



TSHAMAHANSI WATER SUPPLY INFRASTRUCTURE PROJECT

Proposed Water Supply Infrastructure for the Residential Cluster of Tshamahansi in the Mogalakwena Local Municipality, Waterberg District, Limpopo Province.

Heritage Impact Assessment

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DECLARATION OF INDEPENDENCE

The report has been compiled by PGS Heritage, an appointed Heritage Specialist for Tekplan Environmental. The views stipulated in this report are purely objective and no other interests are displayed in the findings and recommendations of this Heritage Impact Assessment.

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Report Title	Heritage Impact Assessment for the proposed water supply infrastructure for the residential cluster of Tshamahansi in the Mogalakwena Local Municipality, Waterberg District, Limpopo Province.		
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EXPLANATION OF ABBREVIATIONS USED IN THIS DOCUMENT

<i>Abbreviations</i>	<i>Description</i>
AIA	Archaeological Impact Assessment
ASAPA	Association of Southern African Professional Archaeologists
CMP	Conservation Management Plan
CRM	Cultural Resource Management
EIA	Environmental Impact Assessment
EMPR	Environmental Management Programme Report
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
LIA	Late Iron Age
LSA	Later Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act
PGS	PGS Heritage
PHRA	Provincial Heritage Resources Authority
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System

EXECUTIVE SUMMARY

PGS Heritage was appointed by Tekplan Environmental to undertake a Heritage Impact Assessment (HIA) which forms part of the Environmental Impact Assessment (EIA) for the proposed water supply infrastructure for the residential cluster of Tshamahansi in the Mogalakwena Local Municipality, Waterberg District in the 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 desktop study work was followed by a fieldwork component which comprised a walkthrough of the study area. One site with heritage value or significance was identified. A stone packed insignia of the ZCC-church was identified close to the location of the proposed pipeline. The construction of the pipeline should not have any impact on the insignia as the proposed location of the pipeline is to the south-east of the ZCC-insignia and is far enough not to be damaged during construction.

However, it is important to demarcate the identified insignia with a 5 meter barrier during construction. The consultation process with the community and local church groups with regards to construction close to the site needs to be done before construction starts, in order to agree on the process to be followed with the community in case the site is damaged or if work needs to be done very close to this stone packed insignia.

The development is not expected to have any impact on heritage sites. As such, no heritage reasons can be given for the development not to continue.

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1 INTRODUCTION

PGS Heritage was appointed by Tekplan Environmental to undertake a Heritage Impact Assessment (HIA) which forms part of the Environmental Impact Assessment (EIA) for the proposed water supply infrastructure for the residential cluster of Tshamahansi in the Mogalakwena Local Municipality, Waterberg District, Limpopo Province.

1.1 Scope of the Study

The aim of the study is to identify possible heritage sites and finds that may occur in the proposed development area. The Heritage Impact Assessment (HIA) aims to inform the Environmental Impact Assessment (EIA) in the development of a comprehensive Environmental Management Plan (EMP) to assist the developer in managing the identified heritage resources in a responsible manner in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

1.2 Specialist Qualifications

This Heritage Impact Assessment was compiled by PGS Heritage, the staff of which has a combined experience of nearly 40 years in the heritage consulting industry and have extensive experience in managing Heritage Impact Assessment (HIA) processes. Mr Marko Hutten, heritage specialist and project archaeologist, has 15 years experience in the industry and is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is accredited as a Field Director.

1.3 Assumptions and Limitations

Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage sites located during the fieldwork do not necessarily represent all the heritage sites present within the area. Should any heritage features or objects not included in the inventory be located or observed, a heritage specialist must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way, until such time that the heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This applies to graves and cemeteries as well.

1.4 Legislative Context

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:

- i. National Environmental Management Act (NEMA) Act 107 of 1998
- ii. National Heritage Resources Act (NHRA) Act 25 of 1999
- iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
- iv. 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.

- i. National Environmental Management Act (NEMA) Act 107 of 1998
 - a. Basic Environmental Assessment (BEA) – Section (23)(2)(d)
 - b. Environmental Scoping Report (ESR) – Section (29)(1)(d)
 - c. Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
 - d. EMP (EMP) – Section (34)(b)
- ii. National Heritage Resources Act (NHRA) Act 25 of 1999
 - a. Protection of Heritage Resources – Sections 34 to 36; and
 - b. Heritage Resources Management – Section 38
- iii. Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
 - a. Section 39(3)

The NHRA stipulates that cultural heritage resources may not be disturbed without authorization from the relevant heritage authority. Section 34(1) of the NHRA states that “no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority...”. The NEMA (No 107 of 1998) states that an integrated EMP should (23:2 (b)) “...identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage”. In accordance with legislative requirements and EIA rating criteria, the regulations of SAHRA and ASAPA have also been incorporated to ensure that a comprehensive and legally compatible HIA report is compiled.

1.5 Terminology and Abbreviations

Archaeological resources

- i. material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- ii. rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including a 10m buffer area;
- iii. wrecks, being any vessel or aircraft, or any part thereof which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
- iv. features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

Development

This means any physical intervention, excavation or action other than those caused by natural forces, which may according to the heritage agency result in a change to the nature, appearance or physical nature of a place or influence its stability & future well-being, including:

- i. construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- ii. carrying out any works on or over or under a place;
- iii. subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- iv. constructing or putting up for display signs or boards;
- v. any change to the natural or existing condition or topography of land; and
- vi. any removal or destruction of trees, or removal of vegetation or topsoil

Fossil

Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage

That which is inherited and forms part of the National Estate (historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).

Heritage resources

This means any place or object of cultural significance

Later Stone Age

The archaeology of the last 20 000 years, associated with fully modern people.

Late Iron Age (Early Farming Communities)

The archaeology of the last 1000 years up to the 1800's associated with ironworking and farming activities such as herding and agriculture.

Middle Stone Age

The archaeology of the Stone Age, dating to between 20 000-300 000 years ago, associated with early modern humans.

Palaeontology

Any fossilised remains or fossil trace of animals or plants which lived in the geological past and any site which contains such fossilised remains or trace.

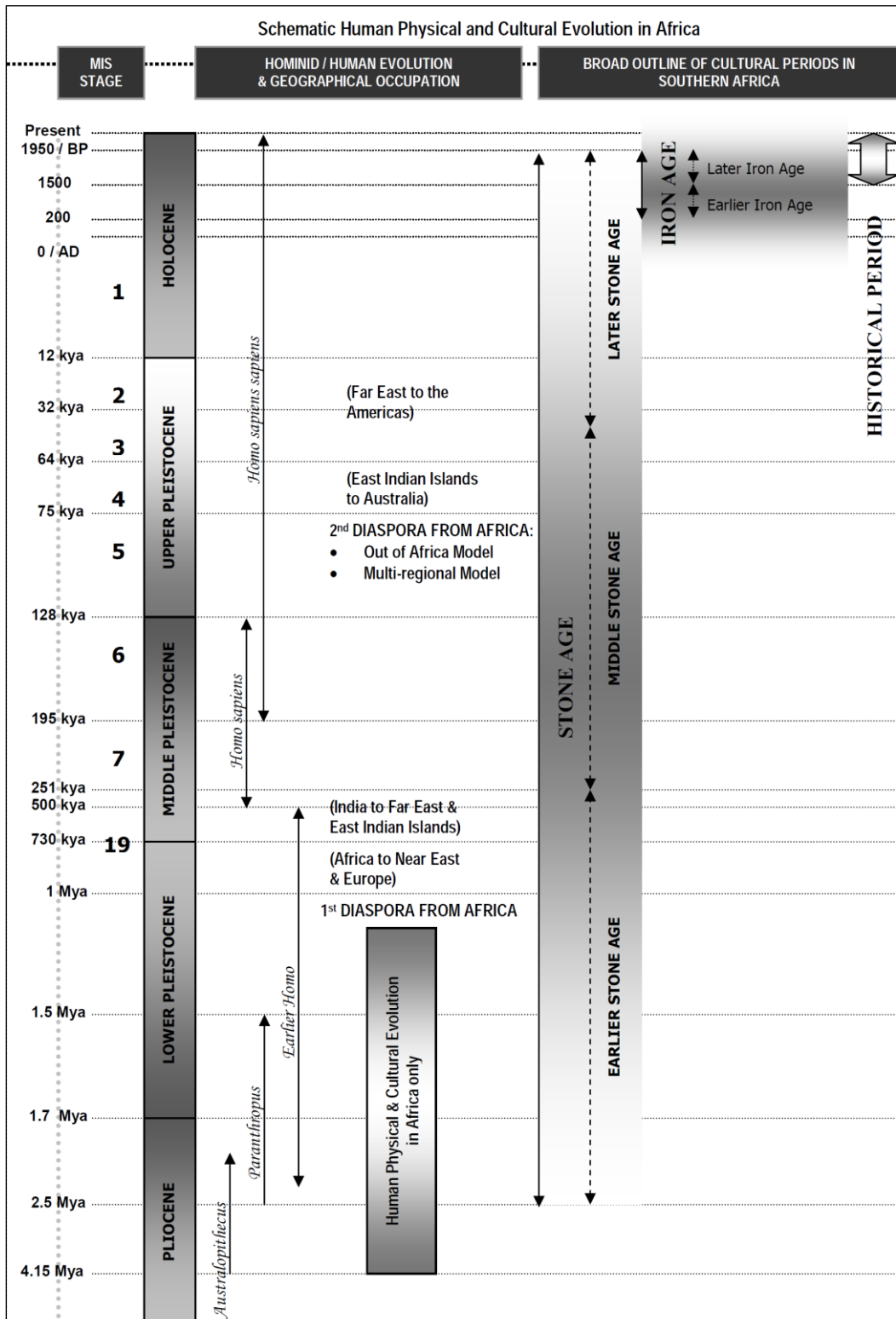


Figure 1 – Human and Cultural Time line in Africa (Morris, 2008)

2 TECHNICAL DETAILS OF THE PROJECT

2.1 Site Location and Description

The Mogalakwena Local Municipality proposed development of water supply infrastructure at the residential cluster of Tshamahansi in the Mogalakwena Local Municipality, Waterberg District, Limpopo Province. Two sections of pipelines will be developed. The pipelines will connect newly proposed water reservoirs with each other and forms part of a larger water supply development project within the Municipality. The other phases of the development (such as the reservoirs) will be addressed in other reports and studies as the development progresses.

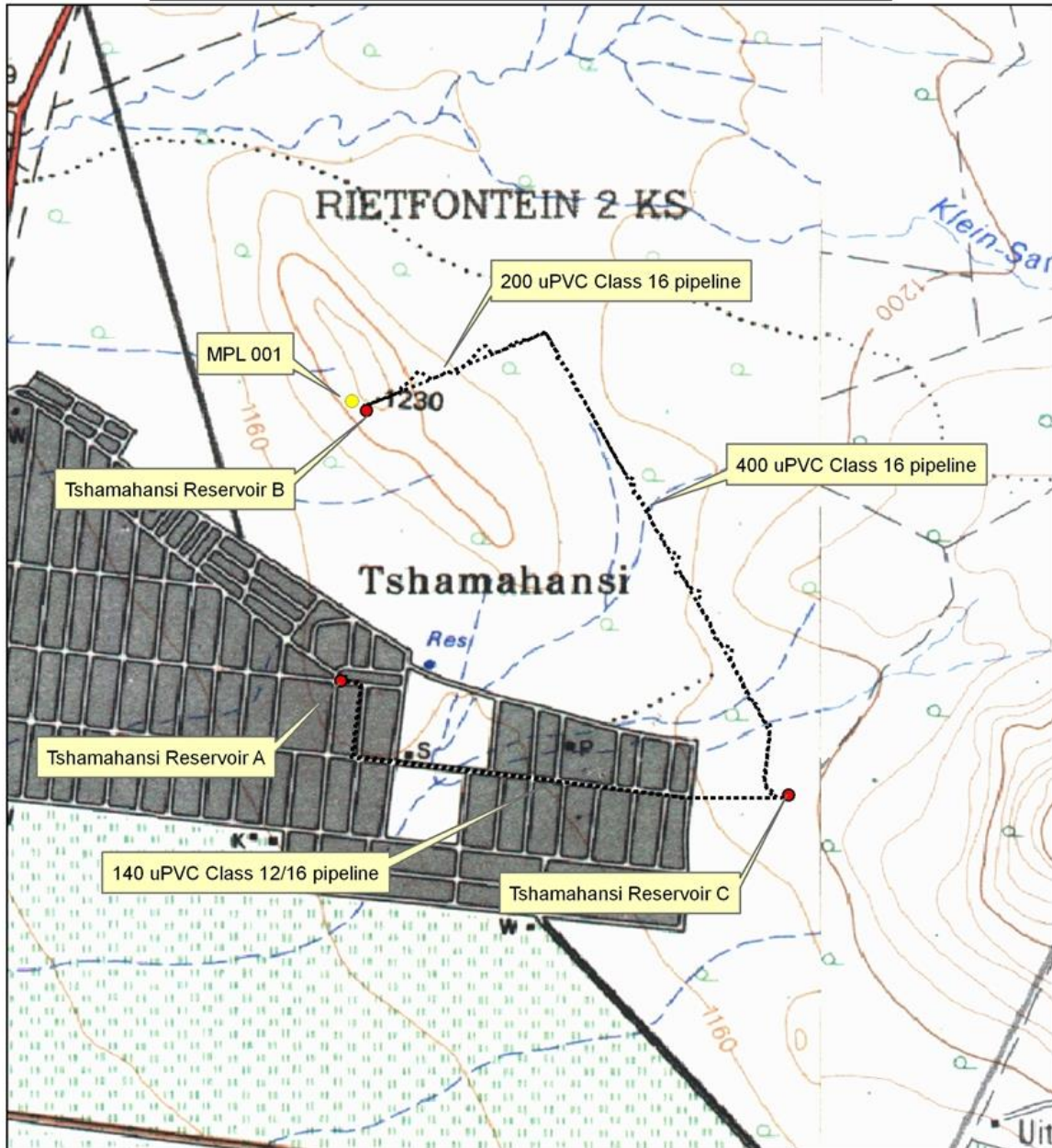
The first section of pipeline will run from the proposed Tshamahansi Reservoir A within Tshamahansi village to the proposed Tshamahansi Reservoir C on the eastern fringes of the village. This pipeline will be 140mm in diameter and will be approximately 1.7km in length. The majority of the pipeline will run through Tshamahansi village and it will follow existing roads. The pipeline will be placed on the edges of the roads.

The second section of pipeline will run from the proposed Tshamahansi Reservoir C on the eastern fringes of Tshamahansi village to the proposed Tshamahansi Reservoir B which will be situated on an elongated hill on the northern side of the village. This pipeline will be 355mm in diameter and will be approximately 2,6km in length. The pipeline will at first follow an existing power line on the north-eastern side of the village and then it will run through a newly developed part of the village before it will go up to the proposed reservoir near the summit of the hill. In the village it will follow existing roads. The pipeline will be placed on the edges of the roads.

Coordinates	140mm Pipeline Start: S24° 04' 57.4" E28° 59' 02.5" 140mm Pipeline End: S24° 05' 10.9" E28° 59' 55.4"	355mm Pipeline Start: S24° 05' 10.9" E28° 59' 55.4" 355mm Pipeline End: S24° 04' 25.4" E28° 59' 05.5"
Property	Farm: Rietfontein 2 KS	
Location	The proposed locations of the pipelines to be developed are located in and around the Tshamahansi Residential Cluster, approximately 10km north of Mokopane in the Mogalakwena Local Municipality, Limpopo Province.	
Extent	The proposed 140mm pipeline is approximately 1.7km in length and the proposed 355mm pipeline is approximately 2.6km in length.	
Land Description	Most of the area is fairly flat with an elongated hill on the northern side of Tshamahansi village. The Dithokeng stream crosses the area to the north of	

Tshamahansi village from the east to the west. The flat areas to the south and to the west of Tshamahansi village were and some areas are still being used as agricultural farm land which are ploughed and planted. The areas to the north and east of Tshamahansi village are used for the grazing of the local livestock and are fairly undisturbed.

Tshamahansi Cluster Pipelines



0 0.5 1 Kilometres

1:20,000

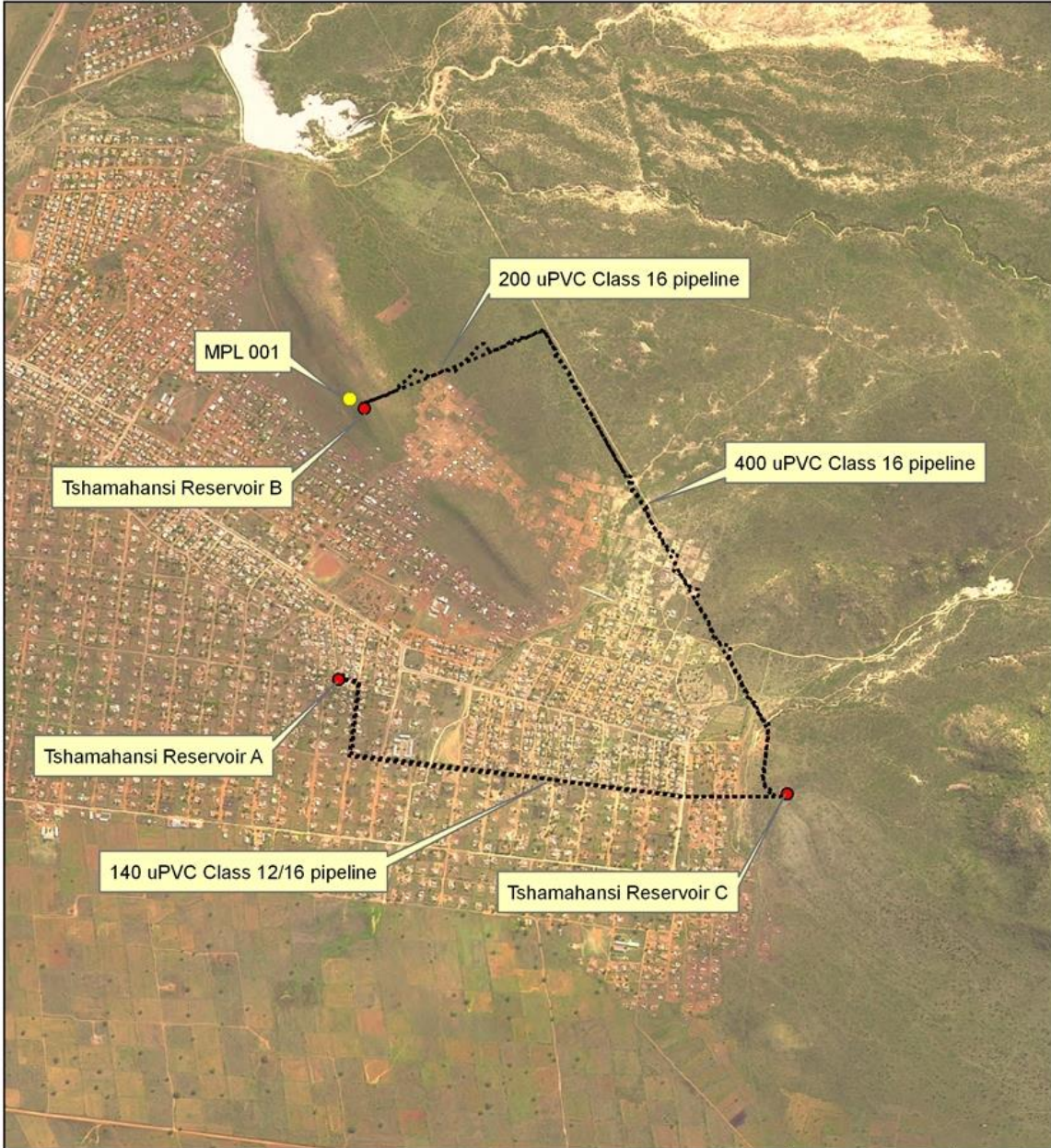


- Reservoirs and Stream Crossings
- Heritage Site
- Track log (pipelines)

Image: WGS2428BB.TIF & 2429AA.TIF
 Source: Chief Directorate National Geo-spatial Information
 Datum: WGS84

Figure 2 – The study area with the proposed pipeline routes.

Tshamahansi Cluster Pipelines



0 0.5 1
 Kilometres

1:20,000



- Reservoirs and Stream Crossings
- Heritage Site
- Track log (pipelines)

Image: 2428B.jp2 & 2429A.jp2
 Source: Spot Image / CSIR
 Datum: WGS84

Figure 3– The study area with the proposed pipeline routes.



Figure 4 – Proposed Tshamahansi Cluster Water Supply Infrastructure (as supplied by client).

2.2 TECHNICAL PROJECT DESCRIPTION

The Mogalakwena Local Municipality proposed development of water supply infrastructure at the residential cluster of Tshamahansi in the Mogalakwena Local Municipality, Waterberg District, Limpopo Province. Two sections of pipelines will be developed. The pipelines will connect newly proposed water reservoirs with each other and forms part of a larger water supply development project within the Municipality.

The first section of pipeline will run from the proposed Tshamahansi Reservoir A within Tshamahansi village to the proposed Tshamahansi Reservoir C on the eastern fringes of the village. This pipeline will be 140mm in diameter and will be approximately 1.7km in length. The majority of the pipeline will run through Tshamahansi village and it will follow existing roads. The pipeline will be placed on the edges of the roads.

The second section of pipeline will run from the proposed Tshamahansi Reservoir C on the eastern fringes of Tshamahansi village to the proposed Tshamahansi Reservoir B which will be situated on an elongated hill on the northern side of the village. This pipeline will be 355mm in diameter and will be approximately 2.6km in length. The pipeline will at first follow an existing power line on the north-eastern side of the village and then it will run through a newly developed part of the village before it will go up to the proposed reservoir near the summit of the hill. In the village it will follow existing roads. The pipeline will be placed on the edges of the roads.

3 ASSESSMENT METHODOLOGY

3.1 Methodology for Assessing Heritage Site Significance

This report was compiled by PGS Heritage for the proposed water supply infrastructure development in the residential cluster of Tshamahansi in the Mogalakwena Local Municipality. The applicable maps, tables and figures are included as stipulated in the NHRA (no 25 of 1999) and the National Environmental Management Act (NEMA) (no 107 of 1998). The HIA process consisted of three steps:

Step I – Literature Review: The background information to the field survey leans greatly on the archival and historical cartographic material assessed as part of the study as well as a study of the available literature.

Step II – Physical Survey: A physical survey was conducted on Tuesday, 29 October 2013. The survey was undertaken by a team comprising a professional archaeologist (Marko Hutten) and field assistant (Thomas Mulaudzi) and was undertaken on foot.

Step III – Report: The final step involved the recording and documentation of relevant heritage resources, as well as the assessment of resources regarding the heritage impact assessment criteria and report writing, as well as mapping and recommendations.

The significance of heritage sites was based on five main criteria:

- site integrity (i.e. primary vs. secondary context),
- amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter)
 - Low - <10/50m²
 - Medium - 10-50/50m²
 - High - >50/50m²
- uniqueness and
- potential to answer present research questions.

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

A - No further action necessary;

B - Mapping of the site and controlled sampling required;

C - No-go or relocate development position

D - Preserve site, or extensive data collection and mapping of the site; and

E - Preserve site

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 (see **Table 3**).

Table 1: Site significance classification standards as prescribed by SAHRA

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

3.2 Methodology for Impact Assessment

In order to ensure uniformity, a standard impact assessment methodology has been utilised so that a wide range of impacts can be compared. The impact assessment methodology makes provision for the assessment of impacts against the following criteria:

- Significance;
- Spatial scale;
- Temporal scale;
- Probability; and
- Degree of certainty.

A combined quantitative and qualitative methodology was used to describe impacts for each of the aforementioned assessment criteria. A summary of each of the qualitative descriptors, along

with the equivalent quantitative rating scale for each of the aforementioned criteria, is given in **Table 4**.

Table 2: Quantitative rating and equivalent descriptors for the impact assessment criteria

RATING	SIGNIFICANCE	EXTENT SCALE	TEMPORAL SCALE
1	VERY LOW	<i>Isolated corridor / proposed corridor</i>	<u>Incidental</u>
2	LOW	<i>Study area</i>	<u>Short-term</u>
3	MODERATE	<i>Local</i>	<u>Medium-term</u>
4	HIGH	<i>Regional / Provincial</i>	<u>Long-term</u>
5	VERY HIGH	<i>Global / National</i>	<u>Permanent</u>

A more detailed description of each of the assessment criteria is given in the following sections.

Significance Assessment

The significance rating (importance) of the associated impacts embraces the notion of extent and magnitude, but does not always clearly define these, since their importance in the rating scale is very relative. For example, 10 structures younger than 60 years might be affected by a proposed development, and if destroyed the impact can be considered as VERY LOW in that the structures are all of Low Heritage Significance. If two of the structures are older than 60 years and of historic significance, and as a result of High Heritage Significance, the impact will be considered to be HIGH to VERY HIGH.

A more detailed description of the impact significance rating scale is given in **Table 5** below.

Table 3: Description of the significance rating scale

RATING		DESCRIPTION
5	VERY HIGH	Of the highest order possible within the bounds of impacts which could occur. In the case of adverse impacts: there is no possible mitigation and/or remedial activity which could offset the impact. In the case of beneficial impacts, there is no real alternative to achieving this benefit.
4	HIGH	Impact is of substantial order within the bounds of impacts which could occur. In the case of adverse impacts: mitigation and/or remedial activity is feasible but difficult, expensive, time-consuming or some combination of these. In the case of beneficial impacts, other means of achieving this benefit are feasible but they are more difficult, expensive,

		time-consuming or some combination of these.
3	MODERATE	Impact is real but not substantial in relation to other impacts, which might take effect within the bounds of those which could occur. In the case of adverse impacts: mitigation and/or remedial activity are both feasible and fairly easily possible. In the case of beneficial impacts: other means of achieving this benefit are about equal in time, cost, effort, etc.
2	LOW	Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts: mitigation and/or remedial activity is either easily achieved or little will be required, or both. In the case of beneficial impacts, alternative means for achieving this benefit are likely to be easier, cheaper, more effective, less time consuming, or some combination of these.
1	VERY LOW	Impact is negligible within the bounds of impacts which could occur. In the case of adverse impacts, almost no mitigation and/or remedial activity is needed, and any minor steps which might be needed are easy, cheap, and simple. In the case of beneficial impacts, alternative means are almost all likely to be better, in one or a number of ways, than this means of achieving the benefit. Three additional categories must also be used where relevant. They are in addition to the category represented on the scale, and if used, will replace the scale.
0	NO IMPACT	There is no impact at all - not even a very low impact on a party or system.

Spatial Scale

The spatial scale refers to the extent of the impact i.e. will the impact be felt at the local, regional, or global scale. The spatial assessment scale is described in more detail in **Table 6**.

Table 4: Description of the spatial significance rating scale

RATING		DESCRIPTION
5	Global/National	The maximum extent of any impact.
4	Regional/Provincial	The spatial scale is moderate within the bounds of possible impacts, and will be felt at a regional scale (District Municipality to Provincial Level). The impact will affect an area up to 50 km from the proposed site / corridor.
3	Local	The impact will affect an area up to 5 km from the proposed site.
2	Study Area	The impact will affect an area not exceeding the boundary of the study area.
1	Isolated Sites / proposed site	The impact will affect an area no bigger than the site.

Temporal/Duration Scale

In order to accurately describe the impact, it is necessary to understand the duration and persistence of an impact in the environment.

The temporal or duration scale is rated according to criteria set out in **Table 7**.

Table 5: Description of the temporal rating scale

RATING		DESCRIPTION
1	Incidental	The impact will be limited to isolated incidences that are expected to occur very sporadically.
2	Short-term	The environmental impact identified will operate for the duration of the construction phase or a period of less than 5 years, whichever is the greater.
3	Medium-term	The environmental impact identified will operate for the duration of life of the project.
4	Long-term	The environmental impact identified will operate beyond the life of operation of the project.
5	Permanent	The environmental impact will be permanent.

Degree of Probability

The probability or likelihood of an impact occurring, will be outlined in **Table 8** below.

Table 6: Description of the degree of probability of an impact occurring

RATING	DESCRIPTION
1	Practically impossible
2	Unlikely
3	Could happen
4	Very likely
5	It's going to happen / has occurred

Degree of Certainty

As with all studies, it is not possible to be 100% certain of all facts, and for this reason a standard “degree of certainty” scale is used, as discussed in **Table 9**. The level of detail for specialist studies is determined according to the degree of certainty required for decision-making.

Table 7: Description of the degree of certainty rating scale

RATING	DESCRIPTION
Definite	More than 90% sure of a particular fact.
Probable	Between 70 and 90% sure of a particular fact, or of the likelihood of that impact occurring.
Possible	Between 40 and 70% sure of a particular fact, or of the likelihood of an impact occurring.
Unsure	Less than 40% sure of a particular fact or the likelihood of an impact occurring.
Can't know	The consultant believes an assessment is not possible even with additional research.

Quantitative Description of Impacts

To allow for impacts to be described in a quantitative manner, in addition to the qualitative description given above, a rating scale of between 1 and 5 was used for each of the assessment criteria. Thus the total value of the impact is described as the function of significance, spatial and temporal scale, as described below:

$$\text{Impact Risk} = \frac{(\text{SIGNIFICANCE} + \text{Spatial} + \text{Temporal})}{3} \times \frac{\text{Probability}}{5}$$

An example of how this rating scale is applied is shown below:

Table 8: Example of Rating Scale

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	Low	Local	Medium Term	Could Happen	Low
Impact on heritage structures	2	3	3	3	1.6

Note: The significance, spatial and temporal scales are added to give a total of 8, which is divided by 3 to give a criterion rating of 2.67. The probability (3) is divided by 5 to give a probability rating of 0.6. The criteria rating of 2.67 is then multiplied by the probability rating (0,6) to give the final rating of 1,6.

The impact risk is classified according to five classes as described in the table below.

Table 9: Impact Risk Classes

RATING	IMPACT CLASS	DESCRIPTION
0.1 – 1.0	1	Very Low
1.1 – 2.0	2	Low
2.1 – 3.0	3	Moderate
3.1 – 4.0	4	High
4.1 – 5.0	5	Very High

Therefore, with reference to the example used for heritage structures above, an impact rating of 1.6 will fall in the Impact Class 2, which will be considered to be a low impact.

4 CURRENT STATUS QUO

4.1 Description of Study Area

The proposed development forms part of a more extensive development project which will establish the water supply infrastructure for several residential clusters within the Mogalakwena Local Municipality, Waterberg District in the Limpopo Province.

The Mogalakwena Local Municipality proposed the development of water supply infrastructure at the residential cluster of Tshamahansi in the Mogalakwena Local Municipality, Waterberg District, Limpopo Province. Two sections of pipelines will be developed. The pipelines will connect newly proposed water reservoirs with each other and forms part of a larger water supply development project within the Municipality. The other phases of the development (such as the reservoirs) will be addressed in other reports and studies as the development progresses.

The first section of pipeline will run from the proposed Tshamahansi Reservoir A within Tshamahansi village to the proposed Tshamahansi Reservoir C on the eastern fringes of the village. Both these proposed reservoirs will be constructed next to existing reservoirs. The pipeline will be 140mm in diameter and will be approximately 1,7km in length. The majority of the pipeline will run through the residential parts of Tshamahansi village and it will follow existing roads. The pipeline will be placed on the edges of the roads.



Figure 5 - View of the existing reservoir where the proposed 140mm pipeline will start.



Figure 6 – View of the proposed pipeline route through Tshamahansi village.



Figure 7 – Another view of the proposed pipeline route through Tshamahansi village.



Figure 8 – View of the existing reservoir at the proposed end of the 140mm pipeline.

The second section of pipeline will run from the proposed Tshamahansi Reservoir C on the eastern fringes of Tshamahansi village to the proposed Tshamahansi Reservoir B which will be situated on an elongated hill on the northern side of the village. This pipeline will be 355mm in diameter and will be approximately 2.6km in length. The pipeline will at first follow an existing power line on the north-eastern side of the village and then it will run through a newly developed part of the village before it will go up to the proposed reservoir near the summit of the hill. In the village it will follow existing roads. The pipeline will be placed on the edges of the roads. This area is more rocky than the area to the south of the village and wasn't exposed to the same intensive ploughing and planting activities.



Figure 9 – View of the existing reservoir where the proposed 355mm pipeline will start.



Figure 10 – View of the proposed pipeline route along an existing power line.



Figure 11 – Another view of the proposed pipeline route through Tshamahansi village.



Figure 12 – View of the proposed location of the new reservoir at the end of the 355mm pipeline.

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. 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

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

Van Schalkwyk, L.O. 2006. **Heritage Impact Assessment of Mashashane Dam, Polokwane, Limpopo Province, South Africa.** An unpublished report by eThembeni Cultural Heritage on file at SAHRA as 2006-SAHRA-0369.

Murimbika, M. 2006. **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.

Roodt, F. 2007. **Phase 1 Heritage Resources Impact Assessment (Scoping & Evaluation) Lunds Egg and Rearing Houses Polokwane, Limpopo.** An unpublished report by R & R Cultural Resource Consultants on file at SAHRA as 2007-SAHRA-0102.

Van Schalkwyk, J.A. 2007. **Heritage Impact Assessment for the Planned Tabor-Witkop Power Line, Limpopo Province.** An unpublished report by the National Cultural History Museum on file at SAHRA as 2007-SAHRA-0166.

Munyai, R. & Roodt, F. 2007. **Phase 1 Heritage Impact Assessment Proposed Extraction of Gravel from an Existing Borrow Pit Site Associated with the Upgrading of Road D3377 in Matla's Location Farm, Aganang Municipality.** An unpublished report by Vhufa Hashu Heritage Consultants on file at SAHRA as 2007-SAHRA-0202.

Murimbika, M. 2007. **Proposed Establishment of Cemeteries at Kalkspruit in Aganang Local Municipality Capricorn District, Limpopo Province.** An unpublished report by Nzumbululo Heritage Solutions on file at SAHRA as 2007-SAHRA-0317.

Roodt, F. 2008. **Phase 1 Heritage Resources Scoping Report Mogalakwena Bulk Water Supply Scheme - Phase 1 of Zone 1 Mokopane: Limpopo.** An unpublished report by R & R Cultural Resource Consultants on file at SAHRA as 2008-SAHRA-0263.

Murimbika, M. 2008. **Cultural and Archaeological Heritage Assessment Specialist Study for the Proposed Construction of 1 453.29 km Powerline at Mapeding Village in Aganang Municipality**

of Capricorn District, Limpopo Province. An unpublished report by Nzumbululo Heritage Solutions on file at SAHRA as 2008-SAHRA-0495.

Researching the SAHRIS online database (<http://www.sahra.org.za/sahris> accessed 28th October 2013) further studies were identified in the wider vicinity of the study area:

SAHRIS case number 566. 2013. Heritage Impact Assessment for the Proposed Platreef Mining Project on the farms Bultongfontein 866 LR, Turfspruit 241 KR, Macalacaskop 243 KR and Rietfontein 2 KS in Mokopane, Limpopo Province.

SAHRIS case number 762. 2012. Basic Assessment and Environmental Management Programme, Mining Permit and Water Use Licence for the proposed rehabilitation of National Route (N11) Section 13 in Mokopane, Limpopo Province.

SAHRIS case number 562. 2012. Amendment [sic] to the Environmental Management Programme Report for Anglo American Platinum's De-Bottlenecking Project at the North Concentrator, Mogalakwena Platinum Mine, near Mokopane in the Limpopo Province.

SAHRIS case number 1574. 2013. Consultation of Amended Environmental Management Plan submitted in terms of Section 102 of the Mineral and Petroleum Resources Development Act 2002, (Act 28 of 2002) in respect of the farms Moordkopjes 813 LR and Zwartfontein 814 LR, situated in the Magisterial District of Polokwane.

SAHRIS case number 1799. 2013. Rescue of human skeletal remains discovered accidental during construction of a road, near Mogalakwena Platinum Mine, near Mokopane, Mogalakwena Municipality, Limpopo Province.

SAHRIS case number 2289. 2011. Consultation in terms of Section 40 of the Mineral and Petroleum Resources Development Act 2002, (Act 28 of 2002) for the approval of an Environmental Management Plan for mining permit in respect of the Farm Vaalkop 819 LR, situated in the Magisterial District of Molgalakwena, Limpompo [sic] region.

SAHRIS case number 2236. 2011. Consultation ion Terms of Section 40 of the Mineral and Petroleum Resources Development Act 2002, (Act 28 of 2002) for the approval of an

Environmental Management Plan for mining permit on the Portion 3 of the farm Rietfontein 34 KS, situated in the Magisterial District of Polokwane: Limpopo Region [sic].

SAHRIS case number 1681. 2011. **Proposed construction of 33km 132kv power line from Witkop substation to Pietersburg in Polokwane.**

SAHRIS case number 2058. 2013. **Nomination for the declaration of the Pietersburg Dutch Reformed Church Building, Erf 5699, Polokwane, Limpopo Province as a National Heritage Resource.**

SAHRIS case number 2118. 2013. **A Phase I Heritage Impact Assessment (HIA) study for Eskom's proposed new 66kv power lines running between the Polokwane and Chloe substations and between the Chloe and Gilead substations as well as a t-off to the Moletsi substation in the Limpopo Province of South Africa.**

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. Van Schalkwyk 2006; Murimbika 2006; Roodt 2007; Munyai & Roodt 2007; Murimbika 2007; Murimbika 2008), some had no documentation available (SAHRIS case number 562; SAHRIS case number 2289; SAHRIS case number 2236), some documents did not address heritage impacts (e.g. SAHRIS case number 762) and one case was for the relocation of a grave exhumed accidentally during development (SAHRIS case number 1799).

Roodt (2008) undertook a study for the Mogalakwena Bulk Water Supply Scheme, overlapping the current study area, and noted the presence of stone tools although no Iron Age sites were identified. One study in Mokopane just to the south of the study area located a total of three archaeological sites, 55 burial grounds and one historical site (SAHRIS case number 566). Some 20 km north-west of Mokopane a study noted the presence of stone tools, Late Iron Age metal working sites and historical sites including graves (SAHRIS case number 1574). In an extensive survey for a powerline beginning some 25 km to the north east of the study area Van Schalkwyk (2007) noted the presence of surface scatterings of stone tools, rock art sites, Iron Age sites (including a 700 A.D. Early Iron Age site on the farm De Gladde Klipkop some 50 km further to the north east) and historic sites including early gold mines and the remains of capitals of different groups of Sotho and Ndebele speakers. Another extensive study for a powerline in the area, some 20 km east of Mokopane, identified heritage resources including Late Iron Age stone

walled settlements, a graveyard and other possible graves (SAHRIS case number 1681). Another extensive study for a powerline passing some 40 km to the north of the study area noted a number of significant Iron Age settlements as well as more recent graves, however, all of these were located some distance to the north west of the current study area (SAHRIS case number 2118).

One study consulted (SAHRIS case number 2058) was an application for the registration of the Pietersburg Dutch Reformed Church, constructed in 1917/18, as a National Heritage Resource due to its architectural significance and historical interest. Consulting the SAHRA Heritage Register it was found that the town of Mokopane has two listed Provincial Heritage Sites, namely the Moorddrift Monument and the Old Stone School while the Makapans Valley to the east is a National Heritage Site. Polokwane has two declared provincial heritage sites, the First National Bank building and Irish House while the surrounding area has two provincial heritage sites, the first gold crushing site and the first gold power plant site (accessed 28th October 2013).

Stone Age sites

The Stone Age is divided into the Early; Middle and Late Stone Age. The *Early Stone Age* 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* 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* 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.

Excavations at Makapansgat south-east of the study area provided evidence of occupation by *Australopithecus africanus* from approximately 3.3 million years ago. There is evidence of long occupation from the Cave of Hearths with stone tools and associated debris from a date of 400,000 B.P. while upper strata are characterised by Middle Stone Age assemblages of 110,000 to 50,000 B.P. and Late Stone Age assemblages dating from 10,000 to 5,000 years B.P. characterised by the Smithfield B industry. The site is one of the few to exhibit Acheulean assemblages in Southern Africa and also contains overlying Middle Stone Age Howiesonspoort industry tools and early evidence of fire use. (Bergh, 1999; Mitchell, 2002)) To the west and south west the Waterberg is known for its many rock art sites including those containing shaded

paintings such as at Haakdoorndraai (Pager, 1973) while to the north-west the Makgabeng plateau has over 460 recorded rock art sites (Eastwood et. al., 2002). Evidence from Late Stone Age tool sites also attests to the long occupation of the wider area by hunter-gatherers.

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 10th to the 13th 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 14th Century up to the colonial period and includes traditions such as Icon and Letaba.

A number of Early Iron Age sites are known from the wider area representative of two distinct pottery assemblages. The oldest assemblage belongs to the Mzonjani facies of the Urewe tradition and dates to between 450 and 750 A.D. The Kulundu tradition is represented in the wider area by the Doornkop and Diamant facies which date to between 750 and 1000 A.D. The Middle Iron Age is represented in the area by the Eiland facies of the Kulundu tradition, dating from between 1000 and 1300 A.D. Around the town of Mokopane to the south of the study area several Late Iron Age sites are characteristic of the continuing Kalundu tradition, belonging either to the Icon facies (1300 to 1500 A.D.) or the Madikwe facies (1500 to 1700 A.D.) (Huffman, 2007).

Successive waves of both homogenous and heterogeneous groups entered and occupied the area since 1600 A.D., the latter including Ndebele, Shangaan and Koni people (Loubser, 1994). During the 17th Century Iron Age Nguni farmers moved from the Hlubi tribe in present day Kwa-Zulu Natal and settled in the former Transvaal as the Transvaal Ndebele. They were split into two major groupings of which the Northern Ndebele settled in the Mokopane - Polokwane region. While it is not clear which groups they settled alongside or displaced, several accounts of contact with the Northern-Sotho and Ba-Pedi are reported in the ethnology of these peoples.

The people currently living in the vicinity of the study site are affiliated with Northern Sotho groups who first settled in the area around modern day Polokwane around 1730 A.D. (Krige, 1937) before moving north and west towards Makgabeng and founding a settlement at Ga Matlala a' Thaba. The people here are not a homogenous group and most of the Koni people for

example regard their ancestry as being Nguni and originating in Swaziland (Mönnig, 1967). Excavations in 1980 by the University of the Witwatersrand at the site of the Bokoni Malapa museum south of Polokwane indicated settlement from 1600 to 1900 A.D. comprising a sequence of Northern Ndebele, Northern Sotho and Shangaan people, finally being occupied by the Koni of Matlala (Jordaan, 1992). The establishment of a museum based on the culture and history of the latter people is described in the historical period section below.

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. to the present.

Early European travellers, hunters and missionaries such as Cornwallis Harris and Robert Moffat visited the region in the 1830's and they were followed by the first colonists under Louis Trichardt in 1837. Considerable tensions arose between the settlers and the local people and there were a number of skirmishes including the famous siege of the Ndebele ruler Mokopane in the Makapans caves and the forced abandonment of Potgietersrust (now Mokopane) in 1870. Under the increasingly European control of the area French and German missionaries became active (Loubser, 1994) and the town of Pietersburg (now Polokwane and one of the first places in South Africa to change its name after the fall of apartheid to Polokwane, meaning 'Place of Safety' in Sesotho) was established following the purchase of the farm Sterkloop in 1892 (South African History Online). Christoph Sonntag's account of the Maleboch War makes considerable mention of the Boers using Matlala or 'Matlaleo' Commandos recruited from the area of Ga Matlala (just to the north of the study area) to fight in the battle against the Bahananoa of the Blouberg but no fighting took place in the vicinity (Sonntag, Undated). In 1984 the then Pietersburg Town Council completed the construction of the Bakoni Malapa Northern Sotho Open Air Museum south of the town, having consulted and utilised the traditional knowledge and labour of the Matlala tribe (Jordaan, 1992).

6 FIELDWORK FINDINGS

A systematic walkthrough of the study area was undertaken by a fieldwork team comprising an archaeologist and field assistant. Each member of the team carried a hand-held GPS, and their track logs are depicted in black on the maps provided. One site with low heritage significance was identified.

Site MPL 001:

GPS: 24,07351° S 28,98496° E

A stone packed insignia for the ZCC-church was identified at this location. The stone packed insignia was situated at the summit of the hill on the northern side of Tshamahansi village. The stone packed insignia consisted of the symbolic 5-star symbol of the ZCC with the letters ZCC which were written (packed) in the middle of the star. The packed insignia measured approximately 15m x 20m in size. The area was not used as a church gathering site. No other symbolic or religious items or symbols were identified at the location.



Figure 13 - View of the stone packed ZCC Insignia.

The site is graded as Grade 4D with low heritage significance and may be destructed after consultation with the local community and local church groups.

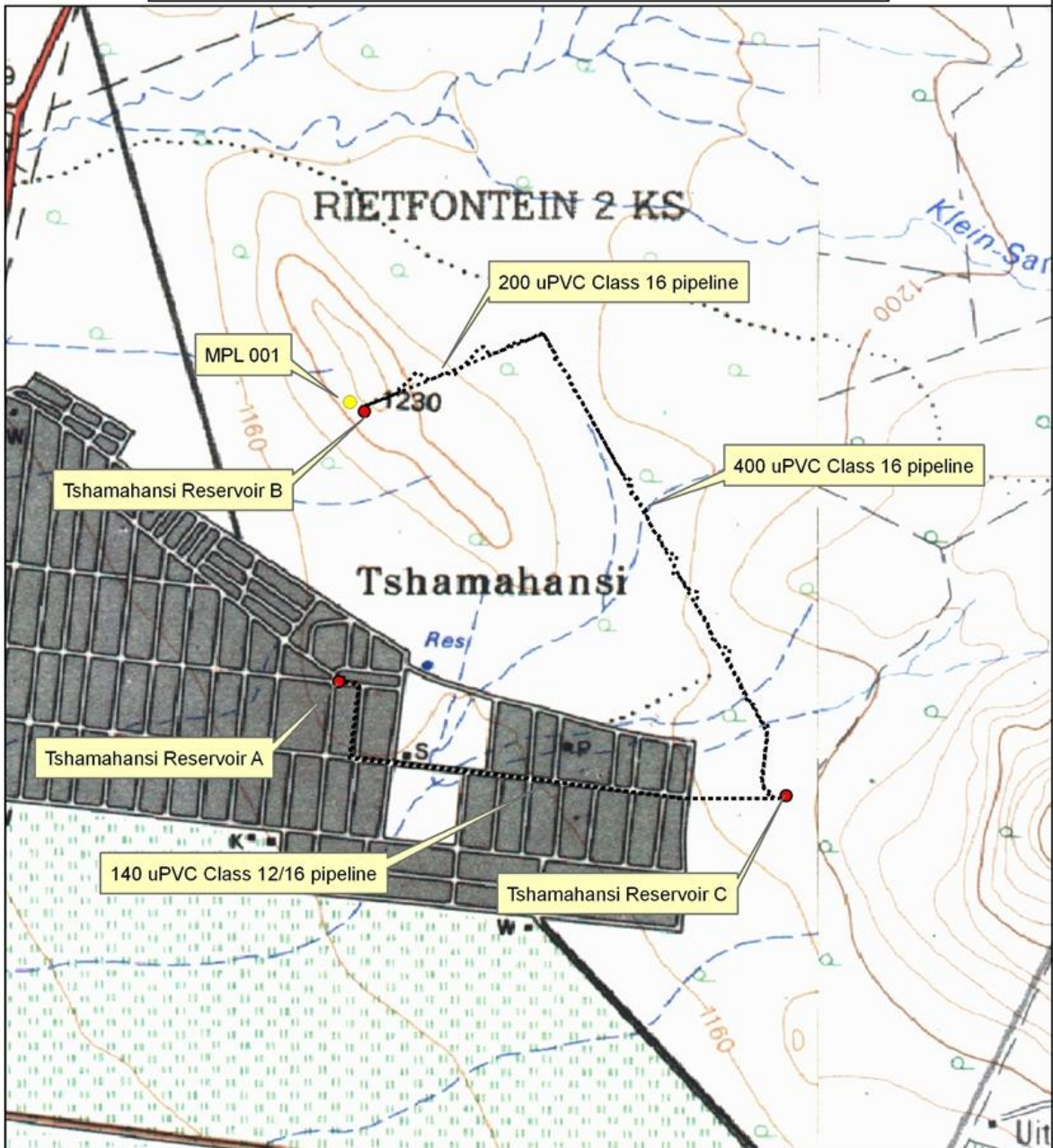
Impact Evaluation

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
Impact on heritage resources	1	1	1	2	0.4

Mitigation:

- Demarcate the insignia with a 5 meter barrier during construction
- The consultation with regards to construction close to the site needs to be done before construction starts, in order to agree on the process to be followed with the community in case the site is damaged or if work needs to be done very close to this stone packed insignia.

Tshamahansi Cluster Pipelines



0 0.5 1
 ─────────── Kilometres

1:20,000



- Reservoirs and Stream Crossings
- Heritage Site
- Track log (pipelines)

Image: WGS2428BB.TIF & 2429AA.TIF
 Source: Chief Directorate National Geo-spatial Information
 Datum: WGS84

Figure 14 – The study area with the heritage site.

7 IMPACT OF PROPOSED DEVELOPMENT ON HERITAGE RESOURCES

A stone-packed insignia for the ZCC-church was identified at this location. The stone packed insignia is situated at the summit of the hill on the northern side of Tshamahansi village. The proposed 355mm pipeline will be situated near and to the south of the ZCC-insignia. The construction of the pipeline should not have any impact on the insignia as the proposed route of the pipeline is to the south-east of the insignia and is far enough not to be damaged during construction.

8 MITIGATION MEASURES AND GENERAL RECOMMENDATIONS

It is important to demarcate the identified insignia with a 5 meter barrier during construction. The consultation with the community and local church groups with regards to construction close to the site needs to be done before construction starts, in order to agree on the process to be followed with the community in case the site is damaged or if work needs to be done very close to this stone packed insignia.

9 CONCLUSIONS

PGS Heritage was appointed by Tekplan Environmental to undertake a Heritage Impact Assessment (HIA) which forms part of the Environmental Impact Assessment (EIA) for the proposed water supply infrastructure for the residential cluster of Tshamahansi in the Mogalakwena Local Municipality, Waterberg District in the 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 study area.

The desktop study work was followed by a fieldwork component which comprised a walkthrough of the study area. One site with heritage value or significance was identified. A stone packed insignia of the ZCC-church was identified close to the location of the proposed pipeline. The construction of the pipeline should not have any impact on the insignia as the proposed location of the pipeline is to the south-east of the ZCC-insignia and is far enough not to be damaged during construction.

However, it is important to demarcate the identified insignia with a 5 meter barrier during construction. The consultation process with the community and local church groups with regards to construction close to the site needs to be done before construction starts, in order to agree on the process to be followed with the community in case the site is damaged or if work needs to be done very close to this stone packed insignia.

The development is not expected to have any impact on heritage sites. As such, no heritage reasons can be given for the development not to continue.

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Appendix A

LEGISLATIVE REQUIREMENTS – TERMINOLOGY AND ASSESSMENT CRITERIA

General principles

In areas where there has not yet been a systematic survey to identify conservation worthy places, a permit is required to alter or demolish any structure older than 60 years. This will apply until a survey has been done and identified heritage resources are formally protected.

Archaeological and palaeontological sites, materials, and meteorites are the source of our understanding of the evolution of the earth, life on earth and the history of people. In terms of the heritage legislation, permits are required to damage, destroy, alter, or disturb them. Furthermore, individuals who already possess heritage material are required to register it. The management of heritage resources is integrated with environmental resources and this means that, before development takes place, heritage resources are assessed and, if necessary, rescued.

In addition to the formal protection of culturally significant graves, all graves which are older than 60 years and are not located in a cemetery (such as ancestral graves in rural areas), are protected. The legislation also protects the interests of communities that have an interest in the graves: they should be consulted before any disturbance takes place. The graves of victims of conflict and those associated with the liberation struggle are to be identified, cared for, protected and memorials erected in their honour.

Anyone who intends to undertake a development must notify the heritage resources authority and, if there is reason to believe that heritage resources will be affected, an impact assessment report must be compiled at the construction company's cost. Thus, the construction company will be able to proceed without uncertainty about whether work will have to be stopped if an archaeological or heritage resource is discovered.

According to the National Heritage Act (Act 25 of 1999 section 32) it is stated that:

An object or collection of objects, or a type of object or a list of objects, whether specific or generic, that is part of the national estate and the export of which SAHRA deems it necessary to control, may be declared a heritage object, including –

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;
- visual art objects;

- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video or sound recordings, excluding those that are public records as defined in section 1 (xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996), or in a provincial law pertaining to records or archives; and
- any other prescribed category.

Under the National Heritage Resources Act (Act No. 25 of 1999), provisions are made that deal with, and offer protection to, all historic and prehistoric cultural remains, including graves and human remains.

Graves and cemeteries

Graves younger than 60 years fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983) and are under the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning, or in some cases the MEC for Housing and Welfare. Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. In order to handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

Graves older than 60 years, but younger than 100 years, fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and are under the jurisdiction of the South African Heritage Resources Agency (SAHRA). The procedure

for Consultation regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in the category located inside a formal cemetery administrated by a local authority will also require the same authorisation as set out for graves younger than 60 years, over and above SAHRA authorisation.

If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authority must be adhered to.