LAGOON 2

FLOOD ALLEVIATION SCHEME

WETHERSFIELD ROAD, SIBLE HEDINGHAM

ESSEX

ARCHAEOLOGICAL TRIAL TRENCHING AND EXCAVATION

Essex County Council

FIELD ARCHAEOLOGY UNIT

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ARCHAEOLOGICAL EVALUATION AND EXCAVATION

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ARCHAEOLOGICAL TRIAL TRENCHING AND EXCAVATION

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SUMMARY

Archaeological evaluation by trial-trenching and open-area excavation were carried out in advance of the construction of a lagoon for a flood alleviation scheme. The fieldwork uncovered part of the former Langthorne Brickworks in Sible Hedingham, which was in operation from 1883 to 1911. It retrieved samples of bricks made by the brickworks and identified and investigated the remains of four or five buildings and five ancillary structures. The buildings included an engine/boiler house, the west end of a drying shed, and the north end of a possible administrative building or workshop. The engine house contained the remains of a furnace and the support for a piece of machinery, possibly a brick mill. The ancillary structures included two beam impressions and traces of a narrow gauge railway. The other features comprised pits and drainage gullies and ditches. Some of the buildings found by the excavation correspond with those recorded on the 1898 Ordnance Survey map. The archaeological remains were well-preserved and were cut in to made-ground, which implied that clay extraction and backfilling had taken place prior to the construction of the features and buildings.

1.0 INTRODUCTION

Three phases of archaeological work preceded the construction of a flood alleviation scheme at Wethersfield Road, Sible Hedingham. The first was a desk-based assessment, the second an archaeological evaluation by trial trenching, and the third an open area excavation. All were requested by the Essex County Council Heritage Environment Management team (ECC HEM) and were undertaken by the Essex County Council Field Archaeology Unit (ECC FAU) on behalf of Essex County Council Highways and Transport (ECC HT). The desk based assessment was carried out in October 2005 and established that the second of three intended lagoons (lagoon 2) had the potential to impact upon part of the former Langthorne Brickworks, which was in use from 1883 to 1911 (Heppell 2005). The trial trenching took place in January 2006 and found the remains of buildings and gullies. The features were well-preserved and lay at the east end of the intended site for the lagoon. An open area excavation duly followed on the basis of the results of the trial trenching. It took place in late January/early February 2006 and facilitated a fuller understanding of the archaeological remains and enabled the construction of the lagoon to continue according to schedule.

The following report presents and combines the results of the trial trenching and the open area excavation. The results of the desk based assessment have been reported on separately and are not included (Heppell 2005). Both sets of fieldwork were monitored by ECC HEM and were carried out in accordance with the stipulations of an archaeological brief and a written scheme of investigation (ECC HEM 2005; ECC FAU 2005).

Copies of this report will be supplied to the client, ECC HEM, the Essex County Council Historic Environment Record, and the OASIS online record (http://ads.ahds.ac.uk/project/oasis). The site archive will be held at Braintree Museum.

2.0 LOCATION

2.1 Location and topography (Fig. 1)

The site for lagoon 2 covers approximately 1ha, and lies in a small arable field in farmland on the western edge of Sible Hedingham. A field drain and Wethersfield Road define the north and south sides of the field respectively. A small wood lies to the immediate west, and a bus depot and former brickmakers' cottages to the immediate south-east. In the north-west corner of the field is a large pond. The 1840 tithe award indicates that the field was formerly two small fields, and was used for both pasture and arable.

The field slopes down gradually towards the pond and the field drain. The south-west quarter of the field is clearly truncated and is noticeably lower than the adjacent road, probably due to clay extraction in the late 19th/early 20th century. The terrain surrounding the field comprises small, low-lying hills.

2.2 Geology

The geology of the general area is glacial head deposits (clay, silt, sand and gravel) on top of London Clay. The overlying topsoil within the area of the site is redeposited and is dark greyish brown silt clay, *c*. 0.2m thick. In the area of the site, the water table occurs at 1.2m below the top of the topsoil.

3.0 HISTORICAL BACKGROUND

3.1 Brickmaking in the late 19th/early 20th century

The main components of a 'typical' late 19th/early 20th-century brickworks were clay pits, kilns, drying sheds, settling ponds, moulding sheds, press shops, pug mills, wash mills, brick mills, workshops, hacks, railways and trackways (Ryan 1999). The essential requirements for a brickworks to be profitable and successful were proximity to clay, sand and water, and easy access to roads, railways and/or canals.

The clay was extracted from the clay pits during the autumn, and turned over and left to weather during the winter. The function of the settling ponds, wash mills and pug mills was to remove the stones and to make the clay more malleable.

Bricks were formed by casting clay into wooden moulds, either by hand or by the use of a machine called a brick mill. The main component of a brick mill was a large metal cylinder. Blades inside the cylinder mixed the clay. The clay was then removed from the cylinder and forced into wooden moulds by the use of a counterweight.

Bricks had to be dried in drying sheds or on outdoor platforms called hacks before they could be fired. Some drying sheds were heated by using steam-heated pipes or under-floor ducts.

Two types of kiln were used. A scotch kiln was a rectangular structure with fire holes in each side and a loading door at each end. Bricks were carefully stacked inside the kiln and covered with a temporary roof of burnt bricks, tiles or boards. Gaps between the stacked bricks enabled the up-draught and heat to pass through the bricks and escape through the roof. Wooden shed-like structures along each side wall prevented the wind from urging the fire. They also kept the fuel store dry and ensured that the stoker was protected from the elements. A down-draught kiln contained baffle walls and a perforated floor and could be either circular or rectangular. It had a tall chimney and an arched or domed roof. The baffle walls deflected the heat upwards to the top of the domed roof, and the up-draught from the chimney pulled it downwards through the bricks to be fired. The heat passed through the perforated floor on its way out. Often the chimney stood apart from the kiln and was connected to it by a brick duct. A continuous kiln was a down-draught kiln that was divided into an operating sequence of twelve or more chambers.

3.2 Langthorne Brickworks (Figs 2 and 3)

Lagoon 2 will be constructed within the former site of the Langthorne brickworks, which was in operation from 1883 to 1911 (Corder-Birch pers. comm.).

The Ordnance Survey 2nd edition records the brickworks as it appeared in 1898. It shows brick pits, kilns, workshops and drying sheds, and brickmakers cottages. The brick pits occur at the north-east and south-west corners of the field, and east of Wethersfield Road. The south-west brick pit has left the south-west corner of the field truncated and some 1.8m lower than the adjacent wood and road. The map reveals that the eastern-most brick pit and a circular wash mill were linked to the rest of the brickworks by a narrow gauge railway.

The only part of the brickworks to appear on the 1922 Ordnance Survey 3rd edition is a former brick pit to the west of the mouth of the driveway leading to Hostage Farm (not illustrated) (Heppell 2005). This brick pit was probably in use during the latter part of the life of the brickworks, and survives to this day as an earthwork.

A builder and timber merchant by the name of Mark Gentry took over the brickworks in 1884, and retained it until his retirement in 1911 (EHER 15359; Corder-Birch 1985, 1988 and pers. comm.). Orbell Cornish, the previous owner of the brickworks, was employed by Gentry as his on-site manager from 1884 to 1890. Gentry operated an extensive business from Langthorne Works, Stratford, which gave this brickworks its name. He had offices and showrooms in London and a depot at Bishopsgate Goods Station. He established new brickmaking techniques and applied for a number of patents. Under his ownership, the output of the brickworks increased from approximately three quarters of a million to nearly five million bricks per year. Gentry expanded the brickworks in 1887 after he bought part of the estate of Robert Hanbury. Listed amongst the lots for sale was '..a vein of good brickearth' (Heppell 2005; ERO D/F 35/7/589). The brickworks eventually became one of the largest of its kind in the Eastern Counties. By 1898, it had four open-top (Scotch) and three covered-in up-draught kilns. The capacities of each of the two types of kiln were 20,000 and 45,000 bricks apiece. From 1899 to 1911, the brickworks used a Burrell traction engine to haul finished bricks to Castle Hedingham railway station six times a day. The traction engine hauled two trucks, holding 2,500 bricks each. Anecdote has it that the local inhabitants disliked the traction engine because it damaged the roads. The clay pit near Hostage Farm, which was recorded by the Ordnance Survey in 1922, was linked to the brickworks by a narrow gauge railway. The railway passed beneath Wethersfield Road by means of a brick-built underpass, which still survives. The brickworks produced over 600 types of hand-made, hand-pressed and machine-made bricks. Included amongst these were red rubbers and moulded, shaped and ornamental bricks, and arch bricks up to 24". The brickworks also made tiles, ceramic pipes and chimney pots, and garden ornaments. Gentry displayed his wares at trade shows and advertised in catalogues. Many of the bricks were stamped with their catalogue number and/or the letters MG (Mark Gentry) or MGH (Mark Gentry Hedingham). Gentry exported bricks to Egypt and Africa. Bricks from the brickworks were used to face the Dublin Barracks. The brickworks traded as Hedingham Brick and Tile Works, and as Hedingham Brick, Tile and Terra Cotta Works.

The brickworks competed against rival brickworks in the immediate area (Corder-Birch 1985; Ryan 1999). The majority of these outlasted the Langthorne Brickworks and continued to operate until the Second World War or the 1950s. The Highfield brickworks was initially owned by Mark Gentry, but was eventually taken over by Eli Cornish. During its height at the turn of the 20th century, the Hedingham brickmaking industry employed approximately 500 people per brickmaking season and made between seven and eight million bricks per year (Cooper 1998). The main reasons for the decline of brickmaking in Essex were downturns in the building trade during the years prior to the First World War and the depression years of the 1930s, and the development of the Bedfordshire and Peterborough 'fletton' industry (Ryan 1999). The Bulmer Brick and Tile Company near Sudbury, W.H. Colliers at Marks Tey, and the Star Lane works of Hanson Brick near Southend are the only places in Essex where bricks are still made (Ryan 1999).

Mark Gentry died in 1912, one year following the closure of the brickworks. The site was used as a builder's yard after the brickworks closed, although it is not known for how long. It is evident from the Ordnance Survey 3rd edition that the brickworks had been demolished and the site reinstated to farmland by 1922.

4.0 AIMS AND OBJECTIVES

4.1 Evaluation

The general aim of the evaluation was to check the accuracy of the cartographic record and to establish if structural remains relating to the Langthorne brickworks were indeed present at the east end of the proposed lagoon.

4.2 Excavation

The specific research objectives of the excavation were:

- To identify and investigate structural remains relating to the Langthorne brickworks
- To establish the function and means of operation of identified structures
- To correlate the structural evidence with the 1898 cartographic record
- To retrieve examples of products manufactured by the Langthorne brickworks

5.0 METHOD

5.1 Evaluation

Five trial-trenches were stripped of their topsoil by a mechanical excavator with a broad toothless bucket in order to investigate the east end of the proposed lagoon. The exposed archaeological remains were planned, and a sample of archaeological features was dug by hand and recorded. The trenches sampled 1.1% of the area of the lagoon.

5.2 Excavation

An area covering 500m² surrounding the trial-trenches was stripped of its topsoil by a mechanical excavator with a broad toothless bucket. The exposed archaeological remains were cleaned, planned and recorded. The excavation strategy was to concentrate on structural remains. Some of the features were left un-dug because they were considered to be largely self explanatory or less significant. Nearly all floors and standing walls were left in situ. Halfway through the excavation, a mechanical excavator was brought in to assist with the excavation of some of the larger features. No finds were taken off site other than a representative sample of bricks and a small number of ferrous objects. Test pits were dug by machine and by hand in order to investigate the nature of the made-ground beneath the archaeological features.

The ECC FAU recording system (ECC FAU 2003) was used to record all uncovered archaeological deposits and features. Digital pictures, black and white prints, and colour transparencies were taken of significant archaeological features and work in progress. Plans were drawn at scales of 1:10 and 1:20 and sections and elevations at a scale of 1:10. A total station theodolite was used to locate the site to the Ordnance Survey National Grid. The work was carried out in accordance with the by-laws and guidelines of the Institute of Field Archaeologists (1999a and b).

6.0 FIELDWORK RESULTS

The archaeological features cut or overlay made-ground and comprised ditches, gullies, pits, and the remains of four or five buildings (Fig. 4, A, B, C, D and E) and five ancillary structures (Fig. 4, F to J). They lay beneath 0.2m of redeposited topsoil,

and were concentrated in the east and south-east parts of the site. The features had been left untouched since the demolition of the brickworks and were well-preserved.

The finds dating and the stratigraphic and spatial relationships are too imprecise and too few in number to demonstrate the full sequence of development within the area of the excavation. However, they do indicate that there was more then one phase, and that it was impossible for all of the buildings, gullies and structures to have been in use at the same time. A more detailed account of the developmental sequence is included in the final discussion.

The archaeological remains are described by type below. Context information is listed in appendix 1. The brick samples are not reported on, but are catalogued in appendix 2.

6.1 Made-ground

Made-ground lay beneath all the archaeological features and appeared to be present across the whole of the site. The excavation of test-pits (Fig. 4) (71, 205, 217, 220, 224, 236 and 249) ascertained that it comprised layers and dumps of gravel and silt clay, and was between 0.3m and 0.1m deep. There were very few finds in the made-ground and there was no buried topsoil beneath it.

The presence of the made-ground suggests that brickearth extraction was taking place within the excavation area or its vicinity prior to the construction of the excavated structures and buildings. The made-ground must either represent the raising of an existing ground surface, or (more likely) the backfilling of an earlier clay pit. When the buildings within the area of the site were in use, the topsoil cannot have been present, and the ground surface must have been 0.2m lower than it is today.

6.2 Building A (Fig. 4)

Building A was an L-shaped engine house. The remains of the building lay in the north half of the site and occurred in a vertical-sided, flat-bottomed construction cut (Plate 1 and front cover). No part of the structure survived above ground level. Each arm of the building sloped down towards the south-east corner. The north end of the north-south arm was 0.2m deep, the corner 1m deep, and the west end of the east-

west arm 0.9m deep. The incline in the east-west arm was barely perceptible, but in the north-south arm it fell at the noticeable rate of 1 in 13.

The excavation discovered evidence for three phases of activity within the remains of the building. Phase 1 constitutes the building in its original form, phase 2 the insertion of a replacement steam engine and boiler, and phase 3 the backfilling and the demolition of the building after it had gone out of use.

Phase 1 (Fig. 5)

The walls of the building survived up to 0.6m high and were made from brick rubble and poured concrete. Horizontal marks on the inside face of the walls indicated that the shuttering for the concrete had been made from 0.15m (6") wide planks (Plates 2 and 4). Walls 106 and 109 stood 1.6m apart and defined the north-south arm of the building (Plate 3). Linear impressions (not illustrated) occurred in the natural clay surface to the north of these two features and indicated that concrete walls had originally extended to the end of the arm. Walls 107, 110, 111 and 121 (Front cover) defined the east-west arm of the building. A deviation in the line of wall 111 increased the width of the space between them from 1.2m to 1.8m. Wall 110 lay at the east end of the arm and was slightly wider that the other walls. Originally, a superstructure constructed from timber is likely to have rested upon them. It is possible that the outer skin and/or roof of the building had been constructed from metal sheet because in the backfill of the building were pieces of corrugated iron.

A floor surface of compacted breeze (a mixture of cinders, small coal and ashes), gravel and lime, approximately 0.1m thick, lay between the walls in both arms (112 and 113). Small rectangular 'stake-holes' pierced surface 112 and the clay surface at the north end of the north-south arm.

Present in the south half of the north-south arm were the remains of the two ends of a support for a brick mill. The south end was represented by a concave-shaped section in wall 107 (Plate 2), and the north end by a large block of rough concrete (276) and a small pit with a square-shaped base (50) (Plate 3). The principal component of the brick mill would have been a large metal cylinder in to which clay was fed. It is probable that one end of the cylinder rested on the concave section of wall. Large iron bolts (119) with 0.05m (2") square heads had been inserted through the wall to either side of the concave section, and were possibly the means by which the cylinder

had been attached to the wall (Plate 2). Pit 50 was probably the footing for a concrete block, similar to 276.

During this first phase of building A, the steam engine for the brick mill was probably sited towards the west end of the east-west arm, although no evidence was found to confirm this. Belts and running gears are likely to have been used to transfer the drive from the engine down the length of the arm towards the brick mill.

Ceramic pipes (117) lay in a drain (115 and 278), which had been backfilled with loose gravel and breeze. The pipes coursed down the north-south arm towards the south-east corner and drained into a large rectangular sump (60) (Front cover and plates 2, 3, 4 and 7). They passed beneath floor 112 and went through a narrow gap at the base of the concave-shaped section of wall. Each pipe consisted of sections that measured 0.3m long and 0.08m in diameter (12" x 3"). The pipes extended southwards through a small hole (275) at the base of wall 111. The hole had been cut with a chisel and had been partially blocked off with bricks (118) (Plate 4). South of the hole the pipes were bigger, and individually measured 0.33m long and 0.18m in diameter (13" x 7"). The sump lay outside the building. It contained loosely packed fragments of breeze and began at a depth of 1m below ground level (Plate 7). Semi-decayed planks lined the sides of it and divided it into two halves. The pipes coursed to the east and extended across the top of it. No attempt was made to investigate the sump further because it was flooded with water. It is not known if the pipes stopped at the edge of the sump or continued beyond it. The purpose of the drainage system was probably to deal with flooding caused by the high water table, and the operating of the brick mill.

Phase 2 (Figs 6 to 9)

Phase 2 of building A comprised the extension of the east-west arm, the insertion of an additional drainage system (271 and 272), and what was probably the replacement (257) of an existing steam engine and boiler towards the west end of the east-west arm.

Structure 257 lay at the west end of the east-west arm and consisted of an L-shaped arrangement of bricks (93), a working area (123) for a stoker, the base of a furnace (264) and a support for a steam engine and boiler (267) (Plates 5 and 6). It rested on

floor 113 and extended across wall 121, which had been reduced in height to accommodate it.

The bricks from which the structure was constructed were largely un-mortared. Most of them were themselves products of the brickworks and measured 0.23m x 0.115m x 0.07m (9" x 4.5" x 2.75"). Yellow firebricks were also present, and occurred largely around the edge of the furnace. The firebricks measured 0.225m x 0.11m x 0.065m (8.8" x 4.3" x 2.5") and were stamped 'TIMMIS & CO STOURBRIDGE'. The maker's mark indicates that they had been brought to the site from the West Midlands.

The L-shaped arrangement of bricks (93) lay at the west end of the structure, and formed an approximation of a series of steps leading down into the stoker's pit. Silt clay lay between the bricks, instead of mortar.

The stoker's pit featured a brick floor (123) and a brick step (258). The brick step occurred across the north side of the pit and was one course high. Partially overlying the brick floor of the pit was the remnant of a concrete skim (279). Sunk into the east end of step 258 was the mouth of a duct with a rectangular section (269). The duct extended past the side of the furnace and the support for the boiler and steam engine. A capping of bricks overlay it where it passed by the furnace. The purpose of the duct is not known. Black staining occurred on the L-shaped arrangement of bricks (93) and around the mouth of the duct.

The remains of the furnace stood up to six courses high and lay directly in front of the pit for the stoker. Fire bricks lined the interior of the furnace and supported a ferrous plate (265) and grill (264). The grill comprised rectangular bars and both it and the plate were scorched and corroded. The bars were spaced 2.5cm (1") apart, and were each 4cm wide and 1cm high (1.5" x 4"). Underneath the grill and the plate was a box-like chamber for the accumulation of ash (266). The floor of the chamber was at the same level as the floor for the stoker. The chamber contained nothing apart from silt and brick rubble. A wall of bricks stood between it and the duct that ran alongside it.

Two brick-built boxes (267) lay behind the furnace and comprised the support for the boiler and steam engine. Yellow sand (268) filled both boxes almost up to the brim. Lying on top of the sand in the eastern-most box was a near-complete course of un-

mortared bricks. It is probable that the western box was originally also similarly sealed.

The additional drainage system appeared to be closely associated with structure 257 and was probably inserted at the same time as its construction. The main components were ceramic pipes (271) and a small sump (270/259).

The sump comprised a large ceramic pipe (270). It lay beneath a frame of bricks, and an iron grate (259) and was sited underneath the middle of the brick floor of the pit for the stoker (Plates 8 and 9). The pipe sat upright and had a diameter of 0.3m (12”). It contained water and silt and exuded a strong smell of oil. The frame of bricks supported the grate and rested on the lip of the sump. A short wooden plank, which survived on top of the grate, prevented the sump from filling up with ash.

The ceramic pipes (271) lay in drains (272) that had been cut into the existing floor (113) and occurred in two sets. One set extended down the length of the east-west arm, and one set was present beneath the floor of the stoker’s pit (Front cover and plate 9). The pipes were identical to the pipes in the north-south arm and the drains had been backfilled with loose gravel and breeze. The drain that extended along the east-west arm began at the lip of the sump in the stoker’s pit. It formed a junction with the existing drain in the north-south arm, and drained into the existing sump in the south-east corner. Ceramic pipes in drains came off it at 90 degrees and lay directly beneath the east end of the support for the steam engine or boiler (267). By contrast, the pipes beneath the floor of the stoker’s pit fed into the sump below the iron grate. The purpose of the drainage system was probably identical to that in the north-south arm.

Also feeding into the sump below the floor of the stoker’s pit was an iron water pipe (260). It lay in a channel, which had been cut into the brick floor with a chisel, and extended towards the grate from the south-west corner. It had a diameter of approximately 0.04m (2”) and curved upward at its south-west end. A fragment of another metal pipe was adhered to the base of wall 111 (262). The nature of the association between these pipes and the steam engine and boiler is not known.

A straight-sided linear cut (238) that entered the site from the east was one other feature that may have been part of the building during one of both of its first two

phases. It was on the same alignment as the building and it headed towards the backfill overlying the top of the sump at the south-east corner. It had vertical sides and a flat base and was approximately 0.35m deep. Unfortunately, the west end of it was no longer present and it is not known how it related to the sump or the building.

Phase 3 (Fig. 10)

Building A was subject to two separate episodes of demolition at the end of its life. In the first episode it was probably taken down to ground level and largely backfilled (252). A possible exception to this was the west end of the east-west arm. Instead of backfill, it contained many fine layers of silt, which suggest that it had been left to become flooded and to silt up. The second episode comprised the chasing of what remained of the walls and the removal of much of whatever remained in the north-south arm (251). In the backfill of the demolition cut were corrugated iron and iron scrap, deposits of clinker and breeze, pieces of coal, wood and brick, and large chunks of floor. The large sections of floor were constructed from lime, gravel and breeze and were possibly derived from the robbed-out north end of the north-south arm.

6.3 Building B (Figs 4 and 11)

Building B was a drying shed. The remains of the west end of it extended into the south-east part of the site and comprised two very large, rectangular post-pits (149 and 227), their component post-pipes (152 and 229), and a section of gully (233). The excavation sampled post-pit 149, post-pipe 152 and gully 233. No attempt was made to excavate post-pit 227 and post-pipe 229. The post-pipes represent the large wooden posts that would have stood at the north- and south-west corners of the building, and the gully is the slot for a wooden wall.

Post-pit 149 had vertical sides and was more than 1.04m deep (Plate 10). Post-pipe 152 was 0.23m wide and at least 1.04m deep and stood upright in a central position. Remnants of the wooden post survived in the single fill of the post-pipe in the form of large fragments of semi-decayed wood. Abundant large fragments of handmade bricks lay at the bottom of the post-pit. It is probable that some of these bricks were rejects because they were cracked and misshapen. The rest of the post-packing comprised yellowish brown clay silt. It contained fragments and flecks of coal, clinker and charcoal, and occasional large fragments of handmade bricks.

Post-pit 227 lay north of post-pit 149 and was similar in size and shape. Post-pipe 229 occurred in the middle of it and was likewise similar in size and shape to post-pipe 152. The distance from post-pipe to post-pipe was 3.8m (12' 6").

Gully 233 was probably in use at the same time as building B, as it cut post-pit 149, but was 'cut' in turn by post-pipe 152. It had a U-shaped profile and was 0.33m deep. Its single fill contained flecks and fragments of coal, charcoal and clinker and infrequent large pieces of brick.

6.4 Building C (Figs 4 and 11)

Building C may have been a large wooden shed with a brick-built fireplace and chimney (Plate 11). The remains of the structure were fragmentary and were difficult to interpret. They extended into the south part of the site and consisted of post-trench 167, brick structures 181, 187 and 196, and demolition cuts 182 and 184. The majority of the remains lay buried beneath 0.2m of silt clay. In post-trench 167 were post-pipes 172, 173 and 174. The brick structures stood one course high and were covered by patchy layers of lime-based mortar. Two post-holes (200 and 201) lay within the area of the building and may have been part of the structure. The cut features were not sampled and the brick structures were left in situ. There were no scorching or substantial brick walls to indicate that the building may have been a kiln.

Structure 187 comprised a rectangular arrangement of bricks and concrete and is thought to be the base for the fireplace and chimney. It lay on made-ground and measured 1.5m wide and 1.8m long. The concrete parts of the structure occurred in the centre and around the edges and contained frequent small fragments of brick.

Pads and supports for the wooden superstructure of the building are possibly represented by the other features. Brick structures 181 and 196 lay either side of the support for the fireplace and chimney and measured 1.95m by 0.5m, and 1m by 0.34m respectively. Both structures lay in tight-fitting construction cuts (194 and 189). A large piece of wood lay lengthways on top of structure 196 and is possibly a remnant of the wooden superstructure. It was spotted during the evaluation, but was inadvertently removed and damaged during the machining of one of the trenches. It was not retained or recorded. Demolition cut 184 occurred at the north end of the support for the fireplace and chimney, and demolition cut 182 was sited west of brick structure 196. Small brick fragments comprised the backfill of both cuts. Demolition

cut 182 possibly represented a brick pad, as it was similar in size and shape to brick pads 181 and 196. Post-trench 167 lay east of the brick structures and was rectangular in plan. The diameter of each of the three circular post-pipes (172 to 174) inside the post-trench was 0.3m. Large iron brackets, of a type that could have been used to hold large pieces of timber together, protruded out of each of the post-pipes.

6.5 Building D (Figs 4 and 11)

The excavation revealed only a small part of building D, and the function of the structure is not known. The uncovered part of the building lay at the south edge of the site. It comprised a 2.4m long section of wall (193) and lay in a shallow foundation trench (192) (Plate 12). The wall was constructed from large fragments of brick and greyish-white mortar. It was approximately 0.4m wide. The bricks existed in an irregular bond and stood up to two courses high. Beneath the east end of the wall was a layer of small fragments of brick. The wall was cut by north-south gully 231.

6.6 Building E (Fig. 4)

Slots 163 and 237 were sited west of gully 235 and possibly represented the remains of a wooden structure, such as a large shed. They were similar in appearance and lay at right angles to each other. Neither slot was excavated.

6.7 Railway line F (Fig. 4)

An iron railway sleeper and the impression of a railway track (F) lay between buildings A and B. The impression contained greyish brown sand silt and was traceable only for a short distance. It pointed towards the south-west corner of the field and extended across drainage gully 231 and the construction cut for drain I. The iron sleeper had a C-shaped cross-section and was 2' 8½" long, 4¼" wide and 1" high (0.82m x 0.11m x 0.025m). The gauge of the track was 2' 2" (0.66m) and was indicated by bolts towards the end of the sleeper. The spacing of the sleepers was approximately 2' 8" (0.8m).

6.8 Structure G (Fig. 4)

It is postulated that structure G is the remains of a support for a heavy object, like a water tank or a piece of machinery. It comprised two, parallel, beam impressions and lay immediately south of building A. The beam impressions were spaced 1.6m apart.

They were perpendicular to building A and were of unequal length. Neither was excavated.

6.9 Structure H (Fig. 4)

Two small post-holes were present between buildings A and C and comprised the remains of structure H. The post-holes were between 0.18m and 0.25m deep and were similar in size and appearance. Fragments of decayed wood in one of the post-holes were probably the remains of a wooden post. The north-east/south-west alignment of the structure was unusual because it was dissimilar from that of the surrounding buildings. The function of the structure is not known.

6.10 Drain I (Fig. 4)

Drainage gully I was situated near the south-east corner of building A. It was made of wood and lay in a shallow construction cut, which had been backfilled with soil (Plate 13). The structure comprised three narrow planks of semi-decayed timber. It was 4.2m long and had a square profile, *c*. 0.15m wide and 0.05m deep. It had an open top and was fastened together with iron nails. A black substance covered the base and was possibly a sealing layer of tar or bitumen. The stratigraphic evidence suggested that it fed into drain 235.

6.11 Structure J (Fig. 4)

The remains of structure J were very fragmentary and consisted of an L-shaped arrangement of bricks. The bricks lay pressed into the ground to the east of building A and were cut by drain 235. The function of the structure and its association with the other buildings are not known.

6.12 Ditches 247 and 248 (Fig. 4)

These two ditches were exposed within the most northerly extent of the trial trenching. They contained fragments of modern brick and ran parallel with the existing drainage ditch that defines the north side of the field. It is likely that both of them were associated with the brickworks and were forerunners of the existing ditch. Both features were left unexcavated.

6.13 Drainage gullies 231, 232 and 235 (Fig. 4)

Drainage gullies headed down slope towards the north boundary of the site and the existing drainage ditch that defines the north edge of the field. The gullies had

concave profiles, and were between 0.12m and 0.5m deep. Gully 231 post-dated building D and ran between buildings A and B. An iron water pipe with a diameter of 1" (0.025m) was found in one of the three segments that were excavated across the gully. Gully 232 had been backfilled with brick rubble and was post-dated by building B. Gully 235 contained a distinctive dark fill and was later than building C and structures G and J.

6.14 Pits (Fig. 4)

Ten pits lay dispersed across the south-east part of the site (4, 26, 29, 175, 177, 214, 240, 243, 246 and 277). Four of the pits were half-sectioned (4, 26, 29 and 214). The remainder were left unexcavated. Most were approximately square or rectangular. Excavated pits 4, 26, 29 and 214 contained one or two fills apiece and were 0.55m, 0.54m, 0.22m and 0.7m deep respectively. Few or no finds occurred in pits 4, 26 and 29. By contrast, pit 214 contained iron scrap and many pieces of brick. Pit 214 was probably dug for the disposal of rubbish. The functions of the other pits are not known.

6.15 Miscellaneous (Fig. 4)

Other deposits and features located during the excavation (but left unexcavated) were two slots (244 and 245), a gully (234) and a thin spread of clinker (160). The clinker occurred in the south-east part of the site and pre-dated drainage gully 231. Slots 244 and 245 lay beneath the footprint of structure G, close to building A. Gully 234 extended between buildings A and C and post-dated gully 235, which stratigraphy suggests was in use during the latter part of the brickworks.

7.0 FINDS, by Joyce Compton

7.1 Summary

Finds were recovered from a total of eleven contexts. All of the material has been recorded by count and weight, in grams, by context. Full details can be found in appendix 2. All of the finds are post-medieval to modern, *i.e* mid to late 19th century onwards, and are described by category below. Sample bricks were collected from several contexts; these have been catalogued by Pat Ryan and are listed in appendix 2.

7.2 Metalwork

A number of iron nails and nail shafts were recorded, some with mineralised wood attached. In addition, a large square-headed bolt was retrieved from the fill of segment 23 across drainage gully 235. A squashed copper alloy disc, from the fill of segment 254 across structure A, was probably once a horse brass. A small copper alloy 'washer' of unknown purpose was recovered from layer 8.

7.3 Glass

Various items of modern glass, both bottle and window, were found in the fills of segments 11 and 23 across feature 238 and drainage gully 235 respectively. The sherds, six in total, have been discarded on health and safety grounds.

7.4 Pottery

Two contexts, the fills of pit 4 and segment 11, produced pottery, amounting to five sherds, weighing 20g. The sherds derive from utilitarian vessels in white and kitchen-type earthenwares.

7.5 Ceramic pipes

Two ceramic pipes were recorded, one a land drain, diameter 75mm, the second a plain pipe of larger diameter (180mm). A further fragment, perhaps from a chimney pot was unstratified. All three are likely to be product examples. A clay tobacco pipe stem was found in layer 1.

8.0 DISCUSSION

The evaluation and the excavation have uncovered and investigated part of the Langthorne Brickworks. Contained or partly contained within the area of the excavation are the remains of four or five buildings, five ancillary structures, seven drainage gullies and ditches, and ten pits. Building A is an engine house, and building B a drying shed. Building C is a large wooden structure with a brick-built fireplace and chimney and is postulated to be an administrative building or workshop. Little of buildings D and E has survived or has been uncovered, and the functions of both buildings remain unknown. A wood-lined drain and traces of a narrow gauge railway are included amongst the ancillary structures.

By overlying a plan of the archaeological remains onto the 1898 Ordnance Survey map, it is possible to establish that building B is the west end of building II and that building C is the north end of building III (Figs. 2 and 12). Building D is in the wrong location to be the north-west corner of building IV. Buildings A and E do not appear on the map and must pre- or post-date 1898. Structures V and VI lie outside the area of the excavation and are probably open top up-draught kilns. The white parts of the structures (as represented on the map) are the kilns, and the striped parts to either side of them are the wooden sheds for the stokers. Buildings IV and VIII have what look like representations of chimneys at their west ends and are also probably kilns. It is likely that building I is a heated drying shed. Another drying shed is perhaps represented by building VII.

The spatial arrangement and stratigraphic relationships indicate at least seven phases of site development and demonstrate that not all of the buildings and structures within the area of the site were in use at the same time (Fig. 13). Correlation of the excavated buildings with those on the 1898 map suggests that the first three phases pre-date 1898, and that the last three phases occurred from 1898 onwards. The development of the brickworks within the area of the archaeological investigation began in the south-east corner and then expanded towards the north and west. Building E and most of the pits share no stratigraphic relationships and remain un-phased. The majority of these features could have been in use at any point from phase 2 onwards.

Phase 1(pre-1998)

The presence of the made-ground indicates that the area of the archaeological site was used for the extraction of brickearth and/or landscaping. Any buildings or structures that were associated with this initial phase of brickearth extraction must have been located beyond the edges of the archaeological site.

Phase 2 (pre-1898)

Building D, gully 232 and clinker spread 160 lie close to the beginning of the stratigraphic sequence and are exclusive to phase 2. All three features are located in the south-east corner of the excavation, and must have been preceded by the infilling of the brick pit that was formerly present across the site in phase 1.

Phase 3 (pre-1898)

Gully 231 is in use during phase 3 and buildings B, I and IV during phase 3 and later. Building C is in use during phase 3 and/or phase 4.

Gully 231 is a major drain running between buildings. It cuts building D and is the replacement for gully 232. Building B cuts the earlier gully and is possibly in use at the same time as gully 231. Building I lies just outside the site and is conjectured to have been in use at the same time as building B. It is possible that in order to make room for both buildings, gully 232 was shifted to the west (to become gully 231). Building C overlies the footprint of building D. The 1898 map shows that it and buildings B and I were in use at the same time. Building IV is also on the map, and is postulated to be the replacement for building D. It lies close to building D and is likely to overlie its footprint.

Phase 4 (1898 onwards)

Building A is added to existing buildings B, C, I and IV in phase 4. Structure G and linear cut 238 are likely to have been associated with the new building. Gully 231 is bisected by linear cut 238 and is no longer in use.

Building A is an engine house and probably provided power for a brick mill. The engine is likely to have been present at the west end of the east-west arm, and the brick mill towards the south end of the north-south arm. Structure G appears to be associated with building A and is postulated to be the remnants of a support for a heavy object, like a water tank or an item of machinery. It is not inconceivable that the engine in building A was used to run two machines, and that structure G was the support for the second of the two. Linear cut 238 is possibly a drain feeding into the top of sump 60.

Phase 5 (1898 onwards)

Most of the buildings probably continue in use during phase 5 and are joined by railway F, structure H, wood-lined drain I and drainage gully 235. Building C, structure G and linear cut 238 are cut by some of these new features, and are therefore no longer present.

The railway relates to the transferral of clay from the post-1898 clay pit near the entranceway to Hostage Farm. The line is assumed to have run across the top of the

gully and the wood-lined drain, to have travelled up the slope of the field, and to have continued through the underpass beneath Wethersfield Road.

Structure H is conjectured to have been in use during this phase, as its alignment roughly corresponds with an adjacent section of gully 235. The wood-lined drain hangs over the lip of the gully, and is likely to have fed into it. The wider purpose of the drain, and the form and function of structure H are not known, although it is possible that the two were associated with each other.

Phase 6 (1898 onwards)
Gully 234 is the latest feature in the sequence. It is not known if it is associated with the brickworks or with the subsequent use of the brickworks as a builders' yard.

Phase 7 (1911 onwards)
The site is used as a builders' yard after the brickworks is closed. When the Ordnance Survey produces its 3rd edition map in 1922, the buildings and builder's yard are no longer present.

The excavation has found no rails or machinery and it is likely that these were taken away to be sold for scrap or to be reused elsewhere when the brickworks was closed. It is not known if some or all of the phase 5 buildings were retained by the builder's yard before they were cleared. Building A is partly backfilled and left to silt up before it is knocked down. After the buildings have been taken down to ground level, and the site is no longer used as a builder's yard, the former works is covered with topsoil so that the field can be reinstated as farmland.

9.0 ASSESSMENT

The archaeological investigation has been an important contribution to the understanding of the Langthorne Brickworks and the late 19th-century brickmaking industry. It has resulted in a large increase in the level of detail and a fuller interpretation of the cartographic evidence and has produced a more detailed account of the operation and the development of the brickworks. At the same time, however, it has also shown that there is still much to learn about the late 19th-century

brickmaking industry, and that one of the best ways to accomplish this is through open area investigation.

What is left of the brickworks has been subject to minimal disturbance since demolition, and the reinstatement of the field to farmland. The remains are well-preserved due to the robust materials from which some of the buildings are made, to the young age of the site, and to the absence of deep truncation and widespread disturbance.

The excavation has only exposed a small corner of the works, and the lagoon will correspondingly disturb just a proportion of the overall brickworks complex. The 1898 OS map and the results of the excavation strongly suggest that extensive remains are still present beneath the topsoil in the north-east quarter of the field. Further remains may also extend elsewhere. If groundworks more than 0.2m deep occur outside the area of the footprint of the lagoon, then it is probable that these remains will be damaged.

The results of the archaeological investigation give an indication of the complexity of the development of the brickworks, not all of which can be ascertained or appreciated from the documentary and cartographic evidence alone. It is now known that the focal point of the brickworks was moved at least once within the overall brickmaking site, and that only a proportion of the buildings and structures that were once present appear on the 1898 map. Some of the developments uncovered by the archaeological investigation reflect increasing mechanisation and industrialisation in the brickmaking process. The introduction of the engine house and brick mill, and the probable replacement of its original steam engine and boiler are the clearest indication of this. It is probable that behind most of the developments lay Gentry's known liking for improvement and innovation, and the expansion in the capacity of the brickworks that is known from the documentary evidence to have taken place from 1887 onwards.

Essex has seen two other archaeological investigations of 19th/20th-century brickmaking sites. One of these is the excavation of the Seymour Street brickworks in Chelmsford, and the other the survey of the Saunders Brickyard at Parkeston (Heppell *et al*. forthcoming; Letch 2002). The three sites together provide a representative sample of most of the major structures that were formerly associated

with the brickmaking industry. The Chelmsford site found settling tanks and kilns, and the Parkeston site brick-, wash- and pug-mills.

In comparison, apart from the excavation of a 16th-century brick clamp at Beeleigh Abbey (Ennis 2005), the county has seen relatively little archaeological fieldwork on non-Roman brickmaking sites pre-dating the 19th century. Greater attention should be given to brickmaking sites from earlier periods in order to attain an improved understanding of the technical and historical development of the Essex brickmaking industry and to enable the excavated late 19th-century sites to be put into context.

Documentary research and comparison with extant and other former 19th/early 20th-century brickworking sites would enable more information to be drawn from the excavated remains of the Langthorne Brickworks. Understanding of building A is currently weak, and requires greater knowledge of brick mills and steam engines.

The finds are either part of the structures and/or products of the brick works, or represent incidental breakage of items belonging to the workforce. All are modern and need not be retained beyond the archiving stage. The sample bricks are the exception and have been added to the Essex County Council reference brick collection at Cressing Temple. The glass has been discarded following recording.

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The fieldwork was carried out by Mark Germany, Dave Smith, Chris Down, Matt Pocock, Andy Lewsey and Adrian Turner. The illustrations are by Andy Lewsey. The finds were processed by Phil McMichael and reported on by Joyce Compton. The bricks were catalogued by Pat Ryan. The project was managed by Mark Atkinson, and monitored by Vanessa Clarke of ECC HEM.

BIBLIOGRAPHY

Cooper, A.	1998	*Our Mother Earth – Of the Furrow Born – 300 Years of Countryside History along the Suffolk-Essex Border*. Bulmer Historical Society, 18-34
Corder-Birch, A.	1985	'A brief history of Brickworks in the Hedingham area'. *Essex Journal* **20**, 66-67
Corder-Birch, A.	1988	*A pictorial history of Sible Hedingham*. Halstead and District Local History Society
ECC FAU	2003	*Site Recording Manual*. ECC FAU
ECC FAU	2005	*Written scheme of investigation. Archaeological evaluation, lagoon 2, Wethersfield Road, Sible Hedingham, Essex*. ECC FAU. Project No. **1576**
ECC HEM	2005	*Archaeological trial-trenching and excavation on lagoon 2 at the Sible Hedingham Flood Alleviation Scheme*. ECC HEM, County Hall, Chelmsford
Ennis, T.	2005	*Maldon Archaeological and Historical Group, Beeleigh Abbey Excavations 2004, Trench 11/11B Report*. ECC FAU. Project No. **1372**
Heppell, E.	2005	*Flood alleviation scheme, Wethersfield Road, Sible Hedingham, Essex. Archaeological desk-based assessment and site inspection*. ECC FAU. Project No. **1541**
Heppell, E., Letch, A., Peachey, M. and Ryan, P.	Forth-Coming	'Seymour Street Brickworks, Chelmsford. Archaeological Investigations 2001'. *Essex Archaeol. Hist*.
I.F.A.	1999a	*Standard and guidance for archaeological evaluations (revised)*
I.F.A.	1999b	*Standard and guidance for archaeological evaluations (revised)*
Letch, A.	2002	*Saunders Brickyard, Una Road, Parkeston, Essex: Archaeological Site Assessment.* ECC FAU. Project No **918**
Ryan, P.	1999	*Brick in Essex. The clayworking craftsmen and gazetteer of sites*. Pat Ryan, Chelmsford, Essex, CM3 4QL

Appendix 1: Context data

No.	Category	Description	Filled by
1	Deposit	Layer	
2	Segment	Part of gully 235	3
4	Cut	Pit	5
6	?Cut	?Post-pipe in pit 4	7
8	Deposit	Layer	
9	Segment	Part of gully 232	10
11	Segment	Part of linear cut 238. Part of Building A	12
13	Deposit	Layer	
14	Deposit	Layer	
15	Segment	Part of slot 233. Part of building B	16
17	Segment	Part of gully 231	18
19	Segment	Part of gully 235	20
23	Segment	Part of gully 235	24, 25
26	Cut	Pit	27, 28
29	Cut	Pit	30
37	Segment	Part of demolition cut 251. Part of building A	38 to 43
44	Cut	Four small rectangular stake-holes. Part of building A	45
46	Segment	Part of demolition cut 251. Part of building A	47, 48
49	Structure	Same as 112	
50	Cut	Pit. Part of building A	51
52	Structure	Same as 113	
53	Cut	Same as 115	
54	Deposit	Same as 116	
59	Structure	Timber battening lining sump 60. Part of building A	
60	Structure	Sump. Part of building A	61, 114
62	Segment	Part of demolition cut 251. Part of building A	63
64	Segment	Same as 62	
65	Deposit	Same as 63	
66	Segment	Part of demolition cut 251. Part of building A	67 to 69
70	Segment	Part of demolition cut 251. Part of building A	96 to 100
71	Test-pit		72, 73, 74, 75, 78, 79, 80, 81
76	Segment	Part of demolition cut 251. Part of building A	77
82	?Cut	?Gully	83
84	Segment	Same as 254	
86	Structure	Same as 113	
87	Structure	Same as 107	
88	Segment	Same as 127	
89	Segment	Same as 131	

No.	Category	Description	Filled by
90	Cut	Same as 115	
91	Structure	Same as 117	
92	Structure	Same as 267	
93	Structure	Brick steps leading into stoker's pit. Part of structure 257 in building A.	
94	Structure	Same as 257	
95	Structure	Same as 111	
106	Structure	Brick and concrete wall. Part of building A	
107	Structure	Brick and concrete wall. Part of building A	
108	Structure	Same as 107	
109	Structure	Brick and concrete wall. Part of building A	
110	Structure	Brick and concrete wall. Part of building A	
111	Structure	Brick and concrete wall. Part of building A	
112	Structure	Floor surface. Part of building A	
113	Structure	Floor surface. Part of building A	
115	Cut	Drain for ceramic pipe 117. Part of building A	55, 56, 116
117	Structure	Ceramic pipe. Part of building A	
118	Structure	Three bricks partially inserted into hole 275 in wall 111. Part of building A	
119	Structure	Square-headed iron bolts. Part of building A	
120	Structure	Same as 111	
121	Structure	Brick and concrete wall. Part of building A	
122	Structure	Same as 107	
123	Structure	Brick floor. Part of structure 257 in building A	
124	Structure	Concrete and brick fragments. Part of brick steps 93 in structure 257 in building A	
127	Segment	Part of demolition cut 251 in building A	32, 125, 126
131	Segment	Part of demolition cut 251 in building A	128 to 130
132	Segment	Part of demolition cut 251 in building A	133, 134
137	Segment	Part of demolition cut 251 in building A	138
139	Cut	Construction cut for brick steps 93, part of structure 257 in building A	140
142	Structure	Imprint of railway track and sleepers. Part of structure F	154
143	Structure	Wood-lined drain. Part of structure I	146
144	Structure	Construction cut for wood-lined drain 143. Part of structure I	144
147	Cut	Same as 235	
148	Unstratified	Brick samples	
149	Cut	Post-pit. Contains post-pipe 152. Part of building B	150, 151
152	Cut	Post-pipe in post-pit 149. Part of building B	153

No.	Category	Description	Filled by
155	Segment	Part of gully 231	156 to 158
159	Deposit	Layer	
160	Deposit	Thin spread of clinker	
161	Cut	Same as 235	162
163	Cut	Slot. Part of building E	164 to 166
167	Cut	Post-trench. Part of building C	170
172	Cut	Post-pipe in post-trench 167. Part of building C	168
173	Cut	Post-pipe in post-trench 167. Part of building C	169
174	Cut	Post-pipe in post-trench 167. Part of building C	171
175	Cut	Pit	176
177	Cut	Pit	178
179	Cut	Same as 212	
180	Deposit	Same as 213	
181	Structure	Pad of mortared bricks, one course high. Part of building C	
182	Cut	Demolition cut. Part of building C	183
184	Cut	Demolition cut. Part of building C	185
186	Structure	Same as 187	
187	Structure	Rectangular block of mortared bricks and concrete. Part of building C	
188	Cut	Construction cut for 186 and 187	
189	Cut	Construction cut for brick pad 181. Part of building C	
190	Segment	Part of gully 231	191
192	Cut	Construction cut for wall 193. Part of building D	
193	Structure	Brick wall. Part of building D	
194	Cut	Construction cut for brick pad 196. Part of building C	195
196	Structure	Pad of un-mortared bricks, one course high. Part of building C	
197	Cut	Same as 192	
198	Deposit	Same as 195	
199	Deposit	Footing of compacted brick fragments beneath wall 193. Part of building D	
200	Cut	Post-hole. Part of building C	
201	Cut	Post-hole. Part of building C	
205	Test-pit	Through made-ground sequence	202 to 204
206	Structure	Boiler house. Same as building B	
207	Cut	Post-hole. Part of structure H	208 to 211
212	Cut	Post-hole. Part of structure H	213
214	Cut	Pit	215, 216
217	Test-pit	Through made-ground sequence	218, 219
220	Test-pit	Through made-ground sequence	223
221	Segment	Part of gully 235	222

No.	Category	Description	Filled by
224	Test-pit	Through made-ground sequence	225, 226
227	Cut	Post-pit. Part of building B	228
229	Cut	Post-pipe. Part of building B	230
231	Cut	Gully. Sampled by segments 17, 155 and 190	
232	Cut	Gully. Sampled by segment 9	
233	Cut	Gully. Sampled by segment 15	
234	Cut	Gully	
235	Cut	Gully. Sampled by segments 2, 19, 23 and 221	
236	Test-pit	Through made-ground sequence	21, 22
237	Cut	Gully. Part of building E	
238	Cut	Linear feature. Sampled by segment 11	
239	Structure	L-shaped arrangement of bricks. Part of structure J	
240	Cut	Pit	
241	Cut	Beam impression. Part of structure G	
242	Cut	Beam impression. Part of structure G	
243	Cut	Pit	
244	Cut	Slot	
245	Cut	Slot	
246	Cut	Pit	
247	Cut	Ditch	
248	Cut	Ditch	
249	Test-pit	Through made-ground sequence	141
250	Segment	Part of demolition cut 251	101 to 104
251	Cut	Demolition cut. Sampled by segments 37, 46, 62, 66, 70, 76, 127, 131, 132, 137 and 250. Part of building A	
252	Deposit	Backfilling in east-west arm of building A. Sampled by segments 253 to 256	
253	Segment	Part of backfilling sequence 252 in building A	135, 136
254	Segment	Part of backfilling sequence 252 in building A	31, 33 to 36, 85
255	Segment	Part of backfilling sequence 252 in building A	57, 58
256	Segment	Part of backfilling sequence 252 in building A	105
257	Structure	Boiler. Part of building A	
258	Structure	Step. Part of structure 257 in building A	
259	Structure	Sump. Part of structure 257 in building A	
260	Cut	Cut for iron pipe 261. Part of structure 257 building A	
261	Structure	Iron pipe, 1.5” diameter. Part of building A	
262	Artefact	Unidentified iron object. Part of building A	
263	Structure	Furnace. Part of structure 257 in building A	
264	Structure	Iron grill. Part of building A	

No.	Category	Description	Filled by
265	Structure	Iron plate. Part of structure 257 in building A	
266	Structure	Ash chamber. Part of structure 257 in building A	
267	Structure	Boiler support. Part of structure 257 in building A	
268	Deposit	Sand. Part of structure 257 in building A	
269	Structure	Duct. Part of structure 257 in building A	
270	Structure	Ceramic pipe, *c*. 12" diameter. Part of sump 259 in building A	
271	Structure	Ceramic pipes. Part of building A	
272	Cut	Drain for 271. Part of building A	
273	Deposit	Layer beneath brick floor 123. Part of building A	
274	Structure	Same as 113	
275	Structure	Hole cut in wall 111. Part of building A	
276	Structure	Concrete block. Part of building A	
277	Cut	Pit	
278	Cut	Drain. Part of building A	
279	Deposit	Concrete skim on brick floor 123. Part of structure 257 in building A	

Appendix 2: Finds data

Finds

Context	Feature	Count	Weight	Description	Date
1	Layer	1	1	Clay pipe stem fragment	Post med.
5	4	2 1 4 1	2 660 520 2	Iron nail shafts with mineralised wood adhering Brick fragment with shallow frog, 105 x 65mm Pantile fragments Pottery; body sherd, kitchen earthenware	- Post med. Modern Modern
7	6	1	26	Iron nail with wood attached	Modern
8	Layer	1	<1	Copper alloy washer	Modern
12	11	1 3 1 4	14 96 1190 18	Slate fragment Glass; green wine bottle neck; mineral water bottle neck sherd; green bottle body sherd (All Discarded) Brick fragment, shallow frog marked 'M G', 110 x 55mm Pottery; rim and body sherds, white earthenware	- Modern Post med. Modern
24	23	2 3	376 88	Iron objects; large nail shaft, bent at right angles; square-headed bolt Glass; ribbed, pale green window sherd; dark green wine bottle body sherds (All Discarded)	Modern Modern
35	254	1	20	Copper alloy disc, ?horse-brass	Modern
96	70	2	8000	Bricks, catalogued separately	Modern
117	Structure	1 1	4045 1335	Ceramic pipe section, diameter 180mm Ceramic pipe; complete land drain section, buff clay, length 300mm, diameter 75mm	Modern Modern
135	253	1	3250	Brick, catalogued separately	Modern
148	Unstrat	27 1	63910 635	Bricks, catalogued separately Ceramic object, probable chimney pot	Modern Modern

Brick

Context	Quantity	Weight and dimensions (mm)	Description
5	1 fragment	65 thick	Red; regular; shallow frog
12	1 pt brick	160x115x55 (1185g)	Red; regular; smooth faces; rectangular frog impressed MG
96	1 brick	205x125x80 (4000g)	Rubbing brick; red; regular; regular sharp arrises; smooth faces; no frog, impressed MG
96	1 brick	245x125x80 (4000g)	Rubbing brick; red; regular, regular sharp arrises; smooth faces; no frog, impressed MG
135	1 brick	225x110x75 (3270g)	Cream, one face pinkish colour, probably due to exposure of surface to heat; many black specks (1mm) in fabric; one stretcher face white glazed; clean-cut rectangular frogs with large screw head impressions in upper surface and base; one header face has impressed B; probably brought in from Stourbridge

Context	Quantity	Weight and dimensions (mm)	Description
148	1 brick	225x110x65 (3130g)	Firebrick; cream with small dark specks in fabric; pink skin; smooth faces, upper surface and base; one stretcher face impressed TIMMIS & CO STOURBRIDGE
148	1 brick	230x110x65 (3260g)	Firebrick; cream; pinkish where surface areas were exposed to heat; many black specks (1mm) in fabric; regular; regular sharp arrises, smooth faces, upper surface and base; probably a fire brick from Stourbridge
148	1 brick	230x110x65 (3160g)	Firebrick; cream; pinkish where surface areas were exposed to heat; many black specks (1mm) in fabric; regular; regular sharp arrises, smooth faces, upper surface and base; probably a fire brick from Stourbridge
148	1 brick	235x125x80 (3680g)	?Rubbing brick; red; regular; regular sharp arrises; smooth faces, upper surface and base
148	1 brick	225x100x65	Red; regular; damaged arrises; shallow frog
148	1 brick	230x115x70 (2850g)	Red; regular; damaged arrises; shallow frog faces and upper surface; rectangular frog impressed MG and with faint impressions of screw heads
148	1 brick	225x110x55 (2100g)	Red; regular; regular sharp arrises; smooth faces and upper surface; rectangular frog impressed MG
148	1 brick	230x12x55 (2200g)	Red; regular; regular sharp arrises; smooth faces and upper surface; rectangular frog impressed MG
148	1 brick	220x110x68 (2770g)	Purple (over-fired, cracked); regular sharp arrises; smooth faces; rectangular frog impressed M; cement mortar
148	1 brick	225x110x68 (2680g)	Red; regular; regular sharp arrises; striated upper surface; slightly creased faces; rectangular frog impressed MG
148	1 brick	225x110x65 (2580g)	Red; regular; slightly rounded arises; smooth faces; rectangular frog impressed MG and three dots (the M is upside-down); lime mortar attached
148	1 brick	225x110x68 (2610g)	Red; regular; stretcher face, slight horizontal pressure mark; smooth faces; rectangular frog impressed MG and three dots (the M is upside-down); lime mortar attached
148	1 brick	185+ x110x70 (2580g)	Red; regular; slightly rounded arrises; slightly creased faces, 1 stretcher face horizontal pressure mark; rectangular frog impressed M and the dots (the M is upside-down)
148	1 brick	220x115x70 (3120g)	Special; red; shaped header; 32 impressed on one stretcher face
148	1 brick	203x115x70 (3150g)	Special; red; shaped header; 32 impressed on one stretcher face; slightly cracked from firing
148	1 brick	230X115X65 (2160g)	Special; red; for plinth; regular; regular sharp arrises; base impressed 2; lime mortar attached
148	1 brick	230x115x65 (2670g)	Special; red; for plinth; regular; regular sharp arrises; base impressed 2; lime mortar attached
148	1 brick	235x115x70 (2740g)	Special; red; regular; regular sharp arrises slightly creased faces; chamfered corner; frog impressed 147

Context	Quantity	Weight and dimensions (mm)	Description
148	1 pt brick	150+ x 105x70 (1770g)	Special; red; regular; regular sharp arrises; smooth faces; impressed MG190
148	1 brick	230x115x70 (2500g)	Special; red; regular; regular sharp arrises; smooth faces; frog impressed 256
148	1 pt brick	195+ x 115x65 (1580g)	Special; red; regular; damaged arrises; one stretcher face moulding; upper surface impressed MG 14 (14 opposite way up to MG)
148	1 Frag.	130+ x 115x70 (1180g)	Special; red; regular; damaged arrises; corner with roll moulding
148	1 pt brick	80+ x110x70 (836g)	Special; red; regular; corner with roll moulding
148	1 Frag.	(370g)	Special; red; moulding
148	1 pt brick	110+ x145x70 (1535g)	Special; occasional pebble inclusion; remnant of impression, -G, 3

Chimney pot

Context	Quantity	Weight and dimensions (mm)	Description
148	1 Frag	17 thick (638g)	

Drainage tile

Context	Quantity	Weight and dimensions (mm)	Description
117	1 pipe	305 (12”) long 75 (3”) diameter	Cream fabric
117	1 pt pipe	325+ (12.5” +) long 185 (7.5”) diameter	Red fabric with some streaks of cream

Roof tile

Context	Quantity	Weight and dimensions (mm)	Description
5	1 Frag. Plain tile	15 thick	Very flat
5	1 Frag from complex pan tile-type	*c*. 12 thick	
5	2 Fragments ridge tile	15 thick	

Appendix 3: Contents of archive

The archive is held at Braintree Museum (museum accession number: BRNTM 2006.1). The finds have been discarded, apart from samples of bricks. The bricks are stored at Cressing Temple and form part of the Essex County Council brick reference collection.

Contained in one A4 file:

9	Context register sheets
248	Context sheets
12	Level register sheets
5	Photographic register sheets
1	Plan register sheet
8	Section register sheets
138	Colour transparencies
13	Small sheets of site plans and section drawings
1	Copy of this report
1	Copy of the archaeological brief
1	Copy of the written scheme of investigation
1	Finds report and table
1	Finds list
1	Brick and tile list

Separate from A4 file:

29	Large sheets of site plans and section drawings
131	Black and white prints and negatives

Appendix 4: Essex Historic Environment Record

Site Name & Address: Lagoon 2, Flood alleviation scheme, Wethersfield Road, Sible Hedingham, Essex	
Parish: Sible Hedingham	***District:*** Braintree
NGR: TL 76875 34165	***Site Code:*** SHWR 06
Type of Work: Trial-trenching and excavation	***Site Director/Group:*** Mark Germany, Essex County Council Field Archaeology Unit
Date of Work: 10/1/06 to 12/1/06 and 18/1/06 to 9/2/06	***Size of Area Investigated:*** Excavation areas: 500 square metres
Location of Finds/Curating Museum: Braintree	***Funding Source:*** Essex County Council Highways and Transportation Department
Further Work Anticipated? No	***Related HCR Nos:*** 15359
Final Report: Essex Archaeology and History	
Periods Represented: Modern (late 19th/early 20th century)	
SUMMARY OF FIELDWORK RESULTS: Archaeological evaluation by trial-trenching and open-area excavation were carried out in advance of the construction of a lagoon for a flood alleviation scheme. The fieldwork uncovered part of the former Langthorne Brickworks, which was in operation from 1883 to 1911. It retrieved samples of bricks made by the brickworks and identified and investigated the remains of four or five buildings and five ancillary structures. The buildings included an engine house, the west end of a drying shed, and the north end of a possible administrative building or workshop. The boiler house contained the remains of a furnace and the support for a brick-mill. The ancillary structures included two beam impressions and traces of a narrow gauge railway. The other features comprised pits and drainage gullies and ditches. Some of the buildings found by the excavation correspond with those recorded on the 1898 Ordnance Survey map. The archaeological remains were well-preserved and were cut in to made ground, which implied that clay extraction and backfilling had taken place prior to the construction of the features and buildings.	
Previous Summaries/Reports: Heppell, E. 2005 *Flood alleviation scheme, Wethersfield Road, Sible Hedingham, Essex. Archaeological desk-based assessment and site inspection*. ECC FAU **1541**	
Author of Summary: Mark Germany	***Date of Summary:*** July 2006

Plate 1: Building A. Looking north-east. 2m scale bar

Plate 2: Brick-mill support, building A. Looking north. 1m and 2m scale bars

Plate 3: Brick-mill support, building A. Looking south. 1m and 2m scale bars

Plate 4: Brick-mill support and drain leading towards sump, building A. Looking south. 1m scale bar

Plate 5: Stoker's pit and furnace, building A. Looking east. 1m scale bar

Plate 6: Furnace and boiler/engine support, building A. Looking south-west. 1m scale bar

Plate 7: Sump, building A. Looking east. 1m and 2m scale bars

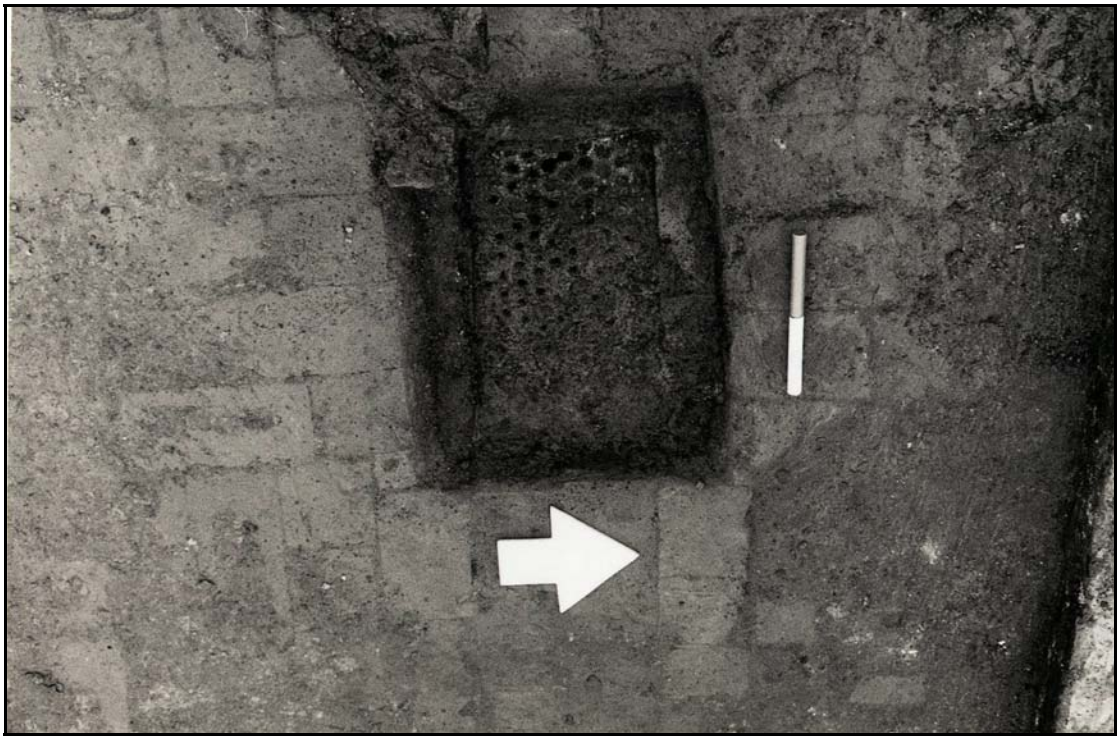

Plate 8: Drain cover, building A. Looking west. 0.2m scale bar

Plate 9: Drainage pipes, building A. Looking east. 1m scale bar

Plate 10: Post-pit, building B. Looking west. 1m scale bar

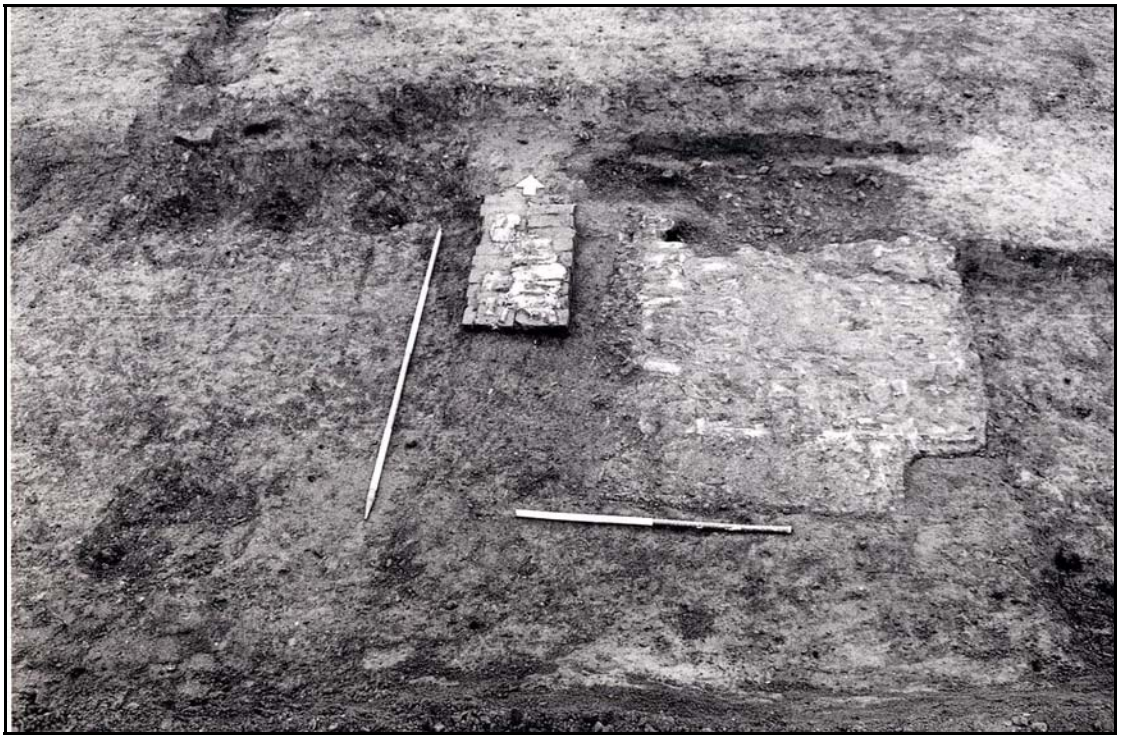

Plate 11: Post-holes, brick pad and chimney base, building C. Looking north. 1m and 2m scale bars

Plate 12: Brick wall, building D, and brick pad, building C. Looking south. 2m scale bar

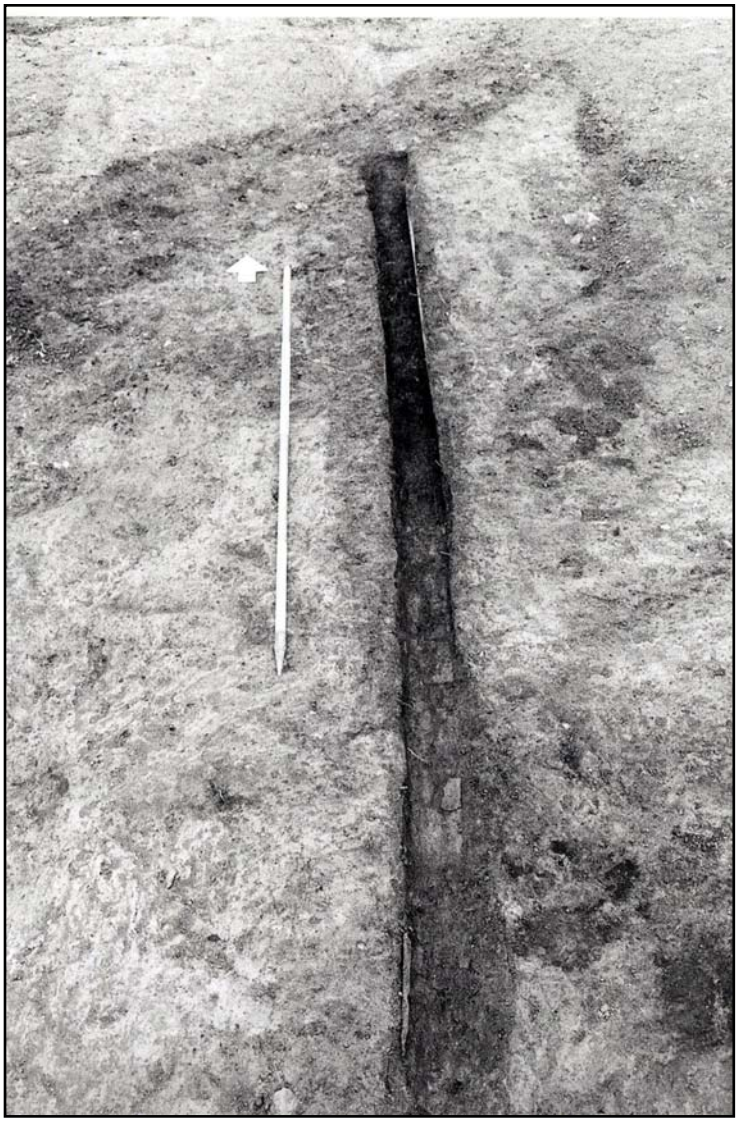

Plate 13: Wood-lined drain I, looking north. 2m scale bar

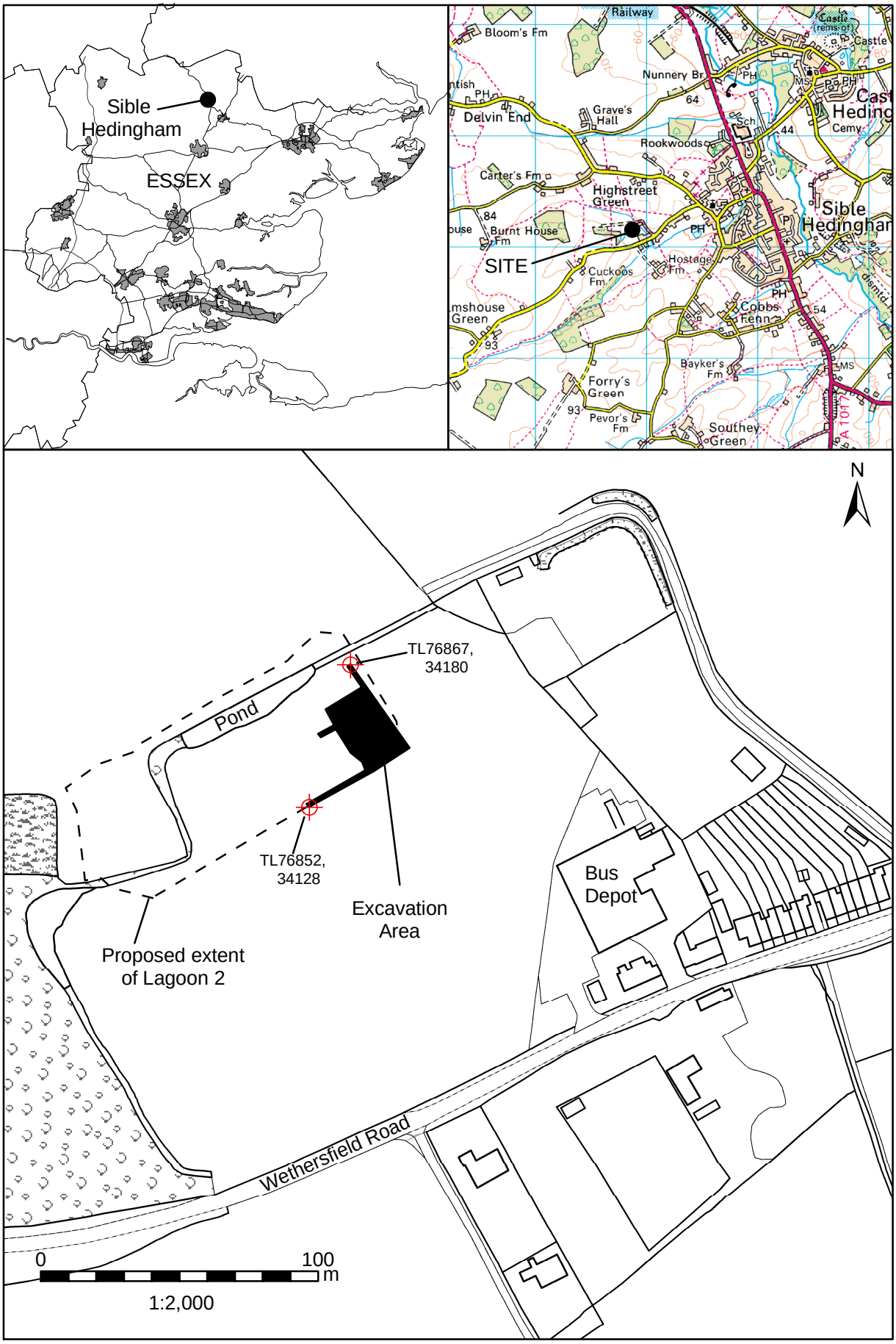

Fig.1 Site location

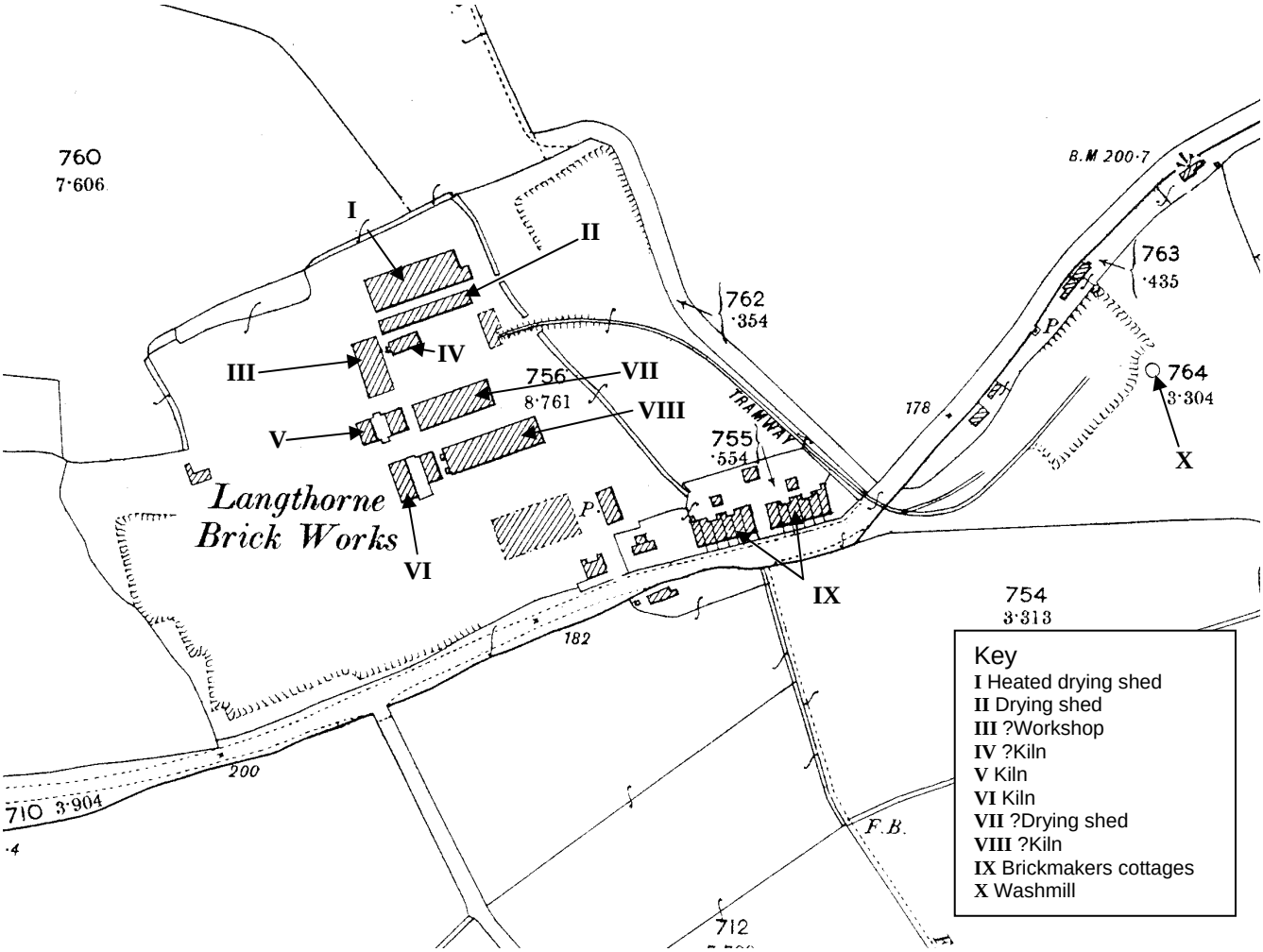

Fig.2. Ordnance Survey 1898; showing Langthorne Brickworks

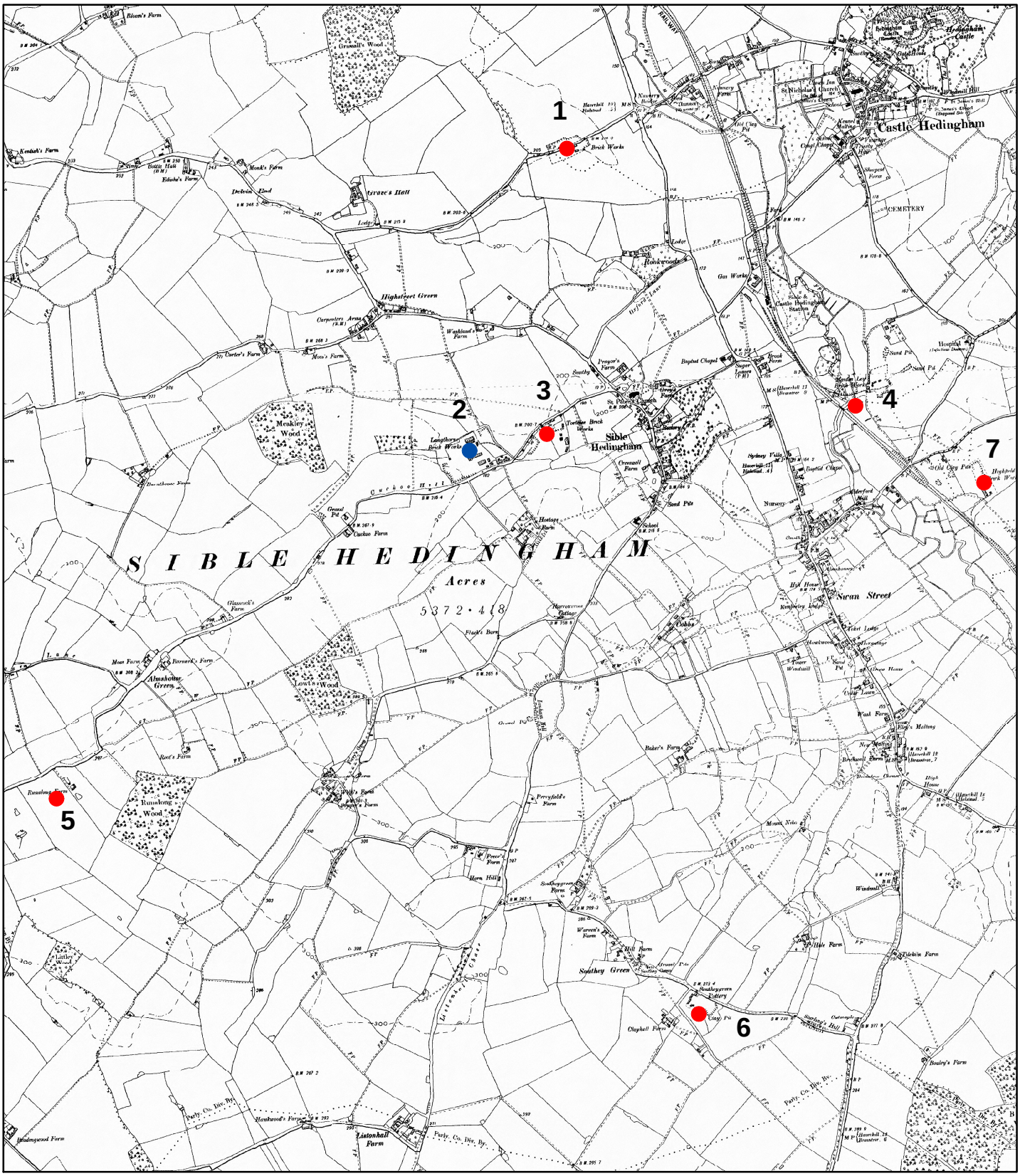

Fig.3. Gazetteer of brickmaking-related sites around Sible Hedingham. (Ordnance Survey 1898).

Key

1. Nunnery Bridge Brickworks
2. Langthorne Brickworks
3. Tortoise Brickworks
4. Maiden Ley Brickworks
5. Tredgells Wood Brickworks
6. Southey Green Brickworks
7. Highfield Brickworks

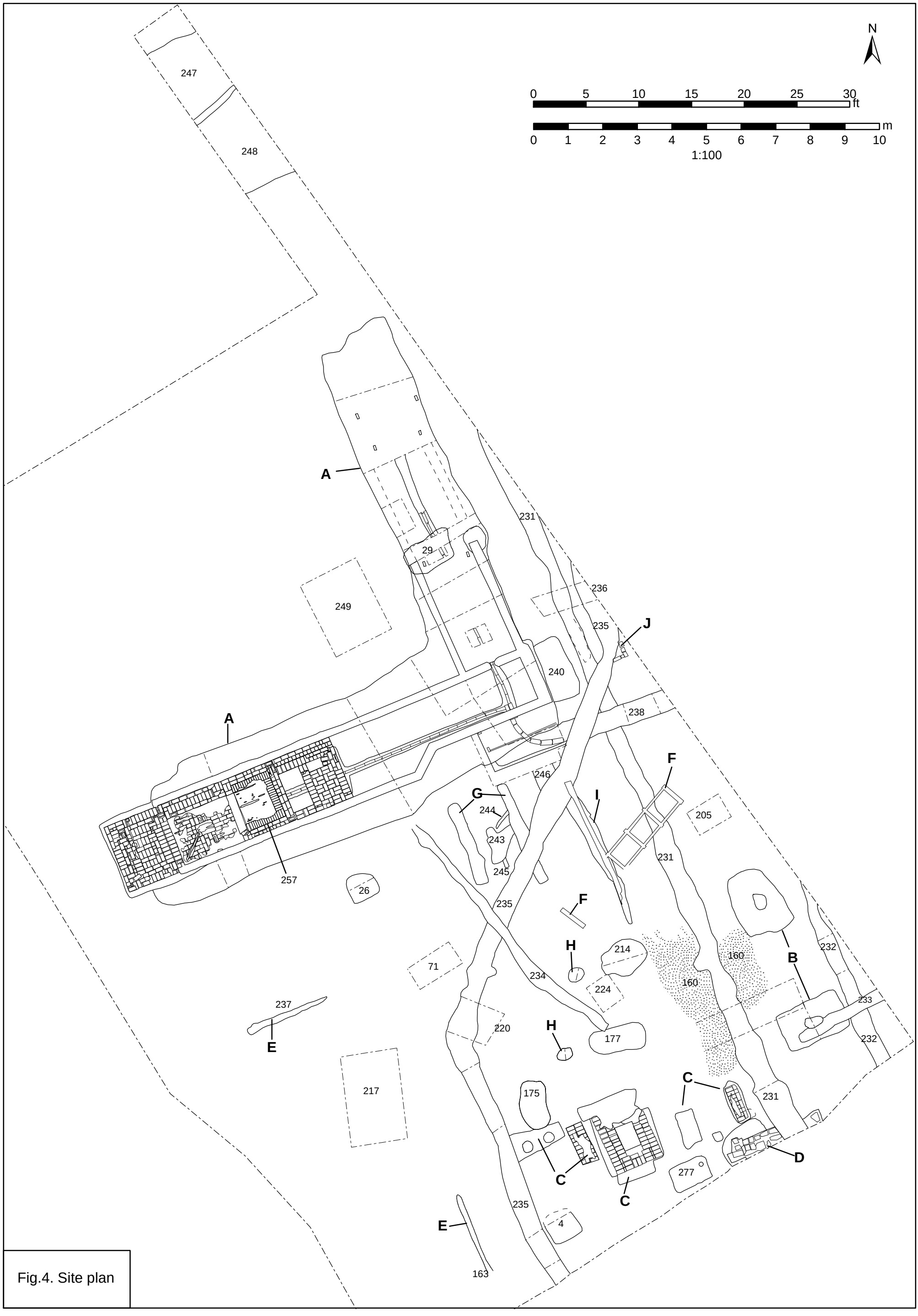

Fig.4. Site plan

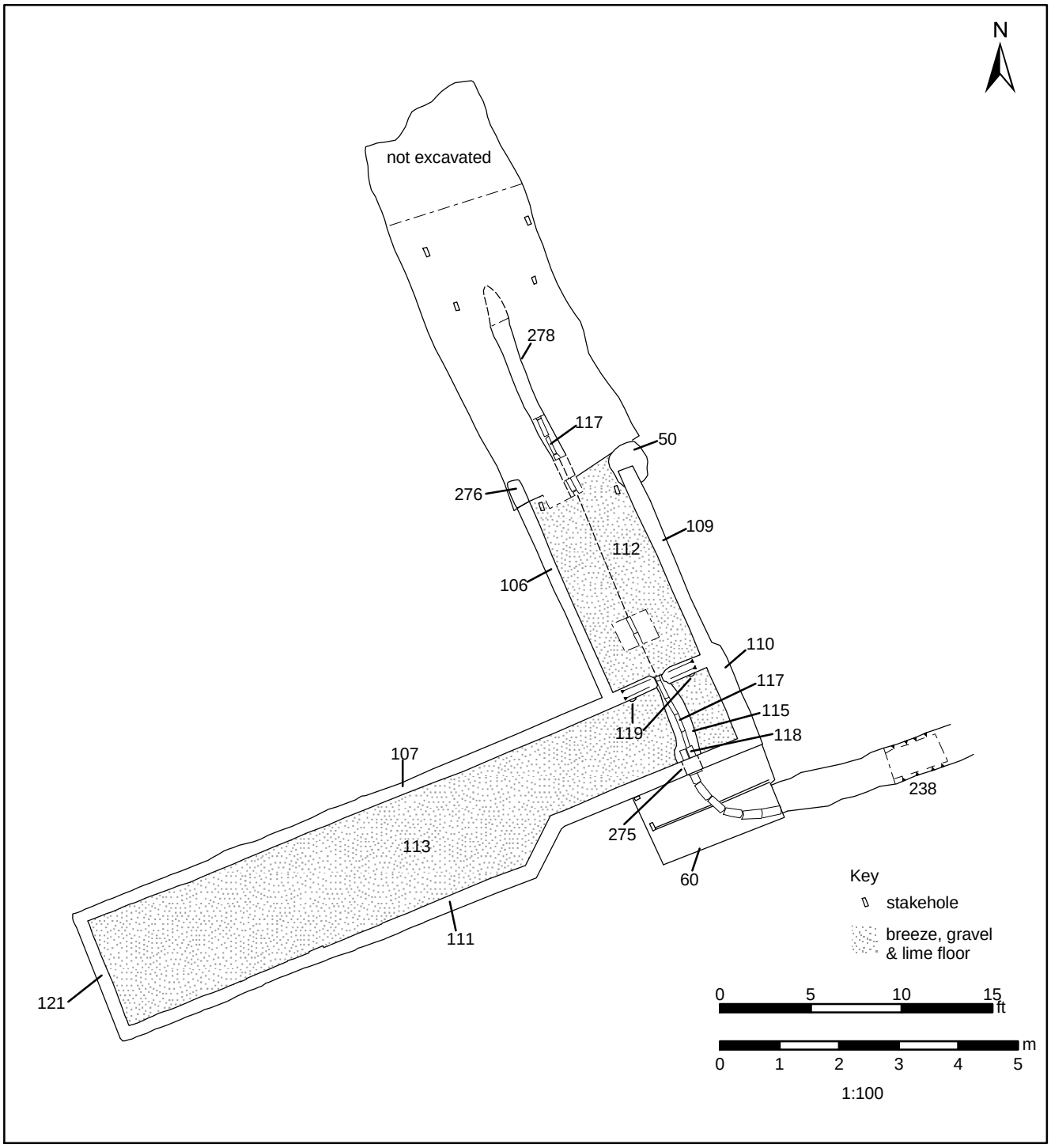

Fig.5. Building A (phase 1)

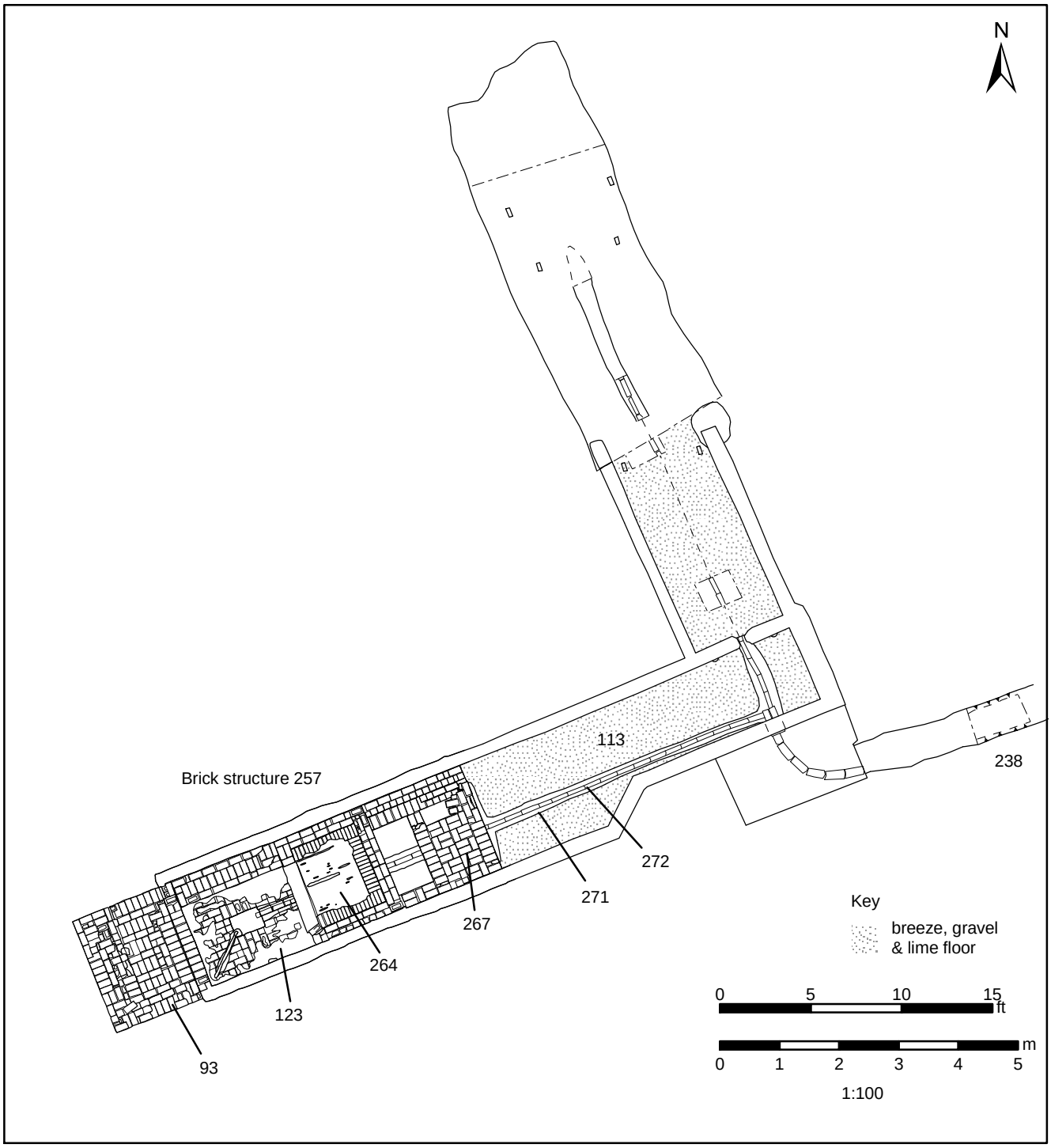

Fig.6. Building A (phase 2)

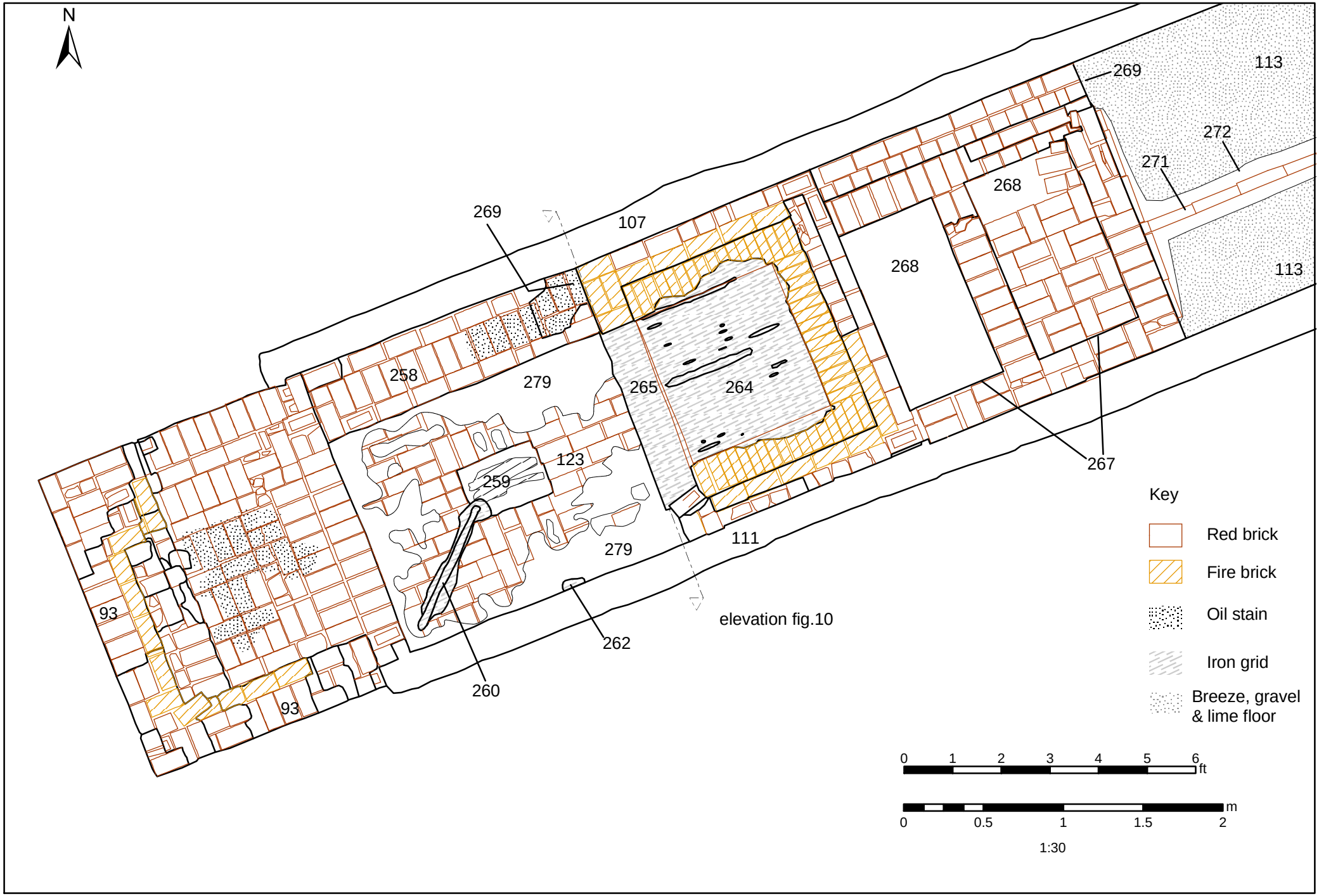

Fig.7. Structure 257, building A (phase 2)

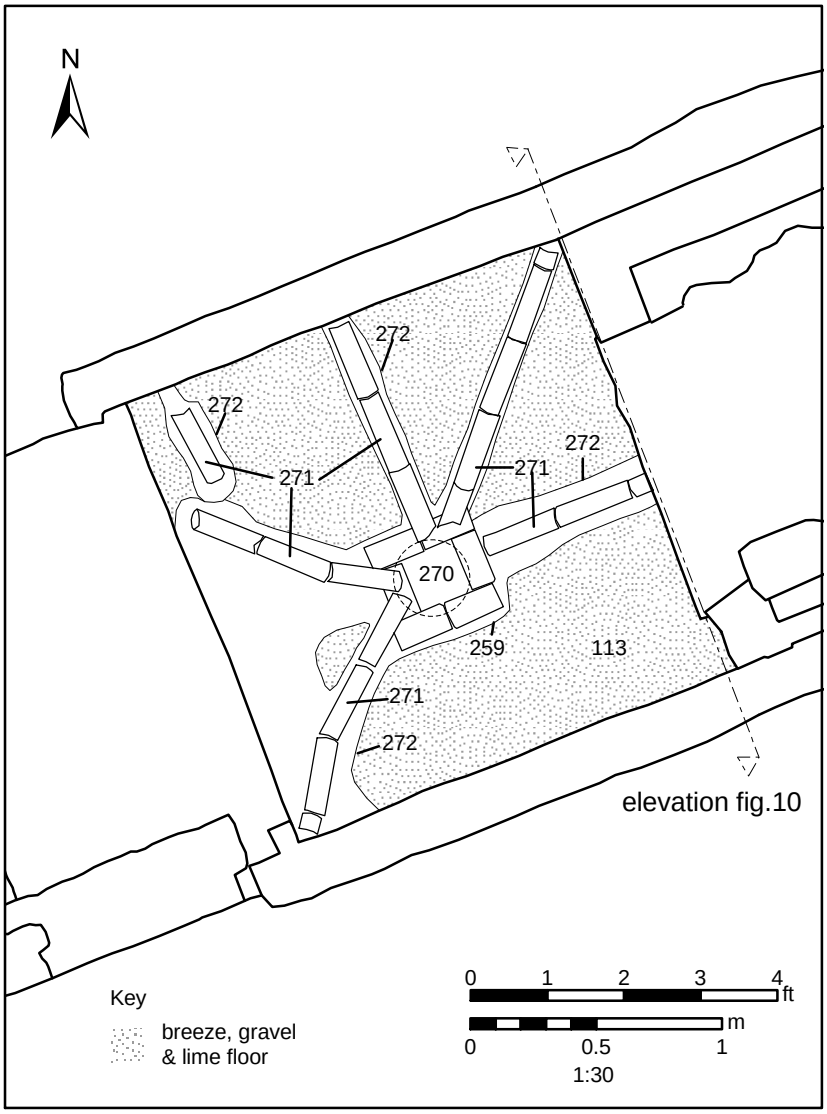

Fig.8. Drainage system below brick floor in stoker's pit in building A (phase 2)

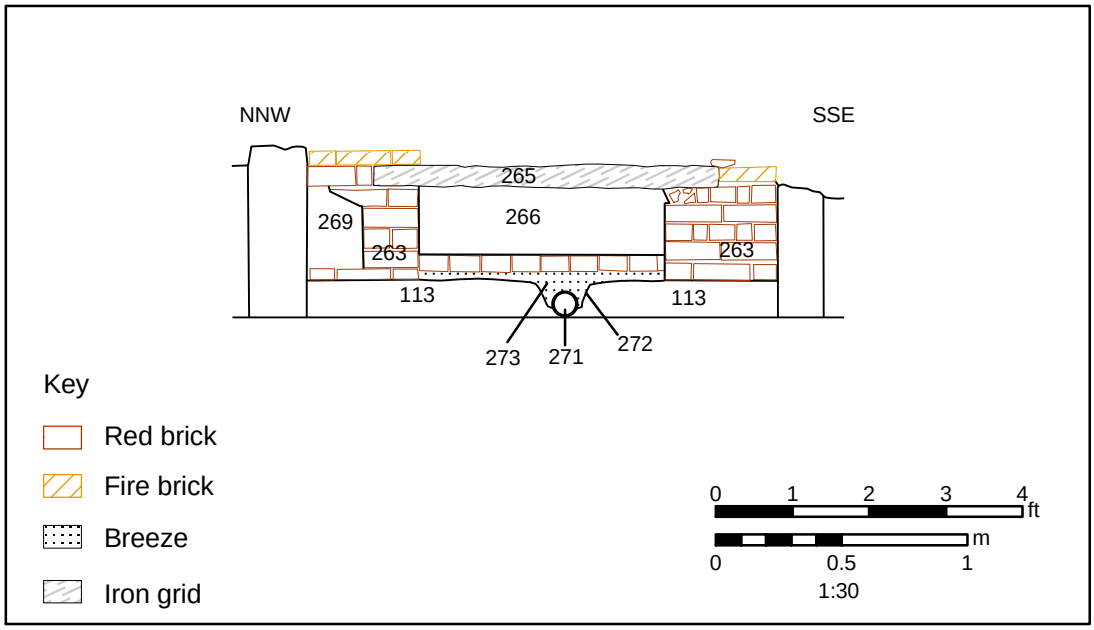

Fig.9. West-facing elevation of ash chamber and furnace in building A (phase 2)

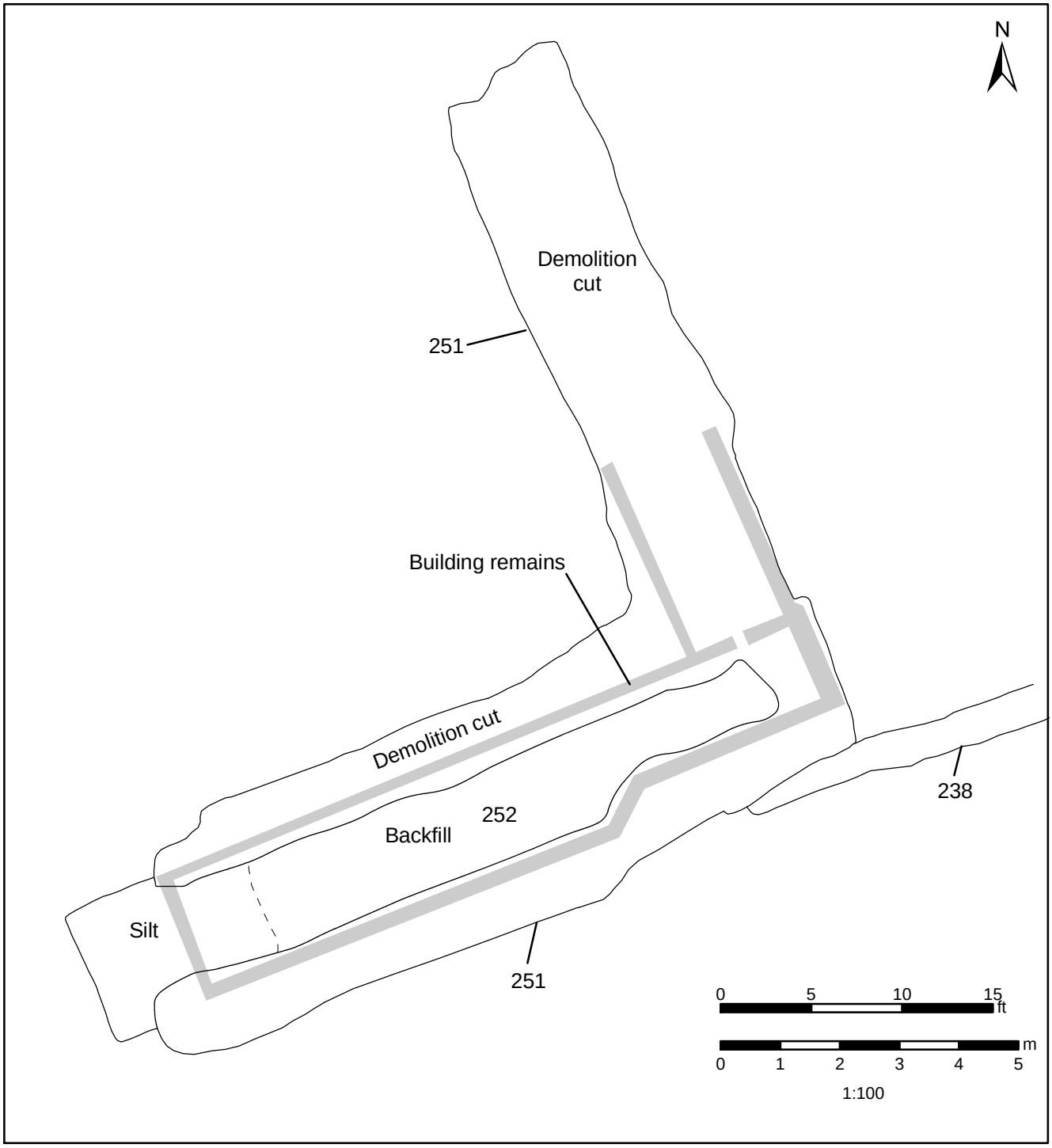

Fig.10. Building A (phase 3)

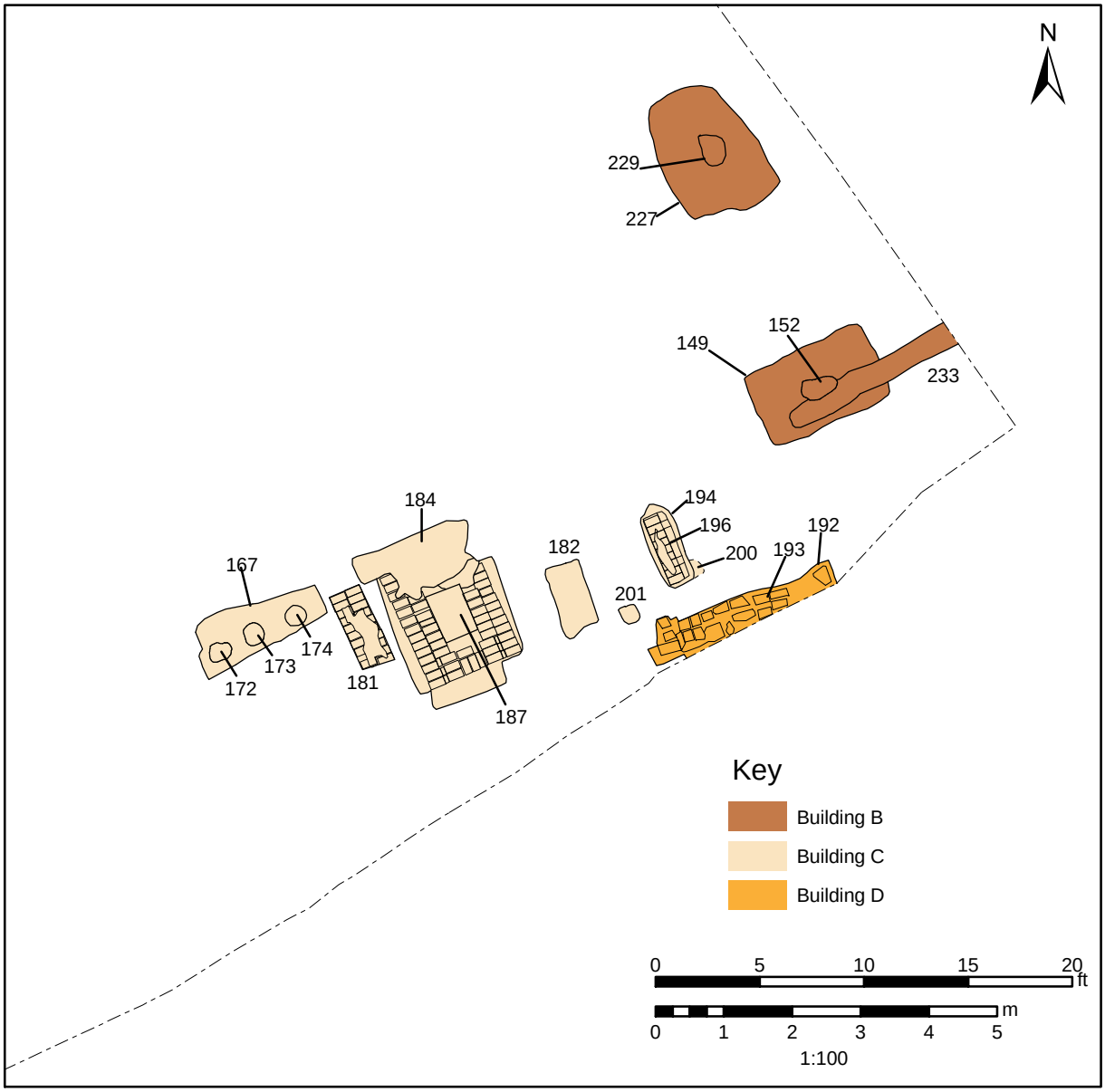

Fig.11. Buildings B, C and D

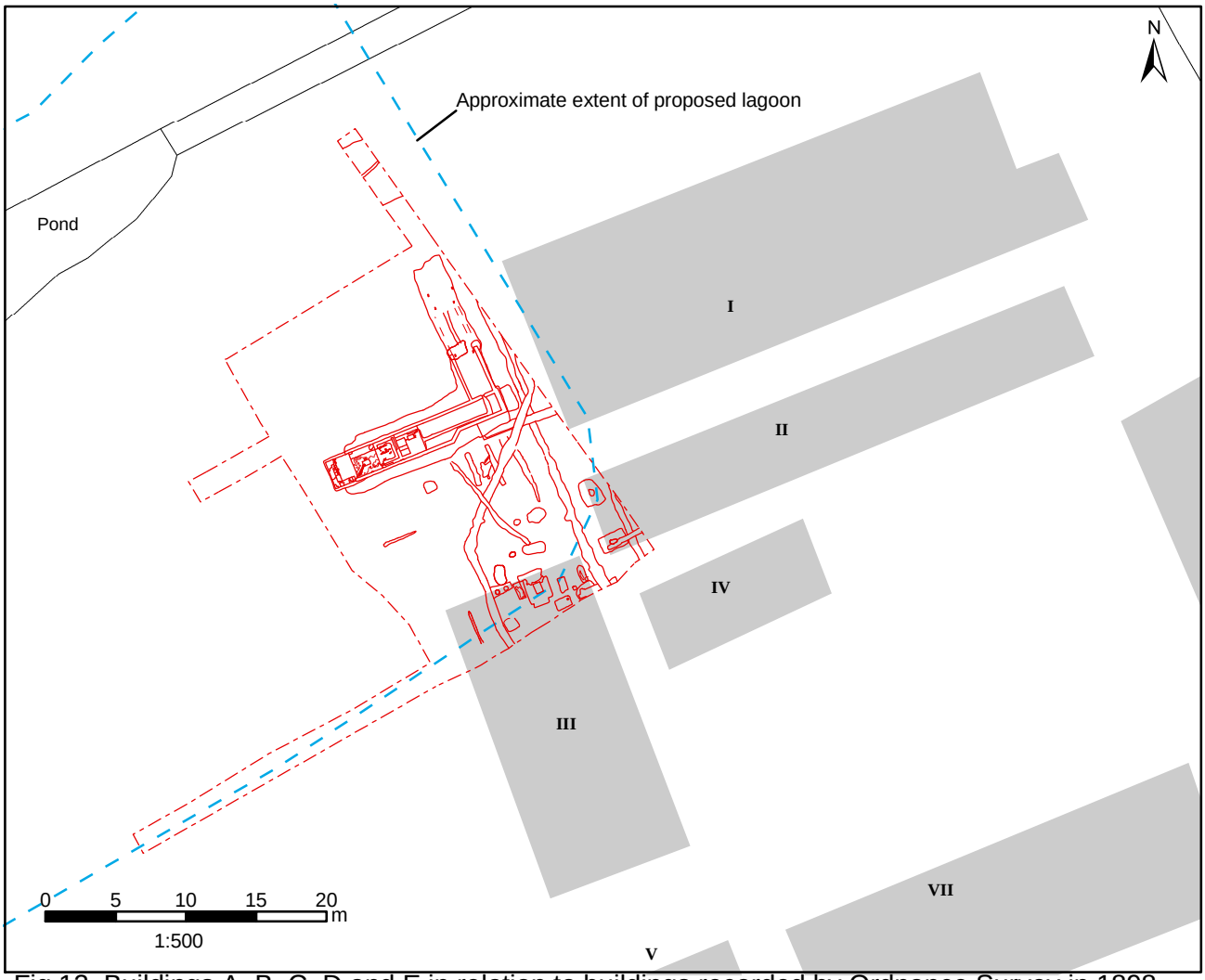

Fig.12. Buildings A, B, C, D and E in relation to buildings recorded by Ordnance Survey in 1898

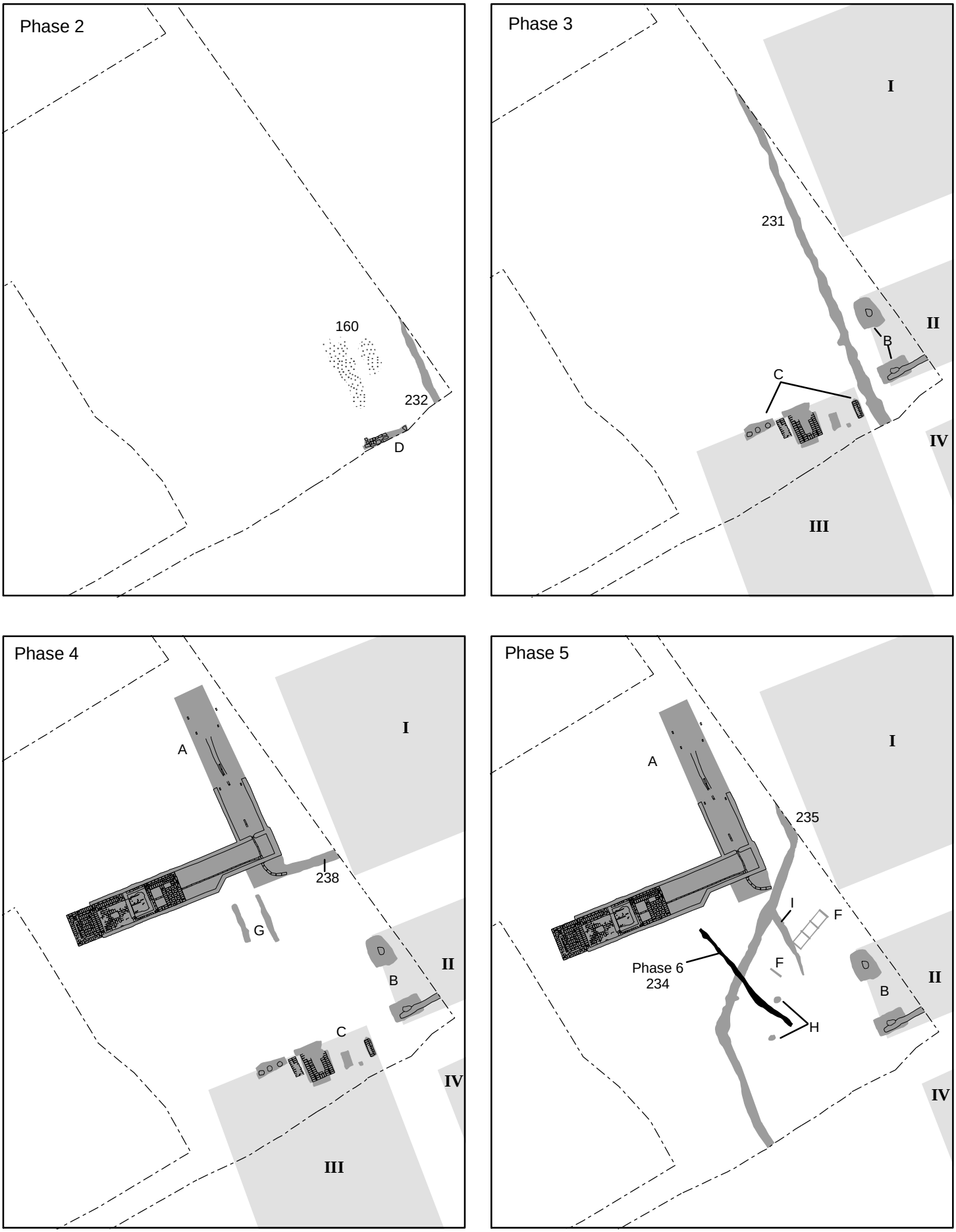

Fig.13. Phase plans