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**A REPORT ON PHASE 2 ARCHAEOLOGICAL MITIGATION
OF STONE AGE SITES KOL 1, 5, 6, 7 & 8 LOCATED RELATED TO VARIOUS
PANS
ON THE FARMS LEEUWVONTEIN, PLOEGVONTEIN KLIPBANKVONTEIN
AT KOLOMELA MINE NEAR POSTMASBURG IN THE NORTHERN CAPE
PROVINCE**

For:

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REPORT: APAC022/96

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A handwritten signature in black ink, appearing to be 'A. Pelser', written in a cursive style.

SUMMARY

APelser Archaeological Consulting cc (APAC cc) was requested by EXM Environmental Advisory, and subsequently appointed by the Sishen Iron Ore Company (Pty) Ltd, to undertake the Phase 2 Archaeological Mitigation of a number of open-air (surface) Stone Age Sites located around a collection of pans at their Kolomela Mine. These sites (numbered KOL 1, 2, 5, 6, 7 & 8) are located on portions of the farms Leeuwfontein 485, Ploegfontein 487 and Klipbankfontein 489 near Postmasburg in the Northern Cape Province.

These sites were identified during previous Heritage Impact Assessments at Kolomela and as the feature are included in future expansion footprints and will potentially be impacted, it was recommended that Archaeological Phase 2 work be undertaken, in the form of surface sampling of representative material from the various sites.

The sites were all allocated a Low-Medium Cultural Heritage Significance and Phase 2 mitigation (sampling) was proposed before the sites were to be destroyed by mining activities. This required a permit issued by the South African Heritage Resources Agency (SAHRA). SAHRA agreed with these recommendations in their Final Comments Letter dated to December 2019 (**under Case ID#4576**). A permit for the work was issued to APAC cc (**Permit ID#3718 & Case ID#19397**) in September 2022. Dr. David Morris, former Head of Archaeology at the McGregor Museum in Kimberley, agreed to act as Principal Investigator for the project, while the McGregor Museum's Archaeology Department will be the Curating Institute for the cultural material (Stone Age artifacts) recovered and sampled from the area during the field work.

This report focuses on the results of the fieldwork phase of the Archaeological Mitigation work that was conducted during the end of September 2022, with the results of the work provided in this report. The results of the expert analysis of the Stone Age material sampled and contained in a Specialist Report will be included and provided to the client and SAHRA once completed as well.

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1. INTRODUCTION

APelser Archaeological Consulting cc (APAC cc) was requested by EXM Environmental Advisory, and subsequently appointed by the Sishen Iron Ore Company (Pty) Ltd, to undertake the Phase 2 Archaeological Mitigation of a number of open-air (surface) Stone Age Sites located around a collection of pans at their Kolomela Mine. These sites (numbered KOL 1, 2, 5, 6, 7 & 8) are located on portions of the farms Leeuwfontein 485, Ploegfontein 487 and Klipbankfontein 489 near Postmasburg in the Northern Cape Province.

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The client indicated the location and boundaries of the Project Area, and the fieldwork focused on this area and the archaeological sites and material identified during the previous Heritage Impact Assessments conducted at Kolomela. It needs to be noted that these sites are included in a Cultural Heritage Management Plan (CHMP) for Kolomela Mine, together with a number of other archaeological and historical sites.

2. TERMS OF REFERENCE

The Terms of Reference for the Kolomela Mine Pans Sites Phase 2 Archaeological Mitigation were to:

1. *The sampling of representative Stone Age Material from the various sites that will potentially be impacted by expanding Mining Operations, situated around the collection of 165 known pans in the area.*
2. *The analysis of the collected material by a Stone Age Specialist for inclusion in a Final Phase 2 Report; and*
3. *The curation of the collected material in a recognized Institution (in this case the McGregor Museum in Kimberley's Archaeology Department).*

3. LEGISLATIVE REQUIREMENTS

As these pan sites were all allocated a Low-Medium Cultural Heritage Significance and Phase 2 mitigation was proposed before the sites were to be destroyed by mining activities, an archaeological mitigation permit from SAHRA was required to be obtained.

The sites are deemed as archaeological, containing material older than 100 years of age, and is therefore protected by the National Heritage Resources Act (Act 25 of 1999).

4. METHODOLOGY

4.1. Survey of Literature

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

4.2. Mapping & Sampling of Material

Stone Age open-air surface sites situated around the KOL1, 5, 6, 7 & 8 pan clusters were sampled, with the material sampled recorded on a map of the Kolomela Mine Area

Surface sampling was undertaken by collecting Stone Age material scattered around each core site. The sampling was done in a random fashion, collecting individual tools and denser concentrations of material identified at each site. The sampling was done in close proximity to the GPS coordinate point provided for each locality in the original HIA's, and from there spreading out to the outer boundaries of each pan at which the main site (KOL1 etc.) is centered. The material collected was bagged and labeled per area sampled and will be submitted to McGregor Museum in Kimberley for final analysis and curation.

4.3. Documentation

All sites, objects, features and structures identified were documented according to a general set of minimum standards. Co-ordinates of individual localities were 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 Kolomela Pans Stone Age archaeological sites are located at the Sishen Iron Ore Company (Pty) Ltd.'s Kolomela Mine. The study area is located approximately 12 km south-west of Postmasburg and is situated in the Tsantsabane Local Municipality of the ZF Mgcawu District Municipality, Northern Cape Province.

The archaeological sites that form part of this study are all open-air surface sites located in and around clusters of pans, containing varying densities of scatters of Stone Age material (stone tools). Expanding mining operations will have a negative impact on these pan sites and the archaeological mitigation (through the sampling of representative material) was therefore necessitated as a result.

The topography of the area is generally flat and open and although vegetation cover was fairly dense during the sampling work, visibility and access to the various sites were not limited.

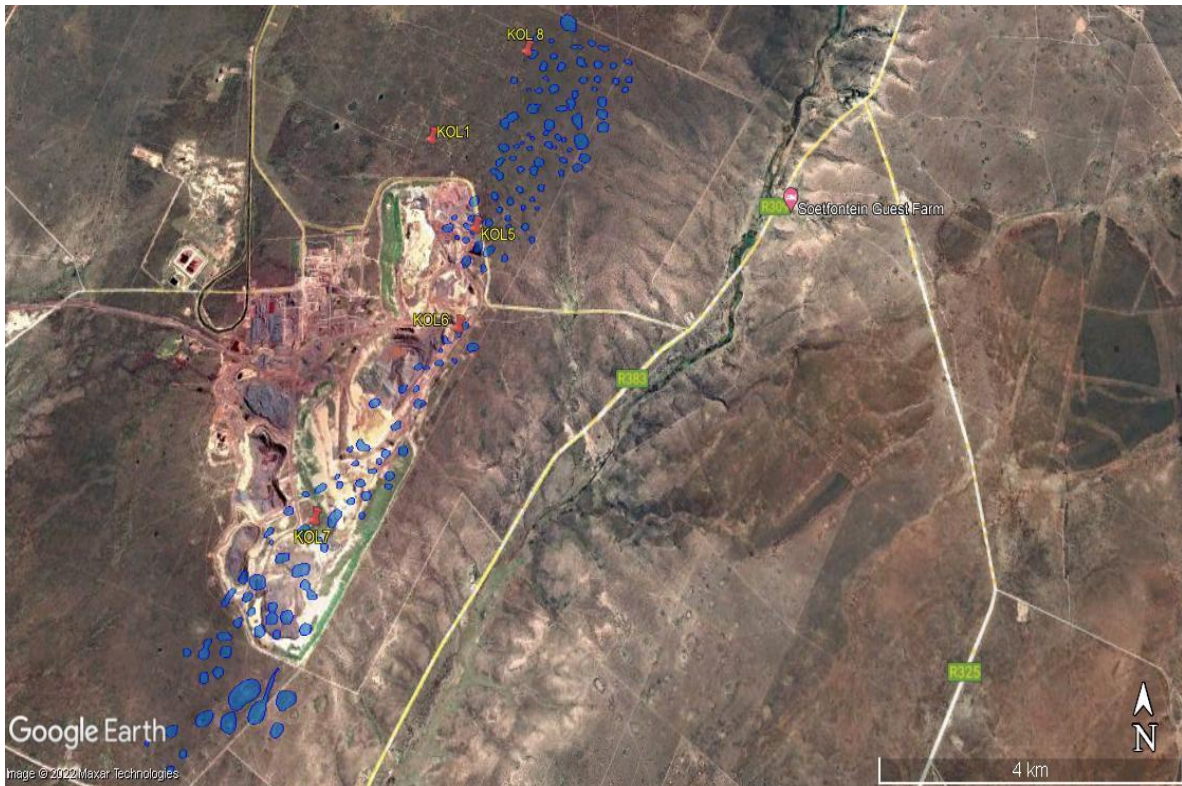


Figure 1: The study area in 2022. Approved Mining Expansion will have impacts on many of the pans in the near future (Google Earth 2022).

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).

According to David Morris the archaeology of the Northern Cape is rich and varied, covering long spans of human history. The Karoo is particularly bountiful. Some areas are richer than others, and not all sites are equally significant. The significance of sites encountered in the study area may be assessed against previous research in the region and subcontinent. The

region's remoteness from research institutions accounts for a relative lack of archaeological research in the area. The area has probably been relatively marginal to human settlement for most of its history, yet it is in fact exceptionally rich in terms of Stone Age sites and rock art, as a relatively few but important studies have shown (Morris 2006).

Stone Age sites are known to occur in the larger geographical area, including the well-known Wonderwerk Cave in the Kuruman Hills, 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 Lylyfeld, Demaneng, Mashwening, King, Rust & Vrede, Paling, Gloucester and Mount Huxley to the north. Rock engraving sites are known from Beeshoek and Bruce (Morris 2005: 3).

A number of important ESA sites are also known from the area, including the very significant ESA Kathu Pan, Kathu Townlands and Bestwood sites. Research at Kathu Townlands was first undertaken by P.B. Beaumont. The locality has a remarkable high lithic density containing millions of ESA artefacts. Moreover, the interface between the ESA and MSA is also represented at Kathu Pan by the transitional lithic industry of the Fauresmith. MSA sites and occurrences have also been identified in the Kathu area, including the very significant Kathu Pan localities. A number of LSA sites are known from the Kathu area as well. According to Beaumont pecked engravings, originally from the farms Sishen 543 and Bruce 544, were donated to the McGregor Museum with some engravings located on the grounds of the Sishen Iron Ore Mine as well (Mann 2021: 24).

The Stone Age Pan sites (KOL 1, KOL 2, KOL 5, KOL 6, KOL 7 and KOL 8), covering the Early and Middle Stone Age periods, were identified during previous HIA's in the Kolomela Mine area (Morris 2005; Kusel & Kusel 2011 & van der Ryst 2011). These mainly take the form of small shallow pans, most of which are located along the eastern end of the overall mining property. At least 165 such small pans are located along the eastern end of the mining property. Site KOL 2 is a scatter of possibly Later Stone Age artifacts found on a colluvial fan in one of the valleys located closer to the western end of the mining property (Birkholtz & van der Ryst 2015).

These pan sites were all allocated a Cultural Heritage Significance of Low to Medium. Phase 2 mitigation (sampling) of these pan sites was proposed prior to destruction through mining activities (African Heritage Consultants 2011:20). In 2021 PGS Heritage conducted an HIA for Kolomela Mine. The previously identified archaeological pan sites (KOL 1, KOL 5, KOL 6, KOL 7, KOL 8) were again given a Low to Medium Local Heritage Significance (Heritage grading: IIIB/IIIC) rating.

Results of the September/October 2022 Mitigation Work

KOL 1 Sampling

The KOL 1 site comprised one shallow pan located on the farm Ploegfontein. The site was first documented in Morris' impact assessment report of 2005 and was later confirmed by van der Ryst's report of 2011. The stone artifacts were mainly of Middle Stone Age typology. During the HIA undertaken by Van der Ryst in 2011, this pan yielded a representative collection of

MSA and LSA stone tool types, and also a few ceramic sherds. The site visit by PGS Heritage in 2015 confirmed the previous findings of MSA and LSA lithics as well as some ceramics at the site (Mann 2021:52).

During the 2022 sampling work at KOL 1 the vegetation cover in and around the pan was relatively dense, hampering visibility on the ground to some extent. Although MSA/LSA material (stone tools) were identified and sampled, no evidence of the ceramics mentioned in the earlier HIA's could be found.

The sampling was done randomly around the pan area, with the aim of collecting representative Stone Age material from the site.

Original GPS location for KOL 1: S28.367472 E22.980361

A total of 10 objects were collected from the KOL 1 pan area. Grass cover was relatively dense and with no excavation and/or the removal of vegetation done, open patches of soil were chosen to sample material. The amount of stone tools collected is not much, and does not reflect the possible density reflected in the earlier HIA's where it was indicated that up to 15 artifacts/m² could be present. This could however be a case (in 2022) where many Stone Age tools and artifacts could not be seen as a result of grass cover and soil/silt covering material inside the pan.

The material sampled is however reflective of the MSA & LSA and include cores, waste flakes and flake tools such as scrapers. Most of the tools show evidence of relatively heavy water rolling.

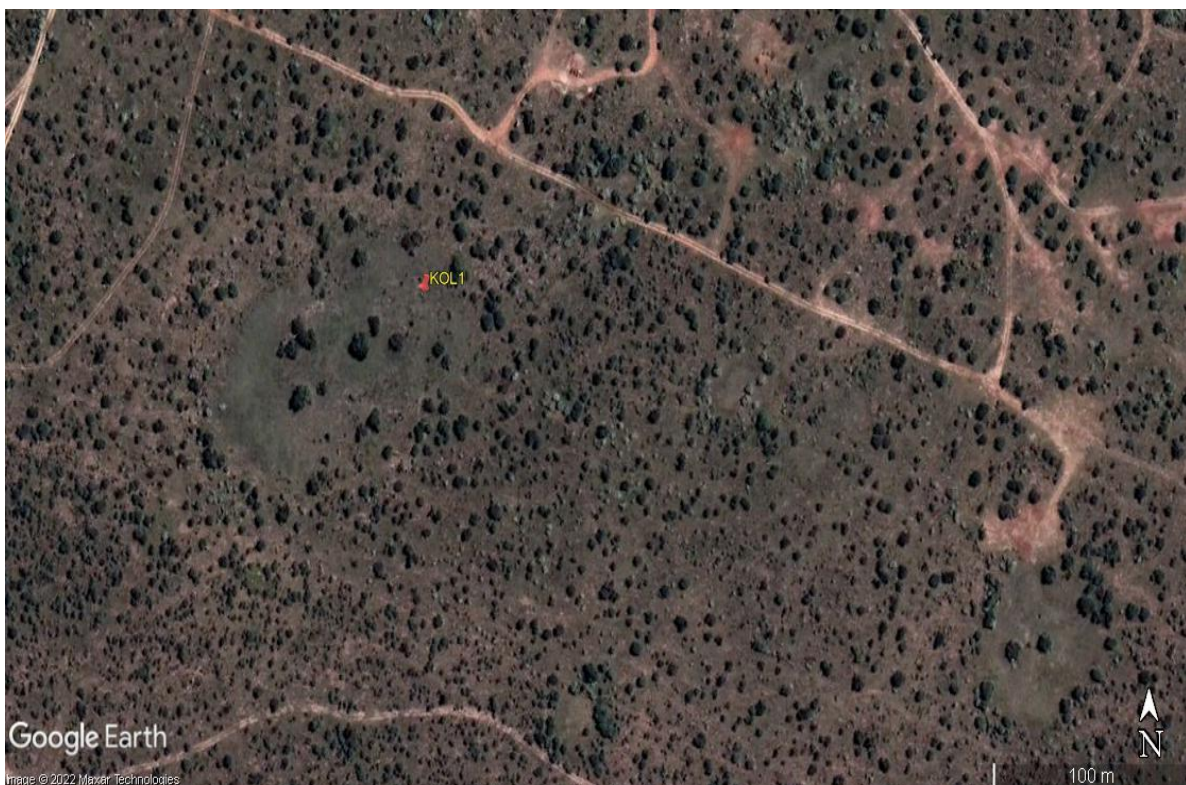


Figure 2: View of the KOL1 Pan Site (Google Earth 2022).



Figure 3: A view of the KOL 1 Pan Site.



Figure 4: A view of the KOL 1 sites inside the pan. Note the dense grass cover.



Figure 5: Open patches such as this were selected to sample material from.



Figure 6: The MSA/LSA material sampled from KOL 1.

KOL 5 & KOL 6 Sampling

During the 2022 sampling work it was clear that the KOL 5 & 6 Pan sites (based on the original GPS coordinates in the previous HIA's) either did not exist anymore or that the clusters of pans that represent these sites were located in inaccessible areas (Blasting zones for example). As these pans are basically part of the same system and the assumption is that the Stone Age material that will be present at these pans will be similar in age and typology, it was decided that a single large pan (located in a Conservation Area) would be utilized for the sampling purposes. This site is located between KOL 5 & 6, but closer to the original KOL 6 site. The area where the originally identified KOL 6 site was located was scrutinized for the presence of material, but only 3 Stone Age artifacts were collected from here.

The original GPS location for KOL 5 was: **S28.378006 E22.988556**

The original GPS location for KOL 6 was: **S28.389789 E22.986400**

The GPS location for the pan site sampled is: **S28 23 26.80 E22 59 22.20**

Three artifacts were collected at the original KOL 6 site location, comprising of a core and some flake-tools (scrapers).

Sixteen (16) MSA/LSA stone tools were collected from the sample site located between KOL 5 & 6. These include cores, waste flakes, flake-tools such a scrapers and 1 point. As with the KOL 1 material many of the artifacts shows signs of heavy water rolling.



Figure 7: General view of the area around the original KOL 5 site.

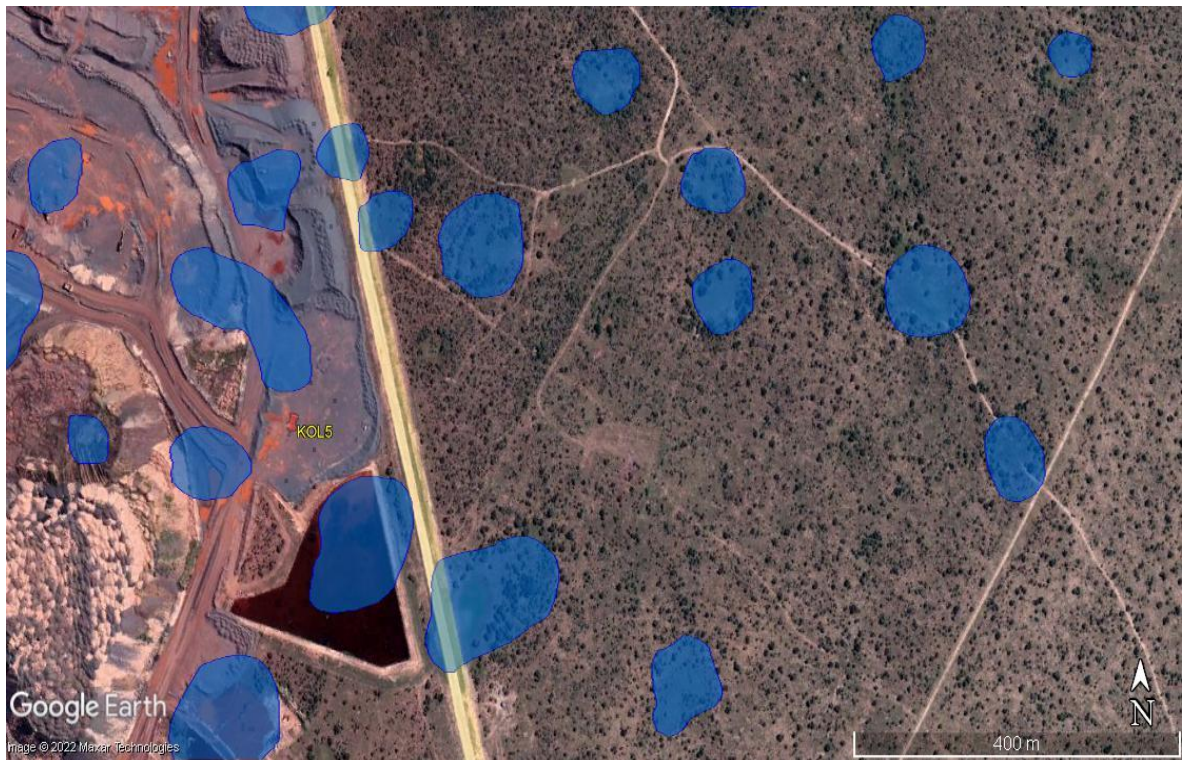


Figure 8: Aerial view of the original location of KOL 5 (Google Earth 2022). It is clear that the pan site has been extensively impacted by mining activities.

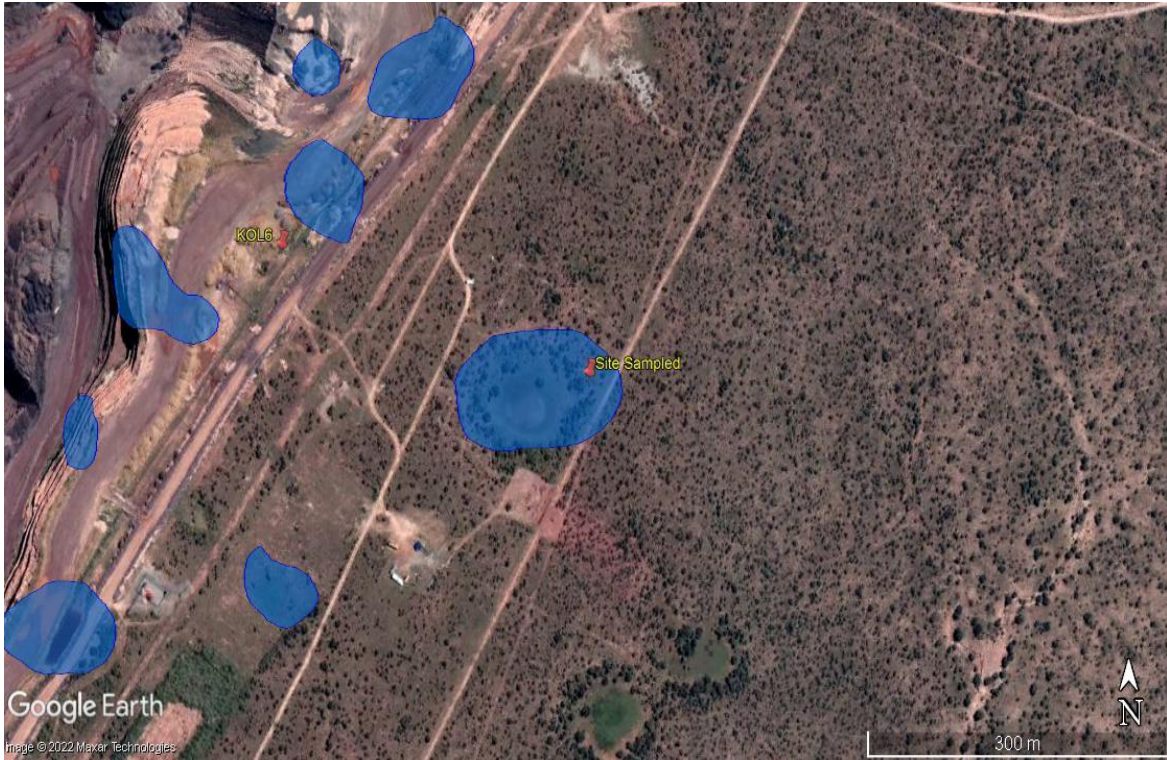


Figure 9: Aerial view of the original KOL 6 site and the Pan Site sampled (Google Earth 2022).



Figure 10: A view of the general area close to the original KOL 6 pan site.



Figure 11: The Stone Age artifacts from the KOL 6 area.



**Figure 12: The Stone Age material from the pan site between KOL 5 & 6.
The point is visible in the 2nd last row (2nd object).**

KOL 7 Sampling

The KOL 7 site sampled comprised of one pan.

The original GPS location for KOL 7 was: **S28.411264 E22.966856**

The GPS location for the pan site sampled is: **S28 25 14.30 E22 57 26.00**

A pan site located south-west of the original KOL 7 Pan sites cluster, and outside of the area currently impacted by mining activities, was selected for sampling purposes.

A total of 10 MSA/LSA Stone Age artifacts were collected from the sample site at KOL 7. The material includes cores, waste flakes and flake-tools such as scrapers.



Figure 13: A general view of the area near KOL 7.



Figure 14: Closer view of the pan site near KOL 7 where sampling was undertaken.



Figure 15: Aerial view of the location of the original KOL 7 Pan site & cluster of pans, as well the location of the pan site sampled (Google Earth 2022).

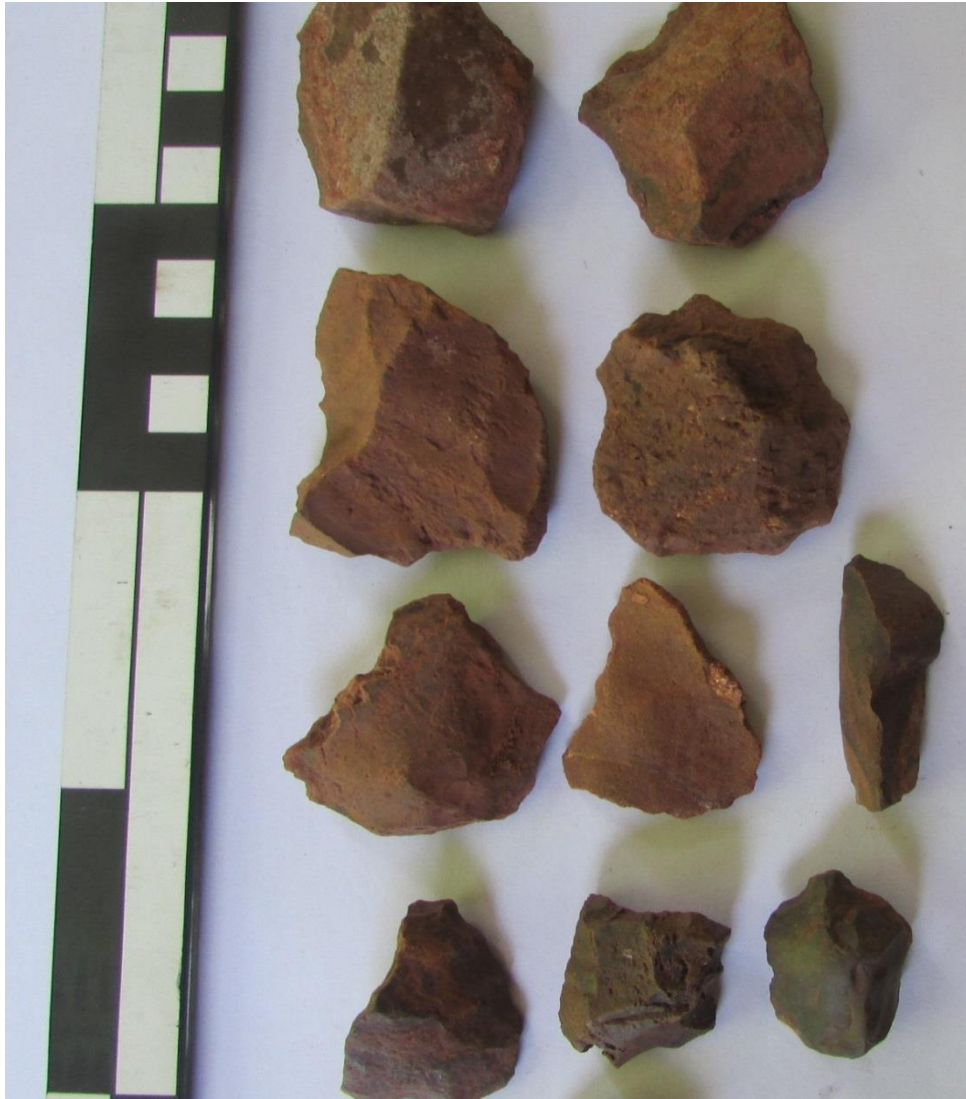


Figure 16: The Stone Age material sampled from the KOL 7 pan site.

KOL 8 Sampling

According to earlier HIA reports the KOL 8 site comprised 4 pans (there are many more). It was believed that as KOL 8 did not fall within the current proposed development area, no impact was expected. It was recommended that a general buffer of 30 meters around the sites/pans needed to be maintained (Mann 2021: 65).

Although KOL 8 was not included in the mitigation (sampling) work and is not on the SAHRA permit, the fact that the Stone Age sites and material that are located in this cluster of pans is similar in nature to those sampled at the other 4 Pan sites, led to a decision to also do some surface sampling in this section to increase the sample size. Future planned mining into this area will also have an impact on these sites and it was therefore found prudent to also undertake some work here.

The original GPS location for KOL 8 was: **S28.355650 E22.995911**

A total of 12 Stone Age artifacts were recovered from this sample area. The MSA/LSA material sampled from the site included cores, waste flakes and flake-tools such as scrapers. As with the material collected at the other pan sites, the artifacts show evidence of water rolling.



Figure 17: A general view of the KOL 8 Pan sampling site.



Figure 18: Another view of the KOL 8 site. Grass cover was relatively dense in the pan hampering visibility on the ground.



Figure 19: Open patches such as these were selected to sample.

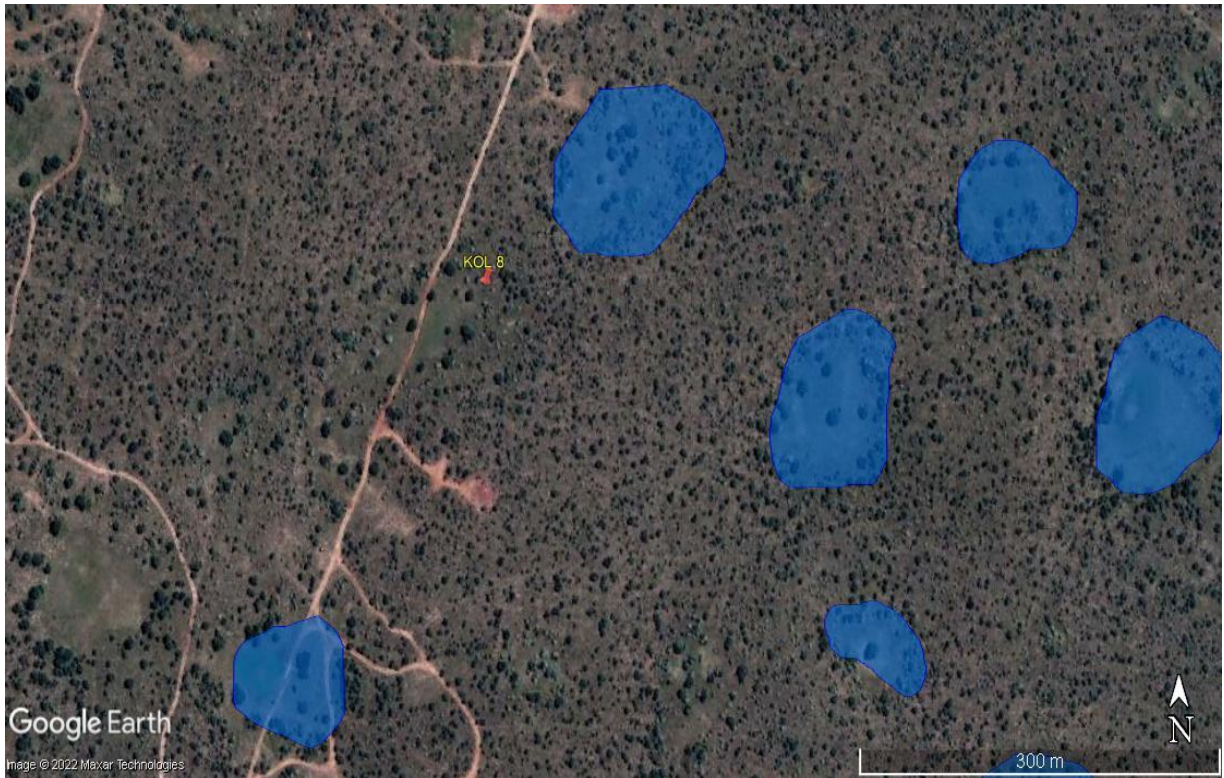


Figure 20: Aerial view showing the location of the originally recorded KOL 8 site where the sampling was done. Note the location of other pans in the area (Google Earth 2022).



Figure 21: The Stone Age material from KOL 8.

Discussion

Although only 63 Stone Age artifacts (stone tools) in total were collected from the 5 sample sites, it is believed that the material recovered is generally representative of the Stone Age archaeological footprint in the Kolomela area.

The detailed Specialist Analysis of the Stone Age artifacts sampled from the Kolomela Mine Pan sites have not been finalized, but it is clear that the material collected represent both the Middle and Later Stone Age periods as indicated in earlier studies. Very few if any formal tools (such as points, blades and scrapers) were found in the area around the pan sites sampled, with the material mostly represented by cores and waste-flakes. A single point was found at the one site, while a few flake-tools identified in the field as scrapers were collected. The artifacts collected from the various pans are also very similar in style, age and material, with no distinct difference between the sites sampled. To a large degree the material also shows evidence of heavy rolling through water, which could be expected from material found in a pan context. Wind erosion could also have played a role in the weathering of the artifacts.

The presence of Stone Age material in and around these pan sites should not be seen as incidental or the result of single-event occurrences, with water bodies such as these that would have been favored locations for hunter-gatherers during the Stone Age. Not only did these pans provide essential drinking water, but would also have been a prime resource for the wild animals that they hunted. The pans would have been non-perennial as they are mostly still in present times, and were visited on a seasonal basis for hunting and gathering purposes. The large number of pans here would have attracted hunter-gatherer groups over many thousands of years. What is however interesting is the fairly low density of material encountered at all the Pan sites that were selected for sampling purposes. Although the exact density per pan or site was not calculated, it is seemingly much lower than the around 15 artifacts per square meter given in previous studies for example KOL 1. One factor that could have played a role in the collection of a relatively small number of artifacts from these sites are the dense grass cover encountered during the sampling work, possibly obscuring locations of denser scatters of material that could be collected. Fairly heavy rainfall over previous seasons that would have temporarily filled up the pans could also have silted up archaeological deposits inside the pans. It is of course also possible that some of the other pan sites in the cluster of pans that make up the KOL 1, 5, 6 & 7 sites contain higher densities of material than those selected from the sampling exercise.

Although a number of the pans (that form the KOL 1, 5, 6 & 7 clusters) that had been identified during earlier studies between 2005 and 2015 had been disturbed during some mining activities between 2013/2014 and recently, there are still a large number of intact pans especially south of the original KOL 7 site, as well as to the north around the KOL 8 site. Many pans are also located in so-called Conservation Areas and will not be impacted by future expanding mining operations. The Kolomela Stone Age Pan sites have also been included in the Kolomela Mine Cultural Heritage Management Plan (CHMP) that has been implemented successfully and is audited on a regular basis. A 30m buffer around the KOL 1, 2 & 5-8 pan sites were recommended until the Phase 2 mitigation work was completed. A Chance Finds Procedure also forms part of the CHMP. All the sites are also monitored on a monthly basis by the Environmental section of the mine.

Based on the Phase 2 Archaeological Mitigation (which comprised the sampling of representative Stone Age material) of the original KOL 1, 5, 6 & 7 Pan sites it is recommended that these sites can be demolished by expanding mining activities. A number of pan sites around these areas have already been included in a Conservation Area and will therefore be protected against further impacts. The KOL 8 Pan Sites and related pans that are found here are included in the future Ploegfontein Pit footprints. It was however recommended in the 2021 HIA Report by PGS that a 30m buffer around these sites also be implemented. It is therefore concluded here that this recommendation be adhered to and before any future mining expansion into this area occur and if the sites forming the KOL 8 cluster cannot be avoided that detailed studies of these sites be undertaken before their destruction.

7. CONCLUSIONS AND RECOMMENDATIONS

APelser Archaeological Consulting cc (APAC cc) was requested by EXM Environmental Advisory, and subsequently appointed by the Sishen Iron Ore Company (Pty) Ltd, to undertake the Phase 2 Archaeological Mitigation of a number of open-air (surface) Stone Age Sites

located around a collection of around 165 pans at their Kolomela Mine. These sites (numbered KOL1, 2, 5, 6, 7 & 8) are located portions of the farms Leeuwfontein 485, Ploegfontein 487 and Klipbankfontein 489 near Postmasburg in the Northern Cape Province.

These sites were identified during previous Heritage Impact Assessments at Kolomela and as they were going to be impacted by expanding Mining Operations were recommended to be mitigated through Archaeological Phase 2 work, in the form of surface sampling of representative material from the various sites. The pan sites were all allocated a Low-Medium Cultural Heritage Significance and Phase 2 mitigation in the form of surface sampling was proposed before the sites were to be destroyed by mining activities. This required a permit issued by the South African Heritage Resources Agency. SAHRA agreed with this and a permit for the work was issued to APAC cc in September 2022. Dr. David Morris, former Head of Archaeology at the McGregor Museum in Kimberley, agreed to act as Principal Investigator for the project, while the McGregor Museum's Archaeology Department will be the Curating Institute for the cultural material recovered and sampled from the area during the field work.

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Once the detailed and specialist analysis of the sampled Stone Age material have been undertaken a separate report will be submitted to SAHRA on sahris under the specific case.

8. REFERENCES

General and Closer Locations of the Kolomela Mine Pan Sites: Google Earth 2022

African Heritage Consultants. November 2011. **Heritage Management Plan for Kolomela Mine In the Postmasburg District Municipality of the Northern Cape Province.** An unpublished report by U.S. Küsel U & S.U Küsel. Kumba Iron Ore Kolomela Mine.

Birkholtz, P & M.M van der Ryst. 2015. **Kolomela Amendment Project. Amendment of**

Existing Mining Activities. Unpublished Report PGS Heritage. For: Synergistics Environmental Services. March 2015.

Lombard, M., L. Wadley, J. Deacon, S. Wurz, I. Parsons, M. Mohapi, J. Swart & P. Mitchell. 2012. South African and Lesotho Stone Age Sequence Updated (I). **South African Archaeological Bulletin 67 (195): 120–144, 2012.**

Mann, N. & Fourie, W. 2021. **KOLOMELA MINE EXPANSION: Amendment of Existing Mining Activities for Kolomela Mine located South-west of Postmasburg, Northern Cape.** Unpublished Report PGS Heritage. For: EXM Environmental Advisory (Pty) Ltd. October 2021

Morris, David. 2005. **Report on a Phase 1 Archaeological Impact Assessment of proposed mining areas on the farms Ploegfontein, Klipbankfontein, Welgevonden, Leeuwfontein, Wolhaarkop and Kapsteviel, west of Postmasburg, Northern Cape.** Kimberley: McGregor Museum.

Morris, David. 2006. **Archaeological Specialist Input to the EIA Phase for the proposed Aries-Garona ESKOM Transmission Power Line, Northern Cape and Comment on the Garona Substation Extension.** Unpublished Report September 2006 for Tswelopele Environmental.

Van der Ryst M. August 2011. **Specialist report on the Stone Age and other heritage resources at Kolomela, Postmasburg, Northern Cape.** An unpublished report.

Republic of South Africa. 1999. **National Heritage Resources Act (No 25 of 1999).** Pretoria: the Government Printer.

Republic of South Africa. 1998. **National Environmental Management Act (no 107 of 1998).** Pretoria: The Government Printer.