Stone Age Research at the Anyskop Blowout, Langebaanweg (Western Cape Province, R. S. A.) Report on the 2001 Field Season

Introduction

During early 2000 Pippa Haaroff of the South African Museum and the West Coast Fossil Park brought the existence of Stone Age finds from the Anyskop Blowout near the southern edge of the Varswater Quarry to the author's attention (Figure 1). After discussions with Harroff and Mary Leslie, of the South African Heritage Resource Agency, SAHRA granted the author a permit for archaeological fieldwork at Anyskop. This work focuses on two main goals; 1) to extend the chronology from the University of Tübingen's research at Geelbek in the West Coast National Park further back in time from the LSA and MSA into the Acheulean; and 2) to provide more information on the prehistoric use of the Langebaanweg area to visitors of the West Coast Fossil Park. Beyond a number of scientific questions related to patterns of Stone Age technology, settlement and subsistence, the University of Tübingen's team at Langebaanweg plans to use the archaeological field and laboratory work as a means of training members of the staff of the Fossil Park in archaeological methods. By participating in the work at Anyskop the staff of the Fossil Park could better incorporate archaeology into the teaching and touristic programs of the park. The current archaeological work at Anyskop can also be seen in the context of a plan for rezoning the areas in the Fossil Park for new uses. Within this context this report may be useful for assessing the bid for rezoning.

Previous Archaeological Work at the Anyskop Blowout

On several days in 1980 and 1981 scholars including G. Corvinus, P. Harroff, Q. B. Hendey, D. Ohland and H. Summers conducted non-systematic collections of stone artifacts from the Anyskop Blowout south of the Varswater Quarry. These finds carry two sets of catalog numbers from the South African Museum. Subsequently, D. Roberts and others collected small numbers of lithic artifacts from the Blowout. The displays of the West Coast Fossil Park also contain three lithic artifacts collected by Roberts. As far as the author is aware, no other lithic artifacts have been removed from the Anyskop Blowout. P. Haaroff (personal communication 2001) reports that the vast majority, if not all of these finds, originate from the northern part of the Blowout closest to the Varswater Quarry. The following report demonstrates that these artifacts totaling 35 pieces represent a very small proportion of the total amount of material exposed in the Blowout. These finds are listed in Appendix 1.

The only published statement about the archaeology of the Blowout of which the author is aware is from Hendey's (1982) guide to the locality. Here he concisely summarizes the archaeological finds from Langebaanweg as follows:

> The earliest of the artefacts date back to the Middle Pleistocene. The Early Stone Age (Acheulean) tools are from Anyskop and are similar to ones from the nearby farm Elandsfontein, where a rich associated fossil fauna includes some fragmentary human remains. These human fossils are the oldest known south of the Orange River. They probably represent an advanced form of *Homo erectus*, the first species of man known to have achieved a continent-wide distribution in Africa, and to have settled in Eurasia. The surface deposits of Anyskop also include stone artefacts dating from the Middle and Late Stone Ages. Other sites in the region have more substantial records of human occupation during these periods (Hendey 1982: 22)

The Geographical and Geological Setting

Anyskop is a small hilltop just south of the Varswater Quarry and ca. 2000 meters east of the buildings of the Anyskop farm. The locality is located 14 km southeast of Vredenburg. This hilltop belongs to the property designated Langeberg 188 and has a maximum elevation of 72 m. The 1:50,000 topographic map of the area dating to 1966 and based on aerial photographs from 1960 and survey in 1965 shows no mining in the area of Anyskop. A portion of the hilltop is depicted with the signature for a "dry pan." An aerial photograph from 1979 depicts the limits of the Varswater Quarry several hundred meters north of Anyskop. The photograph shows the early stages of the formation of the Blowout. The Blowout evidently was actively forming during the 1970s and 1980s and has expanded from south to north. This suggests that the genesis of the Blowout has little or nothing to do with the mining to the north. Further research into the formation of the Blowout may help clarify the details of the timing of this geological occurrence.

The prehistoric finds from Anyskop are found within or on the edges of the Blowout. Survey of the surrounding unconsolidated red-brown sands has shown that any finds there do not reach the level of archaeological visibility. The finds from the Blowout come from several stratigraphic contexts. These include finds: 1) within the calcrete; 2) in the surface of the calcrete; 3) lying on top of the calcrete; 4) in the red-brown sand above the calcrete; and 5) on the loose red-brown sand. While the finds in the calcrete and fixed to the surface of the calcrete reflect relatively old use of the locality, finds lying loosely atop the calcrete or in or on the sand cannot be placed in a clear stratigraphic sequence. Fresh-edged LSA artifacts lacking patina or signs of weathering are often recovered from contexts 3-5. Conversely, handaxes and debitage showing heavy weathering and patinas can also be found in contexts 3-5. This observation relates to the mobile nature of the unconsolidated sands that can rebury previously exposed materials. Especially in small relatively low lying areas between slight karst depressions in the calcrete, thin layers of sand form around and beneath the edges of artifacts. Thus little likelihood exists to use the stratigraphic relationship between finds and the shallow sands above the calcrete to develop a relative chronology. If OSL ages for the deposition of the sand in which the calcrete formed and uranium series ages for the calcrete become available, these may serve as a maximum age for many of the finds overlying the calcrete. Work to date the calcretes is now underway at the Quaternary Dating Unit in Pretoria. The Pliocene Calcareous Sand Member (CSM) of Hendey's (1982) Varswater Unit Formation underlies the calcrete. No artifacts have been recovered from the CSM. D. Roberts (personal communication 2001) of the Council for Geosciences is currently revising the stratigraphy for Varswater Quarry.

The 2001 Fieldwork

The quotation above by Hendey summarizes the general archaeological situation at the Anyskop Blowout. The surface finds housed at the South African Museum include an Acheulean and LSA components. While less clearly defined, occasional prepared flake cores and flakes with faceted striking platforms appear to reflect a MSA component.

The 2001 season aimed to recover a larger assemblage of finds from the Blowout and used precise piece-plotting to gain a better understanding of the spatial relationship between all classes of materials recovered. In addition to the lithic artifacts, the research team aimed to document fossil faunal remains from Anyskop. The methods used at Anyskop are the same as those used at Geelbek and have been described elsewhere (Conard et al. 1999). They can be summarized as follows. A Leica total station is used to piece-plot all finds and numerous topographic points. These data are linked to a Husky Hunter 16 field computer using Dibble and McPherron's (1996) EDM interface program. Data generated in the field and laboratory are housed and manipulated using Microsoft Access. Plots are made using Surfer and other graphic programs. This system of recording has been used by teams from the University of Tübingen since 1998 at numerous sites in Europe, the Near East and Southern Africa without losing a single data point. The speed of recording is greater than other systems for piece-plotting and the interface with a computer for managing the data virtually eliminates any chance of

creating redundant or otherwise technically faulty data. The reproducibility of the measuring system is usually within a centimeter in the horizontal dimensions and within a few millimeters in the vertical dimension. This is the case over vast areas given the presence of stable datum points.

Andrew Kandel, Maria Malina and Nicholas Conard comprised the core of the 2001 Anyskop field crew. On three days staff members from the West Coast Fossil Park joined the crew. Between February 26 and March 16 the crew worked 10 days. Usually three people worked in the field until early afternoon and conducted lab work after lunch. Due to time constraints, survey and collection focused on the northern half of the Blowout. Here roughly 4,000 square meters could be examined in detail. The portion of the Blowout examined so far can be estimated to correspond to roughly 20% of the whole deflated surface. Within this area the field crew plotted all chipped lithic artifacts and faunal remains larger than ca. 2cm or fragments deemed to be identifiable. Larger pieces of unchipped stone that appear not to occur naturally in the area were also piece-plotted. Due to the generally poor preservation, many highly fragmented fossilized and non-fossilized faunal remains were not collected. The fieldwork resulted in the plotting of 1457 objects as well as many topographic points. Table 1 lists the lithic and faunal finds recovered during the field season.

In connection with the rezoning of parts of the Fossil Park, the team conducted surface survey within the unconsolidated sands of the Sandveld Group in D. Roberts' nomenclature. Figure 2 depicts the areas examined. A walking survey in the unconsolidated red-brown sand yielded no prehistoric artifacts and no historic finds beyond a small amount of recent garbage and a rusty horseshoe. The field crew occasional encountered non-fossilized bones. The non-fossilized faunal remains of a single small bovid were plotted and recovered.

Laboratory work was limited to labeling and organizing the finds, as well as preparing illustrations and tables. Lithic artifacts, faunal material and other finds from the Blowout carry the designation "ANY 1" followed by a running find number from 101 to 1557. Find numbers 1-100 were left open to accommodate the material recovered before 2001.

Lithic Material

The 2001 collections from the Blowout include 949 lithic artifacts, 200 pieces of burnt calcrete from stone hearths and 53 manuports and pieces of apparently unchipped foreign stones (Table 1). Based on determinations in the field, the most abundant lithic raw materials are silcrete, quartz, quartz porphyry/granite, and quartzite, with small amounts of other raw materials (Table 2). D. Roberts (personal communication 2001) suggests possible sources for these raw materials. Outcrops near the Berg River ca. 12km from Anyskop would be the closest source of silcrete. Quartz cobbles could originate from the Berg River gravels, and quartz can be found in outcrops of the coastal Malmsbury Formation about 15km from Anyskop. Quartz porphyry and granite are often difficult to distinguish from each other. Granite outcrops occur within 10 km of Anyskop, while quartz porphyry can be found near Saldanha or at Postberg ca. 20 km from Anyskop. The field category quartzite is poorly defined and contains material that is too coarse to consider silcrete and too fine to classify as quartz porphyry or granite.

The preliminary data suggest that silcrete was worked more systematically than quartz or quartz porphyry. Here the proportion of cores, flakes and tools is higher than with the other raw materials where angular debris and flakes comprise the majority of the artifacts (Table 2). This observation is closely related to the more regular chipping characteristics of silcrete. The silcrete finds often have fresh edges and include abundant LSA forms such as segments, backed blades and bladelets, and backed points. Laminar debitage is also present, but not dominant among the silcrete finds (Figure 3). The 2001 and earlier silcrete finds include Acheulean handaxes and a small number of flakes with faceted striking platforms that presumably date to the MSA. While the finds of quartz porphyry, granite and quartzite often show clear indications of weathering, the silcrete finds dating to the MSA and even the Acheulean often show relatively little weathering.

Non-diagnostic flakes, angular debris and small debitage dominate the quartz assemblage, but one well made segment is also present. Quartz finds often have fresh edges and surfaces. In contrast, artifacts of quartz porphyry, granite and quartzite are often heavily weathered. This condition hinders the classification of finds from these raw materials. All of the hammerstones and grinding stones from the Blowout are of these coarse grained raw materials (Table 2). Handaxes of these raw materials are also present (Figure 3).

Faunal Material

Fieldwork in 2001 yielded 248 faunal remains as summarized in Table 1. Most of these finds are fossilized and are not of recent origin. In many cases bones could be seen within the calcrete or attached to the surface of the calcrete. At present the age of these finds is unknown. Furthermore, it is far from certain that the calcrete formed within a single geological episode. This being the case, one cannot assume that the finds from within or above the calcrete are roughly contemporaneous. While avian, tortoise and molluscs could be readily identified in the field, the abundant but usually highly fragmentary mammalian faunal remains are not easy to identify. Thus a provisional list cannot be included here. Unfortunately, as documented in Geelbek, teeth are particularly subject to fragmentation and destruction under the intense sunlight and fluctuating temperature and moisture within blowouts of the Western Cape. Although numerical data are not available, the preliminary identifications suggest that elephant, rhinoceros, as well as large, medium and small bovids are present within the mammalian faunal assemblage.

The only faunal remain showing evidence for anthropogenic modification is an as yet unidentified fragment of burnt bone from within the remains of a stone hearth on the western edge of the area of the Blowout. Given the complete lack of other burnt faunal material an association between the burnt bone and the stone hearth is probable.

Historic Material

Relatively few historic and recent artifacts were recovered within the Blowout. The field crew did not collect the occasional bits of bottle glass or rusty scraps of metal or enameled vessels encountered. Three gun cartridges, however, were piece-plotted. The crew spotted no clay pipes, gun flints or fragments of china within the Blowout or in the surrounding unconsolidated sand.

Recommendations in Connection with Rezoning

The work at the Anyskop Blowout and surrounding areas of unconsolidated sand provides information relevant to the rezoning of areas within the West Coast Fossil Park. The following conclusions can be drawn. 1) All areas of the Blowout preserve a wealth of prehistoric archaeological finds. While most of the Blowout has not been collected, walks across the entire Blowout show that no areas are free of finds. Thus one can conclude that a high probability exists that finds are also present outside the deflated area of the Blowout. 2) Finds probably are present in and beneath the unconsolidated red-brown sand around Anyskop. They, however, do not rise above the threshold of archaeological visibility.

Based on these observations the Tübingen team recommends limiting access to the Blowout to closely supervised visits. No further material should be removed from the Blowout without carefully documenting the precise location of the finds and their stratigraphic and taphonomic contexts. Since the unconsolidated sand and underlying calcrete in all likelihood contain finds, these areas should not be built upon without rigorously documenting the archaeology of the areas in question. Non-invasive activities such as walking or horseback riding will probably not cause noteworthy damage to the archaeological record. Based on the areas examined to date, find densities within the unconsolidated sands are probably too low to be fruitfully studied without a major investment of time and resources.

sands are probably too low to be fruitfully studied without a major investment of time and resources. The presence of two deflated stone hearths within the Blowout strongly suggests that later prehistoric material could exist in largely undisturbed contexts within the unconsolidated sands.

Future Research

The results from 2001 indicate that roughly two months of fieldwork will be necessary to document the remaining finds in the Blowout. It should be possible to use technological and typological indicators in combination with degrees of weathering and patination to isolate ESA, MSA and LSA components of the lithic assemblage. A more serious problem concerns the faunal remains. At present it is possible to classify the faunal remains within different groups depending on the degree of fossilization and their characteristics of preservation. Although isolated pieces show indications of anthropogenic modification, the poor preservation of the bulk of the fauna and the general lack of chronostratigraphic information will limit their use in archaeological interpretations. Nonetheless, the fauna may provide useful data for broad paleoenviromental reconstructions within the Middle and Late Pleistocene.

Acknowledgements
Several people and institutions made important contributions to the work at Anyskop. Graham Avery of the South African Museum made all the finds from Anyskop housed at the South African Museum available for study and provided a vehicle for the fieldwork. Pippa Harroff of the South African Museum and West Coast Fossil Park provided housing and laboratory space for the crew. She also provided a wealth of information on scientific research at Langebaanweg and the stone artifacts recovered prior to 2001 from Anyskop. Peter Felix-Henningsen of the University of Gießen and Dave Roberts of the Council for Geosciences generously contributed their insights into the geology of Langebaanweg and the Anyskop archaeological locality. Thea Bindeman, Magdalene Coetzee and Geraldine Timotheus of the Fossil Park assisted with laboratory and fieldwork. Andrew Kandel and Maria Malina assisted with all aspects of the current work and produced the figures and tables in this report. Without their contributions the short field season could not have been as successful. The work at Langebaanweg is funded by the University of Tübingen and the Deutsche Forschungsgemeinschaft.

Nicholas J. Conard
Langebaanweg, March 16, 2001

Reference

Conard, N. J., T. J. Prindiville and A. W. Kandel. 1999. The 1998 Fieldwork on the Stone Age Archaeology and Paleoecology of the Geelbek Dunes, West Coast National Park, South Africa. *Southern African Field Archaeology* 8: 35-45.

Dibble, H. L. and S. P. Mc Pherron. 1996. A Multimedia Companion to the Middle Paleolithic site of Combe-Capelle Bas (France). CD-ROM. University of Pennsylvania Museum: Philadephia.

Hendey, Q. B. 1982. *Langebaanweg: A Record of Past Life*. South African Museum: Cape Town.

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Appendices

Lithic Artifacts	
Cores	67
Flakes	426
Angular Debris	269
Small Debitage	126
Chipped Tools	54
Hammerstones	2
Grinding Stones	5
total	*949*
Burned Calcrete	200
Manuports	53
Faunal Remains	
Bone	137
Tooth	56
Tortoise	51
Avian Species	3
Mollusca	1
total	*248*

Table 1. Anyskop Blowout. Preliminary summary of the lithic finds and the faunal material from the 2001 field season.

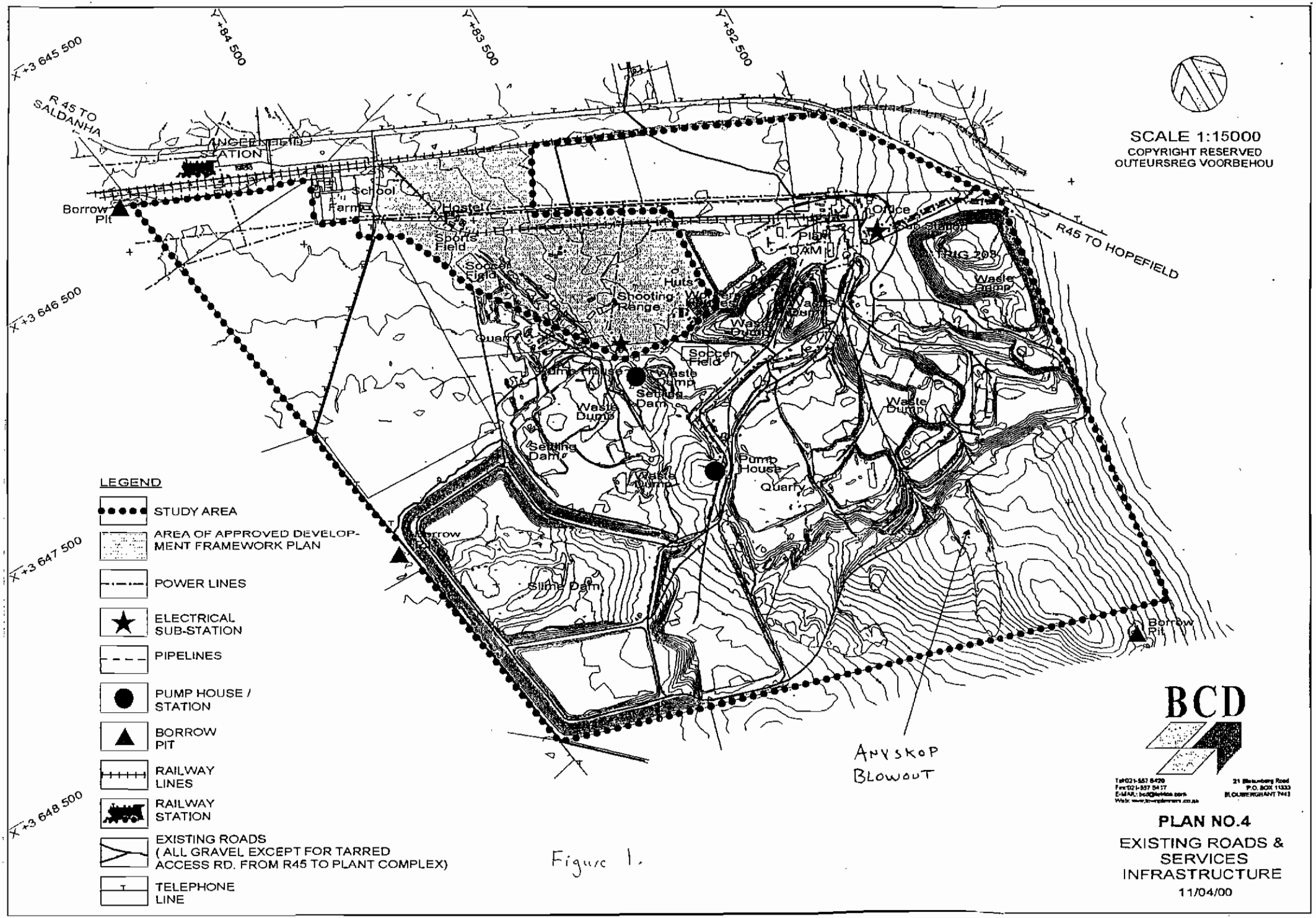
	Silcrete	Quartz	Granite /Quartz Porphyry	Quartzite	Other Lithics*
Cores	32	13	15	6	1
Flakes	151	101	144	27	3
Angular Debris	38	88	125	14	4
Small Debitage	40	81	2	3	0
Chipped Tools	39	1	11	3	0
Hammerstones	0	0	2	0	0
Grinding Stones	0	0	3	2	0
total	*300*	*284*	*302*	*55*	*8*

Table 2. Anyskop Blowout. Preliminary breakdown of the lithic artifacts from the 2001 field season by raw material.

*"Other Lithics" include: graywacke, calcrete and unidentified raw materials.

	Silcrete	Quartz	Granite /Quartz Porphyry	Quartzite
Backed Blades/- Bladelets	3	0	0	0
Segments	6	1	0	0
Backed Points	4	0	0	0
Points	3	0	0	0
End Scrapers	2	0	0	1
Side Scrapers	11	0	5	0
Handaxes	1	0	4	1
Other Tools	9	0	2	1
total	*39*	*1*	*11*	*3*

Table 3. Anyskop Blowout. Preliminary breakdown of the chipped stone tools from the 2001 field season by raw material.



SCALE 1:15000

Figure 1.

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Figure 2. Anyskop Blowout. Schematic map of the area surveyed during the 2001 field season including the northern portion of the calcrete surface in the Blowout and the surrounding area of unconsolidated sand.

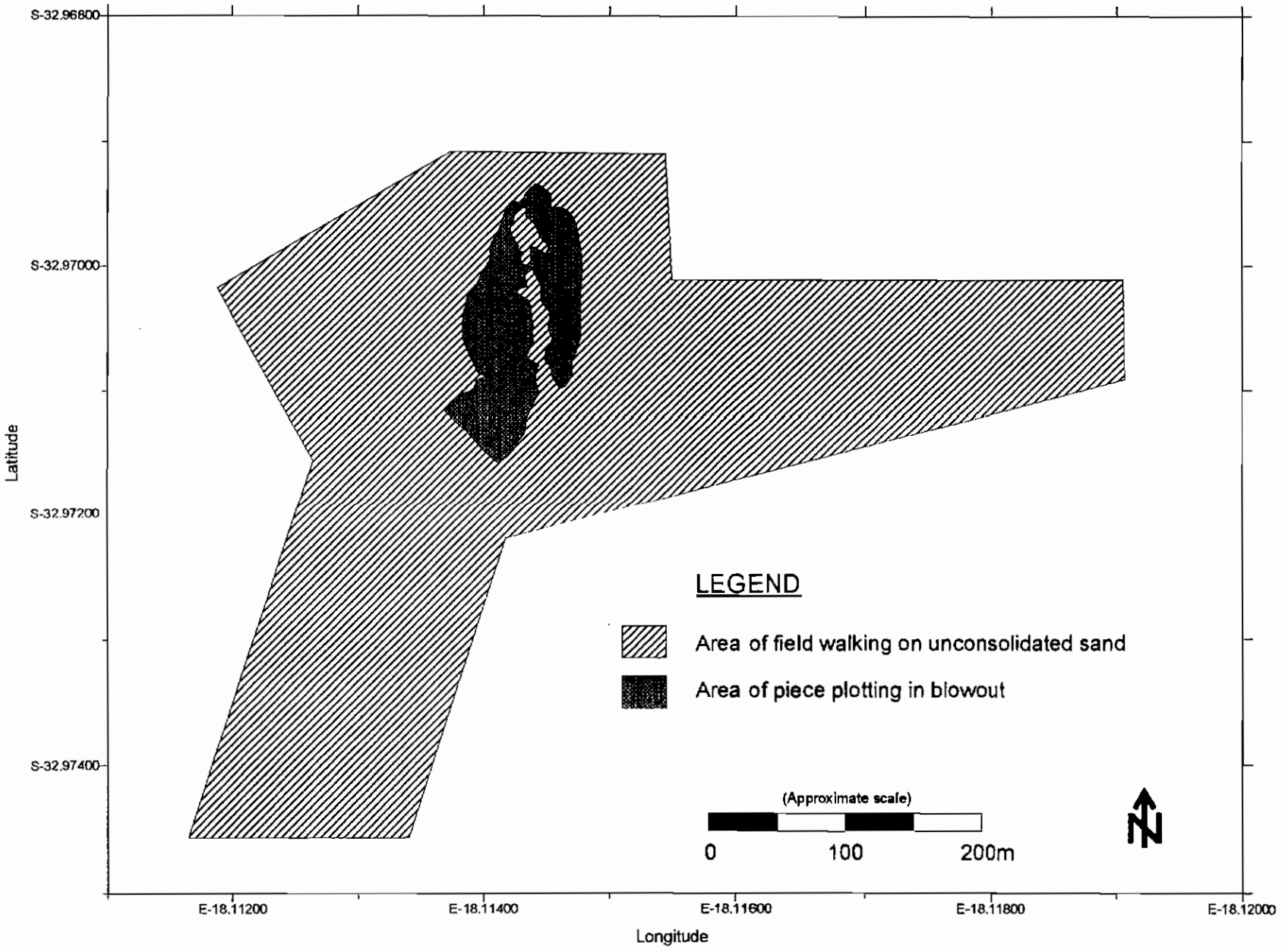


Figure 3. Anyskop Blowout. Map showing the topography and extent of the northern half of the Blowout (100 m elevation corresponds to approximately 74 m above mean sea level).

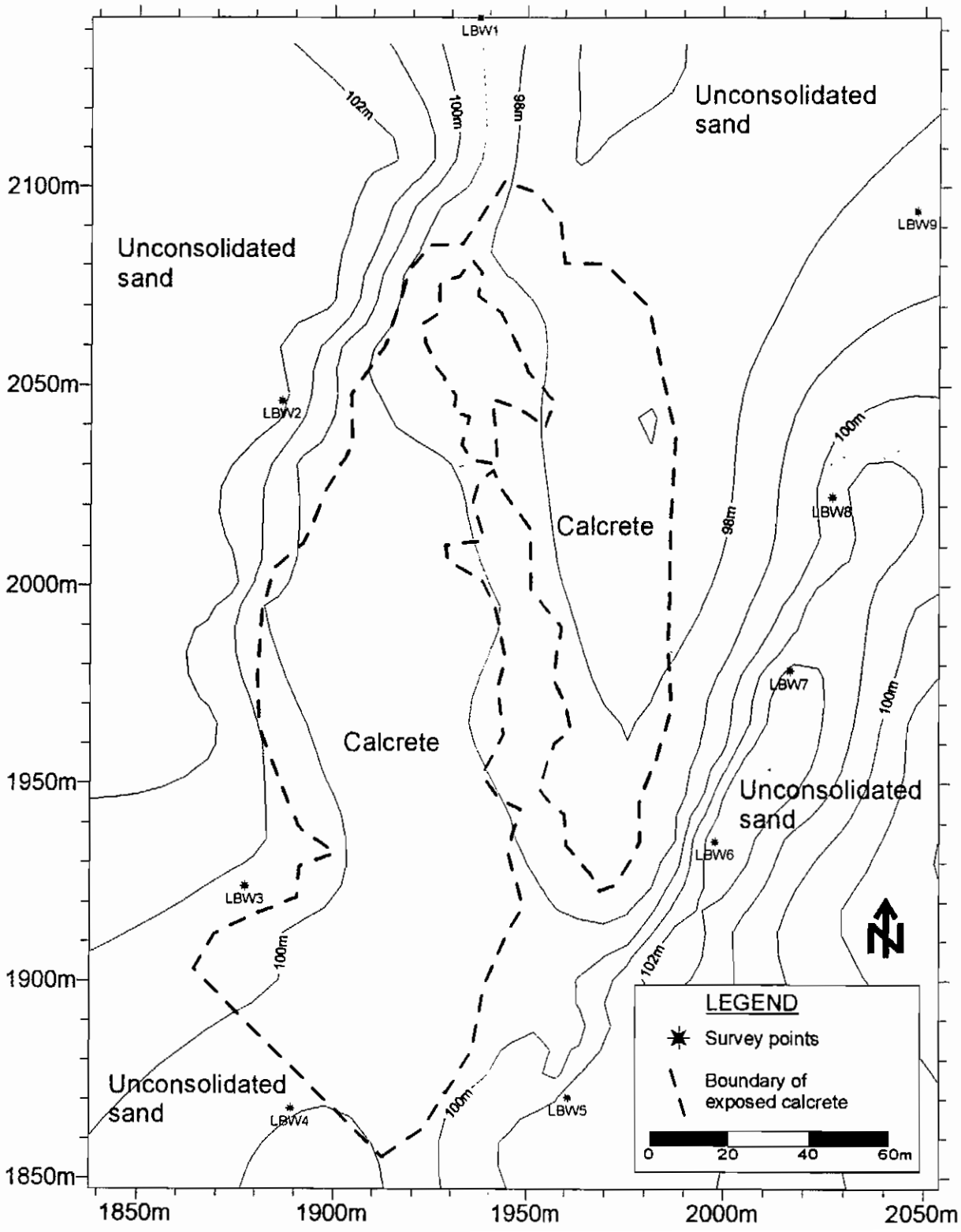
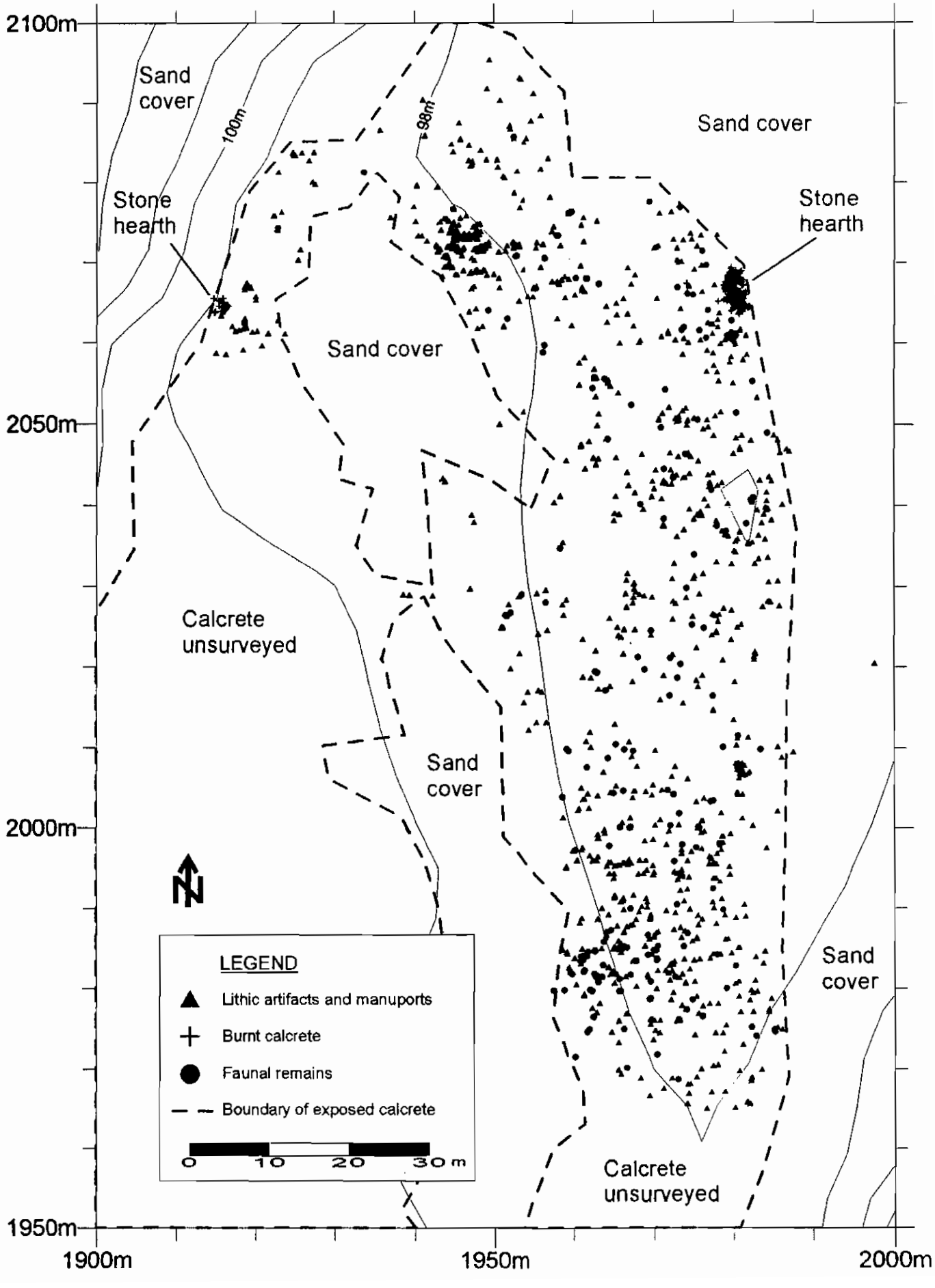


Figure 4. Anyskop Blowout. Distribution of the piece-plotted finds from the 2001 field season.



Catalog Number	Collection Date	Collector	Raw Material	Description
AA 8903-1	Sept. 04, 1980	G. Corvinus	Quartzite	crude biface
AA 8903-2	Sept. 04, 1980	D. Ohland	Granite	hammerstone
AA 8903-3	Sept. 04, 1980	D. Ohland	Quartz Porphyry	hammerstone
AA 8903-4	Sept. 04, 1980	D. Ohland	Quartz Porphyry	hammerstone/core
AA 8903-5	Sept. 04, 1980	P. Haarhoff	Silcrete	prepared flake core
AA 8903-6	Sept. 04, 1980	P. Haarhoff	Silcrete	proximal blade fragment
AA 8903-7	Sept. 04, 1980	P. Haarhoff	Silcrete	proximal blade fragment with faceted platform
AA 8903-8	Sept. 04, 1980	G. Corvinus	Quartz Porphyry	large, thick handaxe
AA 8903-9	Sept. 23, 1981	-	Quartz Porphyry	handaxe
AA 8903-11	Sept. 23, 1981	-	Quartzite	flake
AA 8903-12	Sept. 23, 1981	-	Quartz Porphyry	handaxe
AA 8903-13	Oct. 02, 1980	H. Summers	Slate	manuport
AA 8903-14	Oct. 02, 1980	B. Hendey	Silcrete	small radial core
AA 8903-15	Oct. 02, 1980	B. Hendey	Silcrete	radial core
AA 8903-16	Oct. 02, 1980	P. Haarhoff	Quartzite	bifacial scraper
AA 8903-17	Oct. 07, 1981	-	Quartz Porphyry	handaxe
AA 8903-18	Oct. 02, 1980	-	Silcrete	segment
AA 8903-19	Sept. 23, 1981	-	Quartz Porphyry	cortical flake
AA 8903-20	Sept. 23, 1981	-	Quartz Porphyry	side scraper
AA 8903-21	Sept. 23, 1981	-	Quartzite	cortical flake
AA 8903-22	Sept. 23, 1981	-	Quartz Porphyry	polyhedral core
AA 8903-23	-	-	Quartz Porphyry	flake
AA 8903-24	-	-	Silcrete	proximal blade fragment with faceted platform
AA 8903-25	-	-	Quartz Porphyry	handaxe, tip missing
AA 8903-26	-	-	Silcrete	radial core
AA 8903-27	March 27, 1999	D. Roberts	Quartz	flake
AA 8903-28	April 02, 1999	P.Haarhoff	Quartz	flake
AA 8903-29	April 02, 1999	P.Haarhoff	Quartzite	flake
AA 8903-30	April 02, 1999	P.Haarhoff	Quartz	flake
AA 8903-31	April 02, 1999	P.Haarhoff	Calcrete	burned calcrete
AA 8903-34	June 16, 1999	M.Struwig, P. Haarhoff	Silcrete	bladelet
AA 8903-35	June 16, 1999	M.Struwig, P. Haarhoff	Silcrete	flake
AA 8903-36	-	D. Roberts	Silcrete	handaxe
AA 8903-37	-	D. Roberts	Silcrete	flake
AA 8903-38	-	D. Roberts	Quartz Porphyry	flake with faceted platform

Appendix 1. Anyskop Blowout. Lithic artifacts recorded prior to the 2001 field season. Based on information March 16, 2001.