Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

A REPORT ON A HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED TAWANA HOTAZEL MINE, HOTAZEL, NORTHERN CAPE PROVINCE

For:

Prime Resources
E-mail: Louise Jones - louise@resources.co.za

REPORT: **AE02118V**

By:

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21 April 2021

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DISCLAIMER:

Although all possible care is taken to identify all sites of cultural importance during the survey of study areas, the nature of archaeological and historical sites is as such that it always is possible that hidden or subterranean sites could be overlooked during the study. Archaetnos and its personnel will not be held liable for such oversights or for costs incurred as a result thereof.

The South African Heritage Resources Agency (SAHRA) or one of its subsidiary bodies needs to comment on this report and clients are advised not to proceed with any action before receiving these. It is the responsibility of the client to submit this report to the relevant heritage authority.

EXECUTIVE SUMMARY

Archaetnos cc was appointed by Prime Resourcesto conduct a cultural heritage study for the proposed Tawana Hotazel Mine. The project is situated on the farms Hotazel 280 and York 279, approximately 1 km south-east of the town of Hotazel in the Northern Cape Province.

The Hotazel Project largely incorporates the historical Hotazel Manganese Mine (HMM), including the residual opencast void, surface dumps of low-grade material and the mothballed processing plant and rail loadout facility. The area was historically mined by both opencast and underground means.

The Hotazel Project largely incorporates the historical Hotazel Manganese Mine (HMM), including the residual opencast void, surface dumps of low-grade material and the mothballed processing plant and rail loadout facility. HMM stopped production in 1989. The area was historically mined by both opencast and underground means and yielded high grade manganese ore.

Tawana Hotazel Mining (Pty) Ltd intends on submitting an application for a Mining Right (MR) to the Department of Mineral Resources and Energy (DMRE) for the proposed Tawana Hotazel Mine (THM). Surface infrastructure will include the opencast pit (incorporating the historical HMM void and further expansion of the opencast footprint), in-pit waste dumps (residue material), vehicle yard, workshop, access and haul roads, offices, stores, processing plant, product stockpile area, run of mine pad, refuel bay and water management infrastructure.

A survey of literature was undertaken in order to obtain background information regarding the area. The field survey was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development.

No sites of cultural heritage importance were identified. However Stone Age sites were previously identified in the wider geographical area.

The final recommendations are as follows:

- This report is seen as ample mitigation and the development may therefore continue, but only after receiving the necessary approval from SAHRA.

- It should be remembered that due to archaeological sites being subterranean in essence, it is possible that all cultural sites may not have been identified. Care should therefore be taken when development work commences that, if any more artifacts are uncovered, a qualified archaeologist be called in to investigate.

- Proposed management measures for potential impacts, which should be followed as heritage protocol and Chance Find Procedure :

- Loose stone tools found are usually of minor significance and should just be left as it is.
- Areas where a substantial number of stone tools are found together should be geo-referenced and left alone until such time as an archaeologist can visit the site to determine its significance.
- Although chances of finding Iron Age remains are slim, it should be treated similar to the above. Potshards found out of context should be left alone, but areas with stone walling or substantial pottery and other cultural remains should be geo-referenced and left alone until investigated by an archaeologist.
- All buildings and remains of buildings and other structures believed to be older than 60 years should be geo-referenced and left alone until and a heritage expert can be called in to determine the cultural significance thereof.
- Graves should be left in situ, geo-referenced and left alone until investigated by an archaeologist.
- Should any of the above be identified, the area should be demarcated to ensure no impact until further investigation has been done.

CURRICULUM VITAE
Prof. Anton Carl van Vollenhoven

PERSONAL INFORMATION

- Born: 20 January 1966, Pretoria, RSA
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- Cell phone: 083 291 6104
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TERTIARY EDUCATION

- BA 1986, University of Pretoria
- BA (HONS) Archaeology 1988 (cum laude), University of Pretoria
- MA Archaeology 1992, University of Pretoria
- Post-Graduate Diploma in Museology 1993 (cum laude), University of Pretoria
- Diploma Tertiary Education 1993, University of Pretoria
- DPhil Archaeology 2001, University of Pretoria.
- MA Cultural History 1998 (cum laude), University of Stellenbosch
- Management Diploma 2007 (cum laude), Tshwane University of Technology
- DPhil History 2010, University of Stellenbosch

EMPLOYMENT HISTORY

- *1988-1991:* Fort Klapperkop Military Museum - Researcher
- *1991-1999:* National Cultural History Museum. Work as Archaeologist, as well as Curator/Manager of Pioneer Museum (1994-1997)
- *1999-2002:* City Council of Pretoria. Work as Curator: Fort Klapperkop Heritage Site and Acting Deputy Manager Museums and Heritage.
- *2002*-2007: City of Tshwane Metropolitan Municipality. Work as Deputy Manager Museums and Heritage.
- *August 2007* – present – Managing Director for Archaetnos Archaeologists.
- *1988-2003*: Part-time lecturer in Archaeology at the University of Pretoria and a part-time lecturer on Cultural Resources Management in the Department of History at the University of Pretoria.
- *2014-2015*: Part-time lecturer for the Honours degree in Museum Sciences in the Department of History and Heritage Studies at the University of Pretoria
- *Since 2015*: Extraordinary Professor of History at the Mahikeng campus of the Northwest University

OTHER

- Has published 34 peer-reviewed and 42 popular articles.
- Hs written 11 books/book contributions/conference proceedings .
- Has been the author and co-author of over 911 unpublished reports on cultural resources surveys and archaeological work.
- Has delivered more than 72 papers and lectures at national and international conferences.
- Member of SAHRA Council for 2003 – 2006.
- Member of the South African Academy for Science and Art.
- Member of Association for South African Professional Archaeologists.

- Member of the South African Society for Cultural History (Chairperson 2006-2008; 2012-2014; 2018-2020).
- Has been editor for the SA Journal of Cultural History 2002-2004.
- Editorial member of various scientific journals.
- Member of the Provincial Heritage Resources Agency, Gauteng's Council.
- Member of Provincial Heritage Resources Agency, Gauteng's HIA adjudication committee (Chairperson 2012-2019).

A list of reports can be viewed on www.archaetnos.co.za.

DECLARATION OF INDEPENDENCE

I, Anton Carl van Vollenhoven from Archaetnos, hereby declare that I am an independent specialist within the field of heritage management.

Signed:  Date: 21 April 20121

LIST OF ACRONYMS:

AIA – Archaeological Impact Assessment
CMP – Cultural Management Plan
EAP – Environmental Assessment Practitioner
EIA – Environmental Impact Assessment
HIA – Heritage Impact Assessment
PIA – Palaeontological Impact Assessment
SAHRA –South African Heritage Resources Agency

CONTENTS

1. INTRODUCTION

Archaetnos cc was appointed by Prime Resources to conduct a cultural heritage study for the proposed Sebilo Perth Mine. This is located at Hotazel in the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality, Northern Cape Province (Figure 1). The project is situated on the farms Hotazel 280 and York 279, approximately 1 km south-east of the town of Hotazel.

FIGURE 1: LOCATION OF HOTAZEL IN THE NORTHERN CAPE PROVINCE (NORTH REFERENCE IS TO THE TOP).

The Hotazel Project largely incorporates the historical Hotazel Manganese Mine (HMM), including the residual opencast void, surface dumps of low-grade material and the mothballed processing plant and rail loadout facility. HMM stopped production in 1989. The area was historically mined by both opencast and underground means and yielded high grade manganese ore.

Tawana Hotazel Mining (Pty) Ltd intends on submitting an application for a Mining Right (MR) to the Department of Mineral Resources and Energy (DMRE) for the proposed Tawana Hotazel Mine (THM). The types of minerals applied for are all (Code UN); Iron and Iron bearing minerals including hematite, goethite, specularite and limonite (Code (Fe) Type (B)) and Manganese and manganese bearing minerals (Code (Mn) Type (B)).

The THM largely incorporates the historical Hotazel Manganese Mine (HMM), including the residual opencast void, surface dumps of low-grade material and the

mothballed processing plant and rail loadout facility. HMM stopped production in 1989. The area was historically mined by both opencast and underground means and yielded high grade manganese ore. All current plans for the project specifically exclude underground mining.

Surface infrastructure will include the opencast pit (incorporating the historical HMM void and further expansion of the opencast footprint), in-pit waste dumps (residue material), vehicle yard, workshop, access and haul roads, offices, stores, processing plant, product stockpile area, run of mine pad, refuel bay and water management infrastructure (Figure 2-4).

FIGURE 2: LOCATION OF THE PROPOSED MINING AREA IN RELATION TO HOTAZEL IN THE NORTHERN CAPE PROVINCE.

FIGURE 3: THE PROPOSED MINING DEVELOPMENT.

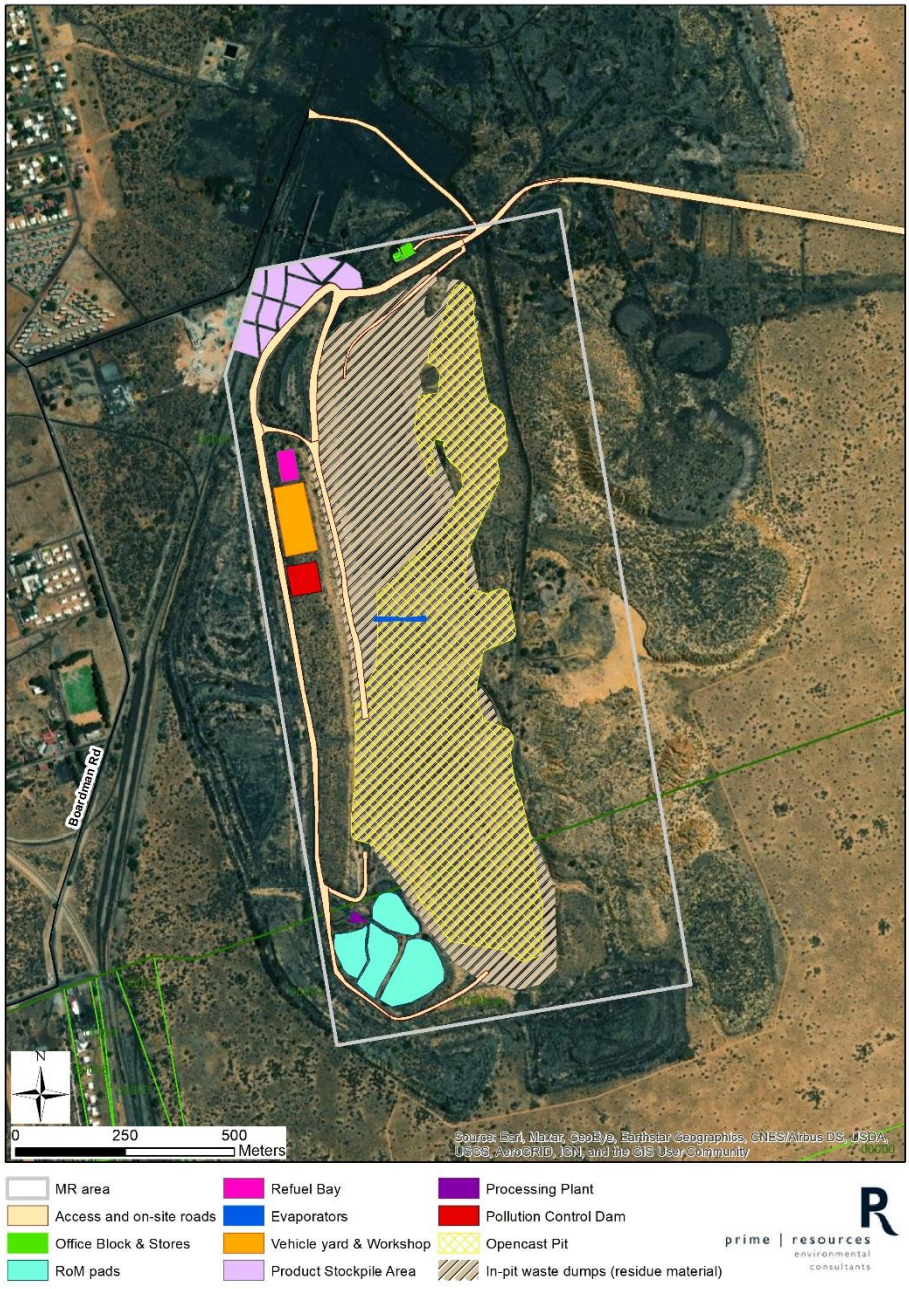

FIGURE 4: PROPOSED MINE LAYOUT.

2. TERMS OF REFERENCE

The Terms of Reference for the survey were to:

1. Identify objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the property (see Appendix A).

2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).

3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.

4. Recommend suitable mitigation measures to minimize possible negative impacts on the cultural resources by the proposed development.

5. Review applicable legislative requirements.

3. CONDITIONS & ASSUMPTIONS

The following conditions and assumptions have a direct bearing on the survey and the resulting report:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity (Appendix A). These include all sites, structure and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development. Graves and cemeteries are included in this.

2. The significance of the sites, structures and artifacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects.

3. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance have already been recorded in full and require no further mitigation. Sites with medium cultural significance may or may not require mitigation depending on other factors such as the significance of impact on the site. Sites with a high cultural significance require further mitigation (see Appendix C).

4. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information by the developer and should not be disclosed to members of the public.

5. All recommendations are made with full cognizance of the relevant legislation.

6. It has to be mentioned that it is almost impossible to locate all the cultural resources in a given area, as it will be very time consuming. Developers should however note that the report should make it clear how to handle any other finds that might occur. In this particular case the area was very large and some areas inaccessible due to the vegetation cover being high and dense in certain areas.

7. It never is possible to know all sites previously recorded in a certain area to be investigated. However, providing this background only gives a broad base as to what can be expected and apart from predicting what may be found, it has no influence on the study.

8. It should be noted that access could not be gained to the entire project area due to it being a dangerous area resulting from past mining activities. However, those areas could be viewed from a distance and are entirely disturbed and thus are likely not containing any heritage features.

4. 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).

4.1 The National Heritage Resources Act

According to the above-mentioned 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 or scientific or technological value.

The national estate (see Appendix D) 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. 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 only looks at archaeological resources. The different phases during the HIA process are described in Appendix E. 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 000m^2 or involve three or more existing erven or subdivisions thereof
d. Re-zoning of a site exceeding 10 000 m^2
e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the mentioned 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 this 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.

Unidentified/unknown graves are also handled as older than 60 until proven otherwise. Human remains that are less than 60 years old are subject to provisions of the **National Health Act** (**Act 61 of 2003**) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Exhumations** (**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) before exhumation can take place. Human remains can only be handled by a registered undertaker or an institution declared under the **National Health Act** (**Act 61 of 2003**).

4.2 The National Environmental Management Act

This act (Act 107 of 1998) 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.

5. THE INTERNATIONAL FINANCE CORPORATIONS' PERFORMANCE STANDARD FOR CULTURAL HERITAGE

This standard recognizes the importance of cultural heritage for current and future generations. It aims to ensure that clients protect cultural heritage in the course of their project activities.

This is done by clients abiding to the law and having heritage surveys done in order to identify and protect cultural heritage resources via field studies and the documentation of such resources. These need to be done by competent professionals (e.g. archaeologists and cultural historians). Possible chance finds, encountered during the project development, also needs to be managed by not disturbing it and by having it assessed by professionals.

Impacts on the cultural heritage should be minimized. This include the possible maintenance of such sites in situ, or when impossible, the restoration of the functionality of the cultural heritage in a different location. When cultural historical and archaeological artifacts and structures need to be removed is should be done by professionals and by abiding to the applicable legislation.

The removal of cultural heritage resources may however only be considered if there are no technically or financially feasible alternatives. In considering the removal of cultural resources, it should be outweighed by the benefits of the overall project to the effected communities. Again professionals should carry out the work and adhere to the best available techniques.

Consultation with affected communities should be engaged in. This entails that access to such communities should be granted to their cultural heritage if this is applicable. Compensation for the loss of cultural heritage should only be given in extra-ordinary circumstances.

Critical cultural heritage may not be impacted on. Professionals should be used to advise on the assessment and protection thereof. Utilization of cultural heritage resources should always be done in consultation with the effected communities in order to be consistent with their customs and traditions and to come to agreements with relation to possible equitable sharing of benefits from commercialization.

6. METHODOLOGY

6.1 Survey of literature

A survey of literature was undertaken in order to obtain background information regarding the area. Sources consulted in this regard are indicated in the bibliography.

6.2 Reference to other specialist studies

On the existing SAHRA Database (SAHRIS) there are a number of reports that were done in the wider area (SAHRIS database). The SAHRIS database is an internet-based tool, updated constantly. These will be referred to below. Archaetnos has also done many surveys here in the past (Archaetnos database), which will also be referred to. The latter is a computer-based tool, updated constantly. Graves and Stone Age sites were mainly identified during these surveys.

6.3 Field survey

The survey was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development. If required, the location/position of any site was determined by means of a Global Positioning System (GPS)[1], while photographs were also taken where needed.

The size of the project site is approximately 145 Ha. The survey was undertaken by a physical survey on foot and took 4 hours to complete (Figure 5). The survey was done in December at the peak of summer and also the wet season. The vegetation cover was reasonably open, with a few dense bushes in between. Both the vertical as the horizontal archaeological visibility was thus reasonably good. However, most of the site has been disturbed by recent human interventions mainly former mining activities.

6.4 Oral histories

People from local communities are 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.

6.5 Documentation

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

[1] A Garmin Oregon 550 with an accuracy factor of a few meters.

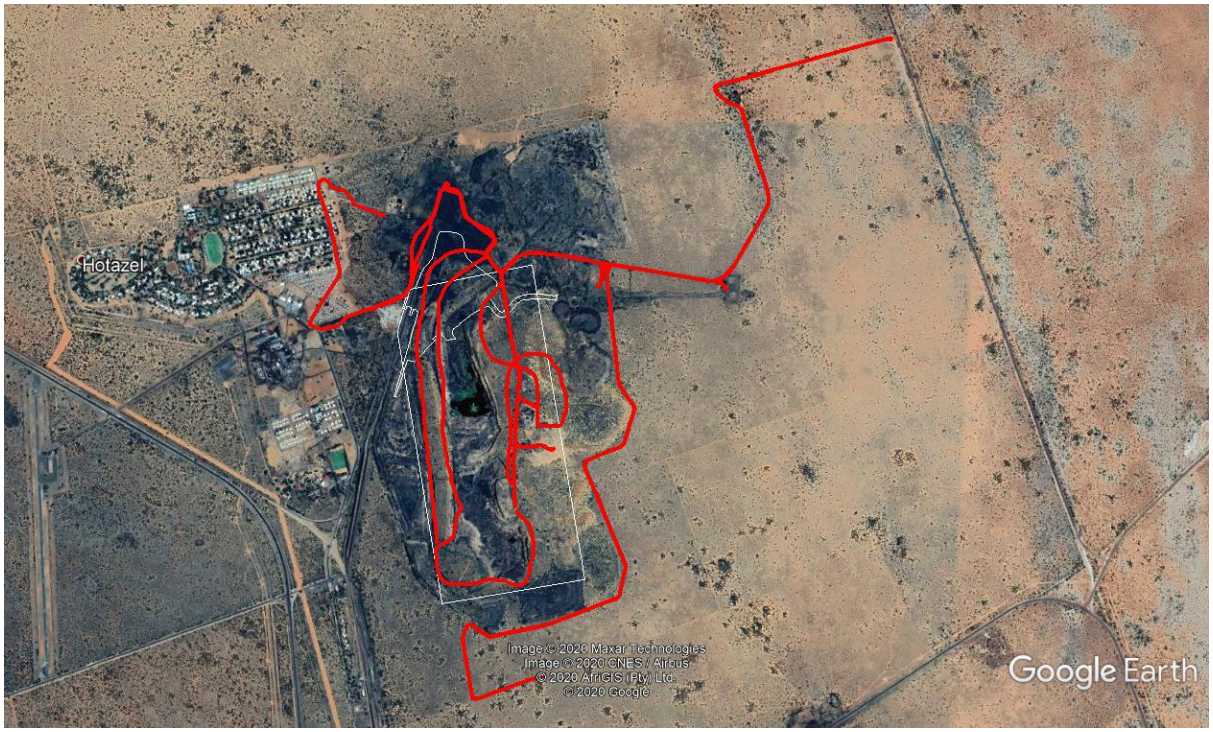

FIGURE 5: TRACK ROUTE OF THE SURVEYED AREA. NOTE THAT THE CENTRAL AREA CONSISTING OF AN OLD OPENCAST PIT COULD NOT BE ACCESSED.

6.6 Evaluation of Heritage sites

The evaluation of heritage sites is done by giving a field rating of each (see Appendix C) using the following criteria:

- The unique nature of a site
- The integrity of the archaeological deposit
- The wider historic, archaeological and geographic context of the site
- The location of the site in relation to other similar sites or features
- The depth of the archaeological deposit (when it can be determined or is known)
- The preservation condition of the site
- Uniqueness of the site and
- Potential to answer present research questions.

7. DESCRIPTION OF THE ENVIRONMENT

The area that was surveyed is typical of the Kalahari landscape. It is surrounded by sand dunes. The Gamagara River, a non-perennial water course, runs towards the west of the town of Hotazel, with the town just west of the study area. The natural topography is flat with no outstanding features, except for a few dunes and the large opencast pit in the centre of the surveyed site.

Most of the surveyed area is totally disturbed by mining activity and related infrastructure. This includes the large opencast pit, gravel roads and old mining infrastructure (Figure 6-11). The vegetation cover in the less disturbed areas varies between open patches with minimal ground cover and areas with a few low bushes. Here and there the bushes are a bit denser (Figure 12-13). Both the horizontal and vertical archaeological visibility was thus good.

FIGURE 6: NORTHERN SECTION OF THE SURVEYED AREA. NOTE THE DISTURBANCE CAUSED BY FORMER MINING ACTIVITIES.

FIGURE 7: OLD MINE HEAP INCLUDING SIGNS OF ILLEGAL DUMPING ACTIVITIES.

FIGURE 8: ANOTHER MINE HEAP IN THE SURVEYED AREA.

FIGURE 9: VIEW OF ANOTHER MINE DUMP ALSO SHOWING VEGETATION.

FIGURE 10: VIEW OF OPENCAST PIT IN THE SURVEYED AREA.

FIGURE 11: OLD INFRASTRUCTURE IN THE SURVEYED AREA.

FIGURE 12: GENERAL VIEW OF THE SURVEYED AREA SHOWING A GRAVEL ROAD.

FIGURE 13: GENERAL VIEW OF VEGETATION IN THE STUDY AREA.

8. HISTORICAL CONTEXT

During the survey no sites of cultural heritage significance were located. On the existing SAHRA database no such sites are indicated here, but there are a few heritage surveys that were done here (SAHRIS database; Archaetnos database). Some historical sites are known in the wider geographical area, located during the mentioned surveys (see below). In order to enable the reader to better understand archaeological and cultural features, it is necessary to give a background regarding the different phases of human history.

8.1 Stone Age

The Stone Age is the period in human history when lithic material was mainly used to produce tools (Coertze & Coertze 1996: 293). In South Africa the Stone Age can be divided in three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. The division for the Stone Age according to Korsman & Meyer (1999: 93-94) is as follows:

Early Stone Age (ESA) 2 million – 150 000 years ago
Middle Stone Age (MSA) 150 000 – 30 000 years ago
Late Stone Age (LSA) 40 000 years ago – 1850 - A.D.

This geographical area is not well-known as one containing many prehistoric sites. One however has to realize that this most likely only indicates that not much research has been done here before.

Stone Age sites are known to occur in the larger geographical area, including the well-known Wonderwerk Cave in the Kuruman Hills to the east, Tsantsabane, an ancient specularite working on the eastern side of Postmasburg, Doornfontein, another specularite working north of Beeshoek and a cluster of important Stone Age sites near Kathu. Additional specularite workings with associated Ceramic Later Stone Age material and older Fauresmith sites (early Middle Stone Age) are known from Lylefeld, Demaneng, Mashwening, King, Rust & Vrede, Paling, Gloucester and Mount Huxley to the north (Morris 2005: 3).

The nearest substantial site is the Doornlaagte Early Stone Age archaeological site close to Kimberley, some buildings at Postmasburg and a specularite mine close to Postmasburg (SAHRA database).

The onset of the Middle Stone Age coincided with a widespread demand for coloured or glittering minerals that arose at the time for still unknown reasons. The intensive collection of such substances soon exhausted surface exposures and led to the quest being extended underground and thus to the birth of mining practice. As mentioned, specularite was commonly mined in the Postmasburg area. In 1968 AK Boshier, working in collaboration with P Beaumont, found a number of underground specularite mines on Paling (De Jong 2010: 35). Stone and Iron Age communities mined specularite associated with iron ores for cosmetic purposes at Blinkklipkop, Paling, Gloucester and other farms (De Jong 2010: 41; Snyman 2000: 3).

Many Middle and Late Stone Age tools have been found by Archaetnos during surveys in the Northern Cape. These sites are located close to Griekwastad, Hotazel. Postmasburg and Kenhardt (www.archaetnos.co.za). On the farm Konkooksies 91 in the Pofadder district, five sites with Middle and Late Stone Age tools were identified (Pelser 2011). The environment here seems very similar to that at the study area, indicating that sites are most likely to be found within the proposed mining area.

Rock engraving (rock pecking) sites are known from Beeshoek and Bruce (Morris 2005: 3; Snyman 2000: 3). The latter are associated with the Late Stone Age.

A number of Stone Age sites and scattered finds of Stone Age material were identified by Küsel et.al. (2009) and Archaetnos close to the town of Hotazel and adjacent to the Gamagara River during 2011 (Archaetnos database). Further away sites were identified close to Postmasburg on the farm Paling during an earlier survey (Pelser & Van Vollenhoven 2010: 12-17). On neighbouring farms some stone tools were identified (Fourie & Van der Walt 2006: 26-27).

The mentioned Late Stone Age sites are associated with the San people. Mitchell (2002: 126) indicates that the language group who occupied the Northern Cape is the /Auni-//Khomani and Eastern /Hoa. These people were hunters and gatherers which means that they would have moved around, leaving little trace of their existence.

From the above mentioned it is clear that Stone Age people did utilize and settled in the area. A few such sites are known toward the Gamagara River. These have been plotted on a Google Earth image in order to contextualize it with the study area (Figure

14). These lies on the opposite side of the town of Hotazel and will therefore not be affected by the proposed project (Van Vollenhoven 2019:18).

FIGURE 14: KNOWN STONE AGE OCCURRENCES IN THE SURROUNDING AREA OF THE SURVEYED SITE.

8.2 Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts (Coertze & Coertze 1996: 346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.
Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be 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.

No Early or Middle Iron Age sites have been identified in the area of study. Iron Age people occupied the central and eastern parts of southern Africa from about 200 A.D., but the San and Khoi remained in the western and southern parts (Inskeep 1978: 126; see also Huffman 2007).

During the Late Iron Age (LIA), people stayed in extensive stonewalled settlements, such as the Thlaping capital Dithakong, 40 km north of Kuruman. Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the so-called 'first people'.

Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is sometimes known as the Ceramic Late Stone Age and is represented by the Blinkklipkop specularite mine near Postmasburg and finds at the Kathu Pan (De Jong 2010: 36).

It is however known that Late Iron Age people did utilize the area further to the west, albeit briefly, as they did mine copper in the Northern Cape. This was much further to the west of the study area, closer to the Orange River (Inskeep 1978: 135).

Iron Age people therefore probably did not settle in the study area. The chances of finding any Iron Age remains in the study area are thus extremely slim, if not impossible.

8.3 Historical Age

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. This era is sometimes called the Colonial era or the recent past.

Due to factors such as population growth and a decrease in mortality rates, more people inhabited the country during the recent historical past. Therefore and because less time has passed, much more cultural heritage resources from this era have been left on the landscape. It is important to note that all cultural resources older than 60 years are potentially regarded as part of the heritage and that detailed studies are needed in order to determine whether these indeed have cultural significance. Factors to be considered include aesthetic, scientific, cultural and religious value of such resources.

Factors such as population expansion, increasing pressure on natural resources, the emergence of power blocs, attempts to control trade and penetration by Griquas, Korana and white communities from the south-west resulted in a period of instability in Southern Africa that began in the late 18th century and effectively ended with the settlement of white farmers in the interior. This period, known as the *difaqane* or *Mfecane*, also affected the Northern Cape Province, although at a relatively late stage compared to the rest of Southern Africa. Here, the period of instability, beginning in the mid-1820s, was triggered by the incursion of displaced refugees associated with the Tlokwa, Fokeng, Hlakwana and Phuting tribal groups (De Jong 2010: 36).

The *Difaqane* coincided with the penetration of the interior of South Africa by white traders, hunters, explorers and missionaries. The first traders in the Northern Cape were PJ Truter's and William Somerville's journey of 1801, which reached Dithakong at Kuruman. They were again followed by Cowan, Donovan, Burchell and Campbell

and resulted in the establishment of a London Mission Society station near Kuruman in 1817 by James Read (De Jong 2010: 36). During the 1870's William Sanderson, John Ryan and John Ludwig passed through the area close to Postmasburg (Snyman 2000: 3).

The Great Trek of the Boers from the Cape in 1836 brought large numbers of Voortrekkers up to the borders of large regions known as Bechuanaland and Griqualand West, thereby coming into conflict with many Tswana groups and also the missionaries of the London Mission Society. The conflict between Boer and Tswana communities escalated in the 1860s and 1870s when the Korana and Griqua communities became involved and later also the British government. The conflict mainly centered on land claims by various communities. For decades the western border of the Transvaal Boer republic was not fixed. Only through arbitration (the Keate Arbitration), triggered by the discovery of gold at Tati (1866) and diamonds at Hopetown (1867) was part of the western border finally determined in 1871. Ten years later, the Pretoria Convention fixed the entire western border, thereby finally excluding Bechuanaland and Griqualand West from Boer domination (De Jong 2010: 36).

Geographically, the study area is part of a region known as Griqualand West. At the end of the 18th century and the beginning of the 19th century Griqua tribes coming from the south settled in the region in order to escape encroachment of Afrikaner Trekboere who was active along the Orange River. They established the town of Klaarwater, renamed Griquatown in 1813. After the discovery of diamonds in 1867 a serious dispute over the ownership of the diamond fields ensued, involving the Transvaal and Orange Free State Boer republics, Griqua, Korana and Thlaping communities and the Cape colonial government. In October 1871 the diamond fields were proclaimed British territory under the name Griqualand West. In 1879 it was annexed to the Cape Colony (De Jong 2010: 36).

The incorporation of Griqualand West into the Cape Colony promoted colonial settlement in the area from the 1880s. Government-owned land was surveyed and divided into farms, which were transferred to farmers. Surveyors were given the task of surveying and naming some of the many farms in this region. These farms were allocated to prospective farmers, but permanent settlement only started in the late 1920s and the first farmsteads were possibly built during this period (De Jong 2010: 36).

The Griqua town of Blinkklip (established in 1882), originally a mission station, was renamed Postmasburg in 1892 and became the centre of a magisterial district (Snyman 2000: 6). Another town, Olifantshoek, was established in the 1880s. The region remained sparsely populated until the advent of the 20th century, when cattle farming became popular (De Jong 2010: 36).

Prospecting started in the Postmasburg area during 1882 and manganese was discovered here during 1886 (Snyman 2000: 6, 13). Henry George Brown, who was commissioned in 1888 by the government of British Bechuanaland to erect the first government buildings in Kuruman, became interested in the iron ores that were known from the Klipfontein Hills. While prospecting there in the late 19th century, he became

the first person to identify manganese in what is today known as the Eastern Belt of the Postmasburg Manganese Field.

The first Geologist to have surveyed the Northern Cape was Dr A. W. Rogers of the Geological Commission of the Cape Colony in 1906. One of the features he noted was a small hill called Black Rock and reported on the presence of manganese ore at the base of the hill. In 1940 Associated Manganese Mines of South Africa acquired the manganese outcrop known as Black Rock and shortly afterwards started mining the deposit.

The ore is extracted by both underground and open cast operations. Mines in the area include Wessels, N'Chwaning I, N'Chwaning II, Black Rock, Hotazel, Langdon, Devon, Perth, Smart, Adams, Mamatwan (largest opencast mine in the area), Middleplaats and Gloria. Gloria Mine was opened in 1978 (Küsel et.al. 2009: 3).

The strata bound ore deposits of the Kalahari Manganese field represent the largest land bound sedimentary manganese deposits in the world and originated from a single episode of manganese deposition about 2200 million years ago. A widespread hypothermal event occurred in the north western portion of the Kalahari Manganese field 1300 million years ago with temperatures reaching a maximum of 450 degrees centigrade in the Wessels, N'Chwaning and Black Rock areas. This event resulted in the upgrading of the Manganese-content of the ore and produced a wide range of rare minerals as well as mineral assemblages. Of the approximately 150 minerals, 10 have to date only been found in the Kalahari manganese field and a further 26 are found at four or fewer mineral localities worldwide (Küsel et.al. 2009: 3).

One may therefore expect sites associated with the first white farmers, early missionaries and mining companies. This may include graves. In fact, buildings, including farm houses and outbuildings typical of the earliest white farmers of the area were identified during a previous survey on some of the farms mentioned as being part of the wider mining area. A few graves were also identified, but these are on adjacent farms (Van Vollenhoven 2012; Van Vollenhoven & Collins 2015; Fourie & Van der Walt 2006).

9. DISCUSSION OF SITES IDENTIFIED DURING THE SURVEY

As indicated no sites of cultural heritage importance was identified within the surveyed area.

10. CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the assessment of the area was conducted successfully. Known heritage sites lies much further to the west on the opposite side of the town of Hotazel and are therefore not threatened by the proposed development.

The final recommendations are as follows:

- This report is seen as ample mitigation and the development may therefore continue, but only after receiving the necessary approval from SAHRA.

- It should be remembered that due to archaeological sites being subterranean in essence, it is possible that all cultural sites may not have been identified. Care should therefore be taken when development work commences that, if any more artifacts are uncovered, a qualified archaeologist be called in to investigate.

- Proposed management measures for potential impacts, which should be followed as heritage protocol and Chance Find Procedure :

    - Loose stone tools found are usually of minor significance and should just be left as it is.
    - Areas where a substantial number of stone tools are found together should be geo-referenced and left alone until such time as an archaeologist can visit the site to determine its significance.
    - Although chances of finding Iron Age remains are slim, it should be treated similar to the above. Potshards found out of context should be left alone, but areas with stone walling or substantial pottery and other cultural remains should be geo-referenced and left alone until investigated by an archaeologist.
    - All buildings and remains of buildings and other structures believed to be older than 60 years should be geo-referenced and left alone until and a heritage expert can be called in to determine the cultural significance thereof.
    - Graves should be left in situ, geo-referenced and left alone until investigated by an archaeologist.
    - Should any of the above be identified, the area should be demarcated to ensure no impact until further investigation has been done.

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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.
Aestetic 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:

- National Grade I significance — should be managed as part of the national estate
- Provincial Grade II significance — should be managed as part of the provincial estate
- Local Grade IIIA — should be included in the heritage register and not be mitigated (high significance)
- Local Grade IIIB — should be included in the heritage register and may be mitigated (high/ medium significance)
- General protection A (IV A) — site should be mitigated before destruction (high/ medium significance)
- General protection B (IV B) — site should be recorded before destruction (medium significance)
- 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.