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**PHASE 1 HIA REPORT FOR THE SYLVANIA LESEDI WATER SUPPLY PIPELINE PROJECT
ON PORTIONS OF THE FARM HARTEBESTPOORT B 410JQ, TURFFONTEIN 462JQ &
BUFFELSFONTEIN 465JQ NEAR MOOINOOI, BOJANALA DISTRICT MUNICIPALITY
NORTHWEST PROVINCE**

For:

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REPORT: **APAC022/70**

by:

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July 2022

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A handwritten signature in black ink, appearing to be 'A. Pelser', is centered below the disclaimer text.

SUMMARY

APelser Archaeological Consulting cc (APAC cc) was appointed by Prescali Environmental Consultants (Pty) Ltd to undertake a Phase 1 HIA for the Sylvania Lesedi Water Supply Pipeline Project located on portions of the farms Hartebeestpoort B 410JQ, Turffontein 462 & Buffelsfontein 465JQ. The study and development area is located close to the towns of Modderspruit & Moinooi in the Bojanala District Municipality of the Northwest Province.

Background research indicated that there are a number of cultural heritage (archaeological & historical) sites and features in the larger geographical area, while a number of archaeological sites and finds have been identified in the study area during earlier assessments by the author of this report. These sites and finds were however of low significance and no further mitigation was required. Physical fieldwork was undertaken during July 2022 and this document discusses the results of the assessment. No cultural heritage (archaeological and/or historical) sites, features or material, were identified in the study area during the fieldwork.

From a Cultural Heritage perspective it is recommended that the proposed development is allowed to continue taking into consideration the recommendations provided at the end of the report.

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1. INTRODUCTION

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Background research indicated that there are a number of cultural heritage (archaeological & historical) sites and features in the larger geographical area, while a number of archaeological sites and finds have been identified in the study area during earlier assessments by the author of this report. These sites and finds were however of low significance and no further mitigation was required.

The client indicated the location and boundaries of the study area and the proposed water pipeline route and the assessment focused largely on these demarcations.

2. TERMS OF REFERENCE

The Terms of Reference for the study was to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development;
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
5. Review applicable legislative requirements;

3. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two Acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

3.1. The National Heritage Resources Act

According to the Act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The National Estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Sites of Archaeological and palaeontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the Act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A 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.

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 the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of the Act deals with archaeology, palaeontology and meteorites. The Act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial)

- 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 that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- a. destroy, damage, alter, exhume or remove from its original position of otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b. destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated to) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

3.2. The National Environmental Management Act

This Act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

4. METHODOLOGY

4.1. Survey of literature

A survey of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography.

4.2. Field survey

The field assessment section of the study was conducted according to generally accepted HIA practices and aimed at locating all possible objects, sites and features of heritage significance in the area of the proposed development. The location/position of all sites, features and objects is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

4.3. Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

4.4. Documentation

All sites, objects, features and structures identified are documented according to a general set of minimum standards. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

5. DESCRIPTION OF THE AREA

The proposed Sylvania Lesedi Water Pipeline is located on portions of the farms Hartebeestpoort B 410JQ, Turffontein 462 & Buffelsfontein 465JQ. The study and development area is located close to the towns of Modderspruit & Mooinooi in the Bojanala District Municipality of the Northwest Province.

The topography of the area is mostly flat and open with only a few low rocky outcrops and ridges present. Vegetation cover in the study area was dense in sections during the assessment, although there are some more open patches as well. The larger & study area has been disturbed through agricultural activities in the past (ploughing/crop growing and grazing), while earlier and more recent mining-related activities has also impacted on the original landscape. If any archaeological sites, features or material did exist here in the past it would have been extensively disturbed or destroyed as a result. The pipeline route that had to be assessed, follows existing roads & servitudes, although in some sections it crosses over portions of fairly undisturbed land. The area is characterized by turf soils, and during Iron Age time areas like these would have been avoided in terms of building and would have served (as in later historical time) as livestock grazing land and for crop growing.

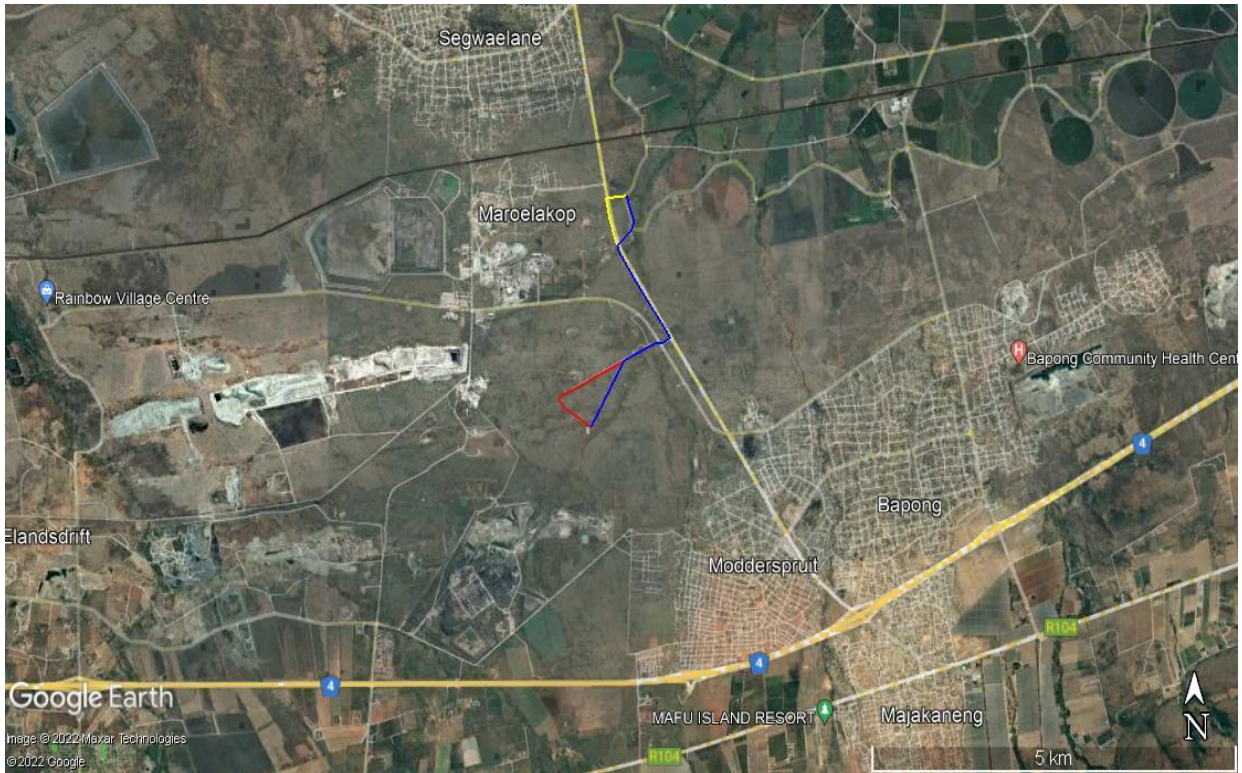


Figure 1: General location of the study & development area (Google Earth 2022).

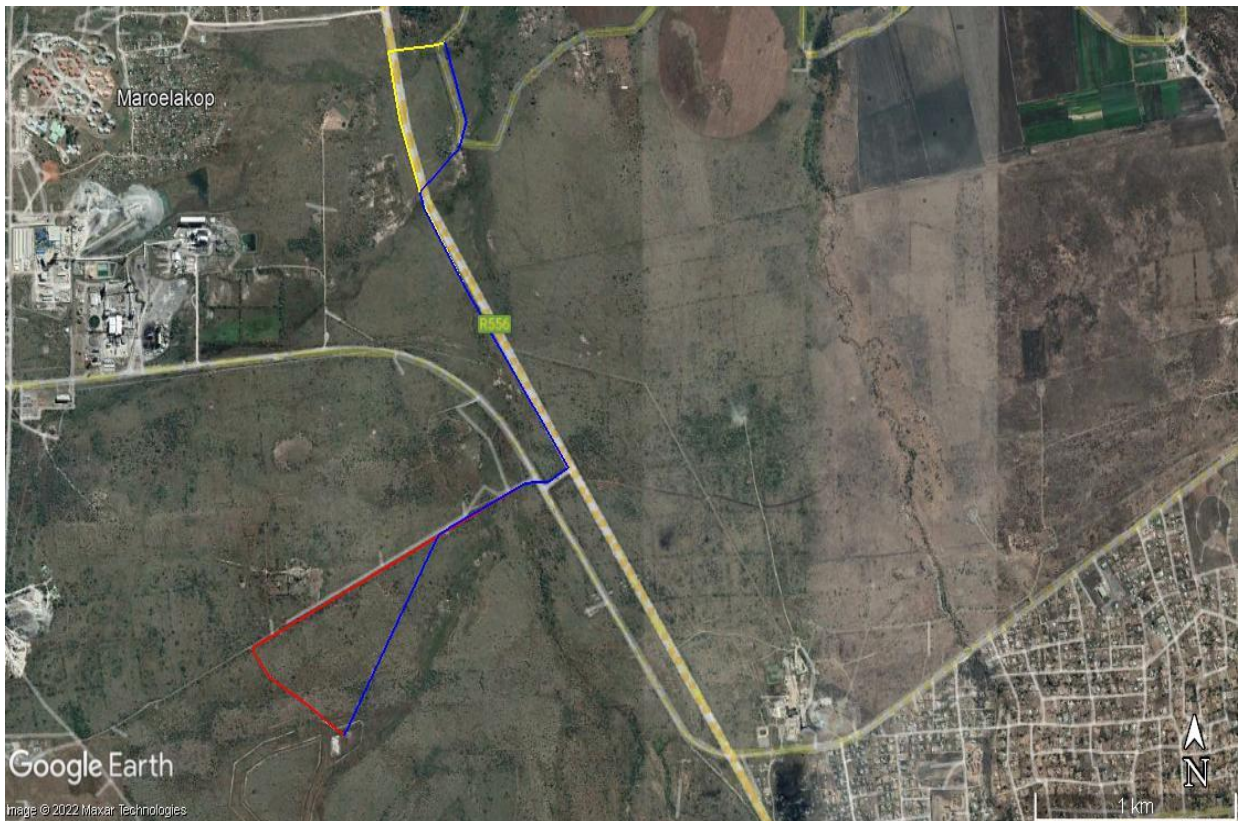


Figure 2: Closer view of the proposed Sylvania Lesedi Water Supply Pipeline Routes (yellow, red and blue lines) study area (Google Earth 2022).

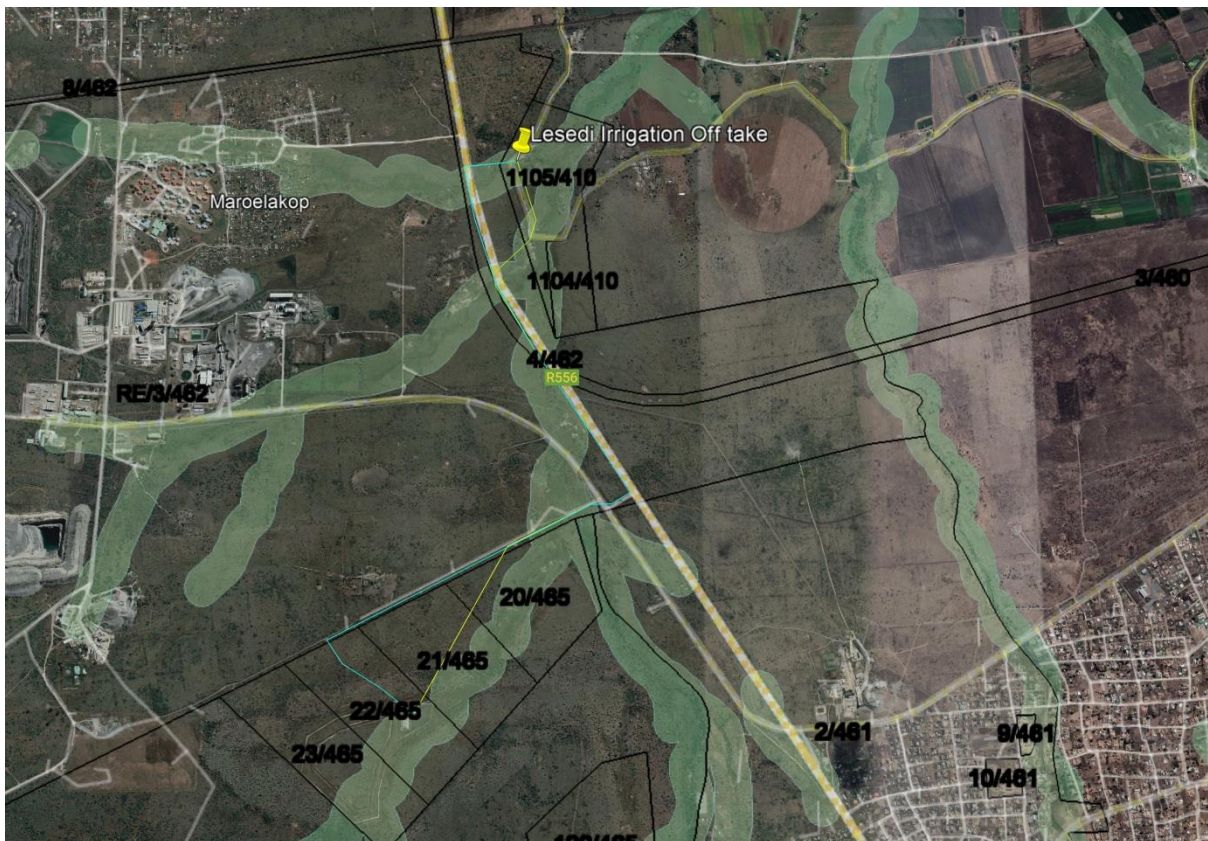


Figure 3: Location and Pipeline Route Options map (provided by Prescali Environmental Consultants (Pty) Ltd).

6. DISCUSSION

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. In South Africa the Stone Age can be divided basically into three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago

Middle Stone Age (MSA) less than 300 000 – 20 000 years ago

Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

There are no known significant Stone Age sites or features in the specific study area. The closest known Stone Age sites in the larger geographical area are located in the so-called Magaliesberg Research Area and include rock shelter sites dating to the Middle and Later Stone Age. There is also some rock engraving sites in this area (Bergh 1999: 4-5). A single MSA stone tool was found close to the current study area during a 2012 assessment by the Specialist (Pelser 2012: 13; 16 & 22).

No Stone Age sites or objects (such as stone tools) were identified in the area during the July 2022 field work. It is believed that if any Stone Age artifacts are to be found in the area then it would more than likely be single, out of context, stone tools.

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts. In South Africa it can be divided in two separate phases (Bergh 1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.

Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) indicates that a Middle Iron Age should be included. His dates, which are widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.

Middle Iron Age (MIA) 900 – 1300 A.D.

Late Iron Age (LIA) 1300 – 1840 A.D.

Late Iron Age sites have been identified in the area around the town of Mooi-nooi. In a band stretching roughly from Brits in the east to Zeerust in the west many Iron Age sites have been discovered previously (Bergh 1999: 7-8). These all belong to the Later Iron Age (Bergh 1999: 8-9). A copper smelting site was identified along the Hex River to the northwest of the surveyed area (Bergh 1999: 8). The closest Earlier Iron Age site is located at Broederstroom near Brits (Bergh 1999: 6).

During earlier times the area was settled by the Fokeng. In the 19th century this group inhabited this area with other Tswana groups including the Kwena and the Po (Bergh 1999: 9-10). During the *difaqane* these people moved further to the west, but they returned later on (Bergh 1999: 11).

According to the research of Tom Huffman the following Iron Age traditions could be present in the area: (a) the Mzonjani facies of the Urewe tradition (Broederstroom) dating to AD450 – AD750 (b) Olifantspoort facies of the same tradition AD1500 – AD1700 (c) Uitkomst facies of Urewe AD1650 – AD1820 and (d) Buispoort facies of Urewe dating to around AD1700 - AD1840 (Huffman 2007: 127; 171; 191 & 203).

In 2007 Pelser (as part of Archaetnos) was requested by International Ferrometals (SA) (Pty) Ltd to investigate a Late Iron Age stone walled settlement located on their Buffelsfontein Chrome Mine. This site was identified by Dr. Julius Pistorius in May 2002 as part of an EIA done on the farm Buffelsfontein 465JQ. Other Iron Age features and sites were also identified by Pelser in the area for the IFMSA Brits Mooi-nooi Road Extension project (July 2012 – Prescali Environmental). A number of Late Iron Age sites, features and artifacts were located during an assessment in October 2012 for the Phoenix Platinum Mine Tailings Dam in close location to the current study area (Pelser 2012: p.15-21). However, these were mostly individual finds of pottery of low significance. The only significant site was located at a low granite/norite outcrop and is similar to sites found during earlier surveys in the area

(Pelser 2012: 16-18). Grinding surfaces were visible on the rocks, while a large amount of both decorated and undecorated pottery is located around the edges of and on top of the rock outcrop. The number of pottery fragments (representing various vessels) indicates that the site was used for a relatively extensive period.

As with the Stone Age, no Iron Age occurrences were identified in the study area during the 2021.

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people that were able to read and write. Early travelers have moved through this part of the Northwest Province. This included David Hume in 1825, Robert Scoon and William McLuckie in 1829 and Dr. Robert Moffat and Reverend James Archbell in 1829 (Bergh 1999: 12, 117-119). Hume again moved through this area in 1830 followed by the expedition of Dr. Andrew Smith in 1835 (Bergh 1999: 13, 120-121). In 1836 William Cornwallis Harris visited the area. The well-known explorer Dr. David Livingstone passed through this area between 1841 and 1847 (Bergh 1999: 13, 119-122).

The Battle of Buffelspoort (3 December 1900) was also fought in close vicinity of the development area during the Anglo-Boer War (1899-1902).

No historically significant sites, features or remains were identified in the study area during the assessment.

The area around Mooinooi, including the surveyed area was inhabited by white pioneers as early as 1839 (Bergh 1999: 15). From an old map obtained from the database of the Chief Surveyor General (www.csg.dla.gov.za), dated to 1903, it is clear that the whole of the farm Buffelsfontein 465JQ was originally granted to one H.C. Jansen van Rensburg on the 7th of March 1861 and was official surveyed in October and November 1903. No structures or other cultural features are shown on this map (**CSG Document 10G2UM01**). A 1919 map for Turffontein 462JQ shows that farm was framed for the purpose of obtaining a Certificate of Amended Title in favor of the Government of the Union of South Africa, and officially surveyed in April 1919 (**CSG Document 10456675**). For Hartebeestpoort B (originally Hartebeespoort Settlement) the map dates to 1938 (**CSG Document 10601044**). The farm was then numbered as No.56 and was located in the Brits District of the Province of Transvaal. It was surveyed between September and December 1938 and shows the presence of a water canal.

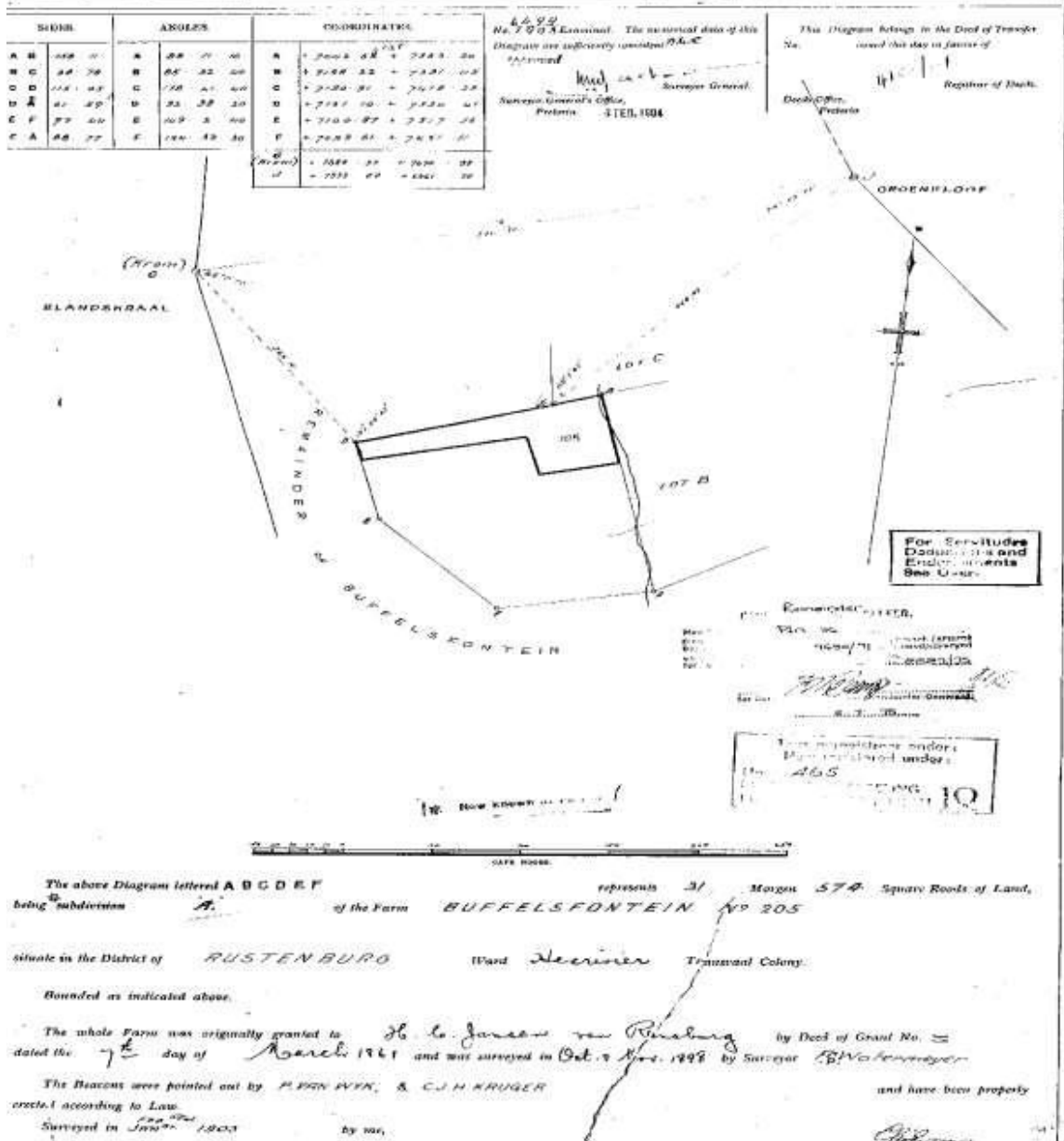
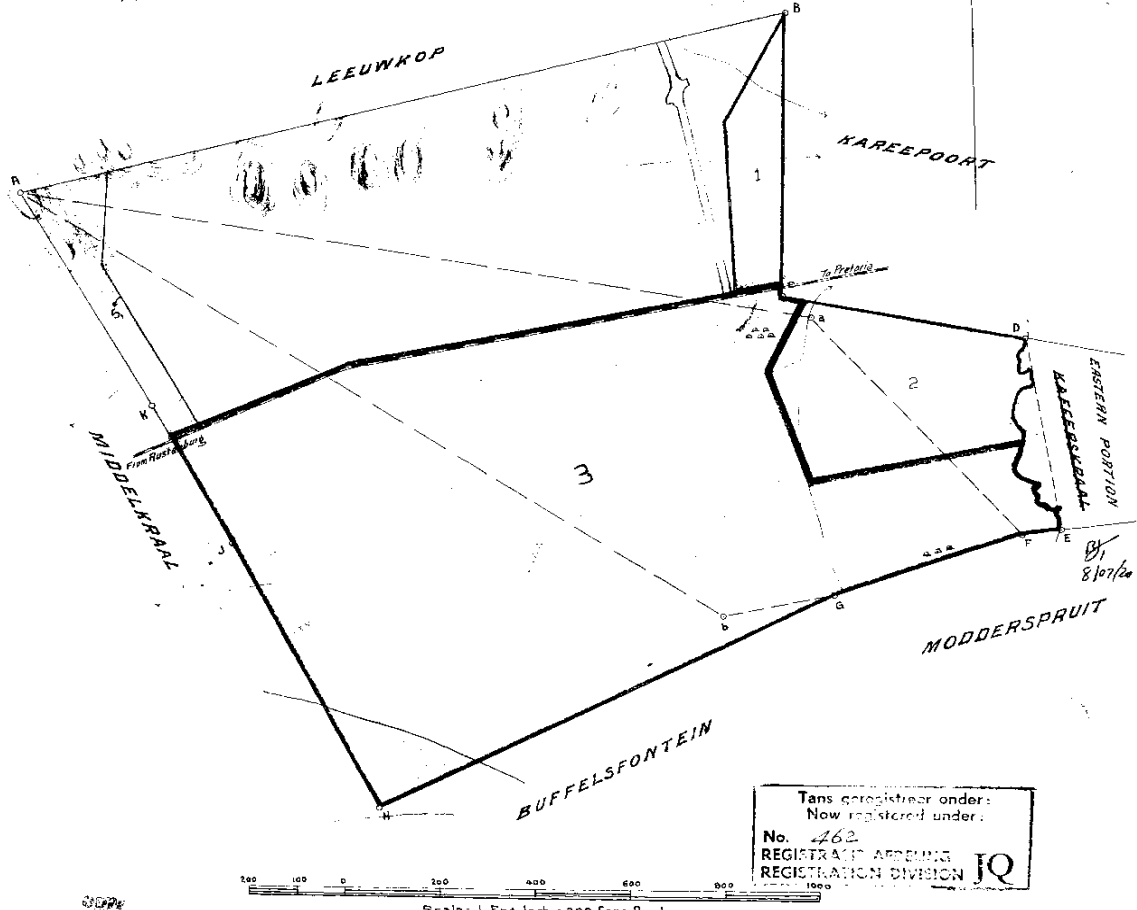


Figure 4: 1903 map of the farm Buffelsfontein 465JQ (www.csg.dla.gov.za).

S. G. No 1829/9. 310 964

| Sides | Angles | (y) Co-ordinates (x) |
|-------------|-------------|-----------------------|
| A B 1665.61 | A 76.7.40 | A +10272.57 + 9274.69 |
| B C 562.00 | B 74.85.00 | B +10639.71 + 6649.95 |
| C D 523.68 | C 255.44.50 | C + 9978.27 + 6677.24 |
| D E 454.23 | D 110.48.00 | D + 9863.09 + 6166.21 |
| E F 82.42 | E 90.10.50 | E + 9414.28 + 6101.56 |
| F G 421.07 | F 186.4.50 | F + 9402.29 + 6103.10 |
| G H 1089.33 | G 192.24.50 | G + 9287.25 + 6390.86 |
| H J 694.41 | H 88.3.20 | H + 8805.11 + 7562.68 |
| J K 363.64 | J 181.40.40 | J + 9434.90 + 7855.19 |
| K A 573.57 | K 180.0.0 | K + 9760.07 + 8017.95 |

Rectl. Area = 3705 Morgen sq Rds
 z CD mid Spruit = 180°
 z F " " " " = 180°



The above figure lettered A.B.C.D mid Spruit E.F.G.H.J.K represents the farm **TURFFONTEIN No 310**

- in extent 3682 Morgen 186 Square Rods of land, comprising the figures lettered
- 1) A.B.C.D mid Spruit E.F.A.A. being the Remaining Extent of the Farm **KAFFERSKRAAL No 597** originally granted to L.N.R. Robbertse by Government Transfer dated 19-8-1863 and now held under Transfer No 4284/1914.
 - 2) A.A.F.G.B.A. being Portion of the farm **TURFFONTEIN No 356** transferred to P. Kruger by Transfer No 1327/1872 & now held under Transfer No 4984/1914.
 - 3) A.B.E.H.J.K.A. being Portion of the farm **TURFFONTEIN No 356** transferred to M.A.S. Pretorius by Transfer No 316/1872 & now held under Transfers No 5555/1914, 5896/1914 & 6319/1914 Situate in the District of Rustenburg, Ward Hex River, Province of Transvaal, and bounded as indicated above. The beacons were pointed out by Surveyor F.S. Watermeyer and have been properly erected according to law. Due notice of this survey has been given to all adjoining land owners. Framed for the purpose of obtaining a Certificate of Amended Title in favour of The Government of the Union of South Africa under the provisions of Section 27 of Act 13 of 1918.
- Surveyed in April 1919 by me

No 1829 Examined. The numerical data of this Diagram are sufficiently consistent

A. Sking
 for Examiner of Diagrams

Surveyor General's Office
 Pretoria

No protest, confirmed

W. de Kock
 Surveyor General

Surveyor General's Office
 Pretoria 20 SEP 1919
 Published in Union Government Gazette No 1980 dated 17 OCT 1919

Figure 5: 1919 map of Turffontein 462JQ (www.csg.dla.gov.za).

S.G. OFFICE COPY

SUBDIAGRAM
Rect. 24 (b), Act 13 of 1927

S.G. No. A. 1723/38

Approved

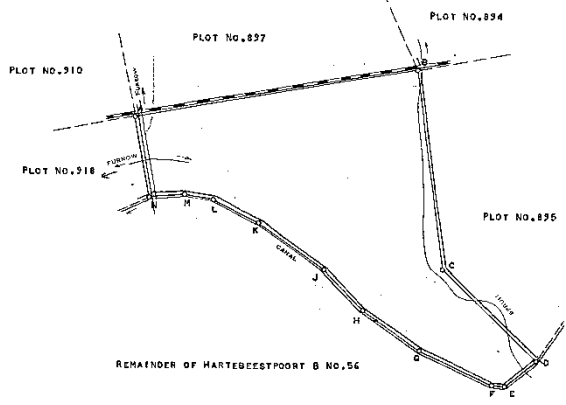
Asst. Surveyor General
24-6-1938



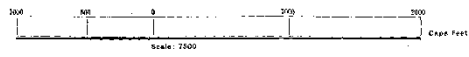
| SIDES | | ANGLES | | SYSTEM | |
|-------|--------|--------------|-----------|--------------|---------------------|
| Case | Feet | OF DIRECTION | | CO-ORDINATES | |
| | | | | Y | X |
| | | | | CONSTANTS | |
| | | | | - 150,000.0 | + 9,000,000.0 |
| AB | 2124.9 | AB | 261.53.50 | A | - 70056.6 + 19494.9 |
| BC | 1466.7 | BC | 354.03.20 | B | - 72160.3 + 13195.4 |
| CD | 962.5 | CD | 345.28.50 | C | - 72314.3 + 20674.1 |
| DE | 295.2 | DE | 50.37.40 | D | - 72989.2 + 21350.4 |
| EF | 32.44 | EF | 98.35.10 | E | - 72751.0 + 21547.7 |
| FG | 606.7 | FG | 116.03.00 | F | - 72669.6 + 21533.9 |
| GH | 515.8 | GH | 127.08.10 | G | - 72125.0 + 21266.5 |
| HJ | 420.1 | HJ | 138.34.50 | H | - 71713.8 + 20955.1 |
| JK | 601.3 | JK | 126.08.40 | J | - 71435.9 + 20640.1 |
| KL | 369.2 | KL | 118.01.00 | K | - 70950.3 + 20285.4 |
| LM | 214.4 | LM | 101.47.10 | L | - 70624.4 + 20112.0 |
| MN | 273.1 | MN | 87.49.00 | M | - 70414.5 + 20068.2 |
| NA | 589.3 | NA | 171.42.50 | N | - 70141.6 + 20078.6 |

Description of Beacons

B C D = 6" x 1" Round Iron
A E F G H J K L M N = 3" x 1" Round Iron



Tans geregistreer onder:
Nou geregistreer onder:
No. 410
REGISTRARIE ARBEIDING
REGISTRARION DIVISION IQ



The figure **A B C D E F G H J K L M N**
represents **33.8542** Morgen of land called
Portion
Plot No. 896 of the **HARTEBEESTPOORT SETTLEMENT** being a portion of the farm **HARTEBEESTPOORT B No. 56**
situate in the DISTRICT of BRITS
PROVINCE of TRANSVAAL
Surveyed in Sept.-Dec., 1937, by me
Hownditch
Land Surveyor.

| | | |
|--|---|---|
| This diagram relates to Deed of No. _____ dated _____ in favour of _____ | The original diagram is No. A 88/25 relating to Certificate of Amended Title No. 2737/1927 dated 12/3/37 in favour of Govt. of Union of S. Africa | S.G. File No. 12125 Survey Records No. 1965/37 Compilation No. _____ Lat. South _____ Long. East _____ Degree Sheet No. _____ |
|--|---|---|

Published by authority—Growth & Sherrin, P.O. Box 204, Johannesburg—15/1/38

Figure 6: 1938 map of Hartebeestpoort B 410JQ (www.csg.dla.gov.za).

Results of the July 2022 study area assessment

Three pipeline option routes had to be assessed, with all located relatively close to each other. As noted earlier the pipeline route/s to a large extent follow or are situated close to existing roads and road reserves, with sections crossing over land that has been less impacted by mining and other activities. A section of the pipeline to the north (at the junction of Option 1 & 3) follows close to a low rocky outcrop but no sites of archaeological origin or significance were identified here. The rest of the study area is relatively flat and open and located in turf soils that would not have been suitable for settlement in the archaeological past.

The remnants of what could be an old water furrow (or canal) were noted in the south-western section of the Option 2 and 1 line route. This area has also been impacted by recent mining and historical agricultural activities (including ploughing and livestock grazing). No sites, features or material of cultural heritage (archaeological and/or historical) origin or significance were identified in the study area during the physical assessment. If any sites did exist here in the past it would have been largely disturbed or destroyed by recent historical agricultural and mining related in the study and larger area around it. Some mining-related features were noted in the area as well, but these are not of cultural heritage significance.



Figure 7: View towards the northern section of the water pipeline route.



Figure 8: View from the northern connection point towards the south.



Figure 9: A section of the line (Option 3) route general location. A low rocky ridge is located close by.



Figure 10: Another section of the Option 3 route section.



Figure 11: A view down a section of the Option 1&2 route towards the western part of the line.



Figure 12: A view down a section of the pipeline route towards the western section of the line.



Figure 13: Some mining-related features next to the line route.



Figure 14: A view of the area at the western connection point to the south.



Figure 15: A view of the area close to the Tailings Dam.



Figure 16: A general view showing the topography and vegetation characteristic of the area.



Figure 17: A view from the western section of the line towards the east. A water furrow/canal is visible here.



Figure 18: Another view of a section of the water furrow/canal, with a small rocky outcrop visible.



Figure 19: More mining-related infrastructure on the line route.

The proposed Sylvania Lesedi Water Supply Pipeline route will have a fairly limited impact on the surrounding and general landscape, while there will be no negative impacts on any cultural heritage resources. Based on the desktop research as well as the physical assessment of the area it is therefore recommended that the proposed development should be allowed to continue from a Cultural Heritage perspective.

Although all efforts are made to cover a total area during any assessment and therefore to identify all possible sites or features of cultural (archaeological and/or historical) heritage origin and significance, that there is always the possibility of something being missed. This will include low stone-packed or unmarked graves. This aspect should be kept in mind when development work commences and if any sites (including graves) are identified then an expert should be called in to investigate and recommend on the best way forward.

6. CONCLUSIONS AND RECOMMENDATIONS

APelser Archaeological Consulting cc (APAC cc) was appointed by Prescali Environmental Consultants (Pty) Ltd to undertake a Phase 1 HIA for the Sylvania Lesedi Water Supply Pipeline Project located on portions of the farms Hartebeestpoort B 410JQ, Turffontein 462 & Buffelsfontein 465JQ. The study and development area is located close to the towns of Modderspruit & Moinooi in the Bojanala District Municipality of the Northwest Province.

Background research indicated that there are a number of cultural heritage (archaeological & historical) sites and features in the larger geographical area, while a number of archaeological sites and finds have been identified in the study area during earlier assessments by the author of this report. Three pipeline option routes had to be assessed, with all located relatively close to each other. The pipeline route/s follow or are situated close to existing roads and road reserves to large extent, with sections crossing over land that has been less impacted by mining and other activities. A section of the pipeline to the north runs close to a low rocky outcrop, but no sites of archaeological origin or significance were identified here. The rest of the study area is relatively flat and open and located in turf soils that would not have been suitable for settlement in the archaeological past.

The remnants of what could be an old water furrow (or canal) were noted in the south-western section of the Option 2 and 1 line route. This area has also been impacted by recent mining and historical agricultural activities. No sites, features or material of cultural heritage origin or significance were identified in the study area during the physical assessment. If any sites did exist here in the past it would have been largely disturbed or destroyed by recent historical agricultural and mining related in the study and larger area around it. Some mining-related features were noted in the area as well, but these are not of cultural heritage significance.

The often subterranean nature of archaeological and/or historical resources (including low stone-packed or unmarked graves) should also be taken into consideration. If any previously unknown or invisible sites, features or material are uncovered during any development

actions then a Heritage Specialist should be contacted to investigate and provide recommendations on the way forward.

Finally, from a Cultural Heritage point of view the proposed Sylvania Lesedi Water Supply Pipeline development should be allowed to continue taking into consideration the recommended measures provided above.

7. REFERENCES

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APPENDIX A: DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B: DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE

Historic value: Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.

Aesthetic value: Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.

Scientific value: Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period

Social value: Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

Rarity: Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.

Representivity: Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C: SIGNIFICANCE AND FIELD RATING:

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.

Heritage significance:

- Grade I: Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II: Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III: Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

- i. National Grade I significance: should be managed as part of the national estate
- ii. Provincial Grade II significance: should be managed as part of the provincial estate
- iii. Local Grade IIIA: should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB: should be included in the heritage register and may be mitigated (high/medium significance)
- v. General protection A (IV A): site should be mitigated before destruction (high/medium significance)
- vi. General protection B (IV B): site should be recorded before destruction (medium significance)
- vii. General protection C (IV C): phase 1 is seen as sufficient recording and it may be demolished (low significance)

APPENDIX D: PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – Grade I and II

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

Heritage objects – e.g. Archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E: HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or Scoping Phase – Establishment of the scope of the project and terms of reference.
2. Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.
3. Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – If there is no likelihood that any sites will be impacted.
5. Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.