

**PHASE 1 HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED BRONBERG
RESERVOIR SITE, PORTION 18 OF THE FARM TWEEFONTEIN 372-JR, CITY OF TSHWANE
METROPOLITAN MUNICIPALITY, PRETORIA, GAUTENG PROVINCE.**

**INCLUDING A HERITAGE SCAN OF THE ADJACENT AREA (REMAINING EXTENT OF
TWEEFONTEIN FARM 372-JR, AGRICULTURAL HOLDING NUMBER 76-JR OF THE SHERE
AGRICULTURAL HOLDINGS, AGRICULTURAL HOLDING NUMBER 77-JR OF THE SHERE
AGRICULTURAL HOLDINGS AND ERF 520 BRONBERG) OF THE SITE EARMARKED FOR
ASSOCIATED ACTIVITIES/INFRASTRUCTURE**



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For:

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DISCLAIMER:

Although all possible care is taken to identify/find all sites of cultural importance during the initial survey of the study area, the nature of archaeological and historical sites are as such that it is always possible that hidden or sub-surface sites could be overlooked during the study. Leonie Marais-Botes Heritage Practitioner will not be held liable for such oversights or for the costs incurred as a result thereof.

DECLARATION OF INDEPENDENCE:

I, Leonie Marais-Botes declare that;

- I act as an independent specialist in this application.
- I will perform the work relating to the application in an objective matter, even if this results in views and findings that are not favourable to the applicant.
- There are no circumstances that may comprise my objectivity in performing such work.
- I have expertise in conducting the specialist report relevant to the application, including knowledge of the relevant Acts and Regulations.
- I have no, and will not engage in, conflicting interests in the undertaking of the activity.

A rectangular box containing a handwritten signature in black ink. The signature is written in a cursive style and reads "Leonie Marais-Botes".

ACKNOWLEDGEMENTS

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ABOUT THIS REPORT

The heritage report must reflect that consideration has been given to the history and heritage significance of the study area and that the proposed activities is sensitive towards the heritage resources and does not significantly alter or destroy the heritage significance of the study area.

The heritage report must refer to the heritage resources currently in the study area.

The opinion of an independent heritage consultant is required to evaluate if the proposed work generally follows a good approach that will ensure the conservation of the heritage resources.

The National Heritage Resources Act (Act 25 of 1999), the National Environmental Management Act (Act 107 of 1998), Ordinance on Exhumations (no 12 of 1980) and the Human Tissues Act (Act 65 of 1983 as amended) are the guideline documents for a report of this nature.

Leonie Marais-Botes was appointed by Nema Consulting on behalf of Rand Water to carry out a Phase 1 Heritage Impact Assessment (HIA) for the proposed Bronberg Reservoir site, Portion 18 of the Farm Tweefontein 372-JR, City of Tshwane Metropolitan Municipality, Pretoria, Gauteng, including a heritage scan of the adjacent area. The site visit took place on 31 July 2015.

DEFINITION OF TERMS:

“alter” means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or other decoration or any other means.

“archaeological” means—

(a) 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;

(b) 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 any area within 10m of such representation;

(c) 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 respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), 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; and

(d) features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

“conservation”, in relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance.

“cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

“development” means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including—

(a) construction, alteration, demolition, removal or change of use of a place or a structure at a place;

(b) carrying out any works on or over or under a place;

(c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;

(d) constructing or putting up for display signs or hoardings;

(e) any change to the natural or existing condition or topography of land; and

(f) any removal or destruction of trees, or removal of vegetation or topsoil; object that is specifically designated by that state as being of importance.

“grave” means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place.

“heritage resource” means any place or object of cultural significance.

“heritage resources authority” means the South African Heritage Resources Agency, or in respect of a province, a provincial heritage resources authority.

“heritage site” means a place declared to be a national heritage site by SAHRA or a place declared to be a provincial heritage site by a provincial heritage resources authority.

“improvement”, in relation to heritage resources, includes the repair, restoration and rehabilitation of a place protected in terms of Act 25 of 1999.

“living heritage” means the intangible aspects of inherited culture, and may include—

(a) cultural tradition;

- (b) oral history;
- (c) performance;
- (d) ritual;
- (e) popular memory;
- (f) skills and techniques;
- (g) indigenous knowledge systems; and
- (h) the holistic approach to nature, society and social relationships.

“local authority” means a municipality as defined in section 10B of the Local Government Transition Act, 1993 (Act No. 209 of 1993).

“management”, in relation to heritage resources, includes the conservation, presentation and improvement of a place protected in terms of Act 25 of 1999.

“meteorite” means any naturally-occurring object of extraterrestrial origin.

“object” means any movable property of cultural significance which may be protected in terms of any provisions of Act 25 of 1999, including—

- (a) any archaeological artefact;
- (b) palaeontological and rare geological specimens;
- (c) meteorites; and
- (d) other objects.

“palaeontological” means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

“place” includes—

- (a) a site, area or region;
- (b) a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure;
- (c) a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures;
- (d) an open space, including a public square, street or park; and
- (e) in relation to the management of a place, includes the immediate surroundings of a place.

“presentation” includes—

- (a) the exhibition or display of;
- (b) the provision of access and guidance to;
- (c) the provision, publication or display of information in relation to; and
- (d) performances or oral presentations related to, heritage resources protected in terms of Act 25 of 1999.

“public monuments and memorials” means all monuments and memorials—

- (a) erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government; or
- (b) which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.

“site” means any area of land, including land covered by water, and including any structures or objects thereon.

“structure” means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

“victims of conflict” means—

- (a) certain persons who died in any area now included in the Republic as a direct result of any war or conflict as specified in the regulations, but excluding victims of conflict covered by the Commonwealth War Graves Act, 1992 (Act No. 8 of 1992);
- (b) members of the forces of Great Britain and the former British Empire who died in active service in any area now included in the Republic prior to 4 August 1914;
- (c) persons who, during the Anglo-Boer War (1899-1902) were removed as prisoners of war from any place now included in the Republic to any place outside South Africa and who died there; and
- (d) certain categories of persons who died in the “liberation struggle” as defined in the regulations, and in areas included in the Republic as well as outside the Republic.

EXECUTIVE SUMMARY

Leonie Marais-Botes Heritage Practitioner was requested by Nema Consulting on behalf of Rand Water to conduct a Phase 1 Heritage Impact Assessment (HIA) for the proposed Bronberg Reservoir site, Portion 18 of the Farm Tweefontein 372-JR, City of Tshwane Metropolitan Municipality, Pretoria, Gauteng, Province.

The project also includes a heritage scan of the site adjacent to the site earmarked for development. The adjacent site is situated on the Remaining Extent of Tweefontein Farm Number 372-JR, Agricultural Holding 76-JR of the Shere Agricultural Holdings, Agricultural Holding Number 77-JR of the Shere Agricultural Holdings and Erf Number 520 of Bronberg.

A field survey was conducted after which a survey of literature was undertaken.

Six sites with Late Iron Age stone walls were identified in the study area. It is advised that these sites are clearly marked and fenced during construction.

The proposed project is supported as the reservoir site has already been severely altered and the access road is temporary.

It should be noted that the sub-surface archaeological and/or historical deposits and graves are always a possibility. Care should be taken during any work in the entire area and if any of the above is discovered, an archaeologist/heritage practitioner should be commissioned to investigate.

1. INTRODUCTION

The initial Vlakfontein – Mamelodi system did not include a storage reservoir. Only a break pressure installation with a 5ML tank was constructed. A few years later it was realized that an adequate storage facility closer to Mamelodi was required as the distance to the points of the use of water to the north of the Bronberg from the Vlakfontein reservoir in Benoni is too long. The risk for non-supply was too high taking into account that only a single pipeline supplies the whole area. Subsequently the existing 100ML Bronberg reservoir was constructed. Rand Water is proposing to install an additional 100 mega litre (ML) reservoir at its Bronberg site, adjacent to the existing reservoir. Rand Water strives to have a minimum of 24 hours strategic storage in terms of the annual average daily demand for any of its systems, thus the additional 100ML reservoir is required as soon as possible to meet this objective and projected increase in demand. The proposed additional 100ML reservoir at Bronberg will suffice until 2035 up to a compound growth rate for the area of 2.5%.

1.1 PROJECT DESCRIPTION

Rand Water is the primary supplier of water to Gauteng, Mpumalanga and surrounding areas. Rand Water is proposing to install a 100 mega litre (ML) reservoir at its Bronberg site, adjacent to the existing reservoir. Infrastructure associated with the proposed development is addressed as part of this application (inlet and outlet pipelines, value chambers, temporary access road, upgrade of the existing palisade fence and discharge and overflow pipeline). The project also includes a heritage scan of the adjacent area of the site earmarked for associated activities/infrastructure.

1.1.1 WHY A PHASE 1 HERITAGE IMPACT ASSESSMENT IS REQUIRED?

Heritage specialist input in the Environmental Impact Assessment (EIA) processes is essential to ensure through the management of change, development conserves our heritage.

This project may potentially impact on any types and ranges of heritage resources that are outlined in Section 3 of the National Heritage Resources Act (Act 25 of 1999). Subsequently a Phase 1 Heritage Impact Assessment (HIA) was commissioned by Nema Consulting on behalf of Rand Water and conducted by Leonie Marais-Botes.

The overall purpose of heritage specialist input is to:

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources;
- Make recommendations for the appropriate heritage management of these impacts.

1.2 METHOD

The objective of this Phase 1 Heritage Impact Assessment (HIA) was to gain an overall understanding of the heritage sensitivities of the area and indicate how they may be impacted on through development activities. The site survey took place on 31 July 2015.

In order to establish heritage significance the following method was followed:

- Investigation of primary resources (archival information)
- Investigation of secondary resources (literature and maps)
- Physical evidence (site investigation)
- Determining Heritage Significance

Limitations experienced: Because of the good summer rains, some areas have dense overgrowth which limits visibility.

1.3 PROPERTY DESCRIPTION

The proposed Bronberg reservoir site is located within the existing Rand Water reservoir property in Pretoria East, near areas such as Olympus Agricultural Holdings, Wapadrand and Shere within the City of Tshwane Metropolitan Municipality. The proposed development will be located on Portion 18 of Tweefontein Farm No. 372 JR, City of Tshwane Metropolitan Municipality, Pretoria, Gauteng Province.

1.4 TOPOGRAPHY OF THE DEVELOPMENT STUDY AREA

The main topographical features of the study area are the northern slopes of the Bronberg, south of James Road. On the southern part of the site, the side slope of the Bronberg is characterised by a series of ridges and knolls, broken by localized pediments.

1.5 HISTORICAL DEVELOPMENT OF THE STUDY AREA

Central Pretoria was established on the Farm Elandspoor in the 1840's on the banks of the Apies River. Portions of the western part of Elandspoor farm were incorporated into Pretoria Town and Townlands in 1875. Significant urban development only began in the 1890's, when the first townships outside central Pretoria were established as residential extensions of the townSuburbs such as Arcadia, Bailey's Muckleneuk, Brooklyn, Hillcrest, Muckleneuk, Pretoria West, Salvokop and Sunnyside were established on the said farm since the 1880's. The newly proclaimed townships initially consisted of a few scattered dwellings, interspersed with large numbers of undeveloped erven¹.

The greater study area is part of the continuation of the development of the greater Pretoria area.

¹ D.J. Potgieter (editor-in-chief), Standard Encyclopaedia of Southern Africa

1.6 LOCATION AND PHOTOGRAPHIC RECORD OF STUDY AREA



Figure 1: Map indicating study area

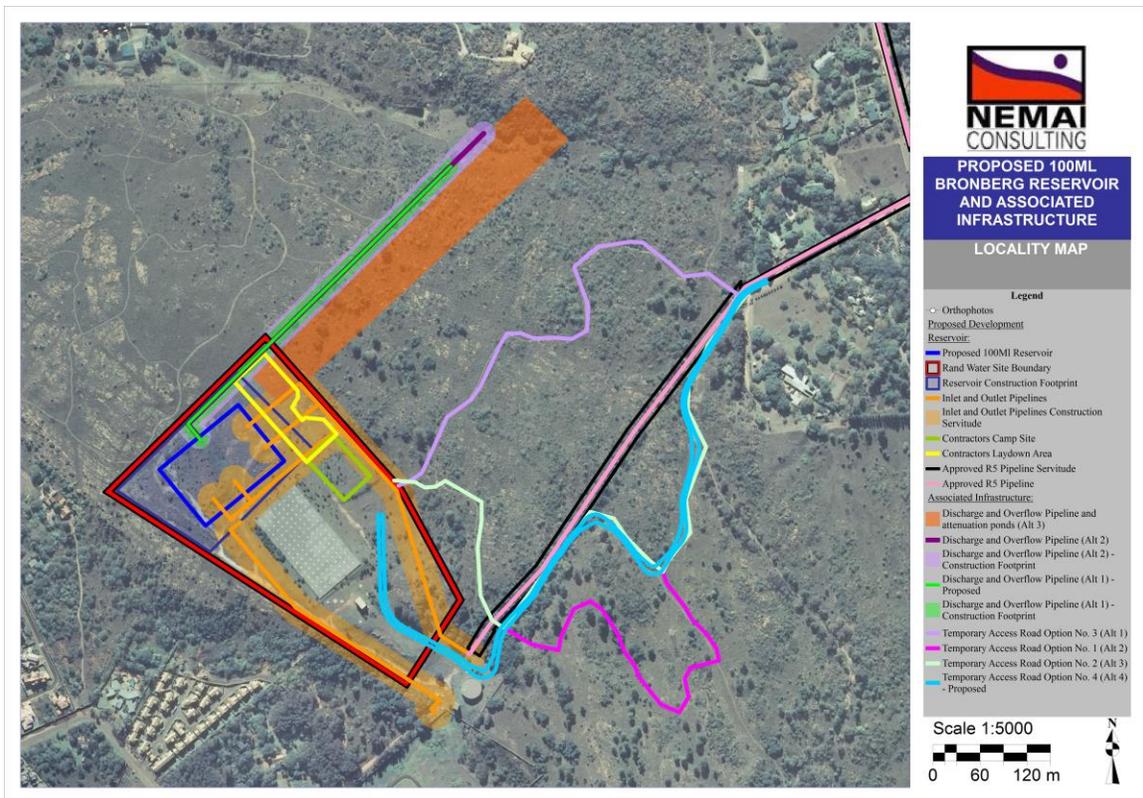


Figure 2: Aerial photograph of study area

PROPOSED BRONBERG 100MI RESERVOIR AREA (INCLUDING INLET AND OUTLET PIPELINES, VALUE CHAMBERS, ATTENUATION PONDS AND DISCHARGE PIPELINE)



Figure 3: Site earmarked for development: Photograph taken towards the west.



Figure 4: Site earmarked for development. Photograph taken from the north.



Figure 5: Site earmarked for development. Photograph taken from the east.



Figure 6: Site earmarked for development. Photograph taken towards north.

BRONBERG ENVIRONMENTAL SCAN AREA



Figure 7: Area adjacent to existing and proposed reservoir site (enviro scope area). Photograph taken towards the north.



Figure 8: Area adjacent to existing and proposed reservoir site (enviro scope area). Eastern section.



Figure 9: Area adjacent to existing and proposed reservoir site (enviro scope area). Northern section



Figure 10: Area adjacent to existing and proposed reservoir site (enviro scope area). South eastern section.



Figure 11: Area adjacent to existing and proposed reservoir site. Photograph taken from James Road.



Figure 12: Streetscape James Road.



Figure 13: Streetscape Catherine Road (west).



Figure 14: Streetscape Catherine Street (east).

1.7 BACKGROUND HISTORY OF THE GREATER STUDY AREA

Ethno-historical research has revealed that the Southern Ndebele resided in the area to the east of Pretoria between c. 1600 to c. 1850. They were some of the earliest Nguni speaking peoples to settle in the general vicinity of Pretoria. Oral historical research also showed that an early ruler named Musi had a settlement known as KwaMnyamana in the vicinity of the present Bon Accord Dam. During Musi's reign the group appears to have subdivided into four or five smaller groups known as the Ndzundza, Kekana, Mhwaduba, Sibasa and Manala sections. The Manala section subsequently settled in the area to the east of present-day Pretoria, from Mamelodi in the west to the Rayton/Cullinan intersection with the Witbank highway (N4) in the east. This whole area was divided into three geo-political regions which, according to the available oral historical research, were consequently occupied. These three regions were Ezotshaneni (c. 1677 – c. 1717), Embilanieni (c. 1717 – c. 1747) and KoNonduna (c. 1747 – c. 1825). Each of these regions was divided into a variety of settlement areas. During 1825 the Manala were attacked by the Ndebele (or Matabele) of Mzilikazi and were almost annihilated. The small groups of Manala survivors established themselves in small clusters or settlements, and many of them were socio-economically forced to find work on the white farms established during the late 1830s and early 1840s.

The Shere Agricultural Holdings is located along the north-eastern foot of the Bronberg Mountain. Before proclamation the land was owned by a Mr. Arthur Marinus Alexander Struben. The subdivision for the establishment of Shere was approved by the Surveyor General on the 3rd of August 1943.

The Olympus Agricultural Holdings is located along the south-western foot of the Bronberg Mountain. Its application was made by a Mr. Thomas Elwick Waddingham during the late 1940s. Despite protests from persons claiming to have mineral and water rights on the farm, the division was granted by the Surveyor General on the 1st of March 1952. Interestingly enough, the selling of the holdings started already a year earlier with an auction that was held on the 13th of June 1951².

2. FINDINGS (SITE EARMARKED FOR DEVELOPMENT AND ENVIRO SCAN AREA)

2.1 PRE-COLONIAL HERITAGE SITES

Possibilities: Greater study area taken into account.

Stone Age

The Stone Age is the period in human history when stone material was mainly used to produce tools³. In South Africa the Stone Age can be divided in three periods⁴;

- Early Stone Age 2 000 000 – 150 000 years ago
- Middle Stone Age 150 000 – 30 000 years ago
- Late Stone Age 40 000 years ago - +/- 1850 AD

No Stone Age resources were noted on site.

² Birkholtz P.D. Unpublished Phase 1 Heritage Impact Assessment for the proposed pipeline between Vlakfontein and Mamelodi, Tshwane, Kungwini and Ekurhuleni Municipalities, Gauteng Province. Randwater, pp. 27 and 33.

³ P. J. Coertze & R.D. Coertze, Verklarende vakwoordeboek vir Antropologie en Argeologie.

⁴ S.A. Korsman & A. Meyer, Die Steentydperk en rotskuns in J.S. Bergh (red) Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.

Iron Age

The Iron Age is the period in human history when metal was mainly used to produce artefacts⁵. In South Africa the Iron Age can be divided in three periods;

- Early Iron Age 250-900 AD
- Middle Iron Age 900-1300 AD
- Late Iron Age 1300-1840 AD⁶

There are Late Iron Age stone walls evident in the study area.

Sites dating to the Late Iron Age are found all over the region. Some of them can be related to the Tswana-speakers, whereas others to the Ndebele-speakers and possibly a few also to the Ndebele of Mzilikazi. The Iron Age sites tend to cluster in the Bronberg as well as on the more open flatlands, especially in areas where outcrops (dolorite, etc.) occur. It is possible, although not yet proven, that this distinction can be linked to the difference between the Sotho and Ndebele settlement preference referred to above⁷.

2.2 HISTORICAL PERIOD HERITAGE SITES

Possibilities: Greater study area taken into account.

- Pioneer sites;
- Sites associated with early mining;
- Structures older than 60 years;
- Graves (Graves younger than 60 years, graves older than 60 years, but younger than 100 years, graves older than 100 years, graves of victims of conflict or of individuals of royal descent).

No sites of historical importance will be impacted on.

2.3 ORIGINAL LANDSCAPE

Although previous farming and infrastructure development altered the original landscape in most of the greater study area, some original landscape has survived the urbanisation process. See site adjacent to reservoir and associated infrastructure site.

2.4 INTANGIBLE HERITAGE

The intangible heritage of the greater study area can be found in the stories of past and present inhabitants.

⁵ P.J. Coertze & R.D. Coertze, Verklarende vakwoordeboek vir Antropologie en Argeologie.

⁶ M.M. van der Ryst & A Meyer. *Die Ystertydperk* in J.S. Bergh (red) Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies and T.N Huffman, A Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa.

⁷ J.A. Van Schalkwyk, *A survey of cultural resources for the construction of a sewer pipeline, Mooikloof area, Pretoria district, Gauteng Province*. Unpublished report 2002KH042.

3 CATEGORIES OF HERITAGE VALUE (ACT 25 OF 1999)

The National Heritage Resources Act (Act 25 of 1999) identifies the following categories of value under section 3(1) and (2) of the Act under the heading "National Estate":

- "3 (1) For the purpose of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
- (2) Without limiting the generality of subsection (1), the national estate may include-
- (a) places, buildings, structures and equipment of cultural significance;
 - (b) places which oral traditions are attached or which are associated with living heritage;
 - (c) historical settlements and townscapes;
 - (d) landscapes and natural features of cultural significance;
 - (e) geological sites of scientific or cultural importance;
 - (f) archaeological and palaeontological sites;
 - (g) graves and burial grounds, including-
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;
 - (iv) graves of individuals designated by the Minister by notice in the Gazette
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
 - (h) sites of significance relating to the history in South Africa;
 - (i) movable objects, including-
 - (i) objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - (ii) objects to which oral traditions are attached or which are associated with living heritage;
 - (iii) ethnographic art and objects;
 - (iv) military objects
 - (v) objects of decorative or fine art;
 - (vi) objects of scientific or technological interests; and
 - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section I (xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).
- (3) Without limiting the generality of the subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of-
- (a) Its importance in the community, or pattern of South Africa's history;
 - (b) Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
 - (c) Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
 - (d) Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural objects;
 - (e) Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
 - (f) Its importance in demonstrating a high degree of creative or technical achievement at a particular period;

- (g) Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- (h) Its strong or special association with the life and work of a person, group or organisation of importance in the history of South Africa; and
- (i) Sites of significance relating to the history of slavery in South Africa.”

3.1 HERITAGE VALUE OF WEIGHED AGAINST CULTURAL SIGNIFICANCE CATEGORIES

3.1.1 Spiritual value

During the site visit/field work no indication of any spiritual activity was observed on/near the proposed site. Thus no sites of spiritual value will be impacted on by the proposed project.

3.1.2 Scientific value

No sites of scientific value was observed on or near the site earmarked for development.

3.1.3 Historical value

No historical value associated with the proposed site could be found in primary and secondary sources.⁸

3.1.4 Aesthetic value

No heritage item with aesthetic (architectural) value was identified in the study area.

3.1.5 Social value

Social value is attributed to sites that are used by the community for recreation and formal and informal meetings regarding matters that are important to the community. These sites include parks, community halls, sport fields etc. The site adjacent to the development area is utilised for mountain biking and walking activities which can be regarded as social value. In this case this will rather be a social consultation matter than a heritage matter.

3.2 SPECIFIC CATEGORIES INVESTIGATED AS PER SECTION 3 (1) AND (2) OF THE NATIONAL HERITAGE LEGISLATION (ACT 25 OF 1999)

3.2.1 Does the site/s provide the context for a wider number of places, buildings, structures and equipment of cultural significance?

The study area does provide context, for a wider number of places, buildings, structures and equipment of cultural significance. A number of Late Iron Age stone walls were identified in the study area.

⁸ Standard Encyclopaedia of Southern Africa and the TAB database of the National Archives of South Africa;

J.S. Bergh (red), Geskiedenisatlas van Suid-Afrika: Die Vier Noordelike Provinsies.

3.2.2 Does the site/s contain places to which oral traditions are attached or which are associated with living heritage?

Places to which oral traditions are attached or associated with living heritage are usually found in conjunction with traditional settlements and villages which still practise age old traditions. None of these are evident near or on the proposed site.

3.2.3 Does the site/s contain historical settlements?

No historical settlements are located on or near the proposed site.

3.2.4 Does the site/s contain landscapes and natural features of cultural significance?

Due to infra-structure development and farming activities the original character of the landscape have been altered significantly in the study area. There the site does not contain natural features of cultural significance.

3.2.5 Does the site/s contain geological sites of cultural importance?

Geological sites of cultural importance include meteorite sites (Tswaing Crater and Vredefort Dome), fossil sites (Karoo and Krugersdorp area), important mountain ranges or ridges (Magaliesburg, Drakensberg etc.). The proposed site is not located in an area known for sites of this importance.

3.2.6 Does the site/s contain a wide range of archaeological sites?

The proposed site does contain archaeological sites.

Stone walls were located at:

Site 1 - S 25° 47' 37.0" E028° 20' 35.1"

Site 2 - S 25° 47' 35.5" E028° 20' 34.6"

Site 3 - S 25° 47' 41.5" E028° 20' 40.8"

Site 4 - S 25° 47' 28.9" E028° 20' 35.7"

Site 5 - S 25° 47' 22.9" E028° 20' 43.1"

Site 6 - S 25° 47' 42.2" E028° 20' 56.1"

NEAR PROPOSED RESERVOIR SITE



Figure 15: Stone wall: S 25° 47' 37.0" E028° 20' 35.1" (Site one)



Figure 16: Stone wall: S 25° 47' 35.5" E028° 20' 34.6" (Site two)

ON HERITAGE SCAN SITE, SITE ADJACENT TO EXISTING AND PROPOSED RESERVOIR SITE (REMAINING EXTENT OF TWEEFONTEIN FARM 372-JR, AGRICULTURAL HOLDING NUMBER 76-JR OF THE SHERE AGRICULTURAL HOLDINGS, AGRICULTURAL HOLDING NUMBER 77-JR OF THE SHERE AGRICULTURAL HOLDINGS AND ERF 520 BRONBERG)



Figure 17: Stone wall: S 25° 47' 41.5" E028° 20' 40.8" (Site three)



Figure 18: Stone wall: S 25° 47' 28.9" E028° 20' 35.7" (Site four)



Figure 19: S 25° 47' 22.9" E028° 20' 43.1" (Site five)



Figure 20: Stone wall: S 25° 47' 42.2" E028°20' 56.1" (Site 6)

The possibility of sub-surface findings always exists and should be taken into consideration in the Environmental Management Plan.

If sub-surface archaeological material is discovered work must stop and a heritage practitioner preferably an archaeologist contacted to assess the find and make recommendations.

3.2.7 Does the site/s contain any marked graves and burial grounds?

The site does not contain marked graves or burial grounds.

The possibility of graves not visible to the human eye always exists and this should be taken into consideration in the Environmental Management Plan.

It is important to note that all graves and cemeteries are of high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (Act 25 of 1999) whenever graves are 60 years and older. Other legislation with regard to graves includes those when graves are exhumed and relocated, namely the Ordinance on Exhumations (no 12 of 1980) and the Human Tissues Act (Act 65 of 1983 as amended).

If sub-surface graves are discovered work should stop and a professional preferably an archaeologist contacted to assess the age of the grave/graves and to advice on the way forward.

3.2.8 Does the site/s contain aspects that relate to the history of slavery?

This is not an area associated with the history of slavery like the Western Cape Province.

3.2.9 Can the place be considered as a place that is important to the community or in the pattern of South African history?

In primary and secondary sources the proposed site is not described as important to the community or in the pattern of South African history.⁹

3.2.10 Does the site/s embody the quality of a place possessing uncommon or rare endangered aspects of South Africa's natural and cultural heritage?

The proposed site does not possess uncommon, rare or endangered aspects of South Africa's natural and cultural heritage. These sites are usually regarded as Grade 1 or World Heritage Sites.

3.2.11 Does the site/s demonstrate the principal characteristics of South Africa's natural or cultural places?

The proposed site does not demonstrate the principal characteristics of South Africa's natural or cultural places. These characteristics are usually associated with aesthetic significance.

3.2.12 Does the site/s exhibit particular aesthetic characteristics valued by the community or cultural groups?

⁹ Standard Encyclopaedia of Southern Africa and the TAB database at the National Archives of South Africa;

J.S. Bergh (red), Geskiedenisatlas van Suid-Afrika. Die Vier Noordelike Provinsies.

This part of the greater study area does not exhibit particular aesthetic characteristics valued by the community or cultural groups. The reason being the low density of heritage buildings and structures located in the greater study area.

3.2.13 Does the site/s contain elements, which are important in demonstrating a high degree of creative technical achievement?

The site does not contain elements which are important in demonstrating a high degree of creative technical achievement. Reason being none of the above are evident on site.

3.2.14 Does the site/s have strong and special associations with particular communities and cultural groups for social, cultural and spiritual reasons?

The proposed site does not have a strong or special association with particular communities and cultural groups for social, cultural and spiritual reasons, the reason being that the particular site is located in an area consisting of mainly small holdings and it is evident that the site is not utilised for social, cultural or spiritual reasons.

3.2.15 Does the site/s have a strong and special association with the life or work of a person, group or organisation?

No indication of the above could be found in primary and secondary research sources.¹⁰

¹⁰ Dictionary of South African Biography (vol I-V) and the TAB database at the National Archives of South Africa

4. HERITAGE ITEMS AND ALTERNATIVES

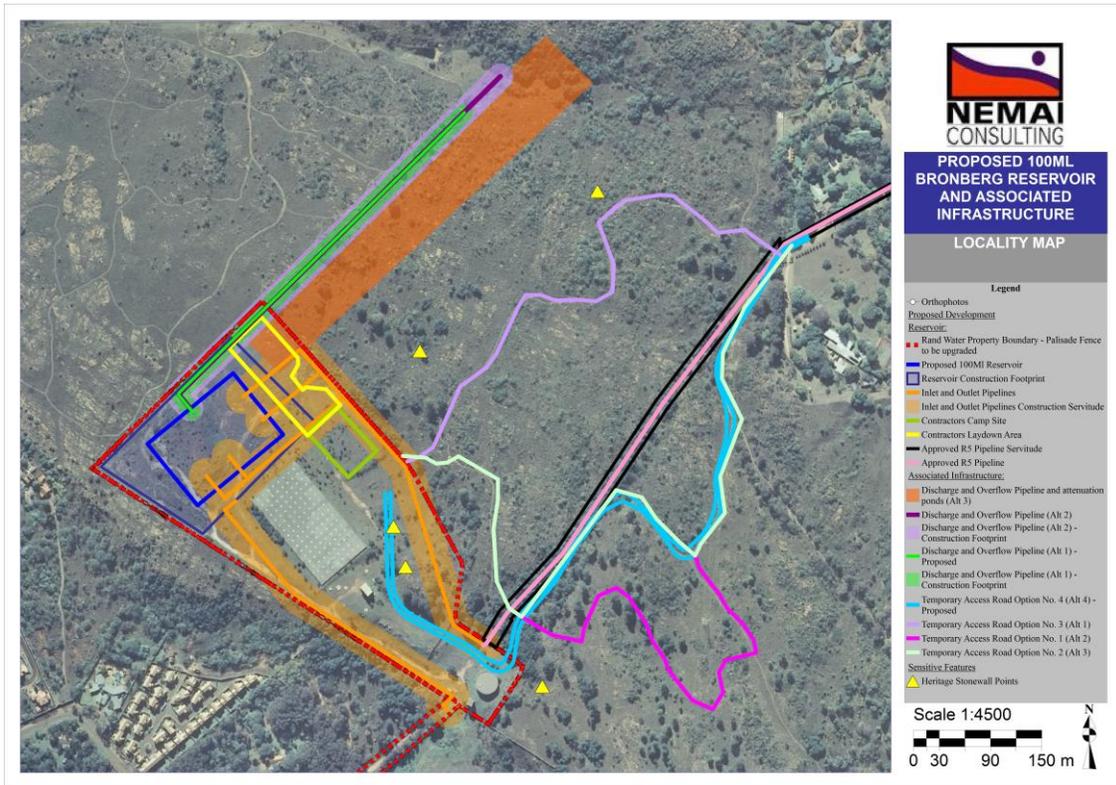


Figure 22: Stone wall sites (indicated with yellow placemarks)

4.1. ROAD ALIGNMENT ALTERNATIVES

- Purple line = Temporary Access Road Option 3 (Alternative 1)
- Pink line = Temporary Access Road Option 1 (Alternative 2)
- Green line = Temporary Access Road Option 2 (Alternative 3)
- Blue line = Temporary Access Road Option 4 (Alternative 4)

Stone wall heritage resources are situated in the study area.

Table 1: Road alternatives

Road alternative 1 (Purple line)	Two stone wall sites in vicinity of temporary road (not immediate).
Road alternative 2 (Pink line)	One stone wall site near this option.
Road alternative 3 (Green line)	No heritage sites in vicinity of this option.
Road alternative 4 (Blue line)	Two stone wall sites near this option.

Road alternative 1 (Purple line) is favoured in terms of heritage impact.

4.2. OVERFLOW PIPELINE ALTERNATIVES

Table 2: Overflow Pipeline

Alternative 1	No heritage items in immediate vicinity.
Alternative 2	No heritage items in immediate vicinity.
Alternative 3	No heritage items in immediate vicinity.

No preference of overflow pipeline alternatives in terms of heritage impact.

5. SIGNIFICANCE ASSESSMENT AND MITIGATION RECOMMENDATIONS

Cultural significance:

- Low A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.

- Medium Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.

- High Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

Table 3: Significance assessment and mitigation recommendations

Site	Type	Significance	Mitigation Recommendation	Impact rating following implementation of mitigation measures
Site one	Late Iron Age	Medium to High	Clearly marked with danger tape/screening and fenced during construction period	High
Site two	Late Iron Age	Medium to High	Clearly marked with danger tape/screening and fenced during construction period	Medium to High
Site three	Late Iron Age	Medium to High	Clearly marked danger tape/screening during construction period	Low
Site four	Late Iron Age	Medium to High	Clearly marked with danger tape/screening during construction period	Low
Site five	Late Iron Age	Medium to High	Clearly marked with danger tape/screening during construction period	Low
Site six	Late Iron Age	Medium to Low	Clearly marked with danger tape/screening during construction period	Low

6. CONCLUSION

- The site proposed for the new reservoir site and infrastructure has been severely altered by the previous construction and infrastructure development.
- Two stone wall sites are situated near/on the proposed new **Road** development. Stone Wall Site Number 2 will not be considerably impacted on, but Stone Wall Site Number 1 will be impacted on by the said development. Three options in this case can be considered;
 1. Fence (stabilising), stabilise (strengthen) and clearly mark site, this option is applicable to stone wall site 2;
 2. Document, dismantle stone wall site and reconstruct after construction (permit application to relevant heritage authority necessary), this option is applicable to stone wall site 1;
 3. Destruct (permit application to the relevant heritage authority necessary), this option is applicable to site 1.

Option 2 is favoured in terms of heritage for stone wall site 1.

- Road alternative 1 (purple line) is favoured in terms of heritage.
- No preference of overflow pipeline alternatives in terms of heritage impact.
- Stone Wall Site 2 is situated near the existing reservoir and should be clearly marked and fenced during construction to ensure conservation and preservation thereof.
- The discovery of subsurface archaeological and/or historical material as well as graves must be taken into account in the Environmental Management Programme. See 3.2.6 and 3.2.7.

7. THE WAY FORWARD

- **The writer supports the proposed development and recommends the approval thereof.**
- **Submit this report as a Section 38 application to the South African Heritage Resources Agency (SAHRA) or one of its subsidiaries for comment/approval.**