

**The Archaeological Surveys and Excavations of the  
Zulti North Mining Lease**

*For Richards Bay Minerals*

**2019 Annual Report**

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## Abbreviations

HP	Historical Period
IIA	Indeterminate Iron Age
LIA	Late Iron Age
EIA	Early Iron Age
ISA	Indeterminate Stone Age
ESA	Early Stone Age
MSA	Middle Stone Age
LSA	Late Stone Age
HIA	Heritage Impact Assessment
PIA	Palaeontological Impact Assessment

### GENERAL AGE. GROUPS DATE

Period	Pottery Group	Associated language/people	Years ago
ESA	N/A	Foragers/hunter/gatherers	1.5 million - 250 000
MSA	N/A	Hunter gatherers	250 000 – 30 000
LSA	N/A	San Hunter gatherers	30 000 – 2 000
EIA	1	Mzonjani	1 700 – 1 500
EIA	2	Msuluzi	1500 - 1300
EIA...	3	Ndondondwane	1300 – 1100
EIA	4	Ntshekane	1100 - 900
LIA	5	Blackburn/Mpambanyoni	900- 700
LIA	6	Moor Park	700 - 500
LIA	7	Thembi-Tsonga	500 – 250/300
Historical	Groups 8,9	Mthiyane /Sokhulu	200 – present

ESA = Early Stone Age

MSA = Middle Stone Age

LSA = Late Stone Age

EIA = Early Iron Age

LIA = Late Iron Age

## INTRODUCTION

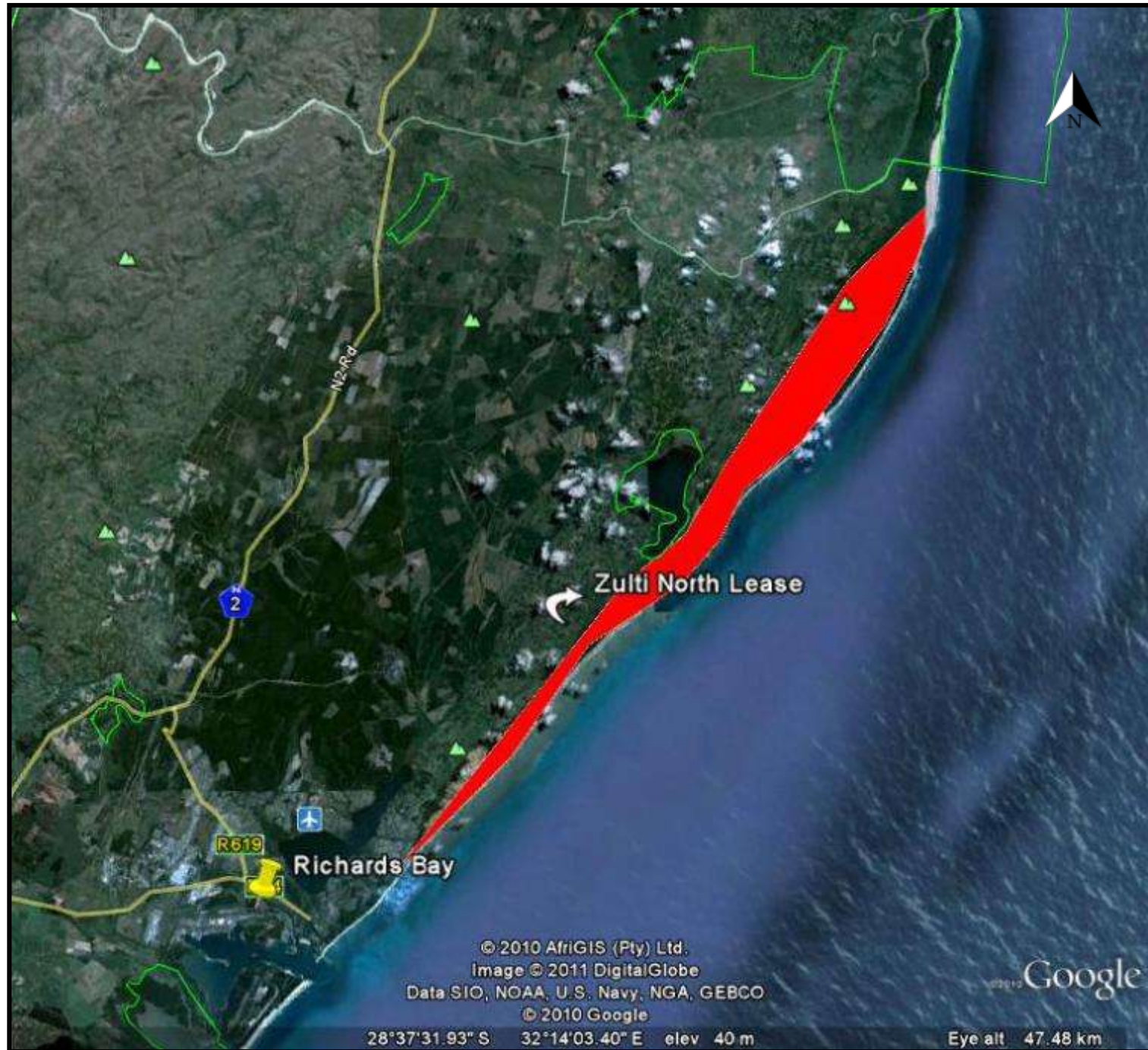
Umlando is contracted by Richards Bay Minerals (Pty) Ltd to undertake archaeological surveys and excavations in the Zulti North mining lease. The mining lease is located north of Richards Bay, KwaZulu-Natal and occurs along the eastern seaboard. (Fig.'s 1 - 2).The program consists of bi-monthly surveys, while excavations occur when needed. The archaeological program has been in progress at RBM Zulti North since 1995.

A total of 4 new sites were recorded in 2019, while several sites were continuously monitored and sampled. One site was excavated and others have been noted for future excavation. It appears that MPE and Red Dunes still continue towards archaeologically sensitive areas and MPC remains in an area that has been partially mined by dry mining. MPA and MPD did not progress far in terms of distance in 2019. Mine closures and high dunes resulted in a much slower progress, and thus exposed sites, in 2019.

There have been a total of 471 archaeological sites recorded in the Zulti North mining lease since 1995. This number excludes large sites that have been subdivided. Most of these sites date to the Late Iron Age and Historical Period, while a few date to the Early Iron Age. Three San hunter-gatherer sites have been recorded and/or excavated. These sites are rare in the dune system as they tend to be ephemeral or assumed to be Iron Age sites.

The excavation results have yielded an increase in general sample size of faunal remains, shellfish species data, such as mean sizes and density. These have relevance to contemporary research. The excavation also continued to yield results comparable to previously excavated sites. The importance in the excavations is that there is a very tight sequence over the last 1700 years in the dune system. That is, the sites will eventually give a near continual coverage of the last 1700 years in the dunes. It is rare to cover a long continual period in a well defined area.

**FIG. 1: LOCATION OF THE ZULTI NORTH MINING LEASE**





**FIG. 2: LOCATION OF RECORDED ARCHAEOLOGICAL SITES IN THE MINING LEASE**



# METHOD

All sites are grouped according to low, medium, and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts, especially pottery. Sites of medium significance have diagnostic artefacts and these are sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips, and decorated sherds are sampled, while bone, stone, and shell are mostly noted. Sampling occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features. We attempt to recover as many artefacts from these sites by means of systematic sampling, as opposed to sampling diagnostic artefacts only.

## Defining significance

Archaeological sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

### **1. State of preservation of:**

- 1.1. Organic remains:
  - 1.1.1. Faunal
  - 1.1.2. Botanical
- 1.2. Rock art
- 1.3. Walling
- 1.4. Presence of a cultural deposit
- 1.5. Features:
  - 1.5.1. Ash Features
  - 1.5.2. Graves
  - 1.5.3. Middens
  - 1.5.4. Cattle byres
  - 1.5.5. Bedding and ash complexes

### **2. Spatial arrangements:**

- 2.1. Internal housing arrangements

- 2.2. Intra-site settlement patterns
- 2.3. Inter-site settlement patterns
- 3. Features of the site:**
  - 3.1. Are there any unusual, unique or rare artefacts or images at the site?
  - 3.2. Is it a type site?
    - 3.2.1. Does the site have a very good example of a specific time period, feature, or artefact?
- 4. Research:**
  - 4.1. Providing information on current research projects
  - 4.2. Salvaging information for potential future research projects
- 5. Inter- and intra-site variability**
  - 5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?
  - 5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?
- 6. Archaeological Experience:**
  - 6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.
- 7. Educational:**
  - 7.1. Does the site have the potential to be used as an educational instrument?
  - 7.2. Does the site have the potential to become a tourist attraction?
  - 7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

The more a site can fulfil the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. These test-pit excavations may require further excavations if the site is of significance. Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary archaeological context. Mapping records the spatial relationship between features and artefacts.



# RESULTS

## SURVEYS

Often sites are covered by vegetation during a survey and thus their extent is estimated. We continue to monitor the site until it is mined and update the records accordingly. Some sites are not photographed as the dense vegetation does not allow for any representation. All diagnostic pottery, unique finds, well preserved faunal remains, and occasionally shell, is sampled from each site regardless of its significance. The sampling strategy allows for most sites to be represented since dune mining will destroy the entire site. It is also for this reason that sites with intact middens and/or deposit are targeted for excavations, since few of these remain intact after bush clearance.

Most sites are photographed, except those that have been widely dispersed and the general shape of the hill has been changed.

### MINING POND A

No new sites were recorded. MPA is currently going through a previously mined area. Access to the dune face is extremely difficult, but was monitored.

### MINING POND C

No new sites were recorded. Mining Pond C is mining an area that has been cleared by dry mining. That is, dry mining has removed the upper 20m+ of the dune.

## MINING POND D

### MPD 109

MPD 109 is located on the first dune cordon from the ocean. .The site consists of one, small brown mussel midden and undecorated pottery on the surface. The site is of low significance and no further mitigation is required. We will continue to monitor it during surveys.

## MINING POND E

MPE has not moved far in 2019 mainly due to a very tall dune, and logistical problems on the east and western sides of the plant.

### MPE179

MPE 179 is located on the first dune cordon from the ocean.

The site consists of a small brown mussel midden, and is probably a single occupation site (fig. 3). It is of low significance and no further mitigation is required. We will continue to monitor it during surveys.

**FIG. 3: VIEW OF MPE179**



## **MPE 180**

MPE 180 is located at the base of a hill between the Red Dunes and the main dune cordon.

The site consists of a surface scatter of artefacts, including bovid bones, thin walled pottery, coral and glass fragments of what used to be a Lemos bottle. It is of low/ medium significance and we will continue to monitor it during surveys.

The site was sampled.

## **RED DUNES**

### **RD 41**

RD 41 is located on the second dune cordon from the ocean, in the Red Dunes.

The site consists of one, small brown mussel midden and undecorated pottery on the surface. The site is of low significance and no further mitigation is required.

We will continue to monitor it during surveys.

## **EXCAVATIONS**

This is a brief summary of the excavated finds and is not meant to be a full analysis, as that is beyond the scope of work of this project.

All shell middens are excavated in their entirety when undisturbed. However, we select the best example of each lens in a square and bulk sample these. Bulk sampling implies that every artefact and ecofact is sorted and curated for storage. Normal sampling would only keep the important finds (such as pottery, charcoal, bone, adornments), shell measurements are taken, but the shell itself is discarded after sorting and weighing. This is a standard practice for shell midden excavations and is aimed at reducing required storage space at the relevant institutions.

## MPE159

MPE 159 is located at the base of the last dune cordon from the ocean. The site appears to be a complete settlement where two shell middens and possible house floors have been excavated. The middens consist of a lower one that was excavated in November 2014 (MPE 159), and another that was partially exposed by bush clearance and excavated in November 2015 (MPE 159b). The middens are ~20m apart. There are two human bone fragments in the vicinity of the lower midden which makes the site of high significance. The middens are very well preserved, and the 2014 - 2019 excavations yielded a lot of material. The plan for 2019 was to continue with the remaining shell midden and in addition excavate the cleared area directly east of the second excavation in an attempt to locate the main cattle byre (*isibaya*) or house.

### Excavations & Stratigraphy:

Excavations were halted at this site in 2018, due to excavations at MPE177; however, MPE159b was completed in August 2019, and monitored thereafter. The aim of the excavations was to complete all marked squares, and then put more squares eastwards in attempt to find the cattle byre.

The site was divided into 17 2m x 2m squares along a 34m baseline, with the squares to the East of the baseline forming the A-line and the squares to the West of the baseline forming the B-line (fig. 4 - 5). The A C-line was also included for the shell middens in the road cutting. The squares were excavated from the outer edges first, working our way towards the obvious shell middens located roughly in the centre. The middens were exposed by removing the overburden. The shell middens were excavated stratigraphically; while the areas around it were excavated in 10cm spits.

Rows A, B and C were excavated in 2m x 2m squares with 1m x 1m quadrants. Squares A9 – A17, B9 – B17 and C9 – C14 have been excavated. The C row or shell middens, were excavated in 1m x 1m squares and 50cm x 50cm quadrants. In addition to the original lay-out of the site, we also added a transect line of 4, 1m x 1m



squares to the East of Sq A12. This line was referred to as AA12 and AB 12. Figure 4 shows the excavation plan of the site. Fig. 5 shows the 2019 excavations.

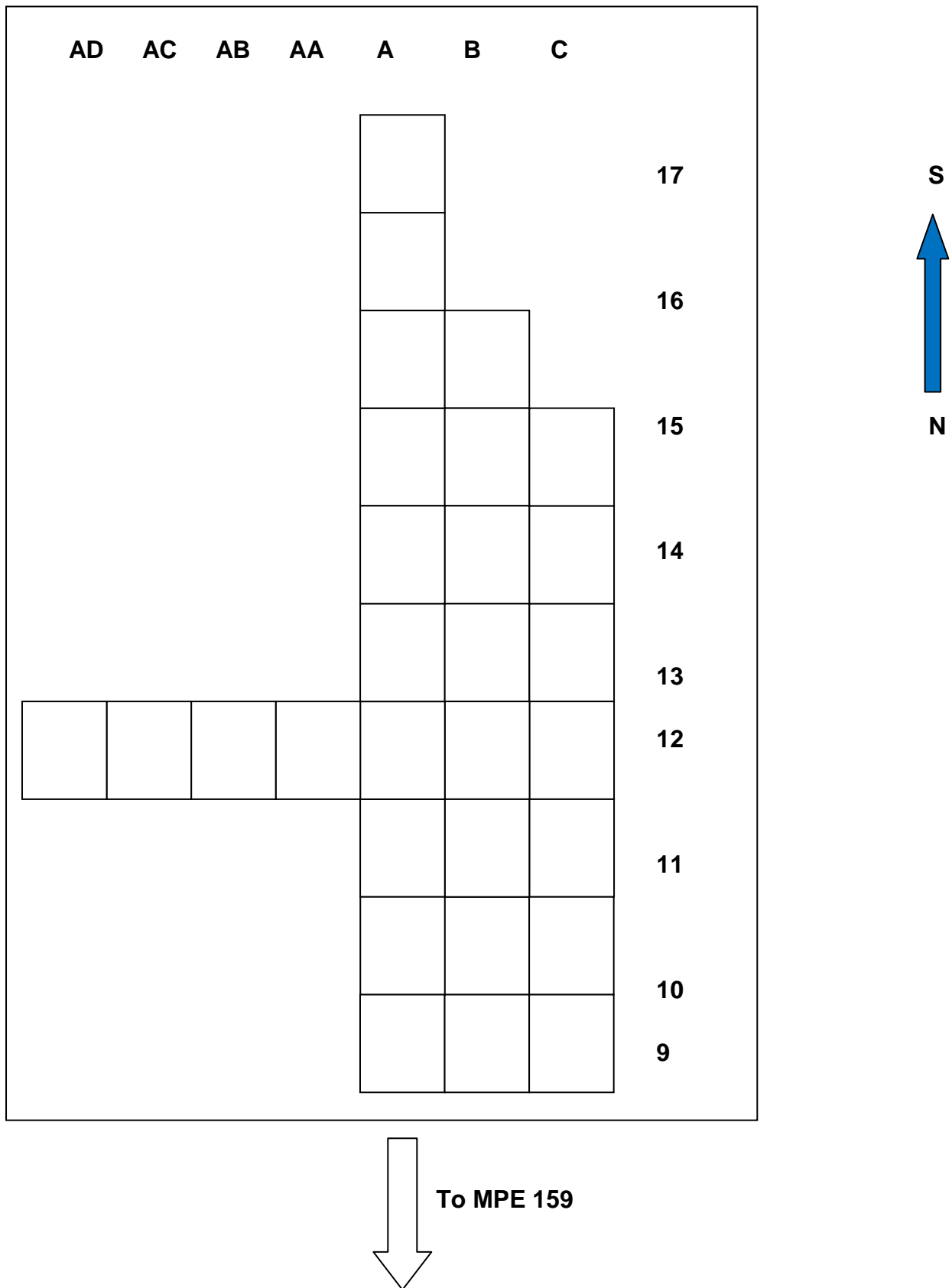
The second midden appears to be separate from the main midden; however this could have been a result of root and/or bulldozer activities. They were excavated separately, but combined in the analysis.

Rows A and B were excavated in 2m x 2m squares with 1m x 1m quadrants. Squares A9 – A17 and B9 – B17 have been excavated. The C row or shell middens, were excavated in 1m x 1m squares and 50cm x 50cm quadrants.

Originally Lens 1 was thought to be the same as Lens 2. They are in fact different lenses. Lens 1 lies below Lens 2 and is a dense shell layer, 15cm thick in the centre where it forms a basin shape. Lens 1 slopes slightly towards the west. Lens 2 lies on top of Lens 1. It slopes radically towards the west and gets thicker towards the north and east. Lens 3 and Lens 1A appeared in the squares to the north of Lens 1 and Lens 2. Lens 1A is at the same level as Lens 1. Lens 3 occurs much deeper than the other middens and beneath Lens 1, making it the oldest lens of the site. The squares to the south of the middens were excavated to 50 – 90cm below the surface. The western row (Line C) was significantly deeper than the two rows (Lines A and B) to the east, possibly because of the westward slope of the dune. The 2019 excavations of the midden removed Lens 2 and Lens 3, which still remained from the previous excavations (fig. 6).

The excavations at B9 and B10 continued to expose a layer rich in artefacts and faunal remains. Two complete pots were excavated, of which one still had food residue attached to it. This was extended to the west and south to reveal Lens 10 (fig. 7).

**FIG. 4 MPE 159 SITE EXCAVATION MAP**



**FIG. 5: GENERAL VIEW OF THE 2019 EXCAVATION AREA**





**FIG. 6: WEST SECTION SHOWING LENS 2, LENS 1, LENS 3 AND LENS 1A**





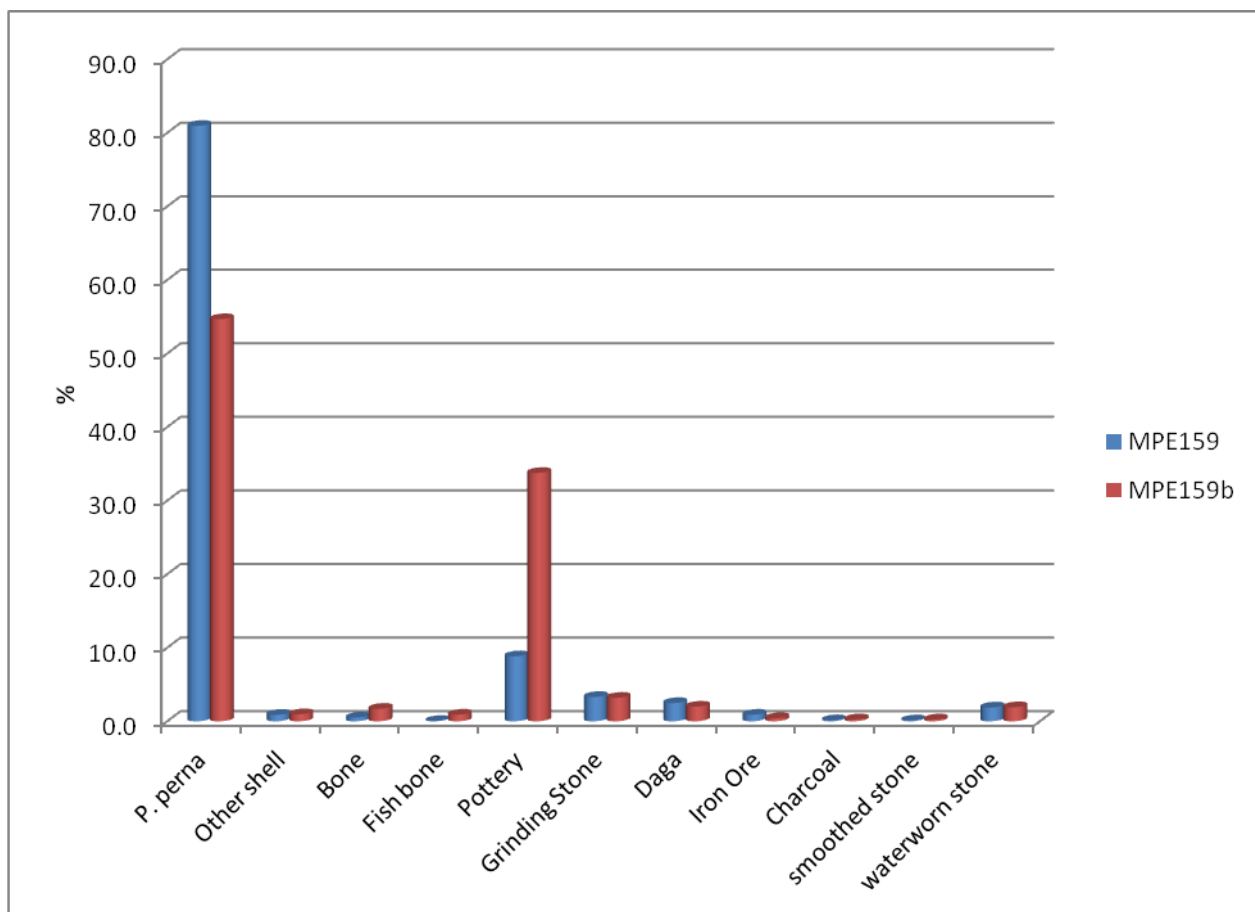
**FIG. 7: WEST SECTION SHOWING LENS 10 AND THE ASH FEATURE**



## Results:

Fig. 8 (and Table 2) shows the total artefacts and ecofacts as a percentage of total weight. These are also compared with MPE159 excavations. The middens at MPE159b are almost double the amount at MPE159, and thus some of the results are slightly skewed. MPE159b has 109 x 15l buckets (or 1627.5cm<sup>3</sup>) and this is for the middens only, and excludes non-shell midden excavations. MPE159 had 59 x 15l buckets (878.7cm<sup>3</sup>). The main difference between the two excavations is that MPE159 has more shell (specifically *P. perna*) remains, whilst MPE159b has higher variety and/or quantity of artefacts and ecofacts.

**FIG. 8: ARTEFACTS & ECOFACTS AS PERCENTAGE OF TOTAL WEIGHT**



**TABLE 2: SUMMARY OF EXCAVATED MATERIAL**

		Weight (g)/ frequency (n)	MPE159	MPE159b
Buckets		n	58.583	108.5
Faunal remains	Bovid	g	755	28225
	Otolith	n	3	6
	Fish Bone	g	59	1499
Daga		g	3765.5	3292
Charcoal		g	212	424
Iron ore/slag		g	1352	696
Stone	Smoothed stone	g	185	409
		n	27	53
	water worn stone	g	2858	3169
	Upper G/Stone	g	1676	3598
		n	7	14
	Lower G/Stone	g	3350	1704
n		7	14	
Worked Bone		n	2	2
Coral		n	7	1
Shell	Other shell	g	1337	1590
	<i>Siphonaria capensis</i>	n	0	2312
	Nassa.	n	72	25
	P. perna left hinge	n	497	3959
	P. perna right hinge	n	413	4138
	P. perna weight	n	123210	90750
Pottery		g	13443	56042
soil samples		n	0	6
Total Weight		g	152212.5	165993

### Faunal Remains

There are some faunal remains in the middens. Most of the bone comes from the ash feature surrounding Lens 10. The bovid remains tend to be associated with the middens or on the edge of the midden. Sq. A9/A10 and B9/B10 had a layer of pottery and bovid remains (fig. 9 - 10). This feature is the beginning of lens 10. One bovid long bone has extensive cut marks on it (fig. 11). One small avian bone was excavated from the midden. The Ash Feature around Lens 10 had a several bovid bones and at least one complete fish in the Sq. B/C10 interface

There is a sharp increase in the amount of fish in the MPE 159b middens compared to the MPE 159 middens, as well as when compared to other excavated sites. Six otoliths were recovered from the excavations. These remains varied in size, in conjunction with the vertebra, there appears to be at least one large fish (fig. 12). This could be from several large fish that were discarded onto this midden. This is the highest fish sample from a site so far excavated in the dunes. A few rodent bones were excavated from the middens. These faunal remains are post depositional.

**FIG. 9: POTTERY AND BOVID BONE FROM SQ A9 AND B9/B10**





**FIG. 10: FAUNAL REMAINS FROM SQ B11**



**Fig. 11: Cut Marks On Bovid Long Bone**



**FIG. 12: FISHBONE FROM LENS 2**



### **Charcoal**

A small amount of charcoal was excavated. Most of the charcoal came from the shell midden. One quadrant has enough charcoal for radiocarbon dating. Only the charcoal from the middens can be reliably associated with the site. The charcoal from the Ash Feature tended to be mainly small flecks. However some larger pieces were found near the pots.

### **Stone**

The stone from the site consists mainly of water worn stone and smoothed stones. The water worn stone comes mainly from the shell middens. These are related to the stones that are caught in the byssus threads as the mussel grows.

Only four smoothed stones were excavated. These are stones that have been used to polish daga floors or pottery. The lower grinding stones were mostly fragments, while the upper grinding stones were mostly whole. The grinding stones skew the results in that they are much heavier than the water worn and/or polished stones.

### **Small finds**

There are a 25 *Nassarius krausiarius* shells from the MPE159b midden. MPE159 had 72 beads. These shells are often used as beads.

Most of the small daga fragments came from the shell midden. Larger daga pieces come from outside the midden and tend to be small fragments. The larger daga fragments come from the A and B lines

A single fragment of a figurine was recovered from Lens 3. It appears to be the leg from a clay ox figurine (fig. 13).

**FIG. 13: FIGURINE FRAGMENT**



The iron ore is colloquially referred to as 'bog iron'. It is very low grade iron oxide and if formed naturally around roots or in the more swampy areas. The iron ore



occurs mostly as one large chunk in Square B9.2. Smaller fragments were noted in the shell midden.

## Pottery

Very few decorated pottery was found at the site. The decorated sherds are as follows (fig. 14):

- 5+ rows of triangular impressions
- Single row of circular impressions on the shoulder/body
- An *intsumpa* on the neck of the pot, with lip impressions.
- Alternating bands of square impressions
- Elliptical impressions on the lip
- Elliptical incisions on the lip
- Bevelled lip

The decorated sherds suggest that they belong to the Group 5 and 6 classes of decorated pottery. This would date the sherds anywhere from 1250 ACE – 1500 ACE. A single Early Iron Age decorated sherd occurred in the midden. This sherd was probably picked up from one of the many EIA sites in the area, and then dropped at the site.

At least four pot lids were excavated near two different middens.

**FIG. 14: DECORATED POTTERY**





## Shell

The most common shell is *Perna perna*, or the brown mussel, and it appears to be the staple food, in all shell middens and lenses. Other types of edible shellfish include limpets (specifically *Siphonaria capensis*), oyster, and whelk. A single *Helcion concolor* was excavated from Lens 2. Other shell species that were probably not eaten include chitons, barnacle and key-hole limpets.

Only 47 *P. perna* shells were measured, and they had an average length of 5.3cm. This is slightly larger than the mussels from the MPE159b excavations (Table 3, Fig. 15). There is, however, a wider range of sizes in MPE159b

There is a substantial increase in the amount of *Siphonaria capensis* at MPE159b, and these formed most of the 'other shell' category. These limpets occurred in a specific area of the excavations: C14.2 and C13.4. The limpets appear to be removed at an average size of 30mm; however, most of the shells were removed at 35mm in size. (Fig. 16, Table 4). Table 3 from this report is a corrected version from the 2016 report that incorrectly nearly doubled the amount of *S. capensis*. The large standard deviation in the shell sizes suggests that they were randomly harvested.

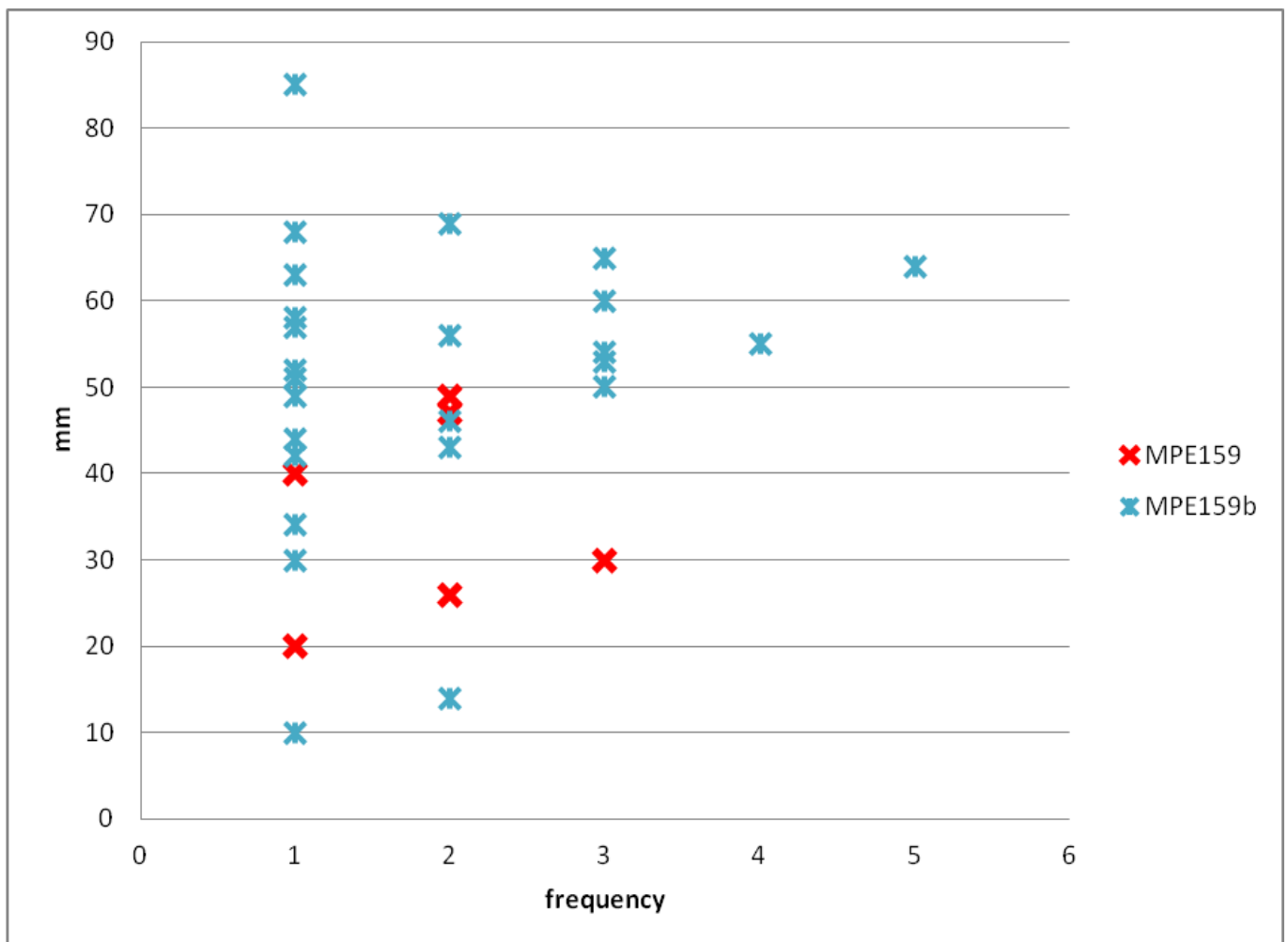
Both shell species indicate that shellfish gathering targeted all sizes. That is there was no selective gathering/harvesting for larger samples. Of interest is the significant difference in *S. capensis* between the two houses, as well as the fish remains (fig. 17). MPE159B has a noticeable more amount of *S. capensis* and fish than MPE159.

The shell middens represent a change in the general midden patterns we have noted in other excavations. One of the more obvious differences is in the high number of *Siphonaria capensis* and fish, which puts this site apart from other excavated sites. The living area of individual houses beside the shell middens also has well preserved material and *in situ* remains.

**TABLE 3: *PERNA PERNA* MEASUREMENTS AT MPE159**

	MPE159			MPE159b		
	Left	Righ	Total	Lef	Righ	Total
	t			t		
<b>average</b>	34.4	41.5	37.6	53	53	53
<b>median</b>	30	47	40	55	53	55
<b>max</b>	49	49	49	65	85	85
<b>min</b>	20	30	20	14	10	10
<b>STD</b>	12.9	4.7	11.1	13.4	15.1	14.2
<b>Deviation</b>						
<b>Total</b>	5	4	9	18	29	47
<b>Juveniles</b>	182			10		
<b>Juvenile</b>	<10c					
<b>Length</b>	m					

**FIG. 15: *P. PERNA* LENGTHS AT MPE159 AND MPE159B<sup>1</sup>**

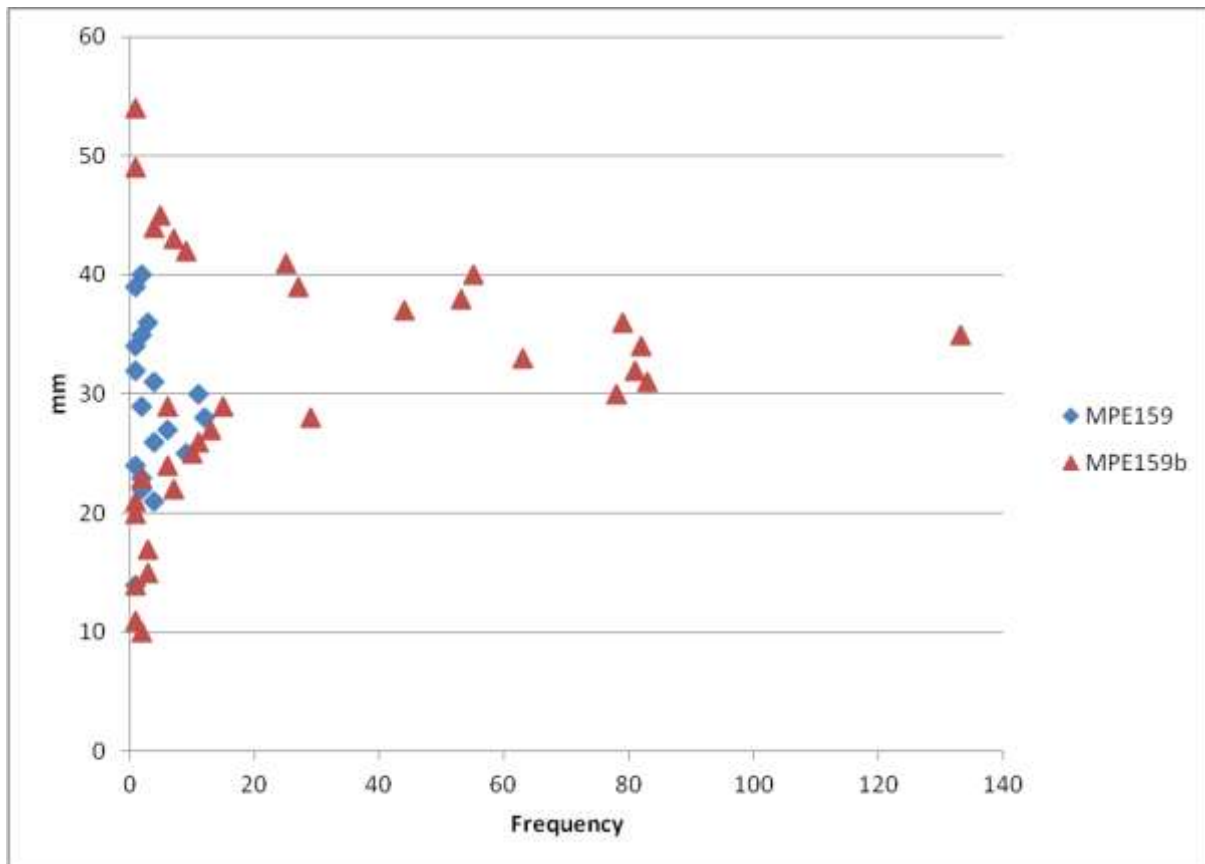


<sup>1</sup> Graph excludes juveniles

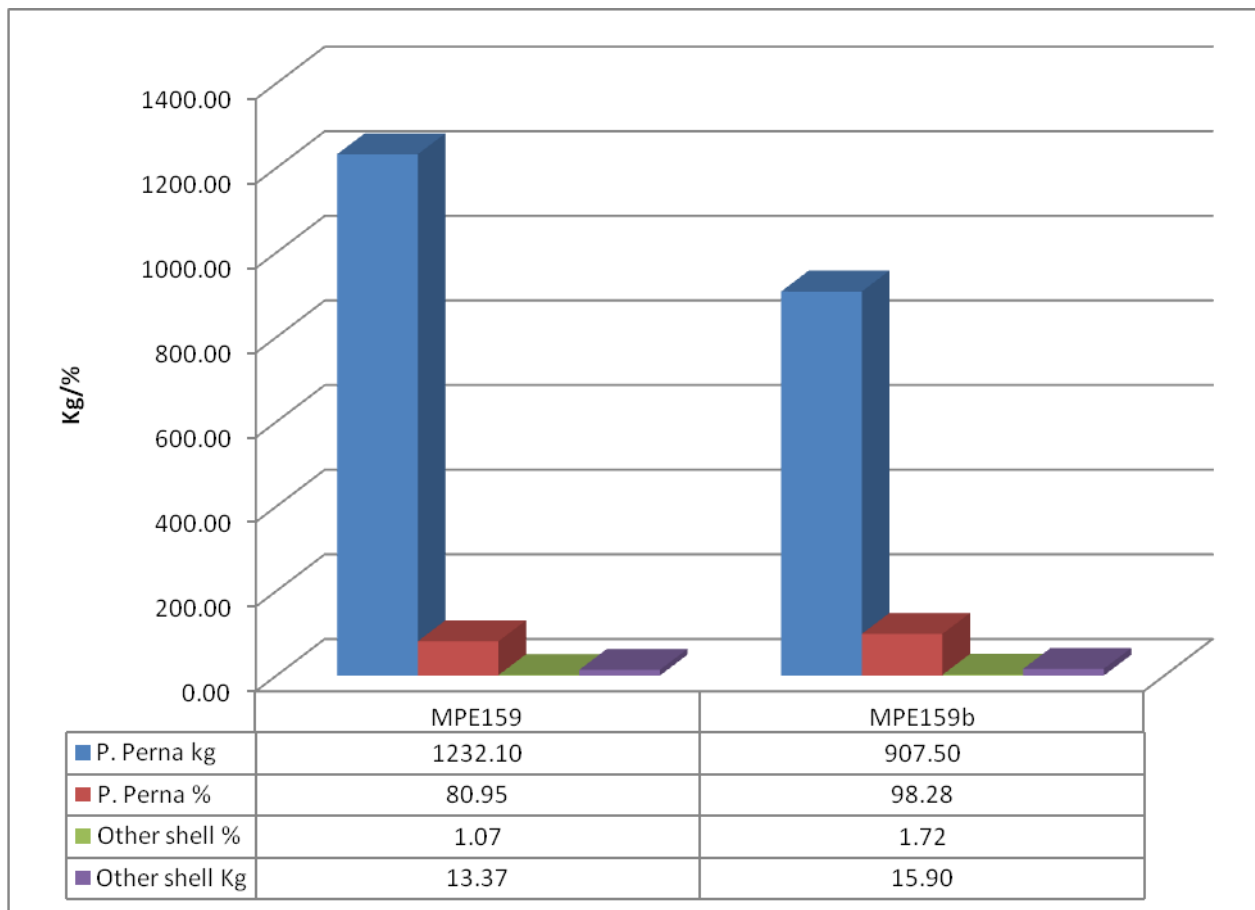
**TABLE 4: SIPHONARIA CAPENSIS MEASUREMENTS**

	MPE159	MPE159b
Average	28.7	30.71
Median	28.5	30.5
Max	40	54
Min	14	10
Std deviation	6.7	10.95
Frequency	68	941
not measurable		355

**FIG. 16: SIPHONARIA CAPENSIS MEASUREMENTS AT MPE 159**



**FIG. 17: SHELL WEIGHT AND PERCENTAGES TO TOTAL SHELL WEIGHT**



## GENERAL DISCUSSION

MPE159 and MPE159b yielded a lot of new information regarding sites in the general mining lease, and from that time period. The site dates from 1250 ACE – 1500 ACE. The site is predominantly Group 6 pottery. This is referred to as the Moor Park phase; however, there is a possibility that the two middens might be from two slightly different periods with some Blackburn material (Davies 1971, 1974, Maggs 1982, Robey 1980). Radiocarbon dates will be required to finalise this, but are not part of the projects budget.

MPE159 yielded a very large sample of fish bone and *S. capensis*, especially MPE159b. This is different to previously excavated sites that have oyster as the second main shell species.

The main cattle byre was not located during the excavations. However, we shall monitor the area until it is mined.

## CONCLUSION

A total of 4 new archaeological sites were recorded in 2019, and one site was excavated. Many of the sites from 2018 were also monitored during the year and sampled when necessary. The sites dated from the Early Stone Age to the early 20<sup>th</sup> century and form part of an increased sample size of archaeological sites in the mining lease. Early Iron Age sites appear to have decreased in occurrences, while there is an increase in Late Iron Age and Historical Period sites. This is, however, due to the location of the mining operations that are currently concentrating on taller dunes, which were favoured by the latter settlements. There should be an increase in Early Iron Age sites once MPE extends along the lower areas north of Sokhulu Reservoir.

The current heritage mitigation is still uncovering new finds, and increasing data to the general heritage of the area. The low numbers of recorded sites in 2019 is mostly due to fewer areas being cleared for mining, not due to a decrease in potential finds. Mine closures also played a part in less dune clearance.

Shell middens, and their surrounding areas, are always targeted as these yield better preserved artefacts and human remains. The increase in faunal remains assemblages is important for the eventual reconstruction of the animal species over time in this area. Smaller mammal and bird remains would also be informative, as would be the smaller shell species that are palaeo-environmental indicators. The coral fragments, limpets and even the *P. perna* have potential for scientific research if the isotopes are analysed, e.g. in sea temperature changes over time. The *P. perna* size measurements have use through not only indicating human harvesting patterns through time, but also the impact this may have made on the shellfish populations. This in turn would have relevance for more recent impact studies undertaken brown mussel exploitation KwaZulu-Natal and further afield. Some of the research (e.g. Proudfoot et al, 2006) suggests that there is a significant change in species size over time due to human exploitation. The archaeology tends to suggest that the opposite. It is important that the shell middens along the eastern seaboard are systematically sampled and excavated as these have relevance to contemporary research (see research undertaken by the Oceanographic Research Institute (<http://www.seaworld.org.za/research/>) as one example. The sampling and



excavations of these middens is also important in that dune mining removes the entire midden during operations, and thus the material is lost forever.

The proposed genetic DNA study with the Universities of Uppsala, Witwatersrand and Johannesburg is still in the initial stages of development. The aim of this project will be to sample the DNA of certain human skeletons to build up, and compare with, the national DNA database.

## REFERENCES

- Oceanographic Research Institute 2014. <http://www.seaworld.org.za/research/>
- Davies, O. 1971. *Excavations at Blackburn. South African Archaeological Bulletin* 26: 164-178.
- Davies, O. 1974. Excavations at the walled Early Iron-Age site in Moor Park near Estcourt, Natal. *Annals of the Natal Museum* **22(1)**: 289-323.
- Maggs, T. 1982. Mgoduyanuka: a terminal Iron Age settlement in the Natal grasslands.
- Proudfoot, L., Kaehler, S. McGarry, D. , Uppink, P. Aereboe, M and Morris, K. 2006 Exploitation status of infralittoral abalone (*Haliotis midae*) and alikreukel (*Turbo sarmaticus*) in the southern section of the Eastern Cape coast. *South Africa. South African Journal of Science* **102** 162 – 168
- Robey, T. 1980. Mpambanyoni: a Late Iron Age site on the Natal south coast. *Annals of the Natal Museum* **24(1)**: 147-164.

**APPENDIX A**  
**SITE RECORD FORMS**

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

SITE CATEGORY:

Stone Age	ESA:		MSA		L SA		SA	
Rock Art	Paintin gs		Engrav ings		Ot her			
Iron Age	EIA:		LIA		II A	<b>x</b>		
Historic al	Historic al Period:	<b>x</b>	Recent Past (last 60 yrs):	<b>?</b>				

Recorder's Site No.: MPD 109

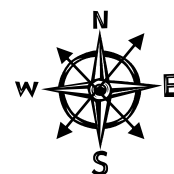
Official Name:

Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 33' 19.3" E: 32 21' 41.1" Alt: 111m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION



MPD 109 is located on the first dune cordon from the ocean.

SITE DESCRIPTION:

Type of Site: Open. Midden

Merits conservation: No. It is of low significance and no further mitigation is required.

However, we will continue to monitor it during surveys.

Threats: Yes

What threats: RBM Mining

RECORDING:

Digital pictures: Yes

Tracings:

Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 26/04/2019

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of a small brown mussel midden. There were undecorated potsherds on the surface.



## UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

**SITE CATEGORY:**

Stone Age	ESA:		MSA		LSA		ISA	
Rock Art	Paintings		Engravings		Other			
Iron Age	EIA:		LIA		IIA			
Historical	Historical Period:	<b>x</b>	Recent Past (last 60 yrs):					

Recorder's Site No.: MPE 179

Official Name:

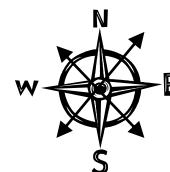
Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28' 31 43.9" E: 32' 22 44.3" Alt: 137m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

MPE 179 is located on the first high dune from the ocean.



**SITE DESCRIPTION:**

Type of Site: Open. Midden

Merits conservation: No. It is of low significance and no further mitigation is required. However, we will continue to monitor it during surveys.

Threats: Yes

What threats: RBM Mining

**RECORDING:**

Digital pictures: Yes      Tracings:

Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 16/01/2019

Owner:

References:

**DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.**

The site consists of a small brown mussel midden, about 4m x 4m, most likely a single occurrence. There were two undecorated potsherds on the surface, from different pots.

## UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY:

Stone Age	ESA:		MSA		L SA		SA	
Rock Art	Paintings		Engravings		Ocher			
Iron Age	EIA:		LIA	x	IIA			
Historical	Historical Period:		Recent Past (last 60 yrs):					

Recorder's Site No.: MPE 180

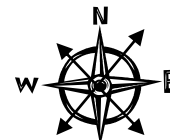
Official Name:

Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31. 501 E: 32 22.508 Alt: ?

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION



MPE 180 is located at the base of a hill between the Red Dunes and the main S dune cordon.

SITE DESCRIPTION:

Type of Site: Open. Midden

Merits conservation: Yes. It is of low/ medium significance and we will continue to monitor it during surveys.

Threats: Yes

What threats: RBM Mining

RECORDING:

Digital pictures: Yes

Tracings:

Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: March 2019

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of a surface scatter of artefacts, incl. Bovid bones, and thin walled pottery, coral and glass fragments of what used to be a Lemos bottle.

## UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY:

Stone Age	ESA:		MSA		L SA		SA	
Rock Art	Paintin gs		Engrav ings		Ot her			
Iron Age	EIA:		LIA		II A	x		
Historic al	Historic al Period:		Recent Past (last 60 yrs):	x				

Recorder's Site No.: RD 41

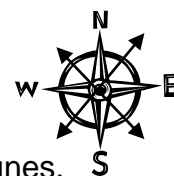
Official Name:

Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31' 34.3" E: 32 22' 12.6" Alt: 48m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION



RD 41 is located on the second dune cordon from the ocean, in the Red Dunes. S

SITE DESCRIPTION:

Type of Site: Open. Midden

Merits conservation: No. It is of low significance and no further mitigation is required.

However, we will continue to monitor it during surveys.

Threats: Yes

What threats: RBM Mining

RECORDING:

Digital pictures: Yes

Tracings:

Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 24/04/2019

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.



The site consists of one, small brown mussel midden and undecorated pottery on the surface.