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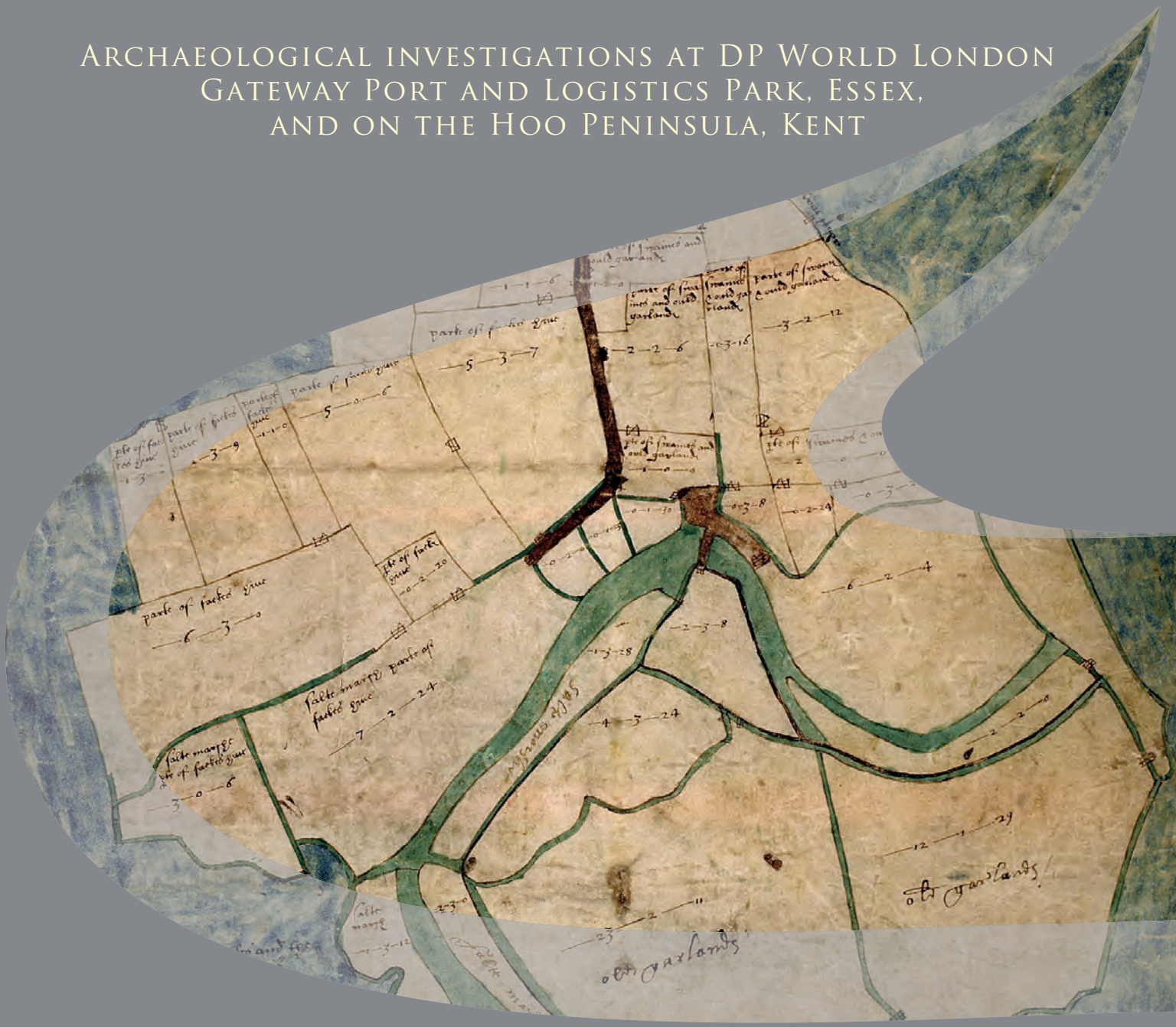

Specialist Report 3

Medieval and Later Pottery

by John Cotter

with a contribution by Patrick Sean Quinn

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The pottery from the Access Road (COARD12)

Introduction and methodology

A total of 604 sherds (9.313kg) of medieval and later pottery were recovered. These came from a total of 57 contexts, mainly the fills of pits, ponds and ditches. All but six sherds (166g) came from the Access Road site (COARD 12). The bulk of this is medieval (mainly 13th-14th century) but early post-medieval pottery (*c* 1480-1650) is also well represented. A few 19th-century sherds were also recovered.

An intermediate level catalogue of pottery types was constructed (in Excel), following standard procedure, for the whole assemblage and spot-dates produced for each context. The catalogue includes, per context and per pottery fabric, quantification by sherd count and weight only. Additional details, including vessel form, part, decoration, condition etc., were recorded in a comments field. The context spot-date is the date-bracket during which the latest pottery types or fabrics are estimated to have been produced or were in general circulation. Full catalogue details and spot-dates may be consulted in the site archive. As better parallels exist elsewhere, only a small number of the more interesting or unusual pieces have been illustrated. Full descriptions are provided in the illustration catalogue below.

Pottery fabrics

Fabric codes used here are those of the Essex County Council medieval pottery reference collection (Cunningham 1985; Cotter 2000). For the purposes of this report, two new sub-divisions of the code for post-medieval redwares (fabric 40) have been created (40SL and 40EA) to reflect their early-looking character and the presence of white slip-painted decoration. Some medieval fabrics (eg Essex Mill Green ware) had a wide distribution throughout the Thames estuary area, while some regional imports (eg Scarborough ware) had an even wider distribution along the eastern seaboard of England and as far as Scandinavia. Continental imports and some post-medieval wares also enjoyed a very wide distribution. For ease of comparison Table 3.1 provides a concordance of the relevant Essex fabric codes with those of the Kent (Canterbury) and

London codes (MOLA 2014; Vince 1985; Vince and Jenner 1991). In the case of widely traded and well-known wares, the cross-referencing of fabric codes from neighbouring counties is a fairly straightforward task, but for less commonly traded wares (eg local coarse-ware traditions, especially simple cooking pots), it is much less certain that one is talking about the same thing (ie pottery from a single source), as opposed to something made in the same basic fabric tradition, which looks very similar and is broadly contemporary, but may nevertheless have been made in several places and in more than one county. In these cases, only the nearest equivalent code has been provided (indicated with an asterisk) or not at all. A breakdown of fabrics present from the Essex sites is given in Table 3.1.

Date and nature of the assemblage

Overall the pottery assemblage is in a fragmentary condition, although many quite large and fresh sherds are present. Ordinary domestic pottery types are represented. Most of the pottery came from the fills of pits, ponds and ditches. Pottery types present are listed in Table 3.1 and summarised here. Just over three-quarters (76%) of the assemblage, by sherd count, is medieval and the remainder post-medieval (ie after *c* 1480). The medieval assemblage is mainly of 'high medieval' date (roughly *c* 1250-1350, and mainly perhaps *c* 1270-1350). The remaining quarter has a strong early post-medieval dating emphasis (*c* 1480-1650). Five sherds of 19th-20th century pottery complete the sequence.

Medieval shelly-sandy ware (Fabric 12C), the earliest medieval pottery type, is fairly well represented here (54 sherds). Across Essex, this tradition is usually assigned a maximum date-range of *c* 1050-1300, but the dating at this site appears to be late in this range and probably confined to the 13th and 14th centuries, as nearly all the shelly-sandy ware sherds are associated with Mill Green wares. The only medieval context that produced nothing but shelly wares was 8082 (the fill of ditch 8081), where 13 sherds from two or three cooking pots (including a rim) probably date to *c* 1175-1325. The medieval sequence on this site, therefore, probably started in the 13th century. The frequent association of shelly-sandy wares with Mill Green wares on sites here, and on recent excavations in north-west Kent, suggests that they were probably contemporary and that shelly-sandy wares in these areas may have remained in production later than the end-date of *c* 1300 usually suggested, and perhaps as late as *c* 1350 (Cotter 2012a, 540-1). By this date, however, the shell element in the fabric seems increasingly sparse

(or sparse-medium) and the texture increasingly sandy. Vessel forms here are almost exclusively jars or cooking pots with squared or flanged rims; there is also a bowl or skillet with a decorated tubular handle (Fig. 1, no. 1) and a body sherd possibly from the 'dome' of a curfew (fire-cover), with traces of finger-tipped decoration on the upper (exterior) surface and fairly heavy sooting on the internal surface.

The high medieval assemblage here is dominated by Mill Green wares (F35, the fine ware, and F20C, the coarse ware). This generally has a fine oxidised fabric, although the coarse ware contains coarse rounded quartz inclusions in a fine matrix. The 305 sherds identified comprise just over one half of all sherds from the site. Mill Green ware was made around Ingatestone, near Chelmsford, in central Essex from perhaps as early as *c* 1250, but has a core London date range of *c* 1270-1350 (the most likely range for this site). It may have continued in production as late as *c* 1400, but with a more restricted (local) distribution (Pearce *et al.* 1982; Meddens and Redknap 1992; Cotter 2000). Sherds of Mill Green fineware jugs, with white slip-painted decoration, are particularly common here, plus a few sherds with all-over white slip under a clear or green glaze and a few jugs sherds with combed 'sgraffito' decoration. Although the collection here is mostly very fragmentary, the jug assemblage includes rims and thumbed bases from rounded or globular jugs and a few baluster-shaped and perhaps conical-shaped jugs. Mill Green plain coarse ware vessels are equally common, mainly as jars or cooking pots with internal clear or greenish-brown glaze over the lower walls and base. There are also large and small jugs (including a drinking jug or bottle base), a bowl rim and a dripping pan profile.

The highest number of medieval sherds from a single context is the 209 sherds (3069g) from context 8102, which produced a fresh but fragmentary collection of vessels dating to *c* 1270-1350. Context 8102 is the fill of a possible pond or waterhole (8101) in Area H, at the southern end of the site. The pottery from this one context comprises around one third of all the pottery from the site. Nearly all the medieval fabrics and forms from the site are represented here, including most of the more interesting items (Fig. 1, nos 1-3; Fig. 2, nos 4-6). The remaining medieval summary will therefore focus on this one context. While dominated by Mill Green wares and other local coarse wares, this context also produced a fairly impressive range of non-local wares, including sherds from a vessel in Kingston-type ware (F23) from Surrey, sherds from six jugs in Scarborough ware (F24A, F24B) from Yorkshire, plus a jug base in Saintonge ware (F27) from Gascony in south-west France. A worn body sherd from

a bottle or small jug, with traces of glaze, though catalogued as an orange sandy ware (F21), might, perhaps, be London-type ware (F36), as it has a noticeably finer fabric.

The shelly-sandy wares (F12C) from this context are probably contemporary with the Mill Green wares and include a tubular handle from a bowl or skillet with unusual decoration consisting of an incised grid or lattice (Fig. 1, no. 1). A dish (or skillet) profile in orange sandy F21 (Fig. 1, no. 2) is unusual for its flat base and late-looking form, perhaps suggesting a deposition date towards the middle of the 14th century. Mill Green wares, as usual, are present in the form of fine ware jugs (F35) with white-slipped and slip-painted decoration; some large rounded jugs or pitchers also occur in the coarse ware fabric (F20C) and some of these also show traces of white slip decoration. The Mill Green coarse ware (F20C) assemblage mainly consists of cooking pots with squared (sometimes neckless) rims with diameters in the range of 160-300mm. A dripping pan profile (Fig. 1, no. 3), heavily sooted externally, is one of the rarer forms in this fabric. The Kingston-type ware (F23) vessel is represented by two joining body sherds from a small shallow jar or skillet/pipkin (with external sooting). Smallish sherds from six vessels in Scarborough ware are present, including part of a detached shield from a 'knight jug' (Fig. 2, no. 4) and a body sherd from a highly decorated polychrome baluster jug (Fig. 2, no. 5). One Scarborough ware body sherd is from a smallish globular form, possibly a pipkin, as it shows external sooting and is only glazed on the inside. Two sherds from the base of a plain green-glazed baluster jug in Saintonge ware (Fig. 2, no. 6) represent the only continental import from this context.

Other medieval contexts produced a few additional sherds from some of the rarer fabrics listed above. These include sherds from three other Kingston-type ware jugs and sherds from two or three other Scarborough ware jugs, including an applied limb(?) from a second possible 'knight jug'. Two joining sherds in an unidentified, heat-scorched, medieval glazed ware (F98) may be from something unusual like a cup or drinking jug (glazed inside and out), perhaps in Scarborough ware, or a similar Yorkshire ware. There are sherds from two other Saintonge ware jug bases, including one unglazed example and one in Saintonge 'bright green-glazed ware' (*c* 1280-1350). Sherds from a couple of Cheam whiteware drinking jugs (F23E), also from Surrey, date to the late medieval period (*c* 1350-1500). A few vessels with white slip decoration in occur in a late medieval fine orange fabric transitional between Mill Green ware (F35) and early post-medieval Essex redwares (see below F40SL, F40EA). Although these have been assigned to one or other of these fabric codes, it is not always easy to

positively distinguish between these traditions as the post-medieval redwares appear to develop out of the vestiges of the Mill Green tradition during the mid/late 15th century.

Post-medieval pottery accounts for just under a quarter of all sherds from the site (147 sherds) and nearly all of this is of early character (*c* 1480-1650, and mainly perhaps *c* 1480-1600). Contexts of this date are mostly defined by the presence of plain domestic vessels in early post-medieval redware (F40EA), a hard, good quality redware fabric usually with an internal or external clear glaze, as well as by a much smaller number of sherds (ten) in the same redware fabric but with white slip-painted decoration (F40SL) similar to that found on Mill Green ware jugs (scrolling lines etc). The latter appear to be from unglazed jugs or pitchers. In a couple of instances this early dating is usefully confirmed by the presence of sherds of imported Raeren stoneware drinking mugs (F45C, c 1480-1550). The complete absence of clay tobacco pipes (usually common after c 1600/20) also points to an early dating.

Over half the post-medieval sherds (80 sherds, 1876g) came from the fills of pond 8008, again in Area H. The pottery from this feature dates to *c* 1550-1600 (and perhaps closer to *c* 1600) and mostly occurs as large, fresh sherds. The redwares from these include several jugs (among them drinking jugs), jars of various sorts and a few bowls. There are also sherds from a large, probably oval/sub-rectangular dripping pan or frying pan, and a brown-glazed conical mug with bold horizontal cordons similar to a late 16th- or early 17th-century example from Colchester (Cotter 2000, fig. 146.140). Rarer forms include several joining sherds from the sagging base of a water-sprinkler with numerous small holes pieced through base (ibid., fig. 103.213) and a wall sherd from a strainer or colander. There are several sherds from a Dutch-style (?tripod) pipkin with a collared lid-seated rim and a vertical looped handle (ibid., fig. 180.10); this has a slightly sandier fabric and might perhaps be a Dutch import. A sherd from another strainer or colander, with wall perforations, is almost certainly a true Dutch redware (F31). There is a single a sherd from a late 16th-century polychrome charger-style dish in Anglo-Netherlands maiolica (F46A/C), which may or may not be an import. Probably the most unusual item here is a rim sherd probably from a large Iberian or Mediterranean storage jar in a coarse grey fabric with traces of thumbed decoration on the lower projection of the collared rim (Fig. 2. no. 7; context 8012). This is discussed in some detail in the illustration catalogue (see below), but appears to be similar to a complete and very large storage jar in the Colchester Museum.

Other post-medieval contexts produced a sherd from a Frechen stoneware

(F45D) Bartmann jug of *c* 1550-1580 with a trace of a bearded mask and part of circular medallion with a classical bust. A couple of sherds of Surrey-Hampshire border whiteware (F42, *c* 1550-1700) occurred in other contexts. Apart, perhaps, from these, there is little or no definite ceramic evidence for occupation or activity during the second half of the 17th and 18th centuries. Only three vessels date from the 19th or 20th century. These include a small 'Holloway's Ointment' jar in transfer-printed whiteware (F48D) which can be dated to 1840-1867 (Fig. 2, no. 8), and two sherds of red earthenware flowerpot (F51B). One of these is probably 19th century, while a machine-made rim dates from the 20th century.

Conclusions

In general, the range of medieval wares present is what one would expect from a coastal site in south Essex, with local wares predominant, particularly Mill Green wares from the centre of the county. Other coarse wares could be from more local sources, while at least a few vessels are from the Surrey and perhaps the London areas. The presence of three imported French vessels, however, shows that the occupants of this site had access to imported fine wares, possibly redistributed from London, as well as regional English fine wares from as far afield as Scarborough in Yorkshire. As many as eight or nine individual vessels in Scarborough ware have been identified from this relatively small assemblage (and site), including part of a highly decorative 'knight jug' (*c* 1225/50-1350) and possibly part of a second example. While it may not be so surprising to find one or two sherds of this ware from sites along the Essex coast, or the Thames estuary, it is quite surprising to find so many from a such a relatively small site/area. There are, for instance, only ten Scarborough ware vessels known from Colchester (Cotter 2000, 74-5). This suggests that the site was well positioned to take advantage of fine pottery and other goods brought to the area by the flow of maritime trade along the North Sea coast. The smaller early post-medieval assemblage is also mainly from local sources, but includes a sprinkle of more exotic imports, including Dutch redwares and perhaps Dutch tin-glazed wares (maiolica), German stonewares and a very unusual storage jar perhaps from an Iberian or Mediterranean source (representing trade or even perhaps booty). The range of both medieval and post-medieval wares present is closely mirrored by a smaller assemblage (261 sherds) from the adjacent site at Stanford Wharf Nature Reserve (Cotter 2012b).

Catalogue of illustrated pottery

Fig. 1.1. Early medieval shelly-sandy ware (Fabric 12C). Tubular handle from a bowl or skillet with unusual decoration on top. Comprises a ladder-like grid of three deeply incised lines running the length of handle, with four parallel zones of incised infilling, or cross-hatching, at right angles or a slightly oblique angle to the three main lines. The handle is of flaring trumpet-like form and attached at the narrow (closed) end to a surviving vestige of pointed rim. Sooted underneath handle. Coarse sandy grey fabric (a hybrid Fabric 12C/20) with rounded quartz and moderate coarse platy shell voids. Dark grey surfaces, light grey-brown margins and with darker grey core than the margins. Surviving tip of handle mostly of thickened flat-topped form (fairly chipped). Parallels for this this type of handle decoration are rare in south-east England. Barton illustrates a number of medieval tubular-handled skillets and pipkins mainly from central and east Sussex (Barton 1979, 4) and which include one from Bramber decorated with slashed lines on the top and sides of the handle. Another tubular-handled shelly ware skillet from New Romney, in south-west Kent, also has slashed decoration on top and is probably of 13th century date (seen by the author *c* 2003). Context date *c* 1270-1350. Context 8102, fill of possible pond/waterhole 8101.

Fig. 1.2. Medieval sandy orange ware (Fabric 21). Profile of dish or possibly a skillet. Around 33% of rim circumference surviving (diam. 210mm). Dish-shaped with curving wall, flat pad base (diam. *c* 110mm) and broad thin flanged rim with gentle hollow or lid-seating on top, and slight bead underneath. Medium sandy uniform grey-brown fabric with a thin patchy brownish (scorched) glaze on central area internally. Sooted all-over externally, also lower down internally (food residues?). The form is unusually advanced and looks forward to late medieval and early post-medieval dish and skillet forms. Similar to a group of flat-based skillets from a London-type ware kiln excavated at Woolwich in 2007-8, and probably of late 13th- or 14th-century date (Cotter 2008). The dish might, possibly, be London-type ware (Fabric 36) but seems just a little too coarse. Sparse flint inclusions (sized as quartz), also rare organic inclusions. Context date *c* 1270-1350. Context 8102, fill of possible pond/waterhole 8101.

Fig. 1.3. Mill Green coarse ware (Fabric 20C). Dripping-pan profile. Oxidised fabric with grey core. Fine matrix with moderate coarse rounded and sub-angular quartz up to 1.5mm (mostly under 0.8mm). Rare-sparse very coarse angular flint grits and flakes up to 3mm across. Sooted and blackened all over externally and underside. Thin decayed greenish-grey glaze all over base int and in places up to the rim. Flaring plain rim/wall with slightly flat top. Stub of strap handle (*c* 60mm wide) attached to rim at a steep angle (one of a pair?). Only the side with the handle survives and a large portion of the base. Original plan view uncertain, probably an elongated oval or sub-rectangular form. Base slightly convex and knife-trimmed underside, also lower wall. The internal surface of the base shows parallel wiping or finger-grooving acquired during manufacture. Though fragmentary, this appears to be the largest and best-preserved Mill Green ware dripping pan published to date (Pearce *et al.* 1982, fig. 18.59; Meddens and Redknap 1992, fig. 19.85). Context date *c* 1270-1350. Context 8102, fill of possible pond/waterhole 8101.

Fig. 2.4. Scarborough (Phase I) ware (Fabric 24A). Detached shield fragment from the neck/shoulder of a 'Knight jug'. Sherd from one side of an inverted triangular or teardrop-shaped shield once held by an applied modelled figure of a knight (McCarthy and Brooks 1988, fig. 127.647-50). Most of the front surviving, with decoration comprising at least three (probably four) horizontal zones defined by widely spaced incised horizontal lines; in between the lines are horizontal rows of small decorative notches or stabs, giving the impression of heraldic decoration. Fine orange-buff fabric covered with a thick, glossy, dark, copper-green glaze extending to the back of the shield where an unglazed vertical scar shows where the knight's arm was once attached. Max length 58mm, max width *c* 27mm. Edge 10mm thick. Context date *c* 1270-1350. Context 8102, fill of possible pond/waterhole 8101.

Fig. 2.5. Scarborough (Phase II) ware (Fabric 24B). Fine cream fabric with very pale buff-brown surfaces. Large sherd from neck/shoulder of highly decorated polychrome baluster jug. Horizontal cordon at neck junction. Mainly yellow glazed exterior (lustrous, slightly cloudy, finely crazed). Decoration partly surviving on neck but better preserved on shoulder. Shoulder has part of an applied lozenge filled with applied vertical scales (round-end upwards); these possibly painted with an iron-rich slip. Above the neck cordon a green strip, or pair of strips, continues vertically, perhaps widening upwards, and encloses some reddish scales. To right of this, on the neck, is a zone/panel of yellow-glazed scales, while left of this green vertical strip a single scale possibly represents a vestige of a similar yellow-glazed panel of reddish scales. (For similar highly decorated Scarborough jugs, see McCarthy and Brooks 1988, figs 128.654 and 660). English jugs of the 'highly decorated' period are usually dated to *c* 1250-1350. Context date *c* 1270-1350. Context 8102, fill of possible pond/waterhole 8101.

Fig. 2.6. Saintonge ware (Fabric 27). Flat jug base (diam *c* 100mm) with tiny speck of glaze externally. A small body sherd – probably from higher up the same vessel – has a light green speckled pitted glaze. Fairly fresh. Very fine cream fabric. Context date *c* 1270-1350. Context 8102, fill of possible pond/waterhole 8101.

Fig. 2.7. Collared rim from a large storage jar (Fabric 53). Possibly Iberian or Mediterranean. Associated with local and imported pottery of *c* 1550-1600 AD. Rim diameter *c* 350mm. Rim height *c* 65mm. Vessel probably handmade (coil-built); the thumbed lower projection has clearly been separately added. Possibly finished-off on a turntable. Weight 108g. Comments on fabric: Colour mostly a dull grey-brown but with light grey-brown to reddish-brown surfaces. Also (in places) with reddish-brown margins. Very hard fabric. Fairly smooth matrix – almost tile-like – with scattered fine to coarse inclusions. Smooth lumpy surface texture with a slip-like slurry obscuring most inclusions. The two most noticeable inclusions are abundant fine brown mica (and possibly some white mica) and abundant fine, and occasionally coarse, organic inclusions (possibly chaff or grasses). These have mostly burnt-out leaving fine linear voids mostly parallel to the vessel surface. Their abundance suggests they may have been deliberately added to the clay.

Apart from the abundant fine brown mica (ultimately derived from igneous/metamorphic rocks),

there are no other obvious inclusions of igneous/metamorphic origin. An Iberian origin might be suggested on the basis of form, size and general appearance but there seems to be little close similarity with the fabrics of the commoner types of Iberian storage jar found in late medieval and early post-medieval Britain (eg. Seville 'olive jars'), mainly because of the lack of igneous/metamorphic rock inclusions in the example here. There is also a passing similarity (particularly in colour and the smooth matrix) to North Devon gravel-tempered ware (London Fabric code NDGT, *c* 1550-1800), but that fabric also contains coarse igneous/metamorphic inclusions, and is very rare on sites in south-east England. Other inclusions: Moderate clear and brown-stained quartz up to 0.5mm across, rare milky quartz. Rare linear shell (echinoid?) inclusions up to 2mm across. Moderate specks of white calcareous material and some calcareous 'reaction rims'. Rare angular inclusions of light grey flint or chert up to 2mm and a single white pebble (20mm long) embedded on the inner surface of the rim, possibly chert or a very hard limestone (or quartzite). Rare rounded white sandstone(?) up to 2mm (one inclusion containing microscopic black specks – glauconite?). Moderate-abundant fine red-brown iron-rich clay pellets, and flecks, and moderate rounded brown mudstone inclusions up to 3mm across.

The vessel appears to be similar to a rare type of very large standing Iberian storage jar in the Colchester Museum first published by Carol Cunningham (Cunningham 1982, fig. 34.113) and reconsidered by the present author (Cotter 2000, 297-8, fabric 53), although the latter is probably of 17th- or 18th-century date. Context 8012, fill of pond 8008.

Fig. 2.8. Staffordshire-type transfer-printed whiteware (Fabric 48D). Near-complete small cylindrical (Holloway's) ointment pot (diam 47mm, height 34mm). Two lengthy black transfer-printed inscriptions (damaged in places) on either side the vessel: including 'HOLLOWAYS UNIVERSAL FAMILY OINTMENT FOR THE CURE OF SCROFULOUS & INDOLENT TUMOURS, INVETERATE ULCERS…' etc etc. 'SOLD IN POTS 1s 1 ½d…' etc etc, 'BY THE PROPRIETOR 244 STRAND, LONDON….' etc etc. Holloway's Ointment was invented and made by Thomas Holloway (1800-1883) from 1837 onwards. The firm was located at 244 Strand during the period 1840-1867 (the date of this pot), after which it relocated to 533 Oxford Street, London. Examples of this smallest size of pot (1s 1 ½d) with the Strand address are said by collectors to be very rare (Barker nd). Context 1008, fill of pond 1005.

The pottery from Salt Fleet Flats

Introduction and methodology

A total of 693 sherds of pottery weighing 10.470kg were recovered. These came from a total of 32 contexts and mostly from three adjacent evaluation trenches on Salt Fleet Flats in the Cooling marshes in Kent. All the Salt Fleet Flats pottery was examined and spot-dated. For each context, the total pottery sherd count and weight were recorded on an Excel spreadsheet and context spot-dates were provided. A breakdown of fabrics (by sherd count only) was provided in the comments field along with additional comments

on vessel form (jugs, bowls etc.) and any other attributes worthy of note (eg decoration etc.). The sherd counts shown in Table 3.2 below have been extracted from the original spreadsheet. Full details may be consulted in the project archive.

Pottery fabrics

Fabric codes used in this report are those of the Kent fabric type series housed at Canterbury Archaeological Trust and which the author helped to develop. The range of medieval wares present from Salt Fleet Flats is very similar to that from recent excavations along the route of the A2 between Pepperhill and Cobham, in north-west Kent, where nearly all these types are discussed in more detail (Cotter 2012a). Additional medieval and post-medieval codes are described in reports on pottery from the Isle of Thanet (East Kent Access Road) and from Townwall Street, Dover (Cotter 2015; 2006). Some of the pottery types from Salt Fleet Flats (mainly the non-Kentish types) had a wider distribution throughout the Thames estuary, or even further afield, and many of these are also covered by the Museum of London pottery coding system (MOLA 2014). For ease of comparison, London codes are also sometimes given in the report below and a concordance of the relevant London codes is also provided in Table 3.2. As better parallels exist elsewhere none of the material has been illustrated.

In general, the range of medieval wares present is what one would expect from a coastal site in north-west Kent. These are mainly of fairly local origin with a sprinkle of regional English glazed wares commonly found in the Thames estuary area (Mill Green ware, London-type ware and the Surrey whitewares M7 and LM6). The presence of a Saintonge polychrome jug imported from south-west France also shows that the occupants of this site had access to some imported finewares, possibly re-distributed from London or Sandwich where imports were commoner.

Date and nature of the assemblage

Overall the pottery assemblage is in quite a fragmentary condition, although many large fresh sherds are present, particularly amongst the local medieval coarse wares (mainly EM36). A few vessel profiles are also present amongst the 'Victorian' wares (LPM100). Ordinary domestic pottery types are represented and ranging probably from the 12th to the early 20th centuries. Most of the assemblage, however, is clearly medieval and mainly dates from the 12th to 14th centuries. Conveniently, the pottery falls into broad chronological groups which are largely confined to specific trenches. All the medieval

pottery is from three closely-spaced trenches near the southern edge of the site, near the north bank of Hope Fleet (Trenches 30, 32 and 34). These were dug into a low mound identified as a medieval salt-working site, or saltern (Site 1), and later reused as a sheepfold in the post-medieval period. A similar group of salt-working mounds at Seasalter, near Whitstable in east Kent, was investigated in the 1950s. This produced an assemblage of 12th-13th century domestic pottery, mostly from the Canterbury area but including local shelly wares (Dunning 1956). None of the Seasalter pottery forms, or those from Salt Fleet Flats, has any direct (or obvious) connection with the salt-working industry and probably just represent the sorts of vessels available to local inhabitants at that time.

The earliest post-Roman pottery type is north-west Kent shelly ware (EM35, *c* 1050-1225), of which only three sherds were found. An isolated sherd of this occurs in Trench 30 (3009) and a couple of sherds also occur in Trench 32 (3210) with pottery of *c* 1150-1250. On balance, however, it seems likely that the earliest post-Roman occupation in the area commenced around *c* 1150, or slightly later in the 12th century. A related pottery type, north-west Kent shelly-sandy ware (EM36), is by far the predominant pottery type from the site (479 sherds, or 69% of the site assemblage). This has a broad date range of *c* 1100-1350 but on the basis of rim and decoration typology the assemblage here probably dates from the mid-12th century onwards. No production sites are known for EM36, or related medieval shelly wares in north-west Kent, but they were probably made at a number of locations over several centuries using either fossil or contemporary marine sources of shell. The commonest vessel form in EM36 is the jar or cooking pot with a wide body and a sagging base. Most EM36 vessels are sooted from use as cooking vessels. A few bowls also occur. Only three trenches produced medieval pottery (that is, defined as up to *c* 1480), namely Trenches 30, 32 and 34, which were all dug to investigate the salt-working mound on Site 1. These show some slight chronological differences, but as the full extent of the mound was not investigated (and the quantity of pottery varies from trench to trench), one cannot be sure whether these differences are significant or not.

Trench 32

Trench 32 produced most of the medieval pottery from the site (512 sherds, 7.548kg), including most of the shelly-sandy EM36 assemblage. The pottery comes from a series of dump deposits and the fills of palaeochannels rich in artefactual and organic material.

None was recovered from purpose-dug pits or similar cut features. Some contexts contained pottery with early-looking features, suggesting a 12th- or early 13th-century date. These include two related dump deposits that produced a combined total of 79 sherds of pottery that suggest a date of *c* 1150-1250. Both contexts contained sherds of the same glazed jug in London-type ware (Fabric M5/LOND), probably an early rounded jug form (*c* 1140-1200). They also contained a sherd from a grey sandy (M38B) spouted pitcher with rouletted decoration, a typically 12th-century form. The rim forms of EM36 cooking pots – including thumbed rims – are also 'early looking'. On their own, the predominant EM36 shelly-sandy ware cooking pots are difficult to closely date. One of the dump deposits contains only this fabric (167 sherds), some with early features (eg rims with inner-edge thumbed decoration and vertical necks), and some with more developed-looking squared/flanged cooking pot rims, suggesting an early 13th-century date. Collectively, a date bracket of *c* 1175/1200-1300 is suggested for this date, as it may contain a mixture of older (redeposited) and more recent vessels. Other Trench 32 deposits contain more developed, later-looking, EM36 rims and in several cases the presence of glazed jug sherds and a cooking pot rim in Mill Green ware (M6, M6A) dates these contexts to *c* 1270-1350, while a sherd of glazed Kingston-type ware jug (M7) also confirms a date after *c* 1240. A few jug sherds in local grey sandy M38B include a jug handle with typical 'herringbone' slashed decoration (3203) and body sherds with combed decoration (3204), which also support a late 13th- to 14th-century dating for some of these contexts. One context produced a sherd from the sagging base of a cooking pot probably in South Hertfordshire greyware (SHER, *c* 1170-1350), possibly the first example identified from Kent. The whole Trench 32 pottery assemblage therefore appears to fall entirely within a two-century date range of *c* 1150-1350.

Trench 34

This produced only two smallish sherds of medieval pottery, including a sherd of glazed London-type ware jug (M5) and a sherd of EM36. These suggest a date of *c* 1170-1350.

Trench 30

Trench 30 produced a medium-sized assemblage of 52 sherds (710g) of medieval pottery. This is probably of 14th- to 15th-century date. The two main pottery bearing contexts here both contained a small sherd from the same Saintonge polychrome ware

jug from Gascony in south-west France (M22P/SAIP, *c* 1280-1350). The smaller of these two assemblages contained other wares compatible with the date of the Saintonge jug. The larger assemblage, however, was more mixed in nature as it contained some (residual?) EM36 shelly-sandy ware sherds, as well as later-style wares, including parts of a Coarse Border ware (M41/CBW) jar or cooking pot with a distinctive bifid (internally lid-seated) rim dating after *c* 1380, and is a common form in early 15th-century contexts in London (Pearce and Vince 1988, 85, fig. 115.476-8). A Cheam whiteware (LM6/CHEA) jug base also suggests a similar late medieval dating for this context, probably within *c* 1380-1450.

Trench 56

This was located in Site 2, an area shown on 19th-century maps as a sheepfold. Four trenches dug here revealed infilled palaeochannels; only Trench 56, however, produced pottery and is the only trench on Salt Fleet Flats to have produced material from the late medieval and early post-medieval transition (*c* 1480-1550). This small group of contemporary wares (10 sherds) came from the same context and included a carinated dish profile, with characteristic pulled feet, in Dutch red earthenware (LM22/DUTR), and also a few sherds of late medieval Medway-type fabrics (LM34, PM64, LM18T). These may have been associated with a salt-working site of this date. The only other context produced Staffordshire-type tablewares (LPM100) and bone china of *c* 1830-1860, probably dating from later use of the site as a sheepfold.

Other trenches

The remaining pottery was mainly from Site 3, which included a brick-lined sheep-dip, and Site 4, a 19th-century sheepfold. These produced only common 18th- or 19th-century pottery types which are detailed in the spreadsheet. These are of much less significance than the medieval wares described above, although two abraded sherds of Spanish olive jar (PM22/OLIV), from two separate vessels, in Trench 16 are something of a curiosity here. These occurred in association with 18th-century pottery types. The Spanish sherds, at least, might have been gathered up from the nearby village of Cooling and transported here as trackway or surface metalling; otherwise, it is difficult to explain their presence in a sheepfold in open countryside. The later pottery (LPM100) comprises a range of mass-produced Staffordshire-type table wares, including transfer-printed wares (mainly after *c* 1830), and modern English stonewares. A small piece

from an electrical insulator in white porcelain probably dates from the 20th century (Trench 20).

Petrographic analysis of a large storage jar of possible Iberian or Mediterranean origin from the Access Road *by Patrick Sean Quinn*

Petrographic analysis was undertaken on a sherd of an unusual 17th-century ceramic storage jar or amphora-like container (context 8012). The aim of the analysis was to characterise the composition of the vessel and investigate its origins. It was suspected that the pot was imported from the Mediterranean, possibly Spain.

Methodology

The sherd was prepared as a 30μm petrographic thin section at the Institute of Archaeology, University College London, using a modification of the standard geological technique (Quinn 2013, 23-33). The thin section was studied under the polarising light microscope paying attention to the nature of its inclusions, matrix and voids. It was characterised petrographically in terms of the raw materials and probable manufacturing technology of the fabric. Its composition was then compared to possible comparatives (eg Mannoni 1972; Cunningham 1982; Vince 1982) as well as the local geology.

Petrographic composition and technology

The sherd is composed of a fine to medium-grained poorly-fired fabric composed of sand and silt-sized quartz, feldspar, mica and degraded calcite in a non-calcareous clay matrix (Fig. 3). The inclusions are moderately well-sorted, the majority being silt- and fine-sand-sized, with occasional larger grains up 0.6 mm in size. The latter are more rounded and the former decidedly angular, as is common in natural sediments. The larger inclusions are composed of quartz, degraded calcite and rare chert. The carbonate inclusions are composed on micritic calcite at various stages of degradation with voids and iron oxide rims (Fig. 3E). They were more abundant in the original paste than it appears, as many have been destroyed by firing and post-depositional alteration, leaving only voids. One appears to have been a fragment of shell, based on its parallel sided, curved nature. The finer inclusions are dominated by quartz and biotite and muscovite mica, but also contains rarer untwinned feldspar, chert and calcite. The samples contain

several silt-sized inclusions that have an orange colour in plane polarized light (PPL) but are very dark in cross polarized light (XP) (Fig. 3F). These seem to be some sort of weathered mineral of unknown type. Numerous clay-rich features of different size and shape occur in the sample, from small and large bodies to streaks. These appear to be naturally occurring and given their patchy nature some may be in-wash from burial. One large body exhibits lamination and may represents a lump of the clay source used to manufacture the pot, which was not sufficiently hydrated during paste preparation. The fabric does not appear to have been tempered. The clay matrix is non-calcareous. The sample is moderately porous on account of the voids left from the degradation of the calcite inclusions as well as the presence of several large vughs. Firing was more than 850°C based on the lack of optical activity of the clay matrix and the degradation of the calcite inclusions. The firing atmosphere was poorly oxidising.

Comparison with macroscopic fabric analysis

The fabric of the large storage jar was studied macro- and microscopically by John Cotter prior to its submission for analysis. It is described as having a very hard fabric, which is likely to be due to its relatively high firing temperature of which evidence was also seen in thin section. The abundant brown and white mica seen under the microscope was detected macroscopically, as were the chert or flint and the degraded calcareous material, including possible shell. It is suggested that sandstone is present, though this was not encountered in the manufactured thin section. Black specks were reported from this material and are posited to be glauconite. This material may be the orange material seen in thin section. It does not appear to be glauconite based on the analysis of the present report. No plant matter was detected in thin section, despite it being recorded in hand specimen. The mudstone inclusions suggested in hand specimen are likely to be the dried clay lumps reported here.

Comparison with local geology

Based on the composition of the sample in thin section it is not possible to rule out the possibility that the vessel was locally produced. The bedrock geology of the Thurrock area is dominated by Cretaceous chalk and eroded limestone clasts from this are likely to be present in recent alluvium and other superficial deposits in the area. The degraded nature of the calcareous inclusions in the sherd means that it is not possible to determine whether they were micritic or not. The rare chert inclusions could have derived from

the flint that is present in the White Chalk Group bedrock of the area. Quartz and mica clasts are a common feature of many sedimentary deposits and the Tertiary Thanet Formation and Lambeth Group could be a possible source. Mica is common in certain levels of the London Clay, which crops out in South Essex. It also contains glauconite, which was reported in the sherd in hand specimen. The presence of the feldspar inclusions present in the ceramic sherd in thin section may be more difficult to explain in terms of the rocks that crop out in the study area. However, it is not possible to rule out the presence of this mineral in superficial Quaternary sediments, given that igneous rock clasts exist in glacial gravels to the north and these could have been reworked by rivers. The fine nature of the fabric of the sherd, the dominance of common mineral types such as quartz,mica and calcite, and particularly the absence of rock fragments makes it difficult to provenance based on a comparison with geology alone. For this reason, no attempt has been made to assess a possible source in Iberia.

Comparison with other studies

A possible parallel for the vessel, based on its shape, is a jar found at Colchester Castle and on display in the town's museum. The fabric of this has been studied by Cunningham (1982, 375), who describes it as 'hard brownish grey… containing much coarse grit'. This does not provide much to compare the analysed sherd to. However, it is certainly does not contain much coarse grit. A further interpretation of the Colchester jar by Cotter (2000) is that it contains possible igneous or metamorphic rock. No rock fragments are present in the thin section prepared of the sherd in this report, but some of the minerals could have come from igneous or metamorphic rock. There is no mention of limestone in the fabric of the Colchester jar in either publication.

Vince (1982) has petrographically analysed medieval and post-medieval Spanish pottery from the City of London, including coarse wares. He reported that 'all sections examined have shown a range of inclusions of granitic origin: fresh quartz grains, feldspars, large flakes of white mica, occasional fragments of granite, together with a variable amount of schistose metamorphic rock and black mica'. While the quartz, felspar and mica in the analysed sherd could have a granitic origin, no igneous rock fragments are present in the prepared thin section, which could confirm this. Schistose metamorphic rock, which seems to be characteristic of Spanish coarse ware imports of this period, is also absent. The analysed sherd has a distinctive sedimentary component in the form of limestone, rare shell and chert. This was not detected by Vince

(1982), which seems to set the vessel apart from the possible Iberian imports that he analysed. Martin (1979) has suggested that medieval coarse wares were traded through Lisbon and could have a Portuguese origin. Mannoni (1972) analysed similar material from Genoa and found that it contained volcanic glass. No inclusions of this type were detected in the London Gateway sherd, this ruling out a connection to the pottery in question.

Location of scientific samples and access

The thin section analysed in this report has been archived at the Institute of Archaeology, University College London. This can be accessed and studied for comparative purposes by arrangement with the author.

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Medieval and Later Pottery Tables

TABLE 3.1: POTTERY TYPES AND QUANTITIES IN ROUGHLY CHRONOLOGICAL ORDER. ESSEX FABRIC CODES WITH A CONCORDANCE OF LONDON AND KENT FABRIC CODES

Essex Fabric Code	Common Name	Date	No. Sherds	Weigh t (g)	Kent Fabric Code	London Fabric Code
12C	Medieval shelly-sandy wares	c 1050-1350?	54	587	EM36*	EMSSX*/SS WX*
24A	Scarborough ware (Phase I)	c 1135-1350	3	32	M11A	SCAR
20	Medieval sandy grey ware	c 1175-1400	46	473	M38B*	RCWX*
21	Medieval sandy orange wares (Essex redwares)	c 1200-1550	26	416	LM28*	SOWX*
24B	Scarborough ware (Phase II)	c 1225-1350	7	150	M11B	SCAR
23	Kingston-type ware (Surrey)	c 1240-1400	6	76	M7	KING
27	Saintonge ware (SW France)	c 1250-1400	5	68	M22	SAIN
35	Mill Green ware (Essex)	c 1270-1350	158	1800	M6	MG
20C	Mill Green coarseware (Essex)	c 1270-1400	147	3023	M6A	MG COAR
31	Dutch red earthenwares	c 1300-1700	1	24	LM22/PM49	DUTR
23E	Cheam whiteware	c 1350-1500	4	38	LM6	CHEA
45C	Raeren stoneware	c 1480-1550	3	43	LM9	RAER
40SL	Post-medieval slip-painted redwares	c 1480-1550	10	86	N/A	PMSL
40EA	Early post-medieval redwares	c 1480-1600	120	2219	LM17*/LM18*	PMRE
40	Post-medieval redwares	c 1480-1900	2	16	PM1	PMR
53	Iberian/Mediterranean storage jars	c 1500-1800?	1	108	N/A	SPOA
45D	Frechen stoneware	c 1525-1750	1	18	PM5	FREC
46A/C	Anglo-Netherlands maiolica	c 1550-1650	1	10	PM7.9	TGW*/DTG W*
42	Border ware (Surrey/Hants)	c 1550-1700	2	13	PM10	BORD
51B	Red earthenware flower pot	c 1750-1950	2	52	LPM2	PMR
48D	Staffs-type transfer-printed whitewares	c 1780-1900	3	48	LPM14	TPW
98	Misc. Unidentified post-Roman pottery	N/A	2	13	M100	MISC M
Total			604	9313		

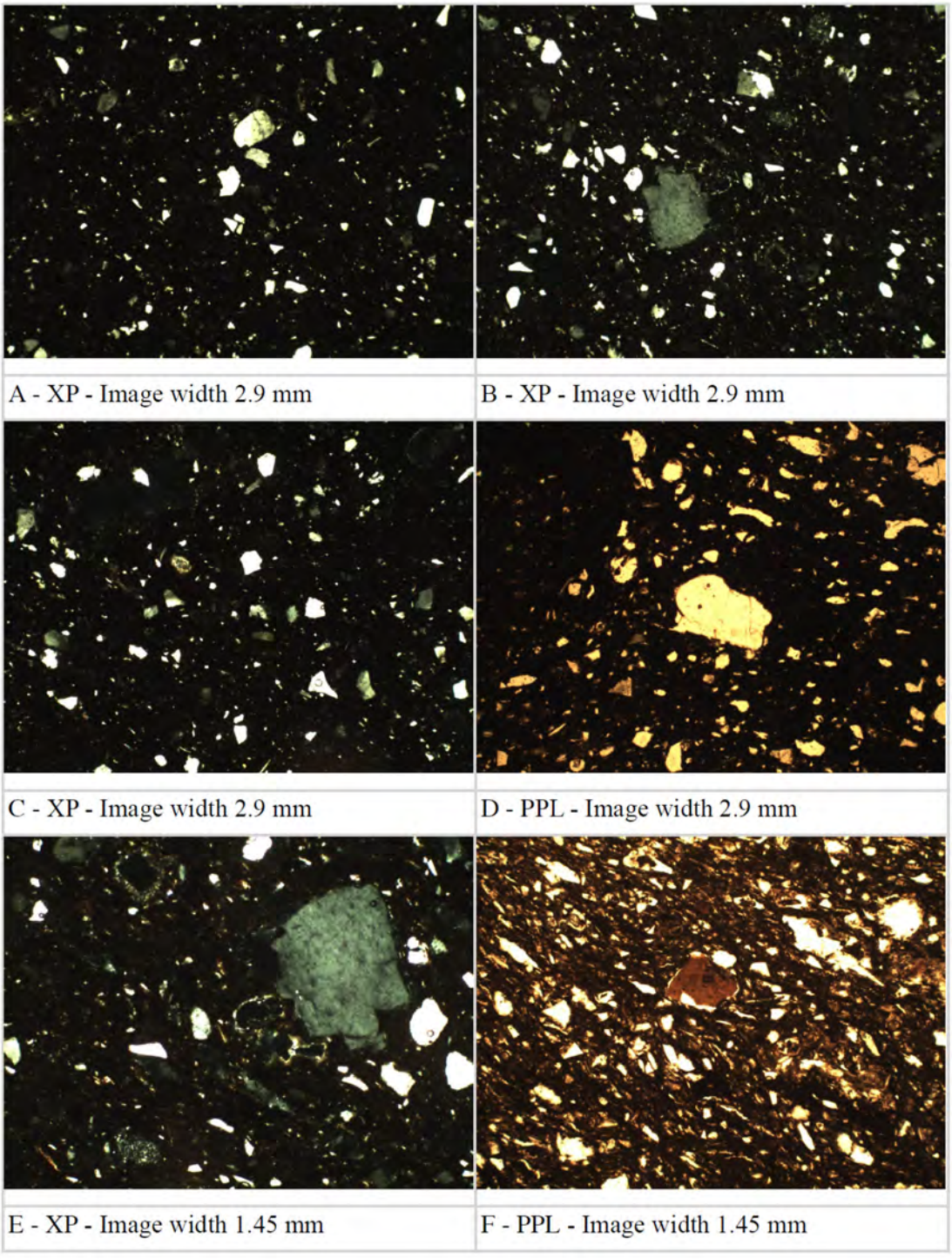
Codes marked * indicate the nearest fabric tradition equivalent, but do not necessarily imply they are from the same source

TABLE 3.2: POTTERY TYPES AND QUANTITIES IN ROUGHLY CHRONOLOGICAL ORDER FROM SALT FLEET FLATS. KENT FABRIC CODES WITH A CONCORDANCE OF LONDON FABRIC CODES

Kent Fabric Code	Common Name	Date	No. sherds	London Fabric Code
EM35	NW Kent shelly ware	c 1050-1225	3	EMSH
EM36	NW Kent shelly-sandy ware	c 1100-1350	479	EMSS*/SSW*
M5	London-type ware	c 1140-1375	7	LOND
N/A	South Hertfordshire greyware	c 1170-1350	1	SHER
M38B	NW Kent sandy greyware	c 1175-1400	56	N/A
M7	Kingston-type ware (Surrey)	c 1240-1400	4	KING
M6	Mill Green ware (Essex)	c 1270-1350	12	MG
M6A	Mill Green coarseware (Essex)	c 1270-1400	1	MG COAR
M41	Coarse Surrey-Hants border ware	c 1270-1500	4	CBW
M22P	Saintonge polychrome ware (SW France)	c 1280-1350	2	SAIP
LM22/PM49	Dutch red earthenware	c 1300-1650	4	DUTR
LM6	Cheam whiteware	c 1350-1500	1	CHEA
LM34A	Medway hard silty-sandy ware	c 1450-1550	2	N/A
LM18T	Hareplain/Biddenden-type sandyware	c 1475-1550	2	N/A
PM1	Post-medieval redwares	c 1550-1800	11	PMR
PM64	Calcareous flecked smooth ware (Medway?)	c 1550-1725	2	N/A
PM22	Spanish olive jar	c 1550-1750	2	OLIV
PM40	Chinese porcelain	c 1580-1900	2	CHPO
PM21	Staffs-type combed slipware	c 1660-1870	4	STSL
PM25	London stoneware	c 1670-1926	1	LONS
PM38	Nottingham stoneware	c 1700-1800	1	NOTS
PM26	Staffs white salt-glazed stoneware	c 1720-1780	2	SWSG
LPM100	Misc. modern wares ('china' etc)	c 1775-1900	90	TPW/REFW/ENPO/ENGS BRST etc
Total			693	

Codes marked * indicate the nearest fabric tradition equivalent, but do not necessarily imply they are from the same source

FIG. 3: THIN SECTION PHOTOMICROGRAPHS OF 17TH CENTURY CERAMIC VESSEL FROM DP WORLD LONDON GATEWAY. PPL = PLANE POLARISED LIGHT, XP = CROSSED POLARS. IMAGE WIDTH = 2.9 MM



A - XP - Image width 2.9 mm

B - XP - Image width 2.9 mm

C - XP - Image width 2.9 mm

D - PPL - Image width 2.9 mm

E - XP - Image width 1.45 mm

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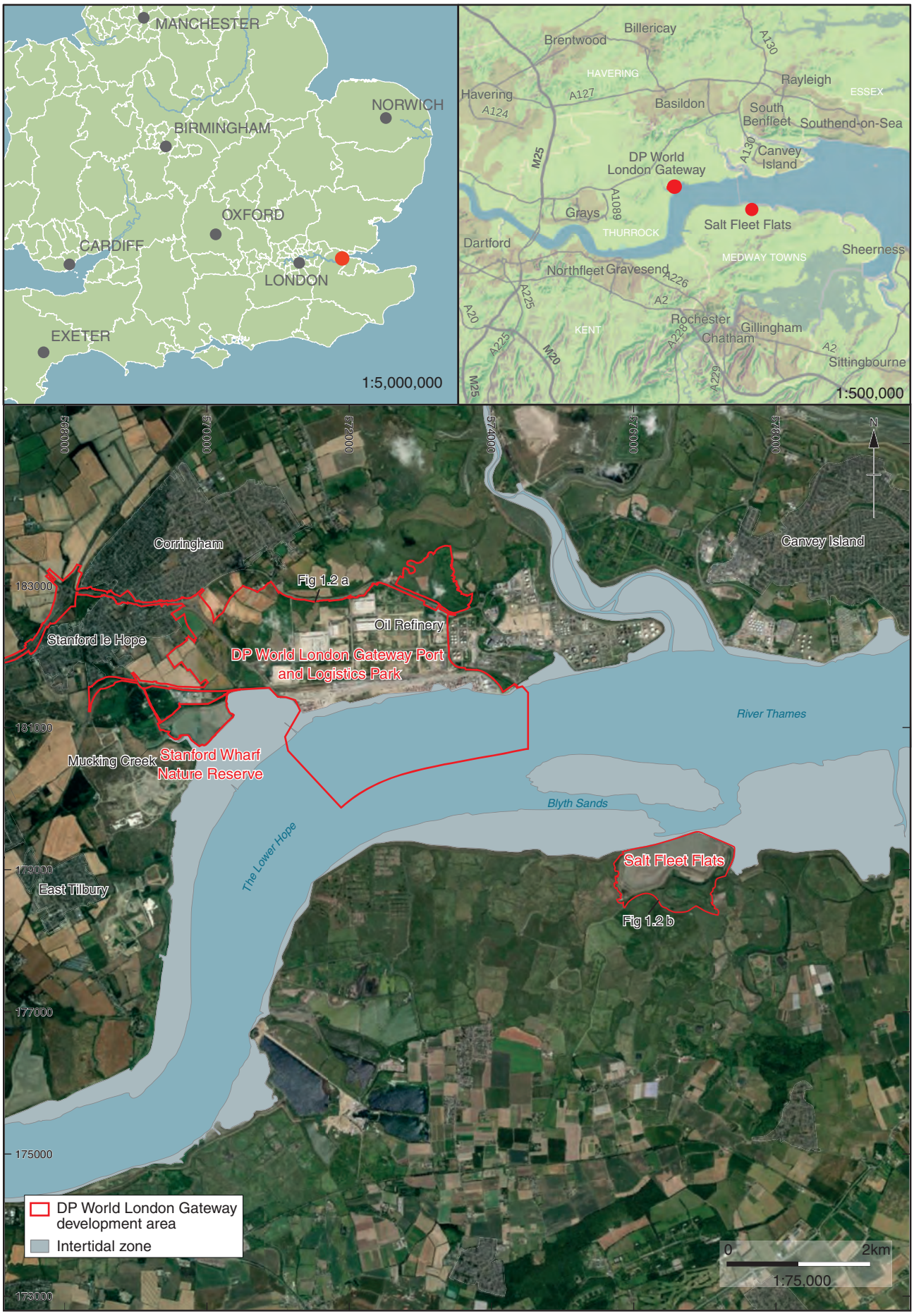


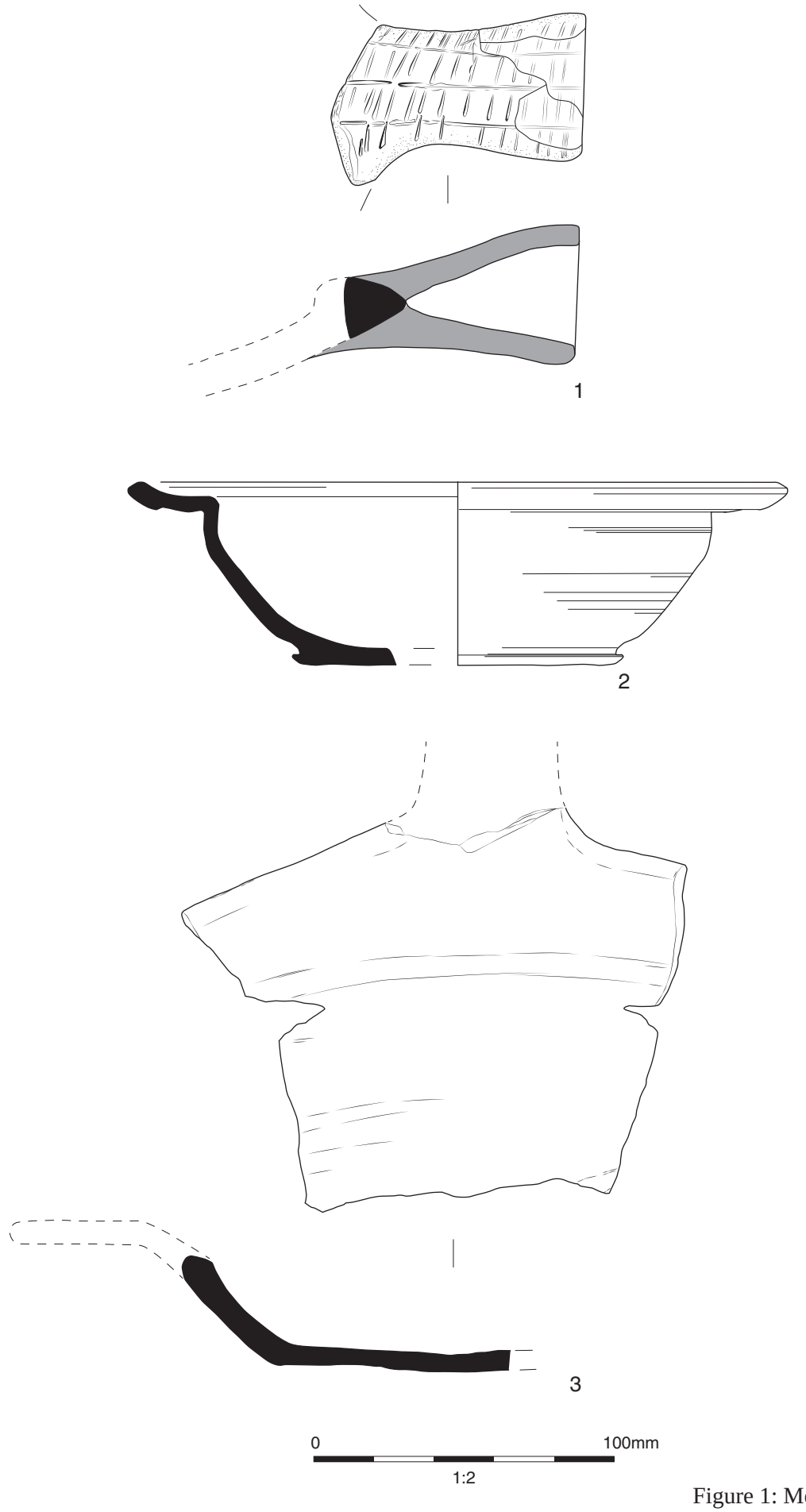
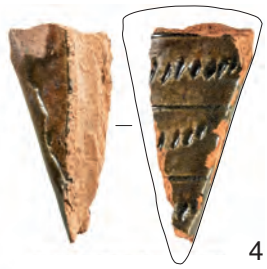


Figure 1: Medieval pottery



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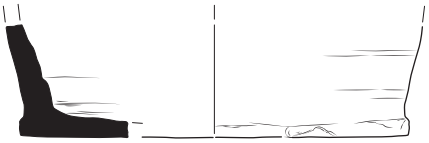

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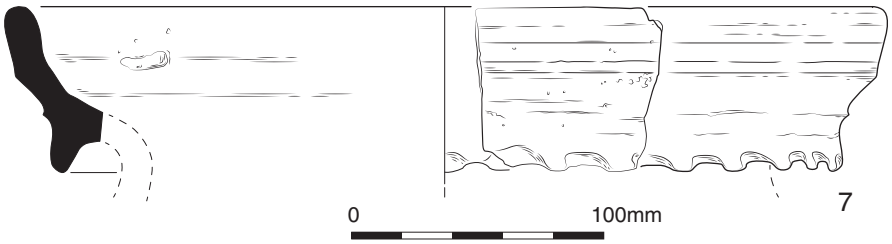

7

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Figure 2: Medieval and later pottery

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