2. INTRODUCTION AND METHODOLOGY

In the early summer of 1995, a series of small-scale archaeological excavations were carried out by the City of Edinburgh Council Archaeology Service (CECAS) and the Edinburgh Archaeological Field Society (EAFS) on Mesolithic deposits initially identified by EAFS during excavations undertaken between 1988 and 1997.

The EAFS investigations consisted of a series of eight hand-excavated trenches that sought to identify remains associated with the periphery of Cramond Roman Fort. Results from these excavations indicated that the area had been subject to extensive 17th-century landscaping during the construction of Cramond Village (Dean 1993, 1994).

Two of these Trenches (D and E) were found to contain evidence of Mesolithic occupation in the form of up to four phases of activity, including a probable contemporary ground surface and a centrally positioned group of shallow intercutting pits. A series of contemporary stake holes were also identified within the south-eastern corner of Trench D. The excavation of the pit features produced numerous fragments of carbonised hazelnut shells together with a directly associated narrow-blade lithic assemblage. Further lithics of the same narrow-blade tradition were recovered from immediately adjacent contexts.

This paper represents the publication of the site and seeks to elaborate on the questions and issues regarding the emergence of the narrow-blade microlithic tradition within Scotland initiated by Alan Saville in the first assessment of the Cramond site published in 2008.

Specialist reports were undertaken on the lithic assemblage and carbonised plant remains together with an assessment of the local palaeogeography of Cramond (see 2.3 'Palaeogeography' below) which are published here. The lithic report was produced by Dr Saville in 1995 and no reassessment or rewriting has been undertaken.

Catalogue descriptions have been included for illustrated lithic artefacts only. A full catalogue of the material and specialist reports is available within the site archive.

2.1 Location

The excavations associated with the Mesolithic occupation of the Cramond site lie within the grounds of Cramond House at the north-western edge of Edinburgh (Illus 1). The site is located on the eastern bank of the River Almond (NGR: NT 1899 7698) overlooking the Forth Estuary and is situated on a glacial terrace approximately 30m to the south of known raised beach deposits.

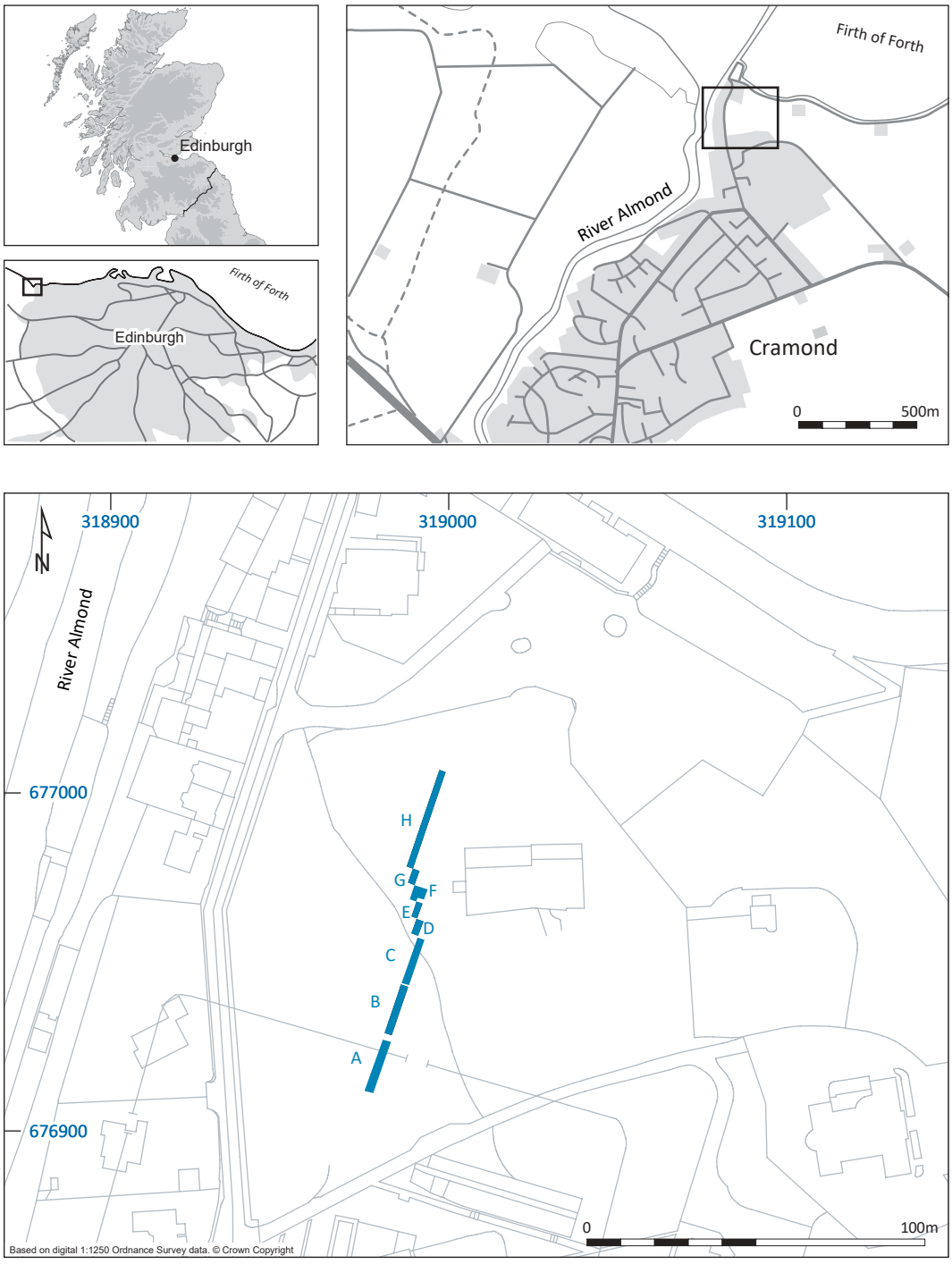
2.2 Background

Until recently the Mesolithic of the Forth Estuary and its immediate environs was restricted both in scale and scope. Apart from the excavations at Cramond, the only other published site of note at the time of its excavation was that of the small occupation site at Fife Ness on the north-eastern headland of Fife and excavated in 1996 (Wickham-Jones & Dalland 1998).

In recent years the southern side of the Forth Littoral has seen the excavation of several robust pit-house sites such as Echline Fields situated 8km to the west at the nearby Queensferry Crossing (Robertson et al 2013), East Barns to the east at Dunbar (Gooder 2007; Engl & Gooder 2021), and Howick, Northumberland (Waddington 2003, 2007). These sites have all provided well-stratified and chronologically secure evidence for a narrow-blade microlithic industry appearing in north-eastern Britain during the 9th millennium bc.

Within the immediate environs of the Cramond site itself, various excavations at Cramond Roman Fort have produced several small assemblages of narrow-blade lithic material (see 4 'The lithic artefacts' below; Engl 2006, 2017). These assemblages most probably represent the re-deposition of material within secondary contexts given the substantial landscaping that has occurred within the past two thousand years of Cramond's occupation.

In 1998 a programme of fieldwalking undertaken by members of EAFS identified a scatter of narrow-blade lithic material in fields belonging to Dalmeny Estate east of Cramond (Jones 1998). Combined with the evidence obtained from Cramond and the Queensferry Crossing, this suggests a concentrated focus of Mesolithic activity along the southern shore of the Forth Estuary.



Illus 1 Site location showing position of Trenches A–H. (© AOC Archaeology Group)

2.3 Palaeogeography

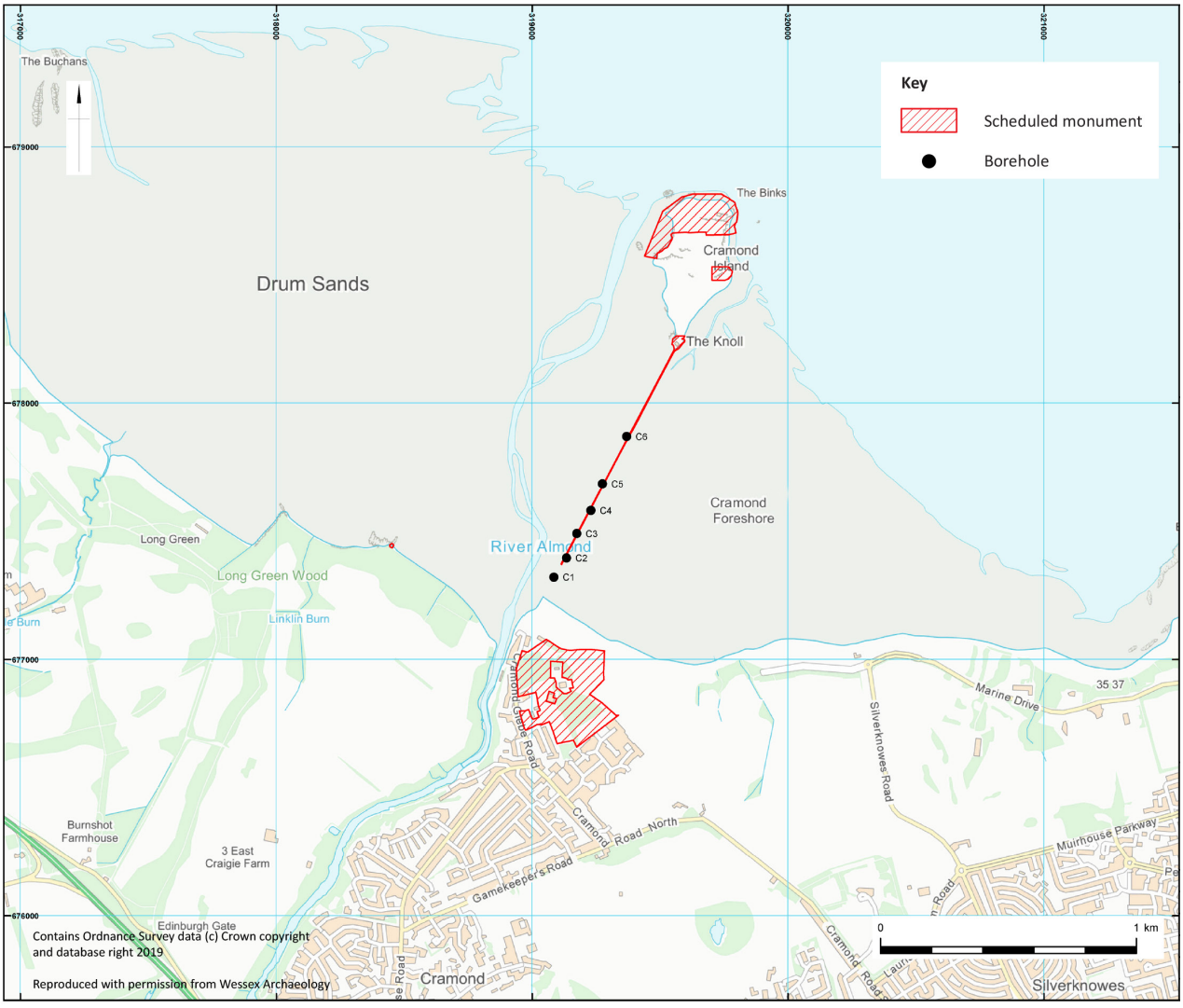
Andrew Bicket

2.3.1 Relative sea level context

The landscape around Cramond has been affected by a range of geological processes since the last Ice Age. This has influenced the configuration of landforms, relative sea level (RSL) and the subsequent archaeological potential in the area (Illus 2). Smith et al (2010) suggest that there has been approximately 5m of uplift occurring in central Scotland since the mid-Holocene. Examined in the context of RSL change during the Holocene, eustatic (global) trends in sea level are typically rising but punctuated by large-magnitude events causing rapid changes in sea level (eg meltwater pulses and tsunamis) (summarised in Bicket & Tizzard 2015). In parallel, changes in isostacy (land rebound/subsidence following deglaciation) induce complex patterns of RSL change across Scotland and are characteristic of the Forth Valley (Smith et al 2010; Shennan et al 2018).

Therefore, establishing the palaeo-shoreline at a given location along the Firth of Forth (and much of Scotland for that matter) is challenging on local-to-regional spatial scales and requires local records of geomorphology, geology and archaeology to establish with confidence where the coasts may have been within a particular century.

Trends in RSL change vary markedly from west to east along the Firth of Forth (Illus 3), with RSL in the last 10,000 years typically 'always higher than now' in the upper valley, trending towards



Illus 2 Map of Cramond foreshore area showing boreholes sunk in the 1970s. (© AOC Archaeology Group)

'lower than now' prior to 8,000 years ago in East Lothian (Smith et al 2010; Shennan et al 2018). However, after 8,000 years ago, RSL in the Forth Valley generally appears to have been 'higher than now', peaking around 7,000 years ago, and reducing to present levels throughout the late Holocene.

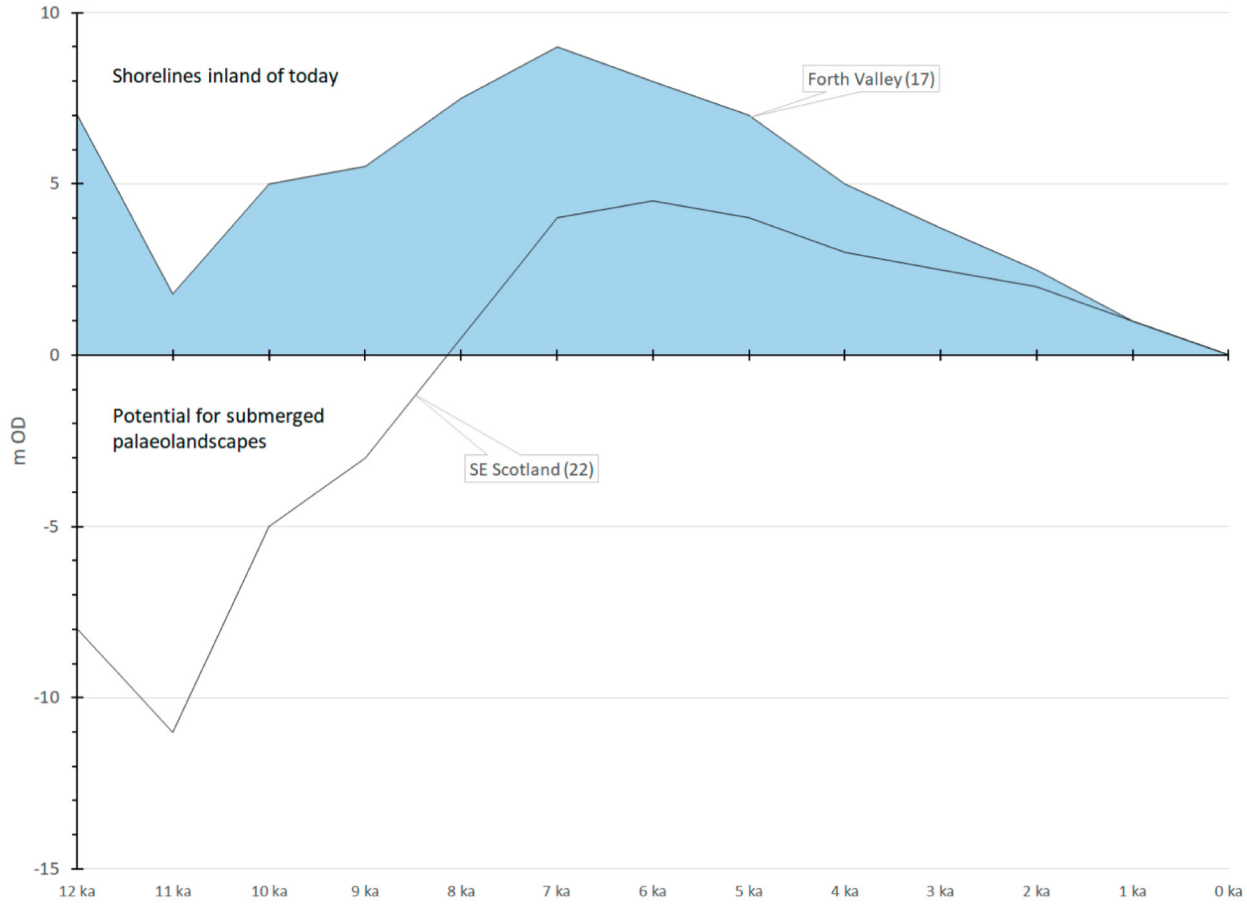
The Cramond site appears to lie between a landscape that has been emerging since the start of the Holocene and one with a more complex history of submergence followed by emergence. Before 8000 bp, relative sea levels are likely to have been lower in the immediate site environs and earlier Mesolithic sites may well have been lost to inundation.

At Cramond, useful landscapes can help define the configuration of the palaeolandscape during the Holocene, especially the raised tidal flats, terraces and raised marine deposits located around the mouth of the River Almond (Illus 2). Evidence for landscape changes during the Quaternary are also preserved underwater and offshore in the marine environment. At Cramond, 1970s borehole logs provide a useful transect of the sedimentary development of the (now) intertidal zone north of Cramond (Illus 2) and imply this occurred during the early Holocene.

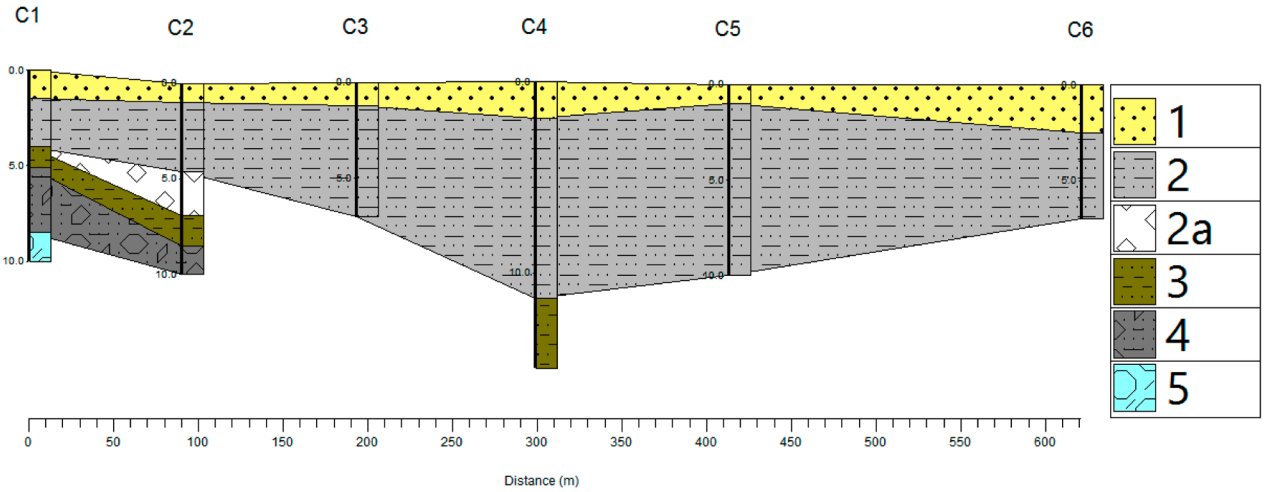
2.3.2 Early prehistoric palaeolandscape potential

The geotechnical records indicate a thick sequence of sediments that could be investigated in the future to provide a dated palaeoenvironmental evaluation of the coastal change at Cramond. A simple transect of inferred stratigraphy is presented here (Illus 4).

If these models of RSL are an informative guide, then these sequences of marine sediments may correlate with early Holocene phases of lower-than-now sea level (that is, before 8,000 years ago), generally contemporary with early prehistoric archaeological evidence nearby. The sequences, especially Unit 3, may reflect post-glacial marine transgression, perhaps with a palaeo-shoreline near borehole C4, roughly halfway to Cramond Island, several hundred metres across the intertidal zone. Detailed geochronological and palaeoenvironmental



Illus 3 Cramond relative sea levels. (© AOC Archaeology Group)



Illus 4 2D projected transect showing boreholes C1–C6. (© AOC Archaeology Group)

analysis of geotechnical samples would greatly inform an understanding of the palaeolandscape development during the early Holocene in this area and the relationship between the expanded position of the coast, Cramond Island and the early prehistoric lithic archaeology at Cramond.

Integrated geoarchaeological hypotheses can and should be tested further in Scotland and this would be recommended as a high-potential priority for the area around Cramond. The results of such studies would aid both the honing of RSL models (through local palaeoenvironmental records and identification of sea level index points) and the search for nationally significant early prehistoric archaeology and palaeolandscapes around Scotland's coasts.

2.4 Methodology

Two trenches (D and E) each measuring 4.5m by 2.0m were subject to a programme of hand excavation. All surviving archaeological deposits were fully excavated and recorded. Prior to excavation, both trenches were cleared of covering vegetation and re-deposited topsoil which had accumulated over the Mesolithic deposits during the previous winter. Lithic artefacts recovered during this initial cleaning were allocated to context numbers (1400) and (1500) from Trenches D and E respectively.

A 100% wet-sieving sampling strategy was implemented in order to retrieve fine fraction lithic artefacts, with environmental material recovered by flotation. In order to facilitate the potential for artefactual spatial distribution analysis (both vertically and horizontally) the trenches were gridded out and subdivided into metre squares. Each square was further subdivided into 0.50m quadrants. Each square was excavated in 5cm spits.