2/2 site now covered by the Nandoni Dam the ceramic assemblage recovered and analysed showed significant correlations in style and decoration with ceramics from other Early Iron Age sites in the region such as Happy Rest and Klein Afrika (Archaeo-Info 2000). Despite its aridity and infertility, the Lowveld region also has a significant history of Middle- and Late Iron Age settlement which has been ascribed to its mineral wealth and the attraction of this to metal working communities and a number of studies have focussed on this region (e.g. Evers 1975; Evers & Van Der Merwe 1987). Studies near Phalaborwa, approximately 100 km south east of the study site, have shown it to be a major metal producing centre of copper and iron from the 10th Century with tin-bronze and brass appearing from the 17th Century onwards (Miller et al. 2001). Nearer to the study area, Late Iron Age sites include famous settlements such as at Thulamela to the east and Dzata to the north.

Historically the people of the study area belong to the “Venda culture complex”, or VhaVenda, while in the lowveld to the south live Shangaan/Tsonga people and further to the south west the “Lobedu culture complex” whose “most typical form is found among the Lobedu of Modjadji” (Krige 1938) and whose Rain Queen is historically famous amongst people as far away as Zululand and revered by neighbouring peoples (Krige &

Krige 1943). The origin of the VhaVenda people has been investigated and there is some question as to the degree to which the origins of the people was local or not. The local origins theory falls roughly into the following sequence. Between 1300 and 1450 AD Mapungubwe ceramics related to Shona speakers dominated north of the Soutpansberg while Moloko ceramics, the product of Sotho speakers, were prevalent in the south. From 1450 AD Khami ceramics and associated settlements bore witness to a revived influence from new Shona dynasties in Zimbabwe and by 1550 AD the Letaba facies had arisen from the fusion of Shona and Sotho cultures. The origin of the VhaVenda appears therefore to be local as characterised in the archaeological sequence and it seems likely that a common Venda identity had developed by the 1600s (Loubser 1991). According to Stayt (1968), the “BaVenda” broke away from the Karanga in Zimbabwe and crossed the Limpopo entering the Soutpansberg region in two main streams of migration, the VhaTavhatsinde followed by the Singo, during the latter part of the 17th century. These groups found other tribes already in occupation including the Ngona, Mbedzi, and Twamamba and most researchers are of the opinion that peaceful integration between them took place under the rule of Chief Thohoyandou (Eloff 1968). Another two chiefs and their followers were integrated with the VhaVenda during the rule of Tshikalanga (the son of Thohoyandou). These chiefs were Madzivhandila and Lwamondo who were most probably of Sotho origin and who were appointed as keepers of the chief’s cattle, becoming assimilated into the VhaVenda tribe and culture (Stayt 1968).

A number of Iron Age Sites in the region have Provincial Heritage Site status including: Dzata II, Verdun and the Machedema ruins (SAHRA) and a number of others have been indicated to be of particular importance including Mutulowe, Tshitaka tsha Makoleni, Mukumbane and the Tshiungani complex (Hanisch 2003). To the north of the study area the Phiphidi waterfall, the Holy Forest and Lake Fundudzi (the only natural inland lake in South Africa) are of high cultural significance to the VhaVenda people (Mutshinyalo & Siebert 2010).

## **Historical Period**

The beginning of the Historical Period overlaps the demise of the late Stone and Iron Ages and is characterised by the first written accounts of the region from 1600 A.D. The wider area has a history of exploration and settlement by Europeans and markedly the use of the lowveld (to the south of the study area) by big game hunters beginning in the 1840’s and 1850’s due to the abundance of game in this region. Early surveyors explored the area, discovering gold on the banks of the Olifants River, in the Murchison Range and, closer by, in the hills of the Klein Letaba River to the south (Jeppe 1893).

A number of early European travellers visited the area from the early 19th Century onwards including Carl Mauch (Burke 1969). In 1855 Joaquim de Santa Rita Montanha led a party from Inhambane to the Soutpansberg, following the Limpopo Valley. It was remarked upon that after crossing the River Tave (Save) that “every day they passed and slept in towns or villages of the cultivators, and readily procured the supplies they required” (MacQueen 1862). Further exploration of the course of the Limpopo River was undertaken by Frederick Elton in 1870, who remarked on the “many kraals” and “fertile

country” at the junction of the Limpopo and ‘Nuanetzi’ (Nwanedzi) Rivers (Elton 1871 – 1872).

The region saw European settlement and influence from the late 1830’s with the arrival of Louis Trichardt and Hendrik Potgieter and the subsequent establishment of the town of Soutpansbergdorp (later renamed Schoemansdal) in 1848 (Tempelhoff 1999). Given the high summer temperatures, low rainfall and incidence of malaria the Limpopo Valley was not settled early by European colonists whose earliest settlements, including Soutpansbergdop and Schoemansdal, were rather located in the cooler, better watered region to the south of the Soutpansberg. Way (1858 – 1859) described the settlement of ‘Zout Pans Berg’ as “an emporium of a considerable commerce and is also a kind of Alsatia for refugees from the laws of the Cape Colonies and the adjoining territories.” It is well known that these early settlements were to a large extent based on the hunting of elephant for ivory, largely herds in the Limpopo Valley to the north. Famous early traders in the region included Coenraad de Buys (whose descendants still live in the town of Buysdorp approximately 120 km to the west) and João Albasini who entered the Soutpansberg region in 1848 as a trader and settled on his farm Goedewensch at Piesangoek from 1857, some 50 km to the west of the study area.. He later became the local Native Administrator who collected taxes and recorded incidents in the region (Tempelhoff 1999). The latter estimated that, in the prime of Schoemansdal, up to 80,000 tonnes of ivory was exported annually with an increasing reliance on African hunters including the Ba-Birwa, BaVenda and Bagananwa (Bonner & Carruthers 2003). Increasing tensions led to the evacuation and sacking of Schoemansdal by Makhado in 1867 and the unsettled situation between settlers and the Vhavenda in the region continued up until the end of the Boer War (Tempelhoff & Nemudzivadi 1999; Tempelhoff 1999) and the establishment of the town of Louis Trichardt (now Makhado). The Berlin Mission Society established a mission station at Ha-Tshivhase in 1872 and another at Tshakuma in 1874. The mission stations, missionaries and gospel played an intricate and important part in the growth and development of the different groups and societies in the Soutpansberg region (Giesekke 2004; Kirkaldy 2005). Two Swiss missionaries, Dr. Henri Berthoud and Reverend Creux, opened a Mission Station at Lwalani, which they called Valdezia, in 1875 to undertake missionary work among the Tsonga-Shangana communities of the area. Elim Mission Station was established in 1879 and the Elim Hospital was established in 1899 (Giesekke 2004; Kirkaldy 2005).

The passage of the Boer War in the wider region was notable given the infamous activities of members of the Bushveld Carbineers, in particular Lieutenants “Breaker” Morant and Handcock who were executed for the murder of civilians near Elim (Pakenham 1979; Tempelhoff 1999; Woolmore 2002). After 1900 European farmers were encouraged by the ruling government to occupy land in the area in an effort to compensate for land losses in other parts of the province (Bonner & Carruthers 2003). With the development of the so-called “Homelands”, the town of Thohoyandou was developed as the capital of the Venda Republic which was declared in 1979 (Tempelhoff 1999) and the University of Venda itself was established in 1982.

### 5.3. Palaeontology

The SAHRIS online database (<http://www.sahra.org.za/sahris>) was accessed and the Palaeontological Sensitivity Map was consulted. This map is colour coded to indicate the varied palaeontological sensitivities across the country. The following guidelines/recommendations are provided in the table below regarding the palaeontological sensitivity for each identified colour.

#### PalaeoSensitivity Map Action Guideline.

Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

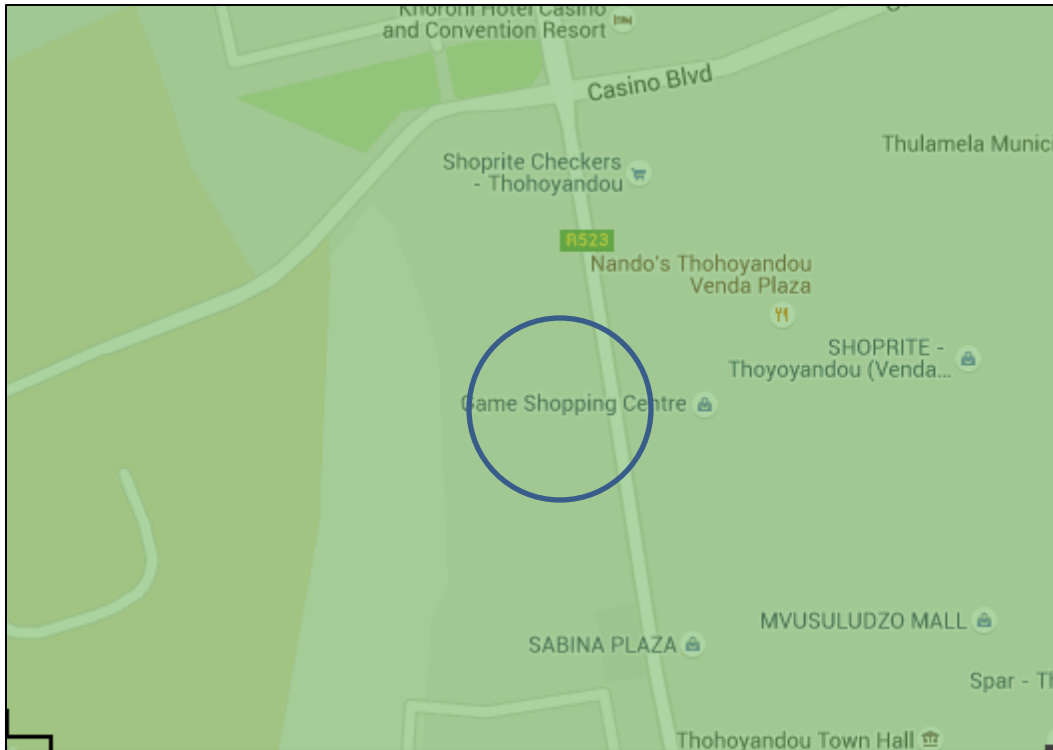


Figure 11: Palaeontological Sensitivity Map of the study area indicated in blue (Sahris Palaeosensitivity Map).

It was found that the palaeontological sensitivity for the study area was moderate and that a palaeontological desktop study is required.

Prof. Bruce Rubidge completed a Palaeontological Desktop Study for the proposed development (Rubidge, 2016). The following are excerpts from that study:

“... the area is underlain by Precambrian basalts of the Sibasa Formation of the Soutpansberg Group to the north and leucocratic biotite gneiss, leucocratic granite and pegmatite, grey biotite gneiss and migmatite of the Sand River Gneiss of the Central Zone of the Limpopo Belt to the south.”

“As the entire study area is underlain by Precambrian igneous and metamorphic rocks it is extremely unlikely that fossils will be found in the study area.”

## 6. Assessment Criteria

This chapter describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The significance of archaeological and heritage sites were based on the following criteria:

- The unique nature of a site
- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc.)
- The wider historic, archaeological and geographic context of the site
- The preservation condition and integrity of the site
- The potential to answer present research questions.

### 6.1. Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

<i><b>FIELD RATING</b></i>	<i><b>GRADE</b></i>	<i><b>SIGNIFICANCE</b></i>	<i><b>RECOMMENDED MITIGATION</b></i>
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected (GP.C)	Grade 4C	Low Significance	Destruction



## 6.2. Impact Rating:

### **Low or No Significance:**

The constraint is absent, but in instances where present, poses a negligible significance on the proposed development in terms of heritage concerns.

### **Moderate Significance:**

The constraint is present and poses a notable but not major significance on the proposed development in terms of heritage concerns. If the constraint can't be avoided, appropriate mitigation measures must be implemented to minimize the significance.

### **High Significance:**

The constraint is present and poses a high significance on the proposed development in terms of heritage concerns. It is recommended that the constraint be avoided or appropriate mitigation measures must be implemented to minimize the significance.

## 6.3. Certainty

*DEFINITE:* More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

*PROBABLE:* Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

*POSSIBLE:* Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

*UNSURE:* Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

## 6.4. Duration

*SHORT TERM:* 0 – 5 years

*MEDIUM:* 6 – 20 years

*LONG TERM:* more than 20 years

*DEMOLISHED:* site will be demolished or is already demolished

## 6.5. Mitigation

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- **A** – No further action necessary
- **B** – Mapping of the site and controlled sampling required
- **C** – Preserve site, or extensive data collection and mapping required; and
- **D** – Preserve site

## **7. Methodology**

### **7.1. Physical Survey**

The extent of the proposed development site was determined as well as the extent of the areas to be affected by secondary activities (access route, construction camp, etc.) during the development.

The physical survey was conducted on foot over the entire area proposed for development. Priority was placed on the undisturbed areas. A systematic inspection of the areas on foot along linear transects resulted in the maximum coverage of the proposed areas. The author and an experienced field worker, transected the study area in parallel transects of approximately 20m between them. The field work was conducted on 25 May 2016 and a part of the morning was spent on the survey, which was performed by M. Hutten and field worker T. Mulaudzi. The survey focused on the indicated study area as provided by the developer where the proposed development will be situated. Areas outside of the indicated study areas were not surveyed.

### **7.2. Interviews**

Nobody was available to be interviewed during the fieldwork stage of the project.

### **7.3. Restrictions**

The recent demolition of existing buildings and structures, as well as other site preparation activities, disturbed and restricted surface visibility in most of the study area.

### **7.4. Documentation**

All sites/find-spots, if any, located during the foot surveys were briefly documented. The documentation included digital photographs and descriptions as to the nature and condition of the site and recovered materials. The sites/find-spots were plotted using a Global Positioning System (GPS) (Garmin GPSmap 60CSx) and numbered accordingly. The track logs and identified sites are depicted on the following map and satellite image.



## 8. Assessment of Sites and Finds

This section contains the results of the heritage site/find assessment.

### Thohoyandou Underground Tank Development

The developer, Autumn Property Investments 10 CC, has proposed the installation of four x 46 000 litre underground tanks on Erf 854, Thohoyandou-P Ext 1 Thulamela Local Municipality, Limpopo Province.

The proposed development entails the installation of 4 x 46 000 litre underground tanks for the storage and handling of a dangerous good (petroleum) to be used for retail purposes.

The site is flat and was previously occupied with residential homes which were demolished and cleared for the new proposed development (figures 13 & 14). The proposed site for the installation of the underground tanks measures approximately 2 hectares in size. The proposed development will cover most of the area within the study area



Figure 13: View of the proposed site from the north.



Figure 14: View of the disturbances caused by recent site preparation activities.

After intensive investigations across the study area, no sites or finds of any heritage value or potential were identified.

Field Rating:	None
Heritage Significance:	None
Impact:	None
Certainty:	None
Duration:	None
Mitigation:	A – No further action necessary

## 9. Conclusion and Recommendations

The following steps and measures are recommended regarding the investigated area:

### **Thohoyandou Underground Tank Development**

Hutten Heritage Consultants was contracted by Tekplan Environmental to conduct a Heritage Impact Assessment (HIA) for the proposed installation of four x 46 000 litre underground tanks on Erf 854, Thohoyandou-P Ext 1 Thulamela Local Municipality, Limpopo Province.

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. This component indicated that the landscape within which the project area is located has a rich and diverse history. However, the desktop study did not reveal any historic or heritage sites from within the specific locations of the study area.

The Sahrís Palaeontological Sensitivity Map was also consulted and it was found that the palaeontological sensitivity for the study area was moderate and that a Palaeontological Impact Assessment is required.

Prof. Bruce Rubidge completed a desktop palaeontological study for the study area. He concluded that the entire study area is deeply underlain by Precambrian basaltic rocks of the Sibasa Formation of the Soutpansberg Group. There is no possibility that the basalts of the Sibasa Formation could contain fossils. He is also of the opinion that this development will not negatively affect palaeontological heritage.

He recommended that, from a palaeontological perspective, the proposed development should proceed. Should fossils be uncovered in superficial soil deposits during the course of construction activities, the developer must immediately contact a qualified palaeontologist to assess the situation and, if necessary, undertake excavation of the fossils.

The desktop studies were followed by a fieldwork component which comprised an inspection of the study area.

As for the proposed site, no site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area.

The proposed underground tank development on Erf 854, Thohoyandou-P Ext 1 Thulamela Local Municipality, can continue from a heritage point of view.

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