The Archaeological Excavations at Braamhoek Shelter 2

For Eskom: Megawatt Park
Project: Braamhoek Pumped Water Scheme

Date: 26 October 2006

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EXECUTIVE SUMMARY

Umlando was contracted to undertake the archaeological excavations at BS2. The excavations were phased over a 2.5 year period. A report was submitted at the end of each phase, followed by a meeting at Megawatt Park. The need for the next phase was justified. This report serves to finalise the excavation and summarise the work previously undertaken.

The aims of the excavations were to assess the archaeological potential of the site, beyond mere test-pit excavations. The aims of the excavations were to:

- *Excavate approximately 30 squares to bedrock*
- *determine the full extent of the archaeological deposit, i.e. does it extend beyond 2m in depth*
- *determine the degree of preservation of organic remains through time and space*
- *determine the degree of preservation of features through time and space*
- *determine the significance of the site in relation to other sites in the general area*
- *suggest further mitigation if needed*
- *comply with the South African Heritage Act of 2002.*

Our original management plan was for systematic excavations of 30 1 m x 1m squares. We believed that the site will extend at least to 2m below the surface and possibly contain Pleistocene and/or early Holocene deposits. The sequence from BS2 can be used to compare the core samples taken from the wetland near the cave. That is, the faunal remains and charcoal identification can be used to compare the results from the cores regarding palaeoenvironmental information. Several samples were submitted for radiocarbon dates in the January phase in 2006.

The excavations at BS2 consisted of twenty-seven 1m x 1m squares to depths of between 1.40 m and 2.30 m. The excavations recovered well-preserved organic remains, such as charcoal and faunal remains. These occurred throughout the deposit and surprisingly did not decrease in the lower deposits. The formal tools from BS2 varied in percentages through time; however, all units had a very high total stone tool assemblage. This is the highest percentage of formal tools from published sites (from similar periods) in Kwa-Zulu Natal.

BS2 is of medium-high archaeological significance. We believe that the excavations have yielded an adequate sample size for archaeological material. We propose that no further mitigation is required.

This report describes the above results and notes the legal aspects regarding archaeological sites. The South African Heritage Act of 2002 protects heritage sites. Eskom is required to obtain a permit for the destruction or damage of BSMC, BS1, and BS2. The dam construction may not begin unless a permit from the South African Heritage Resources Agency (SAHRA) is obtained, and this would be part of the ROD requirements. The client may request a peer review of the report via SAHRA.

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INTRODUCTION

Umlando was contracted to undertake the rescue excavations of three sites that will be affected by the Braamhoek Pumped Water Storage Scheme, in terms of the ROD. These sites will eventually be flooded and thus require some form of mitigation in terms of the South African Heritage Resources Management Act No 25 of 1999.

The mitigation has occurred over several phases. Phase 1 consisted of the initial survey undertaken by the National Cultural History Museum (1998). This survey recorded Bedford Shelter Main Cave (BSMC)[1] and noted that it may have an archaeological deposit and thus require test-pit excavations. The survey did not record BS1 and BS2

Umlando was requested to undertake the mitigation of BSMC. Phase 2A consisted of the test-pit excavations of BSMC in February 2004. We noted two other sites near BSMC during the course of these excavations. These sites are Bedford Shelter 1 and 2 (BS1 and BS2). The main conclusions from Phase 2A were that BSMC would require further excavations and that BS1 and BS2 should have test-pit excavations to determine their archaeological significance.

Phase 2B included the excavations of BSMC and the test-pit excavations from BS2. These excavations were undertaken over two, two-week ‘seasons’, in July and August 2004. We were also requested to resurvey the area to be affected by the dam to ensure that other archaeological sites had not been overlooked during the 1998 survey. The conclusions from this phase were that the excavations at BSMC were complete, and BS2 requires further excavations. The test-pit excavations at BS1 were conducted in November 2004 and are complete.

Phase 2C consists of the extended excavations at BS2. These excavations are to determine the depth of the deposit, extent of preservation of organic remains and features, and if further excavations are required. These excavations were placed into two phases. The first phase was to attempt to cover a quarter of the cave’s deposit (i.e. 15 squares) to a depth of 2m below surface, or bedrock (whichever occurred first). The results of these excavations would determine if further excavations were necessary. Phase 2D consisted of finishing the excavations to a level that we felt appropriate. To this end a total of twenty-seven squares had been excavated to maximum depths at BS2.

AIMS

The aims of the excavations are as follows

- Reach bedrock or 2m of deposit – whichever may occur first

[1] The National Site Number for BSMC is 2829BA2.

- ❖ Complete excavations of a significant number of squares so as to salvage enough material for future research. The shelter will be drowned by the dam and thus no further research will be available.
- ❖ Assess the relative degree of preservation of organic remains in both spatial and temporal terms
- ❖ Does the high percentage of formal tools from the test-pit excavations continue through to the larger excavations, and other sites?
- ❖ Does the site have a higher density of stone tools in comparison to other sites?
- ❖ Does a spatial component exist at the site, and does it change through time?
- ❖ Does more of the site require further excavations, and if so, in which direction should the excavations proceed.

Some factors have affected some of our aims. These are:

- ❖ Goats regularly visit the shelter, especially during rainy and cold days. The goats arrive in large groups and stand on the sections, or sides, of the deposit. Alternatively the goats jump across the squares. This activity results in the sides collapsing, even when we had barricaded the surface with boulders and the deposit with sandbags. The nett result is that the section labels are lost as the sides subside. We then need to redraw the sections from our notes and replace the markers.
- ❖ Goats also damage the deposit when they break the sections. This needs cleaning up, and if possible, we try and relocate the disturbed areas to a layer or unit. If this is not done, then al artefacts from the collapsed sections have no meaning as they are out of their stratigraphic context.
- ❖ Humans have also visited the site and used Sq. A1 as a latrine. This resulted in collapsed sections and contaminated samples. Square A1 will not be excavated in the future.
- ❖ Heavy summer rains result in very wet deposits, and heavy rains fell in the area at the end of 2005. This in turn results in two main things. First, the excavated material is more difficult to sieve; second, the deposit changes colour and features that may normally be observed either change colour or disappear. E.g. Sq. D4 was excavated when it was very wet, and we thought we had new layers. When we excavated the adjacent squares we realised that these were not new layers and that we had, in 2 instances, gone through a layer. We then stopped excavating in this square.
- ❖ Several large boulders had to be removed by hand (with hammer and chisel) without damaging the rest of the deposit. The manual removal took approximately 1 day per square per person. The volume of the boulders are included in our total site volume

A fence was erected around the entrance to the site in early 2006. Since then no non-natural disturbances at the cave occurred. The final excavations occurred in the mostly dry season and this assisted in better excavations.

Eskom had contracted another archaeological company to assess our work. This was undertaken despite our concerns of proper process, and formal notification that the correct procedure was not followed. The review report contradicted our report(s). The reports were then submitted to SAHRA who commented on the reports. We submitted the review report to the Association of Southern African Professional Archaeologists (ASAPA). The letters from SAHRA and ASAPA regarding the reports are attached in Appendix A. Despite the negative review report, we discussed future excavations with ESKOM. Eskom agreed that we continue the mitigation as originally planned.

METHOD

All excavation squares are in 1 m x 1m squares and were mapped in relation to the cave wall and dripline. The stratigraphies from all of the excavated squares were drawn, although only a few are presented in this report. The stratigraphic drawings in the report are used to show a cross section of the site.

All material from the site was sieved with 6 mm and 1.5mm sieves. A preliminary sort occurred on site while more detailed sorting and curation was undertaken at Umlando's offices. Preliminary sorting entailed removing unwanted material such as roof spalls and excessive soil, and minimal categorisation of artefacts. Detailed sorting entails cataloguing and analyses of the artefacts according to their categories. These are curated according to the standards of the National Museum, Bloemfontein: the institute where the material is permanently stored.

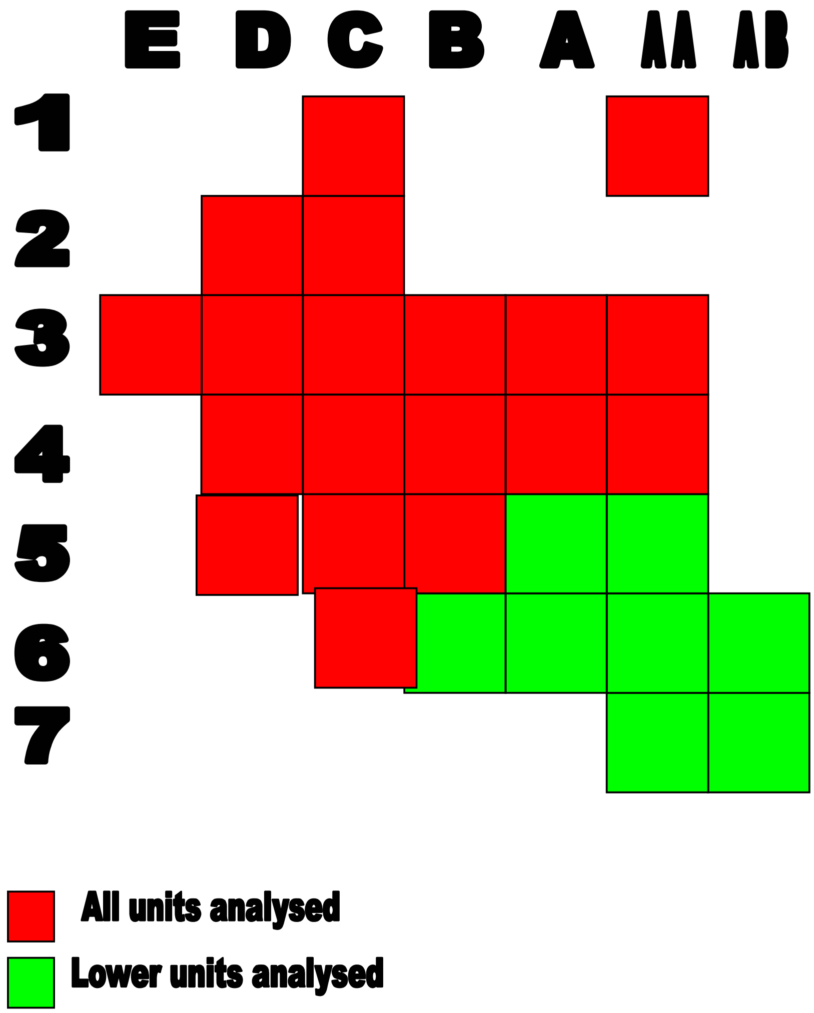
Bucket counts were kept from all excavations. Bucket counts are used to indicate volumes of deposit, and thus relative densities of artefacts. The volumes and densities of artefacts have been not used in this analysis, as it is a basic analysis of the excavations: we refer to percentages within the Unit. The bucket counts are however listed in Table 1 and show the volume of deposit per site. The volume of the deposit is however misleading. The large boulders were included in the total volume. Furthermore, some layers, especially those in Unit 9 and the eastern side of Units 5 – 8 had a high density of roof spalls. These were placed inside the excavation buckets. The densities are thus not proper representations of the volume of sand, rather the volume of sand and spalls. The occurrences of spalls are noted in the field notebook(s). The volume is for the entire excavation, however the complete artefactual content of the site has not been included in the report as it is still being analysed.

The analysis for this report consists of a sample of the site. Due to time constraints we only analysed an approx. two-thirds of the excavated material. The artefacts from 19 squares and the lower units from another 8 squares have been analysed (fig. 2). This analysis is representative of the deposit.

TABLE 1: VOLUME OF DEPOSIT FOR THE BRAAMHOEK SITES

Site	Small buckets	Large buckets	Litres per Small bucket	litres per large bucket	total litres	Volume/m^3
BSMC	192.91	206.43	13	15	6010.38	6
BS1	111.48	112.70	13	15	3364.46	3.4
BS2	229.48	3134.41	13	15	49999.35	50

FIGURE 2: SQUARES USED IN THE ANALYSES OF BS2 REPORT



STRATIGRAPHY & EXCAVATIONS

BS2 has well defined stratigraphy in most of the squares: ~620[2] different layers and/or features were removed (appendix B lists these layers). The squares varied in depth: the deepest square was excavated to ~2.30m deep. All excavated squares, except two eastern squares, were excavated to bedrock. The site sloped downwards from north to south, and east to west. The deposit drops an average of 40cm per meter from east to west. The posterior excavations were thus shallow (at 1.40m), while the anterior excavations were rather deep. Bedrock was defined by a layer of rock that was fragile, but continuous across the square. In Some instances the bedrock was not as friable.

The western squares had a large rock slab across several of the squares. This slab was ~0.30m thick, 4-5m long and ~1m wide: it often covered the entire square. This boulder extends further south and north. This boulder was removed by breaking it in smaller parts with a hammer and chisel (no industrial saws/cutters were available). The boulder effectively divided the site into two sides for the upper 80 cm. Only Sq. E3 was excavated for the outer layers. Unit 2a is restricted to the eastern side of the boulder.

We have grouped the various excavated layers into ten main units. These units refer to a group of layers in the deposit that may relate to a similar period, even if it is over a few hundred/thousand years. These unit groupings are not final and will be reassessed as further excavations occur.

Some Units are more complex than others. The upper (Units 1- 3) and middle (Units 4 - 7) units are more complex than the lower units. They have more layers and features that often intrude on each other. The lower units, especially Units 8 - 9, are very straightforward, and were essentially excavated in 5 – 10cm spits. Thus while the upper units take longer to complete, the lower units can be removed much faster. For example, we removed the most of the GBrWS[3] layers in 5 days from four squares (~60cm of deposit), whereas the upper units may take 2 weeks to excavate this depth.

Figures 2A - B show the various strata in the shelter[4]. These two drawings are along the eastern and northern sections and give representative cross section of the site. Some of the layers do not correspond with the adjacent squares. This is because of the damage to the sections by humans and goats. In some of these instances we preferred to start afresh in a square and correlate the layers at later stage.

[2] More layers will occur later, as we have not undertaken a complete analyses
[3] All abbreviations in (capital letters) refer to the names of specific layers.
[4] We have omitted labels for the layers, as they would not be legible at this size.

FIG. 2: DEPTH (METERS) OF EXCAVATED SQUARES
Figure 1: Squares used in the analyses of BS2 report

	E	D	C	B	A	AA	AB
1			1.80		0.9		
2		2.30	2.30				
3	0.5	2.30	2.2	1.7	1.5	1.4	
4		1.6	1.6	1.5	1.4	1.4	
5		0.15	0.35	1.5	1.4	1.4	
6			0.1	1.5	1.4	1.35	1.3
7						1.4	1.4

Depth in meters

Fig. 2a: East sections of BS2 – C-line

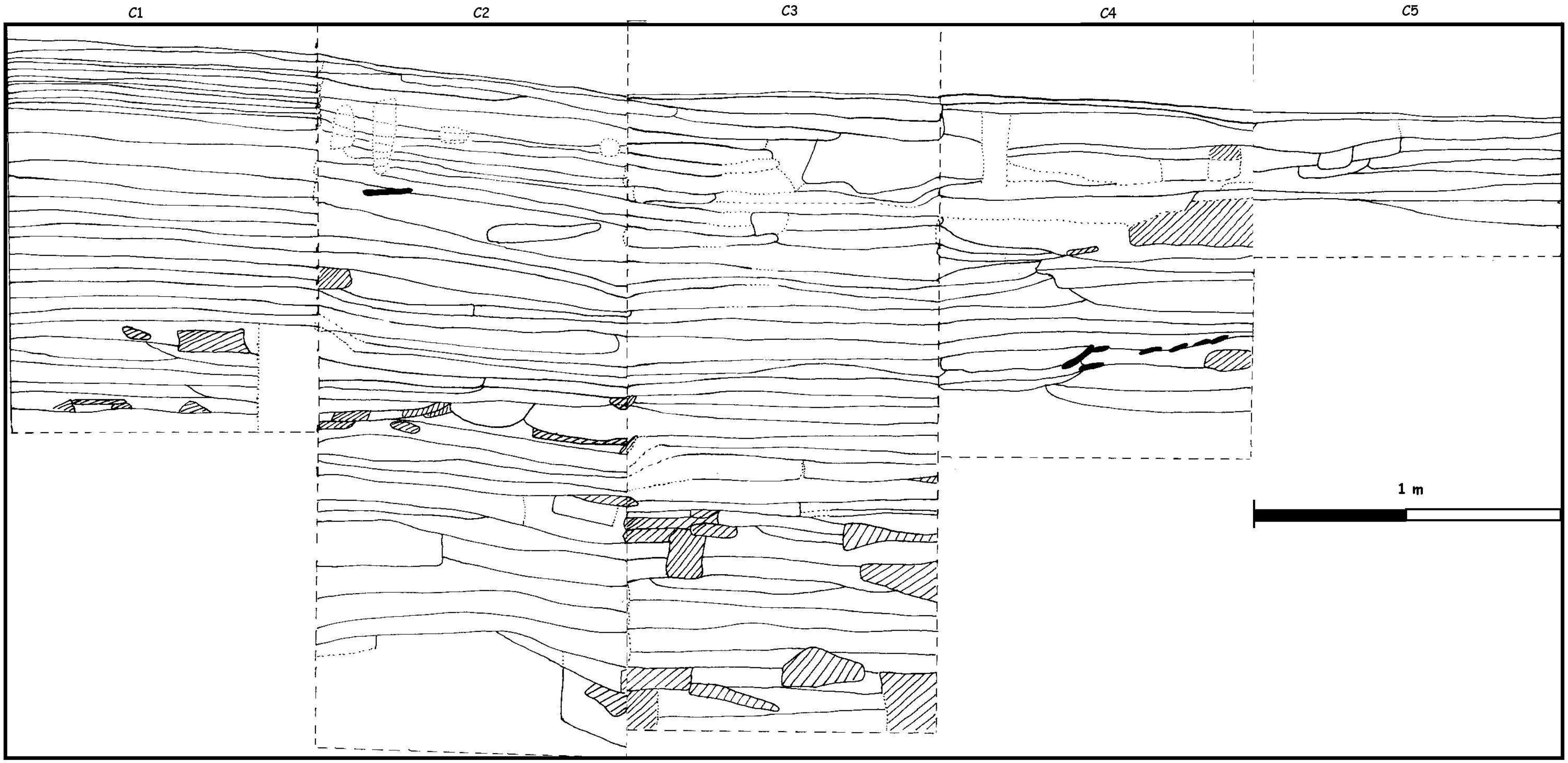
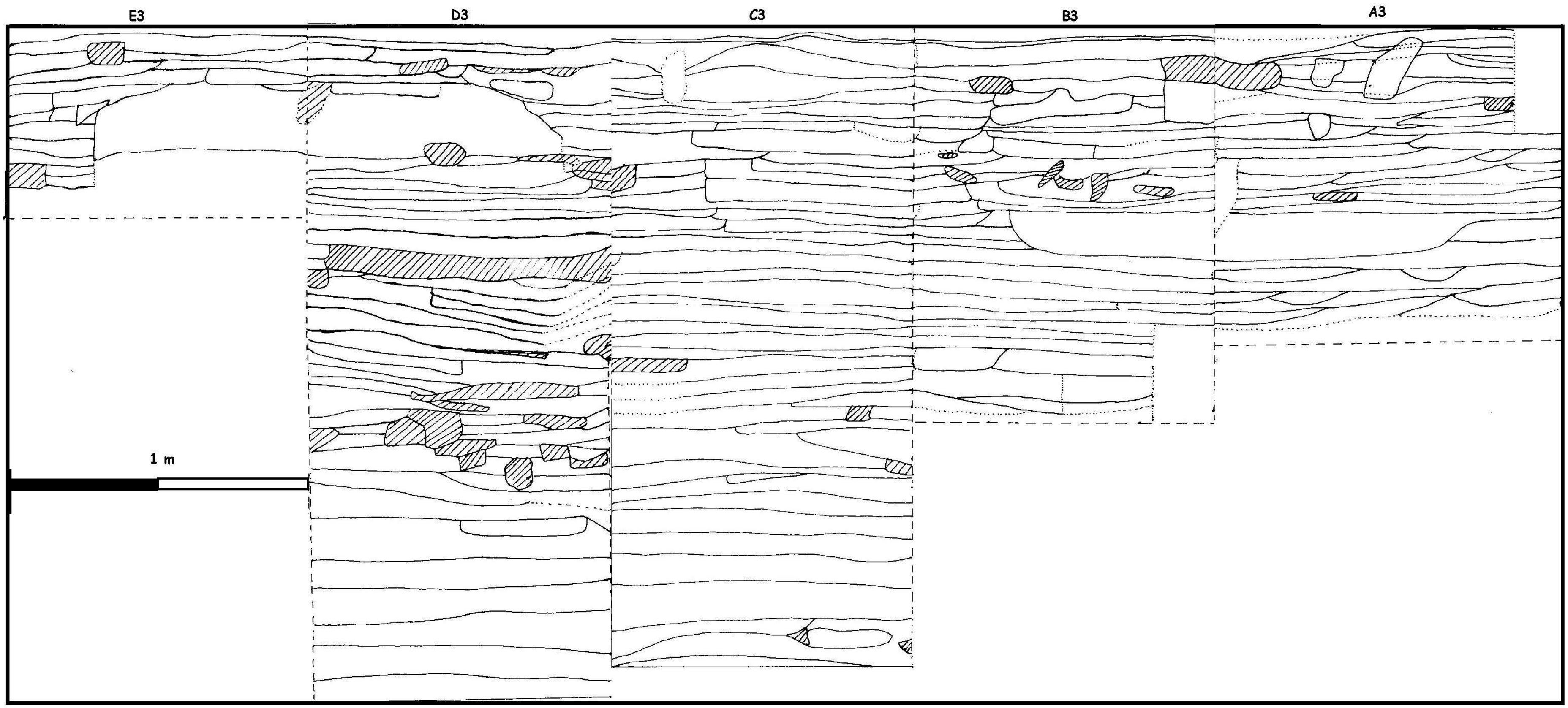


FIG. 2B: NORTH SECTIONS OF BS2 – 3-LINE



Unit 1

Unit 1 consists of the upper layers of the deposit such as the surface scrapings, dung crusts, aeolian sands. A general area of rodents' nests is also included in this unit. The main layers (Compacted Black[Brown] Sand: CB[Br]S) are very compacted hard clay like soil, with much rodent dung. It appears that CBS may have been a nesting area. The other layers were also compacted but more brown in colour (some of the CBRS layers) and less disturbed by rodents and other microfauna.

A few hearths occur in this upper Unit and tend to be restricted to the southern part of the excavations.

Unit 2

Unit 2 consists of several hearths and hearth-like features. The main hearths are surrounded by brown-black soils. These soils tend to have varying amounts of charcoal and bone (some of which is burnt). The main hearth in this Unit is Hearth 1. Hearth 1 is a deep hollow with alternating layers of white ash and charcoal. Below this hearth is a layer of sand that was burnt orange by the heat from the hearth: OBH1. Smaller lenses surround it, e.g. Soft Black-White Sand: SBWS, (Fine) Soft Brown Sand (FSBS), Fine Soft Grey Sand (FSGS). These tend to be brown-black sandy layers, with some white ash. The SBWS layers are defined by being layers of brown-black sand with a whiter layer underneath it. Each combination of these two layers was removed as one SBWS layer. The FSBS and FSGS layers were to the east of Hearth 1 and were more brown-ashy than the SBWS layers. A main rodent burrow criss-crosses this unit. These burrows were excavated separately (Rats, Rodents, MM[5] and Mickey).

The TBS (Thin Black Sand) and TBSSP (Thin Black Sand with Spalls) layers are related to the SBWS layers, but occur along the western side of the large boulder. These layers are similar to SBWS; however they lack the white/grey ashy sand. These tend to be thin layers of black sand between layers of brown sand. Below the TBS, the layers of spalls replace the brown sand and are called TBSSP.

Several hearths are located in the southern end of this Unit. These hearths tend to have well preserved charcoal and faunal remains as well as stone tools.

The rodent activity tends to stop at the base of this unit. The large boulder mentioned above lies on the base of this Unit.

These layers lie on Unit 2A.

[5] MM = Mickey Mouse, not Mike Mentis!

Unit 2A

Unit 2A is a small unit consisting of 5 layers: SBBS, ABSBBS, ASGC, and Spit 1. These layers have a different texture and colour than those in Unit 2 and are possibly separated by the large boulder. These layers tend to have less charcoal, are less hearth-like. The ASBSS and ASGC layers are have more spalls and are more compacted than the upper layers. SBBS appears to be very different from the hearth-like SBWS layers. Spit 1 from Square A1 is probably associated with SBBS in the C-B squares. Unit 2A may be included with Unit 2 at a later stage.

Unit 3

Unit 3 consists of very black sand, alternating with brown sand in areas. The main layers are the Black Charcoal Lens (BCL) layers and the associated Soft Compacted Brown Sand (SCBS) layers. Spits 1 – 6 from square C1 correlate with the BCL and SCBS layers from Squares C2, C3 and B3.

The BCL layers are characterised by a high concentration of charcoal and bone (fragments) in a dark black soil. The BCL layers extend over a large area of the excavated squares; however the main BCL layer (BCL3) appears to be a hearth pit, with the other BCL layers surrounding it. The BCL layers rest on the SCBS/FGBS/CBRS layers. The BCL and SCBS appear to be two separate layers that abut each other in Square C3.

The layers in Unit 3 become thicker to the south and

Several defined hearths occur in this unit, and tend to be concentrated along the eastern side of the excavations.

Unit 4

Previously all of the LBBS layers were combined, however we have now divided them as the excavations extended. The layers in this unit are mostly the Loose Brown-Black Soil (LBBS) layers. These are LBBS 1 – LBBS4 and a few hearths. One of the main boundaries between Units 3 and 4 is a layer of spalls between Spit 6/BCL 6/ and LBBS/Hard Clay. This layer is called SPALLS2. Most of the LBBS occur over the entire excavated squares and does not have the separation of BCL and SCBS layers. LBBS is characterised as being a more loose soil than SCBRS and BCL, less ashy/charcoal and with more spalls. These layers do not appear to be hearths *per se*, but a general deposit. The exception is LBBS2 that is characterised by a layer of burnt (white) bone. They also appear to be much older than the upper layers. Only LBBS2 had a substantial amount of bone. The LBBS layers appear to thicken towards the east of the excavation, as they form a basin shaped feature, e.g. LBBS5/5A. The Hard Clay layer from Sq. B3 is similar to the Spit 6 layer of square A1. Thus Spits 6 – 9 from Square A1 probably correlate with the LBBS layers of squares C3/B3/C3, while Spits 7 – 14 from Square C1 also relate to the upper LBBS layers. The excavations between these squares will be able to correlate these layers.

Unit 5

Unit 5 includes LBBS5 – LBBS8. The top of LBBS6 is separated from LBBS 5 by a thick layer of spalls. LBBS 7 is another series of hearths with the brownish LBBS8 layer below it. The layers tend to be alternating layers of brown to black sand where the black sand is the remains of hearths. Some layers such as are in fact large layers of several hearths that have merged over time. Our strategy in these instances was to divide the square into smaller quadrants and remove each quadrant separately. The soil is damper in these layers and this may relate to the low incidence of organic remains.

Unit 6

Unit 6 consists of the mid-lower LBBS layers (LBBS9 – 11) and a few large hearths. This unit has an almost sterile brown sandy layer near the top and to the north (LBBS11, OBCYS and LBBS13), and rests on the very brown layers of Unit 7. Unit 6 consists of a few large hearths in, and amongst, brown sandy layers. While the soil is very wet in these lower layers, the preservation of organic remains is relatively good.

Below this is a thick layer of hearths that form part of Unit 6. The LBBS 10 and has large spalls at the base and appears to be the end of this Unit. The LBBS10 and COBBr layers consist of a series of hearth that have merged into a compacted layer.

Unit 7

Unit 7 consists of the lower LBBS layers (LBBS 12 – LBBS16), and several other large hearths that lie just above bedrock. These hearth layers are distinguished from the upper layers in that there is an almost inverted rate of preservation. These hearths are noted for an increase in stone tools and bone that has been burnt white. The entire Unit is one of a series of well preserved and defined hearths and an apparent increase in quartzite and shale stone tools.

Unit 8

Unit 8 consists of the “last” layers of the site. We have excluded these layers from Unit 7 as they include the earliest occupations and artefacts that have been filtered down from Unit 7. The upper layers include Rotten Bedrock (RB) and Gritty Brown Wet Sand (GBrWS 1-2.) that is substantially different in texture and colour to Unit 7. A few hearths still occur in the GBrWS layers, and these do not lie on bedrock itself. They are also stratigraphically level with RB.

Unit 9

Unit 9 consists of the GBrWS 3 – 9 layers that were removed in spits of 5 cm to 10 cm. A few small very hearths were removed from these layers. The previous season’s excavations stopped at GBrWS8:

bedrock was reached in October 2006 at GBrWS9. This layer is on average 15cm thick. These layers are confined to the C and D squares, and do not extend to south. They are also noted for a dramatic drop in the number of artefacts.

FEATURES

Most of the features from this site are hearths. We would expect other features, such as bedding, to occur along the cave wall.

A total of 75 well defined hearths were excavated from the site. Other hearths were excavated however they tend to be larger and formed individual layers (e.g. LBBS2, LBBS 10 and LBBS 12). These hearths occurred in all of the units and varied in size. Some hearths, such as Hearth 22 and Hearth 23 were adjacent to each other and may be contemporaneous. Other hearths were on top of each other resulting in alternating layers of ash and charcoal. These hearths were given a hearth number and then followed by a "Below" prefix, e.g. Hearth 27 and Below Hearth 27. Some of the hearths burnt at high temperatures and either left a very white ashy deposit, or they burnt the layer below into an orange colour. Hearth 35 (and 35a) is a large hearth in Sq. A3. It covered just under half of the square and was relatively thick, with a white ashy soil at its base. These larger hearths tend to truncate one or several layers.

The lower Units (specifically Unit 7) yielded a large series of hearths that had sand in various stages of being burnt (black, brown, orange and white). These lower hearths formed large basin extending over a few squares.

Hearths tend to have high concentrations of faunal remains and stone tools adjacent to them. These hearths are thus human foci in the cave.

One hearth was unique: HEARTH in TBS, in Sq. D4, Unit 1. This was a small hearth that had been dug into the large boulder.

Charcoal Circle

This feature is located in Sq. C3 at the base of SBWS and it extends into SBWS2 (Unit 2). The feature consists of a small round circle of charcoal ~10 cm in diameter. The charcoal circle itself is 0.5 – 1 cm thick with an ashy layer on the top and a brown soft clay-like deposit below. The feature is 6 cm deep. There is a high density of bone in this feature.

Charcoal Concentration In BCL6

This feature is located in BCL6, Sq. C2 (Unit 3). It is a small area with a high concentration of charcoal. It probably forms part of the BCL hearth complex.

Stone Tool Caches

A cache of stone tools was located in SBBS2, Sq. B5. The cache is ~4cm x 8 cm in size and had eight stone tools. These tools are:

- Fossil irregular core
- Fossil single platform core
- Backed blade/flake
- CCS utilised flake
- 2 x CCS Bipolar core
- Fossil adze

Similar caches were observed in the upper Units of Sq. A3 and AA3

BCL Hearths

BCL3A is located in Sq. B3, Unit 3. BLC3A is a small depression of dark sand along the northern part of the square. It has a low density of artefacts and will probably expand into Sq. B2.

BCL5A is located along the southern sections of Sq. B2. It is a small basin of dark sand with a few stone tools and some bone. It may be the base of BCL5, however like BCL3A; it will probably expand when Sq. B4 is excavated.

The entire BCL-series appears o be one of a main basin-shaped depression with numerous fires located inside it. Some of these smaller hearths truncate each other

LBBS2

LBBS2 is a hearth with the highest concentration of bone of all layers. The bone has been burnt white, and hardly any charcoal occurs. A few stone tools occur in this layer.

Spall Circle

SPALL CIRCLE occurs in Sq. C4. It consists of an upper layer of roof spalls in a semi-circular pattern. Below this is a thicker brown layer of sand, followed by an ashy grey-brown layer. The feature is not a hearth, and appears to continue further down. More of it will be uncovered in future excavations.

General Features

The excavated layers, specifically those in Units 2, 3, 4 and 7, tend to be a series of hearths. The hearths are alternating layers of brown-black sand and lighter ashy sand: the SBWS layers. The BCL layers tend to have a higher concentration of charcoal and bone, and less ash.

The LBBS layers tend to be alternating layers of hearths and possible decreased human activity. This is seen in the alternating black and brown layers.

FINDS

One of the aims of the report is to assess inter site significance, and not intra-site specific. Thus, artefacts are analysed in terms of their frequencies and percentages in relation to similar finds, and not their relative densities. This is also due to time constraints for the report.

The Finds are summarised in Table 2.

BONE

A total of 34.3kg[6] of faunal remains were recovered from the entire excavations. The faunal remains from BS2 are mostly fragmented and burnt, especially from approximately 30 cm downwards. The upper 30 cm tends to have more complete, and diagnostic, bone that is either burnt or unburnt. The exception to this is the SIB5, Hearth 134 (Pit), and SRUB layers that tended to have complete bone.

The occurrence of the large amount of bone from Unit 7 is much unexpected. Some layers had 1 – 2kg of much burnt bone. These layers were noted for the high densities of bone. These lower layers began along the 3-4 line and increased as we excavated south, i.e. towards the stream that runs through the cave. We were probably fortunate in finding the ‘central’ area of these hearths.

Most of the faunal remains appear to be that of the bovid family, and probably to the antelope family. The bovid remains vary in size from the small bovids (e.g. sheep and duiker size) to the larger bovids (e.g. eland and domestic cattle). Medium sized bovids (e.g. oribi) also occur at the site. The occasional human-like bone was observed in the deposit. These were teeth and arm bones that probably belong to other primates, or even *Sus spp*

Microfauna (e.g. rodents, small reptiles, etc.) do occur in the deposit, but in small amounts, and are probably post-depositional. Occasionally burnt microfauna remains were observed in the hearths.

Other faunal remains include a variety of birds, fish and (wild/domestic) pig. These are however in low frequencies and would need to be identified by a specialist.

Most of the faunal remains occur in the middle units and lower hearths. These units tend to be the hearth-like units and explain the burnt nature of the faunal remains. Hearths 140 and 139 (unit 7) have the highest amount of bone at the site. This is followed by LBBS2-lower (Unit 4). Both of these hearths are large and extend over at least ~5 squares.

The preservation factor is discussed below with ‘CHARCOAL’.

CHARCOAL

A total of 6.6kg of charcoal were recovered from the excavations. Charcoal is important for radiocarbon dating and tree species identification (and thus environmental reconstruction). Most of the charcoal occurs as small fragments, less than 10 mm. Larger fragments do occur, and these tend to be removed directly from the excavations and sampled. That is, as little as possible external contact is made with the charcoal. Most of the charcoal does not appear to be large enough for palaeoenvironmental data.

Table 2 illustrates the amount of charcoal per unit in relation to the total amount of charcoal. The higher percentages in Units 1, 2, 3 and 4 are a result of the many hearths in these units. The eastern squares also had better preserved hearths and almost double the amount in the first meter of the excavation. Unit 1 and 2 had the highest concentrations of hearths. These were well defined hearths of charcoal and ash and some bone. The hearths from Units 3 and 4 are layers of charcoal-ash, with depressions indicating the location of the hearths. They are thus not as well defined, nor as well preserved, as the upper units.

The interesting point is that while charcoal decreases in the lower units, the faunal remains increase. If preservation of organic remains was a factor, then both charcoal and bone should have been similarly preserved. The chemical content of the rock and/or water may be a factor: high levels calcium increase bone preservation and calcium carbonate may occur in various forms at the site.

Faunal remains and charcoal were originally weighed on a scale that began at 10g. Smaller amounts of charcoal were thus estimated in relation to the 10g. We acquired an electronic scale in 2006. The difference of a few grams would not make a large overall difference.

TABLE 2: FREQUENCY OF ARTEFACTS PER UNIT FROM BS2

Frequency												
Units	**1**	**2**	**2A**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**unprov**	**Total**
Bone (grams)	2715.1	3912	58.5	4916	5290	1901.8	2695.3	11456.55	592	496	279	**34312.4**
Charcoal (grams)	1144.3	2054	12.35	777.8	1051	580.1	593	203.9	24.5	87.6	60	**6588.7**
Ochre	200	372	6	359	186	109	232	290	80	21	7	**1862**
Worked Ochre	0	0	0	1	0	0	1	0	0	0	0	**2**
Shell	0	0	0	1	0	0	0	0	0	0	0	**1**
Soil/dung sample	3	10	0	6	11	3	8	11	0	1	0	**53**
Stone Tools	11597	15283	269	8336	4570	3403	7285	17946	2956	2412	465	**74522**
Bone Point	3	0	0	1	1	0	0	1	0	0	0	**6**
Figurine	0	1	0	1	0	0	0	0	0	0	0	**1**
Ceramics	147	24	0	0	4	0	1	0	0	2	7	**185**
Historical Glass	1	1	0	0	0	0	0	0	0	0	0	**2**
Worked Stone	2	2	0	0	3	1	4	1	1	0	0	**14**
Polished Shale	6	16	0	17	3	3	2	4	0	0	0	**51**
Beads	2	2	0	0	0	0	1	0	0	0	0	**5**
Botanical	0	0	0	0	0	0	0	1	0	0	0	**1**
Worked Soapstone	0	0	0	5	0	0	3	0	0	0	0	**8**
Percentage (in relation to totals)												
Units	**1**	**2**	**2A**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**unprov**	**Total**
Bone (grams)	7.9	11.4	0.2	14.3	15.4	5.5	7.9	33.4	1.7	1.4	0.8	**100.0**
Charcoal (grams)	17.4	31.2	0.2	11.8	16.0	8.8	9.0	3.1	0.4	1.3	0.9	**100.0**
Ochre	10.7	20.0	0.3	19.3	10.0	5.9	12.5	15.6	4.3	1.1	0.4	**100.0**
Worked Ochre	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	**100.0**
Shell	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**100.0**
Soil/dung sample	5.7	18.9	0.0	11.3	20.8	5.7	15.1	20.8	0.0	1.9	0.0	**100.0**
Stone Tools	15.6	20.5	0.4	11.2	6.1	4.6	9.8	24.1	4.0	3.2	0.6	**100.0**
Bone Point	50.0	0.0	0.0	16.7	16.7	0.0	0.0	16.7	0.0	0.0	0.0	**100.0**
Figurine	0.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**100.0**
Ceramics	79.5	13.0	0.0	0.0	2.2	0.0	0.5	0.0	0.0	1.1	3.8	**100.0**
Historical Glass	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**100.0**
Worked Stone	14.3	14.3	0.0	0.0	21.4	7.1	28.6	7.1	7.1	0.0	0.0	**100.0**
Polished Shale	11.8	31.4	0.0	33.3	5.9	5.9	3.9	7.8	0.0	0.0	0.0	**100.0**
Beads	40.0	40.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	**100.0**
Botanical	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	**100.0**
Worked Soapstone	0.0	0.0	0.0	62.5	0.0	0.0	37.5	0.0	0.0	0.0	0.0	**100.0**

OCHRE

Ochre is defined as material that has a high iron oxide (yielding a red or yellow colour) or (possible) manganese dioxide (yielding a black colour) content. These nodules vary in their geological composition.

Most of the ochre at BS2 occurs in small nodules. A few pieces are larger (>10 cm in diameter) and these tend to be proper (red) ochre. These larger pieces tend to have cut marks on the nodules and/or smoothed sides. No ochred roof spalls were observed, however, a few grinding stones had ochre stains. One quartzite flake had ochre stains on it. A few ochre pencils and ochre with cut marks were also observed in the deposit.

Some of the material identified as ochre, is not ochre *per se*, but material with high iron oxide content. It can thus be defined as “ocherous”

Units 2 and 3 have highest amounts of ochre, followed by Unit 7, Unit 6, Unit 1 and Unit 4. Ochre occurs in the other sites, but in much lower percentages.

The occurrence of ochre at the site is interesting, especially the worked nodules. This may indicate that paintings may have occurred at the site but have now disappeared. Alternatively, ochre was processed at the site and used elsewhere, e.g. at BSMC.

SHELL

Only one piece of *Unio caffra* was recorded at BS2, in Unit 3. Other shell does occur but these are from *Achatina spp.* and are post-depositional. No worked *Achatina spp.* was observed.

SOIL SAMPLES

Soil, dung and charcoal samples were taken from selected squares and layers. These samples were removed as they contain, amongst other things, palynological samples. We only took soil samples on days when the wind was not blowing very hard[7]. We sampled every main layer.

Dung samples were also taken. Dung contains nitrates that can be used for palaeoenvironmental reconstructions. A few charcoal samples were removed as well for radiocarbon dating purposes. These may be used if they exceed 10 g.

[7] Most of the days were very windy during the BS2 excavations. Wind would spread modern pollen remains into the deposit.

WORKED BONE

Six bone points were recorded at the site. Bone points are used as: arrowheads or link shafts (the point between the arrowhead and the shaft). The bone tends to be from long bones and have been worked and smoothed into an oblong shape. All bone points were broken.

WORKED STONE

One shale bored stone fragment was recovered from Unit 2, and a quartzite bored stone fragment from Unit 4.

A decorated stone pebble was recovered from Sq. A3, Unit 1 (in the hearths). It is a small flat pebble that has several grooves along its edge.

A few fragments of soapstone were recovered. This material is too soft for making stone tools, and we thus assume it has a decorative function.

Fragments of ‘polished shale’ occur throughout the site, especially in the upper units. This category includes other raw materials such as quartzite and soapstone. These have been polished into a smooth and thin object..

FIGURINE

Two possible figurine fragments were recovered from Sq. B3 (Unit 3), and Sq. A3 (Unit 2). The fragments are ceramic and are either the leg of a domestic bovid or the legs of a pot. The widest diameter is ~3 cm and it is ~4 cm long. These “figurines” suggests that the two layers date to the last 1700 years, although probably the last 1000 years (discussed later).

BEADS

Two types of beads were recovered from the excavations. A stone bead is associated with Units 1, 2 and 6. These are small beads made from shale and have a hole in the middle. A drawn glass bead was recovered from RATS in Sq. B3 (Unit 2). While RATS is a rodent burrow, the bead was in the area of Hearth 1/OBH1, and thus may be associated with one of these features. This bead is ~0.5 cm in diameter and is a light blue in colour. This bead differs in size and style from those recovered from BSMC.

Two pebbles that were in the process of becoming stone beads were excavated. Both of these are from the lower layers of Unit 2.

BOTANICAL

One piece/of wood was recovered from Unit 5. This piece appears to be a wooden link shaft. It is not well preserved.

CERAMICS

A total of 185 sherds were recovered from the excavations. The pottery from the site occurs mostly in Unit 1 (80%) and then Unit 2 (13%). A few sherds (7%) occur in the lower Units. These are smaller sherds and probably entered these lower layers as a result of post-depositional movement.

The sherds are mostly undecorated and thin-walled, and are red, brown or black in colour. This suggests that they date to the Late Iron Age, and thus the last 1000 years. The implication of this is that all Units below Unit 2 at least pre-date 1000 years ago, if not 2000 years ago.

One decorated sherd was located in Unit 2. It consists of several oblique rows. Units 1 and 2 also yielded a few concentrations of pottery: these are probably part of the same pot.

STONE TOOLS

The stone tools from this site are significant in that there is a very good sample size. There are a total of 76 805 pieces of worked stone on the site, of which 38 397 are stone tools. Stone tools were classified according to a standard method of classification (Deacon 1984) with a few variations, e.g. ‘chips’ excluded flakes less than 10 mm in length with a positive bulb of percussion. The report does not take into account different raw materials for stone tool production, although these were noted in the general analyses.

Raw Materials

There are eight main types of raw materials used for stone tool production at BS2:

- **Quartzite:** mainly for flakes, especially large flakes and large cores
- **Quartz:** for small flakes, bipolar cores
- **Dolerite:** for a variety of flakes, formal tools, irregular and single platform cores, and utilised flakes
- **Dolerite:** for a variety of flakes, formal tools, irregular and single platform cores, and utilised flakes

- **Shale:** for a variety of flakes, formal tools, irregular and single platform cores, and utilised flakes. Shale tends to be the softer of the raw materials used.
- **Cryptocrystalline silicates (CCS):** these are agates, chalcedony, jasper, opalines, etc. These are used for all types of tools, but specifically scrapers, utilised flakes, blades and bladelets.
- **Fossil:** Fossil trees were used for a variety of tools. These fossils are locally available (within a 20km radius) and provide a raw material similar to the CCS, i.e. a mostly fine-grained material. Tools made from fossils are mostly irregular and single platform cores, blades, and to a lesser degree scrapers and adzes.
- **Other:** This is raw material does not fit into the above categories and occurs in very small frequencies. Most of these are fine-grained materials similar to the CCS and fossil category. They are either black or red in colour. Other are used for cores, flakes, and a few formal tools.

A more detailed study would analyse the use of different raw materials for specific stone tools, and the changes of these raw materials through time. Table 3 lists the raw materials per general stone tool category.

Stone tool categories

Table 4 lists the stone tool assemblage frequencies and percentages per unit and per category. We use the various excavations from Mazel (1990, 1992, 1993, 1997, 1999) and Kaplan (1990) as comparisons for (formal tool) assemblages. These assemblages occur in various parts of Kwa-Zulu Natal, but mostly in the Thukela River Valley, and are thus comparable with BS2. Formal tools and utilised tools form the more important part of the assemblage, as these have been actively used. The other categories are, in essence, debitage and only inform regarding stone tool production.

Formal Tools:

The percentages refer to the frequency of stone tools for that category in relation to the total frequency of stone tools for that unit. These percentages are then compared to other units.

The range of formal tools in the assemblage is typical of Holocene assemblages. Units 1 – 6 are related to the Wilton assemblage, i.e. the last 4 000 years. Units 7 – 9 are probably related to a pre-Wilton assemblage. The lack of a significant amount of adzes suggests this. However, the low percentages of bladelets, and/or backed pieces are not typical of the Oakhurst, Robberg, or Albany assemblages. I will send the data to colleagues for comment.

The site is atypical in that total formal tools constitute 6.6% of the total stone tool assemblage, as opposed to much lower percentages in other sites (discussed below). Units 3 and 4 have the highest percentages of formal tools, followed by Units 1,2, and 6. Even the Units with the lowest percentages of formal tools still have a higher percentage in relation to other sites: units 2a, 7, 8 ,9. The sudden decrease in formal tool percentages in the lower units also suggests that they are different (or older) to the Wilton Assemblages.

Scrapers are used for hide working; i.e. the removal of fat from animal hides. Scrapers are the most common formal tools in the formal tool assemblage and total ~50% of all the formal tools. They tend to be made on CCS, followed by dolerite, shale, other and quartz. The most common type of scraper is the small end scraper, followed by the medium end scraper.

Other types of scrapers styles include:

- side scraper (either one or two sides),
- side-end scraper
- double-side scraper
- gothic arch scraper
- backed scraper
- round scraper
- scraper-adze

Table 3: List of raw material frequencies and percentages.

	Frequency												
	Unit	**1**	**2**	**2A**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Unprov**	**Total**
Formal	**Fossil**	195	245	3	108	47	32	54	132	18	16	11	**861**
	Qzite	4	7	0	6	3	0	6	5	1	0	0	**32**
	Quartz	49	46	0	14	5	8	3	11	3	1	1	**141**
	Dolerite	137	197	5	191	112	56	72	58	12	15	4	**859**
	Shale	91	122	3	148	97	28	75	116	19	14	5	**718**
	CCS	277	403	5	350	185	153	277	490	71	67	8	**2286**
	Other	7	6	0	2	2	0	1	1	0	0	0	**19**
	Ttl	**760**	**1026**	**16**	**819**	**451**	**277**	**488**	**813**	**124**	**113**	**29**	**4916**
utilised	**Fossil**	416	504	2	189	107	126	169	445	93	62	16	**2129**
	Qzite	61	102	0	66	42	40	79	296	43	16	3	**748**
	Quartz	142	184	1	11	10	22	11	49	8	2	4	**444**
	Dolerite	115	202	1	184	161	99	176	338	50	33	8	**1367**
	Shale	65	106	1	112	83	96	152	312	37	45	5	**1014**
	CCS	318	493	9	417	306	318	792	1583	272	177	20	**4705**
	Other	3	8	0	3	0	7	2	2	0	0	0	**25**
	Ttl	**1120**	**1599**	**14**	**982**	**709**	**708**	**1381**	**3025**	**503**	**335**	**56**	**10432**
Debitage	**Fossil**	**3674**	**4671**	**42**	**1777**	**972**	**726**	**1678**	**4488**	**886**	**835**	**198**	**19947**
	Qzite	**715**	**1352**	**46**	**897**	**623**	**358**	**879**	**3378**	**370**	**241**	**39**	**8898**
	Quartz	**1837**	**1710**	**9**	**292**	**94**	**91**	**152**	**312**	**93**	**215**	**29**	**4834**
	Dolerite	**1206**	**1995**	**72**	**1265**	**433**	**209**	**309**	**515**	**71**	**34**	**31**	**6140**
	Shale	**385**	**605**	**9**	**627**	**449**	**389**	**789**	**1474**	**223**	**183**	**24**	**5157**
	CCS	**676**	**931**	**28**	**812**	**553**	**397**	**1152**	**3067**	**481**	**316**	**35**	**8448**
	Other	**58**	**90**	**5**	**87**	**11**	**0**	**3**	**3**	**0**	**0**	**1**	**258**
	Ttl	**8551**	**11354**	**211**	**5757**	**3135**	**2170**	**4962**	**13237**	**2124**	**1824**	**357**	**53682**
Cores	**Fossil**	430	539	7	273	89	78	157	392	76	49	13	**2103**
	Qzite	33	35	1	19	8	11	19	39	8	5	0	**178**
	Quartz	443	335	7	61	22	31	27	19	6	16	6	**973**
	Dolerite	95	152	7	166	52	28	30	46	10	8	1	**595**
	Shale	13	24	1	24	12	9	35	79	15	10	0	**222**
	CCS	87	144	3	128	72	89	171	283	48	25	2	**1052**
	Other	22	23	0	23	6	0	7	1	1	0	0	**83**
	Ttl	**1123**	**1252**	**26**	**694**	**261**	**246**	**446**	**859**	**164**	**113**	**22**	**5206**
MSA Fl Ake s	**Fossil**	0	0	0	3	0	0	0	0	0	0	0	**3**
	Qzite	34	36	2	58	10	0	7	6	27	10	0	**190**
	Quartz	0	3	0	4	0	0	0	0	0	0	0	**7**
	Dolerite	5	7	0	8	1	1	0	1	0	2	1	**26**
	Shale	3	6	0	7	3	1	1	5	14	15	0	**55**
	CCS	1	0	0	3	0	0	0	0	0	0	0	**4**
	Other	0	0	0	1	0	0	0	0	0	0	0	**1**
	Ttl	**43**	**52**	**2**	**84**	**14**	**2**	**8**	**12**	**41**	**27**	**1**	**286**

Percentage													
	Unit	**1**	**2**	**2A**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Unprov**	**ttl**
Formal	**Fossil**	25.7	23.9	18.8	13.2	10.4	11.6	11.1	16.2	14.5	14.2	37.9	17.5
	Qzite	0.5	0.7	0.0	0.7	0.7	0.0	1.2	0.6	0.8	0.0	0.0	0.7
	Quartz	6.4	4.5	0.0	1.7	1.1	2.9	0.6	1.4	2.4	0.9	3.4	2.9
	Dolerite	18.0	19.2	31.3	23.3	24.8	20.2	14.8	7.1	9.7	13.3	13.8	17.5
	Shale	12.0	11.9	18.8	18.1	21.5	10.1	15.4	14.3	15.3	12.4	17.2	14.6
	CCS	36.4	39.3	31.3	42.7	41.0	55.2	56.8	60.3	57.3	59.3	27.6	46.5
	Other	0.9	0.6	0.0	0.2	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.4
	Ttl	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
utilised	**Fossil**	37.1	31.5	14.3	19.2	15.1	17.8	12.2	14.7	18.5	18.5	28.6	20.4
	Qzite	5.4	6.4	0.0	6.7	5.9	5.6	5.7	9.8	8.5	4.8	5.4	7.2
	Quartz	12.7	11.5	7.1	1.1	1.4	3.1	0.8	1.6	1.6	0.6	7.1	4.3
	Dolerite	10.3	12.6	7.1	18.7	22.7	14.0	12.7	11.2	9.9	9.9	14.3	13.1
	Shale	5.8	6.6	7.1	11.4	11.7	13.6	11.0	10.3	7.4	13.4	8.9	9.7
	CCS	28.4	30.8	64.3	42.5	43.2	44.9	57.3	52.3	54.1	52.8	35.7	45.1
	Other	0.3	0.5	0.0	0.3	0.0	1.0	0.1	0.1	0.0	0.0	0.0	0.2
	Ttl	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Debitage	**Fossil**	43.0	41.1	19.9	30.9	31.0	33.5	33.8	33.9	41.7	45.8	55.5	37.2
	Qzite	8.4	11.9	21.8	15.6	19.9	16.5	17.7	25.5	17.4	13.2	10.9	16.6
	Quartz	21.5	15.1	4.3	5.1	3.0	4.2	3.1	2.4	4.4	11.8	8.1	9.0
	Dolerite	14.1	17.6	34.1	22.0	13.8	9.6	6.2	3.9	3.3	1.9	8.7	11.4
	Shale	4.5	5.3	4.3	10.9	14.3	17.9	15.9	11.1	10.5	10.0	6.7	9.6
	CCS	7.9	8.2	13.3	14.1	17.6	18.3	23.2	23.2	22.6	17.3	9.8	15.7
	Other	0.7	0.8	2.4	1.5	0.4	0.0	0.1	0.0	0.0	0.0	0.3	0.5
	Ttl	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Cores	**Fossil**	38.3	43.1	26.9	39.3	34.1	31.7	35.2	45.6	46.3	43.4	59.1	40.4
	Qzite	2.9	2.8	3.8	2.7	3.1	4.5	4.3	4.5	4.9	4.4	0.0	3.4
	Quartz	39.4	26.8	26.9	8.8	8.4	12.6	6.1	2.2	3.7	14.2	27.3	18.7
	Dolerite	8.5	12.1	26.9	23.9	19.9	11.4	6.7	5.4	6.1	7.1	4.5	11.4
	Shale	1.2	1.9	3.8	3.5	4.6	3.7	7.8	9.2	9.1	8.8	0.0	4.3
	CCS	7.7	11.5	11.5	18.4	27.6	36.2	38.3	32.9	29.3	22.1	9.1	20.2
	Other	2.0	1.8	0.0	3.3	2.3	0.0	1.6	0.1	0.6	0.0	0.0	1.6
	Ttl	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
MSA Flakes	**Fossil**	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
	Qzite	79.1	69.2	100.0	69.0	71.4	0.0	87.5	50.0	65.9	37.0	0.0	66.4
	Quartz	0.0	5.8	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4
	Dolerite	11.6	13.5	0.0	9.5	7.1	50.0	0.0	8.3	0.0	7.4	100.0	9.1
	Shale	7.0	11.5	0.0	8.3	21.4	50.0	12.5	41.7	34.1	55.6	0.0	19.2
	CCS	2.3	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
	Other	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
	Ttl	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

TABLE 4: STONE TOOLS FREQUENCIES AT BS2

	Frequency												
	Unit	**1**	**2**	**2A**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Unprov**	**Total**
Formal Tools	Small Scraper	393	458	6	293	181	147	251	501	62	59	9	**2360**
	Medium Scraper	31	66	0	59	41	29	53	112	14	19	4	**428**
	Large Scraper	6	4	0	12	9	4	3	3	3	2	1	**47**
	Backed Scraper	1	1	0	0	4	1	2	2	1	0	0	**12**
	Scraper-Adze	6	15	0	19	20	10	10	40	9	2	0	**131**
	Adze	196	320	7	281	119	45	76	34	9	8	9	**1104**
	Segment	2	2	0	2	2	2	4	14	1	0	0	**29**
	MRP	91	102	0	119	54	25	52	87	15	19	4	**568**
	Backed Piece	27	46	3	20	17	11	33	17	8	2	2	**186**
	Borer/Drill/ Awl	7	11	0	11	4	3	2	3	1	1	0	**43**
	Burin	0	1	0	3	0	0	2	0	1	1	0	**8**
	Ttl	**760**	**1026**	**16**	**819**	**451**	**277**	**488**	**813**	**124**	**113**	**29**	**4916**
Utilised	Flake	990	1409	14	875	641	653	1249	2749	467	302	46	**9395**
	Blade	107	136	0	92	59	51	118	240	28	24	9	**864**
	Bladelet	19	45	0	9	7	3	13	33	8	8	1	**146**
	H.E.D.	4	9	0	6	2	1	1	3	0	1	0	**27**
	Ttl	**1120**	**1599**	**14**	**982**	**709**	**708**	**1381**	**3025**	**503**	**335**	**56**	**10432**
Debitage	Chips	2608	2763	22	692	314	221	704	1511	369	252	107	**9563**
	Chunks	1627	2208	53	1455	553	312	816	2036	392	572	42	**10066**
	Flakes	4160	6160	133	3515	2235	1616	3407	9607	1358	993	205	**33389**
	Blade	80	111	0	57	30	10	16	35	3	4	1	**347**
	Bladelet	76	112	3	38	3	11	19	48	2	3	2	**317**
	Ttl	**8551**	**11354**	**211**	**5757**	**3135**	**2170**	**4962**	**13237**	**2124**	**1824**	**357**	**53682**
Cores	Bipolar	664	635	12	234	84	112	182	288	53	40	12	**2316**
	Irregular	223	355	9	299	106	81	172	333	83	48	6	**1715**
	Single Platform	217	233	4	147	67	49	90	231	27	23	4	**1092**
	Bladelet	16	24	1	11	2	4	2	5	1	2	0	**68**
	Blade	2	4	0	1	0	0	0	1	0	0	0	**8**
	Disc	1	1	0	2	2	0	0	1	0	0	0	**7**
	Ttl	**1123**	**1252**	**26**	**694**	**261**	**246**	**446**	**859**	**164**	**113**	**22**	**5206**
MSA	Flake	43	52	2	84	14	2	8	12	41	27	1	**286**
	Ttl	**43**	**52**	**2**	**84**	**14**	**2**	**8**	**12**	**41**	**27**	**1**	**286**
	Subtotal	**11597**	**15283**	**269**	**8336**	**4570**	**3403**	**7285**	**17946**	**2956**	**2412**	**465**	**74522**
Other	Ochre	200	372	6	359	186	109	232	290	80	21	7	**1862**
	Bored Stone	0	0	0	2	0	0	0	0	0	0	0	**2**
	Reamer	0	1	0	0	1	0	0	0	0	0	0	**2**
	Hammer Stone	1	2	0	0	0	0	0	0	0	0	0	**3**
	Grindingstone	10	15	1	27	17	10	21	16	9	15	0	**141**
	Smoothed Pebble	20	10	0	13	5	5	10	7	1	3	0	**74**
	Polished Shale	6	16	0	17	3	3	2	4	0	0	0	**51**
	Manuport	42	32	2	39	9	3	12	4	1	4	0	**148**
	Ttl	**279**	**448**	**9**	**457**	**221**	**130**	**277**	**321**	**91**	**43**	**7**	**2283**
	Grand Total	**11876**	**15731**	**278**	**8793**	**4791**	**3533**	**7562**	**18267**	**3047**	**2455**	**472**	**76805**

PERCENTAGE													
	Unit	**1**	**2**	**2A**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Unprov**	**Total**
Formal Tools	Small Scraper	51.7	44.6	37.5	35.8	40.1	53.1	51.4	61.6	50.0	52.2	31.0	**48.0**
	Medium Scraper	4.1	6.4	0.0	7.2	9.1	10.5	10.9	13.8	11.3	16.8	13.8	**8.7**
	Large Scraper	0.8	0.4	0.0	1.5	2.0	1.4	0.6	0.4	2.4	1.8	3.4	**1.0**
	Backed Scraper	0.1	0.1	0.0	0.0	0.9	0.4	0.4	0.2	0.8	0.0	0.0	**0.2**
	Scraper-Adze	0.8	1.5	0.0	2.3	4.4	3.6	2.0	4.9	7.3	1.8	0.0	**2.7**
	Adze	25.8	31.2	43.8	34.3	26.4	16.2	15.6	4.2	7.3	7.1	31.0	**22.5**
	Segment	0.3	0.2	0.0	0.2	0.4	0.7	0.8	1.7	0.8	0.0	0.0	**0.6**
	MRP	12.0	9.9	0.0	14.5	12.0	9.0	10.7	10.7	12.1	16.8	13.8	**11.6**
	Backed Piece	3.6	4.5	18.8	2.4	3.8	4.0	6.8	2.1	6.5	1.8	6.9	**3.8**
	Borer/Drill/ Awl	0.9	1.1	0.0	1.3	0.9	1.1	0.4	0.4	0.8	0.9	0.0	**0.9**
	Burin	0.0	0.1	0.0	0.4	0.0	0.0	0.4	0.0	0.8	0.9	0.0	**0.2**
	Ttl	**6.6**	**6.7**	**5.9**	**9.8**	**9.9**	**8.1**	**6.7**	**4.5**	**4.2**	**4.7**	**6.2**	**6.6**
Utilised	Flake	88.4	88.1	100.0	89.1	90.4	92.2	90.4	90.9	92.8	90.1	82.1	**90.1**
	Blade	9.6	8.5	0.0	9.4	8.3	7.2	8.5	7.9	5.6	7.2	16.1	**8.3**
	Bladelet	1.7	2.8	0.0	0.9	1.0	0.4	0.9	1.1	1.6	2.4	1.8	**1.4**
	H.E.D.	0.4	0.6	0.0	0.6	0.3	0.1	0.1	0.1	0.0	0.3	0.0	**0.3**
	Ttl	**9.7**	**10.5**	**5.2**	**11.8**	**15.5**	**20.8**	**19.0**	**16.9**	**17.0**	**13.9**	**12.0**	**14.0**
Debitage	Chips	30.5	24.3	10.4	12.0	10.0	10.2	14.2	11.4	17.4	13.8	30.0	**17.8**
	Chunks	19.0	19.4	25.1	25.3	17.6	14.4	16.4	15.4	18.5	31.4	11.8	**18.8**
	Flakes	48.6	54.3	63.0	61.1	71.3	74.5	68.7	72.6	63.9	54.4	57.4	**62.2**
	Blade	0.9	1.0	0.0	1.0	1.0	0.5	0.3	0.3	0.1	0.2	0.3	**0.6**
	Bladelet	0.9	1.0	1.4	0.7	0.1	0.5	0.4	0.4	0.1	0.2	0.6	**0.6**
	Ttl	**73.7**	**74.3**	**78.4**	**69.1**	**68.6**	**63.8**	**68.1**	**73.8**	**71.9**	**75.6**	**76.8**	**72.0**
Cores	Bipolar	59.1	50.7	46.2	33.7	32.2	45.5	40.8	33.5	32.3	35.4	54.5	**44.5**
	Irregular	19.9	28.4	34.6	43.1	40.6	32.9	38.6	38.8	50.6	42.5	27.3	**32.9**
	Single Platform	19.3	18.6	15.4	21.2	25.7	19.9	20.2	26.9	16.5	20.4	18.2	**21.0**
	Bladelet	1.4	1.9	3.8	1.6	0.8	1.6	0.4	0.6	0.6	1.8	0.0	**1.3**
	Blade	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	**0.2**
	Disc	0.1	0.1	0.0	0.3	0.8	0.0	0.0	0.1	0.0	0.0	0.0	**0.1**
	Ttl	**9.7**	**8.2**	**9.7**	**8.3**	**5.7**	**7.2**	**6.1**	**4.8**	**5.5**	**4.7**	**4.7**	**7.0**
MSA	Flake	43.0	52.0	2.0	84.0	14.0	2.0	8.0	12.0	41.0	27.0	1.0	**286.0**
	Ttl	**0.4**	**0.3**	**0.7**	**1.0**	**0.3**	**0.1**	**0.1**	**0.1**	**1.4**	**1.1**	**0.2**	**0.4**
	Subtotal	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Other Stone	Ochre	71.7	83.0	66.7	78.6	84.2	83.8	83.8	90.3	87.9	48.8	100.0	**81.6**
	Bored Stone	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**
	Reamer	0.0	0.2	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**
	Hammer Stone	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**
	Grindingstone	3.6	3.3	11.1	5.9	7.7	7.7	7.6	5.0	9.9	34.9	0.0	**6.2**
	Smoothed Pebble	7.2	2.2	0.0	2.8	2.3	3.8	3.6	2.2	1.1	7.0	0.0	**3.2**
	Polished Shale	2.2	3.6	0.0	3.7	1.4	2.3	0.7	1.2	0.0	0.0	0.0	**2.2**
	Manuport	15.1	7.1	22.2	8.5	4.1	2.3	4.3	1.2	1.1	9.3	0.0	**6.5**
	Ttl	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

The analysis of scraper styles has been discussed in Stone Age sites in southern Africa (e.g. Anderson 1995; Mazel 1990, 1992, 1993, 1997, 1999). Scrapers are the most frequent occurring formal tools in all units except for Unit 2A where they nearly equal the number of adzes.

We will briefly note scraper styles in this report. The analysis of scraper styles is an option for future research and is not essential to the report. The analyses would also include raw materials related to scraper styles.

The scrapers most common to the BS2 assemblage are the small end scraper. They are consistently the preferred scraper style. There is a tendency for medium and large scrapers to increase in the older units. These scrapers include end, side, and side end-scrapers. Backed scrapers also increase slightly in the lower Units.

The scraper-adze is not a recognised formal tool. It consists of a blade (twice as long as wide) with end scraper retouch. The sides have the characteristic adze step-flaking and can occur on one or both sides. These types of scrapers peak in the lower units, thus demarcating them as being different form the upper assemblages.

Adzes are the second most frequently occurring formal tool in the total assemblage. Adzes are most common in Unit 2A, followed by other upper Units. Essentially, adzes occur in similar percentages in the upper units, and decrease significantly in the lower unit. This decrease is expected as adzes tend to occur in the last 4000 years, and unit 7 possibly predates the 4000-year levels. Adzes only occur in the upper 3 layers of Unit 7.

There are five basic types of adzes: normal, slug, older normal, older slug, and spokeshave. These may have stylistic attributes. Normal adzes are adzes that have step flaking on one side only. Slugs, and spokeshaves, have two and three sides, respectively, with step flaking. Older refers to the re-use of stone tools that were originally made millennia before. There is no significant change in the percentages of preferred adze types through time.

The raw materials used for adzes appear to be functional. Older adzes tend to be made from dolerite or shale. This is expected as quartz, CCS and fossil tend not to be used in the MSA, and thus one would not expect to see them in the LSA. There is a distinct lack of adzes on quartzite, despite the fine-grained structure of many types of quartzite observed in the assemblage: only 25 quartzite adzes were recorded.

Miscellaneous Retouched Piece (MRP) is a tool with retouch flaking, but has no definitive use/shape. MRP's are the third most common formal stone tool in the assemblage. They occur in near similar percentages in all Units. Some of the MRP's may be broken adzes or scrapers that are too small to be classified with the latter categories.

Segments are related to arrows and they are often used as "barbs" on the arrow shaft. Segments occur in low frequencies in all units. They are however more common in the lower units.

Borers/Drills/Awls are in essence the same type of stone tool in terms of function. These tools are used to perforate garments and/or shell (for beads). We have collated these formal tools due to their infrequent occurrence. These tools occur in approximately equal amounts in all units except Unit 2A that has 0%.

Backed pieces include backed flakes and blade(let)s. They tend to occur in similar percentages throughout the site. The backed pieces vary in size. The smallest is ~8mm long, while the longest is ~40mm long.

Utilised Stone

Utilised stone are flakes that have no formal retouch, but show signs of usage. Usage is in the form of little 'nicks' on the cutting side of the flake. Utilised flakes are the second most frequent stone tool category on the site. Utilised flakes are the most common occurring category, followed by blades and bladelets. Heavy edge-flaked pieces occur infrequently in this assemblage and only in the upper layers. These tools are large quartzite flakes that have one side of scar flaking from use.

Utilised pieces increase in the lower units, where formal tools decrease. The most common raw material is CCS in the upper units. In the lower units quartzite and CCS tend to be more frequently used.

Waste

Waste refers to the debitage from stone tool making, or flakes that have not yet been used. Waste occurs in all raw material types. Flakes (including blades and bladelets) occur the most frequently in all units. They are more common in the middle units than in the other units. Chips are more common in the upper and lower units. Chunks (stones with 1 – 3 negative bulbs of percussion) occur in relative equal amounts throughout the site.

Flakes are the most frequently occurring form of debitage. This is followed by chunks, chips, blades and then bladelets. The preferred raw material is changes through time. Fossil, dolerite and quartz appear to be preferred in the upper units, while quartzite, CCS and shale appear to be favoured in the lower units.

Cores

Cores are pieces of stone that are used to make flakes. They only constitute 9.6% of the total assemblage. In general, fossil and then CCS, is the most frequently used raw material for cores. The type of raw material used tends to be related to the type of core used. Bipolar cores tend to be made on quartz and CCS, while irregular cores tend to be made from fossil. Single platform cores tend to be made fossil and CCS, although the larger single platform cores tend o be made on older/MSA quartzite/shale flakes.

Bipolar cores are the most commonly occurring core and made mostly from quartz, fossil, CCS and dolerite. Bipolar cores result in a high percentage of small flakes, or chips. Our analysis did not differentiate between the various types of bipolar core sub-categories.

Irregular cores are the second most common type of core. These cores have no systematic pattern for stone tool manufacture, and are used to provide a variety of types of flakes. Irregular cores occur most commonly on fossils, dolerite and quartz, quartzite, and CCS (in decreasing order). They tend to increase in percentage in the lower units.

Single platform cores tend to occur in similar percentages throughout the assemblage, except in Units 3 and 4 where they increase and decrease, respectively.

Bladelet, radial (or disc), and blade cores tend to occur in very low percentages throughout the assemblage.

Middle Stone Age

These tools are large flakes on quartzite, shale or dolerite (in decreasing order of abundance), and often have a facetted platform. They are not associated with the other Wilton[8] artefacts. The lower units should have most of these older flakes, as there would be an older deposit as bedrock is reached. However, it is the upper units that have the higher percentages of MSA tools.

Many older flakes were used in the upper units and reworked. They were used either for adzes or as cores. This was especially the case in Sq. A1 that has the highest number of older flakes in the upper units.

[8] Wilton refers to stone tool assemblages from the last ~4 000 years

Smoothed/Polished Stones

There are two main types of stones in this category. The first are small (quartzite) pebbles that have been smoothed by use or rubbing. The second type refers to polished stone: either shale or soapstone. These are large pieces that have been polished, or rubbed smooth, on all sides to form a spear point-like shape. These are unlikely to have been used for spears since the material is very soft. Most of the polished stones came from the eastern squares.

Grinding Stones

Both lower and upper grinding stones were recovered from the excavations. They tend to occur more frequently in the lower unit, followed by the middle units, then other units.

Manuports

Manuports are unworked pieces of stone that have been brought into the shelter from elsewhere. The most common type of manuport is CCS and fossil. They occur more often in the upper units.

ESTIMATED DATES FOR UNITS

The site can be relatively dated according to the following criteria:

- The ceramics from the site have the characteristic thin-walled sherds and little to no decoration. This is distinctive of the Late Iron Age that post dates 1000 years ago. The occurrence of few/any sherds from Units5 – 9 is probably post-depositional.
- Ceramic figurines occur in the last 2 000 years, however, we would suggest the last 1000 years for this site, as discussed previously.
- Glass beads only arrive in this geographical area in the last ~300 years
- Backed pieces tend to occur in high frequencies between 2000 and 4000 years ago, however they tend to occur in similar percentages throughout the site. There is a tendency for the lower Units to have more backed pieces. This includes backed pieces and scrapers.
- Backed scrapers tend to occur between 2000 and 4 000 years ago. They tend to occur in Units 5 - 8.
- Segments (which are backed flakes) tend to occur before 2000 years ago. Most of the segments occur in Units 5 – 8, although they do occur in the upper units as well.
- Adzes only occur in the last 4 000 years, and increase in frequency in the last 2 000 years.
- Other sites in southern Africa indicate that there was a decrease in the density of sites, or human occupation, in the interior, between 4 000 and 8 000 years ago. Thus, there should be a

decrease in the numbers of artefacts in these layers. Alternatively the density of artefacts should decrease.

The Units can thus be relatively dated as follows:

TABLE 5: RELATIVE DATES FOR THE VARIOUS UNITS

Unit	Relative Date (years ago)
1	500 – 1 000
2	500 – 1 000
2A	1 000 - 2 000
3	1 000 - 2 000
4	2 000 – 4 000
5	2 000 – 4 000
6	3 000 – 4 000
7	4 000 – 8 000
8	4 000 – 8 000 or older?
9	4 000 – 8 000 or older?

SPATIAL COMPONENT

We have not had time to reassess the spatial component of the site in relation to the 2006 excavations. The analysis below is based on the 2004 – 2005 excavations. Only a general comment can be made regarding the 2006 excavations.

We originally believed that any spatial component related to organic remains would be skewed as the preservation of artefacts is better behind the dripline of the cave. That is Sq.'s E and part of Sq.'s D are outside of the dripline. This would thus be a natural spatial feature, and not a human feature. This may be true for the upper units, however it is not the case for the lower units. The organic remains occur in the lower units within the dripline. If the drip line increased the erosion of organic, then one would not expect to find organic remains in these squares at such depths. Thus, the dripline does not appear to affect the preservation of organic remains, and the spatial information from the upper units is valid.

A spatial analysis is used to determine how people organised their lives. This organisation is often related to the social structures of that society. For example, left | back | female | old | gatherer vs. right | front | male | young | hunter. An understanding of the spatial aspect thus informs about that society. Any change in the spatial component thus reflects a change in the society through time. A site becomes significant if a spatial component exists.

Figures 5 – 9 summarise the general findings.

The occurrence of charcoal is often indicative of a hearth. Squares with higher concentrations of charcoal thus have larger, or more, hearths. There is a general trend for hearths, or charcoal concentrations, to move from the south to the north in the last 1000 years. These hearths tend to occur more frequently in the middle of the excavation between 3000 and 1000 years ago. They then extend westwards between 3 000 and 4 000 years ago.

The location of hearths appears to change in the lower units. Units 6 – 8 tend to have hearths along the southern parts of the excavations. These are the hearths with large amounts of burnt bone. They are not observed along the northern, or northwestern parts of the cave.

There are also different "types" of hearths. Some contain charcoal and appear to be little used, others tend to have more ash, or burnt white bone. The intensity of the fire relates to the types of artefacts recorded. More burnt white bone occurs in the lower units along the southern side of the excavations. The upper units tend to have burnt white bone along the central, and/or northern parts of the site.

The faunal remains have a very similar pattern to the hearths. That is, faunal remains are directly associated with hearths and indicate where people discarded their food remains.

Ceramics occur in the centre of the excavations in both upper Units. The occurrence of ceramics in Unit 4 and 5 are probably a result of post-depositional factors.

Stone tools (in general) tend to be made, used, or discarded, just outside of the fire area in all of the Units. The stone tools tend to be concentrated along the northern side of the cave in the upper Units. The middle and lower units tend to have stone tools concentrated in the centre of the cave and slightly westwards. Future analyses should study specific stone tool categories.

The discard, or working, of ochre and ochre-like material tends to happen outside of the dripline area in the upper units (Fig. 7). These materials tend to occur behind the dripline in the 1000 – 4000 periods. The lower Units tend to have most of the ochre material outside of the dripline.

In general there is a change in the location of artefacts through time. The spatial analysis also indicates that more artefacts are likely to be located in the posterior of the cave.

DISCUSSION

The organic remains at the site are well preserved throughout the whole deposit, even in the lower and wetter units. Surprisingly the preservation becomes better for faunal remains the deeper one excavates. The faunal remains are important for reconstructing subsistence patterns and local environments. The charcoal can be used for radiocarbon dates and tree species identification, and thus palaeoenvironmental information. BS2 has a good sample of charcoal. This environmental information is even more important as BS2 extends to below ~2m, and thus may contain Pleistocene-Holocene deposits. That is the BS2 sequence has the potential to yield environmental information for several Periods, especially transitional ones. These can then be used to compare with the core samples taken in the Braamhoek wetland.

BS2 has a very high frequency of stone tools, especially formal tools in all of the units. Table 5 compares BS2 with a few shelters in the Thukela River Valley and Mhlatuzana Shelter (~40 km inland from Durban): these do not comprise all of the excavated sites in the area, but of the more notable, and published, sites. The stone tool assemblages for Rose Cottage Cave have not yet been published. The stone tool frequency of BS2 is dissimilar to the other sites, with the exception of Mhlatuzana Shelter, in terms of depth of deposit. Mhlatuzana Shelter has a much higher frequency of stone tools, but far lower percentage of formal tools. Furthermore, Mhlatuzana Shelter has all of the squares down to 2.5m, while BS2 only has 4 squares to a similar depth. BS2 will likely have similar percentages if a similar depth was reached. The other sites may have higher total stone tool counts, however, BS2 has a much higher, or denser, concentration of formal tools. The significant point of the stone tools is that BS2 (as with BS1) has a very high percentage of formal tools in comparison with the other sites. A more detailed study of raw materials and types of formal tools, and other tool categories, is needed. KwaThwaleyakhe Shelter has similar numbers of stone tools (although a higher density of artefacts)

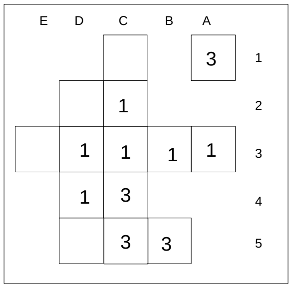
The formal tools percentage for BS2 is three to four times more than the other sites. We initially thought this may change if more squares were excavated; however, it appears to be consistent, even with the deeper deposits. This is important as the Pleistocene and early Holocene layers are rare in the area, and tend not to have high percentages of formal tools (see Wadley 2000). BS2 has the potential to change this, as the lower units had formal tools percentages ranging from 4% - 8%. Even the 4% figure is high for these lower units in comparison to other sites.

Formal tools are important since they yield technological and social information. The technological information is in terms of hide and wood working, hunting and gathering strategies, etc. A high percentage of adzes are related to soil physiology: there is a strong correlation between digging sticks, adzes and soil types. The harder soils result in more wear-and-tear on digging sticks, and thus more adzes are produced to make digging sticks. An increase in adzes also implies an increase in plant food gathering, and increase in labour. This increase happens in the last ~1 500 years and is similar to other sites in Kwa-Zulu Natal (see Mazel in work cited above).

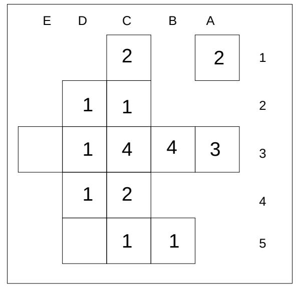
BS2 is also yielding information of scraper styles. (see Mazel 1989; Anderson 1996). Several scraper styles have been noted at BS2, and these will be compared with other sites . Initially it appears that (small) end scrapers are the norm, or the more commonly occurring scraper style. The small, medium and large scrapers have a temporal connotation: scrapers get smaller through time. However, we noted other styles from the excavation and these are: side, double sided, side-end, Gothic arch, backed and round scrapers. There is a tendency for small end scrapers to dominate the whole assemblage. However, changes in scraper styles are more prominent in the less dominant types of scrapers. This may also relate to the raw materials used and is an avenue for future research.

BS2 is also important in that most of the other excavated shelters in the general area occur below the escarpment, with the exception of Rose Cottage Cave (Wadley 1996). The Kwa-Zulu Natal sites, BS1 and BS2 date to similar periods. BS2 thus has the potential to yield further qualitative and quantitative material comparable to other sites.

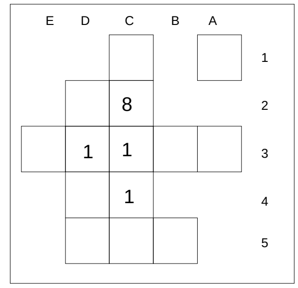
FIGURE 5: SPATIAL ANALYSES OF CHARCOAL REMAINS PER UNIT AT BS2



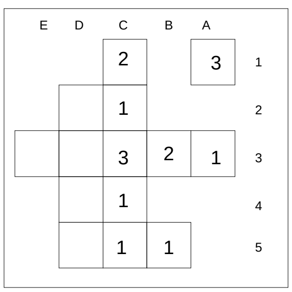
Unit 1



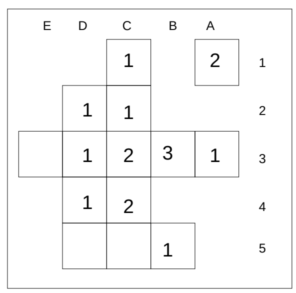
Unit 2



Unit 2A



Unit 3



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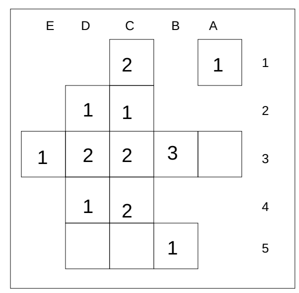

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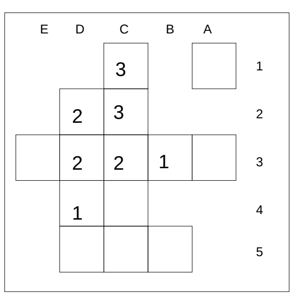
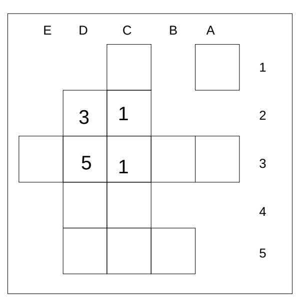


Unit 6



Unit 7

0 - 9% = 1
10 - 19% = 2
20 - 29% = 3
30 - 39% = 4
40 - 49% = 5
50 - 59% = 6
60 - 69% = 7
+70% = 8

FIGURE 6: SPATIAL ANALYSES OF FAUNAL REMAINS PER UNIT AT BS2

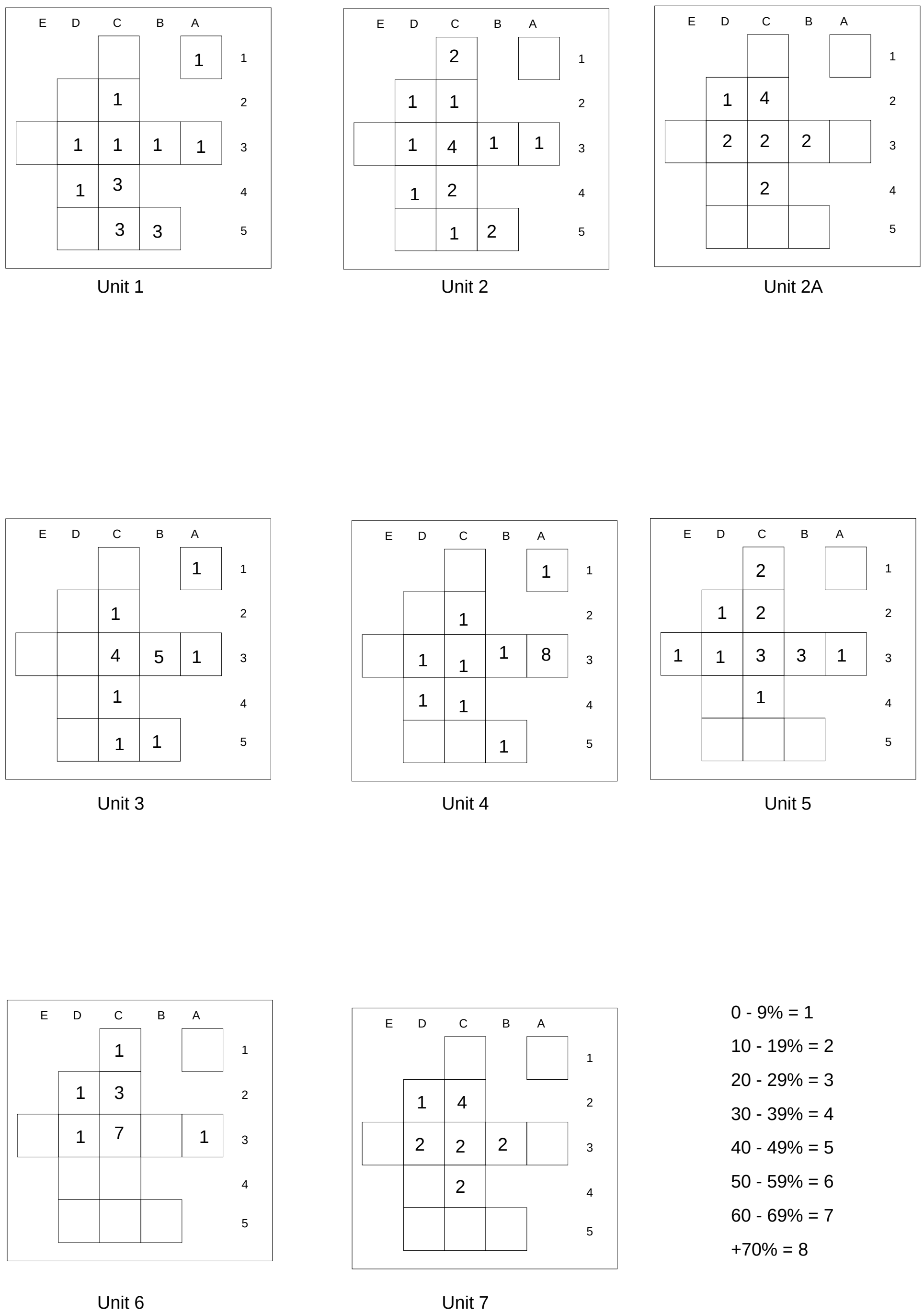
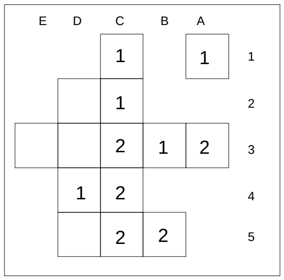
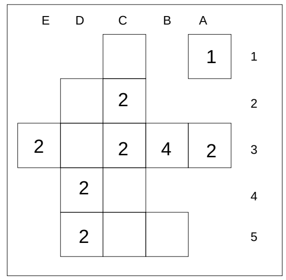


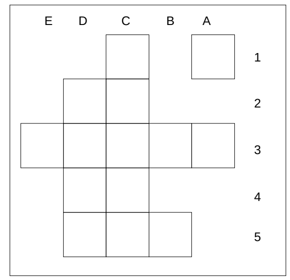
FIGURE 7: SPATIAL ANALYSES OF CERAMICS PER UNIT AT BS2



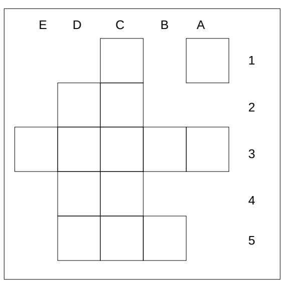
Unit 1



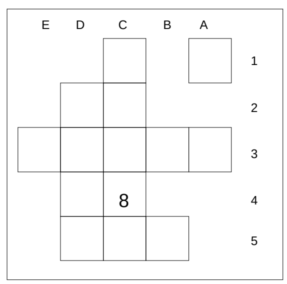
Unit 2



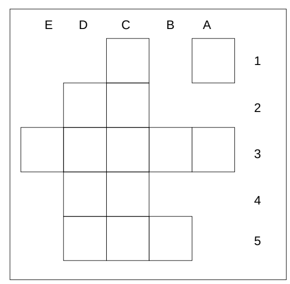
Unit 2A



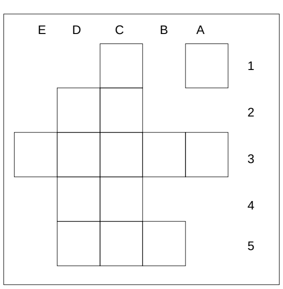
Unit 3



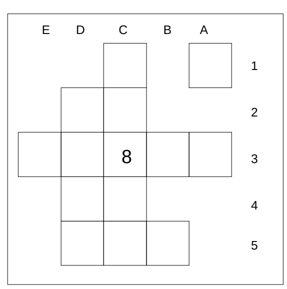
Unit 4



Unit 5



Unit 6



Unit 7

0 - 9% = 1
10 - 19% = 2
20 - 29% = 3
30 - 39% = 4
40 - 49% = 5
50 - 59% = 6
60 - 69% = 7
+70% = 8

FIGURE86: SPATIAL ANALYSES OF STONE TOOLS PER UNIT AT BS2

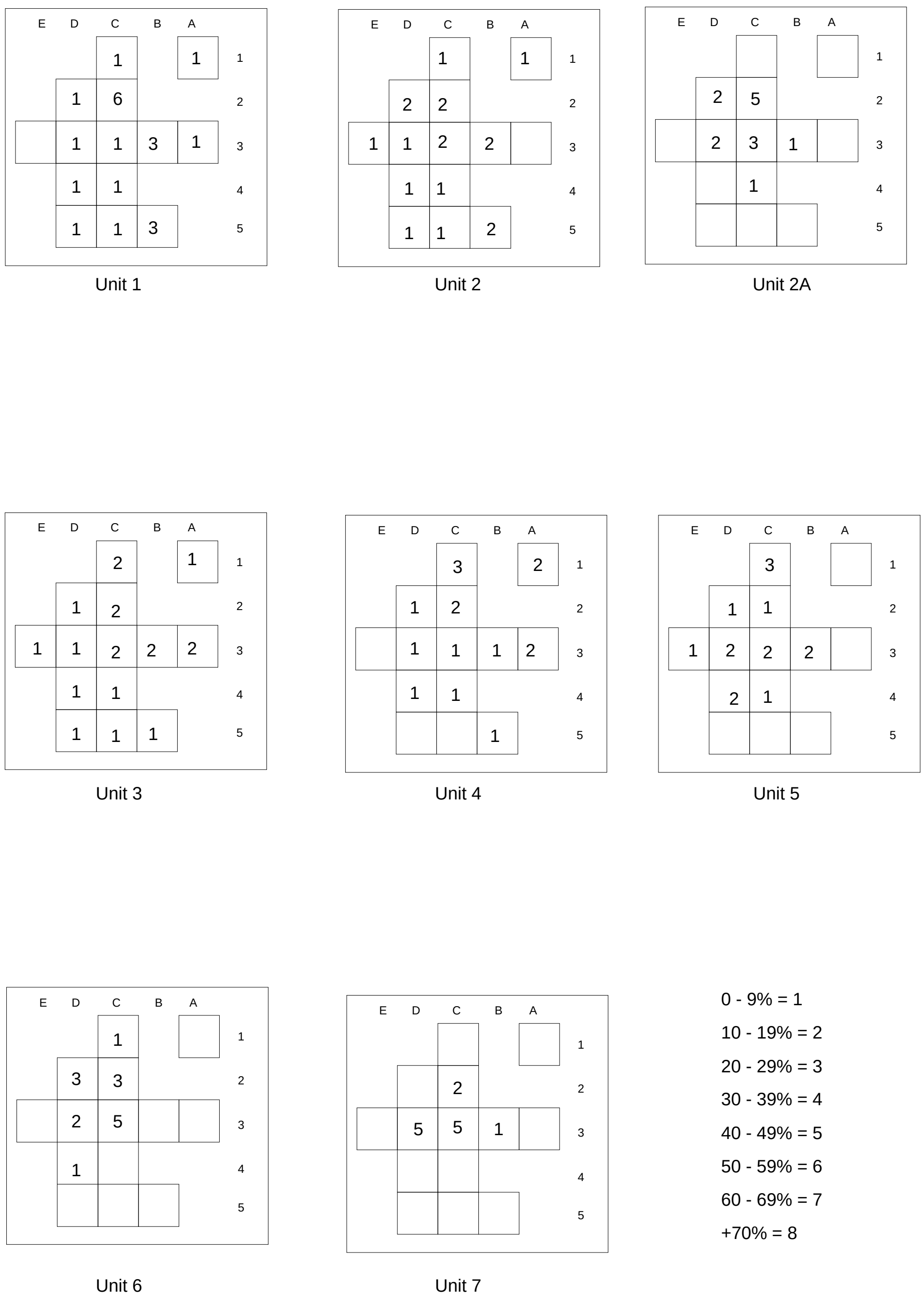


FIGURE 9: SPATIAL ANALYSES OF OCHRE PER UNIT AT BS2

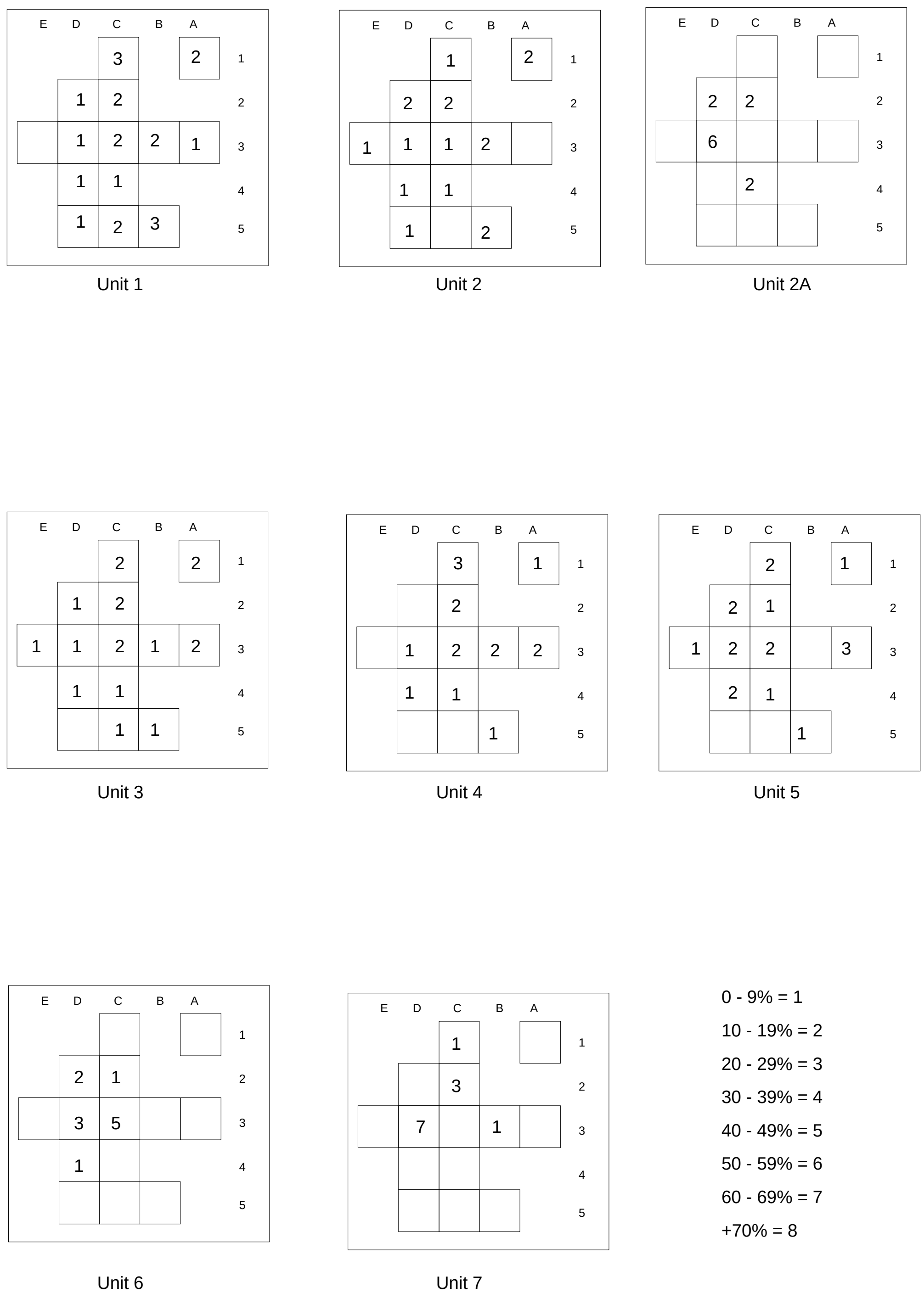


Table 5: Comparison of Stone Tools from Sites in Kwa-Zulu Natal and BS1 and BS2

Site	No. of excavated Squares	Max depth of deposit (m)	Total No. of Stone Tools[9]	Total No. of Formal tools	% Formal Tools	Reference
Mzinyashana	**7**	**1.4**	**29 713**	**586**	**1.97**	**Mazel (1997)**
Collingham Shelter	**5**	**0.5**	**14 012**	**286**	**2.04**	**Mazel (1992)**
Mhlwazini Cave	**8**	**0.7**	**55 514**	**491**	**0.88**	**Mazel (1990)**
KwaThwaleyakhe Shelter	**8**	**0.7**	**75 332**	**900**	**1.19**	**Mazel (1993)**
Inkolimahashi	**4**	**1.2**	**3 952**	**87**	**2.20**	**Mazel (1999)**
Mhlatuzane Shelter	**6**	**2.5**	**958 092**	**1849**	**0.19**	**Kaplan (1990)**
Rose Cottage Cave[10]	**2**	**0.5**	**1 106**	**Not available**	**4.3**	**Wadley (2000)**
BS1	**7**	**1.0**	**8 084**	**528**	**6.50**	
BS2	**14**	**1.4 - 2.3**	**76 805**	**4916**	**6.6**	

[9] The stone tools analyses has not been completed. We estimate that between 10 00– 20 000 more stones need to be analysed

[10] These figures are from the combined Tables 7 – 8 (Wadley 2000)

EXPECTATIONS & RESULTS

We had several expectations for the main excavations at BS2. Some of these have been met; others have not been met. These are as follows:

- ❖ Excavate 30 squares down to 2m below surface, or reach bedrock.
- ❖ We excavated 27 squares to their various maximum depths: 2.3m to 1.49m. The upper and lower units have complex stratigraphy that is several layers that truncate each other, or small layers between larger layers.
- ❖ Heavy rains made sieving difficult and the decreasing light, as the squares reached deeper levels made it, at times, impossible to see the deposit, especially in the eastern squares.
- ❖ The manual removal of the large boulders resulted in several delays. The boulders may have inadvertently helped preserve the lower layers, as it inhibited water seepage.
- ❖ Goats trampling the site and collapsing excavated squares caused endless delays. This was sorted by erecting the boundary fence.
- ❖ Determine if organic remains are differentially preserved across space (in the cave) and depth (in the deposit).
- ❖ Eastern, and southern, squares yielded better preserved material than the western, and northern, squares.
- ❖ Organic remains were recorded throughout the deposit.

CONCLUSION AND FURTHER MANAGEMENT

No further excavations would be required at BS2. The excavations have yielded enough information to suggest that BS2 is of medium to high significance. These excavations have yielded a more than adequate sample size in terms of faunal remains, organic remains, stone tools and general artefacts.

All squares, except two, were excavated to bedrock, and thus just less than 50% of the excavatable shelter has been salvaged. More material may occur in front of the cave. However, we believe it would probably be similar to the already salvaged material.

Further excavations would probably yield “more of the same” material and would thus not increase the potential knowledge of the site. There is always a chance that isolated, or individual, artefacts may occur on the site. It would not be cost effective (sample-size effective) to attempt to gain this information.

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APPENDIX A

Copy of letters from SAHRA and ASAPA

<< archaeologists

THE ASSOCIATION OF SOUTHERN AFRICAN PROFESSIONAL ARCHAEOLOGISTS

Umlando: Archaeological Tourism & Resource Management
PO Box 102532
Meerensee
KwaZulu-Natal
3901

10 August 2006

Dear Gavin

Re: eThembeni's review of Umlando's work at the Braamhoek Pumped Water Scheme in the Free State and KZN area.

The matter referred to above was discussed at the ASAPA Council meeting held on the 26th July 2006. Council supports you grievance in so far as eThembeni should have been aware of the conflict inherent in peer reviewing another CRM company's work for a client. To this end we will send a letter of warning to eThembeni, request that they inform the client of correct procedure and suggest that they withdraw their report.

In our communication with SAHRA about the matter we were informed that SAHRA had, in response to your request, called for two independent reports. We thus feel that the matter about the accuracy of eThembeni's report becomes redundant as SAHRA will use the two independent reviews to decide on how the excavations should proceed.

Yours faithfully

Amanda Esterhuysen
ASAPA: Chair
Tel: 011 717-6053
Fax: 011 339-1620

APPENDIX B

LIST OF EXCAVATED LAYERS & UNITS

1	BCBS	1	Hearth 23	2	BURROW:MM
1	BCBS2	1	Hearth 30	2	CARR1 (CLEAN-UP)
1	BDC	1	Hearth 31	2	Charcoal Circle
1	Below CBS	1	LCBS	2	CHARCOAL CIRCLE
1	BH 20	1	LOBrS	2	cleanings ARR1
1	BH 21	1	MM1	2	Creamy Sand In Hearth 27
1	BH 22	1	MM1:1-25	2	DBrSOS
1	BH 23	1	PCBrS2	2	DBS&0S
1	BH20	1	PCBrSS	2	FGBrS
1	BH20a	1	SAGS	2	FGBS
1	BH21	1	SARS	2	FSBS
1	BH22	1	SARS(Wet)	2	FSBS2
1	BH23	1	SBrS	2	FSBS2 (SCACHE 3)
1	BROWN BS	1	SBRS 2	2	FSBS3
1	Brown Sand	1	SBRS 4	2	FSGS
1	Brown Sand & Dung	1	SBRS 5	2	Hearth 01
1	BrS & Dung	1	SBRS 6	2	HEARTH 111
1	BSBC	1	SBrS1	2	HEARTH 121
1	BSD2	1	SBrS2	2	HEARTH 122
1	CB	1	SBrS3	2	Hearth 24
1	CBrB2	1	SBrS4	2	Hearth 32
1	CBrBS	1	SBrS6	2	Hearth 33
1	CBrBS2	1	SBrSS	2	Hearth 34
1	CBrBS3	1	SBS	2	HEARTH 51
1	CBrS	1	Section Cleanings upper 50cm	2	HEARTH 81
1	CBrS2	1	SFBrS	2	HEARTH 93
1	CBrS3	1	SFBrS2	2	HEARTH 94
1	CBS	1	SMB	2	HEARTH 95
1	CBS/NAS	1	Surf scrapings	2	HEARTH 96
1	CBS2	1	UNIT 1 CLEANUP	2	HEARTH 97
1	CBS3	1	UNIT 1 SEC. CLEAN	2	HOB1
1	CBSS	1	UPPER 20CM	2	HTBS
1	CDC	1	Upper Section Collapse	2	JB1
1	CDGS	1	WBrS	2	JMBrDS
1	Ceanings top 20 cm	1	WDBrS	2	JS CLEAN.
1	CFD	1	WDBrS 2	2	LBPL
1	CLBrS	1	WDBS	2	LOOD
1	Cleanings upper 20cm	1	WDBS2	2	MIXZ 8/04/06
1	CMB	2	Above Hearth 01	2	MSB/BS
1	CMBrS	2	ABOVE HEARTH 1	2	OBH1
1	CS (FINAL)	2	ASGC	2	OBS
1	DBHSS	2	ASGS	2	OFSBS3
1	DBrSS	2	B.SBRS2	2	OS
1	DBS	2	BASE OF HEARTH 81	2	PBBL
1	DBSS2	2	BASH3/3a	2	PBBL2
1	DGS	2	BCD	2	PDBr
1	Dung Crust	2	BCD2	2	PDBr 2
1	Dung Crust 2	2	BELOW HEARTH 43	2	Rats
1	FCBS	2	BH 24	2	RATS2
1	FCDC	2	BH 32	2	Rodents
1	FDC	2	BH109	2	SB/BS2
1	GABS	2	BH109a	2	SB/BS3
1	GGS	2	BH122	2	SBBS2
1	GrMo	2	BH24	2	SBBS6
1	Hearth 20	2	BH32	2	SBBS9
1	Hearth 21	2	BH33	2	SBBSa
1	Hearth 22	2	Brown/Black Sand	2	SBBSa/SPALLS

2	SBBSb	3	Hearth 25	4	ASH 3
2	SBBSc	3	Hearth 35	4	ASH 3/3a
2	SBSW 2	3	Hearth 35A	4	ASH3a
2	SBWS	3	HEARTH 35a	4	BASE OF HEARTH 27
2	SBWS 3	3	HEARTH 36	4	BETWEEN
2	SBWS 4	3	Hearth 37	4	BGSC
2	SBWS 4a	3	HEARTH 38	4	BH 43
2	SBWS 4b	3	Hearth 39	4	BH 44
2	SBWS 5	3	Hearth 40	4	BH133
2	SBWSa	3	HEARTH 82	4	BH44
2	SEC. CLEAN.	3	JB2	4	BrPP1
2	SIB	3	KSL	4	BrPP2
2	SIB 1 – 5	3	MBrD	4	BTW
2	SOS	3	MBrDS	4	CASH
2	Speckled Orange Sand	3	MBrDS2	4	COMB
2	Spit 01	3	MICKEY	4	DLBBS3a
2	TBS	3	NBCL5/SE	4	GBrH
2	TBS 02	3	OBCS	4	H132/2
2	TBS 03	3	OCBS	4	Hearth 05
2	TBS 04	3	PBCL 2	4	HEARTH 113
2	TBS 05	3	PBCL 5	4	HEARTH 114
2	TBS 06	3	PCBBS 2	4	HEARTH 123
2	TBS 07	3	PFGBS	4	HEARTH 124
2	TBS 08	3	PLBBS	4	HEARTH 127
2	TBS/SP	3	PLBrS	4	HEARTH 132/1
2	TBS/SP	3	SBC	4	HEARTH 132/2
2	TBSM	3	SBC2	4	HEARTH 132/3
2	TBSSP 02	3	SCB3a	4	HEARTH 133
2	TBSSP 3	3	SCBS	4	HEARTH 134
2	TBSX	3	SCBS 02	4	HEARTH 26
2	Under slab	3	SCBS 03	4	Hearth 27
2	Upper 60cm Clean.	3	SCBS 03&4	4	Hearth 41
2a	AbSBBS	3	SCBS 04	4	HEARTH 42
2a	AGSC	3	SCBS 04a	4	Hearth 43
2a	CASP	3	SCBS 10	4	Hearth 44
3	AFGBS	3	SCBS 1-4 LBBS1-4 Section	4	Hearth 45
3	BCL		Cleanings	4	HEARTH 5
3	BCL 02	3	SCBS 3a	4	HEARTH 80
3	BCL 5/6	3	SCBS2a	4	HEARTH 90
3	BCL2	3	SCBSS10	4	HEARTH 91
3	BCL3	3	SPALLS	4	HNBrS
3	BCL3a	3	Spit 02	4	LBBS
3	BCL4	3	Spit 03	4	LBBS 02
3	BCL5	3	Spit 04	4	LBBS 02 Lower
3	BCL5-6	3	Spit 05	4	LBBS 02 Upper
3	BCL5a	3	Spit 06	4	LBBS 02c
3	BCL5c	3	VSBrB	4	LBBS 03
3	BCL6-7 Section Cleaning	3	WBRS2	4	LBBS 03a
3	BCL7	3	WBrS3	4	LBBS 04
3	BCLG	3	WWBrS	4	LBBS 5
3	BH82/SE	3	WWBrS 2	4	LBBS Cleanings + LBBS
3	BH82/SW	3	WWBRS 3	4	LBBS SEC CLEAN
3	Charcoal concentration: BCL6	3	WWBrS2	4	LBBS Section cleanings
3	Cleanings + BCL 1-03	3	WWBRS3	4	LBBS1a
3	Hard Clay	4	ASH 3	4	LBBS2
3	Hard Clay 2	4	AH91	4	LBBS2 LOWER
3	HEARTH 119	4	AMUD	4	LBBS2 UPPER
3	HEARTH 12	4	ASH 1 – 2	4	LBBS2a
3	HEARTH 137	4	ASH 113	4	LBBS3
3	HEARTH 137b	4	ASH 2	4	LBBS3a

4	LBBS4		5		Hearth 50		6		Hearth 6a
4	LBBS5		5		Hearth 70		6		HEARTH 7
4	LBBS5a		5		HEARTH 71		6		Hearth 74
4	NBrS		5		HEARTH 8		6		HEARTH 75
4	NBrS 2		5		HEARTH 83		6		HEARTH 84
4	NBrS 3		5		HEARTH 87 (UR)		6		Hearth 84a
4	NBrS 4		5		HLBBS6		6		HEARTH 85
4	NBrS 5		5		LBBS 05		6		Hearth 85a
4	NGBrS		5		LBBS 05a		6		HEARTH 86
4	OLBBS5		5		LBBS 06		6		HEARTH 86/46
4	OLBrS3		5		LBBS 07		6		HEARTH 86a
4	PLBBS 10		5		LBBS 07a		6		HEARTH 88
4	PLBBS 2		5		LBBS 08		6		HEARTH 88
4	PLBBS 4		5		LBBS 08a		6		HEARTH 88 BASE
4	SLBS		5		LBBS 08b		6		HEARTH 88a
4	SLGBS		5		LBBS 10		6		HEARTH 9
4	SPALL CIRCLE		5		LBBS 10a		6		HEARTH II5
4	SPALL CIRCLE 2		5		LBBS 6		6		HEARTH II6
4	SPALL CIRCLE 3		5		LBBS 7		6		LBBS 09
4	Spit 07		5		LBBS 9		6		LBBS 10b
4	Spit 08		5		LBBS10		6		LBBS 10cc
4	Spit 09		5		LBBS10a		6		LBBS 11
4	Spit 10		5		LBBS10b		6		LBBS 11-12 CLEAN.
4	SPIT 11		5		LBBS6		6		LBBS 11-13 CLEANINGS
4	Spit 12		5		LBBS7		6		LBBS 13b
4	Spit 13		5		LBBS7a		6		LBBS 14
4	SPS		5		LBBS8		6		LBBS11
4	TOP OF H27		5		LBBS8a		6		LBBS12
4	VSAGS		5		LBBS8b		6		LBBS13
4	VSBrBS		5		LBBS9		6		LBBS13b
5	ASH 28		5		LBBS9a		6		LBBS14
5	Base Of HEARTH 46		5		MLBBS6		6		LBBS15
5	BH 51		5		OBMS		6		LBBS16
5	BH 70		5		OBMS2		6		LBBS9a
5	BH51		5		SPALLS 2		6		LBSS 11
5	BH83		5		Spit 14		6		NH116b
5	BrSFS		6		ACOGS		6		OBTW
5	BSBRS		6		ACOGS		6		SPALLS 3
5	BSBrS2		6		ASH 84		6		SPALLS 4
5	COBBr		6		BCOGS		6		SRUB
5	COBBR 03		6		BH131		6		TH104
5	COBBr 02		6		BH85		6		TH75
5	COBBr3 (UR)		6		BH85a		7		ASH 131/135
5	DLBrS		6		BH86a		7		ASH 131/135
5	DLBrS2		6		BrS84		7		ASH 131/135
5	DLBrS3		6		CBH84		7		ASH 131/135
5	GBAWS		6		CH84		7		ASH 4
5	GrCrBr		6		CHB84		7		ASH 5
5	GrCrBr (UR)		6		COGS2		7		ASH 5 SPALLS
5	GrCrBr2		6		H116a		7		ASH 5/5a
5	GrCrBr2 (UR)		6		HBr		7		ASH5a
5	HARD CLAY 2a		6		HEARTH 10		7		BASE HEARTH 12/65
5	Hearth 07		6		HEARTH 100		7		BFP13
5	Hearth 08		6		HEARTH 101		7		BH102
5	HEARTH 117		6		HEARTH 107		7		BH104
5	HEARTH 128		6		HEARTH 109		7		BH105
5	HEARTH 46		6		HEARTH 109a		7		BH105a
5	HEARTH 47		6		HEARTH 115		7		BH106
5	HEARTH 48		6		HEARTH 131		7		BH106b
5	HEARTH 49		6		HEARTH 6		7		BH107

7	BH108
7	BH136
7	BH139
7	BH140
7	BH9
7	Clean h102,h101
7	CWBRS
7	H105a
7	HEARTH 102
7	HEARTH 103
7	HEARTH 104
7	HEARTH 105
7	HEARTH 105a
7	HEARTH 105b
7	HEARTH 106/NE
7	HEARTH 11
7	HEARTH 118
7	HEARTH 130
7	HEARTH 135
7	HEARTH 136
7	HEARTH 138
7	HEARTH 139
7	HEARTH 140
7	HEARTH 141
7	Hearth 65
7	Hearth 66
7	HEARTH 72
7	HEARTH 73
7	HEARTH 76
7	LBBS 12
7	LBBS 13
7	LBBS 13b
7	LBBS 15
7	LBBS 16
7	NASH5a
7	OrBr
7	ORBR2
7	ORBR3
7	TH136
7	TH138
8	BH 09
8	GBRWS
8	GBRWS2
8	HEARTH 06
8	Hearth 09
8	Hearth 09a
8	Hearth 09b
8	Hearth 60
8	Hearth 61
8	Hearth 62
8	Hearth 63
8	OBCYS
8	RB
8	WBrS
9	FIRE PATCH 01
9	FP12
9	FP13
9	GBRWS3
9	GBrWS4
9	GBrWS5
9	GBRWS6
9	GBrWS7
9	GBRWS8
9	GBRWS9
9	HEARTH 73
10	BBrWS
10	HEARTH 76
3	H119
3	H82
	HEARTH M
?	BASAL CLEAN. 3/4/06
?	BASE CLEANUP
?	BASE CLEANUP 03/04/06
?	CLEAN UP 2
?	CLEAN UP 2
?	CLEAN. (15/04/06)
?	CLEANING
?	CLEANING 10/10/05
?	CLEANINGS 10/6/06
?	CLEANINGS 2
?	COLLAPSED SECTION
?	SEC CLEAN 19/11/05
?	SEC CLEAN 20/11/05
?	SEC CLEAN. 10/11/05
?	SEC CLEAN. 20/11/05
?	SEC. CLEAN
?	SEC. CLEAN
?	SEC. CLEAN 05/11/20
?	SEC. CLEAN 14/4/06
?	SEC. CLEAN 22/11/05
?	SEC. SCRAP
?	SECT. CLEAN.