APPENDIX 9: ASSESSMENT OF CHARRED PLANT REMAINS & CHARCOAL

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1. Introduction

1.1 A total of 26 bulk soil samples were taken for environmental analysis during the excavation of the two sites in Zone 5; 20 came from ARC CGC 98, and six from ARC 330 98. The sampled deposits came from mainly from fills of pits and ditches, with a few from post-holes and a possible furnace. Those which have been spot-dated so far are all from the middle to late Bronze Age, but the majority are currently undated. Sample sizes ranged from 3 to 40 litres. A report on two further samples was written as part of the evaluation (Campbell & Pelling 1997), and concluded that charred remains were poorly preserved on the site.

1.2 It was hoped that the study of botanical material from this site would provide information on economic activities, for example crop husbandry.

2. Methodology

2.1 The samples were processed by flotation, using a Siraf flotation tank, with meshes of 0.25mm and 1.0mm to catch the flot and residue respectively. All flots and residues, were dried, and the residues were fully sorted by eye for artefacts and biological material. The flots were briefly scanned using a low-powered microscope, and the abundance, and general nature of plant macrofossils and any faunal remains were recorded, using the following scale for the number of charred items per sample:

+ = 1-10
++ = 11-50
+++ = 51-100
+++ = 101-1000
1000+ = >1000.

2.2 Results were recorded on the MoLAS ORACLE CTRL botany database.

3. Quantifications

3.1 Charred material was recovered from 21 of the assessed samples, mainly in the form of wood charcoal. In many cases this was poorly preserved and highly fragmented, although pieces large enough for species identification were recovered from 11 samples. Occasional charred cereal grains were seen in four samples, and cereal chaff, in the form of wheat glume bases and spikelet forks in two. Four samples contained very occasional weed seeds. The numbers of all these remains were very low, usually less than five items per sample.

3.2 Assessment data for the samples with identifiable charcoal or other remains is shown in tables 17 and 18.

4. Provenance

4.1 The charred cereal remains referred to above were found in four pitfills and a ditch fill, two of which were spot-dated to the late Bronze Age, while the remaining three are currently undated. Identifiable charcoal was recovered from a possible furnace, six pitfills, three ditch fills, and a post-hole, two of which have been dated to the middle or late Bronze Age.

4.2 The condition of the charred material was generally poor, and it may not be possible to identify all grains to species. Charcoal was mostly broken into very small fragments, but larger pieces were retrieved from some of the samples, as mentioned above, and may be identifiable. The majority of samples included rootlets, and sometimes uncharred seeds, of modern origin. It is therefore possible that some of the charred material could be intrusive.

5. Conservation

5.1 The dried flots, and plant material from the residues, have no particular conservation requirements.

6. Comparative material

6.1 No comparative material has been found from Bronze Age sites in this area of Kent. No Bronze Age environmental material was recovered from Area 330 Zones 1 to 4. There is a good sample from Area 350 Zone 6 (Cuxton ARC CXT 98 – sample <11>) but this is dated to the middle Iron Age. In addition there are good samples from White Horse Stone (ARC WHS 98) but these are dated to the Neolithic.

6.2 Further afield, similarly small assemblages of charred cereals and charcoal have been found from Bronze Age features at Cranford Lane, Heathrow (Giorgi 1995), and excavations at the Beddington Sewage Farm, Croydon (de Moulins forthcoming).

7. Potential for further work

7.1 Very few plant remains were recovered from the samples within the Zone 5 area, so their value in answering the project aims is limited. As there have been very few studies of plant remains from Bronze Age sites in this area of Kent, analysis of the five samples containing cereal remains may contribute to our knowledge of cereal use and cultivation in this period. Identification of the 11 charcoal samples will indicate the wood species being exploited, although it is unlikely that the small fragments found will reveal much about woodland management. This work would be justified as the deposits concerned can be securely dated.

7.2 There is potential for using the charcoal from the barrow ditch ([227] and [229]) for radiocarbon dating.

7.3 Four flots (samples <4>, <<10>, <11> and 12>, based on the grain, chaff, charred seeds and uncharred seeds contents), will be sorted, and charred cereal remains from these and from the sample residues, identified and counted, using a low-powered microscope. The environmental preferences and soil requirements of weed species will also be investigated. Charcoal samples will be identified to species where possible, using an epi-illuminating microscope.

7.4 The resources required to complete this work, and preparation of a publication report, are as follows:

- Sorting and identification of charred cereal remains
- charcoal identification
- data entry & preparation of table
- preparation of publication report

8. Bibliography

Campbell G. & Pelling R. 1997 'Environmental indicators' Cobham Park Golf Course (ARC CGC97) evaluation report.

Giorgi J. 1995 Assessments of plant remains from Cranford Lane (CFL94). Unpublished MoLAS assessment reports BOT/ASS/07/95, 24/95, 26/95, 28/95.

de Moulins D. forthcoming

Table 19: Assessment of Charred Plant Remains & Charcoal from ARC CGC 98

Key + = 1-10, ++ = 11-50, +++ = 51-100, +++ = 101-1000, 1000+ = >1000.

Sample Details					Flot & Residue Details							Residue	
context no.	**Sample no.**	**feature type**	**period**	**Sample vol. (l)**	**flot vol. (ml)**	**grain**	**chaff**	**charred seeds**	**unch'd seeds**	**charcoal**	**comments**	**vol. (ml)**	**% sorted**
132	15	Ditch	LBA	10		+				+++	No flot. 5 grains (wheat?) in residue.	1000	100
136	4	Pit	LBA	10	200	++	+	+	+	>1000	C.10 grains. 5 glume base & sp forks. 5-10 seeds incl legume. Rootlets.	2000	100
140	12	Pit		10	250			+	+	>1000	V. few seeds. ?identifiable charcoal.	300	100
144	10	Pit		10	70		+	+	+	>1000	<5 charred seeds, chd stems. 1 glume base. ?identifiable charcoal. Rootlets.	500	100
150	11	Pit		10	80				++	>1000	?identifiable charcoal. Rootlets.	200	100
160	6	Pit	LBA	10						+	Few ?identifiable charcoal frags.	2000	100
176	9	Posthole	M/LBA	10	5	+				++	1 grain seen. Few ?identifiable charcoal frags. Rootlets.	1000	100
180	8	?hearth		10	100					>1000	Some identifiable charcoal frags.Rootlets.	1000	100
227	20	Ditch	?EBA	10	5			+		+++	1/2 large charred seed. ?identifiable charcoal. Rootlets.	1000	100
229	21	Ditch	?EBA	10	40					+	Few ?identifiable charcoal frags.	500	100

Table 20: Assessment of Charred Plant Remains & Charcoal from ARC 330 98 (Zone 5)

Sample Details				Flot & Residue Details							Residue	
context no.	**sample no.**	**feature type**	**sample vol. (l)**	**flot vol. (ml)**	**grain**	**chaff**	**charred seeds**	**unch'd seeds**	**charcoal**	**comments**	**vol. (ml)**	**% sorted**
361	70	Ditch	10	10				+	>1000	Few ?identifiable charcoal frags. Rootlets.	2000	100
605	161	Pit	10		+				+	No flot. 3 ?wheat grains in residue. Few ?identifiable charcoal frags.	1500	100
606	160	Pit	10						+	Few ?identifiable charcoal frags.	1000	100