Neolithic Implements

in the

Landscape of Peacehaven and their Wider Context

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Neolithic Implements in the Landscape of Peacehaven and their Wider Context

Abstract

During the months of January/February 2003/4, Brighton and Hove Archaeological Society conducted a series of fieldwalks at Lower Hoddern Farm (TQ 416018), Peacehaven, East Sussex. Peacehaven is located on the south coast of England between Saltdean and Newhaven. Peacehaven did not exist prior to 1916, a man called Charles Neville bought an expanse of derelict land in the parish of Piddinghoe and set up a company to develop it. After initially being called Anzac-on-sea, by 1917 the place was known as Peacehaven. The site is situated on the South Downs, on loamy facies of the Woolwich and Reading Beds. Topographically the site occupies a low point in the landscape which along with the impervious nature of the geology, may have provided the means to trap surface water. This would explain the human activity in this area, which is otherwise surrounded by free draining chalkland. Lower Hoddern Farm, was put together as a single unit during the second world war and then rented out by the Ministry of Agriculture. In 1982, the current landowner bought the farm which was one of the first 'privatisations' under the Thatcher Conservative government. The fieldwalk survey was carried out as a result of ad hoc flint implements that have been found on and around this location during the last fifty years of cultivation. A local farm worker has in her collection a number of polished flint axes found during her period of employment on Lower Hoddern Farm. The fields are divided into three sections, East, West and South Field. An initial fieldwalk of ten lines on the west field produced two Neolithic axe roughouts plus a significant amount of implements and debitage in 2003. The results of this survey encouraged the completion of the project in early 2004. The field walks on these three fields produced nearly 600 implements including Flaked/Polished Axes, Piercers, Scrapers

and Notched Pieces. This collection also includes an abundance of combination tools such as Notched Scrapers, Notched Piercers and Notched Piercer-Scrapers. A large proportion of the implements consist of Retouched Flakes and Utilised Flakes. There are over 2000 pieces of debitage including Cores and Core Rejuvenation Flakes. Fire cracked flint featured heavily on all three fields, amounting to 56% of the total flint collection, but was particularly in abundance in the south east corner of the south field. An analysis of this collection concludes that the main bulk of flint implements are from Neolithic origin. Within this project, research was carried out on, the movement of flint artefacts within the plough zone. The main conclusion from this part of the report is that artefacts move substantial distances, sometimes as much as 28m, from the original place of deposition. This conclusion leaves a question mark over the purpose of artefact distribution maps from ploughed fields. It was decided in this project that the Geographical Information System (G.I.S.) distribution maps would be used to visually represent the artefacts, at the moment of their permanent removal from the archaeological record. Future research will no doubt determine whether the hard work of recording and plotting artefacts from ploughed fields into G.I.S. or any other system is actually useful or not. The majority of the G.I.S. maps from this site are held within the appendix of this report and on CD Rom, for future reference.

The aim of the research from Lower Hoddern Farm is as follows:-

- To discuss what flint knapping activity was taking place on this site during the Neolithic period
- To examine movement of flint artefacts within the plough zone
- To place the flint implements in their wider context
- To create a database and archive from this site for future analysis

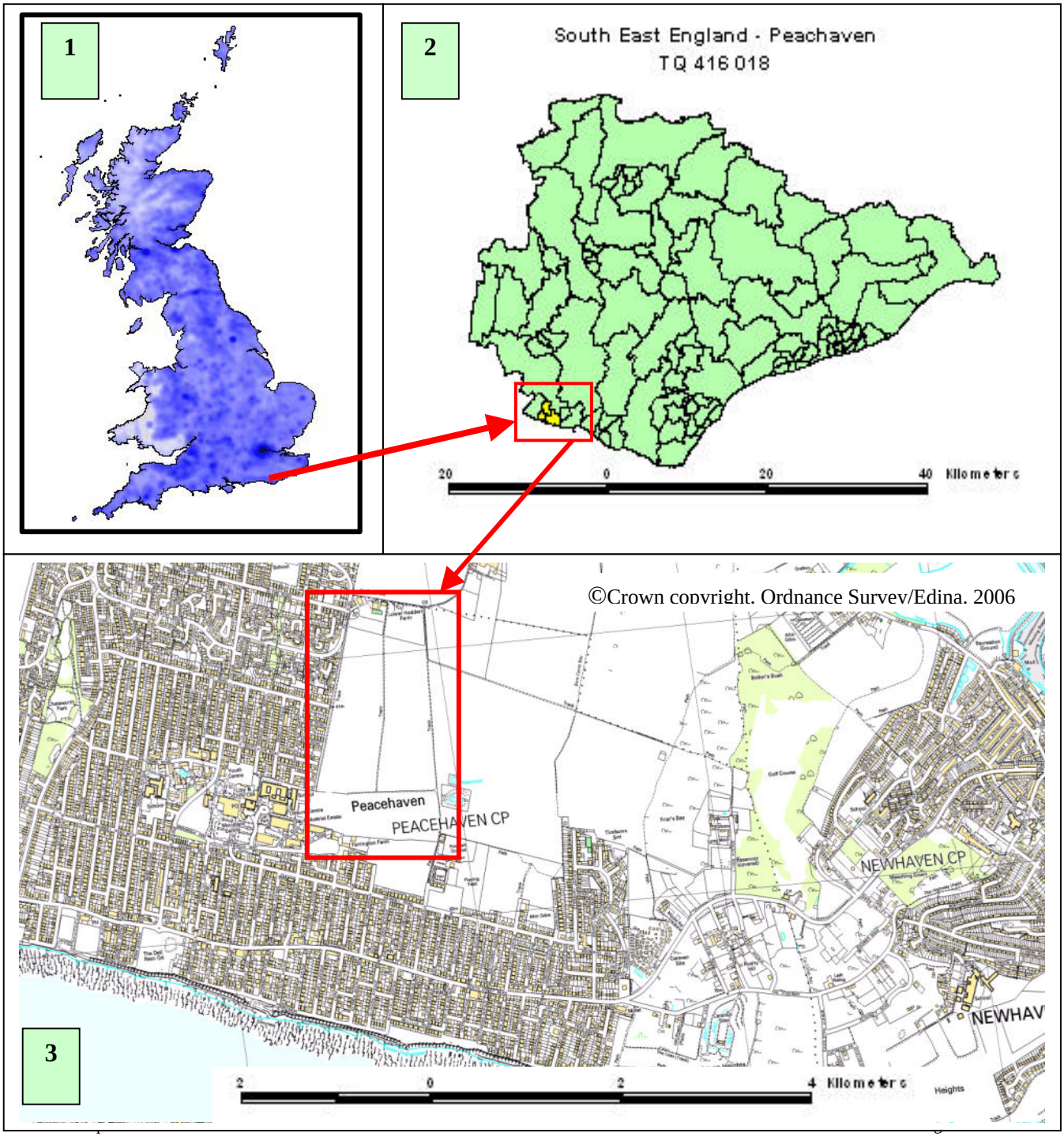
The introduction will illustrate the location of the site, and run through the geology of the area. A short history of Peacehaven explaining the origins of this area will follow, after which the reasons why this project was undertaken. Finally in the introduction, an examination of the theoretical approach behind this project linking it to the research questions. The Fieldwalk chapter will initially present the methodology of the fieldwalk and discuss why the sample size was chosen. A short discussion around the use of the Geographical Information System to illustrate the flint distribution maps followed by the ploughing techniques used on Lower Hoddern Farm. Finally a presentation of many experiments based on the movement of artefacts within the plough zone.

The Flint Report is split into various categories starting with a brief explanation about the raw material and where this flint might have been collected from. The flint report is then split into debitage and implement categories, with both of these being broken down into further smaller chapters. Fire cracked flint (FCF) consisted of 56% of the total assemblage and was extremely dense in the corner of the south field, the flint report presents visual representation and a discussion about the FCF. It was decided to include the pottery report in the main paper, as opposed to including it in the appendix because the pottery found gives an informative sequence, albeit a broken sequence of human presence dating back to the Roman period. The penultimate chapter will put the flint implements into their wider context, using environmental data, local information and the Sites & Monument Record. The final chapter discusses the research questions and takes into consideration any future work that might be beneficial for this area.

Introduction

The following paper is based on a fieldwalk that took place during the winters of 2003/4 at Lower Hoddern Farm, Peacehaven (TQ 416018). The location of the fieldwalk is on the south coast of England between Saltdean and Newhaven (Figure 1).

Figure 1: United Kingdom Map (1), South East England (2) & Lower Hoddern Farm (3)



History of Peacehaven

Peacehaven did not exist prior to 1916, although there was a very small development there 10 years earlier. In 1915 Charles Neville bought an expanse of derelict land in the Parish of Piddinghoe and set up a company to develop it. He used a 'competition' to publicise and sell his land. The public had to think of a name for the area of land and pay three guineas to enter, around 80,000 people entered. The wining name was Anzac-on-sea although this name only lasted a year after which Neville re-named the place Peacehaven in 1917. The Daily Express paper found the scheme to be fraudulent and took Neville to court which he lost, although by this time due to the publicity Peacehaven was infamous. There were many plots of land not claimed or borrowed by neighbours causing much confusion, plus many plots were included in the council's compulsory purchase as part of its development plans for the town (Peacehaven & Telscombe History Society).

Lower Hoddern Farm was put together as a single unit by the Ministry of Agriculture during the second world war, due to the land lying idle following the planning and land ownership problems in Peacehaven caused by Charles Neville. Prior to 1982, the farm was rented out by the Ministry of Agriculture and was primarily used to grow vegetables such as broccoli, sprouts, onions and cabbages for the Brighton Market, alongside arable crops such as wheat which were used as break crops. The farm was bought in 1983 by the Appleton family as one of the first privatisations under the 'Thatcher' Conservative Government, the predominant crop is wheat, but maize and sweetcorn have been grown in recent years with rape and peas used as break crops since the 1990's (Appleton 2007, pers. comm.).

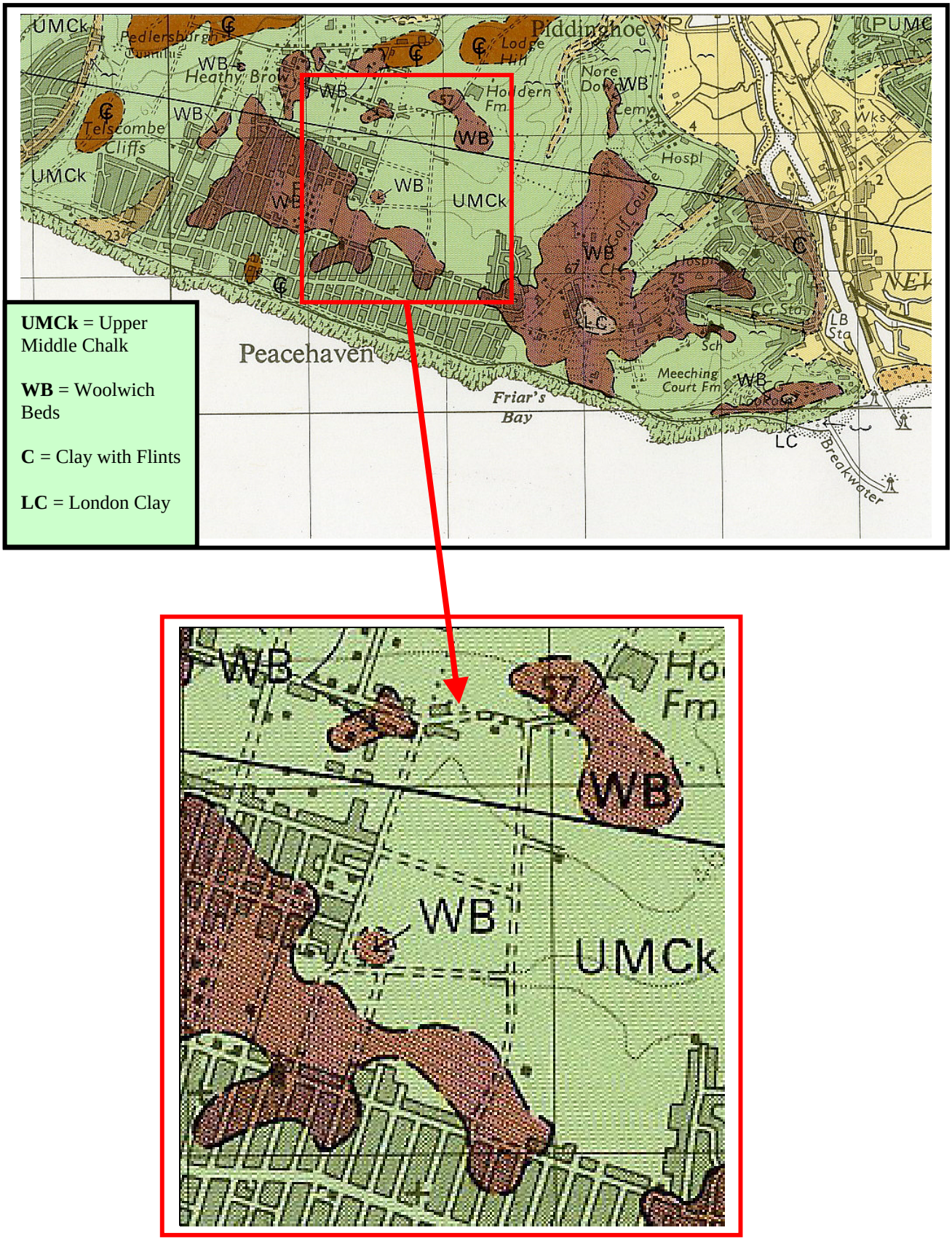
Why a Fieldwalking Project on Lower Hoddern Farm?

This fieldwalking project was undertaken because of flint implements that have been found over many years on this site. Artefacts, such as polished axes, flaked axes and scrapers, have been recorded on the Sites and Monuments Record. Gardiner states "*fieldwalking has become a popular method of collecting and recording data, with the majority of evidence for Neolithic activity likely to be in the topsoil. Surface flint scatters possibly hold the key to non-monumental Neolithic distributions* (Gardiner 1988, p20). The landowner Mr. Appleton mentioned that on a number of occasions when he has had to dig deep sections within the field he could see no trace of a chalk substrate (Appleton, P. pers. comm. 2004). The majority of evidence is likely to be in the plough soil and it is rare to find any subsoil features prevalent (Gardiner 1988, p20). Based on the deep nature of the soil, it was decided not to excavate. Excavation of flint scatters are rare and it would be very difficult to decide on an excavation strategy, the subsoil features would be few and the material in the plough soil will be mixed up (Gardiner 1988, p20).

Site Geology

Lower Hoddern Farm is situated on the South Downs and consists of UMCk (Upper & Middle Chalk) in which flints are found. Some parts of the field consist of WB (Woolwich Beds) (Figure 2). The South Downs was originally a deposit under the sea made up of minute organisms which, accumulated on the floor of a warm sea bed about 200m deep. This created a cretaceous layer of chalk about 400–500m thick, deposition finished around 70 million years ago (Brunsden, Gardner, Goudie & Jones, p45-46).

Figure 2: Geology Lower Hoddern Farm
(Sheet 304, Eastbourne, 1:50 000, 1979)



The true origins of flint and its makeup is still unclear although it is thought that it formed around the nucleus's of decomposing organic material, under the microscope, flint is a nearly pure crystalline silica (quartz) and has the hardness and durability second only to diamond (Bone 1985, p10-11). Woolwich Beds are part of the Tertiary deposits of Sussex which comprise of clays with subordinate silts, sands and pebble beds which can be up to 40m thick. Woolwich beds are of Palaeocene age and occur as small isolated outliers on the dip-slope of the South Downs (Young & Lake 1988, p71). The following, represents observations based upon a brief site inspection carried out in February 2007 by Matt Pope, B.Sc., Ph.D., Senior Research Fellow, University College London. This site visit took place in the fields next door to Lower Hoddern Farm, where Archaeology South East were excavating on behalf of Bovis Homes. Ltd. As can be seen on Figures 3 & 4, the south field on Lower Hoddern Farm is directly adjacent to the ASE site.

Figure 3: Farrington Farm, Excavation Site 2007

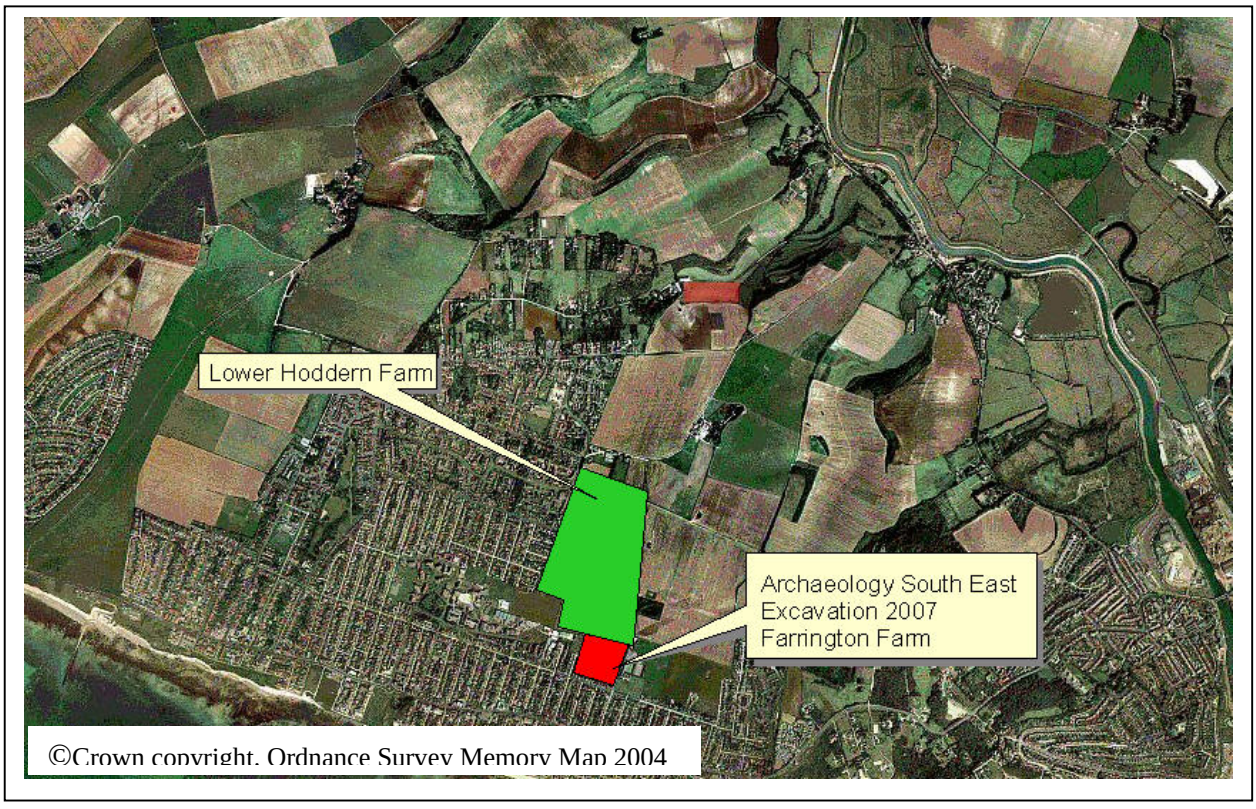
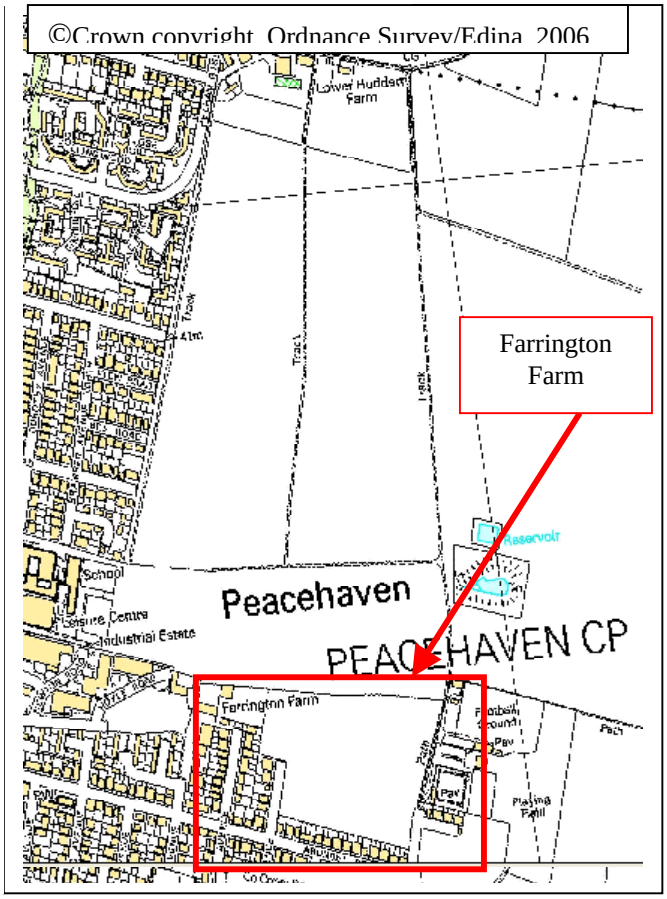


Figure 4: Farrington Farm, Peacehaven

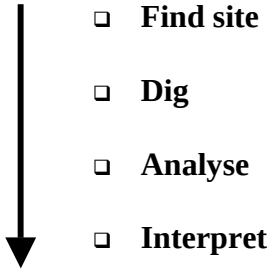


Quoted from M. Pope:- "The site is situated on loamy facies of the Woolwich and Reading Beds, a Tertiary remnant preserved locally within a small tectonic downfold, the Newhaven Syncline. Where exposed nearby, at Newhaven, these beds show an upward progression from marine gravels at the unconformity with the Chalk (c. 6m depth) through fossiliferous sands and clays of the Woolwich Beds overlain by London Clay.

Sometimes there appears to be a superficial deposit of Head Gravel which dates to the Pleistocene. The latter two deposits appear absent at the Peacehaven site where facies of the Woolwich Beds form the subsurface geology. Localised occurrences of small, very rounded marine pebbles suggest local outcropping of the lower Reading Beds. Topographically the site occupies a low point in the landscape and, despite the sand content of the local geology, is impervious enough to trap surface water. This may have been the case in the past and would offer an explanation for human activity in the local area where standing fresh water, absent, in the immediate free draining Chalkland landscape would have been a valuable resource. Given the localised focus for drainage and the preservation of Tertiary deposits it might just be possible that a localised Doline has formed below the site. This is a large solution feature which may possibly preserve earlier Pleistocene landsurfaces" (Pope, M. A.S.E. Report Unpublished, 16 Feb 2007).

Theoretical Approach

The research questions are framed in terms of people-object interactions, and are based around the behavioural archaeological approach which was an outgrowth of processual archaeology. Processual theory evolved through 'new archaeology' during the 60's & 70's with the main theme being '*explanation and process of change*' (Dark, pp8-11). This coincided with the beginnings of 'rescue archaeology' and a more professional approach in the discipline. New archaeologists/processualists were concerned with "processes that produced the static materials that they study" (Ellis 2000, p398), their approach was linear (*see below*):-



- **Find site**
- **Dig**
- **Analyse**
- **Interpret**

Previously traditional archaeologists would draw an interpretation based largely on intuition (Greene, p244). Lewis Binford, an advocator of 'new archaeology' used a cultural materialist and systems approach to show how 'intangible' parts of human culture could be defined from the material remains (Hester et al. pp10-13). Binford stated, there were 3 realms of behaviour that could be construed from artefacts and the contexts they were found in; these behaviours were environmental, social and ideological. He pushed for the importance of using quantification and prediction within archaeology, to demonstrate a scientific objective approach. This was instead of the previous subjective approach which was to use description based on the excavators opinion and expertise (Gamble, p25). Processualism can be divided into two areas, functional and cognitive. Functional leans towards the 'new archaeology' theory where there is a preference for explanation and logic and a belief that one can

test hypotheses against data. The belief is that by testing hypotheses it is possible to determine which is correct and which is false (Dark, pp8-11). Cognitive processualists also agree that you can test hypotheses, but take into consideration the individual's role within the explanation. They believe that you can reconstruct beliefs, decision making, thoughts and perceptions using the application of rules and laws (Dark, p143). Linked to this change of approach was an increase in new technologies such as soil analysis, faunal studies, recovery of pollen/plant remains, dating, artefact analysis and human remains analysis (Hester et al. p14).

Behavioural theory promoted an expanded archaeology that overcame some of the methodological and theoretical problems associated with early processual archaeology (Hodder 2001, p15). Behavioural archaeology did not adopt a systematic approach, it "*seeks to explain variability and change human behaviour by emphasizing the study of relationships between people and their artifacts*" (Hodder 2003, p33). It works on the principle that an artefacts' 'life history' is the sequence of behaviors that start with the procurement of raw materials, the manufacture of the object, the use or reuse and the eventual discard or abandonment of the object into the archaeological record (Hodder 2001, p21). A behavioural system includes people and elements of the world in which they actually physically, visually, chemically and acoustically interact (Hodder 2001, p27). A concern for behavioural archaeology is how and why objects came to be removed from the activities in a behavioural system before entering the archaeological record though cultural deposition. It has long been argued that the archaeological record is a transformed or distorted reflection of past behavioural systems (Hodder 2001, p40-41). One criticism of behavioural archaeology is that there are 'silent' modern assumptions placed on the meaning of artefacts which may

have had different meanings for the people in the past (Hodder 2003, p33). This paper is based on processual-functional and behavioural theory. Fieldwalking came in on the back of processual archaeology in the 1960's (Drewett 2007, pers. comm., 3 March). The research questions will be answered using the processual linear approach of having found the site, fieldwalked it, and now analysing the data to produce an interpretation of some activities attached to the artefacts. The behaviours result from the study of the relationships between people and their artefacts. This will be done by analysing what type of artefacts are in the collection, presenting various graphs, tables and comparisons to other collections. The interpretation of the artefacts will then follow using other sites and expertise knowledge, to introduce a conclusion of the type of knapping was taking place on this site.

The following chapter presents the fieldwalk methodology and discusses the movement of flint artefacts on a ploughed field.

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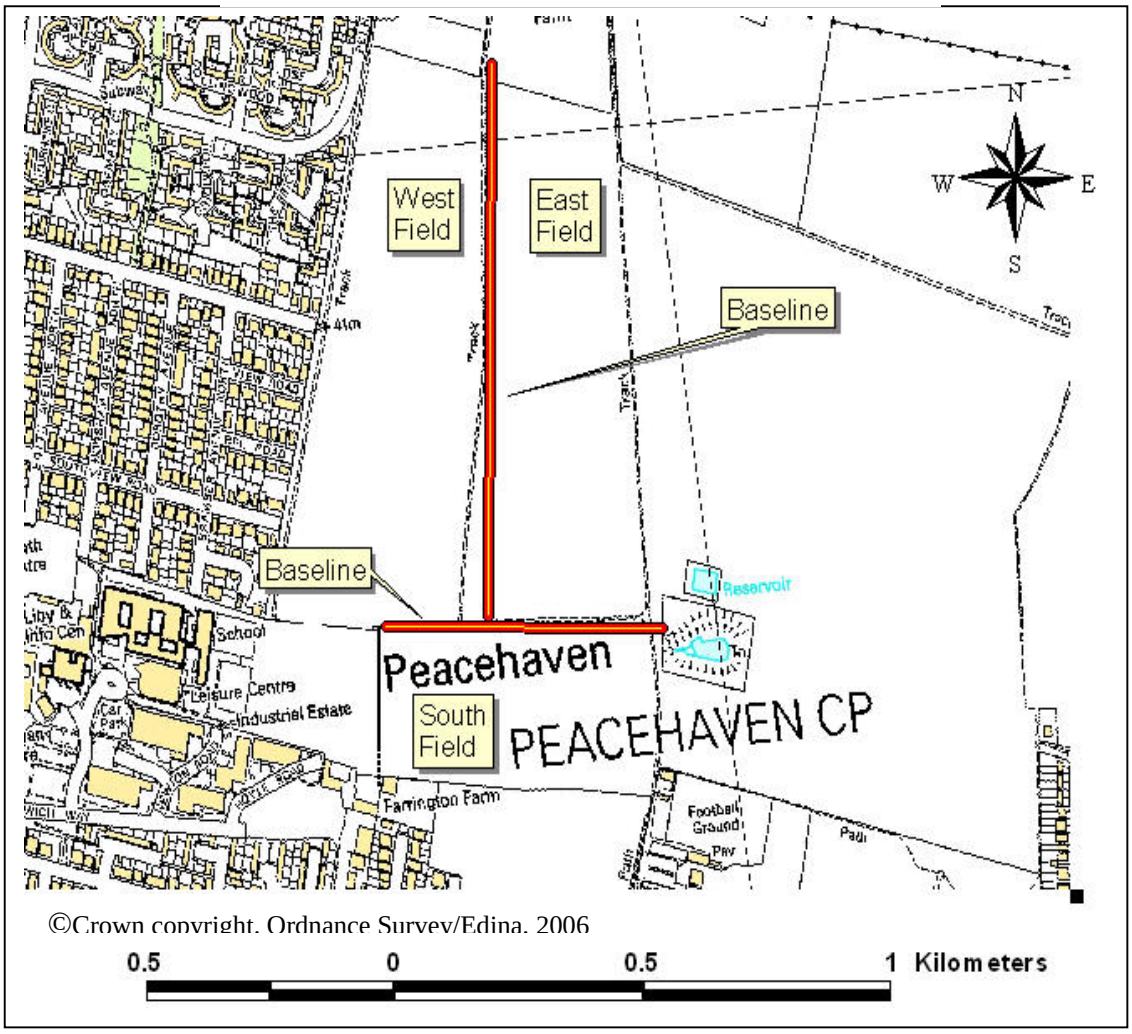
The Fieldwalk

A detailed programme of field walking at Lower Hoddern Farm (TQ 416 018) was undertaken by Brighton & Hove Archaeological Society Field Unit, during the months of January and February in 2003 and 2004. The field which covers 29.71 hectares is divided into three sections east, west and south (Figure 5), a concrete track way divides the east and west field, and a grass track way separates the east/west fields from the south field.

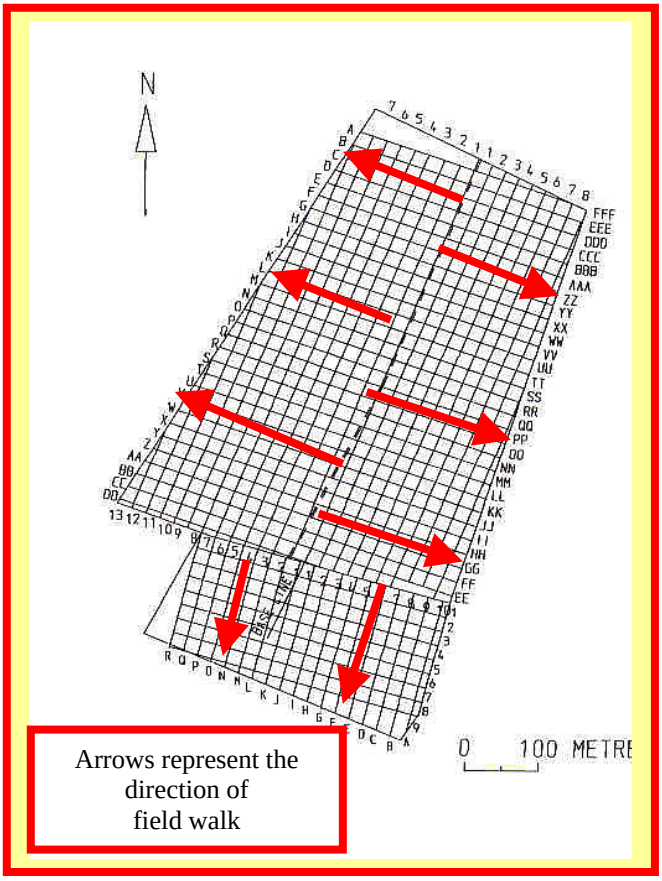
Figure 5: Fieldwalk Baseline



Methodology

A pilot field walk, on the west field, consisting of ten 20m grid lines was undertaken in 2003. From this initial fieldwalk an axe roughout plus substantial amounts of flint implements were recovered. The following year in January 2004, an intensive survey was completed by line walking the rest of the west field and both south and east fields. A base line was set up running along the west side of the central concrete road (Figure 5). The concrete track way veers towards the south west at the lower end of the field, which meant that some of the initial transects of U-DD are actually in the east field. The west field was walked from east to west, the east field fom west to east. The south field had a base line running along the grass track way that separated it from the other two fields. This field was walked from north to south (Figure 6).

Figure 6: Fieldwalk Diagram



The grass track way is in a small valley bottom, the south field rises up as a small hill. The contours across the other fields show that there is a gentle rise in the west field towards the central track way. The east field drops to a shallow valley and then rises again on the east side.

Sample Size

The sample size of this fieldwalk was decided upon, by taking both time and labour constraints into consideration. There was a period of 6 days access to the fields between ploughing and planting. The time allocated to this programme was 2 days in 2003 and 4 days in 2004. The amount of labour available on average was 13 people per day. The calculations that needed to be made before deciding on what grid size to choose, were based on Fasham's calculations to cover 10 hectares. This is as follows:- **10 hectares, line walking at 10m apart = 82 to100 man hours** (Fasham et al 1980, p9). The total hectares for Lower Hoddern farm is 29.71. The total man hours needed for 29.71 hectares through walking at 20m apart = 41 to 50 man hours. We had a total of 42 hours for this project and an average of 13 people per day which was sufficient to complete within the time scales whilst allowing for some variables such as weather, tiredness and part time workers to influence the timescales. It was decided that the data was to be collected physically rather than recorded *in situ* and that the walkers were to be selective with the artefacts as opposed to 'total' collection. Total collection is favoured because it does not rely on the ability of the workers to recognise categories in data collection (Orton 2000, p83). It was deemed that there was enough experience within the BHAS team to advocate selective collection. It has been argued that 'total collection' does not slow down data collection (Orton 2000, p83). In this case there was such an abundance of fire cracked and very large pieces

of flint, that 'total collection' would have significantly slowed down the field walking. The experienced walkers were placed alongside less experienced members. The teams were informed of what to do, and why they were doing it, to ensure that there was a basic understanding of the sampling procedure (Orton 2000, p99). The effect of field walkers' ability to recognise artefacts were tested on surveys in East Hampshire in 1977/8 and in Shapwick Parish in 1989. It was found that once the environmental and distorting variables had been removed, "*the contribution of field walker to the overall variability appeared to be small"* (Orton 2000, p103/6). Orton states that there is 'no statistical rationale' whatsoever for any standard sampling fraction. It is more important to consider the absolute size of the sample. This depends on the size of the region/site, density of features, probability of detection and the visibility of features. Whatever the sample size, there will always be a huge percentage that is missed, this is completely unavoidable unless the sample size is 100% (Orton 2000, p121). Considering the size of the Lower Hoddern fields and the amount of time and labour available, it was deemed appropriate to walk 20m grid squares which amounts to a 12% sample. The artefacts recovered would be a relative representative sample, as no part of the field is over represented (Foard 1978, p358). Grid walking is ideal for further investigations of sites which have already been discovered. We chose the most rapid straight through grid walking, where the walkers walk straight through each square, looking 1m either side of the line and change bags at the end of each square (Fasham et al 1980, p7-8). Ranging poles were used to divide the site into smaller working areas. All finds were bagged and secured to the ranging poles. The first line in the west field was located 20m along the concrete track way, south of a row of trees that are the north west boundary of the main fields. The first line of the south field was located 10m in from the east boundary of the field.

Geographical Information System

Geographical Information System (GIS) maps will be used in the following flint report to illustrate the distribution of flint artefacts, at the time of their removal from the archaeological record. Each grid reference has been entered into the GIS computer system enabling the plotting of artefacts onto the maps. The symbols used in GIS vary according to the artefacts they represent, they also differ in size depending on the amount of artefacts per grid square, each illustration has a key underneath it. The decision was made, that it was not a viable prospect to individually plot and record each artefact on the site itself, using grid references. Fasham writes that such detailed plotting of each artefact individually is time consuming, laborious and unrealistic. Fasham doubts whether this approach is necessary in a field where there is a great amount of artefacts and agricultural activity will have moved the artefacts (Fasham et al 1980, p4). Healy suggested in his work in 1987 that even tightly gridded surface collections may not represent very much at all, certainly not of subsoil features (Healy 1987, p9).

Ploughing - Lower Hoddern Farm

The following information was obtained from the landowner, Mr. Appleton, who stated that: "Normally a conventional one way plough has been used in the west, east and south fields at Lower Hoddern Farm, power harrow ploughs are not used. A one way plough is a traditional plough and can only turn the soil in one direction, repeated use, results in ridge and furrows. Modern farmers use a reversible plough, which have two sets of mouldboards. At the end of each pass over the field, the tractor turns around and goes back next to the previous run. In order to prevent the ridge and furrow effect the plough is also turned over by hydraulics which results in the whole

field being turned over in the same direction. The depth of plough varies depending on what you want to achieve, but 20cm would not be an unusual depth for ploughing. The main part of the fields have not been sub-soiled, however the head lands (the field edges) get sub-soiled about once every five years due to compaction from farm traffic. This is mainly the northern headlands where most of the farm traffic is going back to the farm buildings. An example of a plough cycle at Lower Hoddern, is where we have just planted maize, these fields were conventionally ploughed over the winter between other jobs. Weeds that had emerged were sprayed off and then the seed bed was prepared with a spring tinge cultivator with a roller" (P. Appleton 2007, pers. comm., 22 April).

Movement of Artefacts in Plough Soil

There have been many studies about the movement of artefacts in ploughed fields. These studies have resulted in some interesting conclusions about how far artefacts are moved from their original placement after ploughing episodes. A study of the movement of stone artefacts was carried out in New South Wales, Australia. In just three seasons of normal farming cultivation with disc and tyned agricultural implements. The results showed that artefacts were scattered between 2.2m and 26.8m from their original placement on the surface. Gaynor used over 200 artefacts for this experiment consisting of various types of stone including flint. The maximum distance that any artefact travelled within one cultivation period was 11m from its original placement. During the three seasons, there were never any more than 18% of artefacts on the surface. Interestingly 42% of artefacts never appeared again suggesting that over a long period of ploughing, many of the artefacts would remain buried. Two excavation trenches were dug to the depth of the bottom of the

ploughsoil, to establish whether artefacts tend to migrate downwards. The results concluded that more artefacts ended up in the top half of the plough zone (Gaynor 2001). Other results of artefact movement in ploughsoil quoted in Gaynor's paper include:- Lewarch & O'Brian 1981, who predicted that surface artefacts are only likely to represent 10% of the total number in the plough zone. Frink 1984, predicted that all artefacts have a probability of appearing once every six or seven years. Ammerman 1985, experimented for four years in Italy and found that only 6% of artefacts were ever on the surface at any one time and that the furthest an artefact had moved was 15m. Odell and Cowen 1987, suggested that only 5-6% would be on the surface at any one time, they also found that with 12 ploughing episodes the site had doubled from 234 to 471 sq/m. An experiment at Ladybridge Farm, Nosterfield, took place in 2005. Two pits of 1.5m sq were cut into the subsoil and filled with coloured marker artefacts, these consisted of two layers each measuring 20mm thick, the upper layer was filled with white markers and the lower filled with green. After ploughing in April 2006, test pit D of which the natural subsoil was covered by 31 to 37cm of ploughsoil, showed no disturbance of the marker artefacts. Test pit E had a covering of 21 to 27cm of ploughsoil and showed evidence of disturbance. The results showed that where there is a covering of around 25cm of ploughsoil, over 20mm of subsoil deposits were truncated by a single episode of ploughing. Test pit E resulted in a linear spread of markers up to 13.5m distance from their original placement and varying between 1.60 and 2.10 metres in width. (Dickson, A., Hopkinson, G. & Timms, S., 2005). A similar experiment on a site at Owmby, Lincs. placed blue glass chips into test pits at depths of 20 to 40cm, during the excavation of a scheduled Roman and Late Iron Age settlement. After one episode of potato cultivation the chips were scattered a substantial distance and disturbance occured at depths of 35cm.

Further monitoring for two years on this site demonstrated that some of the chips had moved 27m in one direction and 28m in the other from the original point of insertion (Mcavoy 2002, p12). An experiment at Butser Ancient Farm, Hampshire, monitored the manner and extent of movement of artificial artefacts. These artefacts were placed 50cm deep into the plough soil and then subjected to both modern and prehistoric cultivation practises. The results were that 90% of the material remained within 2m of deposition (Reynolds 1999). It was found that slopes had a minor effect on the movement of artefacts during cultivation (Gaynor 2001). Soil types can also effect the recovery rates, on a site in Northamptonshire it was noted that immediately after ploughing only 2 or 3 sherds where visible. A month later once the site had weathered and been harrowed there was a dramatic increase in visible artefacts (Foard 1978, p362). Artefacts can also be moved from one site to another contained within topsoil. Quantities of soil can often be moved off site attached to crops. The soil is then washed off the crops, then passed onto other sites whilst containing artefacts from the field of origin. This can influence the archaeological interpretation of the fields where the washed soil ends up (Pendleton 2002, p25).

Discussion

Most fieldwalking assemblages are an accumulation of material formed over a sustained period as a result of multiple human activities over time. They often represent an archaeological 'palimpsest' providing a view of repititious human behaviour over a long period, as opposed to discrete short phases of occupation (Waddington 2005, p7). Depositional and post-depositional factors such as Schiffer's N-transforms (soil erosion, wind blown loess) and C-transforms (ploughing) on the Lower Hoddern Farm site, needs to be considered when analysing the data recovered

(Schiffer 1995, p48). The archeaological record is not static and is constantly being modified which usually means a loss of information. Archaeological data represents the past but is not the 'past' in an unmodified state (Dark 1995, p41). C-transforms have clearly had a major effect on the whereabouts of flint artefacts in most ploughed fields. The results of the various experiments on the movement of artefacts within the plough soil, can be summed up as follows: artefacts were moved from between 2m to 28m from their original placement. There are at any one time 5 to 18% of artefacts appearing on the surface. In one experiment 42% of artefacts remained buried never to be seen again. Artefacts at a depth of around 25cm to 35cm are more likely to move longer distances. Artefacts that were placed at 50cm depth, demonstrated that 90% moved up to 2m, from their point of origin. When taking into consideration the Odell and Cowen experiment, where the distribution pattern doubled in size from 234sq/m to 471 sq/m after only 12 ploughing episodes, any ploughed field flint scatter distribution maps need to be cautiously examined. They cannot be claimed as representations of 'knapping' or 'working' areas based on dense flint scatters. What they can represent is the 'archaeological record' of the artefacts' position on the fields, prior to their permanent removal. The majority of GIS distibution maps are contained within the appendix for future reference. There is a need to re-evaluate the "*integrity and interpretation of finds scatters across the wider area, more research and monitoring is required to establish the processes which may lead to or distort artefact distribution…*" and it is clear that "*recorded surface distributions have undergone a far more complex re-distribution throughout time through various farming practices than originally anticipated*" (Dickson, A., Hopkinson, G. & Timms, S., 2005).

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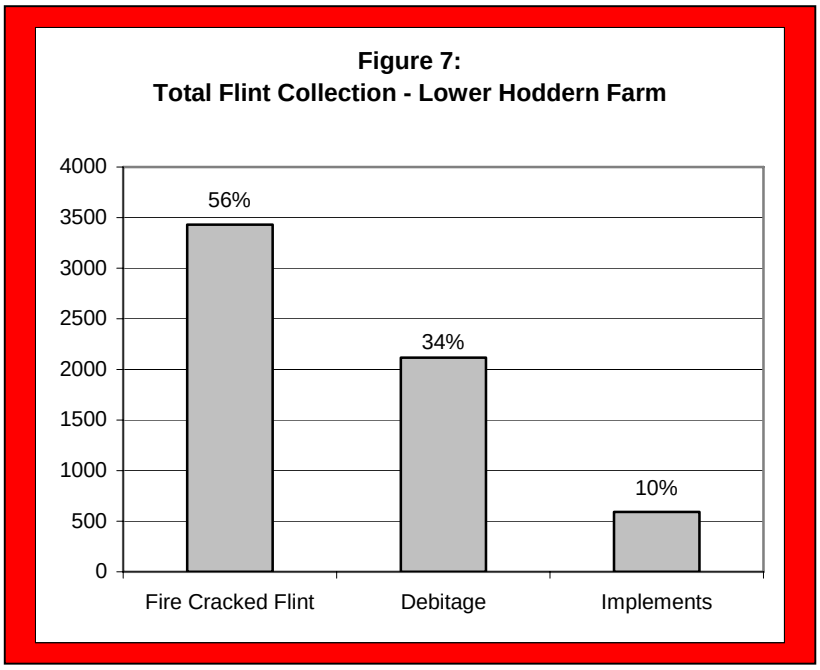
The Flint Report

The majority of the assemblage (99%) comprised flint, with the remaining 1% of the collection comprising pottery and roof tile. In total the site produced 6139 pieces of worked and fire cracked flint. From this total of 6139, 10% were implements, 34% consisted of debitage and the majority 56%, consisted of fire cracked flint. (Figure 7).



The Raw Material

The flint was principally a light grey/white patination with intraclasts visible. The cortex is generally thin and weathered. The source of this collection is likely to have been collected or quarried from secondary deposits in the chalk South Downs. These deposits being created through the effects of weathering and mechanical action on the primary deposits of flint seams, glacial action has re-deposited the flint in gravel beds. "Pre-historic people could easily have collected freshly fallen nodules from cliff falls, or pebbles from the beach" (Butler 2005, p17).

The Debitage

Debitage amounted to 34% of the total collection, the east field contained 45% of all debitage (Figure 8). Table 1 shows a breakdown of objective and detached pieces. Objective are flint items hit, cracked, flaked or modified in some way which includes cores and flakes. Detached items are removed from objective pieces during the modification process and include flakes, chips, spalls, blades or any piece that detaches itself from the objective piece (Andrefsky 1998, p9). The debitage typology is based on the Thames Basin analysis (Holgate 1988, pp38-42).

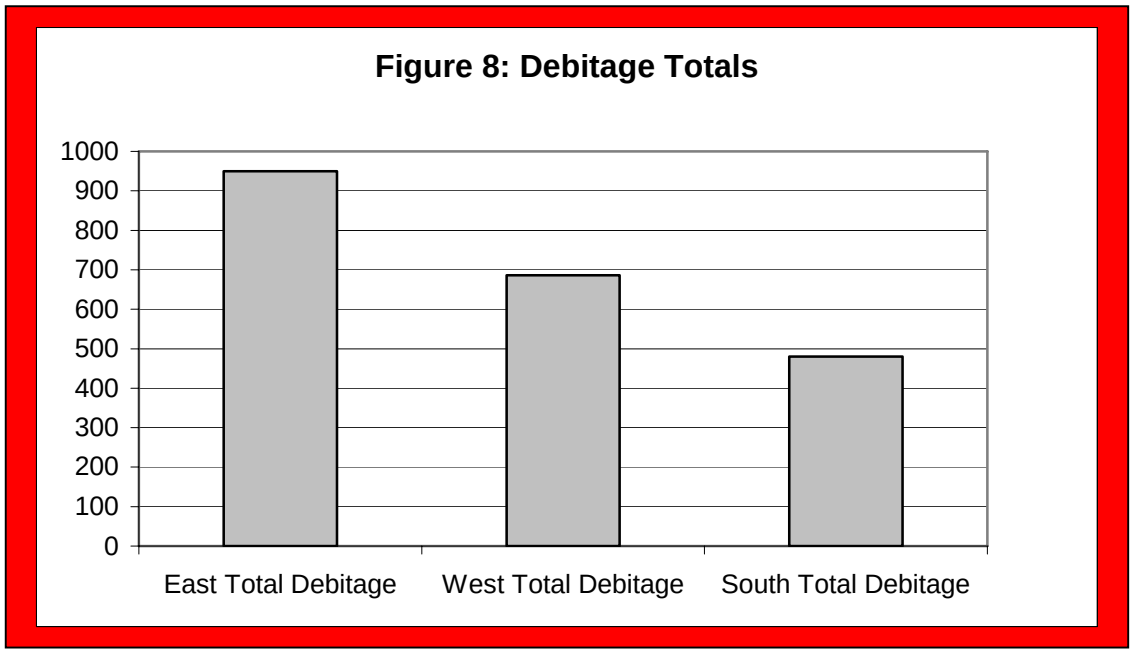
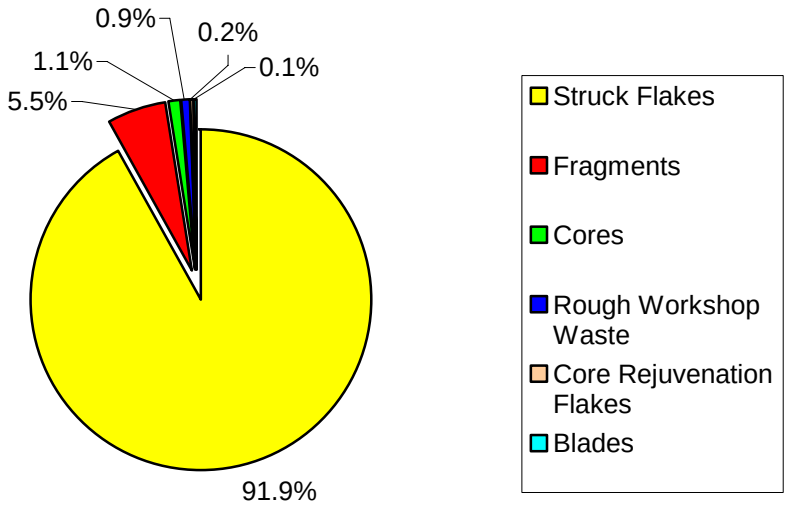


Table 1: Breakdown of Debitage Types

Debitage	East Field	South Field	West Field
Detached: Flakes	887	441	618
Detached: Fragments	36	31	50
Objective: Rough Waste	14	3	3
Detached: Core Rejuvenation Flakes	4	1	1
Objective: Cores	7	4	13
Detached: Blades	2	-	1
TOTAL	**950**	**480**	**686**

The percentage of debitage breakdown shows that struck flakes are the largest proportion at 91.9%, followed by 5.5% of fragments (Figure 9). Cores consist of 1.1% of the collection with core rejuvenation flakes amounting to 0.2%. Rough waste consists of just under 1% leaving a very small amount of blades at 0.1%.

Figure 9: Percentage Breakdown of Debitage



The **struck flakes** in this collection have been sorted into three categories, primary, secondary and tertiary. These flakes show no sign of modification or utilisation. Primary flakes are detached first in the reduction process, followed by secondary and finally tertiary flakes. This report is based on the classification used by Bradley 1970, which defines primary flakes as those with totally corticated dorsal faces, secondary flakes as those with partial cortication and tertiary flakes with no cortex present (Bradley 1970, p346). This collection was divided into flakes with or without cortex, further future analysis on the Lower Hoddern, debitage to determine both primary and secondary flakes might be beneficial. The combined proportion of corticated (primary) and partially corticated (secondary) removals in this collection came to 55%

(Figure 10) leaving 45% tertiary removals. The larger concentrations of struck flint were found more towards the east of the fields, which may simply reflect the ploughing techniques applied to these fields (Figures 10 & 11). At present until further research is completed the GIS illustrations are used in this report to show the placing of artefacts before they were permanently removed from the archaeological record. This information can show what type of knapping technology was taking place on this site, if there were any stages of the reduction process missing then it may be an indicator that the missing stage might have been carried out elsewhere (Butler 2005, p195). The high number of flakes with cortex demonstrates that nodules were not 'decorticated' before they were brought to the site for reduction (Figure 10). On a site such as this that has produced many axes, the presence of primary, secondary and tertiary flakes alongside analysis of whether the flakes were hard or soft hammer hit, can show the different knapping technology that was employed at each stage of the process (Butler 2005, p195). Flint knapping technology changed over time, the size of flakes from the Mesolithic through to the Bronze Age have tended to get larger and heavier over time, they have tended to go from long and thin to short and squat. It is sometimes a useful exercise to measure the length, breadth and thickness of flakes to gain an overall average of the size of flakes to determine where they might fit in the timescales of changing flake size. However the problem with using 'length/breadth' statistics as the only means of analysis to date a site, is that it depends on the size and availability of the raw material that was available at the time of procurement. Caution needs to be exercised, length/breadth analysis should take into consideration the variations in raw material and the types of tools being made on a site. (Butler 2005, pp196-198). One hundred struck flakes which equates to 5% of the total struck flake collection, were measured for length breadth ratio according to the method used for

the comparison of Neolithic assemblages. Length was taken to be the greatest measurement on the axis of percussion and breadth the greatest measurement at right angles to the latter.

Figure 10: G.I.S. Distribution Map, Primary/Secondary Flakes

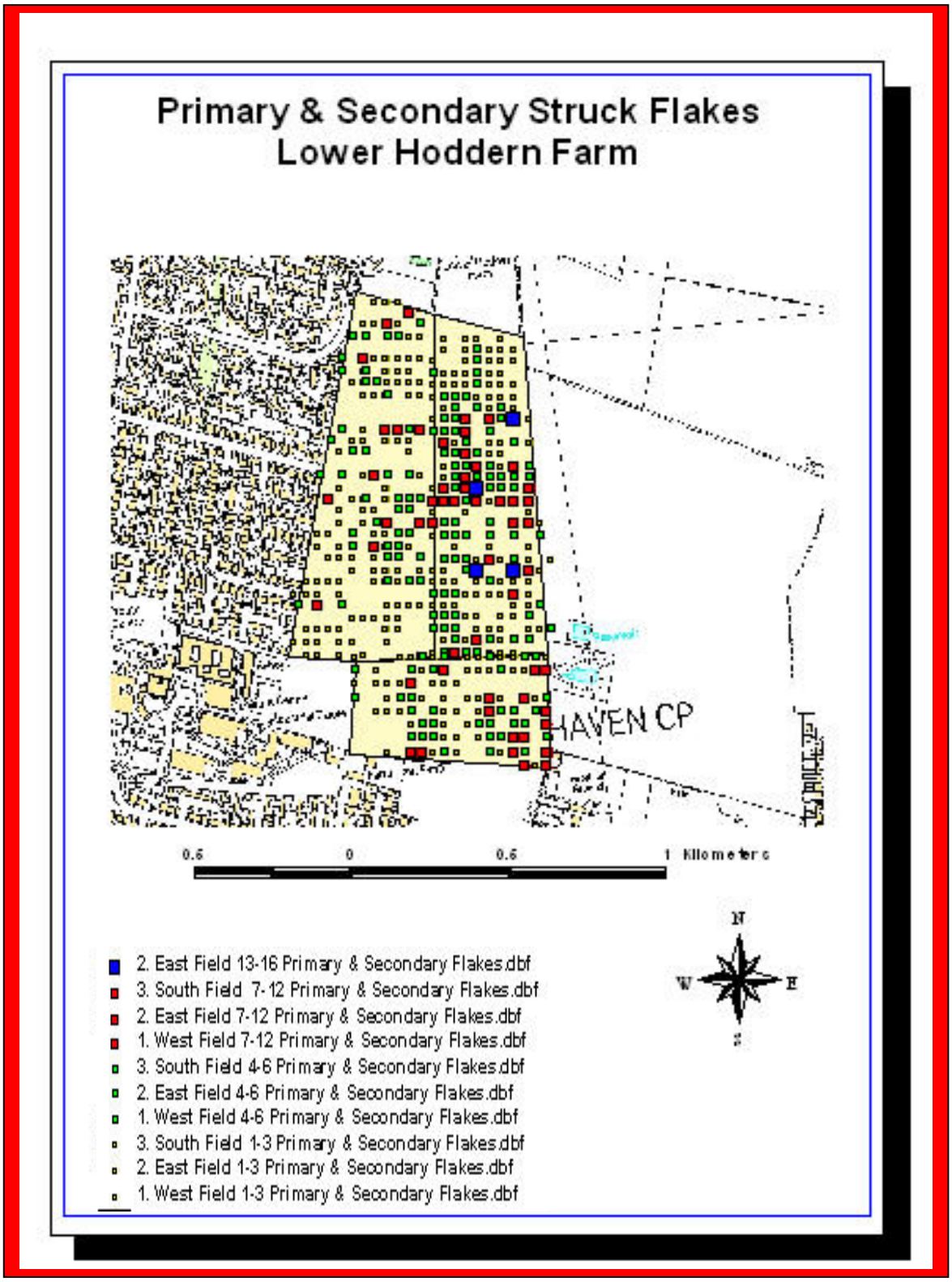
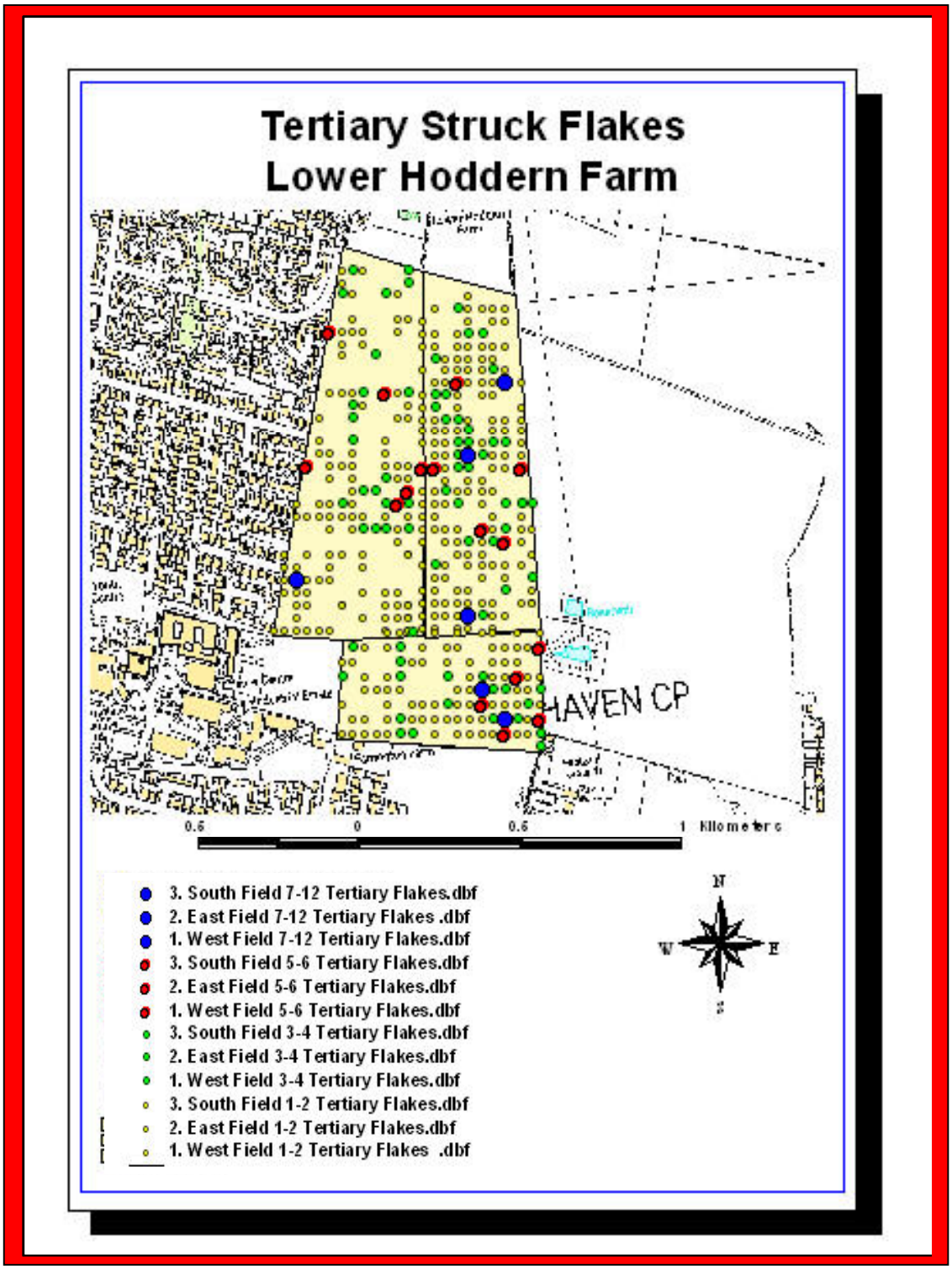


Figure 11: G.I.S. Distribution Map, Tertiary Flakes



The average length of Primary/Secondary flakes is approximately 4.11cm ± 0.6cm, and length of Tertiary flakes is 3.54cm ± 0.5cm. The average width of Primary/Secondary flakes came to approximately 3.59cm ± 0.5 cm and width of Tertiary flakes were 3.15cm ± 0.5cm. The average thickness of Primary/Secondary flakes are 1.20cm ± 0.2 cm and Tertiary flakes were 0.85cm ± 0.1cm (Table 2).

Table 2: Average Measurements of Struck Flakes

Struck Flakes	Secondary Flakes	Tertiary Flakes
Average Length	4.11 ± 0.6cm	3.54 ± 0.5cm
Average Width	3.59 ± 0.5cm	3.15 ± 0.5cm
Average Thickness	1.20 ± 0.2cm	0. 85 ± 0.1cm
Length:Width ratio	1:1	1:1
Width:Thickness ratio	1:4	1:2

These measurements result in a L:W ratio of 1:1cm for both types of flakes (Figures 12 & 13). The length/width ratio of 1:1 from this site, demonstrates that the flakes fall into the 'medium' category using Butlers' table where he uses broad, medium and narrow to place various sites. On Butlers' table the Mesolithic site 'Streat Lane' is split almost evenly into both the medium and narrow categories whilst the Bronze Age site 'Crowlink' falls mainly into the medium category (Butler 2005, p198). The same length width ratio of 1:1 is found on the Mile Oak Farm site, in Portslade, it was excavated in 1989 as part of the Brighton By-Pass project. The conclusion by Underwood for the Mile Oak flint collection was that it possessed the characteristics of a Late Bronze Age flint industry (Underwood in Rudling 2002, p34). The results of some length/width ratios demonstrate that you can have the exact same ratio for two very different sites. The characteristics from the Lower Hoddern flintwork is Neolithic, wheras Mile Oak flintwork is characterised as Late Bronze Age and yet they have the same 1:1 L:W ratios.

This demonstrates the need to include this type of analysis alongside many other forms of information to determine tentative dating of sites.

Figure 12: Length-Width (mm) Primary/Secondary Flakes

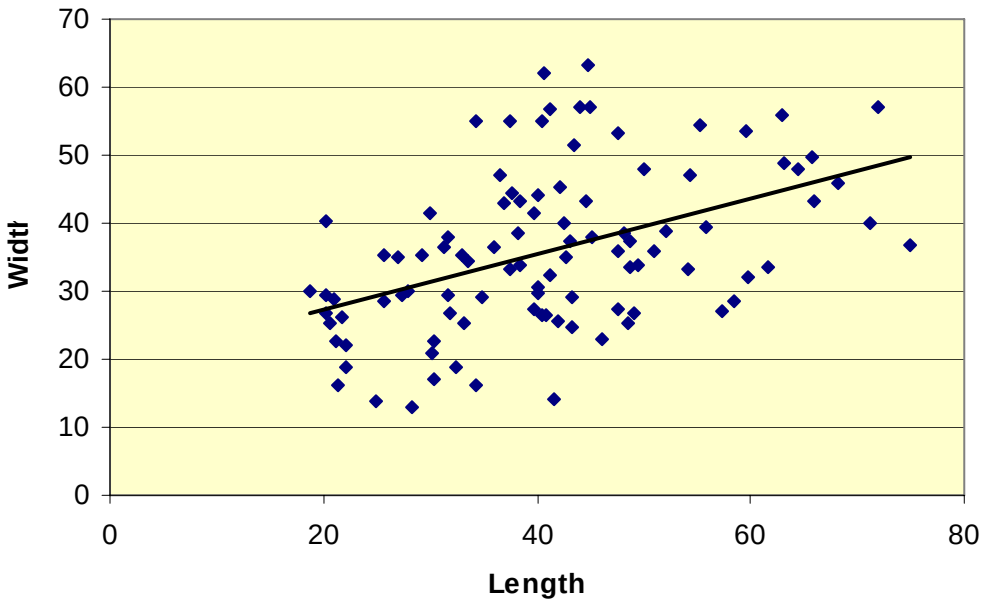
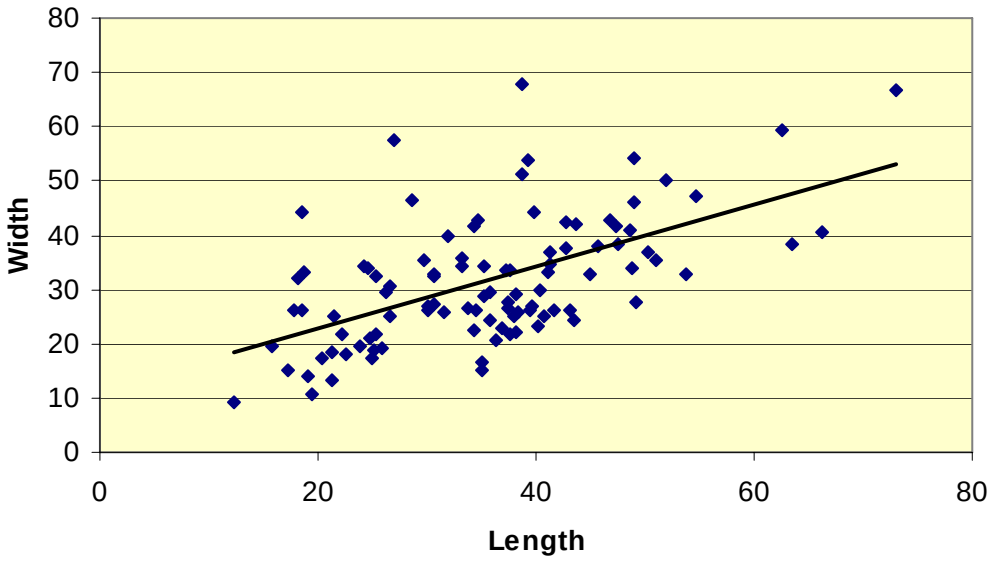


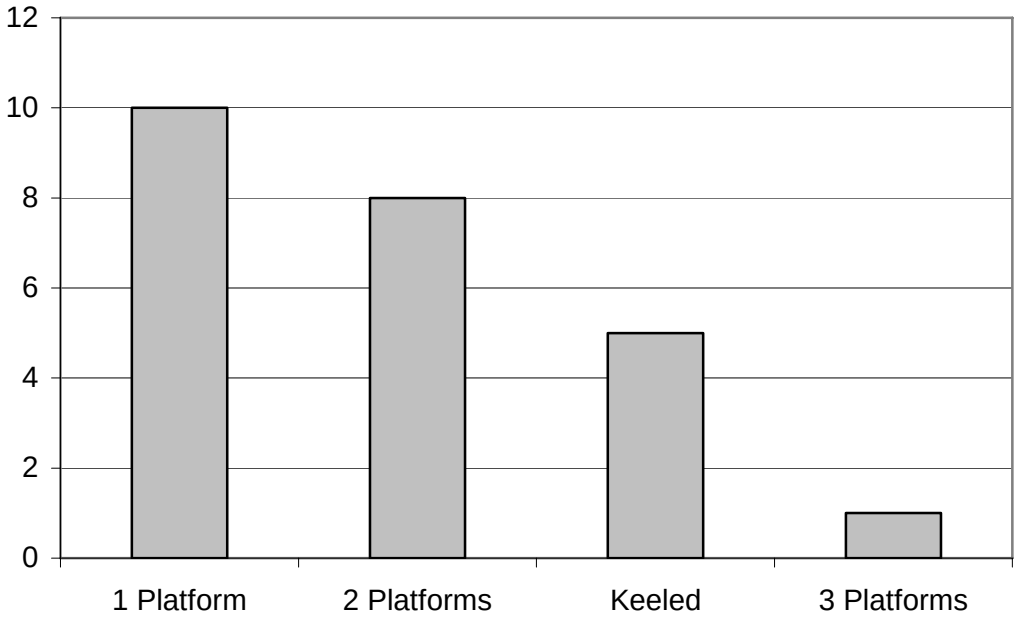
Figure 13: Length-Width (mm) Tertiary Flakes



Fragments are broken pieces of flakes, blades or bladelets (Butler 2005, p40), these consist of 5.5% of the debitage. The majority of fragments from this collection have been broken in antiquity and are mainly flakes and blades as opposed to bladelets. Fragments in reasonably large numbers can indicate the use of a hard hammer technique and are more common in later Neolithic assemblages (Butler 2005, p40). **Rough waste** as determined by Holgate are shattered pieces which do not display the distinctive characteristics of a conchoidal fracture but have still resulted from flaking flint (Holgate 1988, p38). The collection of rough waste, consisted of just under 1% of the debitage. The majority of these pieces were angular, irregular shaped of which 84% were cortical pieces. It is possible that some of these may have been 'tested nodules' where the knapper would remove a couple of flakes to test whether the nodule was suitable for knapping. The presence of these indicate that people were being selective in choosing which raw material was suitable or not (Butler 2005, p31). **Cores and Core Rejuvenation Flakes** amount to 1% of the debitage collection, a total of 24 pieces. The majority of cores have one or two platforms (Figure 14). The dimensions range from 2.3cm-12cm, the majority range between 4-6cm. Most of the cortex has been removed with the exception of two of the largest cores. Most of the cores with 2 platforms tend to be cube shaped. The larger cores have more cortex with fewer flake removal scars. There are six small cores which have one platform and very little cortex on each of them. A few of the cores in this assemblage were flaked to near exhaustion, so much so that they had no visible platforms left. Many of the cores might have served to supply blanks for unspecialised, retouched flake tools and scrapers. There was six core rejuvenation flakes found, indicating a degree of care being taken during the knapping process to enable full use of the flint resource available. Core rejuvenation flakes as classified by Holgate are flakes with negative

impressions of removals on one side of the dorsal surface, these removals are either a previously worked striking platform or are the result from the preparation of the flaked surface on a core before detaching the flakes/blades (Holgate 1988, p41).

Figure 14: Core Typology



Cores with one platform amount to 42% of those found, with 70% having had the flakes struck off all the way round. Cores with 2 platforms account for 33%, with 75% of these having platforms at right angles (Figures 15 & 16). There was some evidence of core preparation on those with 1 platform, these smaller cylindrical cores with one platform could possibly be later Mesolithic in date (Butler 2005, p86), whilst the cores with 2 platforms and those with platforms at right angles are more than likely to be early Neolithic in date. The keeled cores amount to 21% and are more common in later Neolithic assemblages but do occur on earlier sites (Butler 2005,

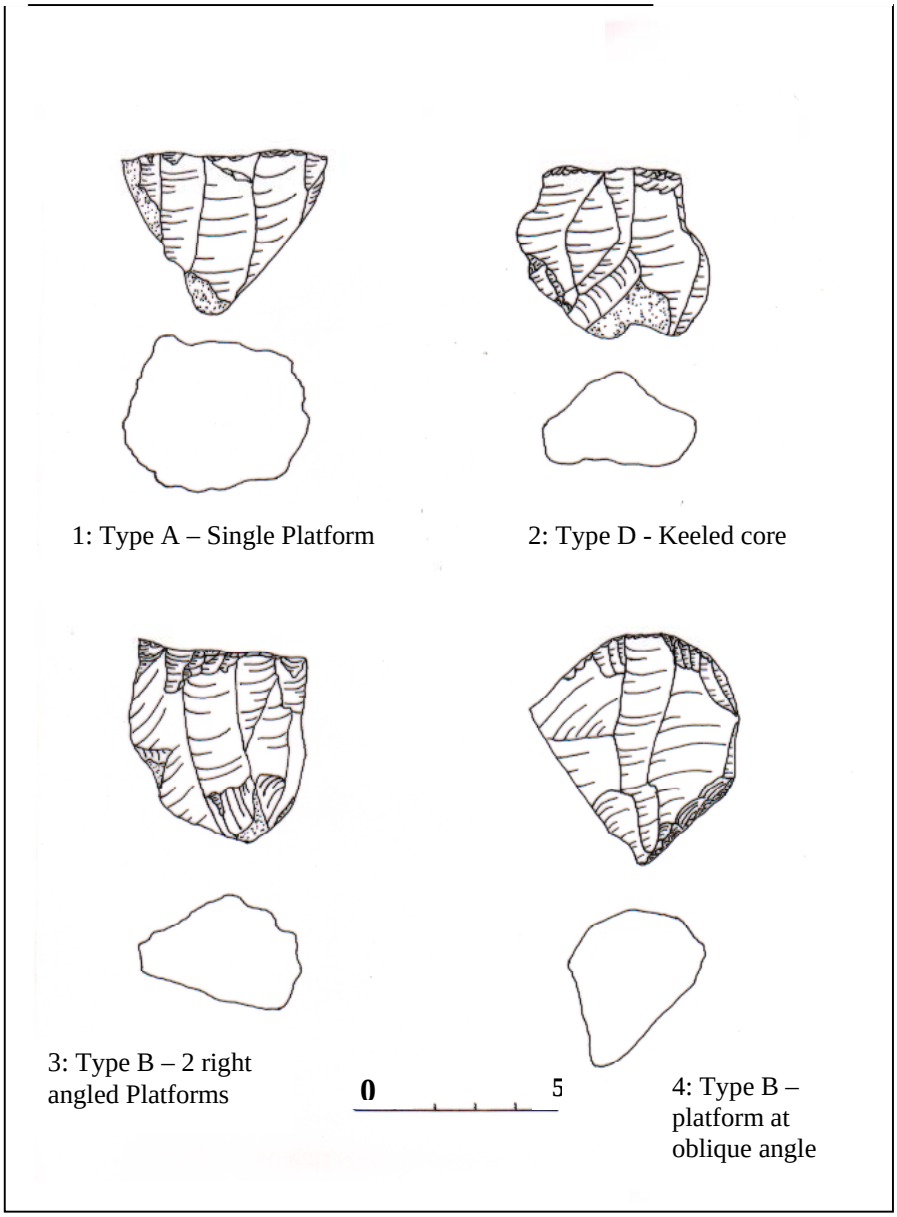
p121). Table 3 shows the core types in this assemblage using Clark's classification from Hurst Fen (Clark 1960, p216).

Table 3: Core Typology

Class	Type of Core	Total
A	**One Platform**	
	1. flakes removed all round	**7**
	2. flakes removed part of the way round	**3**
B	**Two Platforms**	
	1. parallel platforms	**0**
	2. platform at oblique angle	**2**
	3. platforms at right-angles	**6**
C	**Three or more platforms**	**1**
D	**Keeled (discoidal)**	**5**

Figure 15: Selection of Single and Multi Platform Cores

Figure 16: Illustration of Cores



Flint Implements

Using Holgate's classification a '*tool or implement*' is that which is a removal or core which has subsequently been retouched or utilised (Holgate 1988, p38). Flint implements amounted to 10% of the total assemblage, with the west field containing the most implements compared to the other two fields (Figure 17). The types of implements consisted of axes, scrapers, combination tools, serrated blades, notched pieces, piercers, fabricator, tranchet axe, laurel leaf point, backed knife, knives, retouched flakes, utilised flakes, hammerstones and rubbing stones.

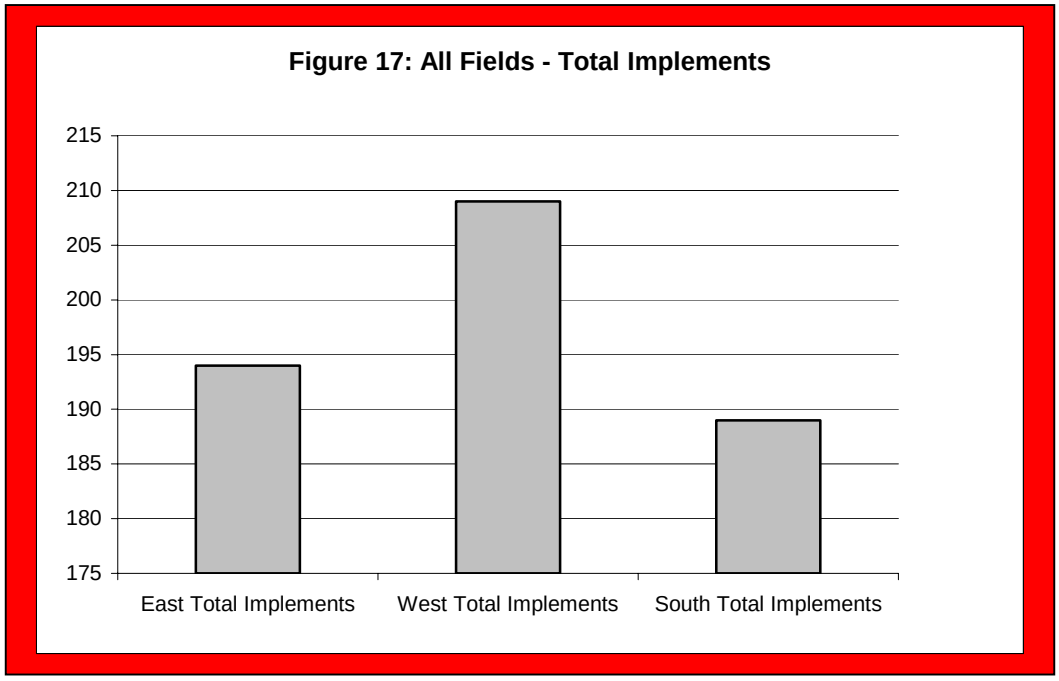
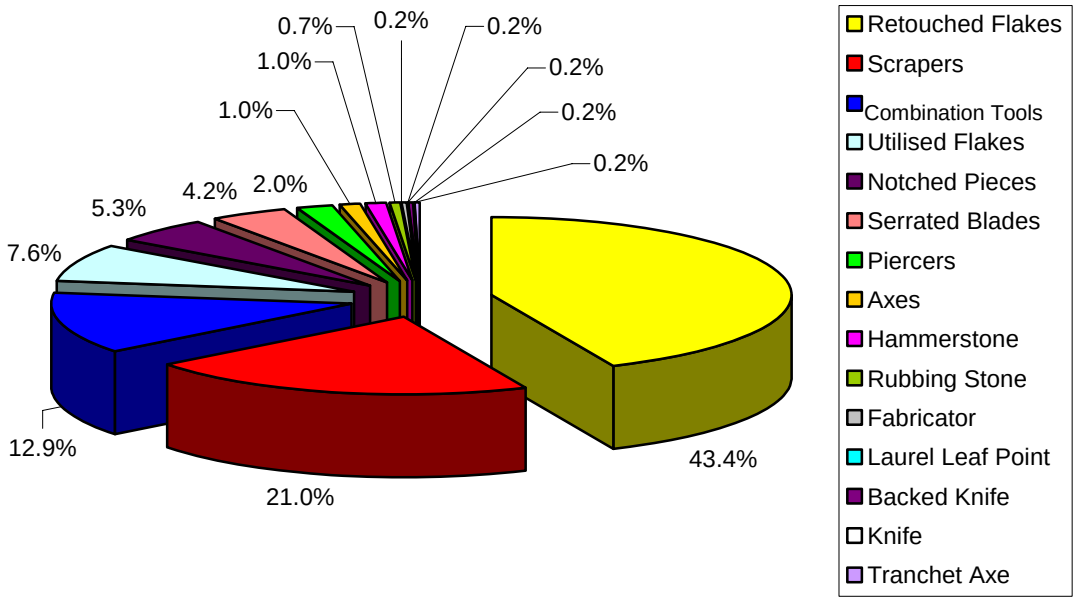


Table 4 shows a breakdown of various types of implement from each field. The top three implements found were retouched flakes (43.4%), scrapers (21%) and combination tools (13%) (Figure 18). The following implement classifications are based on Holgate's analysis of the Thames Basin assemblages.

Table 4: Flint Implements Classification

Flint Implements	East Field	South Field	West Field
Retouched Flakes	69	93	94
Scrapers	61	30	33
Combination Tools	26	25	25
Serrated Blades	11	6	8
Notched Pieces	8	12	11
Utilised Flakes	8	12	25
Piercers	4	3	5
Axes	3	2	1
Fabricators	1	-	-
Rubbing Stones	2	1	1
Hammerstone	1	1	4
Tranchet Axe	-	1	-
Laurel Leaf Point	-	1	-
Backed Knife	-	1	-
Knife	-	1	-
TOTAL	194	189	207

Figure 18: Flint Implements - Lower Hoddern Farm



Flint Axes consisted of just over one percent of the implement assemblage**.** In total there were two complete flaked axes, both were type C according to Field's classification which is based on the cross section of an axe (Butler 2005, p144) (Table 5). The dimensions of each of these axes in length, width and thickness are as follows:- **1)** L:115, W:47 & T:25mm and **2)** L:89, W:40 & T:32mm (Figures 19 & 20).

Table 5: Axe Typology

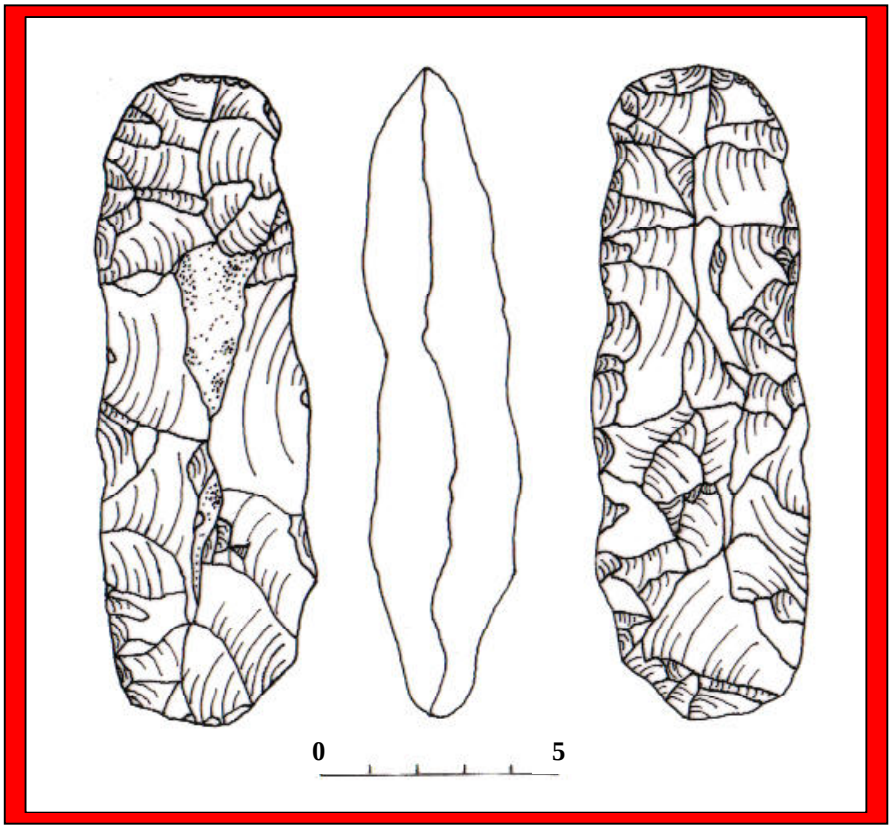
Type	**Description** (Field *et al* 1984, p59)
A	Oval varying between nearly circular to elliptical
B	Lenticular or double-convex
C	Lenticular with facetted sides
D	Rectangular
E	D-Shaped

Figure 19: Flaked Axe – Type C

Figure 20: Flaked Axe – Type C

Figure 21: Tranchet Axe

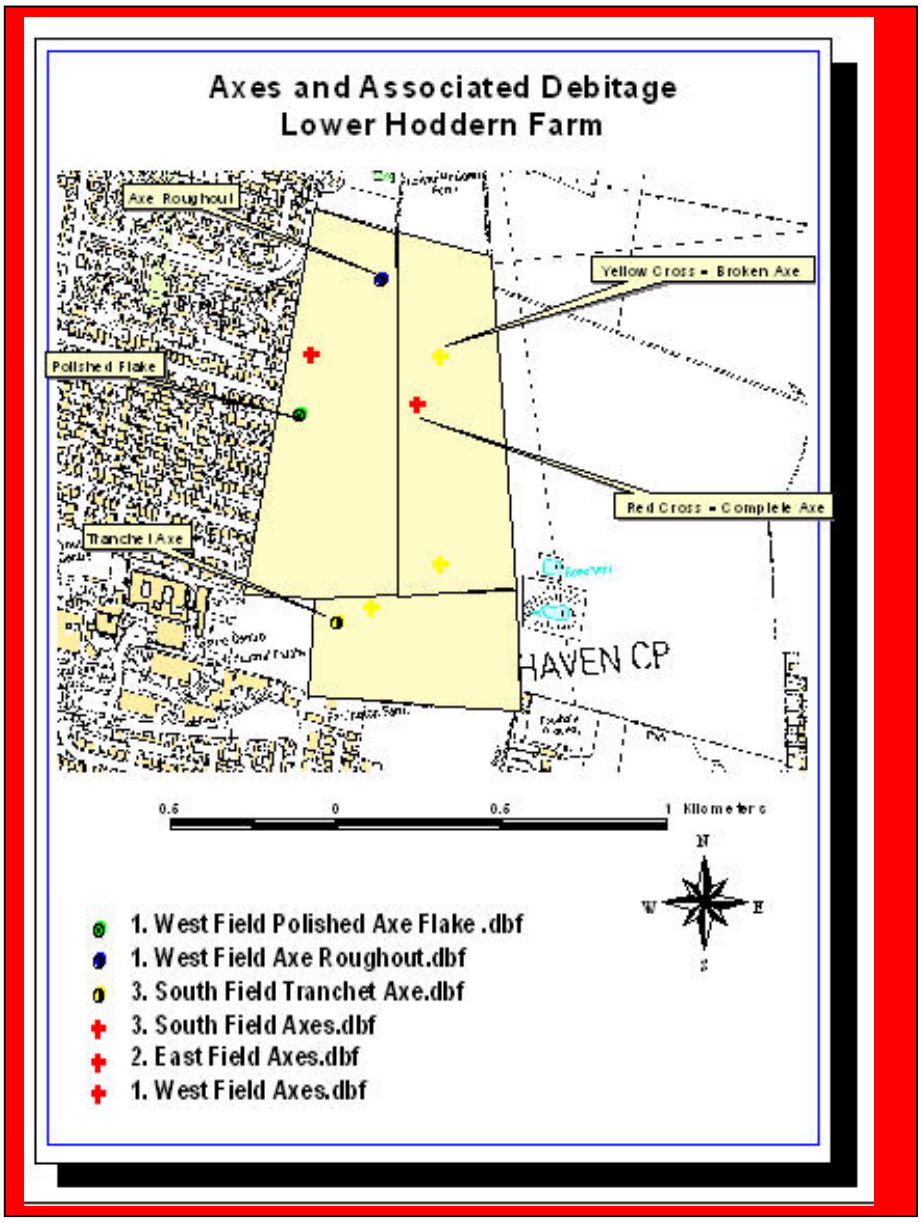
Figure 22: Tranchet Axe



Located in the south field was a **tranchet axe** (Figures 21 & 22), which is a heavy flaked core-implement with a sharp transverse cutting edge created by the removal of a single flake running perpendicular to the cutting edge (Holgate 1988, p41). There is a suggestion that in the south east of England these appear to be used more frequently towards the end of the Mesolithic period (Butler 2005, p99). The dimensions are L:140mm, W:48mm and T:31mm. The remaining three **axes** were all broken in antiquity. One was type A, partially polished, another was type B with partial polishing and finally the last one was type D (Figure 23). All axes in this collection were made from light grey-white flint. An **axe roughout** was found in the west field, most of the cortex has been removed and it retains the shape of an axe. It is difficult to tell whether this was abandoned due to a misdirected blow or whether a flaw was discovered, it is a light-grey colour with some red 'iron' type staining on it. The dimensions are L:106mm, W:66mm and T:26mm.

Figure 23:Partially polished type A Axe, Partially polished type B Axe & Type D Axe (Left to Right)

Figure 24: G.I.S. Distribution Map – Axes/Axe Debitage



A flake was found in the west field which had clearly broken off, a polished axe in antiquity (Figure 24). The flake measured L:63mm, W:40mm and T:10mm. Approximately 10 polished and flaked axes have been found and collected by a Mrs B. Shultz, who worked on the farm during the 1970's, the majority of these were found in the south field as surface finds (Figure 25).

Figure 25: Polished Axes found by B. Shultz
(Photo courtesy of B. Santer)

Scrapers are implements with abrupt retouch effected from the ventral surface along one or more edges. They form an angle with this surface in the 20-90 degrees range, the retouched edge is usually convex (Holgate 1988, p41). There were 124 scrapers in this collection (Table 6) & (Figure 26), they have been put into sub categories according to Butler's classification (Butler 2005, pp125-6). The scraper assemblage is varied (Figure 27) with the largest majority consisting of end scrapers at 30% (Figure 28) followed by side/end scrapers at 22% and discoidal scrapers at 20% (Figure 29). Side scrapers consist of 18%. Apart from hollow scrapers which consist of 6% (Figure 30), the other types of scrapers occur in reasonably small numbers. Very similar hollow scrapers were found near Seaford (no grid reference given) which is close to Peacehaven, there were 8 found within the same field plus many others found locally in the Seaford Area (Clark 1929, p273).

Table 6: Scraper Classification

Scrapers	East Field	West Field	South Field
End Scraper	24	7	8
Side/End Scraper	15	8	4
Discoidal Scraper	10	9	6
Side Scraper	7	8	7
Nosed Scraper	2	-	-
Hollow Scraper	1	1	4
Double Ended Scraper	1	-	-
Double Side Scraper	-	-	1
Backed Scraper	1	-	-
TOTAL	**61**	**33**	**30**

Figure 26: Scrapers - Lower Hoddern Farm

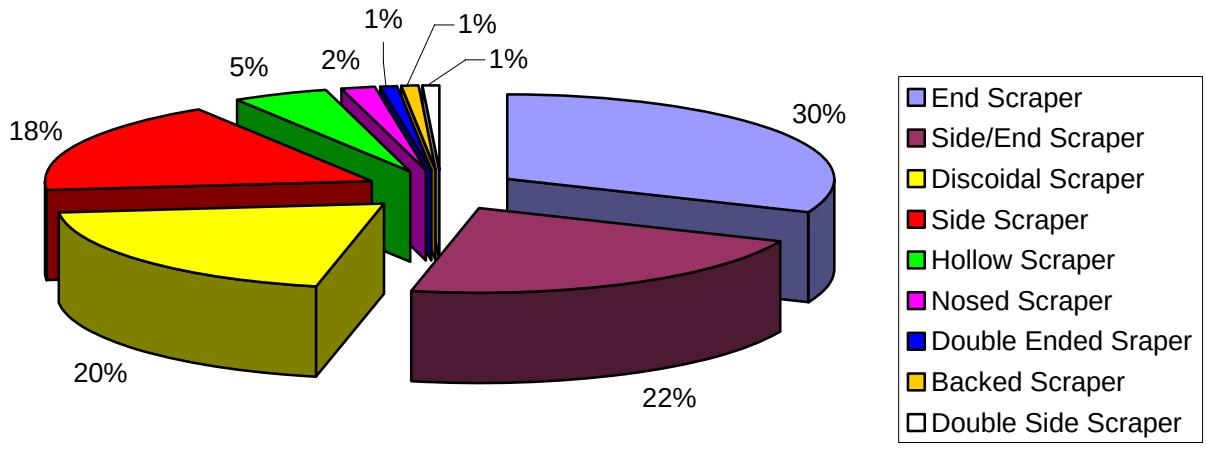
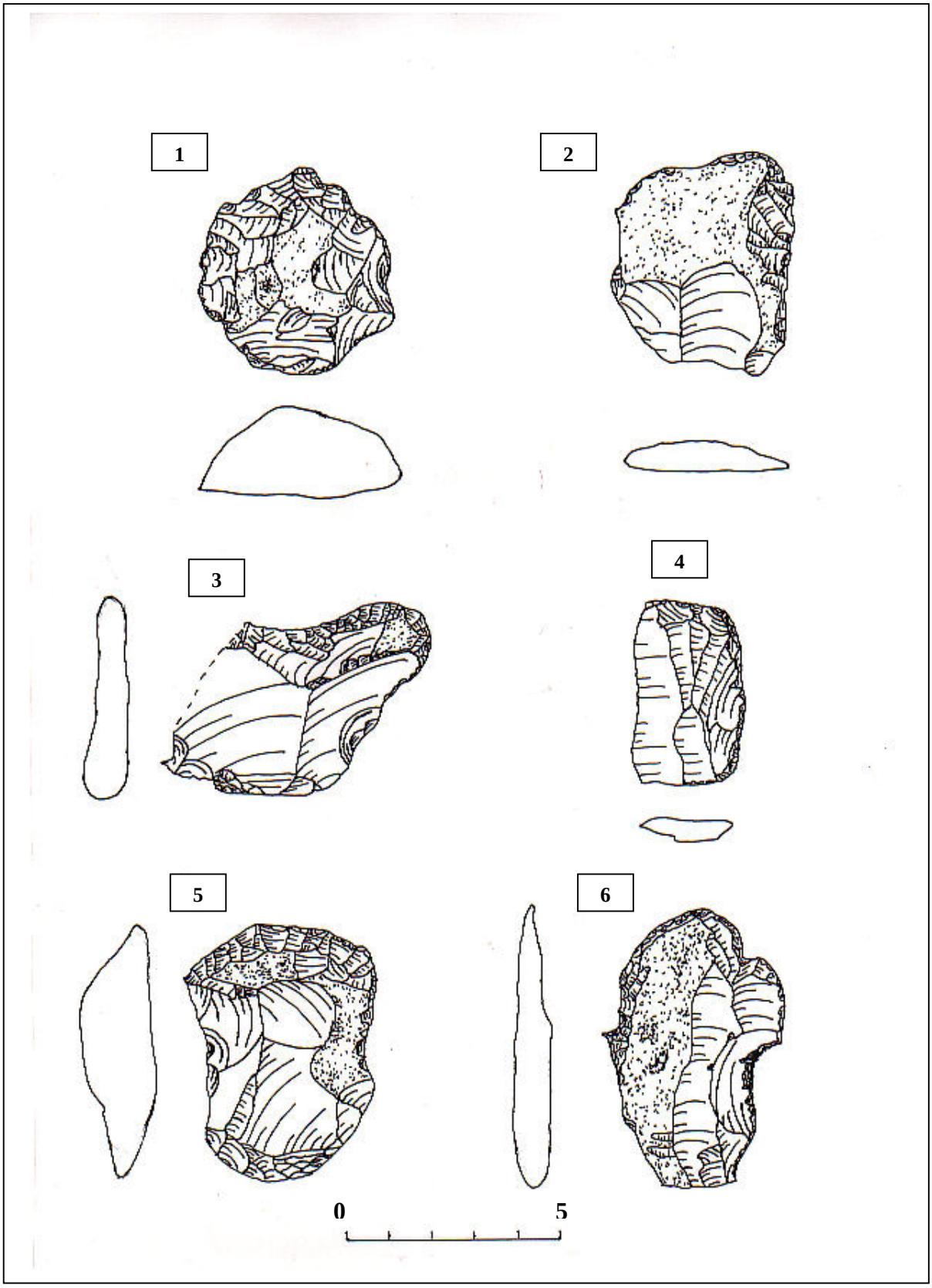


Figure 27: Scrapers



1: Discoidal Scraper, 2: Side Scraper, 3: Hollow Sraper (Broken), 4: Side Scraper, 5: End Scraper, 6: Combination Tool – Piercer/Notched Scraper

Figure 28: Selection of End Scrapers

Figure 29: Selection of Discoidal Scrapers

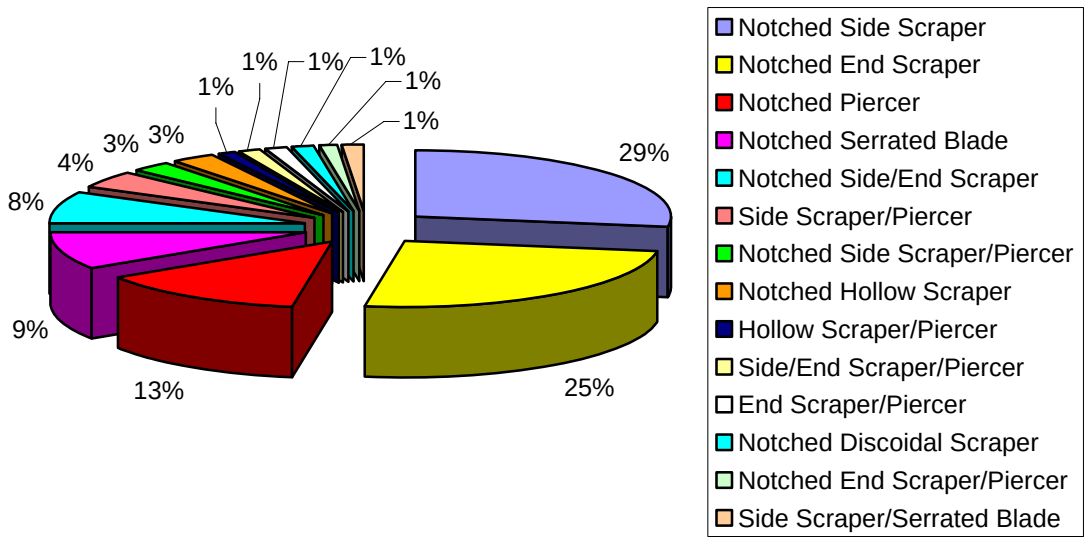
Figure 30: Hollow Scrapers

Combination tools are more commonly found on later Neolithic sites and do not tend to occur in large numbers. They were manufactured on hard hammer struck flakes with the different tool types usually at either opposing lateral edges, or one at the distal end, and the other along the lateral edge. This term can be applied to different combinations of tool types, however most of them incorporate a scraper (Butler 2005, p168). The combination tools on this site comprise many different types, 78% have a 'scraper' combination. There were fourteen types of combination tools incorporating either/and/or scraper, notched, piercer and serrated technology (Table 7). Normally there are only two types of combination on one tool (Butler 2005, p168), however 4% of this collection incorporate three types of tool combination such as a notched side scraper/piercer. The most common combination tools are notched side scrapers (29%), notched end scrapers (25%) and notched piercers (13%) (Figure 31).

Table 7: Combination Tool Classification

Combination Tools	East Field	West Field	South Field
Notched End Scraper	7	8	4
Notched Piercer	5	1	4
Notched Side Scraper	5	6	10
Notched Serrated Blade	3	1	3
Notched Side/End Scraper	2	4	-
Notched End Scraper/Piercer	1	-	-
Notched Side Scraper/Piercer	-	1	1
End Scraper/Piercer	1	-	-
Notched Hollow Scraper	1	1	-
Notched Discoidal Scraper	1	-	-
Hollow Scraper/Piercer	-	1	-
Side/End Scraper/Piercer	-	1	-
Side Scraper/Piercer	-	-	3
Side Scraper/Serrated Blade	-	1	-
TOTAL	**26**	**25**	**25**

Figure 31: Combination Tools - Lower Hoddern Farm



Miscellaneous **retouched flakes** are artefacts with retouch but which do not fall into any tool category, at nearly 44% these outnumbered all other tools, 62% of these were retouched primary/secondary flakes. These flakes were usually semi-abruptly retouched partly along one lateral edge. They were probably made fairly quickly, used, then thrown away (Butler 2005, p134). **Utilised flakes** are implements with some traces of edge trimming which are presumed to result from use (Holgate 1988, p42), these consisted of 7.6% of the implement collection, 60% comprised primary/secondary flakes. **Notched flakes** are implements with a notch (Figure 32), there were 31 pieces (5.3%) most of which were single notched. There were 4 that had double notches and 1 with a treble notch. These are found in all periods of prehistory, the notches are created by using a number of abrupt or semi-abrupt blows normally from the ventral side of the flake/blade (Butler 2005, p54). There were 25 **serrated blades** (4.2%), ranging between 12-61mm in length and 15-34mm in breadth. They all had serration along one lateral edge, none of them had any backing on the opposite lateral edge. These tools are frequently found in earlier Neolithic assemblages and were made on either blades or long flakes (Butler 2005, p130). There were 12 **piercers** which came to 2% of the implement total (Figure 33). These are implements with a point which is assumed to be the 'functional feature' (Holgate 1988, p42). Normally they do not have cortex on them although sometimes cortex remains on the dorsal surface (Butler 2005, p126), however in this collection 58% of piercers have cortex on them suggesting that flint was carefully utilised on this site. Two **knives** were found, the first was an invasively retouched knife, the other was a backed knife. The first knife has some cortex left on its dorsal right side, along this edge there is evidence of abrupt retouch to blunt and on its opposing side a little invasive retouch, the flint is a shiny dark grey-black colour. The backed knife has a

white blue mottled patination, with invasive bifacial retouch along the cutting edge and abrupt retouch along its opposing lateral side (Figures 34, 35 & 36). A **laurel leaf** point was found located in the south field, this was broken in antiquity (Figure 37). It is bifacially worked probably made from a large flake, one side has invasive retouch whilst the other is irregular shaped with some semi abrupt retouch. A small **fabricator** found on the east field (Figure 38), broken in antiquity is the final implement in this collection. It has an oval cross section, flaked on both surfaces without any cortex left. The rounded end shows signs of abrasion from use, however it is impossible to state whether this tool was hafted due to its' breakage.

Five flint **hammerstones** found mainly in the west field, three had a 50% cortex coverage. Four were all small enough to fit in the palm of a hand and showed extensive pecking marks, one was a rather large nodule that had a few flakes removed suggesting that it was probably initially used as a core, then utilised as a hammerstone. Three water worn **quartzite pebbles**, which may have been used for polishing tasks, they ranged from 60-80mm in length and 40-50mm in width. On one there is a small rounded dip in the centre of one side which may be signs of use, there is also slight edge-wear showing on one of the other pebbles. A silica sandstone sarson stone was found on the west field, rectangular shaped broken either end in antiquity. There are signs of slight dipping on one side of the stone, both edges are not as smooth as each flat side. The pebbles and sarson stone are impossible to date or to exactly determine what their use may have been – if any? however there is a possibility that these items may have been used during the Neolithic period for various polishing tasks.

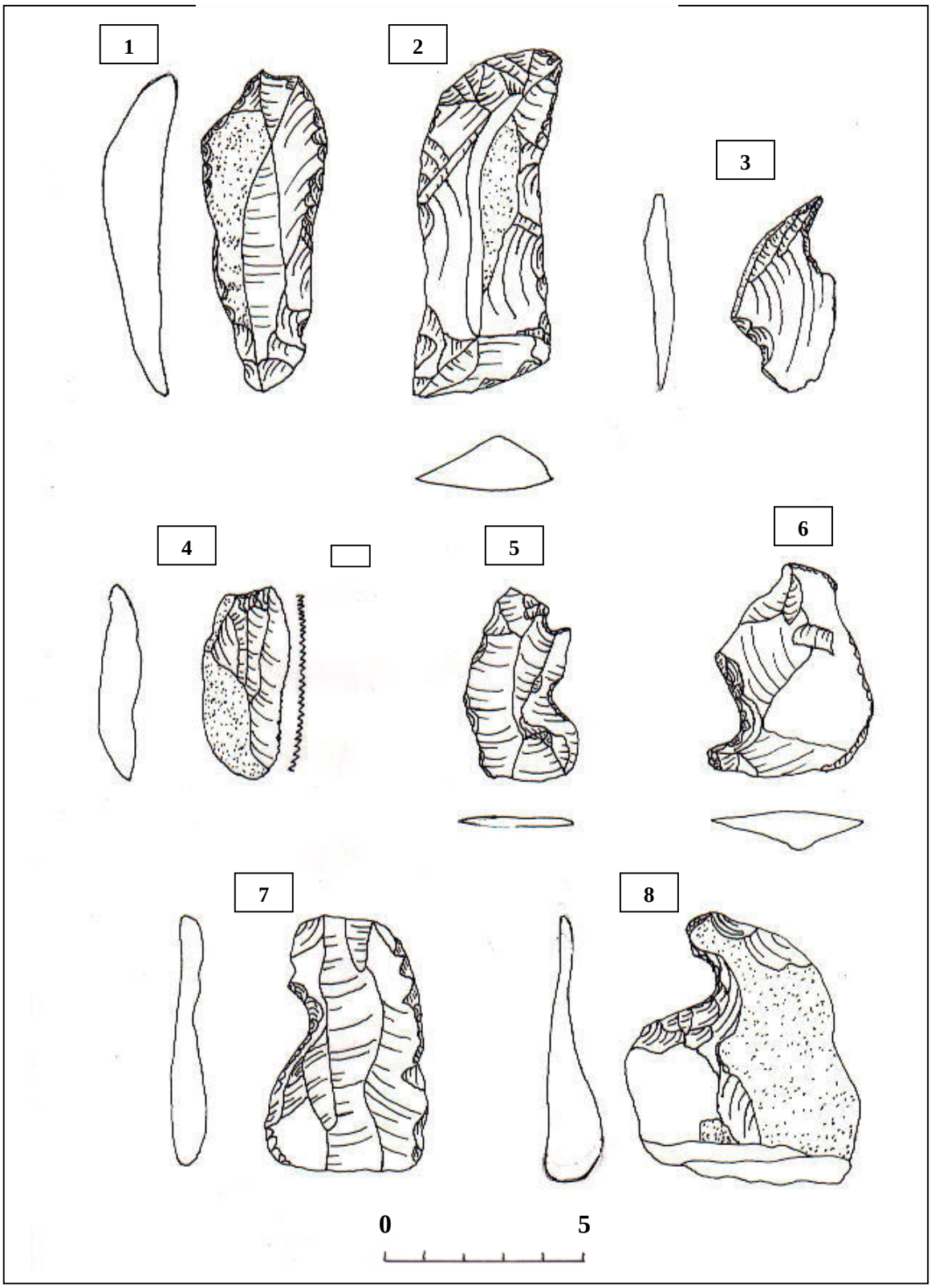
Figure 32: Selection of Notched Flakes

Figure 33: Selection of Piercers

Figure 34: Invasively Retouched Knife

Figure 35: Backed Knife

Figure 36: Selection of Implements



1: Knife, 2: Backed Knife, 3: Piercer, 4: Serrated Blade, 5: Double Notched Blade, 6-8: Notched Flakes

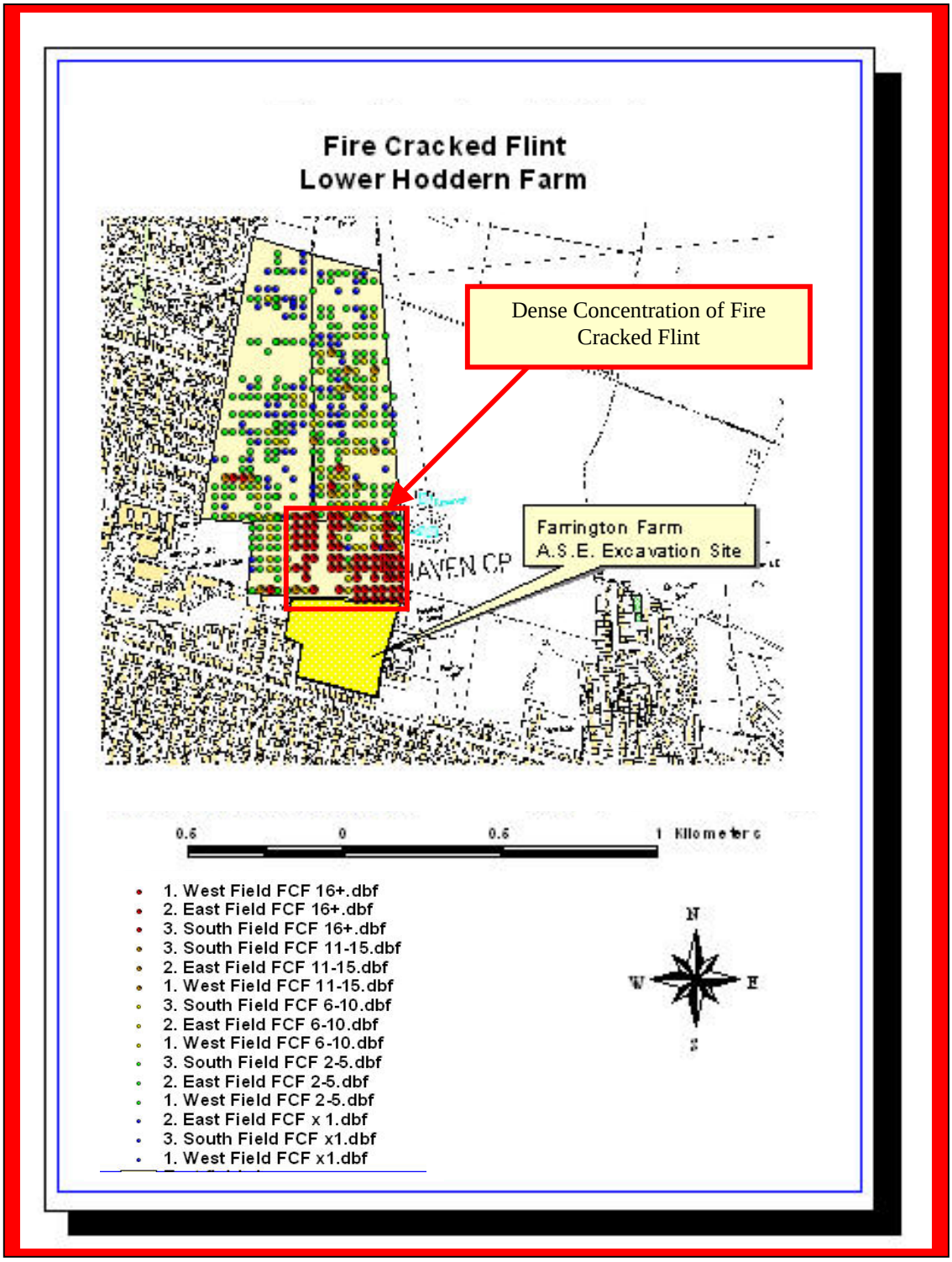
Figure 37: Laurel Leaf Point

Figure 38: Fabricator

Fire Cracked Flint

Unworked fire cracked flint weighing a total amount of 101,533 Grams comprised of 56% of the total assemblage (Figure 39).

Figure 39: Fire Cracked Flint Distribution



There is a dense concentration of fire cracked flint in the eastern corner of the south field (Figure 39). There was so much fire cracked flint that a limit of 16 pieces per 20m, was set, which meant leaving a vast amount behind. Concentrations of fire-cracked flint are not uncommon, a similar concentration was found in a field close to the seashore at Ovingdean (Ref.TQ358027) on a field walking project in 2000 (pers. comm. J. Funnell). Another concentration of fire cracked flint was recently found by the Worthing Archaeological Society south of Worthing (pers comm. J.Barrow). At Bullock Down there were two clusters of fire cracked flint found, of which one proved to be Early Iron Age in date (Drewett et al 1982, p47). A site next to the south field was excavated by Archaeology South East in January 2007, where Mesolithic and Neolithic flints were found. There was some limited evidence for Bronze age occupation, which consisted of a large number of small pits and ditches filled with crushed burnt flint. The main occupation of this site was probably during the Mid Iron Age although the finds have yet to be fully processed ready for publication (Riccoboni, P. Senior Archaeologist, Archaeology South East. Pers. Comm. 17 July 2007), it is possible that the fire cracked flint could be associated with this later Iron Age site.

Pottery

The pottery was shown to Luke Barber, Research Officer, Sussex Archaeological Society, from which the following conclusions were made. During the late Iron Age/early Roman period arable cultivation was probably taking place in this area. There were sparse amounts of very abraided pot found, mainly East Sussex Ware, these pieces were probably used within the manure spread over the land. It is likely that there was a late Iron Age/early Roman farmstead situated a reasonable distance

away from this site. There is no pottery evidence of activity until the late medieval period, where roof tile and a whetstone was found. The whetstone might have been used to sharpen shears used in conjunction with sheep farming. According to Luke Barber this whetstone is strikingly similar in typology and geology to whetstones found at the medieval farmsteads at Lydd Quarry on Romney Marsh (Barber 2006, p37). These are not datable as objects within themselves and can only be cautiously dated based on the context from which they came from (Barber 2007, pers. comm.). The roof tile may have been used in boggy areas such as gateways to soak up the water, there is no refuse evidence from this period. The next period of activity is the late 18th –early 19th century where the pot and tile reappear indicating possible arable farming again.

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Discussion of Flint Report

The fields at Lower Hoddern Farm produced over 2000 pieces of debitage and nearly 600 flint implements from an area of 29.71 hectares. The source of flint is likely to have been either collected or quarried from secondary deposits from the chalk South Downs. Most examples of flint scatters are found geologically close to their regional source area (Edmonds 1998, p257). The types of implements consisted of axes, scrapers, combination tools, serrated blades, notched pieces, piercers, fabricator, tranchet axe, laurel leaf point, backed knife, knives, retouched flakes, utilised flakes, hammerstones and rubbing stones. Debitage consisted of primary, secondary and tertiary flakes indicating that nodules were probably not decorticated prior to being brought to the site for the reduction process. The presence of tested nodules and core rejuvenation flakes would indicate that some degree of care was taken with the selection and the utilisation of the raw material. This site has evidence of flint work
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from the late Mesolithic through to the Late Neolithic/Early Bronze Age period. Mesolithic activity comes from the smaller cylindrical cores where there was evidence of platform preparation. It is suggested by Butler that in the south of England tranchet axes appear to be used more frequently towards the end of the Mesolithic period. Conclusions drawn from a tranchet axe manufacturing site, at Cliffe, Kent, were that they were made with a hard hammer. The author compared the findings from Cliffe, with 100 tranchet axes found at 48 sites in SE England. The suggestion from this site is that there were both blade and tranchet axe production taking place at the same time (Ashton 1988, p320). Further studies on the debitage from Lower Hoddern Farm, would be useful to determine more about techniques used. The Cliffe assemblage was interpreted using detailed analysis of the debitage to answer questions about how the tools were made. There were 3 blades found on the Hoddern Farm site which might be Mesolithic in origin. Early Neolithic evidence consists of cores with 2 platforms at right angles, serrated blades which are frequently found in earlier Neolithic assemblages. Later Neolithic indications come from fragments which are more common on later Neolithic sites, 21% of the cores consisted of keeled cores which are more common on later Neolithic sites. Combination tools are also more common on later Neolithic sites and tend not to occur in large numbers, this site produced 12.9% of these tools. The length:breadth ratio of the struck flakes on this site is 1:1cm, these ratios are more indicative of shorter and squat flakes that are fairly thick and robust, this could indicate more later Neolithic date (Edmonds 1998, p254). There is evidence of continuity of use of this landscape, with pottery from the late Iron Age/Early Roman period, late medieval and 18/19th century. There is an extremely dense cluster of fire cracked flint in the corner of the south field which may possibly date from the Iron Age and are similar to other burnt areas of flint found at Bullock

Down which proved to be of Iron Age date. Archaeology South East excavated the site next door to Lower Hoddern Farm, Farrington Farm which produced material from the Mesolithic through to the Iron Age, it is undoubtedly the case that these two sites were linked and were possibly one site. The modern divisions of land separation would not have been the case during the prehistoric period. It is excellent for local knowledge, that we are able to join research from both sites to create a fuller picture of past events.

Note: All excel data containing statistics on flint debitage and implements plus G.I.S. illustrations are held in the appendix for future reference. Copy of CD Rom containing the excel data linked to Lower Hoddern Farm is also available from author.

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The Wider Context

Lower Hoddern Farm has produced flint artefact evidence from the later Mesolithic period through to the Late Neolithic/Early Bronze Age. The majority of implements date from the Neolithic period. This chapter is structured by looking at the environment first, examining woodland clearance, sea level rise and changes in the Sussex coastline. Secondly a brief overview of the Neolithic period in general, after which, a concentration on Neolithic development in Sussex. A table has been drawn up from several sources, which lists Sussex Neolithic Sites for ease of reference. The Sites and Monuments Record (S.M.R.) will be used to highlight Neolithic sites around Lower Hoddern Farm. G.I.S. maps will be used to visually present S.M.R. data within a 2 km buffer zone around the farm.
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The Environment

At the end of the last Ice Age around 10,000 years ago, sea level was lower than at present, the English Channel had not formed at this time. There is very little pollen evidence from South East England to enable a clear picture of species specific distribution, however "there can be no doubt that the whole region, including the Downs was densely wooded (Robinson & Williams 1983, p109). It is known that the South Downs consisted of warm loving, temperate plants which had spread across from the continent. Species such as Birch (*Betula pubescens)* and Pine (*Pinus rigida)* flourished, and by 7000 BC Oak (*Quercus robur),* Hazel (*Corylus avellana),* Elm (*Ulmus procera),* Lime (*Tilia cordata),* and Alder (*Alnus glutinosa)* arrived and gradually became dominant. Britain was cut off from the mainland around 6000 BC, by the formation of the English Channel which meant that the in-migration of species stopped (Evans 1975, p71-4). During the period around 4000 BC, woodland was cleared for agricultural, fuel, charcoal and wood used in construction. Pollen analysis shows that temperate forests were removed in the Mesolithic and Neolithic times, and at an accelerating rate thereafter (Goudie 1993, p42-3). Loess was more widely spread over Sussex in the Mesolithic period but would have increased with more extensive woodland clearance in the Early Neolithic period (Drewett in Rudling 2003, p39). Peat deposits found in the Ouse Valley, near Lewes, started forming around 7000 BC and continued until 2000 BC. Pollen, deposited down about 4000 BC, confirms that the area was well wooded, but that woodland clearance took place during the Middle Bronze Age (Thorley 1971 cited in Drewett 1978, p23). However another pollen example from Wellingham, near Lewes, East Sussex showed an increase in frequency of grass and cereal pollen which indicates a clearance phase around the mid 4th millennium BC. At Ashcombe Bottom there was proof of cereal

growth during the Neolithic period found in the analysis of alluvial sediments in the Ouse Valley (Wing 1980, p17). At Bishopstone, proof of cereal cultivation came from Pit 357, where numerous carbonised species were found. This proved that three species were grown, six-row barley (*Hordeum vulgare)*, emmer wheat *(Triticum dicoccum)* and one other member of the wheat family *(Triticum sp.)* (Bell 1977, p41). A Late Neolithic Pit at Malling Hill, near Lewes and flint assemblages from adjacent excavations indicated activity associated with land clearance. At Grey Pit and Round-The-Down near Lewes indication of the presence, of large established farms with local settlements in the Late Neolithic and Early Bronze Age was evident. The molluscan evidence from these areas indicated fairly large tracts of downland were deforested (Allen 1994, p160-1). Pollen cores show evidence of a decline in Lime pollen *c.* 4000bp which according to Somerville needs to be cautiously attributed to anthropogenic clearance (Somerville in Rudling 2003, p236). Evidence from Bullock Down, suggests that woodland clearance took place in the Neolithic period. Bell, in his preliminary report, on the valley sediments in the Kiln Combe area, has provided strong molluscan data to support this. Bell's samples from a subsoil hollow, produced individuals of *Discus rotundatus, Pomati elegans, Trichia hispida and Clausilia bidentata*, an assemblage that revealed 47% of shade lovers. From a later chalky lens came an assemblage, of which 95% were open country species; Bell concluded that this area was cleared prior to the Beaker occupation probably in the Neolithic period (Bell in Drewett 1982, p12). Molluscan evidence from six enclosures built before 3000 BC, proved that four of them:- Offham, Combe Hill, Barkhale and Bury Hill were constructed where woodland, was nearby in the area. Whitehawk and the Trundle were constructed in areas that had been extensively cleared (Thomas cited in Drewett 2003, p40). Evidence from Bury Hill concluded that the primary and

secondary ditch fill contained land snails that were shade loving preferably woodland, further indicating that the enclosure was constructed in a woodland clearing (Bedwin 1979, p84). A buried soil sequence at Offham Causewayed Enclosure (TQ 399 118), showed that the fauna represented a woodland clearance phase. The fauna around the site showed a predominance of shade loving species which suggested that woodland had been cleared to construct the enclosure and that the land was not used for arable or pasture previous to the construction (Drewett 1977, p237). The trend from the above information supports the idea that small local woodland clearances, took place during the Late Mesolithic and Earlier Neolithic period. During the Later Neolithic period substantial tracts of land were cleared. Rises in sea levels have changed the coastline substantially in the last ten thousand years. The coastline has retreated significantly nearer to the site at Peacehaven, and is estimated to be eroding at a rate of 0.91 m.p.a. for the South Downs (Jones 1981, p261-71). Woodcock (2003) demonstrates in his article how the shape of the Sussex coastline has changed. He used Bathymetric profiles which show, to the east of Brighton, that the off-shore sub-surface contours drop steeply. At Peacehaven contours fall over 30 metres within a kilometre of the present coast. The steepness of these profiles represent a remodelling of the landscape as opposed to erosion caused by rising sea levels. The early Neolithic coastline would have had indents of possible sandy beaches and barriers close inshore. Sea levels began to stabilise during the Neolithic period which promoted the formation of substantial coastal shingle barriers (Woodcock in Rudling 2003, p4). The Neolithic period has been redefined as a time where the indigenous people adopted and adapted new ideas and ways of life. There was not a major immigration of 'farming communities' into Britain. There was an adoption of agriculture based on the 'central European model' (Drewett in Rudling 2003, p39).

The definition between the Mesolithic and Neolithic periods are 'social and economical concepts' that were traditionally divided into 'hunting-gathering' and 'farming'. However these perceptions are inadequate, it is clear that there is not, any *"one specific form of social organisation or ideology that is exclusively correlated with a specific subsistence strategy"* (Zvelebil in Edmonds & Richards 1998, p23-4). Thomas (1991) redefined the Neolithic period as groups of people, who were more mobile and utilised their landscape by hunting and gathering, than was previously thought (Zvelebil in Edmonds & Richards 1998, p23-4). Pluciennik (1988) states *"The transition to farming involves much more than simple herding and cultivation. It also entails major, long term changes in the structure and organisation of the societies that adopt this new way of life, as well as a totally new relationship with the environment. Such a dramatic shift in the trajectory of cultural evolution demands understanding"* (Pluciennik in Edmonds & Richards 1988, p69-70). Most agree that Early Neolithic social organisation, was based on an egalitarian and community orientated society (Zvelebil in Edmonds & Richards 1998, p13). During the earlier Neolithic, flint axes took on significance, as both practical tools and items for exchange (Edmonds 1998, p257). The Later Neolithic included changes in funerary rites and ceremonial rituals, there seemed to be more single burials in many areas. It appeared that there was less emphasis placed on collective burials. An emergence of monuments such as stone and timber henges took place. A wider range of artefacts were produced, circulated and deposited from the mid-3rd millennium onwards. Regional differences increased, such as the different ceremonial rituals around burial rites, some areas known as regional clusters have produced artefacts where there is a similar form of decoration on certain categories of artefacts (Edmonds 1998, p248-51). An important consideration is that on a European scale the inception of the

Neolithic extends over 3000 radio carbon years and was geographically spread from Greece to northern Europe, which is a distance of more than 2000 miles (3218 km). To make generalisations about this period or to try and define it in any way except on the most minimal grounds should be avoided (Zvelebil in Edmonds & Richards 1998, p75).

Neolithic Development in Sussex

The last twenty years in Sussex has revealed information on new enclosures, long barrows, flint scatters and pit clusters (Drewett in Rudling 2003, p39). Large communal monuments, pottery and stone tools represented the arrival of 'Neolithic' ideas around 4300 BC in Sussex (Drewett 1999, p16). Sussex appears to have developed in an 'insular and idiosyncratic' way during the middle and late Neolithic period remaining untouched in the north and west by cultural developments (Castleden 1992, p193). Evidence from carbonised seeds at the present time, indicates that animals such as cattle and pigs, were domesticated alongside hunting and gathering activities. In Sussex there is no evidence as yet, that agriculture was adopted in the early Neolithic period (Drewett 1999, p16). **Causewayed Enclosures** indicate communal work which would have taken place under a political system (Drewett 1975, p139). There are over eighty causewayed enclosures in southern England which are all found in a varying range of settings. Research has shown, over the last 20 years, that not one enclosure is the same as any other. Very little is known about how they were used, whether people came from afar or locally to participate (Whittle 2003, p3). In Sussex all of the enclosures (Table 8) have been dated to the Early Neolithic. These enclosures were built in phases, such as Offham and the Trundle (Drewett in Rudling 2003, p40). Whitehawk enclosure consisted of four concentric rings and was excavated in 1929, six trenches cut into the innermost ditch,

six in the second and one in the third ditch. Finds consisted of pottery, flint axes, bone points, human and animal bone (Williamson 1929, p59), (Curwen1936, p60). Russell (2001) describes phases of Neolithic monument architecture of the South Downs, starting with the first phase around 4500-3500 BC. During this phase, the horizontal cuts of Whitehawk, The Trundle and Court Hill took place. This same phase also saw the vertical cuts at Blackpatch and Church Hill flint mines take place. This represented the beginnings of population movement away from the coastal plain and the Weald onto the higher ground of the South Downs. The enclosures are interpreted as seasonal or temporary settlement areas. The second phase around 3500-2500 BC represents the additions of circuits to Whitehawk and The Trundle, and possible Combe Hill. Other enclosures became established such as Bury Hill, Offham and possibly Belle Toute. The final phase around 2500-1500 BC is the *failure* to develop the large scale enclosure circuits, but to create new smaller scale circular forms (Russell 2001, p114-5). Bury Hill was excavated in 1979, with two right angled 9m trenches running across the enclosure. There were no Neolithic features found, but samples from the ditch produced early Neolithic pottery, flintwork and animal bone (Bedwin 1979, p71). **Long barrows** (Table 8) in Sussex are situated in two specific geographical groups. The largest group in East Sussex, sits between Whitehawk and Combe Hill Causewayed Enclosures. The smaller group are near to the Trundle in West Sussex (Drewett 1975, p119). Drewett studied the location of long and oval barrows in the late 1970's, concluding that there was a clear river-valley orientation for long barrows and possibly the earliest barrows. **Oval barrows** showed a shift towards Downland orientation (Drewett in Rudling 2003, p44). In 1974 an Oval Burial Mound was excavated at Alfriston, East Sussex. At the time of excavation the mound was recorded to be 25cm high, and was rapidly eroding due to

agricultural practices. It covered a single burial pit containing a crouched skeleton of a young female. Length breadth ratio of all flakes were aligned with other classic Neolithic assemblages and compared mainly to earlier phases of Windmill Hill and Durrington Walls (Drewett 1975, 119, 132). Later examination of the evidence proved that the crouched burial was later in date and now has two dates of 640±90bc and 1240±80bc indicating that remodelling of the site took place in the Later Bronze Age (Drewett in Rudling 2003, p41). **Flint mines** are the oldest distinctive form of archaeological earthwork recorded from the British Isles. There are only twelve confirmed flint mine sites in England, of which the following seven are in Sussex:- Black patch (TQ094088), Church Hill (TQ114083), Cissbury (TQ136079), Harrow Hill (TQ081100), Long Down (TQ 9330920), Nore Down (TQ 773131) and Stoke Down (TQ 832096) (Russell 2000, p12). Sussex mines appear to have started around 4,200 BC continuing to the end of the 4th millennium BC, although Blackpatch, Cissbury and Church Hill may have ended later than the above date. There is much discussion around the dates quoted above, forthcoming re-examination of the dating evidence will be useful for further studies (Russell 2000, p55). The location of Sussex mines, in relation to other sites such as causewayed enclosures and long barrows seems to have had some relevance (Drewett 1978, p23). This was because the mines themselves, were not always located in areas that would have provided the best quality seams of flint, the mines appear to be part of a local territorial arrangement (Barber et al 1999, p52). The Sussex mining industry was small scale with estimations, that at any one time, there were only, an average of one or two mine shafts open. It appears that it wasn't until the late Neolithic period that the development of larger scale flint industries began and a deliberate focus was made on getting to the better quality, more valuable floorstone (Castleden 1987, p73).

Table 8 : Neolithic Sites in Sussex

Enclosures		
Barkhale, Bignor Hill	SU 976126	Causewayed Enclosure, Central precinct encloses 2.5 ha, Late Neolithic pottery found 3600 BC, no RC dates. One of the largest in Britain.
Bury Hill	TQ 002122	Enclosure, no causeways, single entrance, RC dates: 3450 and 3350 BC, false crested, egg shaped precinct 124m from SW to NE and 120m from NW to SE.
Combe Hill, Jevington	TQ 574021	Causewayed Enclosure, 2 concentric arcs of interrupted ditches and banks, butts onto the South Downs escarpment. 0.6 ha
Court Hill, Singleton	SU 897137	Hilltop Enclosure, encircling ditch surviving, bank ploughed down. Date 3470±180bc
Halnaker Hill	SU 921097	Causewayed Enclosure, RC dates from bone: construction during the 3rd millennium
Offham	TQ 399118	Causewayed Enclosure, 2 incomplete circles of discontinuous banks and external ditches, 100m across, enclosed central precinct 60m in diameter. Dates: 3550 and 3390 BC
The Trundle	SU 877110	Causewayed Enclosure, inner ring 112m in diameter, overall diameter of 300m Dates: 3290± 140bc and 3090±170bc
Whitehawk, Brighton	TQ 330048	Causewayed Enclosure, 4 concentric circuits of interrupted ditches and banks, originally 4.7ha. Dates: 3450 and 3400 BC, fortified settlement
Long Barrows		
Beacon Hill, Rottingdean	TQ 364028	33m long, 1.5m high, on open heathland on the eastern flank of Beacon Hill
Bevis's Thumb, North Marden	SU 786155	70m long, 21m wide, 2m high, longest known barrow in Sussex., RC date 3350 BC
Cliffe Hill, South Malling	TQ 431110	36m long, 15m wide, 2m high, false crested can be seen from the Ouse Valley
Giants Grave, Firle Beacon	TQ 486058	33m long, 20m wide, 2.5m high, false crested on the south side of the scarp crest beside the South Downs Way.
Hunters Burgh, Wilmington Hill	TQ 550036	56m long, 22m wide, 2m high, on the steeply sloping scarp face of the South Downs
Litlington	TQ 535006	20m long, 12m wide, 0.8m high stands in a barley field
Long Burgh, Alfriston	TQ 510034	50m long, 18m wide, 2.4m high
Money Burgh, Piddinghoe	TQ 425037	37m long, 18m wide, 2m high, on a low spur projecting from the west side of the Ouse Valley

North Marden	SU 801154	46m long, 30m wide, 2m high, RC date 3450 BC
Stoughton, Stoughton Down	SU 822121 SU 824120	NW is 33m long, 24m wide, 2m high. SE barrow is 25m long, 14m wide, undated.
Windover Hill	TQ542033	55m long, 14m wide, 2m high, false crested visible from Ewe Dean
Flint Mines		
Blackpatch,	TQ 094089	100 mines, antler RC date: 4000 BC, radial galleries at 3.5m deep
Church Hill, Findon	TQ 112083	5m deep pits, antler pick RC date 4250 BC, in use for over 2,000 years
Cissbury, Findon	TQ 137079	Mines marked by about 200 shallow pits, some shafts as deep as 12m, RC dates: 3400-3500 BC
Harrow Hill	TQ 081100	160 filled in mines, shafts as deep as 4m, antler RC date 3700 BC
Long Down	TQ 933092	38 well defined mine shafts and their associated spoil heaps visible.
Nore Down	TQ 773131	9 shafts covering an area of 0.5 hectares.
Slonk Hill	TQ 225067	A single mine shaft, maybe a trial shaft or enough to meet the needs of a small community
Settlement Sites		
Belle Tout	TV 557957	Close to the chalk cliffs. Built during 3000 BC, the cliffs were probably about 1km away. Circular and rectangular houses which were later enclosed with a bank and ditch.
Bishopstone, nr Seaford	TQ 467006	Unenclosed settlement on a chalk hill overlooking the sea. Settled during 4000 BC.
Bullock Down, Eastbourne	TV 967591	150m OD on the scarp crest of the South Downs.
Flint Knapping Site		
Rackham Common, 3km south of Pulborough	TQ 049152	Open flint knapping site, 13,000 worked flints, 2 knapping floors found, may have been used as a seasonal base for hunting
Henge		
Wolstonbury Hill	TQ 284138	Oval earthwork on a 200m high hilltop, on South Downs escarpment, 198m x 183m encloses 2.2ha, bank 0.6m above the top of the silted ditch, excavated ditch 1.8m deep and 2.4m wide at the flat bottom and 4.9m wide at the top
(Castelden 1992, pp179-193), (Russell 2000, p83 & p150) Some dates obtained from (Drewett in Rudling 2003, p40).		

Sussex Settlement Sites

Belle Toute, in East Sussex is situated on the exposed chalk cliffs, which are eroding at a rate of *c.* 50cm a year. The settlement site contained, circular and rectangular structures, which were later enclosed with a bank and ditch. The site was first excavated by Bradley in 1968/9. A reassessment of Bradley's (1982) excavations concluded that the dating of some of the earliest material, to the Mesolithic period was probably incorrect. The original report described microliths dating to the Mesolithic period, these were later reassessed as unfinished arrowheads. The conclusion was that the narrow flake industry belonged to the Earlier Neolithic period, and that some of the coarse ware pottery belonged to the same period (Bradley in Drewett 1982, p64). During 1979 and 1980, the 'hill fort' earthwork at Belle Toute was excavated. The results were conflicting, flintwork pointed to a Late Neolithic/Bronze Age date. Land snails from the hill fort ditch, pointed to a 1st century A.D. date. The earthwork is irregular and not typical of an Iron Age hill fort, which would have been expected to have a more consistent profile (Drewett 1982, p94). Bullock Down settlement site, consists of three areas of Neolithic activity. The main area contained up to 160 flakes per square metre, scatters of flint suggested the presence of discrete working areas. There were clusters of firecracked flint which may have been associated with hearths or used for the preparation of flint for pottery fillers. The flint knapping floors were marked by concentrations of waste flakes encircled by cores (Drewett 1982, p48). Storage pits found at Bishopstone, contained evidence of grain storage (Bell 1977, p44). The assumption was that pits equated to settlement sites, but there has been a reconsideration of deposition in pits. There appears to a be a symbolic element to some deposits found (Thomas cited in Drewett 2003, p43). The flint tools showed a domination of serrated blades, possibly used to cut the stems of grasses. Saddle

querns were also found, which provided evidence for the grinding of grain. Marine molluscs such as oyster, mussels and limpets were found indicating the use of a possible tidal inlet. The main aspect of this site's economy was arable agriculture. Bell makes a comparison with other sites that may have existed on the same arable economy, one of these sites is Hoddern Farm (Bell 1977, p44). A site in the parish of Rackham, West Sussex (TQ490520), was excavated in 1970. Two distinct clusters of flint were found and in total the assemblage consisted of 13,000 pieces of flintwork. Several hearths and some stakeholes were located. The flintwork was typically Late Neolithic/Early Bronze Age and included arrowheads, scrapers, knives, fabricators and part of a flaked axe. The site was interpreted as areas of knapping floors which were organised in an orderly manner. Different stages of manufacture took place on different parts of the floor. Flint knapping was not the only activity taking place, because there was a high proportion of utilised flakes found. The suggestion was that knapping, was taking place for use on the spot. There was no structural evidence to suggest permanent settlement (Holden & Bradley, 1975, p101).

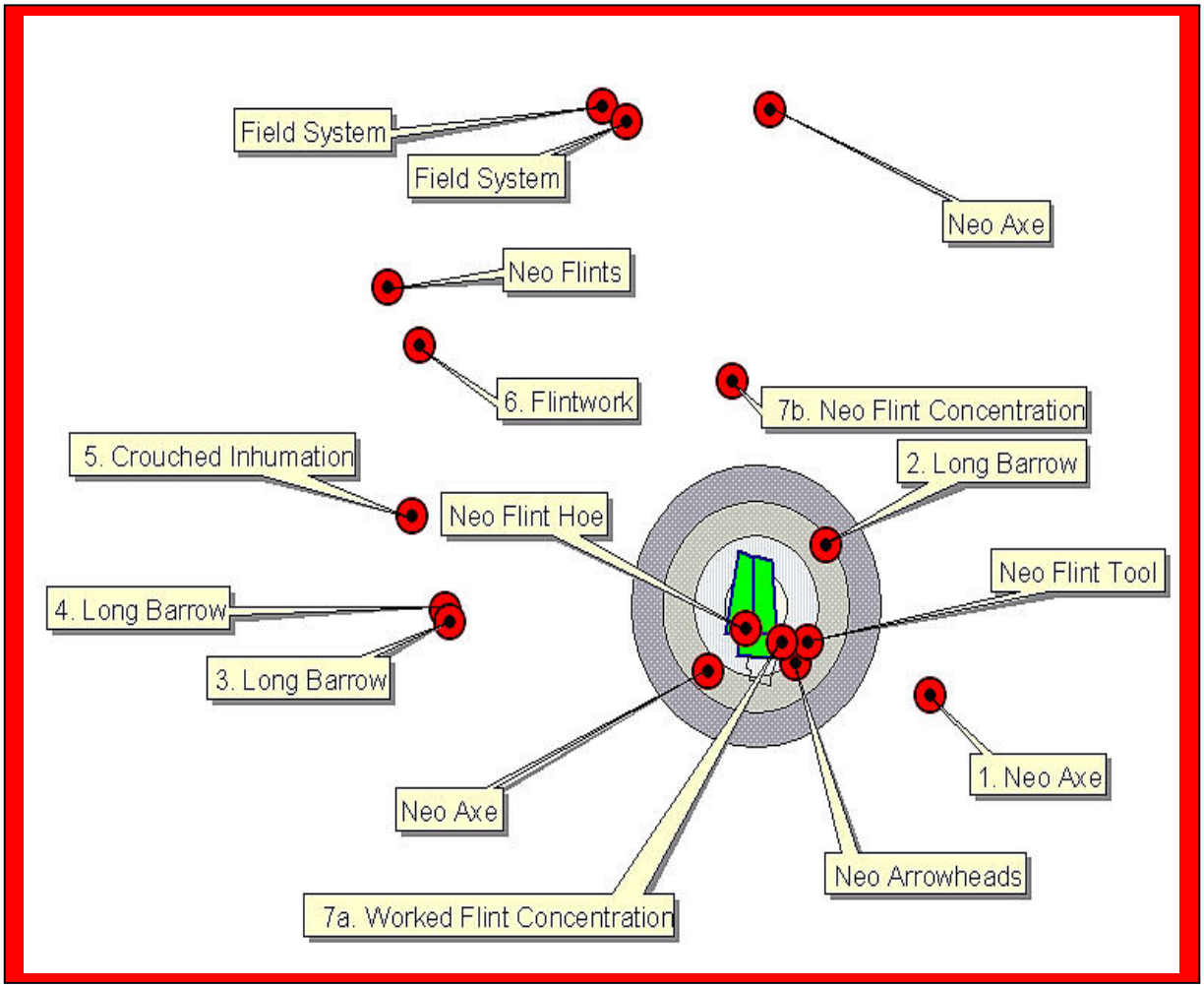
Neolithic Sites - Vicinity of Lower Hoddern Farm

The GIS illustration (Figure 40) shows a 2 km buffer zone (grey circled area) around Lower Hoddern Farm to highlight Neolithic find spots and sites within close proximity. The objective of putting this information together is to show the amount of evidence for Neolithic activity, that has been found in the area. A future territorial examination, might be beneficial to study the exact proximities between the Lower Hoddern farm site and other monumental and non-monumental sites. The data has been obtained from the Sites and Monuments Record, courtesy of East Sussex County

Archaeology Department. Any site or implement that is discussed from the S.M.R. database will have its ES number quoted for further reference.

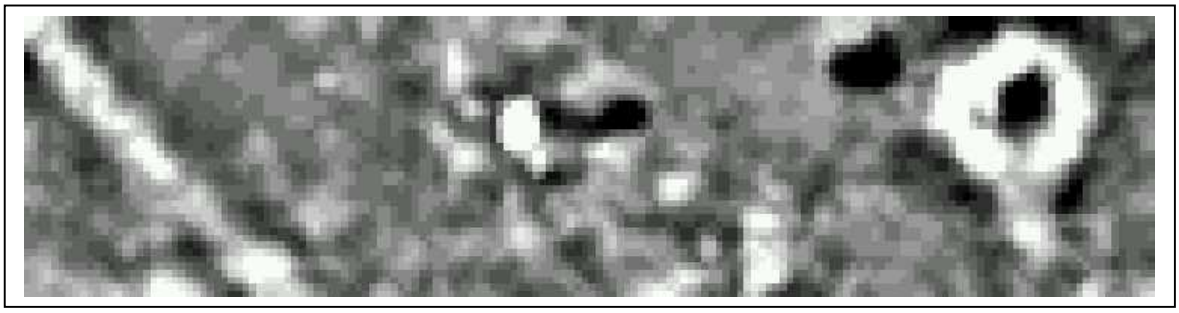
Within the 2 km zone, there are five find spots for flint tools (Figure 40), and a long barrow situated north east of the farm, in Piddinghoe. Outside the 2km area there are many other Neolithic sites and find spots. The sites/finds that are numbered on the G.I.S. map (Figure 40) will be discussed in more detail below. There was limited information on the S.M.R. database, about many of the finds, indeed some contained no information at all. Therefore the sites/finds discussed below represent those that have been investigated or recorded accurately.

Figure 40: S.M.R. Data located around Lower Hoddern Farm



A Neolithic polished axe (ES1781) (No.1 – Figure 40), was found in a garden in Newhaven in 1962 and handed into Barbican House, Lewes (Bulman 1962, p63). Money Burgh long barrow (ES1841) (No.2 – Figure 40), in Piddinghoe, is situated close to the site. It is 37m long, 18 m wide and 2m high, on a low spur projecting from the west side of the Ouse Valley. All traces of lateral ditches have been destroyed by trackways and cultivation. A scraper was found on the mound in 1929 (Grinsell 1934, p219, Toms 1922, p159). There are two long barrows (ES1 & ES230) (No 3 & 4 – Figure 40), to the west of the site on Beacon Hill. One was possibly two adjacent bowl barrows but could have been a long barrow. It was destroyed in 1863 when it was removed to improve a cricket ground. Skeletons of 4 adults and a small burial urn was found in one part of the barrow, in another part there were traces of other skeletons and urn fragments (Turner 1863, p243). The other long barrow, was a probably Neolithic and was photographed in 1995, visible in the form of parch marks, it has a NW to SE alignment. Brighton and Hove Archaeological Society conducted a geophysics project in 2005 on earthworks near to the Beacon Hill long barrows, to try and determine the date and nature of the earthworks. Features such as ditches and a circular high resistance were found (Figure 41), further surveying is planned for this site (BHAS Field Unit News Archive).

Figure 41: Beacon Hill Geophysics Result
(Photo courtesy of BHAS)



A crouched inhumation (ES 237) (No. 5 – Figure 40), was found in 1936 during road widening (TQ 358504). The skeleton was lying on its side in a shallow grave with the head pointing south and was facing east. The probable date was Neolithic/Early Bronze Age. Neolithic polished axes, scrapers and borers (ES 1558) (No. 6 – Figure 40), were found between 1898 to 1921, in the Upper Bevendean area (TQ 359606). Two areas of worked flints (ES 1834 & 1947) (No. 7a & 7b – Figure 40) were found during the early 1920's at Peacehaven. One area measured at 10 acres (4.05 ha) and the other at 20 acres (8.09 ha). On the larger area, there was little sign of plough disturbance, the flints were in good condition. This site was excavated and in one circular area there were found, between 8,000 to 10,000 pieces of chipped flint, flakes and cores. The smaller area had been ploughed, most flints were on the surface and broken, around 400-500 flints were found. Types of implements consisted, polished and flaked axes, scrapers, points, retouched flakes and fire cracked flakes (Calkin 1924, p227-235).

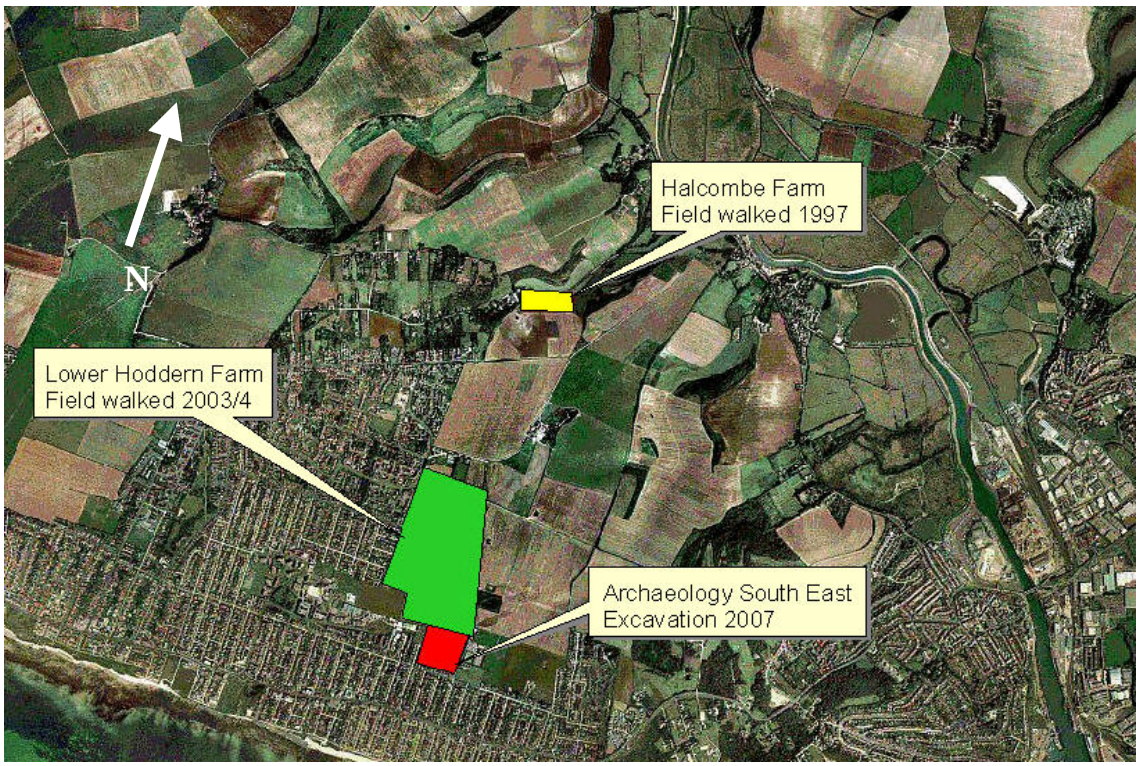
Archaeological Projects in the vicinity of Peacehaven

Farrington Farm, adjacent to the south field of Lower Hoddern Farm was excavated in January 2007 by Archaeology South East (A.S.E.) (Figure 42). The following is a summary, of what was found on this site. *"The earliest material found at the site was likely to be Early Mesolithic. A large hollow/pond area was found containing many Mesolithic flints. This area was intensely sieved for flintwork, using the traditional 1m square chequerboard style grid. This 'flint working hollow' also contained later Mesolithic and Neolithic material indicating persistent use over long time periods. The sandy nature of the Woolwich Beds would have likely supported only a sparse woodland environment not the dense deciduous forests which existed in other parts of*

the south-east at this time. This would have attracted game and in turn hunter-gatherers who may have then used this spot as a short term stopover location. On the edges of the 'pond' evidence, of in-situ flint knapping was evident, where small rounded pebbles had been laid down as temporary knapping surfaces. Some limited evidence for Bronze Age occupation was also recorded, in particular an area near the Mesolithic 'pond', this area consisted of a large number of small pits and ditches, filled with crushed burnt flint. Also in the north-east corner of the site, a Bronze Age pit was found, with some post holes which were likely associated. The main occupation of the site was probably during the Mid Iron Age, although this is impossible to verify until all the finds are processed and all reports completed. All the enclosures and structures are thought to be from this period. The main rectangular shaped enclosure was re-cut three times along the southern and western sides. A deposit of a buried soil was found overlying the ditches on the southern edge, which may have once been the original bank material, which was spread about by ploughing once the enclosure went out of use. Near the centre of this enclosure was a likely burial. There was no bone survival but a grave shaped feature was found which contained over 1000 large nodules of flint. This flint was not burnt or worked in any way, it was collected from the dry valley to the north of the site and then deliberately placed. Next to the western side of the rectangular shaped enclosure was a large sunken/hollow way which may have been used for cattle. The south-western edge of the rectangular shaped enclosure seems to have been a place of real significance. Ditches and droveways lead up to the corner and then terminate, all respecting each other. There was also a curious curving gully in this area which contained the well preserved remains of an Iron Age Bucket Handle" (Riccoboni, P. Senior Archaeologist, Archaeology South East. pers. comm. 17 July 2007).

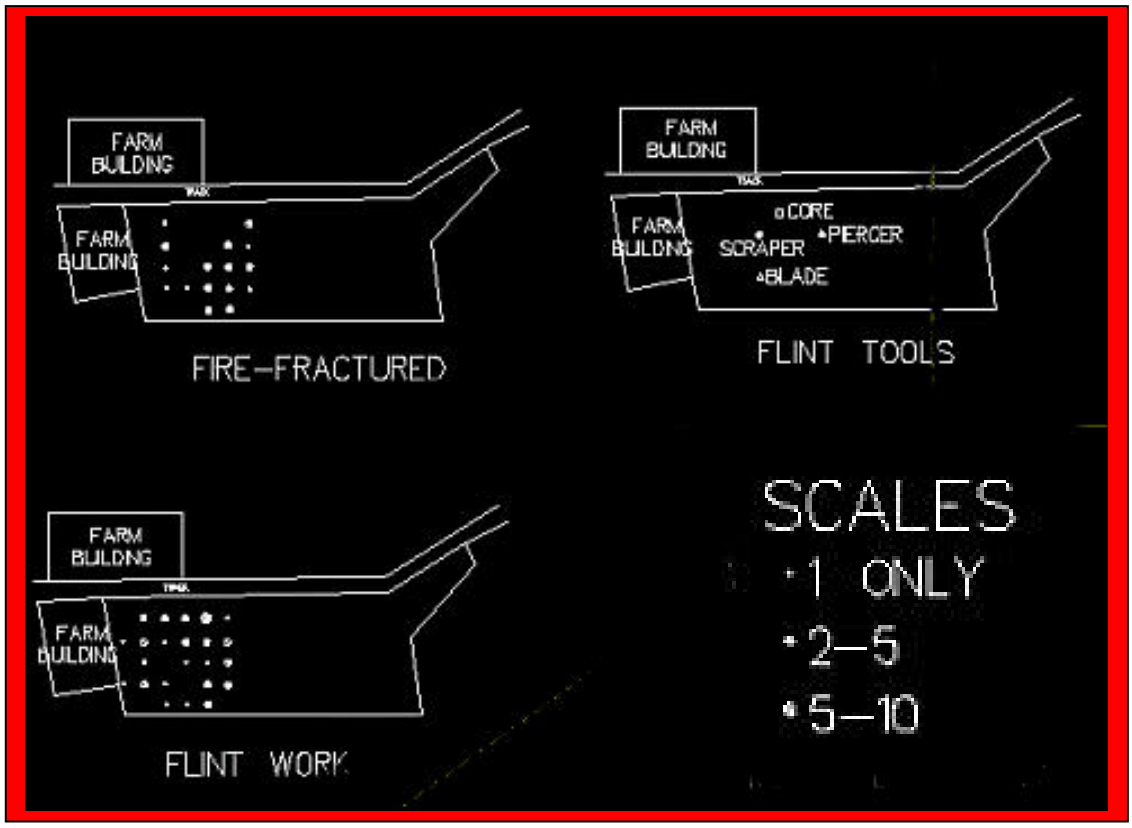
The following is a quote from M. Pope's summary of the site *"Humanly struck flint and concentrations of clasts occur together within a localised outcrop of Tertiary bedrock. The site might be preserving in-situ knapping scatters left by early post-glacial hunters attracted to fresh water, absent elsewhere in the local chalk plateau. Detailed excavation of the scatters and consideration of the geoarchaeological context of the finds is essential if this exciting hypothesis is to be tested"* (Pope, M. A.S.E. Report Unpublished, 16 Feb 2007).

Figure 42: Sites in the Vicinity of Peacehaven



During 1997 Brighton and Hove Archaeological Society conducted a field walking project on a field to the east of **Halcombe Farm**, TQ423029, Peacehaven (Figure 42). This small area where only six lines were fieldwalked produced many pieces of worked flint (Figure 43). This site also produced a fair amount of firecracked flint (John Funnell, pers. comm. 30 August 2007).

Figure 43: Halcombe Farm, Fieldwalking Results



Forthcoming Excavation of a Peacehaven Barrow

In September 2007, an excavation will be taking place in Peacehaven conducted by Brighton and Hove Archaeological Society and Mid-Sussex Field Archaeology Team. The round barrow is a Scheduled Ancient Monument (SM207). It is currently situated in open grassland, a few metres away from the cliff edge above Friar's Bay (TQ 431002) at Peacehaven, East Sussex. This region of the cliff is suffering from serious erosion, and as a result the barrow will wholly or partly disappear within the next few years. The purpose of the excavation is to record for future study, as much information as possible about this monument before it disappears into the sea. There is no record of any archaeological excavation carried out on this barrow. It is mentioned in Grinsell's list of barrows (Grinsell 1934, p217-74) where the only

description given is its size, location and its condition being "rather dilapidated". Since then it has suffered severe animal disturbance and shows evidence of having craters in several places. A resistivity survey of the barrow and the immediate area surrounding it was carried out in May 2006 with permission from English Heritages and the landowner. The results of this survey appear to confirm the presence of a circular barrow with ring ditch (Birks, S. pers.comm. 19 August 2007).

Archaeological Evaluation – A.S.E – Southern Water

Archaeology South East undertook an archaeological evaluation comprising four trial trenches in July/August 2004. This was carried out at various locations as part of an Environmental Statement for Southern Water, along the route of the proposed Brighton to Peacehaven Transfer Route, A259 Coast Road, East Sussex. No archaeological features or artefacts were observed. This project is still in the post-excavation phase of a recent excavation undertaken at Keymer and Seaview Avenues, Peacehaven. The report for this will not be available for several months (C. Thompson, pers. comm. 25 July 2007).

Peacehaven is an archaeological wealth of information. The above projects both completed and forthcoming are providing more evidence to prove that this area has been utilised since at least the Mesolithic period. The site itself has provided evidence of a probable settlement area, which may have links to other monuments in the vicinity. The final chapter will determine whether the research aims have been met and discuss any future research

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Conclusion

In this final chapter, the research aims will be examined and discussed. Future research will be recommended where necessary. The flint artefacts were analysed from the transect survey and then placed into their wider context. The majority of artefacts were shown to be from the Neolithic period. The introduction from this paper, began with a brief history of Peacehaven, then discussed why a fieldwalking project was instigated on Lower Hoddern Farm. Site geology consisting of UMCk and Woolwich Beds, and was greatly enhanced by the knowledge of the local area from M. Pope. The theoretical approach behind this project is based on a linear processual process, starting with finding the site, fieldwalking it, analysing the data and finally interpreting the behaviours attached to the artefacts.

The behavioural element of this research, links to the **first aim** of the project, which was to determine what flint knapping activity was taking place on this site during the Neolithic period. The nature of ploughed fields is such, that any evidence of 'knapping floors' are likely to have been destroyed. This takes away the ability, to determine how the knapping activities were organised. Studying the debitage however, can give some indication of the knapping processes that took place in the general area. The inclusion of primary, secondary and tertiary flakes in the assemblage, indicated that the *'complete knapping'* process had been undertaken on site. If there were any stages of the reduction process missing, then it would have been an indicator that the missing stage, may have been carried out elsewhere. The high number of flakes with cortex demonstrated that most nodules were not 'decorticated' before they were brought to the site for reduction. Fragments are usually an indicator of hard hammer techniques, as are Combination Tools, both being

present in this assemblage. It is without doubt that axes were being produced in this area. There have been many documented axe finds in the past and probably many undocumented cases not withstanding the axes that were found during the survey. Axes are the easiest implement to recognise and therefore, the most likely to have been collected and removed from the site. It is impossible to determine from the evidence, whether this was an 'axe' producing site. It is possible, however, to draw the conclusion, that some of the flint knapping activities carried out on this site, included the making of both polished and flaked axes. Future research into the known axes found in this area would be useful, to determine whether this may have been a specialised 'axe producing' site.

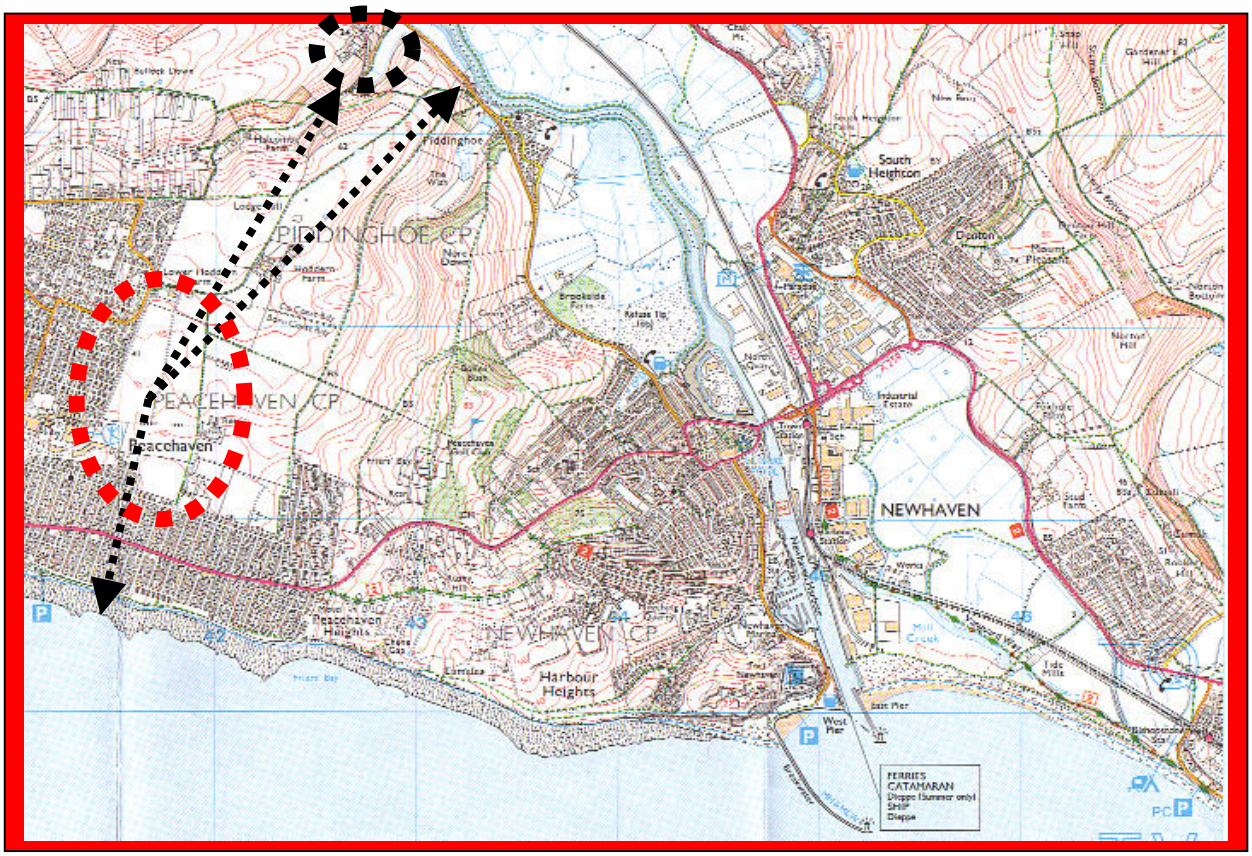
The **second research aim** was to examine the movement of flint artefacts within the plough zone. This was achieved by researching into archaeological experiments, carried out both in the UK and worldwide. The experiments demonstrated that artefacts can move substantial distances, from their original point of deposition. The striking fact, that arose from this research, was the long distances that artefacts moved, after just a few seasons of ploughing. It is almost impossible to imagine what the movements of the Lower Hoddern farm artefacts, may have been through several thousand years of land use and ploughing episodes. This research supports Hodder's argument that the archaeological record is *"a transformed or distorted reflection of past behavioural systems"* (Hodder 2001, p40-41) and Dark's statement that the *"the archaeological record is not static, it is constantly being modified usually involving a loss of information"* (Dark 1995, p41). After the results of the research, it was decided that the G.I.S. illustration maps, would be used purely, to demonstrate the position of the flint artefacts, prior to their permanent removal from the archaeological

record. It remains an open question, as to how useful these maps will be in the future, for anyone wanting to research this area further. A future research project which the author would like to organise, is an experiment over five years of ploughing on a Sussex farm, using conventional ploughing equipment. The flint artefacts would be individually colour coded and plotted onto G.I.S. Each artefact would then be followed for the five year period to plot their movements. This would be a local example for archaeologists to use as a guide.

The **third aim** was to place the flint implements into their wider context. This was achieved by examining the immediate area around the site. Lower Hoddern Farm is surrounded by contemporary sites and find spots as demonstrated by the S.M.R. database. The site is situated amongst the largest group of long barrows in Sussex, located between Coombe Hill and Whitehawk Causewayed Enclosures. The topography of the area is likely to have supported a standing water source, which Pope (2007) speculated on his site visit. The River Ouse is four kilometres away from the site (Figure 44), which would have been a source of water and food. Drewett (1988) studied the possibility of interrelationships between ceremonial, industrial and settlement sites (Drewett 1988, Fig. 2.9, p61). It was considered that the building of long barrows and enclosures would take organisation and cooperation, possibly by people who were related by kinship (Drewett 2003, p45). It is impossible to estimate the size of territories, and as Drewett points out, territories should be construed from the known behaviour. What is useful from Drewett's research, is to examine the geographical facts, which are the location of known sites in relation to each other. People would have had to have been organised to work together aiming for the same

goals, these people would need to live somewhere and tools would be needed for construction.

Figure 44: Location of River Ouse, Money Burgh and Coast in Relation to Site



Looking at the location of Lower Hoddern Farm, there is a possibility of links to Money Burgh, the long barrow which is circled in black in the top left hand corner of Figure 44. Whitehawk Causewayed Enclosure is 11 kilometres from Peacehaven. It is entirely feasible that the early Neolithic people from this settlement had links with Whitehawk, or even Offham which is 21 km and Combe Hill which is 25 km away. Studying this period of time can be frustrating because of the danger of imposing 'modern day' interpretations onto the evidence available. As Hodder points out about categorisation *"the archaeologist automatically embeds them with meaning, they are always in, at least partial conformity to our current linguistic and perceptual codes"*

The beliefs and value patterns will never be known from this period. The assumptions made have been about geographical links to other monument sites based on the facts that monuments take time, organisation and tools to create.

The **last aim** was to create a database and archive from Lower Hoddern Farm for future analysis. The excel and G.I.S. databases created will become the archive for this site. All data is available on CD Rom and will be handed over to Greg Chuter, Assistant County Archaeologist, East Sussex. This dissertation is going to be made digitally available for East Sussex County Council and Brighton & Hove Archaeological Society.

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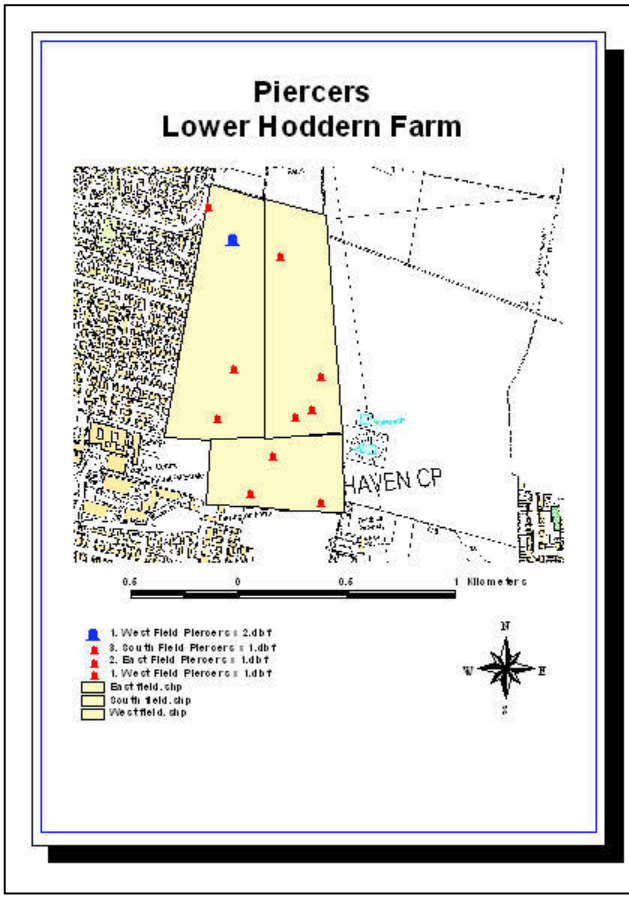
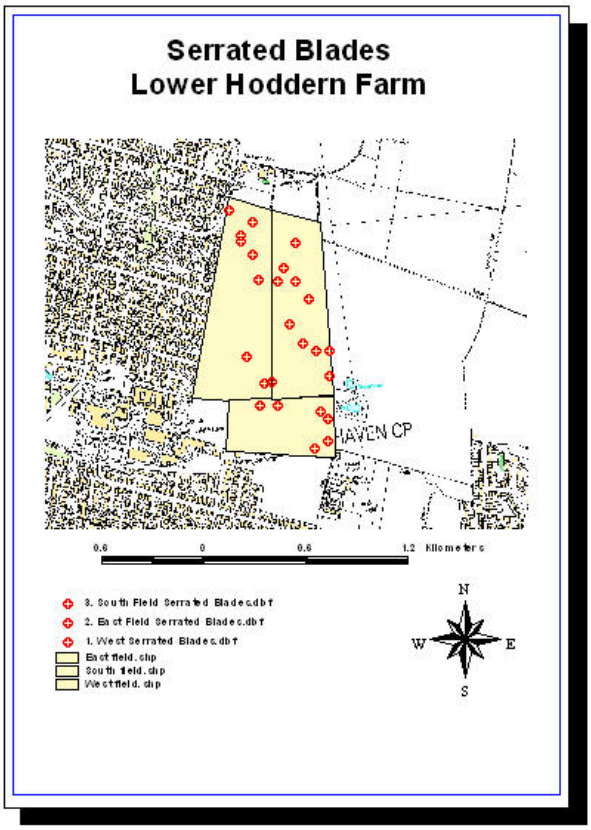
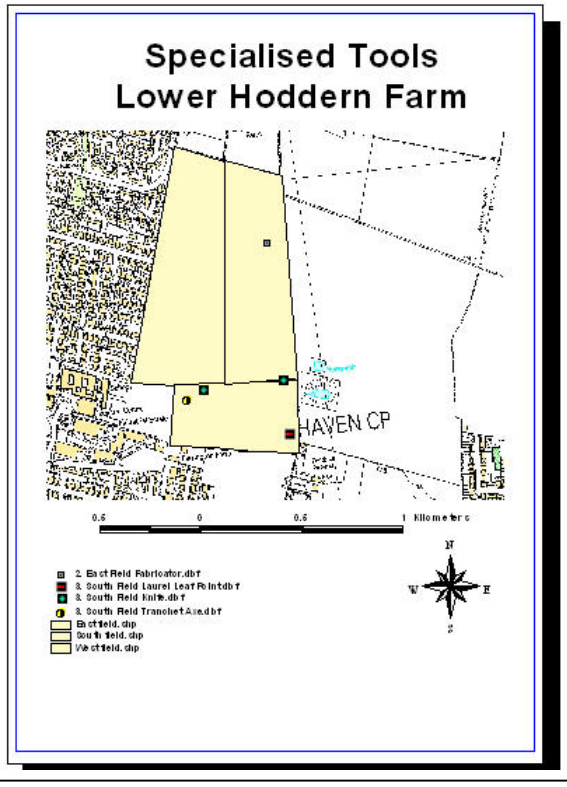
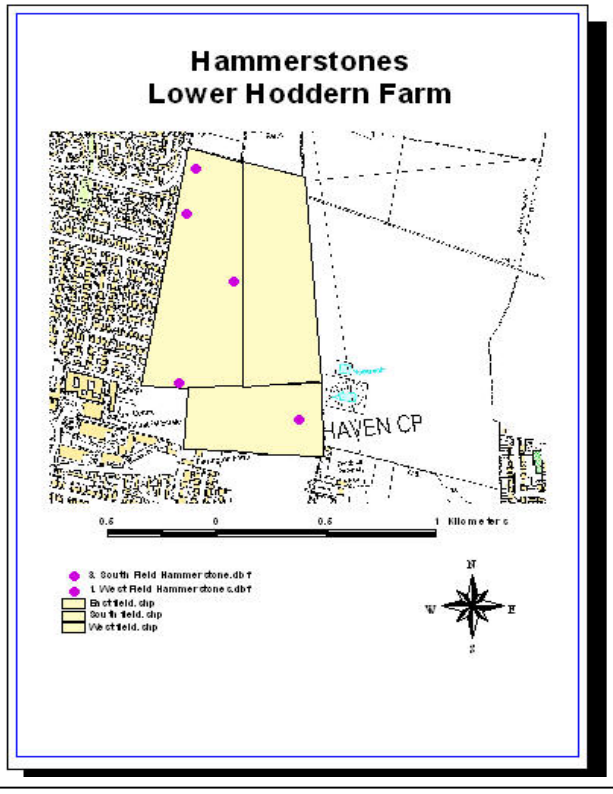
Appendix

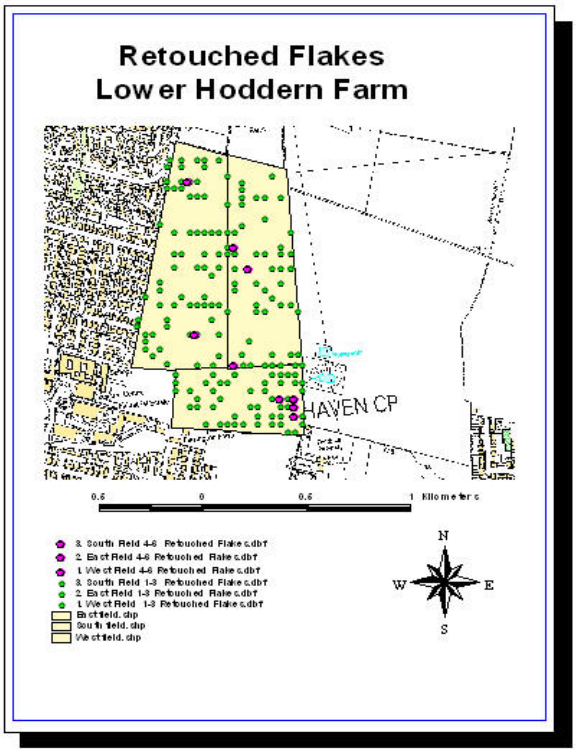
GIS LAYOUTS







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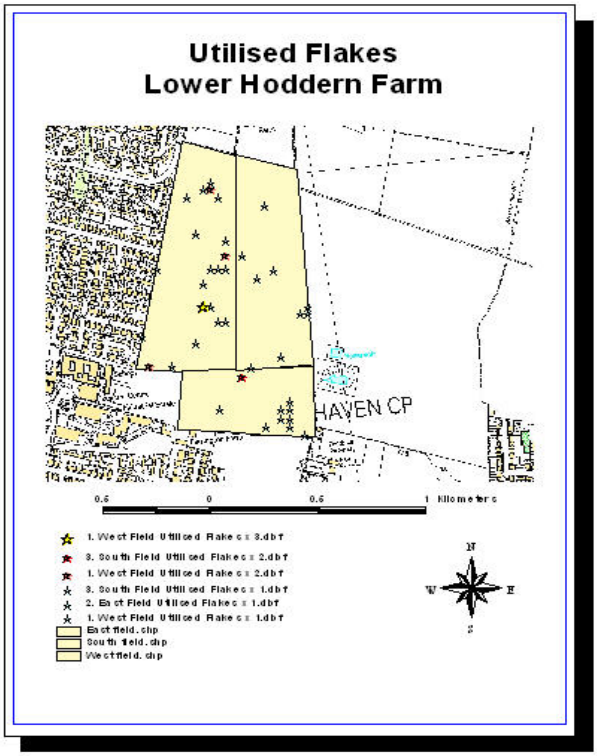
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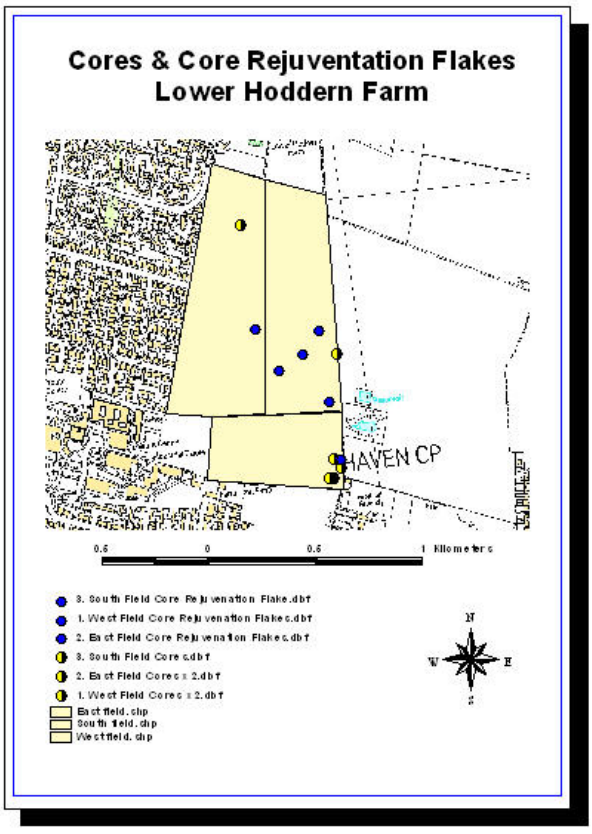
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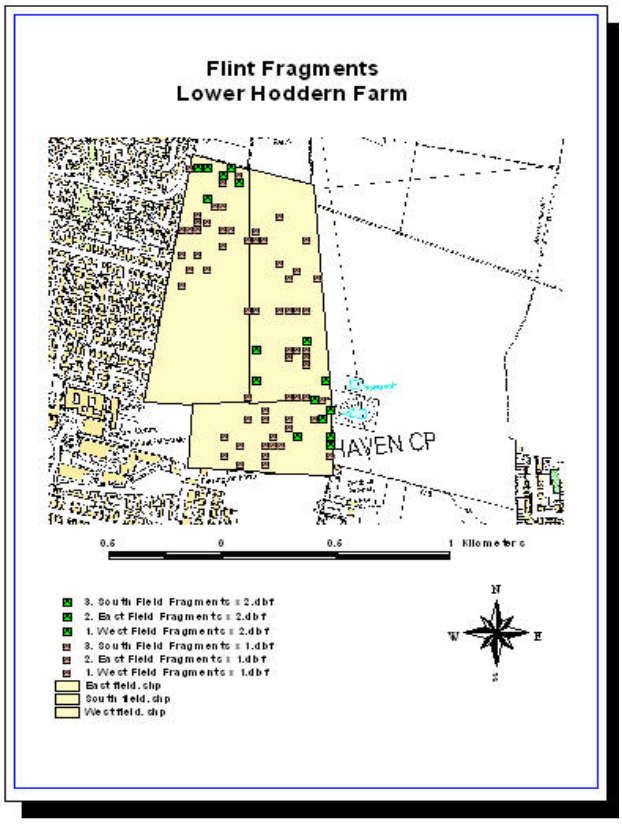
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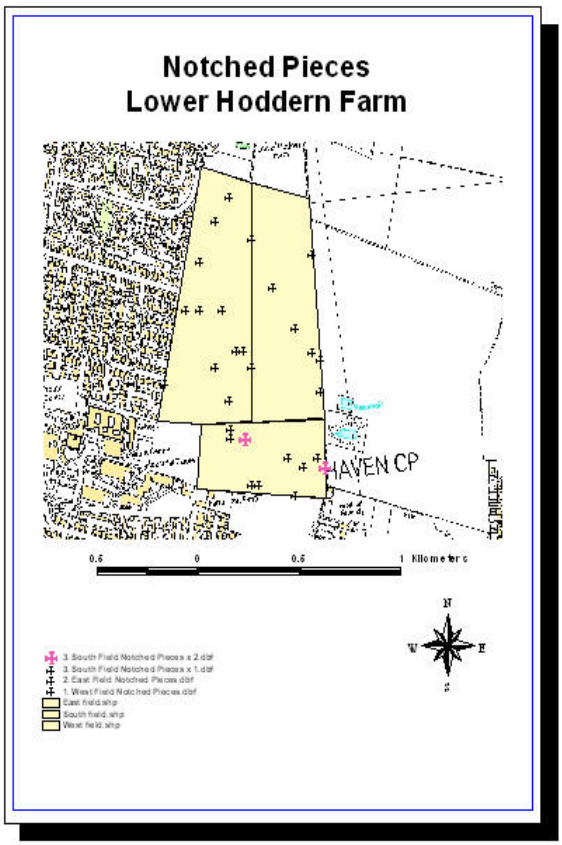
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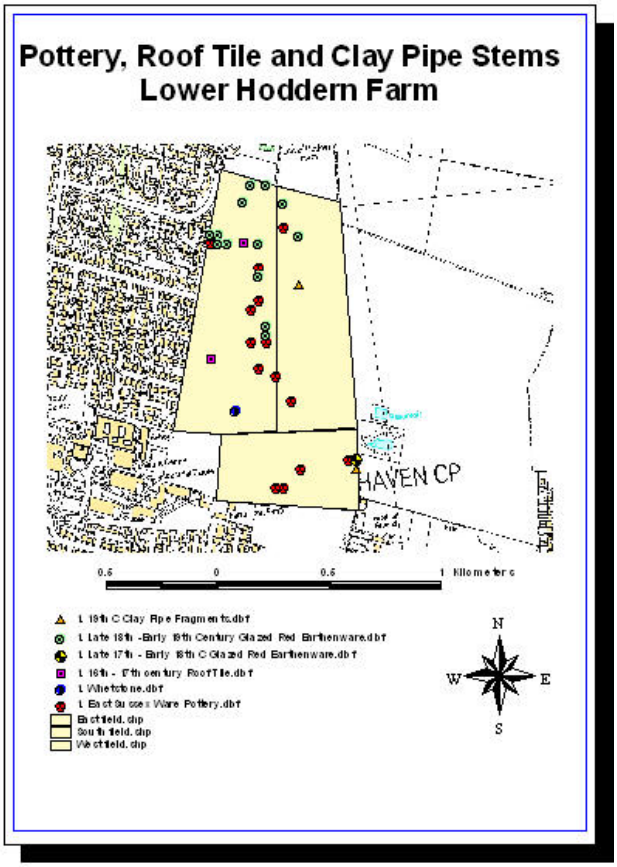
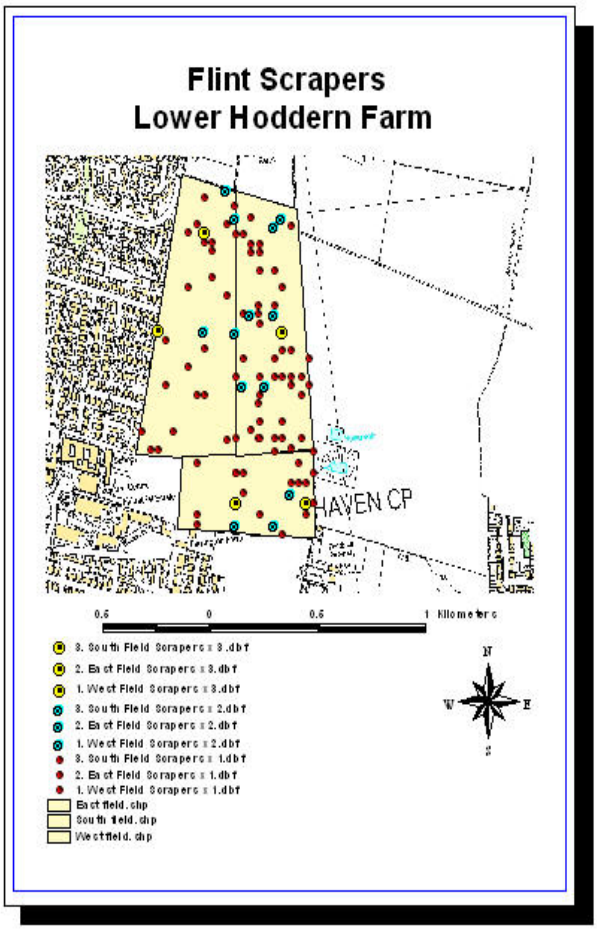
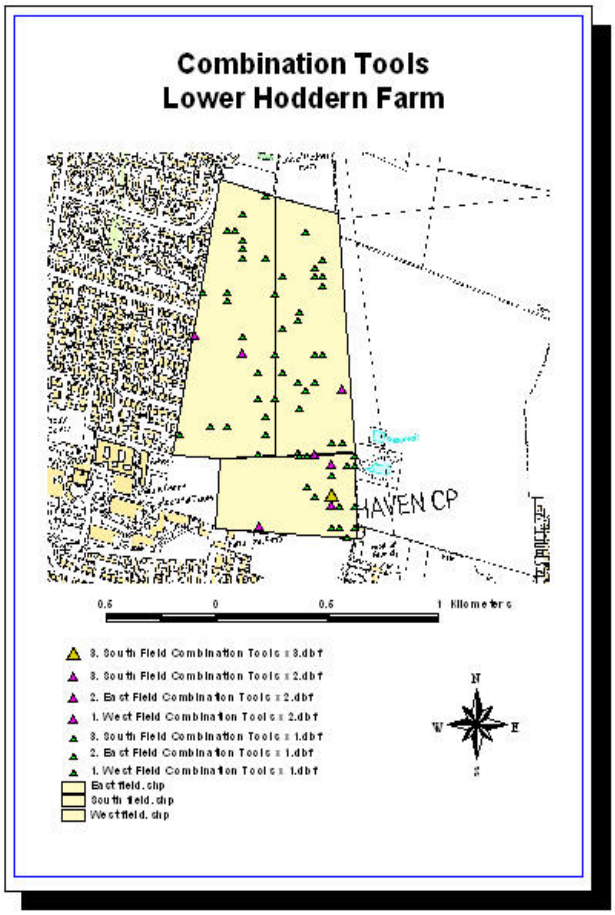
S
3. South Field Notched Pieces x 2.dbf
3. South Field Notched Pieces x 1.dbf
2. East Field Notched Pieces.dbf
1. West Field Notched Pieces.dbf
East field.shp
South field.shp
West field.shp


Pottery, Roof Tile and Clay Pipe Stems
Lower Hoddern Farm
HAVEN CP
0.5 0 0.5 1 Kilometers
N
W E
S
1. 19th C Clay Pipe Fragments.dbf
1. Late 18th - Early 19th Century Glazed Red Earthenware.dbf
1. Late 17th - Early 18th C Glazed Red Earthenware.dbf
1. 16th - 17th century RoofTile.dbf
1. Whetstone.dbf
1. East Su sex Ware Pottery.dbf
East field.shp
South field.shp
West field.shp


Flint Scrapers
Lower Hoddern Farm
HAVEN CP
0.5 0 0.5 1 Kilometers
N
W E
S
3. South Field Scrapers x 3.dbf
2. East Field Scrapers x 3.dbf
1. West Field Scrapers x 3.dbf
3. South Field Scrapers x 2.dbf
2. East Field Scrapers x 2.dbf
1. West Field Scrapers x 2.dbf
3. South Field Scrapers x 1.dbf
2. East Field Scrapers x 1.dbf
1. West Field Scrapers x 1.dbf
East field.shp
South field.shp
West field.shp


Combination Tools
Lower Hoddern Farm
HAVEN CP
0.5 0 0.5 1 Kilometers
N
W E
S
3. South Field Combination Tools x 3.dbf
3. South Field Combination Tools x 2.dbf
2. East Field Combination Tools x 2.dbf
1. West Field Combination Tools x 2.dbf
3. South Field Combination Tools x 1.dbf
2. East Field Combination Tools x 1.dbf
1. West Field Combination Tools x 1.dbf
East field.shp
South field.shp
West field.shp

Excel Data – East, West & South Fields

EAST FIELD			
Implements		Scrapers	
Retouched Flakes	69	End Scraper	24
Scrapers	61	Side/End Scraper	15
Combination Tools	26	Discoidal Scraper	10
Serrated Blades	11	Side Scraper	7
Notched Pieces	8	Nosed Scraper	2
Utilised Flakes	8	Hollow Scraper	1
Piercers	4	Double Ended Sraper	1
Axes	3	Backed Scraper	1
Rubbing Stone	2	Total	61
Fabricator	1		
Hammerstone	1		
Total	194		

Combination Tools			Debitage	
Notched End Scraper	7		Cores	7
Notched Piercer	5		Flakes	887
Notched Side Scraper	5		Fragments	36
Notched Serrated Blade	3		Blades	2
Notched Side/End Scraper	2		Rough Workshop Waste	14
Notched End Scraper/Piercer	1		Core Rejuvenation Flake	4
Notched Discoidal Scraper	1		Total	950
End Scraper/Piercer	1			
Notched Hollow Scraper	1			
Total	26		East Total Implements	194
			East Total Debitage	950

WEST FIELD			
Implements		Scrapers	
Retouched Flakes	94	End Scraper	7
Scrapers	33	Side Scraper	8
Utilised Flakes	25	Hollow Scraper	1
Combination Tools	25	Side/End Scraper	8
Notched Pieces	11	Discoidal Scraper	9
Serrated Blades	8	Total	33
Piercers	5		
Hammerstone	4		
Axe	1		
Rubbing stone	1		
Total	207		

Combination Tools			Debitage	
Notched Piercer	1		Cores	13
Notched Hollow Scraper	1		Core Rejuvenation Flake	1
Notched End Scraper	8		Flakes	618
Notched Side Scraper	6		Rough Workshop Waste	3
Notched Side Scraper/Piercer	1		Fragments	50
Notched Side/End Scraper	4		Blades	1
Hollow Scraper/Piercer	1		Total	686
Side/End Scraper/Piercer	1			
Notched Serrated Blade	1			
Side Scraper/Serrated Blade	1		West Total Implements	209
Total	25		West Total Debitage	686

SOUTH FIELD

Implements			Scrapers	
Retouched Flakes	93		End Scraper	8
Scrapers	30		Side Scraper	7
Combination Tools	25		Hollow Scraper	4
Utilised Flakes	12		Side/End Scraper	4
Notched Pieces	12		Discoidal Scraper	6
Serrated Blades	6		Double Side Scraper	1
Piercers	3		Total	30
Axes	2			
Laurel Leaf Point	1			
Backed Knife	1			
Knife	1			
Hammerstone	1			
Rubbing Stone	1			
Tranchet Axe	1			
Total	189			

Combination Tools			Debitage	
Notched Piercer	4		Flakes	441
Notched End Scraper	4		Fragments	31
Notched Side Scraper	10		Cores	4
Notched Side Scraper/Piercer	1		Rough Workshop Waste	3
Side Scraper/Piercer	3		Core Rejuvenation Flake	1
Notched Serrated Blade	3		Total	480
Total	25			
			South Total Implements	189
			South Total Debitage	480