Geoarchaeology Watching Brief Report
M25, Ockendon Cut, Outer London
(Chainage 179200-180600)

Site Code M25026.11
By Carl Champness

Introduction

On the 16th August 2011 geoarchaeological recording was undertaken of the exposed sediment sequence along the eastern side of the M25 Ockendon Cutting within Havering, Outer London. The primary purpose of the visit was to establish the palaeolithic and geoarchaeological potential of the sedimentary sequence exposed within the new road cutting associated with the widening of the M25 motorway. Particular attention was given to identifying any potential interglacial sediments that may be preserved within the deposits mapped in the area. Although rare, the potential of identifying interglacial deposits was highlighted within the geoarchaeological desk-based assessment (Carey and Stafford 2010).

Location, topography and Geology

The Pleistocene geology between Junctions 29 and 30 include sand and gravel deposits formed in braided stream systems under cold climate periglacial conditions associated with the post-Anglian Thames terraces. However, within these sand and gravel bodies, there are local and discontinuous fine-grained deposits formed during warmer interglacial periods. The cold climate sands and gravels also have the potential to contain flint tools and ecofactual materials reworked from earlier periods. However, the interglacial deposits have a much higher potential to contain *in situ* materials, although predicting the locations of such deposits is extremely difficult.

The M25 traverses extensive deposits of Undifferentiated Head mapped between Junction 29 and North Ockendon and a zone of alluvium associated within the Valley of the Mar Dyke. Some of the Head deposits may relate to the Langley Silt Complex, as indicated by Gibbard's borehole transect through the Ockendon Cut. In the vicinity of North Ockendon a rather extensive outcrop of Boyne Hill Gravel (Orsett Heath) is mapped. Large regular gaps in these outcrops denote the location of old quarry sites.

The Boyne Hill Gravel of the Middle Thames can be correlated with the Orsett Heath Gravel (Bridgland 1994). The earliest palaeoliths in the Lower Thames derive from the Orsett Heath Gravel in the Swanscombe area of North Kent. Sites include Barnfield Pit, Sweyne School, Eastern Quarry and the Southfleet Road elephant butchery site. At Barnfield Pit the Upper Middle Gravel produced an early human skull; Swanscombe Man, making it one of only two sites in England with Lower or Middle Palaeolithic human skeletal remains (Wenban-Smith *et al* 2006).

Methodology

The the existing shallow sloped sides of the original Ockendon Cutting were steepened by machine excavation to approximately 65º from the horizontal plane along the lower part of the cutting (Plate 1). Following this the exposed sequence was assessed by a geoarchaeologist and Palaeolithic sediment specialist (Francis Wenban-Smith) prior to photographic and written recording. At localised parts of the cutting section, ongoing ground works also made examination difficult. The recording of the sequence therefore concentrated on areas that combined the best sequence preservation with ease of access during the site visits. The investigated sections were located according to the construction chainage markers and associated to the scheme OS basemap in .dwg format. Each section was cleaned and described according to Jones *et al* 1999. This included information about depth, texture, composition, colour, clast orientation, structure, and contacts between deposits.

Results

The cleaned and recorded sections along the cutting revealed a sequence of well-laminated coarse sands (Plates 2 and 3). These are consistent with the Boyne Hill Gravel sand and gravel deposits derived from melt-water streams formed in braided systems under cold climate periglacial conditions associated with the post-Anglian Thames. Variations in the flow and energy of these streams are represented accordingly by the various coarsely laminated sand and gravel deposits.

No low-energy deposits were recorded along the Ockendon cutting and no Palaeolithic artefacts were recovered.

References

Geological map 1:50 000 Sheet 257 ROMFORD (2000/1976) based on the 2nd Series 1:50 000 Map Sheet 257 dated 1976.

Jones *et. al*. 1999. *The Description and Analysis of Quaternary Stratigraphic Sections*. Q.R.A. Cambridge.

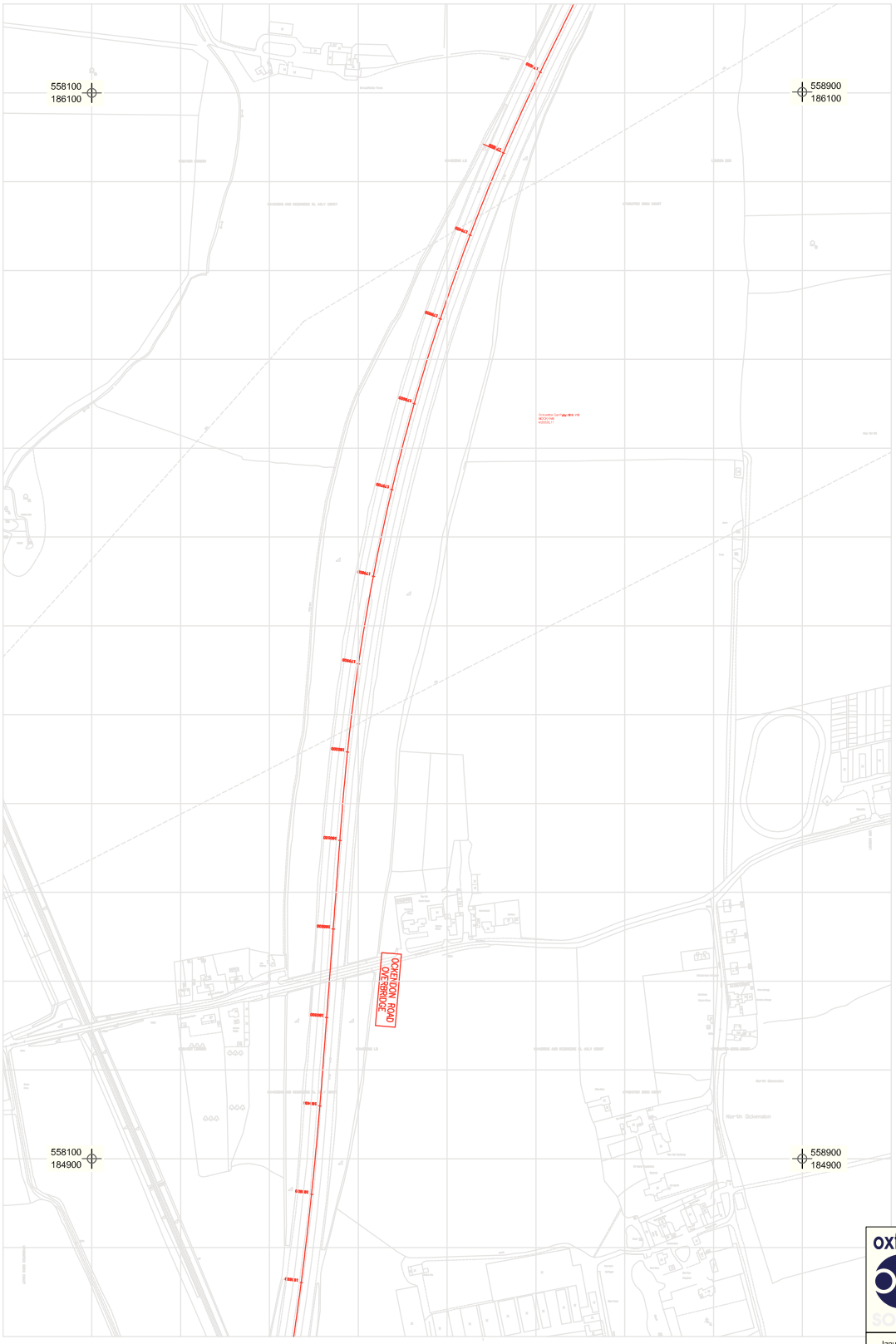
Carey, C and Stafford, E. C. 2010 M25 widening, Junction 27-39, Essex: Geoarchaeological Desk-based Assessment of Pleistocene Geology.

Wenban-Smith, F. F., Allen, P., Bates, M. R., Parfitt, S. A., Preece, R. C., Stewart, J. R., Turner, C. and Whittaker, J. E., 2006 The Clactonian elephant butchery site at Southfleet Road, Ebbsfleet, UK *Journal of Quaternary Science*, **21(5)**, 471–483

Plate 1: The new M25 widening cutting through the Ockendon Cut

Plate 2: A cleaned section of the Boyne Hill gravel / sand deposits

Plate 3: Sections through the Boyne Hill gravels and sands showing variations in river flow



oxfordarchaeology
southsouthsouth
Janus House, Osney Mead, Oxford, OX2 0ES
Tel: 01865 263800 Fax: 01865 793496
email : mail@oxfordarch.co.uk
web : www.oxfordarch.co.uk

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M25 Section 4
Ockendon Cutting
Ch 179200-180600

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Ockendon Cutting