



12 December, 2018

Attention: Ms Natasha Higgitt SAHRA APM Unit

Dear Natasha

RE: Vardocube Project Northern Cape Province

Background

The historical Prieska Copper Mine (PCM) mine is situated approximately 3 km south of Copperton and 60 km south-west of the town of Prieska in the Northern Cape Province. The mine falls within the authority of the Siyathemba Local Municipality. The site is accessed via the R357 from Prieska. The mine was owned and operated by Prieska Copper Mine Limited (PCML), a subsidiary of Anglo-Transvaal Consolidated Investment Company Limited (Anglovaal), between 1971 and 1991. The mine operations ceased in 1991 and rehabilitation and closure of the mine was undertaken in accordance with agreements reached with the Department of Mineral and Energy Affairs. A closure certificate was issued by the latter on 19 October 1995. No mining activities have taken place at PCM since 1991. Orion Minerals (Orion), through its subsidiary company of Vardocube (Pty) Ltd., is the holder of a prospecting right in the Copperton area of the Northern Cape Province. The prospecting right was recently executed, and drilling of the Volcanogenic Massive Sulphide (VMS) Deposit, to confirm the mineral resource estimate for Cu and Zn has commenced.

The applicant (Vardocube) is applying for a Mining Right for the Prieska Zinc Copper Project (Vardocube Section). The activity being applied for is exclusively for underground mining with no requirement for any surface area disturbance within the proposed mining right area. The proposed Vardocube mining right area is adjacent to the Repli Trading No. 27 (Pty) Ltd. (Repli) mining right area. Repli is also a subsidiary of Orion and a Mining Right Application (DMR Reference No: NC30/5/1/2/3/2/1/10138 MR) for Repli was submitted in April 2018 and is expected to be finalised by the first quarter of 2019.

The Copperton Deposit extends across the Repli and Vardocube prospecting right areas. Through its subsidiary company Vardocube, Orion therefore intends to access and mine the full extent of the deposit of interest including the Vardocube mining area via the refurbished existing Hutchings Shaft, situated on Portion 25 of the Farm Vogelstruisbult 104, within the proposed Repli mining right area. The Vardocube Section could not be included in the Repli

Mining Right Application as the two companies (Vardocube and Repli), have different ownership structures.

A commercial agreement will be entered into between Repli and Vardocube so that relevant infrastructure and facilities established to support the proposed Repli surface and underground mining will also be used for the underground mining of the Vardocube Section of the deposit. The infrastructure and facilities to be established by Repli have been designed with sufficient capacity to accommodate the additional ore and tailings that will be generated from the Vardocube underground mining. PCM was one of South Africa's first mines to have a decline from surface, using trackless mining methods. Almost all the underground development took place in a competent footwall unit. PCM was serviced by one main vertical men and rock shaft, four ventilation shafts and the decline. The Hutchings Shaft is an 8.8 m diameter vertical shaft sunk down to approximately 1 km below surface. The decline has a length of approximately 7.1 km. Approximately 37 km of underground roadways are underground and various pump stations are still in place from the historical dewatering activities. Underground mining will focus on exploiting what remains of the Deep Sulphide Exploration Target. Ore production will come from stoping areas below the -900m Level. Access to some of these deeper stoping areas was already established as part of the trial mining that was undertaken before mining operations ceased in 1991.

Blasted ore will be hoisted from underground and processed on surface through the Repli process plant and associated infrastructure, situated on Portions 1 and 25 of the Farm Vogelstruisbult 104.

The study area

The proposed project is located on the Remaining Extent of Portion 1 of the Farm Vogelstruisbult 104 and comprises 6 085.5029 Ha.

The vegetation is predominantly Bushmanland Arid Grassland vegetation in the Nama-Karoo biome (Mucina & Rutherford 2006) which consists of Karoo scrub and grass and a few isolated *Acacia Karoo* trees. The project area has been extensively disturbed by previous mining activities and the project comprises underground mining.

Mining Method

Historic underground mining successfully extracted 46 Mt of sulphide ore from steep dipping, continuous open stopes, down to a depth of 900 m at a mining rate of 250 ktpm of ore. Excavations that were established to access production areas and transport ore back to the underground crusher are expected to still be in useable condition. This pre-existing network of excavations will provide the initial access and support ventilation for the planned mining until expanded upon.

Underground mining of the Vardocube section of the ore deposit will be an extension of the same mining method used for the adjacent Repli section of the ore deposit.

Waste rock will remain underground at designated worked-out stope ends for future use as backfill wherever possible. Access to the underground mine will be via the refurbished existing Hutchings Shaft and rehabilitated decline ramp.

Mine production will be achieved using a combination of two mining methods:

- The continuation of longhole sub-level open stoping (LHOS), supplemented with pastefill and waste rock, where the orebody is steep enough for longhole stoping; and
- The introduction of drift-and-fill, where the orebody dip becomes too flat to allow gravitational flow of ore from the stopes.

Mining Infrastructure and activities

Mine infrastructure and facilities established as part of the Repli Mining Right Application and which will be used by agreement between the two companies for the processing of the ore from the Vardocube Section includes:

- The refurbishment and refitting of the Hutchings Shaft, ventilation fans, underground workshops, pump stations, electrical substations, dirty and clean water system;
- Establishment of new offices, stores, accommodation, ablution facilities, change-houses, workshops, wash bay facilities, fuel storage and dispensing facilities, and refuge chambers;
- Water reticulation, compressed air reticulation, power reticulation, engineering systems,
- communications network; emergency alarm system, lighting, rock conveying services, and materials handling; and
- Surge silos, a primary underground crusher, shaft ore conveying linking up with a secondary crusher and related process plant facilities on surface to support ore processing.

No dedicated infrastructure or facilities is thus required for the mining of the Vardocube Section

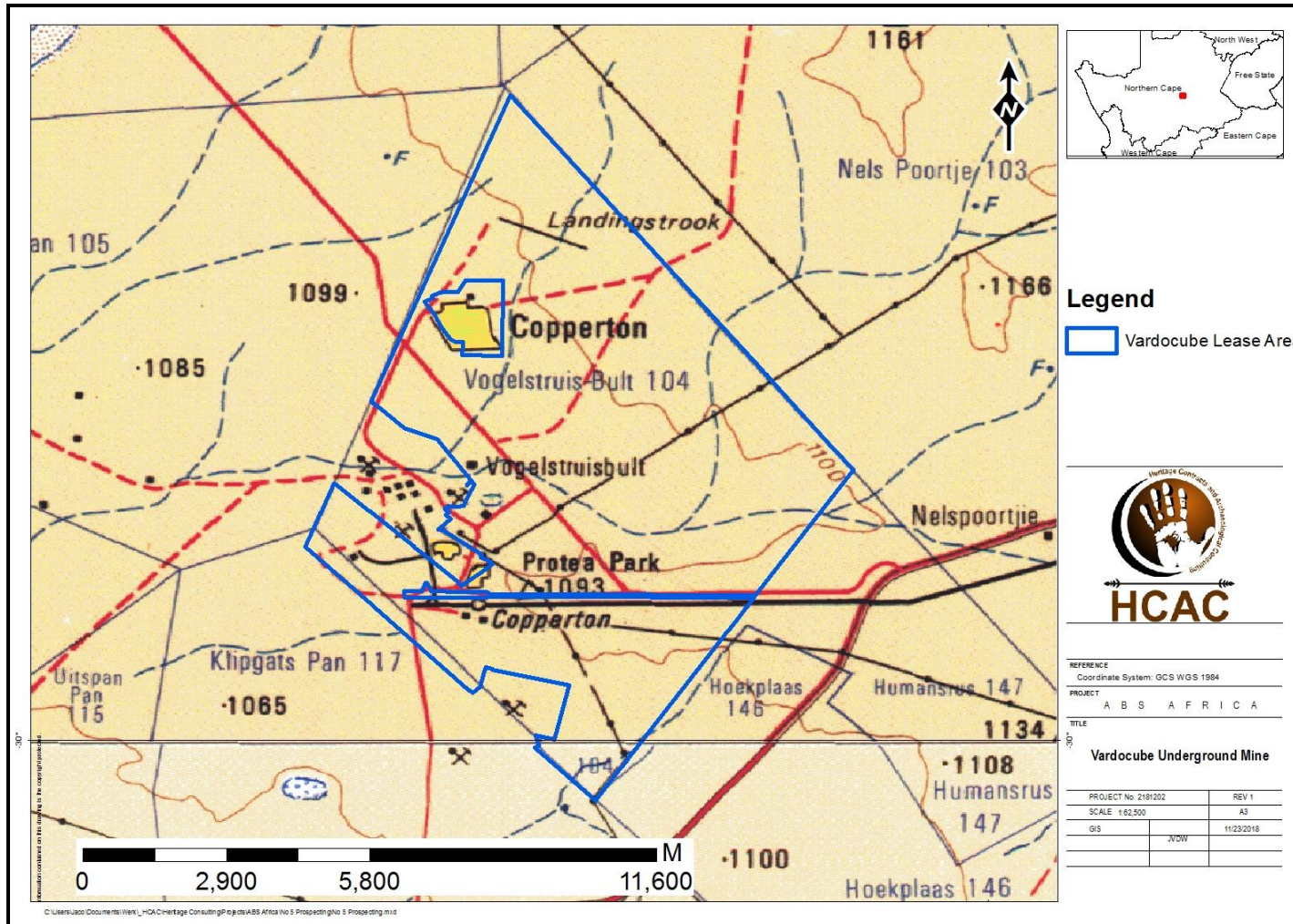


Figure 1. Regional locality map (1: 250 000 topographical map)

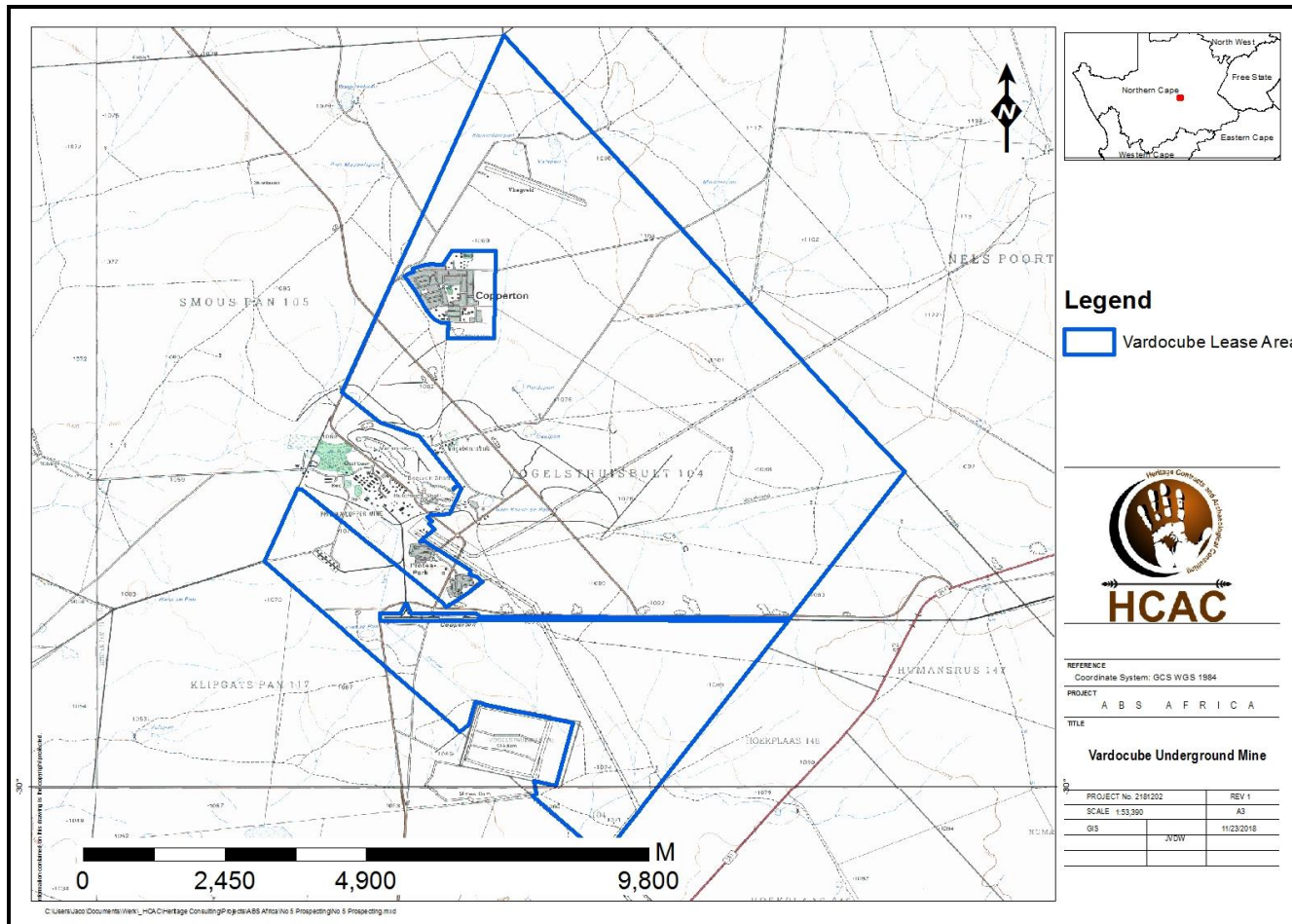


Figure 2. Locality Map (1:50 000 topographical map).

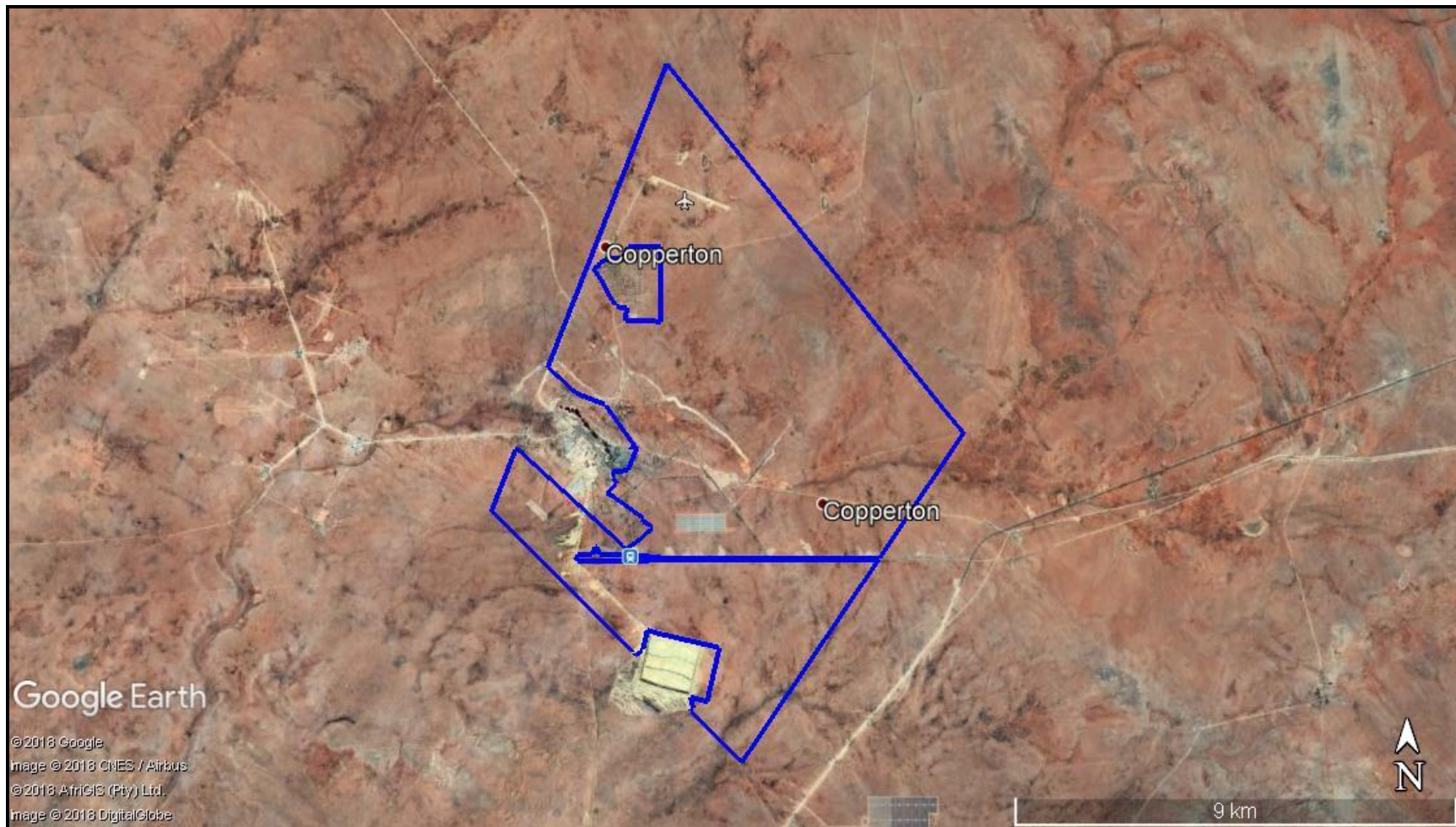


Figure 3. Google Image of the study area.

The Heritage Character of the Study area

Literature review

Previous heritage studies were conducted in the area by Van Ryneveld (2006) and Orton (2015). Orton (2012) also conducted a study to the east on the farm Hoekplaas and Kaplan and Wiltshire (2011) on portion 3 and 4 of the farm Nelspoortjie (now called Vogelstruisfontein).

All the studies recorded ESA, MSA and LSA artefacts scattered over the landscape with MSA and LSA sites centred on pans and watercourses. Studies by Van der Walt (2012, 2013) concurred with these findings and also recorded widespread Stone Age scatters and some discreet MSA and LSA sites. Orton (2012) also recorded stone walled enclosures.

More recently Van der Walt (2017 and 2018) conducted a study for the proposed Prieska Copper Mine and concluded that the entire site has been transformed by mining activities from the 1970's onwards, however several Middle Stone Age artefacts were found scattered over the area in varying densities. These artefacts are referred to as background scatter (Orton 2016) and of low heritage significance. No structures older than 60 years occur in the study area and no graves were recorded.

Palaeontology

The paleontological component for the Prieska Copper Mine was independently assessed (Rossouw 2017) who concluded that the study area consists of non-fossiliferous metamorphic rocks and superficial deposits (aeolian sand) of low to very low palaeontological sensitivity.

Archaeological Background

Beaumont et al. (1995: 240) observed that "thousands of square kilometres of Bushmanland are covered by a low-density lithic scatter". These artefacts are generally very well weathered and mostly pertain to the ESA and MSA. Occasional LSA artefacts are also noted. What is noteworthy of the Northern Cape archaeological record is the presence of pans which frequently display associated archaeological material. Of interest, is the work of Kiberd (2001, 2005, 2006) who excavated Bundu Pan, some 25 to 30 km northwest of Copperton. The site yielded ESA, MSA and LSA horizons and the artefacts were accompanied by warthog and equid teeth to name a few (Beaumont et al. 1995).

Orton (2011) noted that to the northwest, west and southwest of Copperton sites have been investigated by Beaumont and colleagues (1995), Smith (1995) and Parsons (2003, 2004, 2007, 2008) yielding LSA deposits. Work on these sites led to a distinction between hunter-gatherer and herder sites, based on stone artefact assemblages (Beaumont et al. 1995). All these Later Stone Age sites have very few, if any, organic items on them. The only organic material found on sites like these is fragments of ostrich eggshell probably belonging to broken water containers. Such flasks have been widely recorded across the Northern Cape (Morris 1994).

The archaeological importance of pans in the area are now well documented (Kiberd 2006, Kaplan & Wiltshire 2011, Orton 2012) and if any occur in the study area they could be of significance. Van der Walt (2012) recorded low densities of ESA, MSA and LSA scatters just east of the current study area and were given a field rating of low archaeological significance. However, several discrete MSA and LSA sites were also documented.

Most of the material expected for the study area is MSA in nature consisting of large flakes, radial and bipolar cores, points, end scrapers, large utilized and retouched blade tools, and utilized and retouched flakes. Raw material is expected to be predominantly in fine grained quartzite, hornfels, banded ironstone, chert and vein quartz based on the results of the 2012 study by Van der Walt.

Historical Information

In an article in the Patriot, dated December 1995, some background information is given on the history of the town of Copperton. This town is not very old, as it was only developed in 1972 with the establishment of a copper mine in the area. The mine closed in 1992, and Copperton was sold to a private person, on the condition that the houses in the town would be demolished. About 300 houses were broken down, when it was decided that some homes would be kept in order to develop a retirement town. These houses were apparently solidly built, with stone walls and corrugated roofs. It was noted that the area was very sparsely populated, and that the farmers in the area farmed with sheep. Next to the Orange River, maize and grapes were planted. It was noted that the closest hospitals were located at Prieska, some 35 to 40 minutes' drive from Copperton, and linked with a tarred road (Anon 1995: 4).

Anglo-Boer War

The discovery of diamonds and gold in the Northern provinces had very important consequences for South Africa. After the discovery of these resources, the British, who at the time had colonized the Cape and Natal, had intentions of expanding their territory into the northern Boer republics. This eventually led to the Anglo-Boer War, which took place between 1899 and 1902 in South Africa, and which was one of the most turbulent times in South Africa's history. Even before the outbreak of war in October 1899 British politicians, including Sir Alfred Milner and Mr. Chamberlain, had declared that should Britain's differences with the Z.A.R. result in violence, it would mean the end of republican independence. This decision was not immediately publicized, as a consequence, republican leaders based their assessment of British intentions on the more moderate public utterances of British leaders. Consequently, in March 1900, they asked Lord Salisbury to agree to peace on the basis of the status quo ante bellum. Salisbury's reply was a clear statement of British war aims. (Du Preez 1977).

In March 1900 Boer forces had taken Prieska, Kenhardt, Kakamas and Upington, attracting rebel support in the process. British columns were able to recapture the towns and the invasion had ended by June 1900. Local militias, including the Border Scouts (Upington), Bushmanland Borderers (Kenhardt) and Namaqualand Border Scouts (from the west) were established and patrolled the area.

Findings

Paleontological Resources

Prof Marion Bamford (2018) indicated that the Rossouw (2017) study remains valid for the project area and that additionally a Fossil Chance Find Protocol should be added to the EMPr together with photographs of examples of fossils that have been found in the Dwyka Group near Douglas to assist the geologist, environmental officer or other responsible person. This is included in the letter from Prof Bamford (appendix A).

Archaeological Resources

The Van der Walt (2018) study for the proposed Prieska Copper Mine remains valid for the study area. Several Middle Stone Age artefacts were found scattered over the area in varying densities (background scatter) and is of low heritage significance. No structures older than 60 years occur in the study area and no graves were recorded. Stone Age sites were recorded in the area and are indicated in relation to the project area in Figure 4. No impact on any heritage resources is expected due to the underground mining methods employed by the proposed project.

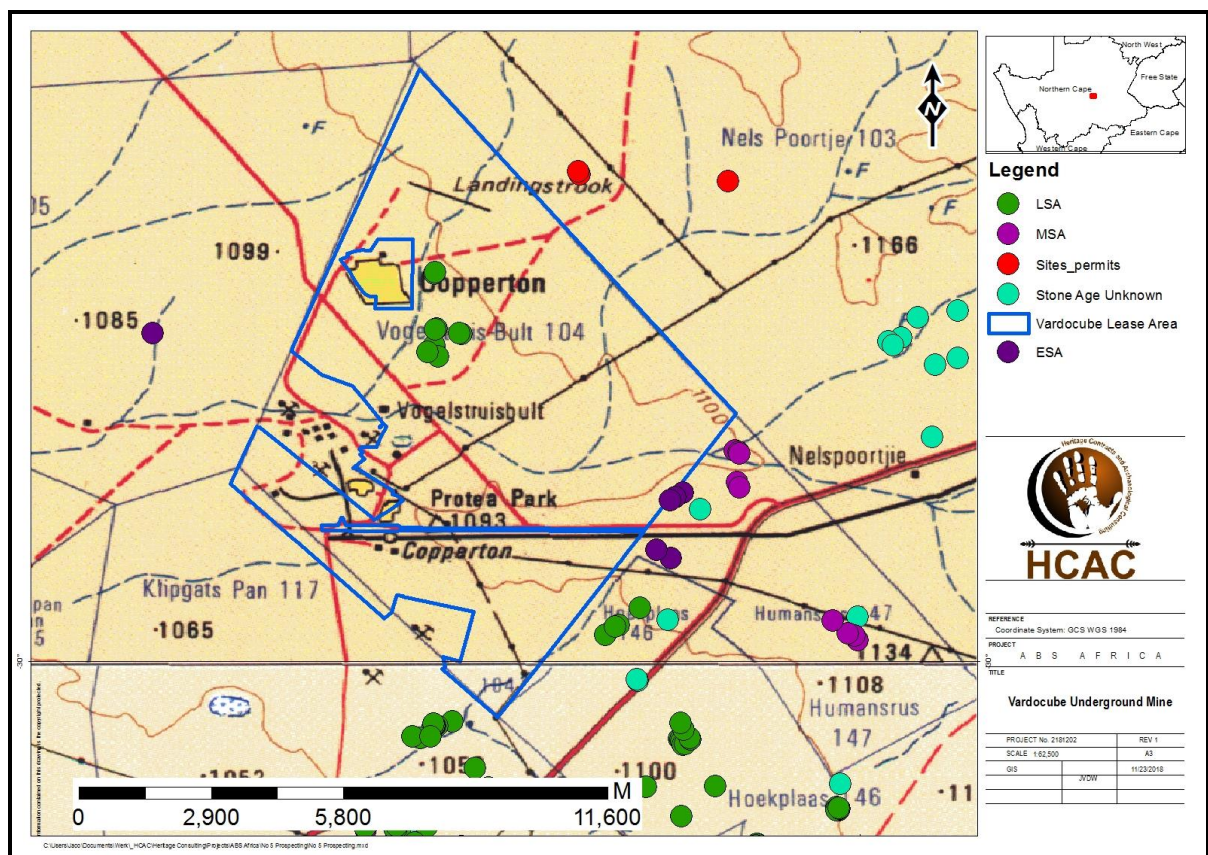


Figure 4. Known sites in relation to the project area.

Conclusion

ABS Africa (Pty) Ltd has been appointed as independent Environmental Assessment Practitioner (EAP) to undertake the relevant Environmental processes for the proposed Project. HCAC was subsequently requested to provide heritage input for the proposed project.

From a heritage perspective due to the disturbed character of the site and the fact that the proposed activities will include exclusively underground mining (900 m below the surface) with no surface infrastructure it is recommended that the project can continue. The Van der Walt (2017 and 2018) reports remain valid and no impact on heritage resources is expected due to the proposed mining method.

Any further queries can be forwarded to Jaco van der Walt on Cell: +27 82 373 8491 or to jaco.heritage@gmail.com

A handwritten signature in black ink, appearing to read 'Jaco van der Walt', with a large, stylized initial 'J'.

Jaco van der Walt
Archaeologist
Heritage Contracts and Archaeological Consulting CC (HCAC)

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