



**TSAKANE ROAD INFRASTRUCTURE IMPROVEMENT, EKURHULENI METRO
MUNICIPALITY, GAUTENG PROVINCE**

**HERITAGE IMPACT ASSESSMENT IN TERMS OF SECTION 38 OF THE
NATIONAL HERITAGE RESOURCES ACT (NO 25/1999) FOR PROPOSED ROAD
IMPROVEMENT AND LANDSCAPING AT THE JUNCTION OF THE HEIDELBERG
RD (R23) AND GELUKSDAL RD (PRINCIPAL GATEWAY TO TSAKANE
TOWNSHIP**

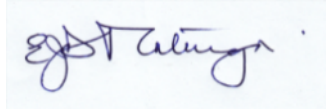
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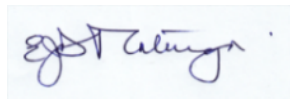
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DECLARATION OF INDEPENDENCE

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

DISCLAIMER

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



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EXECUTIVE SUMMARY

1. This Heritage Impact Assessment report was prepared in terms of Section 38 of the National Heritage Resources Act (No 25/1999) to implement an urban improvements design plan for the main entrance to Tsakane Township at the junction of the Heidelberg Rd (R323) and Geluskdal Rd. The aim of the project is to improve vehicular traffic movement at this major intersection and to landscape the setting to enhance views. The urban design upgrades are expected to contribute positive elements to an aspired modern townscape and therefore is part of the metro's socio-economic development plan.

2. Findings of the survey

3. Preindustrial period heritage

No material dating to earlier periods of the Stone Age and Iron Age was found.

4. Impact of the proposed development on buildings

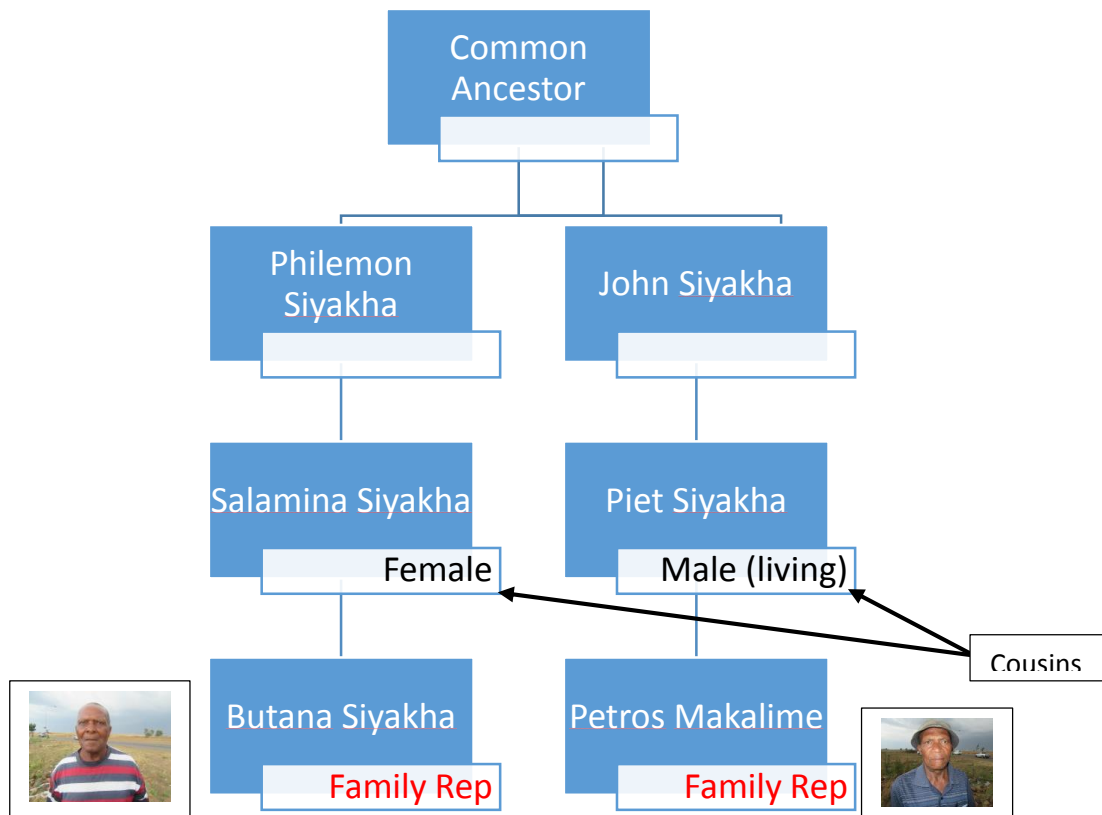
No building will be demolished or altered as a result of the proposed development. Section 34 of NHRA therefore does not apply.

5. Evaluation of the heritage potential of the area and associated impacts

6. Preferred site

The preferred site of the proposed township improvements is at the junction of the Heidelberg Rd and the Geluskdal Rd, where a burial ground which may hold up to ten graves is situated (TSK01). Family representatives of the deceased responded to the public notices, press advertisement and radio announcement made, viz. Messrs Butana Siyakha and Petros Makalime. Their parents lived on the Farm Withoek 388.

7. A relationship matrix of the two informants is attempted below:



8. Mitigation

If the proposed improvements will go ahead, it is recommended that the graves be relocated to a formal cemetery subject to consent being granted by the affiliated families. If the plan is not feasible, the graves must be rehabilitated to the satisfaction of the families affiliated with the graves or their representatives.

9. Alternative Site 1

The first alternative site of the proposed project is the junction of the Heidelberg Rd and Shakwane Street. There are suspicious oval mounds of stones and earth numbering at least eight (8) (TSK09). No firm conclusion has been reached as to whether they are grave markers or road construction topsoil discard.

10. Mitigation

If the project is moved to this site, the mounds must be further investigated; excavations are recommended to ascertain their status. The foundation remains of farm buildings are rated of low cultural significance. If destruction becomes necessary an archaeologist must be hired to monitor the process.

11. Alternative Site 2

The second alternative site of the proposed project is at the junction of the Heidelberg Rd and Njelele Street. No features or relics of heritage significance were found.

12. Mitigation

No further action is warranted if the site is adopted for the project.

13. Cultural landscape characterisation

The three sites were evaluated for physical elements that can exemplify a cultural landscape of heritage value. No significant elements could be singled out as significant except a line of exotic tree plantings near the junction of the Heidelberg Rd and Shakwane St (Alternative Site 1). There are no compelling reasons to get rid of the trees which can be incorporated into a new landscape design.

14. Significance Ranking of findings

The significance ranking (with a colour scheme) refers to perceived impacts and risk of the proposed development.

	RANKING	SIGNIFICANCE	NO OF SITES
1	High	National and Provincial heritage sites (Section 7 of NHRA). All burials including those protected under Section 36 of NHRA.	7
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. These may be protected at the recommendations of a heritage expert.	1
3	Medium B	Sites exhibiting archaeological and historical characteristics of the area, but do not warrant further action after they have been documented.	2
4	Low	Heritage sites which have been recorded, but considered of minor importance relative to the proposed development.	4
		TOTAL	14

12. Conclusions and recommendations

Exhumation and relocation of the graves at the junction of the Heidelberg Rd and Geluksdal Rd may be considered as an option subject to consent by the affiliated families. Otherwise rehabilitation *in situ* of the graves is recommended.

If the project is moved to Alternative Site 1, the mounds which resemble graves must be further investigated with excavations recommended to ascertain their status. No heritage features or relics occur at Alternative Site 2, therefore no further action is warranted if the site is adopted. This report does not give a green light for the project to proceed until a resolution is reached on the fate of the graves at TSK01.

1. MOTIVATION FOR DEVELOPMENT PROJECT

The City of Ekurhuleni is implementing an urban improvements design plan for the main entrance to Tsakane Township at the junction of the Heidelberg Rd (R323) and Geluskdal Rd. The focus is on improving vehicular traffic movement at a major intersection and landscaping needful to enhance views at this principal gateway into Tsakane Township. Widening and introduction of slip off and onto the Heidelberg Rd will expedite traffic flow. Overall the urban design upgrades proposed will contribute positive elements to an aspired modern townscape and therefore is part of the metro's socio-economic development plan.

2. BACKGROUND INFORMATION

2.1. Phase 1 Heritage Impact Assessment

A Phase I Heritage Impact Assessment (HIA) has been undertaken in terms of 38 of the National Heritage Resources Act (No 25 of 1999) to pave way for the proposed upgrades at the corner of the Heidelberg Rd and the Geluksdal Rd on the outskirts of Tsakane Township in the Ekurhuleni Metro. Phase I is a scoping investigation to ascertain whether any immovable/immovable, tangible/intangible heritage of important significance will be affected by the proposed development. Several site visits have been made to the site and the neighbourhood over a period of 6 months from May 2019. The findings in this report are applied for decision-making on intervention strategies to protect Heritage Resources found at the site.

2.2. Type of development

This development falls into the category of urban infrastructure upgrades focussing on road widening and beautification landscaping. Considering that a burial ground exists at the junction of the Heidelberg Rd and the Geluksdal Rd, public sensibilities about the sanctity of graves and the application of Section 36 of the National Heritage Resources Act (No 25/1999) comes into spotlight. The project has potential to damage graves and other relics that might be buried below the surface.

2.3. Current and previous land use

In order to provide alternatives for the proposed development two more sites were proposed and have been included in this study. These are the junction of the Heidelberg Rd and Shakwane St (Lat: 26°21'19.19"S, Long: 28°20'36.56"E), and the

junction of the Heidelberg Rd and Njelele St (Lat: 26°22'31.90"S, Long: 28°20'34.60"E). The Heidelberg Rd is a provincial arterial road linking Benoni, Brakpan, Tsakane and Heidelberg, while Geluksdal, Shakwane and Njelele are metro roads offsetting east into Tsakane Township. Beyond the servitudes of the three streets there is open unused land which belongs to the Ekurhuleni Metro. Prior to the development of Tsakane this area was commercial farmland. The land was subsequently owned by the Vlaktefontein Mine before it was purchased by the municipality.

2.4. Topography of the area, including landscape qualities

Tsakane is a township in the Ekurhuleni Metro historically regarded as part of Brakpan. The township is situated on the undulating plains of the Highveld with altitude ranging from 1600 m to 1800m above mean sea level. Drainage trends south into the Vaal River; there are several channels in the broader area flanked by wetlands (Figure 1).

On the west side of the junction of the Heidelberg Rd and Geluksdal Rd is located one of the largest mine tailings in Gauteng Province with mine waste channelled from several mines in the area. In the open areas the Savannah biome is represented by grasses, while the trees are exotics with Eucalyptus predominating. The common Highveld grasses are *Themeda triandra*, *Heteropogon contortus*, *Elionurus musticus* and a number of *Eragrostis* species. Most prominent forbs are of the families Asteraceae, Rubiaceae, Malvaceae, Lamiaceae and Fabaceae. Disturbance leads to an increase in the abundance of the grasses *Hyparrhenia hirta* and *Eragrostis chloromelas* (Marais and Burger, 2018, p15) (Figures 1-4).



Figure 1: View southwest to the junction of the Heidelberg Rd and Geluksdal Rd, and the Brakpan tailings dam in the background.



Figure 2: View west of the junction of the Heidelberg Rd (in the background) and Shakwane St (Alternative Site 1).



Figure 3: Figure 2: Close view east of the junction of the Heidelberg Rd (in the background) and Shakwane St (Alternative Site 1).



Figure 4: View east of the junction of the Heidelberg Rd and Njelele St (Alternative Site 2).

2.5. Historical development of the project area

Ekurhuleni is traditionally regarded as a part of the Johannesburg conurbation dating back to 1886 when gold was discovered at the Witwatersrand. This followed occupation of the region by the Voortrekkers from the 1830s. The new arrivals parcelled land for themselves creating the first commercial farms, especially after the

singing of the Sand River convention in 1852. “Brakpan” was named in 1886, due to the very brackish water from a small pan on the Farm “Weltevreden”. The impetus of industrial development was largely influenced by the discovery of gold at the Witwatersrand in 1886 and coal in 1888. The Brakpan Mines Company sunk its first two gold mine shafts in 1905. Brakpan was a suburb of Benoni from 1881 when it was established until 1919 when it severed and was granted the status of a municipality, and proclaimed as a town. The Rand Rebellion (or Rand Revolt) was an armed uprising of white miners in the Area in March 1922. The cause of the revolt was a drop in gold prices, the companies responding by reducing wages and preferring more African miners to skilled and supervisory positions at lower rates, thus cutting costs. The strike started on 28 December 1921 and became an open rebellion against the state. The workers revolted taking over Brakpan, Benoni and some suburbs of Johannesburg by force of arms. The violent strike continued for three months, involving bloody clashes between the miners and the military workers. On 9 March, Prime Minister Jan Smuts responded with mobilization orders for the Active Citizens Force and declared martial law. The rebellion was crushed by military force (20 000 troops, artillery, tanks and bomber aircraft) at the cost of over 200 lives.

With the coming to power of the Nationalist Party and the enactment of a raft of segregation laws (in particular the Group Areas Act (No 41/1950)) the urban land use and demographics of the area were transformed. Different townships were established and citizens separated according to the apartheid schema of racial differences. Forced removals began. While black Africans had lived in Brakpan Old Location (*Ou Lokasie*) in close proximity to whites they were forcibly and the final phase of the translocation was from 1974 to 1978 which marked the formal establishment of Tsakane c.15 km to the south. The Old Location was razed (Zwane 2019: 33). The Benoni and Brakpan Municipalities were incorporated into the Ekurhuleni metropolitan Municipality in 2001 (largely adapted from Gaigher 2018: pp21-23).

Tsakane, a Tsonga word meaning “be joyful”, was so named by Mr Robert Thuketana, a teacher who became a businessman and civic leader (Zwane, Ibid: 36). There was so much resistance to the segregation project from prominent anti-apartheid activists such as David Bopape.

A number of gangster groups operated in Tsakane under the nose of the South African Police who were more concerned about political activists. In 1984, in the period after the Soweto Uprising, the Congress of South African students (COSAS) established in Tsakane under the leadership of Popo Mahlangu and later Eddie Maseko. One of the major highlights of this period was the struggle between residents and hostel dwellers to which COSAS and the South African police respectively took sides. The confrontation was the bloodiest in the history of Tsakane (Zwane 2019: 70-71).

Since 1978, the recycling of the mine tailings at Brakpan (the largest such dump in the Witwatersrand) has resulted in the recovery of significant residual quantities of gold and uranium. Over time gold mining in the area has decreased in importance.

2.6. Associated infrastructure

The improvements are linked to roads and landscape design of the principal gateway to Tsakane Township.

2.7. Size of the Project area

The foot print of the proposed site and the two alternatives is each c. 1 ha.

3. LEGISLATION

3.1. Heritage Impact Assessments

Section 38 of the National Heritage Resources Act (No 25 of 1999) specifies the nature and scale of development projects which require a Heritage Impact Assessment as mitigation:

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

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

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

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

(i) exceeding 5 000m² in extent; or

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

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

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

Although the proposed development does not cross the threshold of 500m², a heritage impact assessment is nevertheless required in light of the site's legal status as a Provincial Heritage Site (Grade II). Section 27(18) justifies this impact assessment as the appropriate mitigation and is therefore applied in tandem with Section 38 of the NHRA.

3.2. Protection of historic buildings

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

3.3. Protection of archaeological and palaeontological sites

Section 35 (4) of the NHRA prohibits the destruction of archaeological, palaeontological and meteorite sites:

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

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

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

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

4. LOCATION OF THE STUDY AREA (MAP)



Figure 5. Google-Earth map shows the location and layout of the proposed pipeline.



Figure 6: The preferred site at the intersection of the Heidelberg Rd and Geluksdal Rd

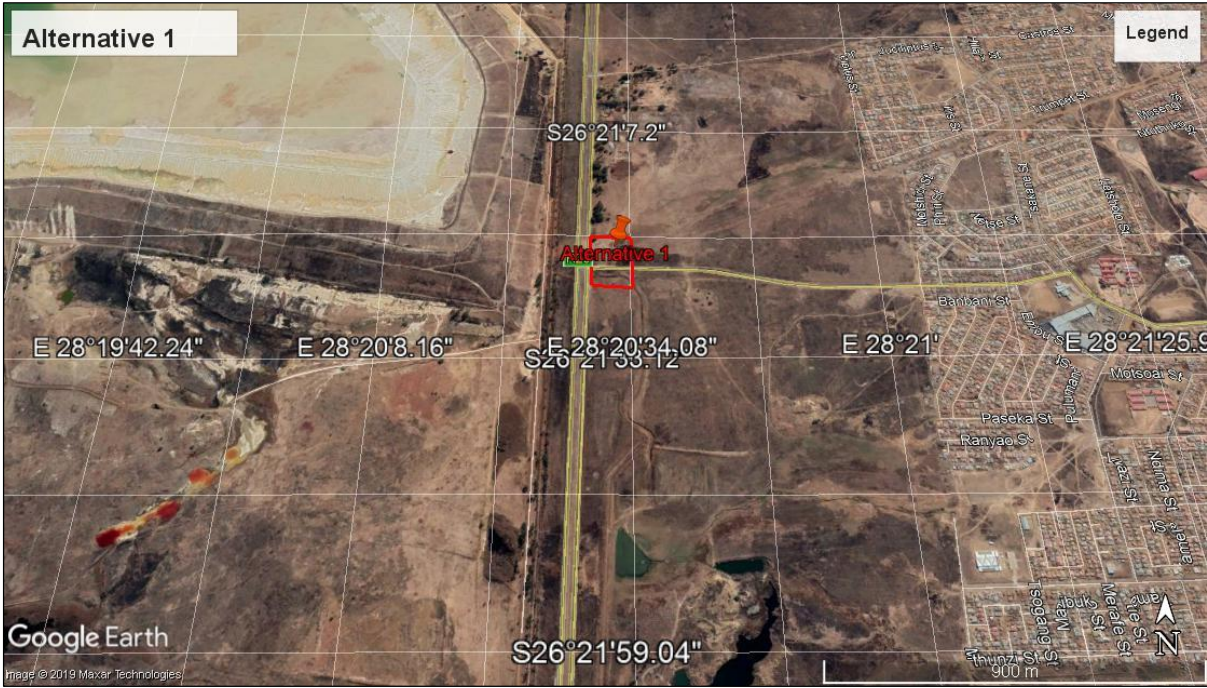


Figure 7: Alternative Site 1 at the junction of the Heidelberg Rd and Shakwane St.



Figure 8: Alternative Site 2 at the junction of the Heidelberg Rd and Njelele St.

5. AIMS OF THE STUDY

A Heritage Impact Assessment is a screening exercise to identify heritage resources in an area that has been earmarked for development so as to pre-empt damage or disturbance, and where these cannot be avoided a mitigation plan is prescribed in order to minimise impact or alternative placement of the project is recommended where the risk on the identified heritage is considered to be very high in relationship to its value. An HIA is therefore based on an understanding of heritage and its significance, and if heritage is found in the area of the proposed development mitigation options are considered and recommendations made on a conservation strategy that best conserves the resource(s) within the context of the proposed development.

6. AREA DESCRIPTION

6.1. The junction of the Heidelberg Rd and the Geluskdal Rd.

This is the principal entrance/exit for traffic to/from Tsakane linking with other service nodes in Ekurhuleni and Johannesburg. A major traffic interchange is 5 km distance at the intersection of the Heidelberg Rd and the N17 highway from Johannesburg to Springs, Secunda and Ermelo. Brakpan mine tailings dam is a prominent landmark in the area and forms a western backdrop to the junction. The area is open grassland

except for eucalyptus planted on either side of the Heidelberg Rd. Running along the south side of the Geluksdal Rd there is a bulk pipe installation for the transportation of mine sludge to the Brakpan tailings dam.

6.2. The junction of the Heidelberg Rd and Shakwane Rd

This is a proposed Alternative Site 1. The junction is set against the Brakpan Mine tailings dam, a short distance of 400 m. The topography is flat, the eastern boundary is a wetland and stream running south and crossing Shakwane St. Twenty exotic trees are aligned close to the stream and parallel the Heidelberg Rd.

6.3. The junction of the Heidelberg Rd and Njelele St

This is a proposed Alternative Site 2. A large expanse of passive space is on the west side of the Heidelberg Rd, while the space east of the road is restricted by residential development which comes to within 100 m of the Heidelberg Rd.

7. APPROACH AND METHODOLOGY

7.1. Desktop Research

A literature study sheds light on the geographical and cultural context of Tsakane and Brakpan was undertaken to provide background and context. Documentary analysis is the examination of current and historical documents. Published historical and geographical information consulted and relevant background material provided by the Client. The internet is an important portal for searching reports of previous research in the area. The documentary analysis allowed a good understanding of the heritage potential of the study area.

The following EIA and HIA studies are referenced in this report:

Marais, V and M Burger. 2018. *Draft scoping report for the proposed Minnebron x 1 Mixed Use Development on Portion 3 of the Farm Witpoortjie 117 I.R. and on the southern, undeveloped part of Van Eck Park x 2 (portions 524-525), Brakpan, Ekurhuleni.*

Gaigher, S. 2018. *Heritage Impact Assessment for the proposed Residential Township, Leachville Extension 2, situated on Portion 148 of the Farm Rietfontein 115IR, the Ekurhuleni Metro Municipality, Gauteng Province.*

Gaigher, S. 2015. *Heritage Impact Assessment for the Proposed Vlakfontein Township Development. G & A Heritage.*

Gaigher, S. 2007. *Cultural heritage resources impact assessment of the farm Vlaklaagte 161 Tsakane Benoni Gauteng.*

Matenga, E. 2019. *Tsakane Road Infrastructure Improvement, Ekurhuleni Metro Municipality, Gauteng Province: Investigation of graves at the Junction of the Heidelberg Rd (R23) and Geluksdal Rd (principal entrance to Tsakane Township).*

7.2. Ground Survey

A burial ground had been reported and recorded at the corner of the Heidelberg Rd and Geluksdal Rd located within the footprint of the planned road infrastructure improvement project. During the first visit to the site on 18 March 2019 a preliminary examination was undertaken. A pile of stones was noticed. On close examination a concrete rim 2 m long x 70 cm wide was also seen in the pile, which indicated a grave marker with the longer sides aligned east-west. Four South African copper coins found close to the stone pile suggested funeral goods placed there post-burial. Around the site, occupation debris was noticed including what appeared to be a plough or wagon component. All objects found pointed to occupation dating to the relatively recent industrial period i.e. 19th to 20th centuries. Public concern had already been raised about the likely detrimental impact of the planned improvements to the burial ground. In light of this additional precautions were taken to avoid a potential public fallout and backlash. After approaching key local individuals with social and political influence a decision was made to screen a much larger area for the possible occurrence of graves. To this end Mr Levy V. Mkhonza of the Brakpan Museum not only provided us with primary information about heritage in the area, but played a critical role from a public relations perspective. He accompanied the heritage specialist in the field locating burial grounds.

7.3. Public Participation

The public participation process was vigorous since it was necessary to locate those affiliated to the burial ground at the junction of the Heidelberg Rd and Geluksdal Rd. A notice was published on 18 October 2019 in the African Reporter Newspaper which has a local readership base (circulated in Springs, Brakpan and Tsakane). Public notices were mounted at the Tsakane Customer Care Centre and the entrance to Faranani Multipurpose Centre also in Tsakane. A podcast was recorded at a local radio station broadcasting from the Faranani Multipurpose Centre. An

unannounced visit was made to a steel manufacturing firm, RAM Trading, along Boland St. After concerted plea with security guards manning the entrance to the premises, permission was granted to speak to General Manager, Mr Michiel Druce, who provided an important clues. He knew and phoned Mr Rudolf Hansen the present owner of the Farm Withoek 388 paving the way for a meeting thereafter. The door to door search for clues extended to Tsakane Township beginning with a community liaison office at the Tsakane Customer Care Centre, then a Ward Councillor Mr Desmond Buitendacht and a civic leader, Mr Ernest Hendrick.

8. LIMITATIONS EXPERIENCED

Attempts to locate next-of kin of those interred at junction of the Heidelberg Rd and Geluksdal Rd were protracted and long extending for 6 months, but eventually paid off.

9. TERMINOLOGY USED

Archaeology: The study of the human past through its material remains.

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

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

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

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

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

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

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

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

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

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

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

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

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

Grave: a place of burial which include materials such as tombstone or other marker such as cross etc.

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

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

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

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

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

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

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

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

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

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

Sherd: ceramic fragment.

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

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

Site Recoding Template: Site recording form.

10. CONDITIONS AND ASSUMPTIONS

All possible care was taken to identify and document heritage resources during the survey in accordance with best practices in archaeology and heritage management. However, it is always possible that some hidden or subterranean sites are overlooked during a survey.

11. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

An outline of the cultural sequence in South Africa is given here to set the context for the identification of heritage resources in the study area.

11.1. Cultural sequence summary

PERIOD	EPOCH	ASSOCIATED CULTURAL GROUPS	TYPICAL MATERIAL EXPRESSIONS
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominids: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period c300 – 900 AD (or earlier)	Holocene	Iron Age Farmers	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Later Iron Age 900ADff	Holocene	Iron Age Farmers, emergence of complex state systems	Typically distinct ceramics, evidence of long distance trade and contacts
(ii) Mapungubwe (K2)	1350AD		Metals incl gold, long distance exchanges
(ii) Historical period	Nguni / Sotho/Venda people	Iron Age Farmers	Mfecance / Difaqane
(iii) Colonial period	19 th Century	European settlers / farmers / missionaries/ industrialisation	Buildings, Missions, Mines, metals, glass, ceramics

11.2. Appearance of Hominids

Important fossil evidence of hominids occurs in South Africa dating to 3 million years ago. The hominid site at Sterkfontein (Cradle of Humankind) 60 km northwest of Boksburg is one of the most famous hominid sites in the world featuring more than one hominid genus including *Australopithecus africanus*. The site has been inscribed on the UNESCO World Heritage list as a serial nomination together with Taung in the northwest Province and Makapansgat in Limpopo Province.

11.3. The Stone Age

The Early Stone Age [2 million – 250 000 yrs BP]

The Early Stone Age marks the earliest appearance of stone artefacts c. 2 million years ago. Such tools bore a consistent shape such as the pear-shaped handaxe, cleavers and core tools (Deacon & Deacon, 1999). These tools, which have been called Acheulian after a site in France, were probably used to butcher large animals such as elephant, rhinoceros and hippopotamus. Acheulian artefacts are usually found near sites where they were manufactured and thus in close proximity to the raw material or at butchering sites. The early hunters are classified as hominids or proto-humans, meaning that they had not evolved to the present human form.

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

The Middle Stone Age (MSA), which appeared 250 000 years ago, is marked by the introduction of a new tool kit which included prepared cores, parallel-sided blades and triangular points hafted to make spears. By then humans had become skilful hunters, especially of large grazers such as wildebeest, hartebeest and eland. It is also believed that by then, humans had evolved significantly to become anatomically modern. Caves were used for shelter suggesting permanent or semi-permanent settlement. Furthermore there is archaeological evidence from some of the caves indicating that people had mastered the art of making fire. These were two remarkable steps in human cultural advancement.¹

¹ Deacon, J & H. Deacon. 1999. *Human Beginnings in South Africa*. Cape Town: David Philip.

The recent discovery of hominid fossils near Sterkfontein Caves assigned to the genus *Homo Naledi* and dated to between 335 000 and 236 000 MYA overlap between the EIA and MSA (The Star, 10 May 2017, p1 & 12).

Later Stone Age (LSA)[40 000 yrs to ca 2000 yrs BP]

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

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

11.4.1. *The Early Iron Age*

The Iron Age culture supplanted the Stone Age more than 2000 years ago, associated with the introduction of farming and the use of several metals and pottery. The Early Iron Age (EIA) is seen as a sudden and simultaneous appearance of these technologies in South Africa, indeed in the whole region of Eastern and Southern Africa suggesting a fairly rapid spread of people.² This is associated with speakers of the many languages spoken in the region collectively referred to as Bantu. There was no Bantu migration as such since these people are indigenous to the African continent anyway. Instead there was a gradual expansion of settlement as would inevitably happen as population increased. In the southern part of the continent Iron Age people would have coexisted and intermingled with Khoi-San communities over several thousand years, and the hybrid languages spoken in this area is a footprint of such cultural encounters.

The Later Iron Age

The Later Iron Age in South Africa evolved from the Early Iron Age around the beginning of the second millennium AD. It is often associated with the development of complex state systems such as Mapungubwe and later Great Zimbabwe. In historical

² Phillipson, D. W. 2005. *African Archaeology*. Cambridge: University of Cambridge Press: 249.

terms, the Later Iron Age is prelude to the emergence of historical Sotho-Tswana communities who inhabited this area before the entry of Europeans in the 19th century.

11.5. Precolonial Period

The area where Johannesburg was to be founded in 1886 was inhabited by Sotho-Tswana speaking people. Regrettably little research has been focussed on these pre-urban communities. To the north in the region of Pretoria the Southern Ndebele settled in the 16th-17th centuries. On-going studies are unravelling a nucleated Tswana settlement in the Suikerbosrand area south of Johannesburg, images of which have been accentuated by LiDAR technology (LiDAR - Light Detection and Ranging). It speculated that these settlements which represent Tswana city states collapsed in the 1820 at the Difaqane onslaughts.³ Some had never been documented in writing and their oral histories had gone unrecorded.

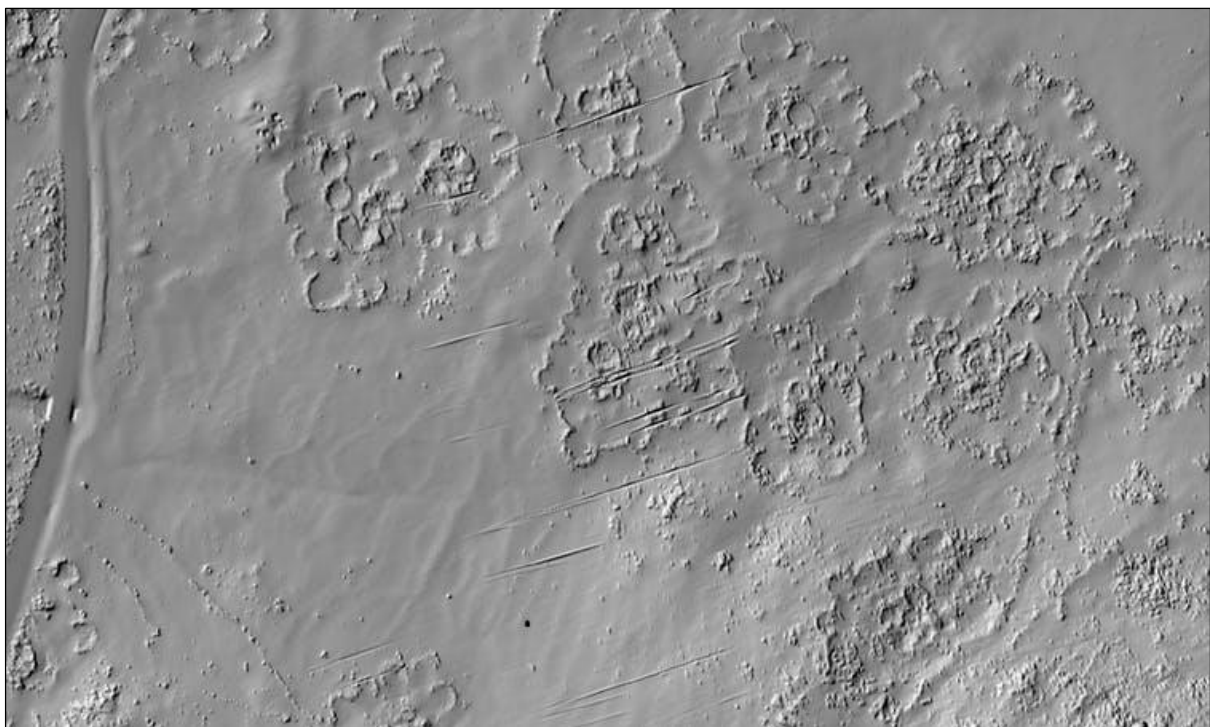


Figure 9: LiDAR (Light Detection and Ranging) redrawn remains of a Tswana city, along the lower western slopes of the Suikerbosrand hills near Johannesburg.

³ Long-lost ancient Tswana city found south of Joburg. Found at <https://citizen.co.za/news/south-africa/1862267/long-lost-ancient-tswana-city-found-south-of-joburg/> Consulted Nov 2019.

The Highveld area of Gauteng was affected by the 19th century Mfecane / Difaqane, a series of upheavals triggered by the rise of the Zulu Kingdom under Shaka. Significantly the Ndebele of Mzilikazi Khumalo briefly settled around Pretoria from 1829 until their departure in 1837 after a bloody confrontation with the Voortrekkers (Rasmussen, K. 1978).

11.6. Colonial occupation

The events leading to Great Trek and the occupation of the Gauteng region in the 1840s are summaries in the following table (adapted from Gaigher 2015: p15).

DATE	DESCRIPTION
1840's	Arrival of white farmers and establishment of commercial farms.
1880 - 1890's	Gold and coal were discovered in the area and subsequently the ground prices soared.
1880 - 1900's	Coal mining started on a small scale, until the Great Eastern Mine was established. In 1904 the Grootvlei Proprietary Mines were registered and shafts were sunk.
1880's	The first railways were built after the discovery of coal to carry it to the gold mines on the Witwatersrand.
1905	Brakpan mine starts operating
1900's - 1960's	Brakpan severs from the Benoni Municipality.
1922	The Rand (Miners) Revolt started March 1922 was an armed uprising of white miner in the Witwatersrand region, epicentre of revolt in the East Rand.
1940's - 1990's	During the apartheid era, Benoni was reserved for whites Indians relocated to Actonville and the black people were relocated to Brakpan Old Location and later to Tsakane
1990 – present	Poor families moving to the area has given rise to many informal settlements around the industries.
1999	As part of the restructuring of municipalities, local governments of the East Rand were merged into a single municipality, named the Ekurhuleni Metropolitan Municipality

12. DETAILED INDIVIDUAL DESCRIPTION OF IDENTIFIED CULTURAL RESOURCES

Since the burial ground at the junction of the Heidelberg Rd and the Geluksdal Rd had nearly been missed, a search for burial grounds in the broader area was undertaken as necessary due diligence. The following is a catalogue of the findings:

12.1. Preferred site for the proposed project

SITE NO	COORDINATES		PERIOD
TSK01	26°20'21.57"S	28°20'28.90"E	19 th /20 th Century
			
<p>DESCRIPTION: Burial ground situated at the intersection of Heidelberg Rd and Geluksdal Rd outside Tsakane. One grave with concrete rim and headstone damaged. 10 graves reported. Shallow earth moving machine around the graves</p>			
HERITAGE SIGNIFICANCE		Section 36 of NHRA	
MITIGATION	Next of kin located in Tsakane. Decision to be made whether the graves will be rehabilitated in situ or moved to a formal cemetery.		

12.2. Investigation of the alternative placements of the infrastructure improvements

Alternative 1

The site is located at the junction of the Heidelberg Rd and Shakwane Street.

SITE NO	COORDINATES		PERIOD
TSK10	26°21'22.60"S	28°20'31.60"E	19 th – 20 th century



DESCRIPTION: Suspicious oval mounds of stones and earth numbering at least eight (8). They could either be grave markers or road construction topsoil discard.

HERITAGE SIGNIFICANCE

Possible burials (Section 36 of NHRA).

MITIGATION

Mounds to be investigated to ascertain whether or not they are burials.

SITE NO	COORDINATES		PERIOD
TSK11	26°21'21.40"S	28°20'31.50"E	19 th – 20 th century



DESCRIPTION: Foundation remains of buildings (cement floors) and line of exotic tree plantings suggest there was a farmstead.	
HERITAGE SIGNIFICANCE	Typical commercial farmstead.
MITIGATION	If the site will be used, the exotic tree plantings must be retained and incorporated into the landscape design. The foundations of building can be disposed of subject to monitoring by a heritage expert.

SITE NO	COORDINATES		PERIOD
TSK12	26°21'20.10"S	28°20'32.10"E	19 th – 20 th century



DESCRIPTION: Derelict borehole on the edge of the wetland.

HERITAGE SIGNIFICANCE

Associated with commercial farming.

MITIGATION

Low significance, no further action required.

SITE NO	COORDINATES		PERIOD
TSK13	26°21'23.73"S	28°20'31.14"E	19 th – 20 th century



DESCRIPTION: Setting of whitewashed stones in the shape of a cross on the south side of Shakwane Street, likely to be a survey beacon.

HERITAGE SIGNIFICANCE


Low significance.

MITIGATION

No action required.

Alternative Site 2

The site is at the junction of the Heidelberg Rd and Njelele St.

SITE NO	COORDINATES		PERIOD
TSK14	26°22'31.90"S	28°20'34.60"E	19 th – 20 th century
 A photograph showing a field of dry, yellowish-brown grass. In the foreground, there is a pile of grey stones. A red and white striped marker is planted in the ground near the stones. In the background, there is a road junction, a red stop sign, and a body of water under a cloudy sky.			
DESCRIPTION: Pile of stones near the junction of the Heidelberg Rd and Njelele Street.			
HERITAGE SIGNIFICANCE		No heritage significance	
MITIGATION		No action required.	

12.3. Other sites in the broader area

SITE NO	COORDINATES		PERIOD
TSK02	26°19'14.70"S	28°20'20.50"E	19 th -20 th Century
			
<p>DESCRIPTION: Gravesite on the east side of the Heidelberg Rd. 19 graves counted. They could have been more. Excavations /mining of gravel for the construction of roads came very close to the burial ground on the northern and western side.</p>			
HERITAGE SIGNIFICANCE		Section 24 of NHRA	
MITIGATION		Will not be affected by the proposed development.	

SITE NO	COORDINATES		PERIOD
TSK03	26°17'34.20"S	28°20'56.80"E	19 th /20 th Century





DESCRIPTION: Burial ground may hold more than 50 graves. The site has been abandoned and in a poor state. Headstones knocked down. The graves in a poor state with some of the headstone knocked down.

HERITAGE SIGNIFICANCE	Section 36 of NHRA.
MITIGATION	Will not be affected by the proposed development.

SITE NO	COORDINATES		PERIOD
TSK04	26°16'44.65"S	28°19'17.73"	19 th /20 th Century





DESCRIPTION: A large burial ground outside Dalpark. May hold more than 700 individuals in an area 200m x 200m. Reported associated with miners from Vlakfontein Gold Mine and their families. In two of three sections, the graves appear to have been marked with numbers of circular steel plates. Most of them would have rusted away.

HERITAGE SIGNIFICANCE	Section 34 of NHRA
MITIGATION	Will not be affected by the proposed development.

SITE NO	COORDINATES		PERIOD
TSK05	26°20'15.20"S	28°20'25.20"E	19 th /20 th Century



DESCRIPTION: Burial ground on the western edge of Heidelberg, may hold more than 30 graves.


HERITAGE SIGNIFICANCE	Section 36 of NHRA.
MITIGATION	Will not be affected by the proposed development.


SITE NO	COORDINATES		PERIOD
TSK06	26°19'44.70"S	28°20'46.40"E	19 th /20 th century



DESCRIPTION: Burial ground located 220 m east of the Withoek homestead. Marked by settings of stones with headstones.

HERITAGE SIGNIFICANCE	Section 36 of NHRA.
MITIGATION	Will not be affected by the proposed development.

SITE NO	COORDINATES		PERIOD
TSK08	26°19'58.06"S	28°20'37.31"E	19 th /20 th Century
			
<p>DESCRIPTION: Remains of the farmworkers compound on Withoek 388 where those buried at TSK01 lived.</p>			
HERITAGE SIGNIFICANCE		Association with commercial farming.	
MITIGATION		Will not be affected by the proposed development.	

SITE NO	COORDINATES		PERIOD
TSK09	26°19'44.96"S	28°20'38.43"E	19 th – 20 th century
			
<p>DESCRIPTION: Farmstead on Withoek 388. Belongs to the same period as the ruined workers compound and the burials.</p>			
HERITAGE SIGNIFICANCE		Typical commercial farmstead.	
MITIGATION		Will not be affected by the proposed development.	

12.4. Spreadsheet inventory of graves and other heritage resources

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
PREFERRED SITE						
TSK01	26°20'21.57"S	28°20'28.90"E	19th/20th C	Burial ground situated at the intersection of Heidelberg Rd and Geluksdal Rd outside Tsakane. One grave with concrete rim and headstone damaged. 10 graves reported. Shallow earth moving machine around the graves	Medium A	Next of kin located in Tsakane. Decision to be made whether the graves will be rehabilitated in situ or moved to a formal cemetery.
ALTERNATIVE SITE 1						
TSK10	26°21'22.60"S	28°20'31.60"E	19th/ 20th C	Suspicious oval mounds of stones and earth numbering at least eight (8). They could either be grave markers or road construction topsoil discard. In the absence of records or oral testimonies, no firm conclusion can be reached	??	Mounds to be investigated to ascertain whether or not they are burials.
TSK11	26°21'21.40"S	28°20'31.50"E	19th /20th C	Foundation remains of buildings (cement floors) and line of exotic tree plantings suggest there was a farmstead.	Medium B	If the site will be used, the exotic tree plantings must be retained and incorporated into the landscape design. The foundations of building can be disposed of subject to monitoring by a heritage expert.
TSK12	26°21'20.10"S	28°20'32.10"E	19th/20th century	Derelict borehole on the edge of the wetland.	Low	No further action required.

TSK13	26°21'23.73"S	28°20'31.14"E	19th/ 20th century	Setting of whitewashed stones in the shape of a cross on the south side of Shakwane Street, likely to be a survey beacon.	Low	No action required.
ALTERNATIVE SITE 2						
TSK14	26°22'31.90"S	28°20'34.60"E	19th – 20th century	Pile of stones near the junction of the Heidelberg Rd and Njelele Street.	Low	No action required.
OTHER HERITAGE RESOURCES IN THE BROADER AREA						
TSK02	26°19'14.70"S	28°20'20.50"E	19th/20th C	Gravesite on the east side of the Heidelberg Rd. 19 graves counted. They could have been more. Excavations /mining of gravel for the construction of roads came very close to the burial ground on the northern and western side.	Medium A	Will not be affected
TSK03	26°17'34.20"S	28°20'56.80"E	19th/20th C	Burial ground may hold more than 50 graves. The site has been abandoned and in a poor state. Headstones knocked down. The graves in a poor state with some of the headstone knocked down.	Medium A	Will not be affected
TSK04	26°16'44.65"S	28°19'17.73"	19th/20th C	A large burial ground outside Dalpark. May hold more than 700 individuals in an area 200m x 200m. Reported associated with miners from Vlakfontein Gold mine and their families. In two of three sections, the graves appear to have been marked with numbers of circular steel plates. Most of them would have rusted away.	Medium A	Will not be affected
TSK05	26°20'15.20"S	28°20'25.20"E	19th/20th C	Burial ground on the western edge of Heidelberg, may hold more than 30 graves.	Medium A	Will not be affected

TSK06	26°19'44.70"S	28°20'46.40"E	19th/20th C	Burial ground located 220 m east of the Withoek homestead. Marked by settings of stones with headstones.	Medium A	Will not be affected
TSK08	26°19'58.06"S	28°20'37.31"E	19th/20th C	Remains of the farmworkers compound on Withoek 388 where those buried at TSK01 lived.	Medium B	Will not be affected
TSK09	26°19'44.96"S	28°20'38.43"E	19th/20th C	Farmstead on Withoek 388. Belongs to the same period as the ruined workers compound and the burials.	Medium B	Will not be affected

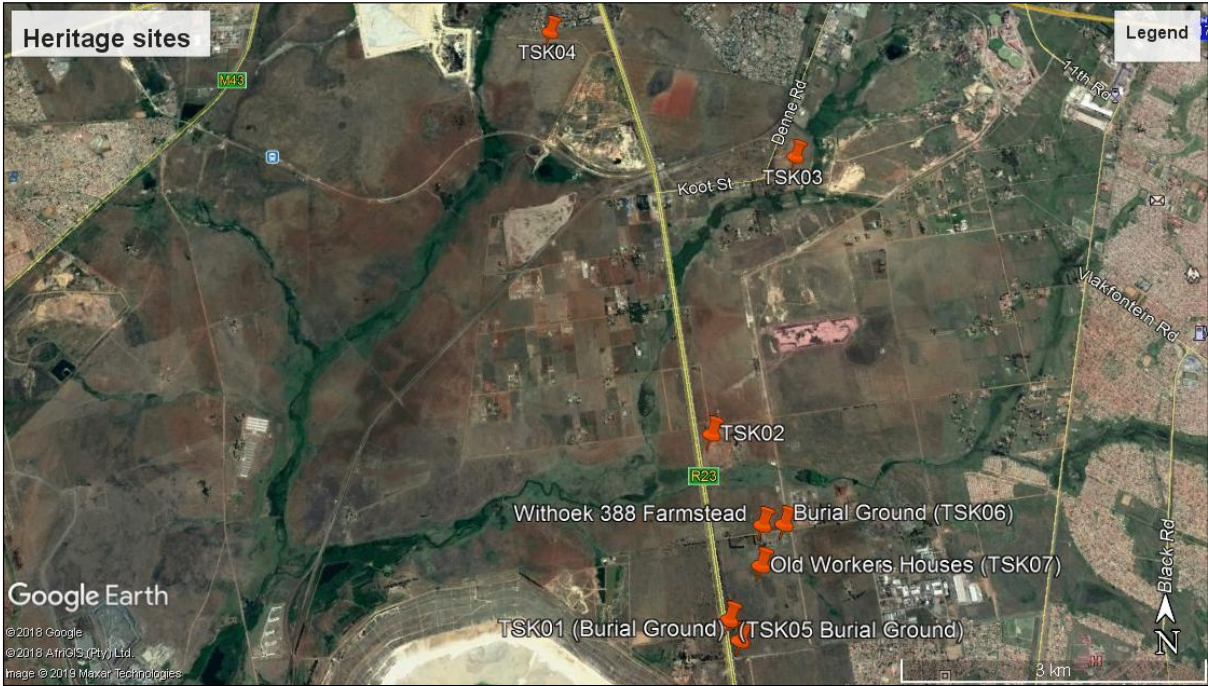


Figure 10: Locality map showing the location of burial grounds and other heritage sites in the broader area.



Figure 11: Google Earth map shows the location of heritage sites at the junction of the Heidelberg Rd and Shakwane St (Alternative Site 1).

12.5. Significance Ranking of findings

The significance ranking (with a colour scheme) refers to perceived impacts and risk of the proposed development.

	RANKING	SIGNIFICANCE	NO OF SITES
1	High	National and Provincial heritage sites (Section 7 of NHRA). All burials including those protected under Section 36 of NHRA.	7
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. These may be protected at the recommendations of a heritage expert.	1
3	Medium B	Sites exhibiting archaeological and historical characteristics of the area, but do not warrant further action after they have been documented.	2
4	Low	Heritage sites which have been recorded, but considered of minor importance relative to the proposed development.	4
		TOTAL	14

12.6. Impact of the proposed development on buildings

No building will be demolished or altered as a result of the proposed development. Section 34 of NHRA therefore does not apply.

12.7. Evaluation of the heritage potential of the area and associated impacts

12.7.1. Preferred site

The preferred site of the proposed township improvements is at the junction of the Heidelberg Rd and the Gelusksdal Rd, where a burial ground which may hold up to ten (10) graves is situated (TSK01) (Figures 12-14).



Figure 12: Burial ground (TSK01) at the junction of the Heidelberg Rd and Geluksdal Rd.



Figure 13. One grave is marked by a rectangular concrete rim and collapsed concrete head.



Figure 14: Coins placed that appear to be offerings post-burial.

Family representatives of the deceased have been located in Tsakane as Messrs Butana Siyakha and Petros Makalime who responded to the public notices, press advertisement and radio announcement. The two were born and grew up on the farm Withoek 388 where their parents were farm workers. A relationship matrix is attempted below (Figures 15-16).



Figure 15: Messrs Petros Makalime (L) and Butana Siyakha (R).

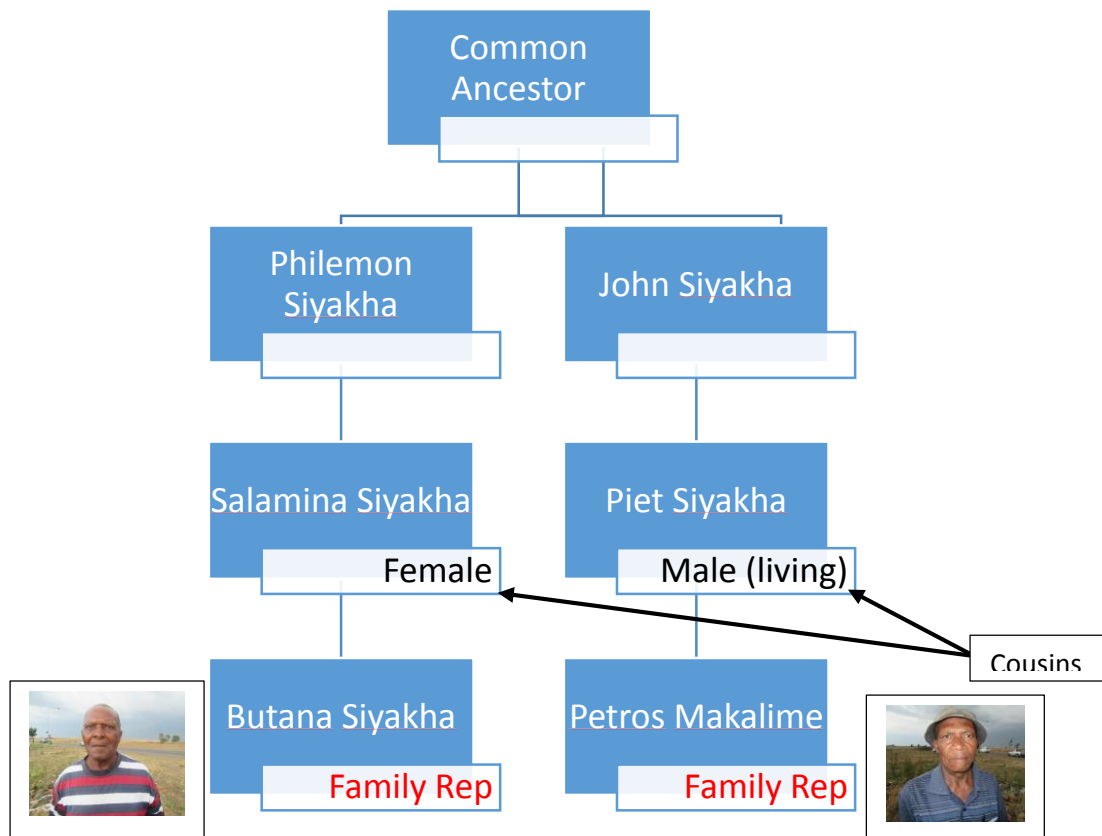


Figure 16: Relationship matrix.

Mitigation

If the proposed improvements will go ahead, it is recommended that the graves be relocated to a formal cemetery subject to permission being granted by the affiliated families. If the plan is not feasible, the graves must be rehabilitated to the satisfaction of the families affiliated with the graves or their representatives.

12.7.2. Alternative Site 1

The first alternative site of the proposed visual and road intersection traffic improvements is the junction of the Heidelberg Rd and Shakwane Street. There are suspicious oval mounds of stones and earth numbering at least eight (8) (TSK09). They could either be grave markers or road construction topsoil discard. In the absence of records or oral testimonies, no firm conclusion can be reached.



Figure 17: Earth and stone mounds at the junction of the Heidelberg Rd and Shakwane St.

Mitigation

If the project is moved to this site, mounds must be further investigated, excavation recommended to ascertain the status of the mounds. The foundation remains of farm buildings are rated of low cultural significance. An archaeologist may be hired for monitoring if they will be affected during preparation of the site.

12.7.3. Alternative Site 2

The second alternative site of the proposed road intersection traffic improvements is at the junction of the Heidelberg Rd and Njelele Street. No features or relics of heritage significance were found.

Mitigation

No heritage features or relics found. No further action is therefore warranted.

12.8. Evaluation of potential impacts on cultural landscapes / townscape / street vistas

Cultural landscapes are defined in Paragraph 47 of the *Operational Guidelines for the Implementation of the World Heritage Convention* (2015 edition) as “cultural properties that represent the combined works of nature and of man” They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal. Urban

landscapes may include central business districts, industrial parks, residential precincts and community parks, scenic highways, institutional grounds, cemeteries, battlefields and zoological gardens. They are composed of a number of character-defining features which, individually or collectively contribute to the landscape's physical appearance as they have evolved over time. In addition to vegetation and topography, such landscapes may include water features, e.g. ponds, streams, and fountains; circulation features, such as roads, paths, steps, and walls; buildings; and furnishings, including fences, benches, lights and sculptural objects.

12.71. Cultural landscape characterisation

The three sites studies were evaluated for physical elements that can exemplify a cultural landscape of heritage value. No significant elements could be singled out as significant except a line of exotic tree plantings near the junction of the Heidelberg Rd and Shakwane St. If the site is to be adopted for the proposed beautification and road intersection traffic improvement, there will be no compelling reason to get rid of the trees which be incorporated as one of the new design elements (Figure 18).



Figure 18: Exotic tree plantings at the junction of the Heidelberg Rd and Shakwane St.

12.72. Legal compliance checklist: assessment of impacts in terms of Section 38 (3) of NHRA

Section 38(3) requires that:

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

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

6 burial grounds, one possible burial ground, buildings and foundations of buildings which have been catalogued.

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

Burial grounds are protected under Section 36 of NHRA. One burial ground will be affected. The other one (Alternative Site 1) to be confirmed.

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

One burial ground will be affected with the option of rehabilitation of the burial ground and moving the project to another site, or exhumation and relocation of the graves to a formal cemetery if the project continues.

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

The proposed traffic flow improvements at a major junction is a commendable plan to design safer intersections. The proposed landscaping and greening of the principal gateway to Tsakane are modern improvements making such spaces in the township amenable for human leisure and habitation

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

Representatives of the families affiliated to the graves at Site TSK01 were located through public notices, press advertising and radio announcement. Negotiations are ongoing after which a decision will be reached whether to move the graves or to rehabilitate them *in situ*.

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

Two sites have been considered for alternative placement of the project. Prior investigation of the mounds at Alternative Site 1 recommended.

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

Relocation or rehabilitation of the burial ground at the junction of the Heidelberg Rd and Geluksdal Rd remain to be the two options for consideration.

13. RISK ASSESSMENT OF FINDINGS

EVALUATION CRITERIA	RISK ASSESSMENT
Description of potential impact	Disturbance of burial ground. Fallout with families affiliated with the graves.
Legal Requirements	Sections 34, 35 36 and 38 of the National Heritage Resources Act.
Nature of Impact	Potential destruction of graves and other surface / subsurface archaeological resources.
Extent of Impact	The 3 sites which have been studied are each c. 1 ha in extent.
Duration of Impact	Disturbance of archaeological relics / sites is not reversible. But tree plantings can be regenerated. Public sensibilities about graves can cause backlash which can spill into the courts and the trauma suffered by affiliated families can last a long time.
Probability of occurrence	Low.
Confidence of assessment	High.
Level of significance of impacts before mitigation	High.
Mitigation measures	A heritage expert has been hired to provide advice and to monitor the situation.

Level of significance of impacts after mitigation	Low.
Cumulative Impacts	Likely fallout with families affiliated with the graves.
Mitigation of cumulative impacts	Continuous stakeholder engagement and conflict resolution.
Comments or Discussion	-

14. CONCLUSIONS AND RECOMMENDATIONS

Exhumation and relocation of the graves at the junction of the Heidelberg Rd and Geluksdal Rd may be considered as an option subject to consent by the affiliated families. Otherwise rehabilitation *in situ* of the graves is recommended

If the project is moved to Alternative Site 1, the earth and stone mounds must be investigated with excavations recommended to ascertain their status. Since the other burial grounds recorded in the broader area will not be affected by the development and no further action is warranted. This report does not give a green light for the project to proceed until a resolution is reached on the fate of the graves at TSK01.

15. REFERENCES

- Deacon, J. and N. Lancaster. 1986.** *Later Quaternary Palaeo-environments of Southern Africa*. Oxford: Oxford University Press.
- Gaigher, S. 2018.** Heritage Impact Assessment for the proposed Residential Township, Leachville Extension 2, situated on Portion 148 of the Farm Rietfontein 115IR, the Ekurhuleni Metro Municipality, Gauteng Province
- Gaigher, S. 2015.** Heritage Impact Assessment for the Proposed Vlakfontein Township Development. G & A Heritage.
- Gaigher, S. 2007.** Cultural heritage resources impact assessment of the farm Vlaklaagte 161 Tsakane Benoni Gauteng
- Huffman, T. N. 2007.** *A Handbook of the Iron Age*. Cape Town: UKZN Press
- The National Heritage Resource Act (25 of 1999)
- Marais, V and M Burger. 2018.** Draft scoping report for the proposed Minnebron x 1 Mixed Use Development on Portion 3 of the Farm Witpoortjie 117 I.R. and on the southern, undeveloped part of Van Eck Park x 2 (portions 524-525), Brakpan, Ekurhuleni.
- Matenga, E. 2019.** Tsakane Road Infrastructure Improvement, Ekurhuleni Metro Municipality, Gauteng Province: Investigation of graves at the Junction of the Heidelberg Rd (R23) and Geluksdal Rd (principal entrance to Tsakane Township
- Phillipson, D. W. 2005.** *African Archaeology*. Cambridge: University of Cambridge Press.
- Rasmussen, K. 1978.** *Migrant Kingdom: Mzilikazi's Ndebele in South Africa*. University of Michigan
- Marais, V and M Burger. 2018.** *Draft scoping report for the proposed Minnebron x 1 Mixed Use Development on Portion 3 of the Farm Witpoortjie 117 I.R. and on the southern, undeveloped part of Van Eck Park x 2 (portions 524-525), Brakpan, Ekurhuleni.*
- Zwane, S. 2019. *Tsakane the beginning: Tracing the origins of Tsakane Township*. I-Africa Theatre Education.

Legislation and policy documents

Republic of South Africa. National Heritage Resources Act (No 25/1999).

Republic of South Africa. National Environmental Management Act (No 107/1998).

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

ICOMOS, 1987. The ICOMOS Charter for the Conservation of Historic Towns and Urban Areas (the Washington Charter 1987)

UNESCO. 2015. *Operational Guidelines for the Implementation of the World Heritage Convention.* UNESCO, Paris.

Websites

Long-lost ancient Tswana city found south of Joburg. Found at <https://citizen.co.za/news/south-africa/1862267/long-lost-ancient-tswana-city-found-south-of-joburg/> Consulted Nov 2019.

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Mr Michiel Druce, General Manager RAM Trading, Boland St, Tsakane

Mr Rudolf Hansen, Withoek 388, Brakpan

Mr Desmond Buitendacht, Ward 82 Councillor, Tsakane

Mr Ernest Hendrick, Political Alliance, Tsakane