

TSIMBA



ARCHAEOLOGICAL FOOTPRINTS (PTY) LTD

PHASE 1 HERITAGE IMPACT ASSESSMENT OF, AVOCA SOUTH, ETHEKWENI MUNICIPALITY

MARCH 2020

GCS WATER AND ENVIRONMENTAL CONSULTANTS

*Tsimba Archaeological Footprints (Pty) Ltd
Registration number: 2019/180069/07
Income Tax Number: 9586739188
24 Lawson Mansions
74 Loveday Street, Johannesburg, CBD
Gauteng, 2000*

TABLE OF CONTENTS

1	BACKGROUND INFORMATION ON THE PROJECT	2
2	BACKGROUND TO ARCHAEOLOGICAL HISTORY OF AREA	2
3	BACKGROUND INFORMATION OF THE SURVEY	4
3.1	Methodology	4
3.2	Restrictions encountered during the survey	5
3.2.1	<i>Visibility</i>	5
3.2.2	<i>Disturbance</i>	5
3.3	Details of equipment used in the survey.....	5
4	DESCRIPTION OF SITES AND MATERIAL OBSERVED	5
4.1	Locational data	5
4.2	Description of the general area surveyed	5
4.3	Archaeological sites identified.....	5
5	STATEMENT OF SIGNIFICANCE (HERITAGE VALUE)	6
5.1	Field Rating.....	6
6	DESCRIPTION OF SOCIO ECONOMIC ENVIRONMENTAL IMPACTS	9
7	MAPS AND FIGURES	10
8	RECOMMENDATIONS AND CONCLUSIONS	21
8	REFERENCES	16

LIST OF TABLES

Table 1.	Background information	2
Table 2.	The significance weightings for each potential impact are as follows.....	11
Table 3.	Field rating and recommended grading of sites (SAHRA 2005).....	12
Table 4.	Evaluation and statement of significance.....	13

LIST OF ABBREVIATIONS AND ACRONYMS

EIA	Early Iron Age
ESA	Early Stone Age
HISTORIC PERIOD	Since the arrival of the white settlers - c. AD 1820 in this part of the country
IRON AGE	Early Iron Age AD 200 - AD 1000 Late Iron Age AD 1000 - AD 1830
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998 and associated regulations (2006).
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999) and associated regulations (2000)
SAHRA	South African Heritage Resources Agency
STONE AGE	Early Stone Age 2 000 000 - 250 000 BP Middle Stone Age 250 000 - 25 000 BP Late Stone Age 30 000 - until c. AD 200

EXECUTIVE SUMMARY

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared to address requirements of Section 38 of the National Heritage Resources Act, Act 25 of 1999 (NHRA) and the KwaZulu-Natal Heritage Act, 1997 (Act No. 4 of 2008). The field survey conducted by Tsimba Archaeological Footprints noted the existence of fragments/remnants of old sand dunes that has been extensively disturbed due to clay mining activities on the property in the past. These extensive disturbances around the proposed development footprint have also continued to the present day due to human activities around the site. This has made it very difficult for the stone tools to be identified (as full) only fragments that are out of context can be found.

The context of archaeological remains has always been a matter of keen interest to pre-historians, for the relationships of cultural features to one another and to the natural features of a site are the foundations of our discipline. If we fail to record the context, or if we misread or misinterpret that context, proper archaeological interpretation is impossible (Wood and Johnson 1978: 315). None of the tools identified are situated in original stratigraphic or spatial context. Other than the extensively disturbed stone artefacts fragments there are no archaeological remains and the site has little research value. Additionally, various sites of stratigraphic tradition of this period and culture occur along the KwaZulu-Natal coastal dune cordon. Most of these are better preserved than the site at Avoca South and have greater study.

Due to the nature of the findings of the survey a value-based management process described by Burra Charter was adopted. This management process entails three stages: significance assessment, develop policy and management (ICOMOS Australia 1999). Further revisions introduced a fourth stage for assessing vulnerability into the process in order to explicitly identify threats to cultural significance (Clark 1968), or for purposely change cultural heritage, through means of implementing development projects. This value-based management process has been extensively applied in countries such as Australia and United Kingdom, either by changing the legislation or drafting new conservation guidelines (English Heritage 2008). Other researches have also focused in developing, improving and/or verifying this process, among which are the important reports produced at The Getty Conservation Institute.

The value- based management process proposed that the developer should be given the go ahead and continue with the proposed project under a strict periodic monitoring program by an accredited archaeologist. This monitoring exercise will assist in the event that stone tools are identified during the construction phase. A Chance finds procedure (CFP) should also be implemented in the event that more fuller stone tools are identified underground. The older Corobrick buildings and structures in the south western section of the footprint were also identified and assessed and were found to be than 60 years. These buildings therefore do not constitute part of the heritage built environment.

1 BACKGROUND INFORMATION ON THE PROJECT

Table 1. Document Background information

Consultant:	Roy Muroyi (Tsimba Archaeological Footprints)
Type of development:	The development of an industrial and business estate comprising light industry, business parks and warehousing built on platforms. The proposed development will include the rehabilitation of old clay mining area on the footprint. The rehabilitation process will include the filling-up of the excavated areas.
Rezoning or subdivision:	Not applicable
Terms of reference	To carry out a Heritage Impact Assessment (phase 1)
Legislative requirements:	The Heritage Impact Assessment was carried out in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and following the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and the KwaZulu-Natal Heritage Act, 1997 (Act No. 4 of 2008)

1.1. Details of the area surveyed:

The study area is located near Durban North, at Avoca South. It lies between N2 and R 102 and is accessible via Toncoro Road (Figs 1 & 2). For the project area the GPS coordinates are given as: S 29 ° 44' 56. E 31 ° 1' 15.34 "78" The total site area is 59.61 hectares, and is currently being zoned by Corobrik as an extractive industry and under clay mining.

Current use:-The area consists of office and factory buildings in the northwest portion of Corobrik, as well as a former clay mining area to the south and west. Large portions of the southern and western regions were also placed under cultivation of sugar cane. Particular attention has been paid to the exposed sandy deposit region situated to the immediate south of the buildings (Figure 4). This area consisted of disturbed soils as is evidenced by previous mining activities on the footprint. Environmental consultants identified stone artefacts on this portion previously (Fig 3).

2 BACKGROUND TO ARCHAEOLOGICAL HISTORY OF AREA

In the last few years, the KwaZulu-Natal Museum and subsequently private heritage consultants have surveyed the greater Durban, including the portion covered by the study area, fairly well for archeological heritage sites. The area's distribution of the

archaeological site was poorly documented before 1950. The available evidence, as captured in inventories of heritage sites from the Amafa and KwaZulu-Natal Museum, suggests that the greater Durban region includes a wide spectrum of archeological sites covering different periods of time and cultural traditions. They range from Early Stone Age, Middle Stone Age and Later Stone Age to sites in the Early Iron Age, Middle Iron Age, and Later Iron Age.

Although Early Stone Age sites occur at various locations in the greater Durban none of them are in context and occur mostly in open air situations. These sites were inhabited by *Homo erectus* and *Homo heidelbergensis* who were for the most part scavengers. A break in ceramic style may identify the first appearance of Nguni speakers; the Nguni style is very different from the sequence of the Early Iron Age around the Durban area. The split is dated to about 1200 AD. The layout of Nguni settlements follows the principles of the Central Cattle Pattern where cattle were kept in the middle of the homestead, representing the wealthy of the family as well as their importance in the community; a female residential area is surrounded by an arc of grain bins and houses.

Evidently, the Nguni were the first people to integrate stonewalling in this pattern. The earliest type of walling, known as Moor Park, dates from the 14th to 16th centuries and is located in defensive positions on hilltops in the midlands, from Bergville to Dundee. Among other things, this type emphasizes the front/back axis: low hut platforms supported beehive huts in the residential zone behind cattle enclosures and middens. Variations of this type occur on the plateau to the north and west and represent the movement of Southern Nguni who claim Musi as a legendary leader.

The middle / side axis is reinforced by another form of walling. The oldest wall of this second type exists on the plateau in the Free State near the hill Ntsuanatsatsi, and is classified as Type N. It dates back to the mid-15th century. Variations of this sort occur further north on the plateau, and they represent the Northern Nguni movement that claims Langa as its legendary leader. The Durban area is also host to a much older heritage two notable Middle Stone Age sites in the greater Durban area is Umlatuzana near Marianhill and Segubudu near Stanger. Sibudu Cave, about 40 km to the northeast, contains an important Middle Stone Age sequence. The oldest occupation, the pre-Stillbay, is older than 70 000 years, while the Stillbay itself dates to 70 000 years ago. At this time, double pointed bifacial points were probably hafted and used as spearheads, while perforated seashells are some of the oldest jewellery in the world. Equally significant, the Howiesons Poort occupation stratified above (65 to 62 000 years old) contains small quartz segments (half-moon shaped tools with a straight cutting edge) that were glued onto arrow shafts. The people were hunting small game such as the blue duiker. This is some of the oldest evidence for bow and arrow hunting in the world.

The colonial history of the area starts around 1820 when early English ivory traders established themselves at Port Natal (Durban). Dutch descendants (i.e. Voortrekkers) moved into the area soon after 1834 and established a short lived Boer republic called Natalia. However, by 1845 Natal became a British colony. Colonial buildings dating from the later 19th century as well as subsequent periods abound in the greater Durban area. These, like the archaeological resources of the province, are also protected by heritage legislation (Derwent 2006).

3 BACKGROUND INFORMATION OF THE SURVEY

3.1 Methodology

The methodology used in this HIA is based on a comprehensive understanding of the current or baseline situation; the type, distribution and significance of heritage resources as revealed through desk-based study and additional data acquisition, such as archaeological investigations, built heritage surveys, local interviews and recording of crafts, skills and intangible heritage. This is systematically integrated by the use of matrices with information on the nature and extent of the proposed engineering and other works to identify potential sources of impacts on heritage. Mapping of location and distribution of heritage in relation to proposed works or changes is a critical component of this baseline along with the assessment of the condition of resources. The following tasks were also undertaken in relation to the cultural heritage and are described in this report:

1. Review relevant South African legislations, policy and guidelines regarding South Africa cultural heritage and assess its implications to the proposed project.
2. Review existing information (such as previous reports, literature and databases) to identify known areas of archaeological and/or cultural importance in the project development area.
3. Assess the results of previous cultural heritage studies conducted within or in reasonable proximity to the project development area.
4. Settle a process for consulting with local communities and to further identify areas of cultural significance; and management measures that are appropriate in the project development area.
5. Identify, assess and map currently known areas of archaeological and/or cultural significance in the project development area.
6. Highlight issues to be addressed in the Heritage Impact assessment report
7. Prepare a Heritage Impact Assessment Study report documenting the work, including background information, methodology, data sources, assessment results, assumptions, potential impacts and issues, proposed impact mitigations, permitting requirements, conclusions and recommendations. In respect of historical cultural heritage in the, following requirements were set:
 - i. At a minimum, a desktop study was undertaken documenting the known and potential historical cultural heritage values.
 - ii. This study done by reference to the AMAFA Heritage Register, National Register and the results of previous heritage studies. There was consultation with local property owners
 - iii. Any archaeological investigation recorded and assessed all types of historical places.
 - iv. A Heritage Impact Assessment was developed for the project. It was to provide a process for the mitigation, management and protection of any places discovered during excavation, construction operations, rehabilitation and decommissioning phases of the project. It was to provide a process for reporting as per section 38 of the NHRA Act of 1999. It was designed to provide procedures for collection of artefacts discovered during the above. It was also designed to provide for a process of archaeological and heritage awareness training for project personnel provided during site induction.

3.2 Restrictions encountered during the survey

3.2.1 Visibility

Visibility was good.

3.2.2 Disturbance

The archaeological sites identified are heavily disturbed due to past clay mining activities in the area (see below). Other disturbed areas on the footprint yielded no artefacts or structures of heritage significance.

3.3 Details of equipment used in the survey

The survey was conducted by an archaeologist from Tsimba Archaeological Footprint through driving and walking. A ground survey, following standard and accepted archaeological procedures, was conducted. The assessment was rigorous, and detailed enough to present a clear argument to justify the decision in the recommendations section (see Page 21), including sufficient information to support the findings contained in the assessment.

Disturbed and exposed layers were investigated. These areas are likely to be exposed or yield archaeological and other heritage resources that may be buried underneath the soil and be brought to the surface by human activities.

The survey followed investigated the cultural resources onsite using the best possible technologies for archaeological field surveys. The general project area was documented through photographs using a Nikon Camera (with built in GPS).

4 DESCRIPTION OF SITES AND MATERIAL OBSERVED

4.1 Locational data

Province: KwaZulu-Natal

Town: Durban

Municipality: eThekweni

The GPS coordinates for the site is: 29° 45' 01.19" S 31° 01' 12.66" E

4.2 Description of the general area surveyed

This section focuses on the results of the field survey on various characteristics of the site. The survey covered all sections on the proposed development footprint old mining areas, office buildings, and sugar cane plantations. The survey paid attention to the old mining area behind the Corobrick buildings where stone flakes were noted by environmental consultants in the past.

Firstly, the impact types most commonly observed are alteration, transfer, and removal. This area has been heavily disturbed by past mining activities. Soil, clay, and sand were removed down to the level of bedrock. The remains of ancient dunes of sand are still visible on the edges of the mining area. However, due to these mining operations the ancient visible sand dunes were also disturbed. Although certain types of alterations to artifacts may impair their potential for providing data on original function or on manufacturing sequences, in general, the artifacts (in small pieces) are still identifiable. However their altered condition poses an insurmountable problem for analysis, that is, a sherd can no longer be identified as a sherd, and a flakes by their nature are difficult to analyse. Postdepositional edge damage to lithic artifacts or debitage may occasionally be misidentified as use-wear (see Hayden 1979).

Secondly, due to erosion and mining operations the artefacts are no longer in context this has affected the integrity of the site therefore making it impossible to interpret the relationship between the artifacts and the site. Transfer and removal of artifacts, without alteration, affects the integrity of the site, and the validity of the cultural inferences based on artifact location or descriptions. For example, correct identification and interpretation of artifact clusters as "activity areas" depends on their having remained more or less in situ since initial deposition. The ravages caused by rodents, tree roots, and relic collectors are well known, as are the actions of vertisols (self mulching soils), and other geomorphic processes that transfer artifacts from place to place within a site, or remove them altogether.

Finally, the overall site has been altered significantly through mining activities and other human activities that take place on a day to day basis. This has completely altered the site from its historical context to a modern site where commercial production of goods is the main use. Despite David Clarke's assertions that description and study of artefacts are the sole purpose of archaeology (1968:13), to the contrary description and study of artifacts per-se are not the sole purposes of archaeology (see also, Rouse 1973). In the context of modern archaeological resource conservation and management, it is the integrity of the site, its potential for answering significant research questions, and its susceptibility to damage as the direct or indirect result of human activity that are crucial for decision making. Given below is a picture overview of the proposed study area;

4.3 Archaeological sites identified

Six exposed areas were identified (Fig 4). However, all of these exposed areas from part of one archaeological site. It is critical for us to understand that soils are not static bodies. They are dynamic, open systems in which numerous processes operate to pedoturbate profiles, and to move objects vertically and horizontally within them. These processes may operate singly or in combination in additive or subtractive fashion, in all environments and at all latitudes. Fingerprint topography and linear *gilgai*, for example, express the combined effects of *argilloturbation* and *graviturbation* in subtropical latitudes. At high latitudes and altitudes, *gelifluction* lobes are produced by *graviturbation* and *cryoturbation*, and to some extent by *aquaturbation*. In many well-drained soils, *faunalturbation* by ants and earthworms may well offset the effects of cryoturbation (exemplified by the burial of objects by earthworms cited earlier), whereas in poorly drained soils the reverse seems to be true except perhaps where crayfish are present.

Cultural materials, then, may sink into the soil, may be concentrated into layers at depth, may be reoriented within the soil, may be thrust to the surface, or may be moved horizontally on a plane or downslope. Various processual permutations can be envisioned. The result can be a spurious association of artifacts, with concomitant distortion in interpretation. The stone flakes found lying scattered at the base of the eroded sand dunes are therefore impossible to interpret. In fact, all the exposed sandy areas south of the office buildings contained some stone flakes.

One suspected Early Stone Age cleaver (Figure 7) has been found, but the vast majority of stone flakes belong to the Middle Stone Age and consist of flakes and blades (Figs 8-10). One potential hammer stone was found but there were no cores the consultant could locate. The terms “suspected and potential “ are used to refer to these stone tools because without a proper context, one can-not be absolutely sure that these were ESA stone tools.

The rest of the stone flakes were made from indurated shale and quartzite of poor quality. Such stone flakes were the only geological material found, there are no traces of bones or plants. In no stratigraphic or spatial sense are the stone flakes. They appear to erode from the ancient sand dunes that were disrupted in the past by mining activities. In addition, due to this disruption the site has very little research value, as well as bad preservation.

5 STATEMENT OF SIGNIFICANCE (HERITAGE VALUE)

The Burra Charter³ (ICOMOS Australia 1999) came to fill the gap left by the Charter of Venice (ICOM et al 1964), recognizing the “conservation as a dynamic process of change management” that should be conducted through a value-based approach; in which the “Statement of Significance” becomes the key document of the entire process. Even if national-oriented, the Burra Charter had a strong impact in the international community involved in the field of cultural heritage management. This same State of Significance became mandatory for States Parties to include in new nominations (UNESCO 2005). Nowadays, it is known as Statement of Outstanding Universal Value (UNESCO 2008).

Site Significance calculation formula

Site significance is calculated by combining the following concepts in the given formula.

$$S = (E + D + M) P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The significance weightings for each potential impact are as follows:

Table 2. The significance weightings for each potential impact are as follows:		
Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8

5.1 Field Rating

Nevertheless, according to the guidelines issued by SAHRA (Table 2), this site is protected by heritage legislation, it has been classified as of low significance because it has no research value. It is highly disrupted and not all of the detected stone flakes were found in any spatial or stratigraphic sense.

Therefore, the stone flakes can not have an educational interest, since they can not be interpreted. Nonetheless, the KwaZulu-Natal Museum's archeological database suggests that numerous sites of the Middle Stone Age in similar geomorphological location exist along the KwaZulu-Natal coastal cordon. These are in a better state of preservation and are more representative of this type of site than the highly disturbed occurrence in the study area.

Table 3. Field rating and recommended grading of sites (SAHRA 2005)

The significance of a site is determined by the overall field ratings of the site. Article 26(2) of the Burra Charter emphasises that written statements of cultural significance for heritage resources should be prepared, justified and accompanied by supporting evidence. Site significance classification standards prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purposes of this report.

Level	Details	Action
National (Grade I)	The site is considered to be of National Significance	Nominated to be declared by SAHRA
Provincial (Grade II)	This site is considered to be of Provincial significance	Nominated to be declared by Provincial Heritage Authority
Local Grade IIIA	This site is considered to be of HIGH significance locally	The site should be retained as a heritage site
Local Grade IIIB	This site is considered to be of HIGH significance locally	The site should be mitigated, and part retained as a heritage site
Generally Protected A	High to medium significance	Mitigation necessary before destruction
Generally Protected B	Medium significance	The site needs to be recorded before destruction
Generally Protected C	Low significance	No further recording is required before destruction

No other heritage features were located on the footprint. The area is also not part of any known cultural landscape (Table 3). However, the consultant thought it wise to have the old Corobrick buildings and structures in the north western section of the footprint (Fig 2) evaluated by a built heritage specialist as these contain built features that may have heritage value. A subsequent evaluation of these structures and buildings, however, indicated that none of them are older than 60 years (Lindsay 2015). The relevant area may therefore be developed.

Table 4. Evaluation and statement of significance.

Significance criteria in terms of Section 3(3) of the NHRA		
	Significance	Rating
1	Historic and political significance - The importance of the cultural heritage in the community or pattern of South Africa's history.	None.
2	Scientific significance – Possession of uncommon, rare or endangered aspects of South Africa's cultural heritage.	Low
3	Research/scientific significance – Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.	None.
4	Scientific significance – Importance in demonstrating the principal characteristics of a particular class of South Africa's cultural places/objects.	Low.
5	Aesthetic significance – Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.	None.
6	Scientific significance – Importance in demonstrating a high degree of creative or technical achievement at a particular period.	None.
7	Social significance – Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.	None.
8	Historic significance – Strong or special association with the life and work of a person, group or organization of importance in the history of South Africa.	Low, but not older than 60 years (Lindsay 2015).
9	The significance of the site relating to the history of slavery in South Africa.	None.

6 DESCRIPTION OF SOCIO ECONOMIC ENVIRONMENTAL IMPACTS

- ✚ By "social- economic impacts" we mean the economic consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society .

Any development is likely to have a socio-economic impact on the area in which it is developed. In this section off the report, the socio-economic impacts of the proposed development on the identified heritage resources are identified and quantified.

Construction phase:-

There is a possibility of direct impacts during the construction phase. These are expected to be largely positive due to the developmental nature of the project. The economic impact assessment measures the anticipated economic impact of the capital expenditure (construction) of the proposed retail development. It includes economic output of new business sales creation, gross value added to the gross geographic product (GGP), additional total income created to households, as well number of jobs created.

Operational phase:-

The operational phase impacts that we identified as potentially impacting on the development are positive impacts. There are however two negative impacts, namely loss of construction phase temporary employment and health and safety risk. It is against this background that we strongly argue that the project will have a POSITIVE impact on the socio –economy of the greater. The economic impacts are determined by a multiplier analysis which measures the direct and indirect impacts on the regional economy derived from the capital expenditure of the proposed development. Four different impacts are identified, and are described as follows:

- i. New business Sales Multiplier Effect
- ii. Gross Value-Added Multiplier Effect
- iii. Household Income Multiplier Effect
- iv. The Employment Multiplier Effect

Overall, some of these various measures of economic impact overlap and for this reason cannot necessarily be added together and should rather be understood to represent different dimensions of measuring economic impact.

7 MAPS AND FIGURES

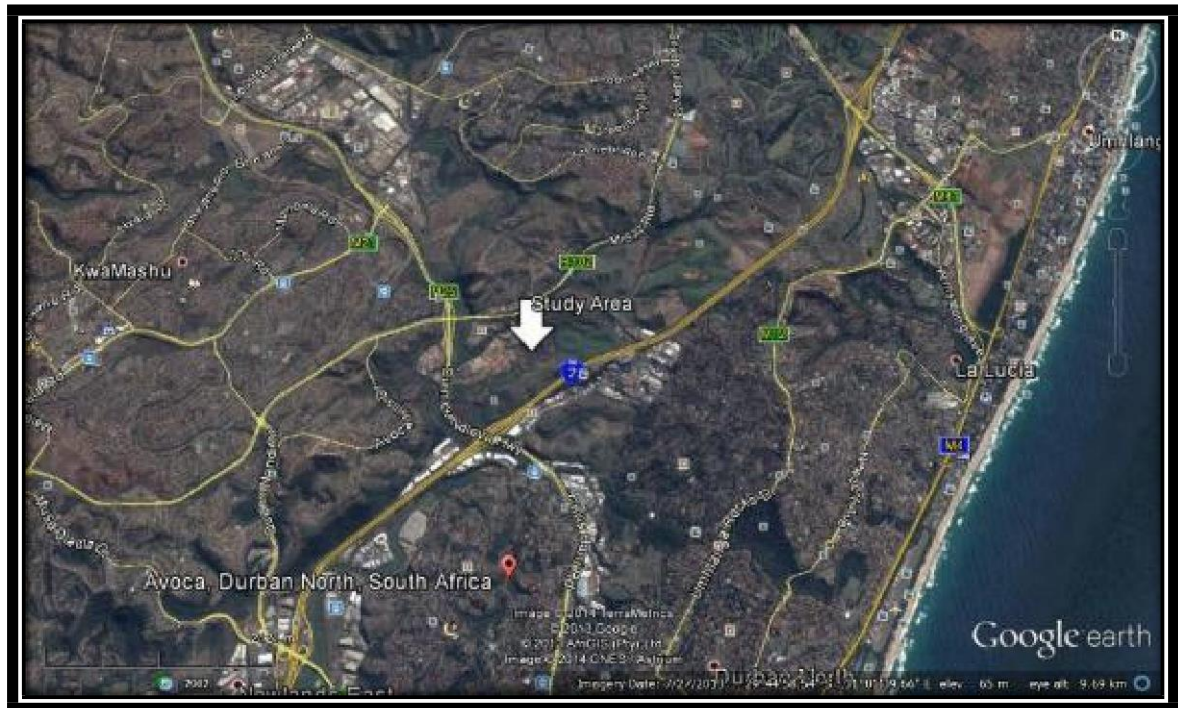


Figure 1. Google aerial photograph showing the location of the Study Area at Avoca South, Durban North.

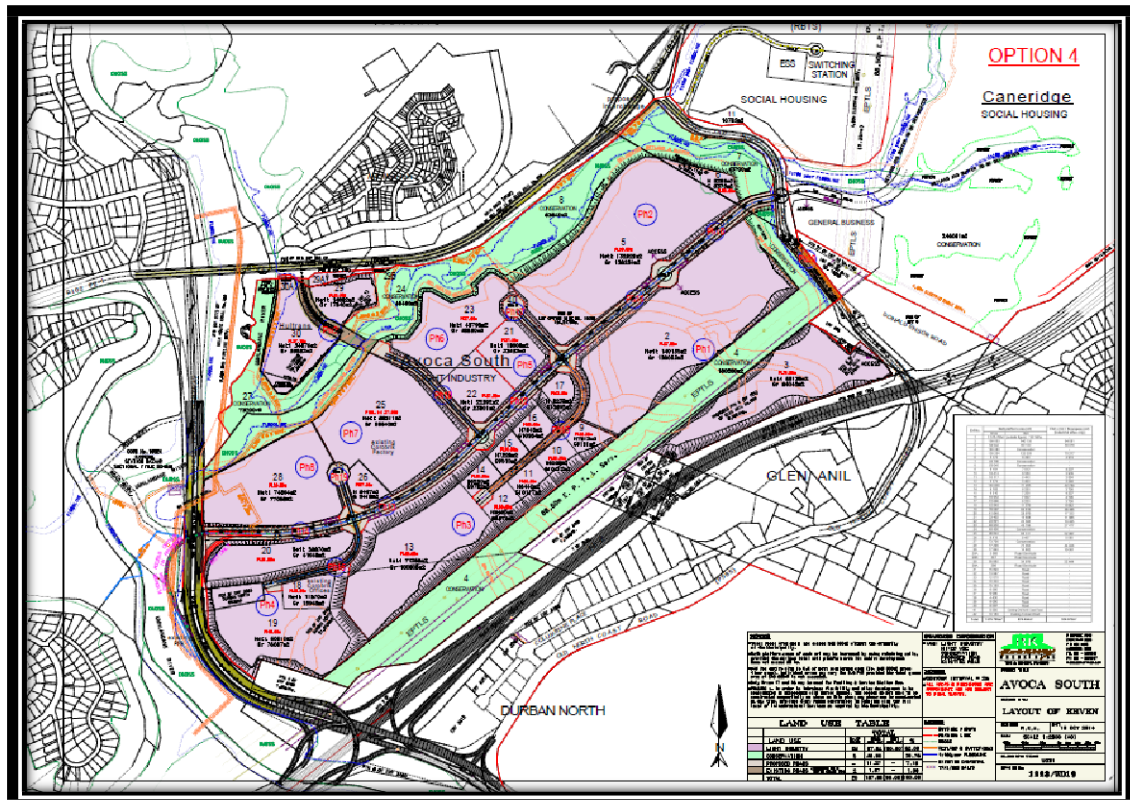


Figure 2. Map of the footprint with various development options indicated (Source: GCS)

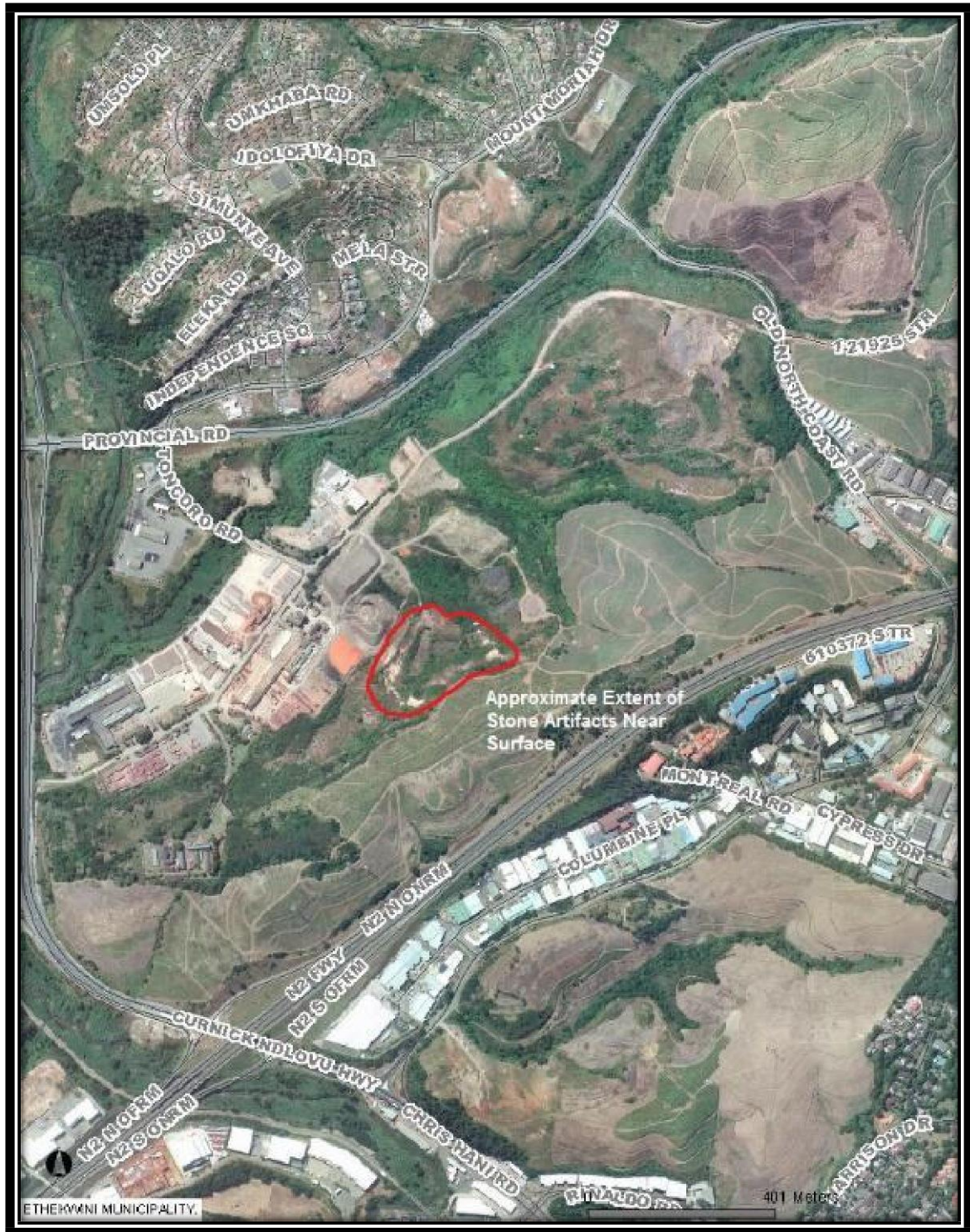


Figure 3. Google aerial photograph showing the approximate extent of the stone flakes scatter behind the Corobrik buildings.



Figure 4. Google aerial photograph indicating the exposed sandy areas that contains stone flakes. Each yellow polygon is an exposed sandy area – the remains of ancient sand dunes.



Figure 5. View of the study area where grass cover is low



Figure 6. A stream showing the pollution on site due to rubbish dumping



Figure 7. Part of the developed areas within the proposed development footprint



Figure 8. Photograph of ancient sand dune showing extensive erosion and disturbance. The stone tools are associated with these features and they are not situated in any context.



Figure 9. Eroded sand dune, due to clay mining activities, with some stoneflakes in the foreground. These tools are not in context.



Figure 10. Potential Early Stone Age cleaver. Only one Early Stone Age period tool has been found on the site.



Figure 11. Middle Stone Age flakes and blades made from indurated shale.



Figure 12. Middle Stone Age flakes.



Figure 13. Photograph showing Middle Stone Age flakes made from indurated shale and quartzite.

8 RECOMMENDATIONS AND CONCLUSIONS

A reasonably accurate assessment of the pedoturbatory history of the soils and sediments at every archaeological site is absolutely pre-requisite to valid archaeological interpretations. This, is difficult to achieve with the study area. Although scatters of stone age flakes can be recovered it is impossible to interpret them without context, therefore making it impossible for them to be used for any educational purposes. No other cultural heritage resources were found onsite besides these stone age flakes. The construction phase will likely have very low significance impacts. During this phase, Stone Age artefacts, graves, and other heritage resources may be discovered. These activities can have a negative and irreversible impact on heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

It is recommended that AFAMA exercise their discretion and offer a conditional approval for the project. Below are the recommended recommendations;

- The construction teams must be inducted on the possibility of encountering archaeological resources that may be accidentally exposed during clearance and construction at the site prior to commencement of work on the site in order to ensure appropriate mitigation measures and that course of action is afforded to any chance finds in accordance with the Chance Find Procedure (see Appendix

A)

- Strict and clear reporting procedures for chance finds must be followed by the client and their contractors throughout the whole construction period.
- Archaeological watching briefs at regular intervals should also be carried out to insure that no possible archaeological resources are lost during the construction phase.

9 REFERENCES

Clarke, D. L. 1968 Analytical archaeology. London: Methuen.

Derwent, S. 2006. *KwaZulu-Natal Heritage Sites: A Guide to Some Great Places*. David Philip: Pietermaritzburg.

Hayden, B. (editor) 1979 Lithic use-wear analysis. New York: Academic Press.

Huffman, T. N. 2007. *Handbook to the Iron Age: The Archaeology of Pre-colonial Farming Societies in Southern Africa*. University of KwaZulu-Natal Press. Pietermaritzburg.

Lindsay, V. 2015. *Heritage Impact Assessment of the Corobrik Buildings at Avoca South, eThekweni Municipality*. Unpublished Report submitted to GCS (Durban office).

Maggs, T. The Iron Age farming communities 1989. In Duminy, A. and Guest, B. *Natal and Zululand: from Earliest Times to 1910. A New History*. Pg. 28-46. University of Natal Press. Pietermaritzburg.

Mazel, A. The Stone Age Peoples of Natal. In Duminy, A and Guest, B. *Natal and Zululand from Earliest Times to 1910. A new History*. Pg. 1-27. University of natal Press. Pietermaritzburg.

Rouse, I. 1973 Analytic, synthetic, and comparative archeology. In *Research and theory in current archeology*, edited by Charles L. Redman, New York: Wiley. Pp. 21-31.

SAHRA, 2005. *Minimum Standards for The Archaeological and the Paleontological Components of Impact Assessment Reports, Draft version 1.4*.

Wadley, L & Whitelaw, G. 2006 (eds.). Middle Stone Age Research at Sibudu Cave. *Southern African Humanities* 18 (1).

Wadley et al 2011. Middle Stone Age Bedding Construction and Settlement Patterns at Sibudu, South Africa. *Science*: 334: 1388-1391.

Wood, J. S. 1979 Chaparral conversion and cultural resources on the Prescott National Forest: an experimental study of the impacts of surface mechanical treatment by Marden brush-crusher. CulturalResourceReport No.27. U.S. Department of Agriculture,

Appendix A

CHANCE FIND PROCEDURE

What is a Chance Finds Procedure.....?

The purpose of Archaeological Chance Find Procedure (CFP) is to address the possibility of cultural heritage resources and archaeological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological sites are documented and protected as required. A CFP is a tool for the protection of previously unidentified cultural heritage resources during construction and mining. The main purpose of a CFP is to raise awareness of all mine workers on site regarding the potential for accidental discovery of cultural heritage resources and establish a procedure for the protection of these resources.

Chance finds are defined as potential cultural heritage (or paleontological) objects, features, or sites that are identified outside of or after Heritage Impact studies, normally as a result of construction monitoring. Archaeological sites are protected by The National Heritage Resources Act of 1999. They are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public, local communities.

What are the objectives of the CFP....?

The objectives of this "Chance Find Procedure" are to promote preservation of archaeological data while minimizing disruption of construction scheduling. It is recommended that due to the moderate to high archaeological potential of some areas within the project area, all on site personnel and contractors be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

Where is a CFP applicable.....?

Developments that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation are all examples of activities that may adversely affect archaeological deposits. Chance finds may be made by any member of the project team who may not necessarily be an archaeologist or even visitors. Appropriate application of a CFP on development projects has led to discovery of cultural heritage resources that were not identified during archaeological and heritage impact assessments. As such, it is considered to be a valuable instrument when properly implemented. For the CFP to be effective, the mine manager must ensure that all personnel on the proposed mine site understand the CFP and the importance of adhering to it if cultural heritage resources are encountered. In addition, training or induction on cultural heritage resources that might potentially be found on site should be provided. In short, the Chance Find Procedure details the necessary steps to be taken if any culturally significant artefacts are found during mining or construction.

What is the CF Procedure.....?

The following procedure is to be executed in the event that archaeological material is discovered:

- All construction activity in the vicinity of the accidental find/feature/site must cease immediately to avoid further damage to the site.
- Briefly note the type of archaeological materials you think you've encountered, its location, and if possible, the depth below surface of the find.

- Report your discovery to your supervisor or if they are unavailable, report to the project Environmental Control Officer (ECO) who will provide further instructions.
- If the supervisor is not available, notify the ECO immediately. The ECO will then report the find to the Mine Manager who will promptly notify the project archaeologist and SAHRA.
- Delineate the discovered find/ feature/ site and provide a 25m buffer zone from all sides of the find.