Archaeological Monitoring during the installation of a new lighting system within the garth of Norwich Cathedral

Prepared for the The Dean & Chapter of Norwich Cathedral
on behalf of Dr Roland Harris (Cathedral Archaeologist)

Giles Emery
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Report No: 27

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**Addendum*: 'Reburial Trench' located in the SW corner of the cloister garth

NORVIC archaeology
www.norvicarchaeology.com
07759016372
giles.emery@norvicarchaeology.com

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Archaeological Monitoring within the Garth of Norwich Cathedral.

Location:	Norwich Cathedral
Grid Ref:	TG 2347 0887
NHES Event No:	ENF129377
Date of fieldwork:	18th June to 27th of July 2012

1.0 Introduction

Norvic Archaeology was commissioned by Dr Roland Harris (Cathedral Archaeologist), on behalf of the Dean and Chapter of Norwich Cathedral, to undertake archaeological monitoring during the installation of a new lighting and cabling system within the garth of Norwich Cathedral.

The monitoring was undertaken in accordance with a *Method Statement for Archaeological Works*, issued by the Cathedral Archaeologist in consultation with Ken Hamilton of the Norfolk Historic Environment Service in December 2011.

The aim of the monitoring work was to assess and record the presence/absence, date, nature, and extent of any buried archaeological remains and features. This report presents a brief description of the methodology and an archaeological interpretation of the results.

On completion of the project, the site archive will be offered for long term deposition with Norfolk Museums and Archaeology Service. The digital products of this project will become part of Norwich Cathedral Digital Archive, in addition an online OASIS record will include a pdf. copy of this report.

2.0 Summary of Results

Norvic Archaeology carried out a programme of archaeological work necessitated by the installation of a new lighting system within the Cloister Walk & Garth of Norwich Cathedral. Monitoring and keyhole investigation of light-pits in every bay and a cable trench around the inner edge of the Garth has allowed for several new observations and significant discoveries.

These include the location of several sub-surface 18th to 19th century brick vaults, buried 18th century grave markers, numerous post-medieval graves, several Late-Saxon pits and most intriguingly the footings for an early medieval structure in the south-west corner of the Garth. This building appears to relate to the original Romanesque style cloister and is currently conjectured to be the site of a former *lavatorium*.

Noteworthy finds collected during the project include musket balls, several jettons and a rare Late Saxon silver hammered coin of Edward “the martyr” (975-978 AD).

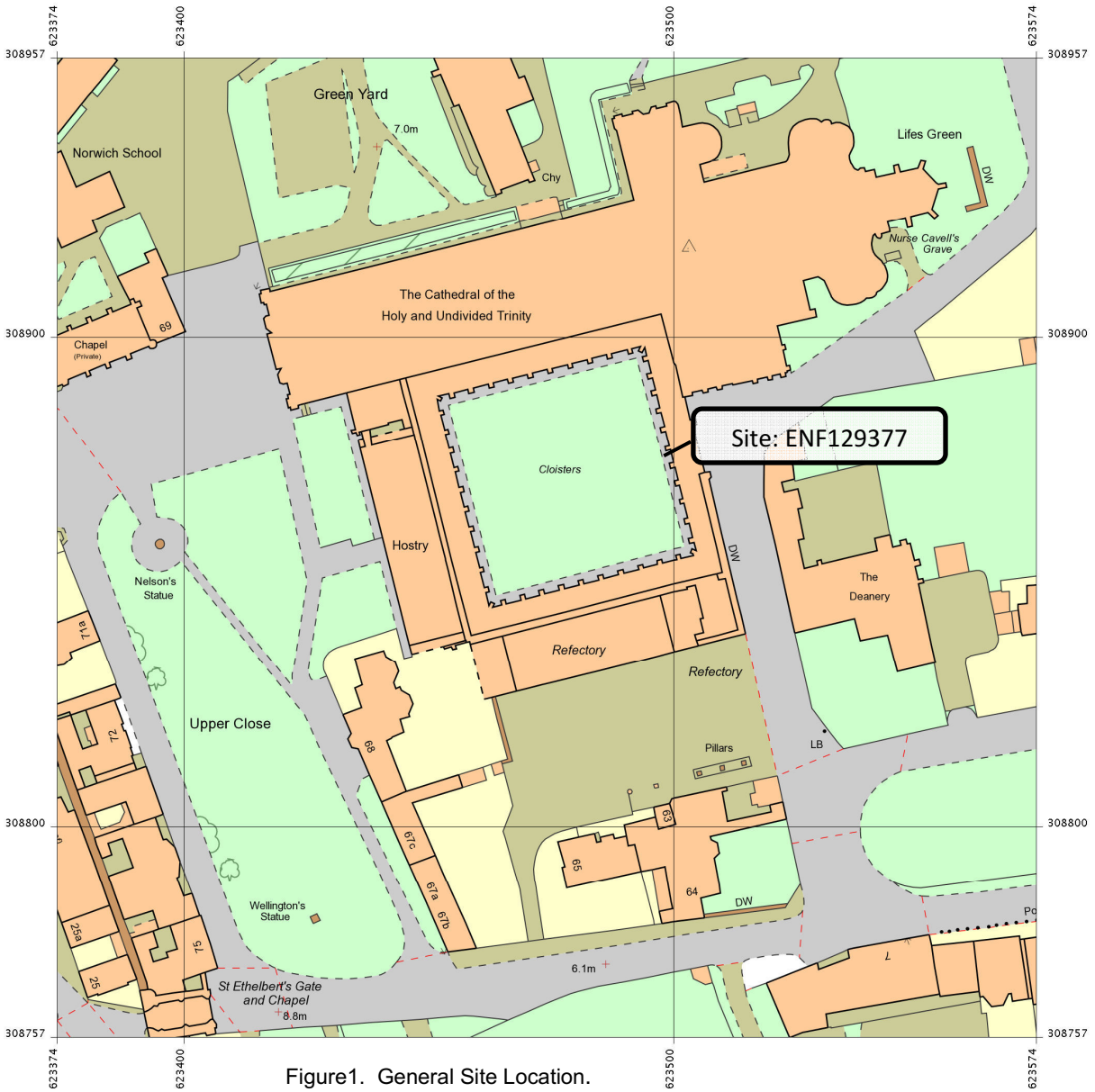
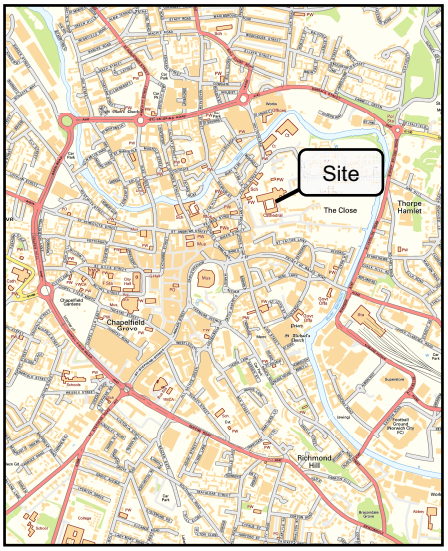
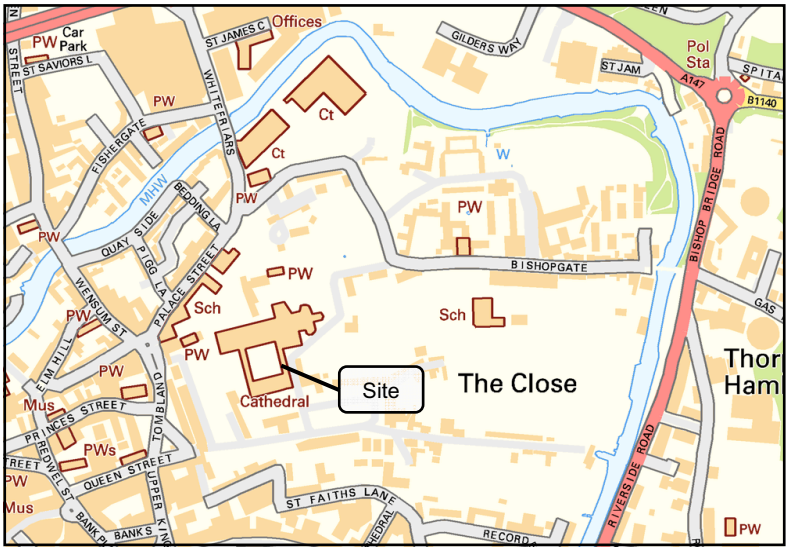


Figure1. General Site Location.

Metres
0 10 20 30 40 50

Supplied by: Stanfords
Reference: OI547668
Centre coordinates: 623474 308857





3.0 Geology and Topography (Figure 1)

Norwich Cathedral is located on the south bank of the River Wensum within a broad curve formed by a long bend in the river. Much of the Cathedral Close encompasses the low lying land of the river valley, although from a point at the eastern edge of the Lower Close the land rises relatively steeply with the cathedral church occupying the eastern extreme of this higher ground.

The underlying geology consists of alluvial sands and gravels (BGS 1991) above Cretaceous Upper Chalk with silts and peats known to occupy the immediate flood plain to the east (BGS 1985). The low-lying nature of the area between the cathedral and the river leaves it vulnerable to flooding, a circumstance which has probably not altered to any great extent over the last thousand years. Recent excavations to the west, south and east of the cloisters have indicated that the natural slope of the valley towards the river has been modified in order to provide a relatively flat area for the construction of the conventual buildings of the Benedictine Cathedral Priory.

Within the Cathedral Cloister, around the edge of the garth is a metal grill covered Birco drainage channel which runs the full circuit around the garth, flowing into the south-east corner. The central area of the garth is flat and turfed. It lies at c.5.00m OD, while the cloister walks lie at c. 4.6m OD.

4.0 Archaeological and historical background (Figures 1 to 3)

The area of the cloister garth has remained an open space since its creation in the 12th century. Historical and antiquarian records idicate that the garth was used as a garden space for much of the medieval period (Gilchrist and Hutcheson 2005). During the post-medieval period, the garth was used for burial following the closure of the parish church of St Mary in the Marsh. Nineteenth-century photographs and engravings show many horizontal grave slabs* with a small number of shrubs and small trees amongst them.

*Example images depicting the garth in the 19th century (photo images currently accessible via NOAH - the Norfolk Online Access to Heritage service):

NP00007362: A black and white print dated to 1811 showing the eastern cloister walk looking north in which several raised stones/upright grave markers can be seen depicted within the garth; "Drawn by John Adey Repton Esq., Architect & F.S.A. Engraved by S. Lacey for the Architectural Antiquities of Great Britain; London: Published Decr. 1, 1811 by Longman & Co., Paternoster Row, printed by Bishop

NP00007356: Taken inside the garth looking north-west. Dated to sometime in the late 1800s, shows turf extending into each bay up to the inner cloister wall and several grave slabs are shown flat upon the ground along with a small tree in the north-west corner of the garth. Attributed to 'S&B'.

NP00007354: Also taken by 'Mansell' showing the same view but from ground level.

NP00007358: Also attributed to 'S & B' looking east-north-east within the garth showing that the horizontal grave slabs are in rows.

NP00007353: Taken looking down on the garth looking north-east, shows the numerous intermittent rows of horizontal grave slabs along with three or four small trees/shrubs growing off-centre within the garth. Dated to sometime in the late 1800s, attributed to 'Mansell'.

An engraving by J.Storer, 1818, which shows a tiled 16th century house at the north-west corner of the cloister, incorporating the monastic parlour (demolished c.1863), also depicts several 'leaning' but upright grave markers. The ground surface appears fairly overgrown with a figure scything the meadow grass while two other figures stand by a grave marker.

Extracted from an Archaeological Method Statement prepared by Dr Roland B Harris December 2011:

4.1 Documentary and architectural evidence

The surviving cloister dates from rebuilding following the destructive riot and fire of 1272. It replaced a single-storeyed cloister of the early 12th century, which had an identical overall plan: the outer wall of the Romanesque cloister is defined by the east, south and west ranges of the conventual buildings, which are 12th century (albeit refaced during the building of the present cloister). The exact location of the inner wall of the Romanesque cloister is unknown and its more modest single-storeyed construction with a lean-to roof could suggest that it was narrower: certainly all the upstanding fabric of the inner wall of the cloister, including the abutting bench, is part of the Gothic building campaigns.

The rebuilding of the cloister after 1272 began in 1297 and was completed in 1430, with the drawn out and intermittent construction programme suggesting progressive replacement of the earlier, and presumably only slightly damaged, cloister. The main elements of the cloister relevant to this proposal are summarized below (sections 3.1.1-3.1.5).

4.1.1 The cloister garth

The garth is edged by an area of modern York stone paving that slopes slightly towards a concrete channel with cast-iron (Birco) grating at the junction of the paving and the grass (Henry Freeland, 2006–7). The paving and gulley replaced concrete equivalents (probably of the 1960s or 1970s) and were part of a scheme in which the cloister roof drainage was modified from spouts to downpipes. Three 19th-century grave slabs are incorporated in the paving along the north side of the garth (one in Bay 46 and two in Bay 47). These occupy the same locations as they did before re-paving in 2006–7. The works revealed that the slab in Bay 46 is over a brick burial vault and that there is another burial vault (without a slab above) in Bay 48.

Inside the paved edging, the garth is grassed, with a scatter of monuments, and, centrally, a large circular labyrinth marked out with stone blocks (2002).

The plinth details of the garth-facing walls of the cloister (which were further clarified by excavation in 2006–7: see below, section 2.2) show that the present ground level around the perimeter is approximately the same as that in the late 13th to 15th centuries: the 12th-century ground level has yet to be established (the protracted rebuilding campaign of 1297 to 1430, in which the Romanesque cloister was demolished progressively, could suggest that the level remained unaltered). Although the cloister walks were occasionally used for burials in the medieval period, the monastic cloister garth does not appear to have been so used and in the 15th century was a lawn. Post-medieval burials here were evidently numerous, however, probably chiefly relating to use for the parish of St Mary in the Marsh (which had lost its church and burial yard within the precinct shortly before 1564). It has been suggested that the level of the garth was reduced in 1782, presumably in response to post-medieval build-up from these burials, with the material moved to the Lower Close green (apparently then nicknamed 'Skeleton Square')[1]. However, large-scale excavations on the Lower Close green in 1976 cast considerable doubt on part of this at least as no human bone was discovered.[2]

The current proposal involves shifting a ledger slab in Bay 46 nearer to the cloister wall. This ledger (ref. no. GRND/CL457) reads:

*In Memory of Sarah White who lived **[43]** Years **[A faithful]** and respected **[Domestic]** in the family of The Rev.d **[...]** Thurlow. She died Octr. 17th 18**[??]** Aged 75 Years.*[3]

This ledger sits over a wider brick burial vault consistent with the date of the ledger (see section 2.2).

The current proposal also involves relocating the southernmost existing ledger slab in Bay 47 to Bay 45. This ledger (ref. no. GRND/CL456) reads:

In Memory of Liberty White Who Died Sept^r. 14 1836 Aged 72 Years.

No burial vault was exposed in this bay during the works in 2006-7 (see section 3.2), nor in the proposed new location of Bay 45. There is no obvious connection between this ledger and that with which it is paired, although Liberty White may well have been related to the Sarah White of the ledger in the adjacent bay (i.e. Bay 46: see above).

4.1.2 The cloister inner sill walls

The inner (i.e. garth-facing) walls of all four walks belong entirely to the Gothic rebuilding. Each bay has a wide pointed arch containing glazed tracery and three subsidiary open arches which are open to the garth. All the shafts, turned bases and capitals were made of Purbeck stone (though there has been considerable replacement using different stones), contrasting with the Caen and Clipsham ashlar. Bay 15 (i.e. the easternmost bay of the south walk) differs from the rest today in that it has no tracery: Repton's plan of 1799 and his engraved view of 1811, however, record tracery here, and its careful removal is evident from the soffit of the overarch.[4] The shafts of the tracery arches have bases that rest on a low sill wall, separating the cloister walks from the garth. The sill wall rises *c*.500mm above the present level of the garth and *c*.800mm above the cloister floor. On the internal face of the wall there is a continuous stone bench: this supports the bases of the vaulting and, thus, is a primary feature of the Gothic cloister.

4.1.3 The cloister outer walls

The outer walls of the cloister walks are formed by the nave south aisle and the surrounding conventual buildings. All of these walls date from the early 12th-century, but were refaced during the building of the Gothic cloister (although the three bays formed by the Chapter House screen were entirely replaced *c*.1316–17). The outer wall, as remodelled in 1297–1430, is of plain ashlar with a near continuous stone bench in the east, south and west walks: like the bench opposite, this supports the bases of the vault shafts and is an original feature of the Gothic cloister. There is no bench on the north walk, although the shaft bases are located at the usual height, in this case on roughly triangular plinths.

4.1.4 The cloister walk floors

The survival of doorways, steps, and the benches shows that the cloister floor is approximately at its 1297–1430 level, at *c.*4.64–4.70m OD. It has been suggested that this level was the same in the 12th century, but this has been contradicted by excavation on the Hostry site in 2007 and 2008 (see section 3.2). While the west walk of the 12th-century cloister was evidently significantly above its present level (perhaps around the level of the nave floor), it should not be assumed that this level extended around the entire cloister: the east–west sloping site could suggest that the north and south walks were stepped, and cloisters of this type survive elsewhere. Certainly, the floor level of the 12th-century Dark Entry (i.e. the slype leading off the south-east corner of the cloister) does not suggest that it has been lowered (this would make its vault implausibly low), although, of course, steps may have descended into it from the cloister. Additionally, a 12th-century book-cupboard in Bay 21 (i.e. just west of the centre of the south walk) has its sill 1.28m (4'2½") above the present cloister floor: this level works well with the step up provided by the 14th-century bench, and while the low sill implied for a higher 12th-century cloister is not implausible (very low sills for such cupboards are not unusual), the low head suggests that the 12th-century floor here was no more than *c*.400mm higher than present, if that. A complete or, perhaps more likely, partial lowering of the cloister floor to its present level thus occurred during the Gothic rebuilding with

the obvious explanation being the need for more height to allow construction of the stone vault and upper storey without intruding on the windows of the nave south aisle and refectory, or rising above the eaves level of the conventual buildings.

The present floor is largely made up of Purbeck stone, with later replacements in York stone evident in the north and east walks in particular. The paving has been carefully graded so that there is a row of large slabs in the centre of walks, although this is least evident on the more haphazard paving of the north walk. Part of the confusion of the north walk arises from the dense and erratic distribution of 62 ledger slabs. Similar ledgers are found in the northern half of the west walk (19) and throughout the south walk (33), although set out more consistently, along the centre. There are no ledgers in the east walk. There are also significant differences in the dates and origins of the ledgers. Of the 58 dated examples in the north walk, one is 17th century, 38 are 18th century, and 19 are 19th century. Of the 31 dated examples in the south walk, three are 18th century (all relocated from the garth), and 28 are 19th century (of which 23 have been relocated from the garth). All 19 ledgers in the west walk are 19th century, with only two relocated from the garth. The date of the flooring (especially the north walk, which represents several phases of work) is uncertain, but Repton's otherwise meticulously observed view of the east walk (and the eastern end of the south walk) of 1811 appears to show an earlier arrangement without the grading of slab sizes, suggesting a post-1811 date for the present floors of the east, south and west ranges. It is entirely possible that the relaying of the floors of these three walks involved re-use of earlier flags: certainly, the investigation in the centre of the south walk in the 1930s concluded that the flags were medieval (see below section 2.2). The ledger slabs may suggest a *terminus ante quem* for the relaying of paving of the east, south and west walks: the earliest ledger not known to have been relocated from elsewhere is one of 1822, at the east end of the south walk, followed by one of 1830 in the west walk. That 10 (i.e. over half) of the non-relocated ledgers in the west walk commemorate those who died in the 1830s is suggestive and indicates that the floors had been relaid by 1830, if not by 1822.

The current proposal involves shifting a ledger slab in Bay 46 by 750mm to the west. This ledger (ref. no. GRND/CL374) reads:

M. S. Gardiner Harwood Gent. Born 5th May 1724 in the parish of St. Michael Coslany in Norwich and died 26th Sept. 1797, in the Precinct of this Cathedral Aged 73. Also Charles Harwood Gent, his Brother Born 29th Aug. 1727 in the said Parish of St. Michael Coslany and died 30th Sept. 1797 in the Precinct aforesaid Aged 70.

There is no record of this ledger having been relocated or, conversely, of a burial vault beneath, although, despite the high density of ledgers here, the latter is possibility.

4.1.5 The cloister vault

The cloister has stone rib-vaults throughout. Each bay has diagonal ribs, a central transverse rib, a ridge rib, and additional tiercerons. The vaults spring from responds comprising Purbeck marble shafts (three smaller shafts around a larger central shaft; with additional shafts at the corner responds): the shafts have bases that sit on the cloister benches. Like the tracery, the vaults of the cloister follow a broadly clockwise chronological sequence of construction: the vaults of Bays 7–14 of the east walk date from *c.*1316–19; the vaults of Bays 15–19 of the south walk date from *c.*1323–27; the vaults of Bays 20–24 of the south walk and Bays 1–6 of the east walk date from *c.*1327–29; the vaults of Bays 25 and 26 of the south walk date from 1415–16; the vaults of Bays 27–28 of the west walk date from 1420–21; and the vaults of Bays 30–49 of the west and north walks date from 1425–30.[5] With two exceptions, each vaulting bay has eight bosses, with 394 in total. Unlike the planned historiated bosses of the nave vault, those of the cloister are part of a scheme that evolved during the protracted construction.

4.2 Previous archaeological investigations

• *Cloister evaluation (2005)*[6] *and watching brief (2006-7)*[7]

The drainage and paving scheme of 2006-7 was preceded by an archaeological evaluation and accompanied by a watching brief.[7] The main findings of the evaluation trenches and watching brief during the insertion of the new gulley were: a single Late Saxon pit from the trench in the centre of the south side of the cloister; post-medieval burials between 400mm and 600mm below the present ground surface; and evidence that the build-up of soils in the cloister garth occurred in two phases, one possibly dating to the medieval period, with the level being raised further in the post-medieval period. The shallow area exposed for the new paving had almost no impact on archaeological deposits, but revealed the offset foundations of the Gothic cloister, which were recorded. There was no evidence for the Romanesque cloister, which suggests that the walks of the Gothic cloister may be wider than those of its predecessor (see section 3.1). In general the disjunctions of the foundations were consistent with the architectural history of the cloister derived from documentary accounts, although in one or two instances this suggested minor modification of the extent of the various campaigns.

Works in 2006–7 revealed brick burial vaults adjacent to the buttress between Bay 8 and Bay 9, east of Bay 32, and in Bay 46 and Bay 48. A group of partly articulated bones was exposed in Bay 49.

• *Excavation of the Refectory (2001-3) and Hostry (2007-9)*[8]

The recent excavation of the southern and western monastic ranges is most relevant to the current proposal in relation to the level of the Romanesque cloister, and earlier archaeology. The two excavations have shown that the 12th –century floor in both ranges was at *c.*5.3-5.4m OD, which is significantly higher than the present cloister floor (4.68m OD). The Hostry (or rather its early 12th-century predecessor) was cut through Saxon deposits into the underlying natural as was the west end of the Refectory: the underlying west-east downwards slope, however, meant that the floor of the east end of the Refectory was built up, sealing Saxon layers. Gilchrist interpreted the archaeology of the Refectory site and the evaluation stage at the Hostry site as evidence that the Romanesque cloister floor was at the present level, deliberately sunk for symbolic effect and a conscious echo of that at Old St Peter's, Rome[9] Subsequent archaeological investigation on the Hostry site, however, has shown that the bottom of the foundation of the 12th-century west wall of the cloister (i.e. the Hostry east wall) is well above the level of the present cloister floor. Evidently, the west range at least of the Romanesque cloister at least had a significantly higher floor level than the Gothic cloister. Removal of the steps from the early 15th-century cloister-Hostry doorway in 2008 revealed four small slabs below the bottom step, and immediately below the level of the west walk of the cloister. There was no evidence of these continuing eastwards into the walk and it is difficult to determine their date and significance: it is possible that they imply a slightly lower cloister walk floor than that at present.

• *Excavation and watching brief at 64 and 63/5 The Close (2000-1)*[10]

This subsurface and standing building investigation is relevant to the current proposal in that it exposed parts of a substantial 12th-century great drain (with a rubble barrel vault and ashlar transverse arches), immediately north of 65 The Close, on a north-south alignment. Given the location of the *lavatorium* in the southern two bays of the west cloister walk, it has been suggested that the drain system extended underneath at least the southern part of the west walk itself.[11] It should be noted, however, that the top of the drain vault at 65 The Close is slightly above the level of the present cloister floor: it is possible that any connected and similarly scaled 12th-century drain in the cloister was modified when the floor was lowered for the present Gothic cloister.

• *Investigation of the cloister south walk (1930s)*[12]

A trench was dug across the south walk at the west pier of the centre bay (i.e. Bay 20). There was no sign of the foundation of the Norman inner wall, but undisturbed sand (i.e. natural) was discovered: this suggested to the excavator that the Norman foundations were probably below the existing inner wall, although, given the evidence that the cloister walks were lowered from their 12th-century level when rebuilt from the 1290s, this could simply reflect the fact that shallow 12th-century foundations (as evident on the Hostry site and in the 12th-century outer wall of the west walk) did not penetrate this deep. Close against the south wall, a hole at least 8ft deep was found filled with loose black soil which underlay the bench on the south. This was interpreted as a well about 3ft across or less, but was curious: a crowbar, when dropped onto it, sunk easily to the full length of crowbar[13]. Most of the paving in this area was identified as 'original 15th-century' Purbeck with quarry marks on the rough under surface. Note, however, that there is good evidence that the paving here was relaid in the 19th century (see section 3.1.4).

[1] Gilchrist, R. L., *Norwich Cathedral Close: the Evolution of the English Cathedral Landscape* (2005), 97.

[2] Atkin, M., and Evans, D. H., *Excavations in Norwich 1971–1978 Part III* (East Anglian Archaeology 100, 2002), 50–65. NB many of the depths of deposits in this report do not appear to correspond with the published section, nor do the orientations of many features given in the text correspond with the plans: the graphical evidence has been treated here as most reliable.

[3] The use of square brackets here indicates use of historic records of the inscriptions to complete or clarify the worn inscription that survives today: The two principal sources that have been used for this checking process are: *Monumental inscriptions and memorials in the Cathedral Church of Norwich*, Volumes 1 and 2 (Dean & Chapter Library, Norwich, 1996) which contain photocopies of transcriptions of documents DCN 112/2/1-3 held at the Norfolk Record Office, and which include monuments dated up to 1870; and H. V. Smith, *Cathedral Reference Book* (Dean & Chapter Library, Norwich), which was compiled in the period 1968-1974. Other sources which have been consulted include volumes of the *Repertorium: The Antiquities of Norwich*; Francis Blomefield *An Essay towards a Topographical History of the County of Norfolk* ... Vol. IV, 1806 (Dean & Chapter Library, Norwich); and *Inscriptions in Latin with Translations* (Dean & Chapter Library, Norwich).

[4] It has been suggested that the tracery was removed in the 16th or 17th century to allow easier access to the garth when it became a cemetery, but this does not address the problem of the graphical evidence provided by Repton: Fernie, E. C., and Whittingham, A. B., 'The Early Communar and Pitancer Rolls of Norwich Cathedral Priory with an Account of the Building of the Cloister', *NRS* 41 (1972), 32.

[5] The dates of the vaults derives from Woodman, F., 'The Gothic Campaigns', in Atherton, I., Fernie, E., Harper-Bill, C., and Smith, H., (eds.) *Norwich Cathedral: Church, City and Diocese, 1096–1996* (1996), 166. this is very much in agreement – indeed, based on – Fernie, E. C., and Whittingham, A. B., 'The Early Communar and Pitancer Rolls of Norwich Cathedral Priory with an Account of the Building of the Cloister', *NRS* 41 (1972), and Fernie, E., *An Architectural History of Norwich Cathedral* (1993), 163–79. Roberta Gilchrist, however, suggests a modified chronology, most notably dating the vaults of the main part (Bays 15–24) of the south range to *c*.1345–60, although without explanation (not least as to why, as she elsewhere discusses, Simon Hue was carving the bosses in 1326–27): Gilchrist, R. L., *Norwich Cathedral Close: the Evolution of the English Cathedral Landscape* (2005), 85, 87.

[6] Wallis, H., *An Archaeological Evaluation at Norwich Cathedral Cloisters* (unpublished Norfolk Archaeological Unit report no. 1096, August 2005: watching brief report is NAU forthcoming.

[7] watching brief report remains NAU forthcoming.

[8] Wallis, H., *Excavations on the site of Norwich Cathedral Refectory 2001-2003* (East Anglian Archaeology 116, 2006); Adams, D. Archaeological Excavations at the Hostry, Norwich Cathedral. NPS Archaeology Report 1289b.

[9] Gilchrist, R. L., *Norwich Cathedral Close: the Evolution of the English Cathedral Landscape* (2005), 80-2.

[10] Percival, J. W., *Archaeological Investigations at Nos 64 and 63/5 The Close, Norwich* (unpublished NAU report no. *631, 2001).*

[11] *Ibid., and Gilchrist, R. L., Norwich Cathedral Close: the Evolution of the English Cathedral Landscape (2005), 37-8.*

[12] *Gilchrist, R. L., Norwich Cathedral Close: A Strategic Archaeological Assessment. Report to English Heritage and the Dean and Chapter of Norwich Cathedral (unpublished report and free-form textual database, 1998), A0036.*

[13] *G.Emery comment – the position of a 'well'' at this location may have parallels with water systems within other monastic sites. Excavation of over a period of four decades at Kirkstall Abbey (Cistercian, Yorkshire) has revealed something of the complexity of the piped water-supply system (Moorhouse and Wrathmel 1987). Within the cloister garth (south-eastern corner) a stone lined structure was found that has been identified as a cistern. There were inlet and outlet conduits which held lead pipes. The cistern may have served the function of the 'susparails' chambers at Chartehouse) – to avoid bursting problems due to air in the system, and as a silt trap. Nearby, close to the lavatory in the south cloister was a deep, circular stone-lined structure that might be a well. Wells at Reading Abbey (Berkshire), Lewes Priory (Sussex) and Durham Cathedral Priory in a similar position appear to have served as emergency sources of water when pipes became blocked. Water could be drawn from the well and poured into the top of a vertical column linked to the pipe network, thus maintaining some pressure in the system.*

5.0 **Methodology** (Figure 2 & 3)

The objective of the archaeological monitoring was to record any archaeological evidence revealed during the groundworks associated with the installation of the new lighting system and cable run. This primarily took the form of forty-five 'light-pits' to allow the installation of recessed up-lights (with the replaced slabs cut with a slot to accommodate the lighting unit) placed centrally within each bay and served by a continuous cable trench located parallel to, and on the grass side of, the current drainage channel. In general the light-pits measured c.0.6m by c.0.2m with an extension toward the drainage channel. The cable run measured c. 0.25m in width, with a depth varying between 0.3m and 0.6m with deeper areas excavated to tunnel below the existing drainage run to connect with the light pits.

All groundworks for the cable trench were carried out by F.A.Valiant & Son Ltd and were excavated by hand using spade and shovel. Central slabs were lifted within each of the bays followed by the cutting of the concrete below with a circular saw. Excavation of a suitable slot was then carried out by hand, along with a deeper, narrow connection to the cable trench, which included breaking out the very edge of the concrete footing of the drain before tunnelling below the base of the footings. In areas suspected to have encountered archaeological features or graves the remainder of the excavation was carried out by an experienced archaeologist.

Plate 2: Cable trench along the Northern Range (looking west).

Spoil and turf from the cable trench was stockpiled alongside the trench prior to reinstatement, while spoil from each light-pit was stockpiled adjacent to each slot. This afforded ample opportunity for examination and metal detection of all up-cast during the monitoring of each area. Work started in the north-west corner of the garth (Bay 39), working from west to east (i.e. progressing along the northern range) and continued clockwise around the garth. Each light-pit was cleaned, examined and recorded by an experienced archaeologist, as was each freshly opened length of cable trench. The limited and narrow dimensions of the groundworks restricted investigation of many features. Where features of uncertain form

were identified further cleaning and recording with minimal keyhole investigation was carried out to assist in characterising the feature, although this had to be balanced with minimising the potential for disturbing *in-situ* burials.

The discovery of flint footings in Bay 28, which were suspected to predate the current cloister, warranted a more thorough investigation of the deposits there; although again within the restricted and physically awkward confines dictated by the form of the groundworks.

The cable trench was situated as far from the edge of the metal drain as the Chapter could allow (within c. 0.45m of it), thus avoiding disturbance to numerous modern cremations along the edge of the garth. Only one such cremation was encountered, contained within a decayed wooden box in the area of Bay 6. The cremation was reburied in the same location at a slightly deeper level than the cable trench.

Highly fragmentary human skeletal remains from previously disturbed inhumations within the garth were collected from the spoil during the course of the work. These were stored on site for reburial within the confines of the cable trench opposite Bay 36. The remains amounted to c. 100 fragments in varying states of preservation. Following a simple ceremony conducted by Reverend Peter Doll they were reburied below a layer of geotextile and a layer of large flint cobbles.

Plate 3: Groundworks along the Eastern Range (looking north).

Spoil, exposed surfaces and features were scanned with a metal detector (Minelab XTerra 705). All metal-detected and hand-collected finds were retained for inspection, other than those which were obviously modern.

Archaeological features and deposits were recorded using Norvic Archaeology *pro forma* sheets. Trench locations, plans and sections were recorded at appropriate scales and digital images were taken of all relevant features and deposits.

All levels were tied to known spot heights located on the existing drain, with values provided by the Cathedral Archaeologist.

Site conditions were generally good with the majority of the monitoring work taking place in bright, sunny weather, which often made photography of the narrow excavations difficult due to extremes in light and shadow. Several days were overcast and three days experienced rain, including one heavy rain storm.

6.0 Results (Figures 2 to 5 & A to U) *(Appendix 1a)*

6.1 Main Soil Horizons

The 2005 evaluation, which preceded work to install the current drainage system (Wallis 2005) placed eight small trenches in the garth adjacent to the cloister walk; one located approximately in each corner and one centrally to each range. The evaluation work identified a general build-up of soils in the cloister garth which were difficult to date. Trenches 6, 7 and 8 (located in the south-western corner of the garth) seemed to indicate two phases of main soil horizons above natural sands, one possibly dating to

the medieval period, with the level being raised further in the post-medieval period. Trenches placed in the other areas only identified post-medieval make-up.

This monitoring project has also identified two main phases of soil build-up overlaying natural sands and sandy-gravels, with some additional information regarding depths and variations of the soils around the garth. In addition some isolated zones of subsoil of earlier date have been identified which may include an earlier phase of medieval subsoil or make-up and a buried subsoil of likely Late Saxon date:

- ***Natural***

North Range
Natural sands were encountered at the majority of bays where the deepest slots were excavated to connect the light pits with the cable trench. Clean yellow and orange sands and sandy gravels were seen at c.0.5m below the modern surface in the north western corner of the garth in Bay 39. The sands appeared to slope gradually down to the east to a depth of c. 0.7m (as observed in Bay 45), although beyond this in the north-east corner of the garth the natural was not encountered and appears to either be deeper or more deeply truncated.

East range
Natural deposits were first encountered about halfway along the range in Bays 7 to 9 at a depth of c.0.55m but lay beyond the maximum investigation depth of c.0.7m in the remaining Bays leading into the south-east corner. A layer of dirty gravel lay above the observed natural, most notable in Bay 9 where it was up to 60mm thick. A similarly sterile gravel was noted above the cleaner sands in Evaluation Trench 4 located in Bay 8, which were postulated to be imported spreads of gravels attributable to Saxon activity at the site (Wallis 2005, 6).

South Range
Natural sand was recorded at c.0.5m below the modern surface in Bay 25 in the south-west corner of the garth and was encountered at a very similar depth in Bays 24 through to 22. The sand appeared to slope gradually from west to east and was recorded as pale brown to yellow sand with thin traces of a possible subsoil above it at a depth c.0.6m in Bay 20 and c. 0.7m in Bay 19. In Bay 17 the natural took the form of a coarse sandy gravel at a depth of 0.8m.

West Range
Natural sands were encountered in the majority of Bays and/or parts of the cable trench at a fairly consistent depth of between 0.4 and 0.5m and as shallow as 0.3m within the light-pit of Bay 29.

Conclusions
The natural sands as recorded further demonstrate that the natural underlying slope falls generally from west to east across the garth, although to what extent remodelling has affected the original slope is uncertain. The consistent depth of natural along the western range may suggest some form of levelling activity while deeper make-up deposits along the eastern range may be consistent with an effort to raise the ground level.

Excavations on the site of the Refectory revealed a similar west to east downwards slope with the floor of the eastern end of the Refectory built upon imported make-up which sealed Saxon deposits there, including a buried soil.

- **Subsoils** (Late Saxon to Medieval)

Traces of subsoils were recorded in several areas which lay below the later medieval to post-medieval soil horizons. A subsoil or possible make-up deposit of potential medieval

date (214=303) was first recognised in the north-west corner of the garth where a 0.15m thick layer of firm, light greyish-brown silty-sand was recorded below the post-medieval soils. The deposit was notably devoid of any post-medieval inclusions and contained occasional lumps of degraded mortar, chalk and rare flecks of charcoal. A deposit of similar character was recorded at Bay 42 and intermittently along the western range with a possible occurrence at Bay 25 (164 ?= 214). Datable finds collected from this deposit amount to just a single large sherd of Grimston type ware spot dated to the L12th to 14th century and a late medieval roof tile fragment.

This horizon had a fairly diffuse relationship with a cleaner subsoil/buried soil below (304) which was fairly devoid of inclusions and consisted of a slightly silty pale-brown sand of between 50mm to 100mm in depth. This deposit was relatively homogenous and exhibited a fairly diffuse relationship with the cleaner natural sands below. A single unabraded and soot coated sherd of 'early medieval' sandwich ware was collected from this deposit, and an 11th century date is suggested for its deposition. Traces of a layer which may equate to this horizon were also recorded above the natural at Bay 20 and Bay 19 along the southern range. The same deposit was recorded as a buried soil by Wallis (2005) where it was recorded in Evaluation Trench 6 close to Bay 20 and a single Thetford-type ware sherd was retrieved from it. This material may be the remnants of a buried Late Saxon soil, similar deposits of which were recorded sealed below medieval deposits in the area of the Refectory during extensive excavations there.

- **Late medieval to Post-medieval gardens soils and make-up**

Modern make-up deposits between buttresses within the Bays in the area of the light-pits generally comprised of a concrete base (below the slabs) set above sharpings with a geotextile barrier protecting post-medieval deposits below – the surface of which had previously been exposed and recorded during the 2006/7 monitoring works. In the majority of bays this can be characterised as a firm, well-mixed greyish-brown silty-sand make-up deposit which varied between c. 0.10 to 0.3m in depth (306); with inclusions of mortar, chalk and limestone pieces. This layer also contained brick flecks and occasional fragments of post-medieval brick and peg-tile. In some instances a make-up layer of crushed mortar and limestone waste, with occasional peg-tile fragments overlay this material (307).

Below the modern turf line of active topsoil (which had a general depth of between 0.12 and 0.2m) was a well-mixed garden soil (301), which included occasional zones of recent disturbance and mixing with the horizons below. This deposit can be characterised as a relatively active soil horizon of c. 0.3m deep which appears to have stabilised in the later post-medieval period. Pottery collected as residual finds from this horizon range from Late Saxon through to Post-medieval in date, with the vast majority dating from the 16th to 18th century along with small quantities of 19th to 20th century sherds. The soil was generally a dark grey to brownish-grey silty-sand with occasional inclusions of brick, tile, chalk, coal and pieces of limestone.

Below this soil was a lower soil deposit (302) which can be dated to an earlier phase of build-up within the garth. This horizon was generally a mid-grey silty-sand, from which a greater occurrence of late 15th to 16th century pottery sherds was collected. This may indicate that the soil horizon was either formally created, or actively receiving additional material from the late medieval period, although sherds of post-medieval date ranging until the late 17th to 18th century appear to have been regularly introduced into the soil through continued bioturbation, grave digging and other minor landscaping activities. Inclusions of peg tile, brick, chalk, mortar and pieces of limestone were relatively common. The full depth of this soil horizon was recorded in several locations along the western range and measured from 0.15m to 0.3m, with a greater depth elsewhere, particularly at the eastern range where it was almost consistently greater than the limit of investigation.

6.2 Archaeological Features

- **Late Saxon Features** (10th to 11th century)

In addition to the presence of a buried subsoil/soil of Late Saxon date six features have been categorised as Late Saxon pits, adding to the single Late Saxon pit discovered during an evaluation inside the Garth in 2005. Two were located in the north-west of the garth and the remainder focused in the central region of the southern range. The fill of all such features was notably more dense and homogenous than later features. They were also free from residual inclusions associated with medieval and later activity; such as brick, tile, mortar and limestone:

Plate 4: ?Late Saxon Pit [153] [1x0.3m scale] (looking west).

Bay 39 [DWG7].
The shallow remnant of a pit ([105]) was recorded in Bay 39 (in the north-west corner of the garth) which measured 0.6m in length and just 0.16m deep. It appeared to truncate the possible Late Saxon subsoil/buried soil (103 = 304) and was sealed by the ?medieval horizon (214 = 303). It contained a sterile, mid-orangey grey silty-sand. It is possible that this shallow feature may have been subject to horizontal truncation through medieval levelling activity in this area

Bay 42
The eastern half of a well-defined pit ([114]) with steep sides was encountered in Bay 42 (along the northern range) which can be estimated to be sub-square or sub-rectangular in form with a length of c. 0.8m and greater than 0.4m in depth. It contained a very soft, dark brownish-grey sandy-silt of a slightly sticky and organic nature (115). The fill contained flecks of charcoal and rare flecks of burnt bone. Two cow teeth, a small piece of oyster shell and four sherds of pottery were collected from a keyhole slot dug into its north-east corner. The pottery proved to be Late Saxon in date and included a large sherd from a Thetford-type ware jar, and two examples of what appear to be imported wares.

Bay 17 [DWG 45]
The rounded edge of a steep sided pit ([144]) was recorded at Bay 17 where it was partly truncated by a post-medieval grave ([233]). The pit was sealed below late medieval to post-medieval soils and contained a dense, mid orangey-brown fine silty-sand with rare flecks of charcoal (143). A single Thetford-type ware sherd was collected from the fill.

Bay 20 [DWG50]
The distinct rounded edge of a feature ([146]) which had survived to a depth of c.0.3m was recorded in Bay 20, midway along the southern range. This feature had been severely truncated by a post-medieval grave ([239]). It contained a very soft and homogenous, mid-yellowish brown silty-sand (147); from which a single unabraded sherd of Thetford-type ware was recovered. This possible pit was located c.1m south-west from another pit ([23]) encountered by the 2005 Evaluation in Trench 6 - which truncated a probable buried soil horizon (27). Animal bone and single sherd of Late Saxon pottery was collected from the soil layer and the pit is reported to have contained a dark-brownish grey sandy-loam; from which an assemblage of bone was found, including deer antler, a find that is often associated with Late Saxon activity.

Bay 23 [DWG53] (Plate 4)
The very edge of feature ([151]) was clipped by the light-pit in Bay 23 which contained a similar fill to that of pit [146]. A single piece of lava quernstone and a single sherd of Thetford-type ware were collected from its fill.

The edge of a further possible pit was recorded in the connection slot to the cable trench ([153]) which contained a mid-greyish-brown, well homogenised fill from which a single abraded Roman Tegula fragment was collected. This pit appeared to truncate the subsoil (103 = 304) and was sealed below late medieval to post-medieval soils.

A relatively large assemblage of Roman tile has previously been collected from excavation of features and deposits in the area of the Refectory (amounting to 254 fragments) and the Hostry (35 fragments). Although some may have been brought on the site for re-use in wall constructions the vast majority were collected from pit fill and layers of Late Saxon to medieval date. A few tiles may have been used for hearth lining as some showed signs of burning. This reuse of Roman tiles is known to have occurred from the Early Saxon period into the 12th century (Wallis 2006, 41)

- **Medieval ?Pits** (Late 11th to 14th century)

Bay 45
The northern edges of two associated features were recorded within the light-pit in Bay 45. Feature [221] appeared to have recut into a previously established and infilled feature ([219]). The fills of both of these features was notably different from the vast majority of grave fills encountered during the works. Aside from few chalk flecks these fills appeared to be free from residual inclusions such as brick, tile, mortar and limestone associated with later medieval and post-medieval activity. They both contained a mid-orangey brown silty-sand with occasional patches of orange sand and gravel. Both were lined by a slightly sticky dark brown silty sand. No coffin nails or artefacts of any kind were available for collection and it is possible that rather than representing grave cuts these features represent either a Late Saxon or relatively early medieval features with an organic lining or residue.

Bay 2 [DWG28].
A sequence of thin layers was exposed below the post-medieval soils within the confines of the cable trench at is north-east corner, opposite Bay 2 (124, 123, 216 & 215) The lowest of these was a dark, wet deposit of fine sandy-silt flecked occasionally by charcoal and degraded lumps of chalk (216). Associated with this was a 'sticky' mix of grey silty-sand with lumps of grey clay and lenses of pure brownish-orange clay (215). This deposit also contained small lumps of chalk and several large flint cobbles were set within the top of it. Above this were two firmer layers of greyish-brown sandy-silt which contained occasional small lumps of brick and mortar (123 & 124). A sample of early medieval brick and a fragment of shelly limestone were collected from (124) and two sherds of medieval pottery were collected from layer (123) granting a possible spot date of late 12th to 14th century.

This sequence of deposits is difficult to interpret with any great confidence but it is suggested that the lower, more organic textured material may be the fill of deeper Late Saxon or early medieval pit, with the clay material representing part of a former lining; which has been sealed below cobbles and firmer medieval make-up in an effort to consolidate soft ground.

Bay 27 [DWG60]
Deposits of a similar character to that of the possible pit fill in Bay 2 were recorded in the light-pit of Bay 27 where a 'sticky' brownish-grey silty-sand containing degraded flecks of oyster shell and mortar lumps (254) lay below a lens of pure clay (253).

Bay 32 [DWG73].
The corner of a 0.5m deep feature ([182]) was recorded in the light-pit of Bay 32, along the western range. The feature had a vertical side with a flat base and contained a very soft, mid-orangey-brown silty-sand with occasional lenses of crushed mortar and flint. It measured 0.5m deep with a vertical side and flat base. It was observed to have cut through the ?Late Saxon soil horizon (304) and was sealed by post-medieval make-up (307).

Two pieces of Caen stone and a fragment of goose wing bone were collected from the fill, along with two sherds of medieval pottery; including a sherd of green-glazed Grimston-type ware produced in the L12th to 14th century.

If this feature were taken to be the eastern end of a grave its western end can be projected to lie beyond the extant inner cloister wall. However, no evidence of human remains was encountered and the projected orientation of the feature seems fairly extreme from the expected east-west of a standard burial. On balance this feature currently seems more likely to represent some form of medieval pit.

Bay 44 & 29
Two features which have been categorised as grave cuts have the potential to be of medieval date and are discussed below in the section on graves.

- **Features interpreted as Early Medieval structural footings** (11th to 13th century)

Bay 25/27 [DWG59]
In the south-west corner of the cable-trench at Bays 25 & 27 the corner of a relatively large medieval feature was revealed and partly investigated by keyhole slot ([251]). The feature survived to a depth of 0.3m and contained a sequence of 'banded' deposits, normally associated with the creation of a medieval footing to bear the weight of a structural element – such as a wall or buttress base.

The cut was slightly stepped at its base where the basal fill consisted of a firm deposit of silty-sand which included lumps of yellow clay packed along with frequent large, partially fractured flint cobbles up to 180mm in length (246). Above this was a thinner layer of firmly compacted, crushed lime rich mortar and crushed limestone, which included 'chippings' and small fragments of Caen stone up to 70mm in size (166). Over this was another firmly packed layer of large, fractured flints set within a matrix of silty-sand flecked by occasional chalk pieces (247) and above this was a firm mottled layer of slightly 'sticky' silty-sand, with occasional small limestone pieces (248 & 249).

Datable finds were absent from the fills investigated, however the character of the banded deposits and the presence of crushed mortar and stone is consistent with a medieval date. The use of such banded footings formed from compacted layers of mortar, chalk, flint, clay and sand is a typical medieval construction method. This technique of rammed layers of material, including horizontal seems of flints is commonly seen in Norman and later construction in Norwich and the deeper, more complex banded footings previously recorded below the cloister buttresses and Refectory walls to the south is no exception. The use of sands and silt bearing sands in such sequences is not unusual and the method often appears to makes use of residual waste from the preparation or demolition of building materials alongside locally available sands, gravels or clays.

The position of the feature makes it unlikely that it served as some form of pad for the current pier bases and it is suggested that the feature may relate to the Romanesque cloister or the medieval structure discussed below.

Bay 24 [DWG62].

In both the light-pit and cable trench at Bay 28 evidence for a wall footing was identified, 2.5m from the feature in Bay 27 (Plate 5 &6). In agreement with the Cathedral Archaeologist this feature was more thoroughly investigated and proved to be a flint packed feature on an east-west orientation, with a width of c. 0.8m and a depth of 0.2m ([168)] It comprised of the shallow remnants of a construction trench dug into the natural sand, which contained partially fractured flint cobbles, most commonly between 100mm and 150mm in size. They were set fairly randomly within a clean matrix of greyish-brown silty-sand (167) from which just a single sherd of highly micaceous local medieval unglazed pottery was retrieved, a fabric type produced between the 11th to 14th century. Any wall supported by these footings is likely to predate the extant cloister walls and therefore may relate to the original Romanesque cloister.

Plate 5: Early Medieval Footings [168] [1x0.5m scale] (looking east).

Plate 6: Early Medieval Footings [168] cut by later graves [1x0.5m & 1x0.10m scales] (looking east).

A layer of loose cobbles was recorded within the base of the late medieval to post-medieval soils above the feature, which demonstrate that this footing had been disturbed either though levelling activity or robbing. Furthermore, a post-medieval grave had been excavated through it ([169]), pottery from which has been spot dated to produce a 16th to 18th century date. Within the fill of this grave a neonatal burial had been inserted ([171]) with *in situ* skeletal remains partially exposed at the limit of investigation.

Bay 24 [DWG56]

Two further glimpses of flint cobble packed deposits were revealed at Bay 24, c. 3m to the east of the feature at Bay 25/27. Within the confines of the light-pit the eastern edge of a well-defined feature ([158]) was recorded, truncated by a post-medieval grave ([160]).

The base of the feature was not revealed but it contained fairly tightly packed flint cobbles with rare large lumps of chalk. The flints were partially fractured and were set within

yellowish-brown slightly-silty sand (159). Two pieces of ceramic material were collected from the fill, a probable piece of Roman Tegula and an over fired piece of ?early brick (this may also represent residual Roman material). Just 0.8m north of this features very similar deposit (162) was revealed by a key-slot placed against the edge of the brick pad 163.

If these deposits also represent footing material then the presence of a wall or structure on a north to south alignment can also be postulated here.

Discussion (Figures 4 & 5)

The east to west footings recorded in Bay 28 do not match with any above ground evidence for a wall that could have co-existed with the current cloister. The Gothic tracery here dates the bays construction to 1330-56 and in addition no wall scars or unexplained footings were noted during work which exposed the stone foundations of the cloister wall and buttresses here during 2006/7. When combined the evidence for medieval footings in this corner of the garth can be considered to be of the same square structure; a structure that must predate the Gothic rebuilding and which was demolished prior to the Gothic reconstruction (Figure 4).

The presence of a building in the south-west corner of the Romanesque cloister has parallels with several other well know monastic layouts which also include buildings within the cloister garth – both free standing and attached to the walls, all of which relate to earlier monastic phases of water management and lavatory structures:

- Excavation over a period of four decades at Kirkstall Abbey (Cistercian, Yorkshire) revealed the complexity of the piped water-supply system there (Moorhouse and Wrathmell 1987). Within the cloister garth (south-eastern corner) a stone lined structure was found that has been identified as a cistern. There were inlet and outlet conduits which held lead pipes.

- The Romanesque layout of Canterbury Cathedral Priory (Benedictine) has been preserved in a remarkable 12th century 'birds-eye' drawing identified within a psalter in the Library of Trinity College, Cambridge (Willis 1868; Hayes 1977). The drawings may have been executed c. 1160 and show the priory complex along with colour coded details of the water system serving it. Latrines and a free standing water tower in the cloister garth were installed in the time of Prior Wilbert (1151-67).

- A medieval plan of the system for distributing water within the cloister of London Charterhouse (Carthusian) shows an elaborate polygonal cistern within the centre of the garth cloister, from which water is distributed to the four ranges (Greene 1992, 114).

- The remains of the octagonal lavatory in the cloister garth at Wenlock Priory (Cluniac, Shropshire) demonstrate the quality of embellishment that such a structure might receive. Two late-twelfth-century panels survive, one of which depicts Christ on the Lake. They are a reminder that washing before meals was not simply a matter of hygiene; for the brethren it was more importantly an affirmation of spiritual cleanliness and purity. This explains the prominence given to what might be considered a utilitarian facility.

The location of the proposed structure at Norwich may be highly significant. Within the west cloister walk of the two most southern bays is the Gothic *laver* or *lavatorium,* the ritual washing place that was located outside the monks' door to the refectory (Gilchrist 2005, 92). The lavatorium at Norwich is a recessed trough set into arched niches in the west wall of the cloister, made by the masons James and John Woderofe in 1443-4 (Woodman 1996, 174). This feature was constructed after the main work on the cloisters was completed, and replaced an earlier trough style lavatorium at the same location.

Overall there were two main types of lavatorium. The most common was the rectangular trough, the other type was more elaborate, consisting of a circular of polyganol base and basin supplied through a circle of taps from a central supply, all set within an elaborate

structure. This might be attached to the main buildings or stand free in the cloister (Godfrey 1952).

Perhaps the most convincing parallel for the proposed early medieval structure at Norwich is that of an earlier lavatorium found in the excavations at the Benedictine Cathedral Priory of Durham (Figure 5). It was set within the south-west angle of the earliest phase of cloister garth (Hope 1903). The structure was square in plan with evidence for a centrally positioned circular basin. It was dated to a 12th century phase of use and appears to have been thoroughly demolished during the removal of the west cloister wall to accommodate an expansion in the size of the garth in the 13th century. Other foundations revealed at Durham relating to this same square lavatorium included ashlar stone and lead piping relating to the foundations of the central basin along with a channel which would have housed the water supply. In addition another channel or drain ran from north east to south-west.

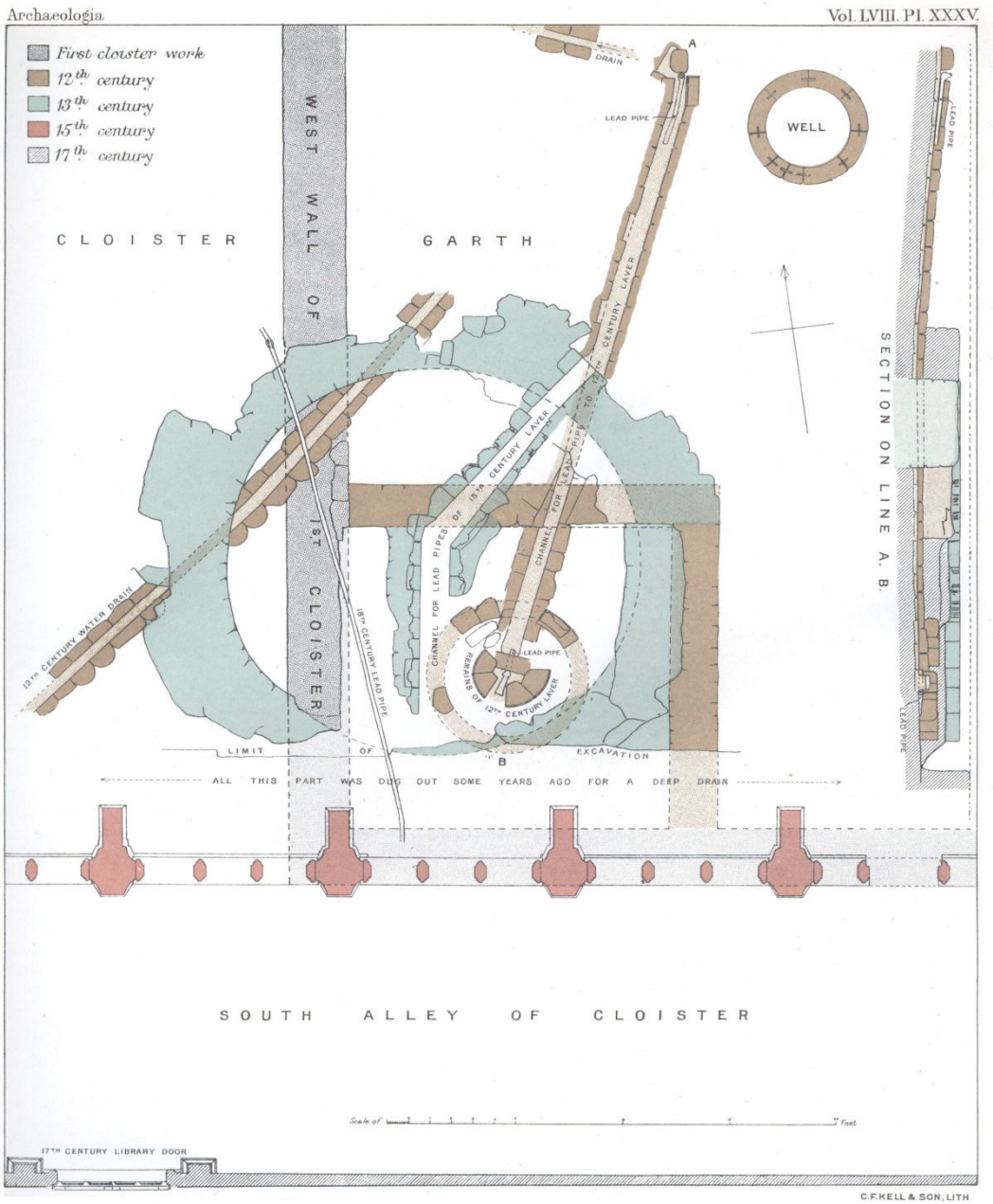


Figure 5: Durham Abbey – Foundations of Lavatories uncovered in 1903, published by the Society of Antiquaries of London, in Archaeologia 58, Issue 2, 1903.

Circular foundations for the replacement lavatorium were also revealed on the same site, which was still standing until 1593 when it was described in the *"Rites of Durham*" as a round (probably eight sided building), lead covered and with a dovecot, sheltering an ocatagonal marble basin.

The foundations of the earlier square lavatorium at Durham had internal wall measurements of c.15ft (c.4.5m) with a width of about 2ft (0.6m). It's positioning and dimensions compares remarkably well with the limited evidence for a similar square shaped building in the garth at Norwich Cathedral. If the stone packed features in Bay 24 are taken to be part of a north-south wall which met the east-west wall at Bay 28 a building of very similar dimensions can be projected, with internal wall measurements of of 4.5m to 5m and a width of 0.8m.

The replacement lavatorium at Durham was proposed by Hope (1903) as an early 13th century construction, coinciding with a new western range as part of an expansion of the cloister and garth to its current form and size. Hope commented that surviving cloister lavatories of later date than the mid-13th century in England are invariably built of the long trough form against the inner or outer wall of the cloister alley. The lengthy Gothic rebuilding campaign of the cloister in Norwich would fall into this later fashion; where rebuilding took place between 1297 to 1430, with tracery in the south-west corner of the cloister providing a completion date of c.1330-1356. It can be postulated that the initial rebuilding plans followed new trends and did away with the first, original lavatorium set within the south-corner of the original position of the Romanesque cloister walls.

- **Graves** (Medieval to Late Post-Medieval)

Of the many features partly exposed by the groundworks twenty-nine have been categorised as grave cuts, including three neonatal burials. Several other light-pits and slots exposed mixed deposits thought to be the fill of post-medieval graves.

The top of grave fills ranged between 0.2 to 0.7m below the ground surface, with the majority beginning at around 0.5m depth. Grave cuts were difficult to discern through the upper layer of soil attributed to the later post-medieval period with the majority only clearly determined below this layer. However, the occasional grave clearly truncated all soil horizons and are thought to be late 19th to 20th century in date, such as one seen in Bay 28 ([257]) [DWG 62]. Several graves also appeared to be sealed below the lower post-medieval soil horizon.

Of these grave cuts most contained residual inclusions of post-medieval origin and a date range of 16th 18th century is fitting for many, with a small number which can be attributed to later graves (19th to early 20th century) such as [233] in Bay 17 and [257] in Bay 28.

In general fills of features determined to be graves can be characterised as soft to friable, mid-grey to greyish-brown mixes of silty-sand/loam with a wide variety of inclusions such as pieces of brick, tile, chalk, tobacco pipe, mortar, coal and occasional redeposited fragments of skeletal remains.

? Medieval graves

Two 'graves' were sterile of all residual inclusions attributed to post-medieval activity, both of which also contained less well mixed deposits; [174] in Bay 29 and [117] in Bay 44. This may either suggest that these are candidates for medieval burials or that they may be the edges of pits. A piece of Caen stone and two green-glazed sherds of medieval pottery were collected from (175), the fill of [174]. Both sherds have a production date of late 12th to 14th century and one is suggested to be of a London type decorated vertical and diagonal combing. Although it is not currently thought that burials took place within the garth at

Norwich during the medieval period the form of this particular feature appears fairly convincing as a grave.

Medieval burials within cloister garths appear to have been a relatively rare occurrence in Britain and were seldom practiced by the Benedictines. Exceptions certainly occurred, as demonstrated by excavation of burials at the Augustinian friary's at Hull and Leicester and the Gilbertine priory of St Andrew in York, while some garths performed as long serving burial grounds, such as in the garth at London Charterhouse (Gilchrist & Sloan 2005, 57).

Unstratified human skeletal remains

Highly fragmentary human skeletal remains from previously disturbed inhumations were collected from the spoil during the course of the work and were temporarily stored on site for reburial within the confines of the cable trench opposite the last bay (Bay 36). The remains amounted to c. 100 fragments of which the majority were adult remains, although a few examples of juvenile remains were collected. The fragments varied in size and preservation and included a wide range of skeletal elements. One obvious pathology was noted in the form of two fused lumbar adult vertebrae, the result of ankylosing hyperostosis.

Following a simple ceremony conducted by Reverend Peter Doll all such fragments were reburied below a layer of geotextile and a layer of large flint cobbles.

Notable encounters

Bay 43
The top of an adult human cranium (Sk116) was found inverted within the light-pit 43, at a depth of c. 0.4m below the modern surface. This was most likely placed here as charnel within the backfill of another grave. The cranium was reburied at a slightly deeper depth and marked with a layer of geotextile.

Bay 12
The eastern 'feet' end of an articulated burial (SK231) was encountered at a depth of c.0.7m below the modern surface within the light-pit here. Rather than disturbing the remains any further a very narrow tunnel was carefully hammer-drilled through the concrete footing of the drain, just above the level of the burial, to connect the light-pit with the cable trench. The location of this inhumation appears to match that previously discovered during the 2005 Evaluation within the confines of Trench 5, where the feet were also partially exposed.

A layer of geotextile was placed just above the level of the remains prior to reburial to mark their position.

Bay 36
During the excavation of a slot to accommodate the reburial of fragmentary skeletal remains within the confines of the cable trench the top of a human skull was briefly exposed at a depth of c. 0.7m. Ironically this is one of only two *in situ* adult skeletons that the project encountered.

Neonatal burials in Bays 8, 28 & 29 (?post-medieval, 16th to 19th century)

Three small graves were encountered which contained semi-articulated neonatal remains:

Bay 8 [DWG39]
Part of the skull and right side of one such burial ([226]) was discovered within the light-pit of Bay 8. The skeletal elements which lay within the area of groundworks were collected and reburied c. 0.15m deeper than the base of the slot below geotextile to avoid further disturbance or damage to them during the installation work.

Bay 28 [DWG62]
The articulated remains of a neonatal burial were discovered at Bay 28, where a small grave ([171]) had either been inserted into a pre-existing adult sized grave or was contemporary with it ([169]). The remains lay at a depth of c.0.85m and the presence of iron nails may indicate the burial was contained within a small wooden casket. The remains were only partially exposed to identify the presence of a burial. They were left in place and carefully covered with backfill followed by a layer of geotextile.

In cases where adult and neonatal burial pairings are positively identified they are usually taken to identify the death of a mother and child during labour. Neonatal burials placed above adult female burials are not uncommon, although such cases are less common in the medieval period where treatment of child and mother may have varied depending upon the sympathy and customs of each site (Gilchirst & Sloane 2005, 72)

Bay 29 [DWG65]
A third neonatal burial ([177]) was partially revealed within the base of the light-pit in Bay 29 at a depth of c. 0.4m below the modern surface. The small grave appeared to truncate the western end of an adult sized post-medieval burial. The grave cut for the new-born was quite obviously off the expected east-west alignment of other burials and was orientated along a more north-west to south-east axis. This may suggest the possibility of an unsanctified infant burial (see discussion below)

Discussion

Articulated adult remains were encountered on just two occasions during the monitoring work, at depths of c.0.7m below the modern surface. One of these had previously been revealed by the Evaluation in 2005, which also discovered two others at depths of between 0.45m (in the area of Bay 37) and 0.6m other in the area of Bay 12). Given the large number of grave cuts exposed during this project it would appear that many inhumations are buried at greater depths than these examples.

No significant evidence was observed of any major disturbance to burials relating to the possible removal of ground and relocation of human remains to the Lower Close in 1782, thought to have been a response to post-medieval soil build–up.

The presence of new-borns within the garth is not unexpected, given that many of the post-medieval burials are thought to relate to use for the parish of St Mary in the Marsh (which had lost its church and burial yard within the precinct shortly before 1564). It seems likely that any customs regarding burial practice would have adapted fairly rapidly to the setting of the cloister.

Despite the high mortality rates of children throughout the medieval to post-medieval period they are often underrepresented within excavated cemeteries, babies in particular; even accounting for the shallow nature of graves making them more susceptible to disturbance and the fact that their remains are less resistant to degradation. Therefore the discovery of even just three neonatal burials in the cloister garth is worthy of further comment, although it is thought that of these the burial within Bay 29 is the only one with any potential to be of medieval rather than post-medieval date.

Two of the burials were positioned fairly centrally between the buttresses of their respective bays, while the other may have formed part of an adult interment just beyond the edge of the ‘bay area’. The zoning of burial types within cemeteries is a relatively common phenomenon, especially in the case of child burials.

The neonatal burials found here at the edges of the cloister have the potential to be the result of unsanctified burial practice, the misaligned and particularly shallow depth of the burial in Bay 29 does lend some weight to such a possibility. There has been a noted difference in treatment between baptised and an unbaptised children in terms of burial

practice and some studies of both documentary and excavated evidence have found strong evidence that infants – especially those that were unbaptised, may have suffered from exclusion from standard churchyard burial. For example, at Hereford in 1398 a royal licence was given to enclose the Cathedral cemetery, partly to stop 'the secret burials of unbaptised infants'. Excavation at the Castle Green in Hereford, an extension of the cathedral cemetery, uncovered an area of consecrated ground postulated to have been used as an unsanctified medieval 'child cemetery' where a group of twenty-four children were interred in irregularly placed shallow graves with a wide variety of orientations (Shoesmith 1980, 51).

Whether by necessity or as part of an openly sanctified burial the placement of newborns close to the cloister walls may also have some quasi-religious significance. In Anglo-Saxon Christian cemeteries the practice of burying children below the eaves of churches has been suggested to have been done so that the water running off the 'holy' roof would 'double bless' them (Daniell 2006, 128). This may be deemed particularly beneficial for unbaptised infants. The close proximity of infant burials to eves and walls of churches can also be observed in medieval post-medieval cemeteries, where excavations commonly report infant burials. The western end of churches appears to be favoured for child burials, such as at St *Margart's in Combusto*, Norwich, where the few child or infant burials were found close to the western end of the church (Ayres 1990, 59).

Whether the placement of new-borns within the bays of the garth may prove to be a reoccurring phenomenon is yet to be revealed. It is the authors hope that any future work within the cloister be mindful of the potential presence of similar burials located at the edge of the garth, whose shallow depth and fragile nature make them particularly susceptible to any future ground disturbance.

- **Later Post-medieval Grave Stones**

Bay 45: A mid- 18th to 19th century style of gravestone was discovered buried just 0.3m below the modern surface within Bay 45 along the northern range (218) (Plate 7). The slab was 650mm thick and manufactured from an off-white, hard, dense, limestone. The body of the stone lay face up and the carved details on display were very weathered. Despite this part of the legend could be read as 'In Me – (mory of,)' JOHN -'.

The stone was decorated in the Gothic-revival style with a simple foliate embellished scroll on the top border and a feathered motif on the rounded tympanium with a lit torch below (presumably mirrored on the right side of the design). Although the central *memento mori* symbol was not revealed the lit torch symbol is often cited as representing eternal life and the wings are perhaps more likely to frame a cherub than a skull in this case. A grave marker of similar shape is depicted in an engraving by J.Storer produced in 1818 set amongst a larger number of square stones.

Plate 7: Grave stone in Bay 45 [1x0.3m scale] (looking south).

Bay 22: Another buried grave marker of the same shape and stone type (148) was discovered directly below the topsoil, body side down within the cable trench at Bay 22 (along the southern range).

The base of the slab was broken but over 0.8m of it had survived in one piece. The slab measured c. 500mm thick and rather than attempt to move the stone and disturb more ground it was left in place and tunnelled beneath to accommodate the cable run. The body of the stone could be felt but not seen and appeared to be decorated but very abraded and worn.

A top corner fragment from a marker of a similar period made from the same stone was noted in the spoil of the southern range which had a rounded top with a decorated border embellished with a stylised oak leaf? In addition a fragment of an early 18th century footstone was collected from spoil produced in the north-west area of the garth (Bays 39 to 42), it is marked with a date of 1716. Footstones such as this became common in the 18th century but were removed from many cemeteries in later periods.

It has been suggested that the level of the garth was reduced significantly in 1782, presumably in response to post-medieval build-up from a use as a grave yard. It is possible that graves may have lost their marker stones in such an event but the burials associated with these particular markers may have been relatively new at this time and were perhaps less likely to have suffered disturbance. Such marker stones may also have been cleared from their respective graves during later landscaping of the garth; possibly in the 19th century (upright markers are shown in early 19th century images of the cloister and garth but by the late 1800s the garth appears to have only horizontal grave slabs marking grave positions).

- **Brick vaulted burials** (18th to 19th century) (Figure S1)

The positions of six brick burial vaults were partly exposed. Three of these were revealed to a greater or lesser extent in previous monitoring work by NAU Archaeology in 2006-7, which observed ground works for the installation of the current drain. It may well be that the 19th century grave slabs incorporated into paving along the north side of the garth, along with several other monumental slabs within the garth relate to such tombs. The ledger slab in Bay 46 of Sarah White (who died in 18??) may come from above the tomb found there, while that in Bay 47 of Liberty White (who died in 1836) may relate to an as yet undiscovered vault there or possibly the vault in the adjacent Bay 48.


Plate 8: Brick burial vault 261 [1x1m & 1x0.5m scale] (looking east).

The burial vaults all share a fairly similar construction and appear to comprise of a rectangular brick vaulted tomb with the addition of sub-surface dwarf walls to support a capping slab. They are made from 'Norfolk Red' sandy brick, generally orangey-red to red in colour (c. 230mmx110mmx650mm). The mortar for the vaulting has degraded slightly and was a pale yellow sandy mix, while mortar used for the capping walls made use of a harder, chalky-lime mortar. The vaulting makes use of on-edge brick along with broken and shaped fragments and was generally slightly hipped in profile.

These tombs appear to vary only slightly in overall dimensions and form and have all been attributed to a late 18th to 19th century period. It is thought that the ledger stones which

capped such tombs lay at, or just above ground level as no above ground monumental tombs, such as chest tombs, table tombs or coffin tombs are depicted in antiquarian views and photographs of the garth (although these sources are limited and tend to be views looking north-east to include the cathedral spire).

Bay 46: The northern edge of this vault (125) was recorded in 2006-7, while part of the side wall and top of the vault was exposed in this phase of work. The vault measured 2.4m in length and can be estimated to measure c. 1m wide. Part of the side wall was removed to allow the cable free access, otherwise the vault itself was left intact. The top of the vault itself lay at 0.6m below the modern surface, while the dwarf wall for the tomb cover lay directly below the concrete drain footing at c. 0.45m depth. [DWG12]

Bay 48: The full extent of this vault (223) was uncovered during 2006-7 but any drawn records relating to its exact position and dimensions remain unpublished. The location of the south-west corner was located by sondage and a small sub-surface cable link was established which bypassed the end of the tomb, allowing the structure of the tomb to remain undisturbed. The top of the vault is estimated to lie at less than 0.3m below the modern surface based on NAU Archaeology photographic records. [DWG82]

Bay 8/9: The eastern end of a vault (138) at c. 0.2m depth was revealed by the cable trench opposite the buttress dividing Bay 8 from Bay 9. The vault of had been broken open in the past and was in-filled by rubble. The eastern internal limit of the vault lay just beyond the baulk section of the cable trench and was plotted via a probe. [DWG41]

Bay 32: The side walls and vault (261) was recorded here, whose western end had been plotted during the 2006-7 phase of work. The dwarf walls lay at c. 0.3m depth while the top of the vault lay at c. 0.5m depth (Plate 8). [DWG72]

Bay 36: A brick vault (269) discovered here at c.0.4m depth had been subject to past disturbance which did not appear to have broken open the vault but had entirely removed the western end wall and possibly all of the walls for the capping of the tomb. A dump of hoggin had been placed around the vault within a wide zone of disturbance. [DWG81]

Bay 24: Part of the southern edge of a vault was revealed within the cable trench, at a depth of 0.25m below the surface (Plate 9). The vault had a slight incline and had sunk by as much as 100mm at its southern end. This vault is again of brick construction but is of a different form than those above. It made use of the same brick-type but with the addition of bricks in a pale-yellow Cossey style of fabric. The brick-work was only two courses high, built on a rough bed of mortar and brick rubble and was shaped to form the side of 'coffin-shaped' tomb. This brickwork most likely forms a dwarf wall to accommodate a coffin-shaped ledger stone which lay at, or just above ground level over the top of a standard rectangular shaped burial vault.

Plate 9: Brick burial vault 163 [1x0.5m scale] (looking west).

- **Post-medieval drainage features**

Three features associated with drainage were recorded along the southern range. The first of these was a continuation of a ceramic block drain, previously recorded in Bay 15 in 2006/7 (142).The drainage channel was built from U-shaped blocks of a hard fired yellow clay fabric, forming the base and top cover of the drain. It was originally bonded into place with a sandy yellow mortar which has all but washed out.

A channel formed from similar blocks was recorded in the cable trench opposite the buttress dividing Bays 23 & 24 (245). However, the drain had been modified with the insertion of a ceramic pipe. This drain matches the position of a small, sub-surface brick structure recorded here during 2006/7.

The side wall of a possible in-filled sump was recorded in Bay 18 (235). [DWG47]. The bricks exhibited diagonal skintling marks and were of a hard, sandy orange fabric bonded by hard, grey mortar. A skintling mark or 'hack mark' is a raised diagonal or horizontal mark across the long side of some bricks, dating from the mid-16th century to the late 19th. The mark is produced as a result stacking for initial air drying prior to firing. 'The Norfolk Skintling survey Results 1995-2003', which is based on research by Elizabeth James, suggests that a structures date can be based on whether the skintling marks appear either diagonally or horizontally. Diagonal skintling marks usually indicate a date range of mid-16th century to late 18th century date, although the fabric of these particular bricks suggests a later date for their manufacture and the possibility of their reuse is fairly high given the nature of the feature. The bricks are laid in a regular beehive structure and match with part of sub-surface structure that was recorded in 2006/7. It measures c.0.75m in width and seems to be a relatively well built sub-square feature of unknown depth which contains a mortar rich dump containing post-medieval roof tile and building flints.

- **Other Post-medieval to Modern features**

Bay 40: The surface of a pit-like feature ([101]) was recorded in the area of Bay 40. The cut was identifiable from just below the modern turf line and contained a well-mixed dark-grey loam with a few examples of post-medieval roof tile.

Bays 22 to 24: Where the cable trench ran past Bays 22 to 24 the surface of several pit-like features containing well mixed deposits were recorded:

Two sherds of late post-medieval pottery were collected from the fill of probable pit [157] which grant a spot date of L18th to 19th century. Given the high probability of residuality of thee finds the pit is certainly a fairly late feature and fragments of 19th century brick were noted within the same deposit, along with discarded scraps of limestone and building flint.

Adjacent to this feature, on its eastern side, was a wider area of disturbance which measured c. 1.3m in width ([243]). This feature was cut by the insertion of the drain (245). It contained a fill not dissimilar to some to that of grave fills seen elsewhere, and may represent either a small grave or some form of pit.

Opposite the buttress dividing Bays 23 & 22 the surface of a discrete sub-circular feature was recorded but not excavated with a diameter of c. 0.3m ([149]). This feature may be a small post/scaffold hole. It truncated the lower post-medieval soils here and contained a mixed fill.

Bay 6: A soil deposit recorded below the upper soils in the area of Bay 6 which was deeper than 0.4m and consisted of a soft greyish-brown sandy loam (134). It was slightly sticky in texture and contained a few flecks and small fragments of chalk, mortar and post-medieval peg tiles. Three very large fragments of glazed red earthenware vessels were collected from this deposit including the entire base of a jug (with a weight of 655g). These wares have a general post-medieval provenance of 16th to 18th century. This soil may be infill of some form of pit which received a mix of domestic waste as part of its fill. A possible southern edge was recorded to the deposit which may equate to a cut feature.

7.0 Finds Analysis *(Appendix 2a & 2b)*

- **Pottery** *(Appendix 3a & 3b)*

By Sue Anderson

Introduction
A total of 188 sherds of pottery weighing 4367g were collected from 53 contexts (ten features, thirteen stratified layers and the remainder unstratified). Appendix 3a lists the quantification by context.

Methodology
Quantification was carried out using sherd count and weight. A full quantification by fabric, context and feature is available in the archive. All fabric codes were assigned from the author's post-Roman fabric series, which includes East Anglian and Midlands fabrics, as well as imported wares. Local wares and common imports were identified from Jennings (1981). Form terminology follows MPRG (1998). Recording uses a system of letters for fabric codes. Pottery was recorded directly onto an MS Access table.

The assemblage (Table 1 below: Pottery quantification by fabric)

Description	Fabric	Code	No	Wt/g	Eve	MNV
Roman greyware micaceous	RBGM	1.20	1	9		1
Total Roman	*RBGM*	*1.20*	*1*	*9*		*1*
Thetford-type ware	THET	2.50	14	168	0.14	14
'Early medieval' sandwich wares	EMSW	2.58	1	7		1
Late Saxon import	LSIM	7.72	3	78		3
Unidentified	UNID	0.001	1	7		1
Total Late Saxon			*19*	*260*	*0.14*	*19*
Early medieval sparse shelly ware	EMWSS	3.19	1	7		1
Medieval coarseware	MCW	3.20	2	37	0.11	2
Local medieval unglazed	LMU	3.23	4	16		4
Unprovenanced glazed	UPG	4.00	1	5		1
Grimston-type ware	GRIM	4.10	6	119		6
Flemish greyware	FLGW	7.29	1	7		1
Total medieval			*15*	*191*	*0.11*	*15*
Late medieval and transitional	LMT	5.10	13	284	0.24	10
Siegburg Stoneware	GSW1	7.11	1	16		1
Langerwehe Stoneware	GSW2	7.12	2	59		2
Raeran/Aachen Stoneware	GSW3	7.13	12	307	0.29	11
Martincamp Ware Type II	MART2	7.362	1	14		1
Total late medieval			*29*	*680*	*0.53*	*25*
Iron-glazed blackwares	IGBW	6.11	4	36		4
Glazed red earthenware	GRE	6.12	66	2250	1.70	63
Local early post-medieval wares	LEPM	6.13	2	12		2
West Norfolk Bichrome	WNBC	6.14	1	24	0.08	1
Speckle-glazed Ware	SPEC	6.15	3	91	0.06	3
Border Wares	BORD	6.22	1	38	0.07	1
Tin glazed earthenwares	TGE	6.30	7	67	0.16	7
Post-medieval slipwares	PMSW	6.40	1	12	0.08	1
Staffordshire-type Slipware	STAF	6.41	3	53	0.06	3
Metropolitan Slipware	METS	6.42	3	43	0.05	3
Cologne/Frechen Stoneware	GSW4	7.14	16	386	0.62	16
Dutch-type slipwares	DUTS	7.28	1	23	0.03	1
Martincamp Ware Type III	MART3	7.363	1	3		1
Westerwald Stoneware	GSW5	7.15	6	103	0.20	6
Total post-medieval			*115*	*3141*	*3.11*	*112*
Industrial Slipware	INDS	8.02	1	5		1
Refined white earthenwares	REFW	8.03	3	27	0.24	3
Creamwares	CRW	8.10	1	11		1
English Stoneware	ESW	8.20	1	5		1
Porcelain	PORC	8.30	1	6	0.12	1
Late slipped redware	LSRW	8.51	1	9	0.07	1
Late blackwares	LBW	8.52	1	23		1
Total modern			*9*	*86*	*0.43*	*9*
Grand Total			**188**	**4367**	**4.32**	**181**

Small groups of Roman, Late Saxon, medieval and modern pottery were present, but the assemblage was dominated by post-medieval wares.

Roman
One base sherd of a Roman micaceous greyware jar was present. It was heavily abraded and was recovered from lower soil layer (140) in association with Late Saxon and late medieval wares.

Late Saxon
Fifteen sherds were probably local Thetford-type wares, including one 'early medieval' sandwich ware. These were generally body sherds, although one medium 'AB' jar rim (type 5/6) was present in pit fill (115).

Three sherds were identified as Late Saxon imports and the unidentified sherd may also fall into this category. A fine sandy redware sherd from (140) had rouletted diamond decoration and appeared to have a flat-topped everted rim. A fairly coarse blackware body sherd with shallow girth-grooving came from the same context. A thick micaceous whiteware sherd from pit fill (115) may be a piece of relief-band amphora, but there was no decoration on this fragment. Also from this pit fill was a medium sandy body sherd with sparse calcareous and flint inclusions. It is similar to Yarmouth-type ware but pale buff with a grey core and wheelmade with throwing lines internally. Although unidentified, a Late Saxon date seems most likely given its association with other wares of this date and the method of its manufacture.

Medieval
The small group of medieval wares was dominated by local medieval unglazed wares and Grimston ware, as is typical of the city. All fragments in this group were body or base sherds with the exception of one medieval coarseware bowl rim. This was a flaring form which is likely to be a relatively late date, perhaps 14th-century; it was unstratified (208).

An unprovenanced glazed ware sherd in an oxidised fabric with abundant fine sand and mica inclusions was decorated with combed vertical and diagonal lines. It may be a London ware. Four Grimston ware sherds were green glazed, but none had any other decoration.

Late medieval
Pottery of later 14th to 16th century date included local products and Rhenish stonewares. A body sherd of a Type II Martincamp flask from France is probably also of this period.

The local earthenwares were all LMT from the north Suffolk border and included two jugs with collared rims, a tripod-footed base and a wide strap handle with stabbed holes.

Stonewares included a base fragment of a white stoneware vessel which was similar to Cologne products but which was probably from Siegburg and a late product of those kilns. Frilled bases, body sherds and rims in Langerwehe and Raeren stonewares were probably pieces of mugs and jugs. Two sherds of a base and body recorded as Raeren/Aachen stoneware are similar to, but not typical of, this type and may instead be from Waldenburg in Saxony (cf Gaimster 1997, pl. 3.33), based on colour and form of the body. However finds of this stoneware are rare and one of the more prolific Rhenish production centres is more likely as a source.

Post-medieval
This is the largest group in the assemblage and is dominated by local glazed redwares (GRE, IGBW, LEPM, SPEC, WNBC). The forms of twenty-seven vessels in this group were identifiable based on rims or other distinguishing features. They comprised two jars, four large storage vessels, seven jugs, four bowls, a pancheon, two dishes, two pipkins, a skillet, a plate/skillet, a dish/bowl, a tankard and a chamber pot. All were typical forms for this fabric group.

White earthenwares were represented by a Border Ware yellow glazed pipkin rim (flanged lid-seated type) and several sherds of tin-glazed earthenwares. The latter included a plate rim with blue geometric/floral blue decoration, a plate or dish with blue painted decoration, a plain bowl rim, a footring base with managanese spatter internally and a small pedestal base which may be from a small drug jar. A possible jar rim was unglazed but in a cream fabric and is probably TGE which has lost its glaze.

Several slipwares were present including Harlow ('Metropolitan') and Dutch redwares. The Dutch ware was a plate rim fragment with chevron or herringbone slip decoration. Harlow wares were represented by a body sherd from a hollow ware, a base fragment with four parallel radial lines inside, and a ?bowl rim (form as Jennings 1981, no. 668, decoration as Jennings 1981 no. 679). Staffordshire-type slipwares were represented by a plate rim, a flatware body sherd and a hollow ware body sherd. A slipware from an unidentified source, but probably local, was a large mug rim with facetted decoration and thin brown slip highlighting the relief decoration and the rim edge.

Imports of this period, other than the Dutch wares, comprised several sherds of Frechen stoneware bottles, a bearded sherd which was possibly from a large mug, fragments of Westerwald stoneware chamberpots, and a Martincamp Type III flask.

Modern
Nine sherds of modern pottery were recovered, all but one of which were unstratified or from upper layers. A small sherd of an industrial slipware mug was found in pit fill (156).

Tablewares in white-firing clays formed the bulk of this group and included refined whiteware rimsherds of a bowl with green slip decoration on the rim, a cup with blue and green stencilled spongeware decoration, and a plate rim with blue shell-edging. A creamware handle with brown oxide decoration and a rusticated appearance was probably from a small teapot of mid 18th-century date. A porcelain rim of a dish or deep saucer was undecorated. A late blackware handle with metallic dark brown glaze was probably from a jug; a moulded 'rivet' and pinching at the base of the handle suggest that it was intended to look like a metal vessel.

More utilitarian wares were represented by a body sherd of a stoneware preserve jar with vertical grooving and a rim fragment of a slipware mixing bowl.

Pottery by context
Table 2 below shows the fabrics from stratified contexts with suggested spotdates. Appendix 3b shows the spread of fabric groups by context (* contains later CBM).

SSD	Context	Feature	Interpretation	Fabric	Fabric Spot date
6	134		layer	GRE	16th-18th c.
7	135	137	grave? fill	GRE, METS	17th-18th c.
7	136		layer	GRE, GSW5	17th-18th c.
11	139		layer	GSW4, SPEC	L.17th-18th c.
12–13	140		layer	RBGM, LSIM, LMT	15th-16th c.
17	143	144	pit? fill	THET	10th-11th c.
19	145		layer	EMSW	11th c.
20	147	146	feature fill	THET	10th-11th c.
23	152	151	feature fill	THET	10th-11th c.
23–24	156	157	pit fill	IGBW, INDS	L.18th-19th c.
25–24	164		layer	GRIM	L.12th-14th c.*
25–27	165		layer	GSW3	L.15th-16th c.
28	173		layer	LMT	15th-16th c.
28	167	168	footing fill	LMU	11th-14th c.
28	170	169	grave fill	LMT, GRE, TGE	16th-18th c.
29	175	174	grave? fill	GRIM, UPG	L.12th-14th c.
32	183	182	grave fill	LMU, GRIM	L.12th-14th c.
39–42	187		layer	LMU, GSW2, GRE, ESW	19th-E.20th c.
42	115	114	pit fill	THET, LSIM, UNID	10th-11th c.
43	189		layer	LMT	15th-16th c.
45	188		layer	MCW, GSW4	16th-17th c.
48	121		layer	LMT	15th-16th c.
49	123		layer	LMU, GRIM	L.12th-14th c.

The largest groups were collected as unstratified finds (208) and (209). Amongst the stratified contexts, there were no groups larger than 6 sherds. Two of these were from grave fills (170) and (135), and one was from the possible Late Saxon pit [114]. A few features may be of Late Saxon or medieval date, although these dates are based on only one or two sherds per context. The majority of features and layers were of late or post-medieval date.

Discussion
A number of excavations have been carried out within the Cathedral precinct in recent years, including small interventions in the area of Norwich School and elsewhere (e.g. Anderson 2005, 2007, 2012) and larger projects such as the Refectory and the Hostry (Goffin 2006; Anderson forthcoming a). All have produced pottery of Late Saxon to recent date, including a number of exotic wares from all periods. This assemblage fits well into the general pottery corpus from this important site.

The earliest pottery from the site was a single base fragment of a Roman jar. Small quantities of Roman pottery have been found within the precinct previously (e.g. at the Hostry, Anderson forthcoming a).

Small quantities of Late Saxon and medieval pottery were recovered and, whilst some were redeposited in later contexts, a few were found without later material and may indicate the presence of surviving features of these periods. The Saxon pottery included some non-local wares which may be continental imports. Other Late Saxon sites close to the river have produced similar material (e.g. Fishergate and Busseys; Anderson forthcoming b), and its presence is not unexpected as the quayside area was a thriving port in this period.

The majority of the group was recovered as unstratified finds and from make-up layers and this included a high proportion of post-medieval and modern pottery. Most of the small projects carried out in the area in recent years have been similarly dominated by this late material.

- **Ceramic Building Material** *(Appendix 4)*

By Sue Anderson

Introduction
Twenty-three fragments of Ceramic Building Material (CBM) weighing 1464g were collected from fifteen contexts. A catalogue by context is included in the Appendix 4.

Methodology
The assemblage was quantified (count and weight) by fabric and form. Fabrics were identified on the basis of macroscopic appearance and main inclusions. The width, length and thickness of bricks and floor tiles were measured. Forms were identified from work in Norwich (Drury 1993), based on measurements.

The assemblage
Table 1 shows the quantification by fabric and form.

Fabric	Code	FLT	RTM	EB	FFT	FT	RTP	PAN	QFT?
estuarine clays	est			4					
fine sandy	fs	1				1	1	1	
fine sandy with coarse quartz	fscq				1				
fine sandy with coarse grog	fsg					1	1		
medium sandy	ms		1				4		
medium sandy with coarse quartz	mscq						3		
medium sandy with flint/quartz	msf	1				1			
white fine sandy with clay pellets	wcp								1
white fine sandy with grog	wfg								1
Totals		**2**	**1**	**4**	**1**	**3**	**9**	**1**	**2**

Table 1. CBM quantities by fabric and form (fragment count).

Two fragments of Roman tile were identified. One was a fragment of the flange from a flanged *tegula* (FLT) from feature fill (153). The other was a fragment of the body of a possible flanged tegula from feature fill (158).

One fragment of a plain roof tile of probable medieval date (RTM) was found in layer (165). It was a thick tile with a circular peg hole and was reduced or possibly burnt. Plain roof tiles were in use from the 12th century onwards in East Anglia. Post-medieval roof tiles (RTP) were more frequent, with nine examples collected from seven contexts, and there was one fragment of a reduced pantile (PAN) from (209).

Four small fragments of early brick (EB) were collected and are likely to date to the 13th–15th centuries. No late bricks were recovered.

A fragment of a Flemish floor tile (FFT), worn with traces of green glaze on the surface, was recovered from layer (124). Three fragments of floor tile of uncertain date (FT) were also recovered. A possible medieval tile from layer (140) in a medium sandy with flint fabric had dark brown glaze and knife-trimmed edges. A fragment from (128) was very worn with no traces of glaze and may be post-medieval, as may a thin worn fragment from grave fill (169). Two white-firing fragments were probably quarry floor tiles (QFT) of post-medieval date and were found in ?grave fills (137) and (180).

The CBM was largely recovered from make-up layers and ?grave fills. In layers (140) and (165) medieval CBM was found in association with late medieval pottery and it seems likely that these contexts are late medieval with the slightly earlier CBM representing demolition rubble. Contexts (134), (135) and (170) all contained post-medieval pottery and the CBM from these is also of post-medieval date. Two fragments of post-medieval roof tile in (134) were associated with medieval pottery which is presumably residual. Other contexts had no associations with pottery finds.

Discussion
This small group includes fragments of Roman, medieval and post-medieval date. The Roman material is roofing tile, whilst the medieval period is represented by fragments from roofs, floors and walls. The post-medieval assemblage is largely roof and floor tile. The incorporation of this material in grave fills and make-up layers suggests that it was redeposited following demolition and its inclusion was probably accidental. The assemblage is too limited in scale for further interpretation.

- **Small Finds** *(Appendix 5)*

A total of 23 artefacts collected during the works have been catalogued as Small Finds, including coins, copper-alloy objects, window glass, cloth-seal, musket-balls and nails. The coins and cloth-seal are discussed in separate reports below by Andy Barnett (with detailed catalogues in Appendix 5), while a detailed catalogue of the finds is presented as Appendix 5. Selections of the more noteworthy finds are discussed below:

Copper-alloy Suspension-ring (SF:06)

Simple copper-alloy (bronze) suspension ring. Rings such as these have been collected from deposits dated to the late medieval to early post-medieval contexts in Norwich (15th to early 17th centuries) and probably served a variety of functions. One from excavations along Oak street in Norwich (NHER 351) was recovered with thread still wound around one part, indicating its probable use for curtains or hangings (Margeson 1993, 82).

Copper-alloy 'envelope' (SF:07)

This is thin piece of hand cut copper-alloy sheet which has been neatly folded in from both sides forming a roughly rectangular envelope. If unfolded flat it would be an irregular

octagonal shape showing that it has been cut with the intention of folding in the sides to form its current shape. Rather than a simple off-cut this may be a small object intended as a grave good. Larger folded parcels of lead are known associated with graves, one example of which was excavated from a female grave at St James's Priory, Bristol, which contained possible remains of parchment, is thought to have served as a religious charm placed with the burial.

'S' *lettering embellishment (SF:10)*

A hand-cut capital 'S', made very neatly from a thin sheet of copper-alloy was collected from the backfill of a post-medieval grave (Plate 10). Two small circular holes (one in each bend) still contain the remnants of flat headed iron tacks used to fix this letter as an embellishment to wood. This lettering is of a late-medieval to post-medieval date and may have formed part of embellishment for a wooden coffin. Certainly by the post-medieval period attachments of decorative plates, studs and text became increasingly common, with cast letters and machine-press manufacture adornments a standard part of the 19th century catalogues of grave fixtures and fittings. Inscriptions and prayers may have adorned both the outside and inside of coffin lids, where text such as *'Mercy Lord, Jesus'* may have been intended to be read at the Day of Judgement.

Plate 10: SF10 at 1:1

Copper–alloy Pins (SF: 11, 12 & 13)

SF: 12 & 13: These simple, fine pins with small heads continued to made in a similar method from the late 1600s into the 19th century. Small pins like these were used for many 'hidden' tasks, including the pleating of fine fabrics, pinning of headdresses and in the context of a cemetery they were used within burials to pin linings, shrouds or other textiles. SF: 11 is part of a larger pin of late medieval to post medieval date, used to secure heavier garments of clothing or textiles.

Musket balls (SF:14 & 15)

Two small musket balls in fair condition with a light brown patina were collected as unstratified finds from spoil (SF: 14 & 15). According to Harding's (2012) Lead shot of the Civil War, these fall into the size range for pistols. Neither show damage from impact with a hard target and both are more likely stray losses. One has a fairly pronounced casting sprue scar and mould seam with no effort made to trim and file the flashing down for use.

Musketballs are not an unusual stray find in Norwich, with thirteen collected during excavations at the Refectory site of 12mm to 15mm diameter. Some may relate to the Civil War period (c. 1642-51) when the Cathedral was a target of puritan vandalism. Infamous evidence assigned to the mob action of 1643 also includes scratched graffiti in the Cathedral presbytery and a musket ball embedded in the tomb of Bishop James Goldwell.

Medieval Window Glass (SF:17 & 18)

Two pieces of medieval window glass were collected from post-medieval soils at Bay 29. SF: 17 is a small fragment of painted grisaille work with a plain background (as opposed to cross hatching). It is painted on both sides forming part of a possible border with a loose design of lines and circles, which may be a stylistic representation of plant stems and berries. The plain background and looser form of the design may date the piece to a later 13th to 14th century period. The other is a vivid piece of pot metal blue window glass (SF: 18). Pot blue is one of a range of colours that is normal for 13th century glass. Blue glass was found at the Refectory site where are large assemblage of 13th century window glass was collected; after clear and opaque fragments it was the most common colour to be

collected (King, D. in Wallis 2005, 43). The original surface of this pieces has suffered from corrosion and flaking so it is unknown it this piece was painted or could be a piece from grisaille work.

Iron Stirrup (SF: 19)
A large and complete broad D-shaped stirrup of post-medieval date was recovered from post-medieval deposits at Bay 34. It has a rectangular footrest (closed form) with a ?rectangular loop which may have a slot form of opening for the leather strap. The profiles of the arms are thought to be square

- **Lead Cloth Seal** *(Appendix 5)*

By Andy Barnett

A single two-part lead cloth seal was collected during the works (SF:05), as an unstratified find from spoil produced at Bay 33. The first disc and stamped rivet are all that remain of this cloth/bale seal. The rivet has vestiges of the second discs stamp. All that remains discernible of is a possible Fleur de Lis. It is post-medeivla in date (a 17th to 18th century date range).

- **Coins** *(Appendix 6)*

By Andy Barnett

Four coins were recovered during the monitoring of works within the garth. One was of silver and three were of copper alloy. The earliest coin was of Late Saxon date whilst the three remaining coins were all jettons of the 16th-17th century. Full catalogues of the coins are included as Appendix 6.

Late Saxon Coin (SF:01)

The silver coin, which was found in spoil produced by Bay 9, has been identified as a small cross type penny of Edward the Martyr, 975-978 (Plate 11). It was issued by the moneyer *Boia* or *Boga* from the mint at Stamford sometime between 975 and 978.

Plate 11: SF01, Obverse (left) & Reverse (right) at 2:1

The coin has a dark grey patina to it due to a chemical reaction with the soils in which it was found. There is a 90° bend at the 9 to 12 o'clock position on the obverse face of the coin. It does not appear to be intentional. Otherwise the coin is in a good condition. The small cross on the reverse is not as strong as one would expect and could possibly be caused by damage to the die.

Late Medieval Rose/Orb Jetton (SF:02)

An anonymous issue Rose/Orb jetton, SF02, was recovered from Bay 23. Issued at Nuremburg, it has been dated to c.1500-1550. It is not in a particularly good state of preservation. It is quite worn and there is a fair amount of surface corrosion on both faces. The flan has been clipped in two places giving the jetton a crude shield shape. A similarly clipped jetton can be seen in Mitchiner (1988). It may be that this is some device for identification of particular jettons, although for what reason is uncertain.

Post Medieval Jettton (SF:03)

At Bay 48 a copper disc, SF03, was recovered. It has been given a nominal identification as a small form Rose/Orb jetton and can be roughly dated to the late 16th or early 17th century. This is based purely on the vestiges of detail that can be seen on one side of the disc. What remains looks very much like the arches of a double stranded tressure; a major component in the reverse design of a Rose/Orb jetton and an inner circle with lettering on the outside. The Jetton has seen better days. It is worn almost smooth and has been bent into what may have been the 'S' shape of a 'love token' and then flattened out again. It is creased and still misshaped with a few dents.

Post Medieval French style Jettton (SF:03)

SF04 was found in the upper soil layer (211) in Bay 34. This jetton is excellent condition with no signs of wear and a single spot of corrosion on its reverse. Its design appears to be a French style Schau-pfennig by Conrad Lauffer of Nuremburg dating to the late 17th century.

When compared to similar examples in Mitchiner (1988) it becomes a little problematic. The quality of engraving used for this jetton is of a lower standard to those shown in Mitchiner. The obverse legend should contain the letters 'D.G' but these are missing and the name of Conrad Lauffer in the reverse legend has ben spelled with a single F instead of two. It may be that this jetton is a contemporary imitation.

Conclusion

All of the coins, with the exception of SF04, were from unstratified contexts and all can be deemed as stray losses.

The Nuremburg jettons are a common occurrence in Norwich, especially within the cathedral precinct. Of 38 coins recovered during the Hostry excavations at the cathedral in 2006, twenty were identified as being jettons and sixteen of those were issued at Nuremberg. A further nine Nuremberg jettons were found during works at the Refectory site.

This small assemblage is made more interesting by the inclusion of the penny of Edward the Martyr. This is a rather rare find nationally is currently the oldest coin of its period to be found within the cathedral precinct. Previously a quatrefoil coin of Canute (minted in Norwich c. 1017-1023) was discovered during excavations at the Hostry (Barnett in Adams 2012, 157).

The small cross type of Edward the Martyr was effectively removed from circulation by a recoinage early in the reign of his half-brother Aethelred II 978-1016 (pers. Comm M. Allen). This find has been recorded with the Early Medieval Corpus at the Fitzwilliam Museum as EMC.2013.0003

- **Clay Tobacco Pipe**

A total of 45 pieces of clay tobacco pipe weighing 217g was collected from the site. The table below provides quantification by fragment type, a spot-date list and other notes. The dating of this assemblage has been principally based on the London-type series of bowl forms and the previously published and analysed material from Norwich (Atkins 1985) with additional reference comparison with material published by Atkinson and Oswald (1969). No attempt was made to employ stem bore dating techniques.

Context No.	Context Type	SSD	Type	Quantity	Weight	Comment
113	Grave fill	Bay 43	Stems	2	4	-
135	Grave fill	Bay 7	Stems	3	10	One stem is vitrified
197	Unstratified	Bay 20	Stems and bowl	11	39	One stem is has deep roulette decoration, the bowl (12g) is
207	Unstratified	N.Range	Stems	5	29	One piece retains art of the step
208	Unstratified	E.Range	Stems and bowls	13	84	Two bowls (14g + 12g) and foot of a bowl (8g)
210	Unstratified	W.Range	Stems	14	61	-

Bowl types:

- The mid to late 17th century bowl from (197) has a weak quarter milling and a flat-heeled, unmarked teardrop shaped foot, a knife shaped rim and a bulbous/waisted bowl.
- Both the bowls collected from (208) have knife cut rims, one has half rouletting and a flat-rounded heel with a middle bulge and may be of mid to late 17th century South Norfolk manufacture. The other is more neatly made, with delicate half rouletting, a flat oval heel and a fairly small bulbous bowl and is likely to be of early 17th century date.

All three bowls are unmarked and are of 17th-century date. The origins of manufacture of at least two of the bowls are likely to be London-type variants, as no bowls with the maker's initials relating to Norwich or local manufactures were recovered. The majority of the assemblage was retrieved as unstratified material – sources from post-medieval garden soils and make-up deposits, with stems collected from two grave-fills to assist on confirmation of post-medieval dates for these particular features.

Glass Vessels

The base of a late 19th to early 20th century mineral water bottle was collected from spoil produced by the cable trench in Bay 12 (141). It is of pale green glass and bares the legend ' '-L^{TD} NORWICH & SWAFFHAM' with 'S&P L$^{\underline{TD}}$' on its base (Steward & Patterson).

Steward & Patterson was formerly the largest of the Norwich Breweries and was originally known as the Anchor Brewery and then from the 1850s as the Pockthorpe Brewery. In 1895 the firm registered as Steward & Patterson Ltd and continued to expand until their takeover by Watney Mann in 1963.

A fragment of green glass from the body of vessel was collected from spoil along the eastern range (208). It has a poorly preserved flaking surface and is 5mm thick – it may derive from a hand shaped globular shaped wine bottle of 17th to early 18th century date.

Two pieces of glass from the body of a similar vessel were collected from the lower soil layer in the areas of Bays 12 & 13, (140).

Worked Stone

Eight fragments of worked stone were collected weighing a total of 5,628g. These include fragments from 18th century grave markers and pieces of worked limestone from likely medieval deposits, including two possible medieval graves. The worked limestone is predominantly fine grained Caen stone and represents residual waste from either construction or demolition activity in the medieval period, with examples also collected from the banded footings ([251]) of a possible Romanesque Lavatorium set within the south-west corner of the cloister garth.

Context No.	SSD	Feature Type	Material	No.	Weight (g)	Comments
124	Bay 49	?Medieval layer	Oolitic Limestone (Bath stone)	1	179	A fairly weathered frag.
166	Bay 25	?med. footing [251]	Fine grained oolitic limestone (Caen)	2	94 + 47	Larger frag. X2 smooth faces (ashlar block), smaller has traces of crushed limestone/mortar adhering
175	Bay 29	?Med. grave/feature	Fine grained oolitic limestone (Caen)	1	96	Single flat face, worn tooling
183	Bay 32	?Med. grave/feature	Fine grained oolitic limestone (Caen)	2	80 + 62	Minor tool marks
187	Bays 39-42	Upper soil layer	Shelly limestone (fossiliferous)	1	1530	Bottom right corner frag. Of a footstone: inc. date of 1716. 152mm max length125mm max width, 53mm max thickness
209	S.Range	Unstratified (spoil find)	hard, off-white fine grained oolitic limestone	1	3560	Top corner of a Gothic-revival style grave stone - rounded top with a decorated border embellished with a stylised oak leaf?. 52mm thick (68mm thick where decorated), 220mm max length, 180mm max width.
			Totals	8	5628	

Lava Stone

A single piece of shaped vesicular lava stone was collected from the fill of possible late Saxon pit identified along the southern range. It has remnants of an upper and lower face, with a slight curve which identify it as a fragment from a quernstone.

Of eight fragments of lava stone found during excavations at the Refectory, to the south of the cloister, seven were collected from Late Saxon contexts (Wallis 2006, 56). Of nine pieces collected during excavations at the Hostry the majority were also collected from Late Saxon features (Percival in Adams 2012, 139). All such pieces were identified as fragments f quernstones, which are commonly found in Late Saxon deposits in Norwich and across East Anglia. They are usually described as Rhenish lava stone – although only petrological analysis can establish the precise place of origin beyond doubt. The lava stone collected during work at the Hostry has been suggested by Percival to derive from quarries situated in the Mayen region of Eifel, Germany, from where lava quernstones were widely distributed in the early medieval period (Parkhouse 1997).

Context No.	SSD	Feature Type	Material	No.	Weight (g)	Comments
152	Bay 23	?L.Saxon pit [151]	Lava stone	1	74	33mm thick (max length 62mm) with remnants of upper and lower faces, slightly curved, part of a quernstone

- **Lead Waste**

Fifty-eight pieces of lead waste was collected during the works, weighing a total of 522g. The lead was collected during the metal detection of spoil along each range with obviously modern fragments left on site. Fifty-eight pieces were collected pieces, weighing a total of 522g. All pieces have been more closely assessed to identify any artefacts of note (such as window cames) with all off-cut and melted pieces recorded before discard.

Context No.	SSD	Type	Quantity	Combined Weight (g)	Comment
207	N.Range	Off-cut sheet	3	64	c.2-3mm thick, probably roofing waste. Two largest pieces are folded.
		Off-cut strip	1	2	2mm thick
		Puddled	4	58	
208	E.Range	Off-cut strip	5	27	One long piece is folded into a flat knot
		Puddled	3	34	
209	S.Range	Off-cut sheet	4	31	c. 1-3mm thick, two larger pieces are folded.
		Off-cut strip	1	8	3mm thick
		Puddled	4	32	
		Shaped off-cut	1	10	1-2mm thick segment with tow cut edges and a thickend curving rim
210	W.Range	Shaped lump	1	28	Two wide grooves
		Off-cut sheet	7	35	Includes small fragments 1-2mm thick
		Off-cut strip	1	3	1mm thick
		Puddled	15	90	
		Droplets	2	2	
		Melted	1	81	Large L shaped piece of melted lead with a vertical rivulet turning into a puddled base
		Melted fragments	3	14	
		Melted ?came fragments	2	3	
		Totals	58	522	

Many of the fragments relate to waste associated with repairs and maintenance of lead roofing, with many off-cuts folded in preparation for melting and reuse. Although some of the molten lead may relate to spilled waste in the process of lead-working within the area of the garth some pieces are more clearly background evidence relating to fire damage – the most notable event being the fire of 1272 which caused significant damage to the cloister.

- **Animal Bone** *(Appendix X)*

By Julie Curl

Methodology

The minor residual presence of animal bone fragments was recorded on site as inclusions within post-medieval make-up and soils. Such examples offered no known provenance and were not collected for further analysis. The bone in this analysed assemblage consisted of a very small example of hand-collected remains from stratified deposits.

All of the bone was identified to species wherever possible using a variety of comparative reference material. The bones were recorded using a modified version of guidelines described in Davis (1992).

Any butchering was recorded, noting the type of butchering, such as cut, chopped or sawn and location of butchering. Pathologies, if present, would be recorded with the type of injury or disease, the element affected and the location on the bone. Other modifications are also recorded, such as any possible working, working waste, burning or animal gnawing. The faunal assemblage contained too few teeth to allow recording of tooth wear. No bones in this assemblage were sufficiently complete to allow measurements to be taken.

Weights and total number of pieces counts were also taken for each context, along with the number of pieces for each individual species present (NISP) and these appear in the appendix. As this is a small assemblage, with remains from just two features, the information was recorded directly into a table in this report. A catalogue is provided in the appendix giving a summary and quantification of all of the faunal remains by context.

The faunal assemblage

Quantification, provenance and preservation
A total of 40g of faunal remains, consisting of just three pieces, was collected for analysis. The bone was produced from two fills: context (115), fill of a Late Saxon pit and context (183), the fill a medieval pit or grave. A summary of the assemblage, with quantifications, is presented in the table below.

Context No.	Context Type	No.	Weight (g)	Species	NIPS	Age	Element Range	Ch	C	Comments
115	Fill of L.Saxon Pit [114]	2	39	Cattle	2	A	Teeth	-	-	Two upper molars
183	Fill of [182] ?medieval grave/pit	1	1	Goose	1	A	Upper –limb (wing)	-	1	Radius with fine knife cuts on shaft

Key: NISP = Number of Individual Species elements Present, Age – A = adult, j = juvenile (older than 1 month), Butchering: c = cut, ch = chopped (and number of elements affected)

The bone in this assemblage is in good condition, although the remains in one fill are incomplete, this is as a result of butchering. Burning or gnawing was not evident on any of the remains.

Species range, modifications and discussion
Two species were identified in this assemblage. Two upper molars from adult cattle were seen in the Late Saxon pit fill (115). Goose was seen in the medieval pit or grave fill (183). The goose bone is the proximal end of a radius (wing bone), which shows some fine knife cuts from preparation of the bird or removal of the meat.

Conclusions
This is a very small assemblage. The teeth in the Saxon pit fill are difficult to interpret in isolation from any bone. The goose bone is clearly from food use, as is attested by the cut marks. Goose may well have been part of the ecclesiastical diet at the cathedral, with such aquatic species being included in the fasting diet and they (along with water-based birds and mammals) were seen as the equivalent of fish. Goose bones are common finds at the cathedral, with the refectory excavations showing an increased use of them through the periods (Curl, 2006) and probably a regular inclusion in the diet.

Oyster Shell

A single small flaky, fragment (2g) from a larger oyster shell was collected from (115), the fill of a Late Saxon pit (114]). Along with the presence of two cow teeth this demonstrates that the pit contained elements of food waste.

8.0 Conclusions

Norvic Archaeology carried out a programme of archaeological work necessitated by the installation of a new lighting system within the Cloister Walk & Garth of Norwich Cathedral. Monitoring and keyhole investigation of light-pits in every bay and a cable trench around the inner edge of the Garth has allowed for several new observations and significant discoveries.

Where natural sands were recorded they further demonstrate that the natural underlying slope falls generally from west to east across the garth, although to what extent remodelling has affected the original slope is uncertain. The consistent depth of natural along the western range may suggest some form of early levelling activity while deeper make-up deposits along the eastern range may be consistent with an effort to raise the ground level.

Two main phases of post-medieval soil build-up have been characterised, with additional information regarding depths and variations of the soils around the garth. In addition some isolated zones of subsoil of earlier date have been identified which may include an earlier phase of medieval subsoil or make-up and a buried soil of likely Late Saxon date.

A minimum of six features can be categorised as Late Saxon pits, adding to the single Late Saxon pit discovered during an evaluation inside the Garth in 2005. Two were located in the north-west of the garth and the remainder focused in the central region of the southern range.

Several features have been assigned a medieval date which include possible pits, two of which have the potential to be medieval grave cuts. Although it is not currently thought that burials took place within the garth at Norwich during the medieval period the form of at least one such feature appears fairly convincing as a grave

Of the many features partly exposed by the groundworks twenty-nine have been categorised as grave cuts, including three neonatal burials. The vast majority can be assigned to post-medieval burials, thought to relate to use for the parish of St Mary in the Marsh (which had lost its church and burial yard within the precinct shortly before 1564). Articulated adult remains were encountered on just two occasions during the monitoring work, at depths of c.0.7m below the modern surface. Given the large number of grave cuts exposed during this project it would appear that many inhumations are buried at greater depths than these examples.

Of the neo-natal burials two were positioned fairly centrally between the buttresses of their respective bays, while the other may have formed part of an adult interment just beyond the edge of the ‘bay area’. Whether the placement of new-borns within the bays of the garth may prove to be a reoccurring phenomenon is yet to be revealed. Possible explanations for any such zoning of newborns are varied and include the secret placement of unsanctified burials or unbaptised infants alongside possible quasi-religious beliefs.

The positions of six similarly constructed brick burial vaults was established, three of which were revealed to a greater or lesser extent in previous monitoring work by NAU Archaeology in 2006-7. It may well be that the 19th century grave slabs incorporated into paving along the north side of the garth, along with several other monumental slabs within the garth relate to such tombs.

Perhaps the most significant archaeological deposits encountered during the project include the flint packed footings and banded footings identified at several locations within the south-west corner of the garth. Although limited in scale this evidence provides the distinct possibility of a former square shaped structure which predates the extant Gothic cloister. The presence of a building in the south-west corner of the former Romanesque cloister has parallels with several other well know monastic layouts which also include buildings within

the cloister garth – both free standing and attached to the walls, all of which relate to earlier monastic phases of water management and lavatory structures. A convincing parallel for the proposed early medieval structure at Norwich is that of a 12th century lavatorium found in the excavations at the Benedictine Cathedral Priory of Durham. It was of a similar square plan, with similar dimensions and also set within the south-west angle of the earliest phase of cloister.

The surviving trough style Gothic lavatorium at Norwich is located close by, within the west cloister walk of the two most southern bays. This feature was constructed after the main work on the cloister rebuild was completed, and replaced an earlier trough style lavatorium at the same location. The lengthy rebuilding campaign of the cloister took place between 1297 to 1430, with tracery in the south-west corner of the cloister providing a completion date of c.1330-1356. It can be postulated that the initial late 13th century rebuilding plans followed newer trends and did away completely with the first, original lavatorium set within the south-west corner of the original position of the Romanesque cloister walls.

The finds assemblage collected during the works include a variety of pottery sherds and artefacts of Late Saxon to Modern date. Of these, perhaps the most notable include recycled Roman tile fragments, medieval window glass, musket balls, several jettons, fragments of 18th century grave markers and a Late Saxon silver hammered coin of Edward "the martyr" (975-978 AD). This silver short-cross penny is a rather rare find nationally and is currently the oldest coin of its period to be found within the cathedral precinct. Previously a quatrefoil coin of Canute (1017-1023) was discovered during excavations at the Hostry in 2007.

Overall this project has made a useful contribution to our current understanding of the soil horizons and deposit sequences within the garth, while also revealing that both early medieval structural elements and buried Late Saxon features survive below later deposits in a fair state of preservation. Evidence for a conjectured lavatorium set within the south-west corner of the 12th century cloister provides a tantalising new area for research with regard to the original layout and development of the cloister garth.

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Appendix 1a: Context Summary

Context	Type	SSD	Fill of	Brief Description	Interpretation	Assigned Period
101	Cut	40		Small ?Pit	Pit	*Modern*
102	Deposit	40	[101]	Fill of [101]		
103	Deposit	39 to 37		Lower subsoil/dirty natural	See (304)	*?Late Saxon*
104	Deposit	39 to 37		Clean natural sand	Natural	
105	Cut			Shallow pit	Pit	*Late Saxon*
106	Deposit		[105]	Fill of [105]		
107	Cut	44		Pit/PH	Pit/PH	*Modern*
108	Deposit	44	[107]	Fill of [107]		
109	Cut	40		Edge of a P.med. Cut feature ?Grave	Pit/?Grave	*Post-medieval*
110	Deposit	40	[109]	Fill of [109]		
111	Deposit	40		Natural gravel	Natural	
112	Cut	43		?Grave cut - E-W aligned	Grave	*Post-medieval*
113	Deposit	43	[112]	Fill of [112]		
114	Cut	42		Pit – eastern part, sub-rect?	Pit	*Late Saxon*
115	Deposit	42	[114]	Fill of [114]		
116	HSR	43		Redeposited human cranium		
117	Cut	44		Edge of ?Grave cut	?Grave	*Post-medieval*
118	Deposit	44	[117]	Fill of [117]		
119	Cut	44		Edge of ?Grave cut	Grave	*Post-medieval*
120	Deposit	44	[119]	Fill of [119]		
121	Deposit	48		Layer designated code (i), south of brick vault 223, ?= (214)	See (302)	*Post-medieval*
122	U/S	48 to 49		Finds from light pit's spoil		
123	Deposit	49		Layer		*Medieval*
124	Deposit	49		Layer		*Medieval*
125	Masonry	46		Brick vaulted tomb	Brick Tomb	*Late Post-medieval*
126	RF	3		Finds from 'lower deposit' i.e. similar to (214)	See (302)	*Post-medieval*
127	U/S	4		Spoil finds		
128	U/S	5		Spoil finds		
129	U/S	6		Spoil finds		
130	U/S	7		Spoil finds		
131	U/S	8		Spoil finds		
132	U/S	9		Spoil finds		
133	RF	5		Finds collected from lowest soil horizon encountered	See (302)	*Post-medieval*
134	Deposit	6		Lower deposit/?fill on W.side of drain - inc. large pot sherds	See (302)	*Post-medieval*

Context	Type	SSD	Fill of	Brief Description	Interpretation	Assigned Period
135	Deposit	7	[137]	Fill of [137]		
136	Deposit	7		Soil layer above (135)		*Late Post-medieval*
137	Cut	7		?Grave cut	Grave	*Late Post-medieval*
138	Masonry	8 to 9		Brick vaulted tomb - NB: previously 'broken'	Brick Tomb	*Late Post-medieval*
139	Deposit	11		Lower deposit	See (302)	*Post-medieval*
140	Deposit	12 to 13		Lower soil horizon - 'stony'	See (302)	*Post-medieval*
141	U/S	12		Spoil finds		
142	Masonry	16		Ceramic block drain	Drain	*Post-medieval*
143	Deposit	17	[144]	Fill of [144]		
144	Cut	17		Rounded edge of steep sided cut	Pit	*Late Saxon*
145	Deposit	19	304	Layer above clean natural sand	See (304)	*?Late Saxon*
146	Cut	20		Rounded edge in plan	Pit	*Late Saxon*
147	Deposit	20		Fill of [146]		
148	Masonry	21		Grave marker fragment (v. large)	Grave Marker	*Post-medieval*
149	Cut	22 to 23		Posthole	PH	*?P.med/modern*
150	Deposit	22 to 23	[149]	Fill of [149]		
151	Cut	23		Edge of cut feature (within light pit)	?Uncertain/?Pit	*Late Saxon*
152	Deposit	23	[151]	Fill of [151]		
153	Cut	23		Edge of cut feature (within trench)	?Uncertain/?Pit	*Late Saxon*
154	Deposit	23	[153]	Fill of [153]		
155	Deposit	22 to 23		Lowest horizon above natural (a grey deposit)	See (304)	*?Late Saxon*
156	Deposit	23 to 24	[157]	Fill of [157]		
157	Cut	23 to 24		Pit	Pit	*Late Post-medieval*
158	Cut	24		Flint packed feature	?Footing	*Early Medieval*
159	Deposit	24	[158]	Fill of [158]		
160	Cut	24		Edge of ?Grave cut/pit	?Grave/Pit	*Post-medieval*
161	Deposit	24	[160]	Fill of [160]		
162	Deposit	24		Stony deposit - below brick vault pad	?Footing	*Early Medieval*
163	Masonry	24		Brick coffin-shaped pad for a tomb		*Late Post-medieval*
164	Deposit	25 to 24		Lower deposit	See (303)	*?Medieval*
165	Deposit	25 to 27		Mid grey horizon	See (302)	*Post-medieval*
166	Deposit	25	[251]	Crushed limestone/mortar layer (2nd fill of [251])		
167	Deposit	28	[168]	Flint fabric and silty sand fill of [168]		
168	Cut	28		Footing trench	Footing	*Early Medieval*
169	Cut	28		Grave cut - NB: truncated into (167)	Grave	*Post-medieval*
170	Deposit	28	[169]	Fill of [169]		
171	Cut	28		Neonatal grave	Grave	*Post-medieval*
172	Deposit	28	[171]	Fill of [171] inc. articulated neonatal		

Context	Type	SSD	Fill of	Brief Description	Interpretation	Assigned Period
				remains		
173	Deposit	28	302	Lowest soil layer above natural (a grey silty sand)	See (302)	*Post-medieval*
174	Cut	29		?Grave cut	?Grave	*?Medieval*
175	Deposit	29	[174]	Fill of [174]		
176	Deposit	29		Soil layer	See (302)	*Post-medieval*
177	Cut	29		Neonatal grave	Grave	*Post-medieval*
178	Deposit	29		Fill of [177]		
179	Masonry	32		Brick vaulted tomb		*Late Post-medieval*
180	Cut	32		Grave cut	Grave	*Post-medieval*
181	Deposit	32	[180]	Fill of [180]		
182	Cut	32		Western end of a ?Pit/?Grave	?Pit/?Grave	*Medieval*
183	Deposit	32	[182]	Fill of [182]		
184	Cut	33		?Grave cut	?Grave	*Post-medieval*
185	Deposit	33	[184]	Fill of [184]		
186	Deposit	33		?dump of tile and rubble		*Post-medieval*
187	Deposit	39 to 42		Upper soil horizon	See (301)	*L.P.med to Modern*
188	Deposit	45		Lower soil horizons	See (302)	*Post-medieval*
189	Deposit	43		Lower soil horizon	See (302)	*Post-medieval*
190	Deposit	34		Lower mid grey horizon	See (302)	*Post-medieval*
191	U/S	2		Spoil finds		
192	U/S	11		Spoil finds		
193	U/S	13		Spoil finds		
194	U/S	16		Spoil finds		
195	U/S	18		Spoil finds		
196	U/S	19		Spoil finds		
197	U/S	20		Spoil finds		
198	U/S	22		Spoil finds		
199	U/S	23		Spoil finds		
200	U/S	24		Spoil finds		
201	U/S	25		Spoil finds		
202	U/S	29		Spoil finds		
203	U/S	30		Spoil finds		
204	U/S	31		Spoil finds		
205	U/S	36		Spoil finds		
206	U/S	37		Spoil finds		
207	U/S	N Range		Spoil finds		
208	U/S	E Range		Spoil finds		
209	U/S	S Range		Spoil finds		

Context	Type	SSD	Fill of	Brief Description	Interpretation	Assigned Period
210	U/S	W Range		Spoil finds		
211	Deposit	34		Upper soil horizon	See (301)	*L.P.med to Modern*
212	Deposit	N Range		Upper soil horizon	See (301)	*L.P.med to Modern*
213	Deposit	N Range		Mixed upper soil horizon	See (301)	*L.P.med to Modern*
214	Deposit	N Range		Lower soil horizon - mainly present opp. Western few bays	See (303)	*?Medieval*
215	Deposit	49, 2		Layer - sticky clay and silt		*Medieval*
216	Deposit	49, 2		Layer - dark grey sandy silt, below (215)		*Medieval*
217	Deposit		[116]	Mixed silty-sand - contained redeposited Human Cranium 116	?Grave fill	
218	RF	45		?Early Gothic Grave Marker	Grave Marker	*Late Post-medieval*
219	Cut	45		?Pit	Pit	*Medieval*
220	Deposit	45	[219]	Fill		
221	Cut	45		?Pit	Grave	*Medieval*
222	Deposit	45	[221]	Fill		
223	Masonry	48		Brick vaulted tomb (similar to 125)	Brick Tomb	*Late Post-medieval*
224	Cut	9			Grave	*Post-medieval*
225	Deposit	9	[224]	Fill of Grave [224]		
226	Cut	8		Small grave for a Neo-natal burial	Grave	*? Post-medieval*
227	Deposit	8	[226]	Fill of Grave [226] inc.. Neo-natal skeleton		
228	Cut	8		Grave	Grave	*Post-medieval*
229	Deposit	8	[228]	Fill of Grave [228]		
230	Cut	12		Grave	Grave	*Post-medieval*
231	Skeleton	12	[230]	Articulated (western foot end) contained within Grave [230]		
232	Deposit	12	[230]	Fill of Grave [230]		
233	Cut	17		Grave edge	Grave	*Post-medieval*
234	Deposit	17	[233]	Fill or Grave [233]		
235	Masonry	18		Brick beehive structure	Sump	*P.med/?L.P.Med*
236	Deposit	18	235	Rubble and crushed mortar mix assoc. with 235		
237	Cut	19		Grave cut	Grave	*Post-medieval*
238	Deposit	19	[237]	Well mixed fill of Grave [237]		
239	Cut	20		S. edge of a probable grave	Grave	*Post-medieval*
240	Deposit	20	[239]	Fill of ?Grave [239]		
241	Cut	21		S. edge of a probable grave	Grave	*Post-medieval*
242	Deposit	21	[241]	Fill of ?Grave [241]		
243	Cut	23		?Pit	Pit	*? Late Post-medieval*
244	Deposit	23	[243]	Fill of [243]		
245	Masonry	23 to 24		Ceramic pipe/ceramic blocks	Drain	*Late Post-medieval*

Context	Type	SSD	Fill of	Brief Description	Interpretation	Assigned Period
246	Deposit	25	[251]	Primary fill of [251]		
247	Deposit	25	[251]	Third fill of [251]		
248	Deposit	25	[251]	Fill of [251]		
249	Deposit	25	[251]	Fill of [251]		
250	Deposit	25		Mixed layer below modern trample = (306)		
251	Cut	25		Poss. Footing containing banded deposits	Footing?	*Early Medieval*
252	Deposit	27		?Make-up		*?Medieval/P.med*
253	Deposit	27		?Make-up - fine clay		*Medieval*
254	Deposit	27		?Make-up		*Medieval*
255	Cut	28		x2 Graves?	Grave	*Post-medieval*
256	Deposit	28	[255]	Fill of [255]		
257	Cut	28		Grave	Grave	*Late Post-medieval*
258	Deposit	28	[257]	Fill of [257]		
259	Cut	31		Grave	Grave	*Post-medieval*
260	Deposit	31	[259]	Fill of Grave [259]		
261	Masonry	32		Brick Vaulted Tomb	Brick Tomb	*Late Post-medieval*
262	Cut	34		?Grave	Grave	*Post-medieval*
263	Deposit	34	[262]	Fill of [262]		
264	Cut	35		Grave	Grave	*Post-medieval*
265	Deposit	35	[264]	Fill of [264]		
266	Cut	35		Grave	Grave	*Post-medieval*
267	Deposit	35	[266]	Fill of [266]		
268	Deposit	36		Fill of a Grave (edges undefined)	Grave fill	
269	Masonry	36		Brick vaulted tomb (similar to 125)	Brick Tomb	*Late Post-medieval*
270	Cut	45		Grave	Grave	*Post-medieval*
271	Deposit	45	[270]	Fill of Grave		
300	Deposit			Master Number	Topsoil	*Modern*
301	Deposit			Master Number	Upper Soil Layer	*L.P.med to Modern*
302	Deposit			Master Number	Lower Soil Layer	*Post-medieval*
303	Deposit			Master Number	Subsoil/make-up	*?Medieval*
304	Deposit			Master Number	Subsoil	*?Late Saxon*
305	Deposit			Master Number	Natural	
306	Deposit			Master Number	Make-up	*Post-medieval +*
307	Deposit			Master Number	Make-up	*Late Post-medieval +*

Appendix 1b: OASIS feature summary table

Period	Feature type	Quantity
Late Saxon (851 to 1065AD)	Pits	6
Medieval (1066 to 1539AD)	Grave	2
	Pits	4
	Lavatorium	1
Post-medieval (1540 to 1900AD)	Vault (brick burial vaults)	6
	Drain	3
	Graves	27
	Headstone	2
	Inhumation	2
	Inhumation - neonatal	3
	Pit	1
	Soakaway	1
Modern (1900 to 2050 AD)	Pit	3

Appendix 2a: Bulk Finds by Context

Context	Material	Quantity	Weight (g)
110	Ceramic Building Material	2	111
113	Clay Tobacco Pipe	2	4
	Ceramic Building Material	1	59
115	Animal Bone	2	39
	Shell	1	2
	Pottery	6	169
121	Pottery	3	32
122	Pottery	3	18
123	Pottery	2	12
124	Worked Stone	1	179
	Ceramic Building Material	1	59
126	Pottery	2	39
127	Pottery	4	114
128	Pottery	6	110
129	Pottery	3	60
130	Pottery	2	81
131	Pottery	3	69
132	Pottery	6	93
133	Pottery	4	34
124	Ceramic Building Material	1	174
128	Ceramic Building Material	1	221
134	Ceramic Building Material	1	27
	Pottery	3	739
135	Ceramic Building Material	1	21
	Pottery	6	107
136	Pottery	2	30
139	Pottery	2	37
140	Ceramic Building Material	1	25
	Pottery	4	90
141	Glass	1	205
	Pottery	4	177
143	Pottery	1	3
145	Pottery	1	7
147	Pottery	1	11
152	Stone	1	74
	Pottery	1	2
140	Ceramic Building Material	1	86
154	Ceramic Building Material	1	52

Context	Material	Quantity	Weight (g)
156	Pottery	2	14
159	Ceramic Building Material	1	40
	Ceramic Building Material	1	39
164	Ceramic Building Material	2	81
	Pottery	1	48
165	Ceramic Building Material	1	44
	Pottery	3	33
166	Worked Stone	2	140
167	Pottery	1	4
165	Ceramic Building Material	1	106
170	Ceramic Building Material	2	47
	Pottery	6	66
173	Pottery	1	48
175	Worked Stone	1	96
	Pottery	2	27
181	Ceramic Building Material	2	173
183	Worked Stone	2	142
	Animal Bone	1	1
	Pottery	2	11
185	Ceramic Building Material	1	48
187	Pottery	4	51
	Worked Stone - Footstone	1	1530
188	Pottery	2	11
189	Pottery	1	16
191	Pottery	1	24
192	Pottery	3	66
193	Pottery	2	25
194	Pottery	5	93
195	Pottery	2	35
196	Pottery	2	89
135	Clay Tobacco Pipe	3	10
197	Clay Tobacco Pipe	11	39
	Pottery	2	51
198	Pottery	3	122
199	Pottery	4	43
200	Pottery	4	126
201	Pottery	1	97
202	Pottery	1	13
203	Pottery	1	8
204	Pottery	2	69
205	Pottery	3	20
206	Pottery	1	21
207	Clay Tobacco Pipe	5	29
	Pottery	1	4
208	Glass	1	27
	Clay Tobacco Pipe	13	84
	Pottery	26	429
209	Worked Stone – Headstone	1	3560
	Pottery	23	579
210	Clay Tobacco Pipe	14	61
	Pottery	7	90
224	Ceramic Building Material	1	51

Appendix 2b: NHER finds summary table

Period	Material	Quantity
Unknown	Lead waste	58
Roman (42 to 409AD)	Ceramic Building Material	2
	Pottery	1
Late Saxon (851 to 1065AD)	Animal bone	2
	Coin – silver	1
	Pottery	19
	Shell – oyster	1
	Quernstone – lava stone	1
Medieval (1066 to 1539AD)	Animal bone	1
	Ceramic Building Material	11
	Coin – jetton	1
	Pin – copper-alloy	1
	Pottery	44
	Suspension ring – copper-alloy	1
	Window Glass	2
	Worked stone	6
Post-medieval (1540 to 1900AD)	Ceramic Building Material	10
	Clay Tobacco Pipe	45
	Coin – jetton	2
	Coffin furniture – 'S' lettering	1
	Coffin furniture – handle	1
	Glass – bottle	3
	Lead – Cloth-seal	1
	Musket ball	2
	Nails	3
	Object – copper-alloy folded sheet 'envelope'	1
	Pin – copper-alloy	4
	Pottery	115
	Stirrup – Iron	1
	Thimble	1
	Worked Stone – Grave markers	2
Modern (1900 to 2050 AD)	Ruler hinge	1
	Glass - bottle	1
	Pottery	9

Appendix 3a: Pottery catalogue

Context	Fabric	Form name	Rim	No	Wt/g	Fabric date range
115	UNID			1	7	LSax
115	THET	medium AB jar	5/6	1	51	10th-11th c.
115	LSIM	large storage vessel?		1	63	10th-11th c.
115	THET			3	48	10th-11th c.
121	LMT	jug	COLL	3	32	15th-16th c.
122	LMT			1	5	15th-16th c.
122	GRE	bowl?	BD	1	8	16th-18th c.
122	GRE			1	5	16th-18th c.
123	LMU			1	5	11th-14th c.
123	GRIM			1	7	L.12th-14th c.
126	THET			1	12	10th-11th c.
126	GRE			1	27	16th-18th c.
127	LMT			1	33	15th-16th c.
127	WNBC	jar	THEV	1	24	17th c.
127	GRE	jar	EV	1	19	16th-18th c.
127	GSW4			1	38	16th-17th c.
128	GSW3	mug	UPPL	1	43	L.15th-16th c.
128	GRE			2	51	16th-18th c.
128	GRE			2	12	16th-18th c.
128	TGE			1	4	16th-18th c.
129	GRIM			1	31	L.12th-14th c.
129	GRE	dish	THEV	1	24	16th-18th c.
129	IGBW			1	5	16th-18th c.
130	GRE	plate/skillet	THEV	1	16	16th-18th c.
130	SPEC	jug?		1	65	L.17th-18th c.
131	GRE			2	19	16th-18th c.
131	GRE	skillet?	BD	1	50	16th-18th c.
132	TGE	bowl?	PL	1	5	16th-18th c.
132	GRE	bowl	BD	1	31	16th-18th c.
132	TGE	plate	PL	1	14	16th-18th c.
132	GRE			1	19	16th-18th c.
132	GRE			1	13	16th-18th c.
132	GRE			1	11	16th-18th c.
133	LMT			1	5	15th-16th c.
133	GRE	pipkin	THEV	1	12	16th-18th c.
133	TGE	jar?	THEV	1	12	16th-18th c.
133	GSW4			1	5	16th-17th c.
134	GRE	jug?		1	655	16th-18th c.
134	GRE	jug		1	50	16th-18th c.
134	GRE			1	34	16th-18th c.
135	GRE	jug	BD	1	6	16th-18th c.
135	GRE			1	17	16th-18th c.
135	GRE			1	43	16th-18th c.
135	GRE			2	38	16th-18th c.
135	METS			1	3	17th c.
136	GRE			1	21	16th-18th c.
136	GSW5			1	9	E.17th-19th c.
139	GSW4			1	17	16th-17th c.

Context	Fabric	Form name	Rim	No	Wt/g	Fabric date range
139	SPEC	chamber pot?	FTEV	1	20	L.17th-18th c.
140	RBGM			1	9	Romano-British
140	LSIM	jar		1	10	10th-11th c.
140	LSIM			1	5	10th-11th c.
140	LMT			1	66	15th-16th c.
141	GRE	large storage vessel		1	104	16th-18th c.
141	GRE	large storage vessel	SQBD	1	42	16th-18th c.
141	GSW4			1	26	16th-17th c.
141	GRE			1	5	16th-18th c.
143	THET			1	3	10th-11th c.
145	EMSW			1	7	11th-12th c.
147	THET			1	11	10th-11th c.
152	THET			1	2	10th-11th c.
156	IGBW			1	9	16th-18th c.
156	INDS	mug		1	5	L.18th-20th c.
164	GRIM			1	48	L.12th-14th c.
165	GSW3			1	7	L.15th-16th c.
165	GSW3			1	17	L.15th-16th c.
165	GSW3			1	9	L.15th-16th c.
167	LMU			1	4	11th-14th c.
170	LMT			2	26	15th-16th c.
170	GRE			1	7	16th-18th c.
170	GRE			1	11	16th-18th c.
170	TGE			1	4	16th-18th c.
170	GRE	pipkin	COLL	1	18	16th-18th c.
173	LMT			1	48	15th-16th c.
175	GRIM			1	22	L.12th-14th c.
175	UPG			1	5	L.12th-14th c.
183	GRIM			1	7	L.12th-14th c.
183	LMU			1	4	11th-14th c.
187	LMU			1	3	11th-14th c.
187	GSW2			1	35	L.14th-15th c.
187	GRE			1	8	16th-18th c.
187	ESW	jar		1	5	17th-19th c.
188	MCW			1	7	L.12th-14th c.
188	GSW4			1	4	16th-17th c.
189	LMT			1	16	15th-16th c.
191	GSW2			1	24	L.14th-15th c.
192	GSW4			1	25	16th-17th c.
192	STAF	press-moulded flatware		1	36	L.17th-18th c.
192	REFW	plate?	PL	1	5	L.18th-20th c.
193	LEPM			1	8	16th c.
193	GRE	bowl?	SQBD	1	17	16th-18th c.
194	THET			1	4	10th-11th c.
194	GRE	jug	COLL	1	34	16th-18th c.
194	GRE	jug	UPPL	1	28	16th-18th c.
194	DUTS	plate	BD	1	23	L.16th-17th c.
194	GRE			1	4	16th-18th c.
195	GSW1			1	16	16th c.
195	TGE	plate/dish		1	19	16th-18th c.
196	GSW3			1	51	L.15th-16th c.

Context	Fabric	Form name	Rim	No	Wt/g	Fabric date range
196	BORD	pipkin	FLAN	1	38	16th-18th c.
197	GSW4			1	10	16th-17th c.
197	GSW5	chamber pot	FTEV	1	41	E.17th-19th c.
198	FLGW			1	7	Medieval
198	GRE	large storage vessel	FLAR	1	89	16th-18th c.
198	GRE	jug	BD	1	26	16th-18th c.
199	LMT	jug	COLL	1	12	15th-16th c.
199	GSW3	mug	UPPL	1	9	L.15th-16th c.
199	STAF	press-moulded flatware	PL	1	11	L.17th-18th c.
199	GRE			1	11	16th-18th c.
200	THET			1	3	10th-11th c.
200	GSW4			1	38	16th-17th c.
200	GRE	pancheon	BD	1	75	16th-18th c.
200	REFW	cup	UPPL	1	10	L.18th-20th c.
201	GSW3			1	97	L.15th-16th c.
202	METS	bowl?	FLAR	1	13	17th c.
203	THET			1	8	10th-11th c.
204	GRE	jar	FLAN	1	57	16th-18th c.
204	REFW	bowl	BD	1	12	L.18th-20th c.
205	THET			1	5	10th-11th c.
205	GSW4			1	11	16th-17th c.
205	GSW5			1	4	E.17th-19th c.
206	GSW4			1	21	16th-17th c.
207	THET			1	4	10th-11th c.
208	EMWSS			1	7	11th-13th c.
208	MCW	bowl	FLAR	1	30	14th c.?
208	LMT			1	41	15th-16th c.
208	GSW3			1	13	L.15th-16th c.
208	GSW3			1	12	L.15th-16th c.
208	GRE			1	10	16th-18th c.
208	TGE			1	9	16th-18th c.
208	IGBW			1	7	16th-18th c.
208	GRE	dish	EV	1	24	16th-18th c.
208	GRE	?	EV	1	12	16th-18th c.
208	METS			1	27	17th c.
208	GRE	bowl	BD	1	6	16th-18th c.
208	SPEC			1	6	L.17th-18th c.
208	GRE			1	12	16th-18th c.
208	GRE			4	47	16th-18th c.
208	GRE			1	45	16th-18th c.
208	GSW4	bottle	COLL	1	20	16th-17th c.
208	GSW4	bottle	COLL	1	16	16th-17th c.
208	GSW4			1	36	16th-17th c.
208	IGBW	tankard		1	15	16th-18th c.
208	GRE			1	15	16th-18th c.
208	CRW	cup		1	11	1750-1760
208	GSW5			1	8	E.17th-19th c.
209	THET			1	17	10th-11th c.
209	GRIM			1	4	L.12th-14th c.
209	MART2			1	14	16th c.
209	GRE			1	38	16th-18th c.

Context	Fabric	Form name	Rim	No	Wt/g	Fabric date range
209	GSW4			1	88	16th-17th c.
209	GSW4			1	20	16th-17th c.
209	PMSW	mug	UPPL	1	12	17th-19th c.
209	GRE			1	15	16th-18th c.
209	GRE			1	27	16th-18th c.
209	STAF	hollow ware		1	6	L.17th-18th c.
209	GRE			2	27	16th-18th c.
209	GRE	dish/plate		2	40	16th-18th c.
209	GRE			1	77	16th-18th c.
209	GRE			1	23	16th-18th c.
209	GRE			2	13	16th-18th c.
209	LEPM			1	4	16th c.
209	GRE	large storage vessel		1	102	16th-18th c.
209	GSW5	chamber pot	FTEV	1	37	E.17th-19th c.
209	LSRW	bowl	FTEV	1	9	18th-19th c.
209	PORC	dish	PL	1	6	18th-20th c.
210	GSW3			3	49	L.15th-16th c.
210	GSW4			1	11	16th-17th c.
210	MART3			1	3	17th c.
210	LBW			1	23	18th-E.20th c.
210	GSW5			1	4	E.17th-19th c.

Appendix 3b: Pottery by period and context

Context	fill of	interpretation	Rom	LSax	EMed	Med	LMed	PMed	Mod	Pot Spotdate
115	114	pit fill		6						LSax
121		layer					3			15th-16th c.
122		finds					1	2		16th-18th c.
123		layer				2				L.12th-14th c.
126		finds		1				1		16th-18th c.
127		finds					1	3		16th-18th c.
128		finds					1	5		16th-18th c.
129		finds				1		2		16th-18th c.
130		finds						2		16th-18th c.
131		finds						3		16th-18th c.
132		finds						6		16th-18th c.
133		finds					1	3		16th-18th c.
134		layer						3		16th-18th c.
135	137	grave? fill						6		17th-18th c.
136		layer						2		17th-18th c.
139		layer						2		L.17th-18th c.
140		layer	1	2			1			15th-16th c.
141		finds						4		16th-18th c.
143	144	pit? fill		1						LSax
145		layer		1						11th c.
147	146	feature fill		1						LSax
152	151	feature fill		1						LSax
156	157	pit fill						1	1	L.18th-19th c.
164		layer				1				L.12th-14th c.
165		layer					3			L.15th-16th c.
167	168	footing fill				1				11th-14th c.
170	169	grave fill					2	4		16th-18th c.
173		layer					1			15th-16th c.
175	174	grave? fill				2				L.12th-14th c.
183	182	grave fill				2				L.12th-14th c.
187		layer				1	1	1	1	19th-E.20th c.
188		layer				1		1		16th-17th c.
189		layer					1			15th-16th c.
191		finds					1			L.14th-15th c.
192		finds						2	1	19th c.
193		finds						2		16th-18th c.
194		finds		1				4		16th-18th c.
195		finds					1	1		16th-18th c.
196		finds					1	1		16th-18th c.
197		finds						2		17th-19th c.
198		finds				1		2		16th-18th c.
199		finds					2	2		16th-18th c.
200		finds		1				2	1	19th c.
201		finds					1			L.15th-16th c.
202		finds						1		17th c.
203		finds		1						LSax
204		finds						1	1	19th-20th c.
205		finds		1				2		17th-19th c.
206		finds						1		16th-17th c.
207		finds		1						LSax
208		finds			1	1	3	19	2	18th c.
209		finds		1		1	1	17	3	19th c.
210		finds					3	2	2	19th-20th c.

Appendix 3: Ceramic Building Material

Context	fill of	Type	fabric	form	no	wt/g	abr	height	peg	glaze	comments	date
110	109	feature fill	ms	RTP	2	111						pmed
113	112	grave? fill	fs	RTP	1	59						pmed
124		layer	est	EB	1	59						med
124		layer	fscq	FFT	1	174		22		G	worn	lmed
128		finds	fs	FT	1	221		22+			v worn, no sign of glaze, reduced core, KT edges vertical	med??
134		layer	ms	RTP	1	27						pmed
135	137	grave? fill	wfg	QFT	1	21					KT edges	pmed
140		layer	est	EB	1	25	+					med
140		layer	msf	FT	1	86		22+		DB	KT edges	med
154	153	feature fill	fs	FLT	1	52	+				flange, 25mm wide	Rom
159	158	feature fill	msf	FLT?	1	39	+	26			reduced core, poss FT but one edge rising?	Rom?
159	158	feature fill	est	EB	1	40					overfired	med
164		layer	mscq	RTP	2	81					poss earlier?1 thick	lmed/ pmed?
165		layer	est	EB	1	44	+				strawed base	med
165		layer	ms	RTM	1	106			1 x R		thick, reduced	med
170	169	grave fill	ms	RTP	1	14						pmed
170	169	grave fill	fsg	FT	1	33		15			worn	med/ lmed
181	180	grave? fill	fsg	RTP	1	67			1 x R			pmed
181	180	grave? fill	wcp	QFT?	1	106	+				thick, KT edge, cream with orange core	pmed
185	184	grave? fill	mscq	RTP	1	48						pmed
209		finds	fs	PAN	1	51					reduced	pmed

Appendix 5: Small Finds

SF	Context	Feature	SSD	Material	Object	Object Date	Feature Period
01	u/s	-	Bay 9	Silver	**Coin – penny**	Late Saxon	-
Hammered penny (small cross type) of Edward the Martyr 975-978. 1.26g **See coin catalogue for full details.**							
02	u/s	-	Bay 23	Cu-Al	**Jetton**	Late med.	-
Rose/Orb jetton, 1.12g **See coin catalogue for full details.**							
03	u/s	-	Bay 48	Cu-Al	**Jetton**	P.med	-
Rose/Orb jetton, 0.97g **See coin catalogue for full details.**							
04	211	Soil 301	Bay 34	Cu-Al	**Jetton**	P.med	Late P.med to Modern
French style Schau-pfennig by Conrad Lauffer of Nuremburg dating to the late 17th century, 1.01g **See coin catalogue for full details.**							
05	u/s	-	Bay 33	Lead	**Cloth Seal**	16^{th}-18^{th}	-
A Two-part seal, plain disc/stamped rivet (disc missing) with Fleur de Lis. 19mm diam. 4.65g**.**							
06	u/s	-	Bay 18	Cu-Al	**Suspension Ring**	L.Med. to P.med	-
Simple copper-alloy (bronze) suspension ring –rings such as these have been collected from deposits dated to the late medieval to early post-medieval contexts (15th to early 17th centuries) and probably served a variety of functions. One from excavations along Oak street in Norwich (NHER 351) was recovered with thread still wound around one part, indicating its probable use for curtains or hangings (Margeson 1993, 82). Thickness 2mm. Diam. 24mm. 23g.							
07	u/s	-	Bay 21	Cu-Al	**Folded Sheet**	Med. to P.med	-
This is thin piece of hand cut copper-alloy sheet which has been neatly folded in from both sides forming a roughly rectangular envelope. If unfolded flat it would be an irregular octagonal shape showing that it has been cut with the intention of folding in the sides to form its current shape. Rather than a simple off-cut this may be a small object intended as a grave good. Larger folded parcels of lead are known associated with graves, one example of which was excavated from a female grave at St James's Priory, Bristol, which contained possible remains of parchment, is thought to have served as a religious charm placed with the burial. c. 32mm x 16mm, 2.83g.							
08	u/s	-	Bay 17	Cu-Al	**Thimble**	Late P.med	-
A copper-alloy thimble of 18th to 19th century date with a conical top, regular knurling pattern and plain banding at the open base (where it is slightly bend) .21mm Height, 15mm base diam. 4g.							
09	u/s	-	Bay 29	Cu-Al & Wood	**'Rule Hinge'**	L19th-Modern	-
The copper-alloy (brass) joint holder for a folding ruler, with parts of the copper stained wood still in place. The lightly inscribed imperial measurement increments can be seen on both arms which bridge the gap between the wood when unfolded. Late 19th to 20th century. 8mm thick, 13g.							
10	185	Grave [184]	Bay 33	Cu-Al	**'S' (lettering)**	P.med	P.med
Copper-alloy with two small iron tacks, 43mm high, 23mm wide, 2.27g. This is a hand-cut capital 'S', made very neatly from a thin sheet of copper-alloy. Two small circular holes (one in each bend) still contain the remnants of flat headed iron tacks used to fix this letter as an embellishment to wood. This lettering is of a late-medieval to post-medieval date and may have formed part of embellishment for a wooden coffin. Certainly by the post-medieval period attachments of decorative plates, studs and text became increasingly common, with cast letters and machine-press manufacture adornments a standard part of the 19th century catalogues of grave fixtures and fittings. Inscriptions and prayers may have adorned both the outside and inside of coffin lids, where text such as 'Mercy Lord, Jesus' may have been intended to be read at the Day of Judgement.							
11	u/s	-	Bay 44	Cu-Al	**Pin**	L.med	-
A copper-alloy pin with a straight shaft and a solid cast spherical head of late medieval to early post-medieval date. 33mm long (broken head end) bead shaped head is 4mm diam. Shaft 1.5mm diameter, 0.82g.							
12	u/s	-	Bay 5/6	Cu-Al	**Pins (x3)**	P.med	-
Fine, post-medieval dress pins, 22mm to 24mm in length, 0.19gP.med							
13	u/s	-	Bay 28	Cu-Al	**Pin**	P.med	-
Fine, post-medieval dress pin, 22mm long, 0.06g							
14	u/s	-	Bay 46	Lead	**Musket Ball**	P.med	-
10mm diam. casting sprue scar but mould seam removed. Pale brown patina. No impact damage from use. According to Harding's (2012) Lead shot of the Civil War, this falls into the size range for pistols. 7.42g							
15	u/s	-	Bay 16	Lead	**Musket Ball**	P.med	-
11mm diam. Pronounced casting sprue scar and mould seam. Pale brown patina. Not suitable for use and no impact damage from use. According to Harding's (2012) Lead shot of the Civil War, this falls into the size range for pistols. 7.24g							

16	210	u/s	W.Range	Fe	**?Knife Blade**	Uncertain	-
Large concretions attached. A length of fairly poorly preserved iron with large concretions adhering to it resembles a knife blade, but may also be a fragment of an iron fitting.4mm thick. 93mm length, max width 17mm. 44g							
17	176	Soil (302)	Bay 29	Glass	**Window Glass**	Medieval	P.med
A small fragment of grisaille work with a plain background (as opposed to cross hatching) opaque. Painted on both sides. 2mm thick. Two grozed edges. ?Border fragment, painted decoration comprises of fairly fluid red outer lines forming into small circles bisected by a short line with the addition of a further line and an arc, roughly mirrored on both sides. The plain background and looser form of the design, which may be a stylistic representation of plant stems and berries, indicates a Later 13th to 14th century date. 27mm length, 21mm wide.2g							
18	176	Soil (302)	Bay 29	Glass	**Window Glass**	Medieval	P.med
Pot metal Blue Window glass blue, 3mm thick (~varies slightly in thickness). Blue glass (vivid) A triangular fragment formed by one long fresh flat edges break and two grozed edges meeting in a corner pot-metal glass Pot blue is one of a range of colours that is normal for 13th century glass. Blue glass was found at the Refectory site where are large assemblage of 13th century window glass was collected; after clear and opaque fragments it was the most common colour to be collected (King, D. in Wallis 2005, 43). The original surface of this pieces has suffered from corrosion and flaking so it is unknown it this piece was painted or could be a piece from grisaille work. Edge lengths 46mm, 66mm and 81mm. 19g							
19	190	Soil (302)	Bay 34	Fe	**Stirrup**	17th to 19th	P.med
A complete post-medieval iron stirrup in moderate condition encrusted by concretions. This broad D-shaped stirrup has a rectangular footrest (closed form) with a ?rectangular loop which may have a slot form of opening for the leather strap. The profile of the arms are thought to be square. A copper-alloy stirrup of a more unusual form was found in the Refectory excavations which is thought to be of early 16th century date. Width 142mm, Height 150mm 9mm thick frame, plate 25mm wide 88mm length. 296g							
20	208	u/s	E.Range	Fe	**?Coffin handle**	Late post-medieval	-
Coffin furniture, poorly preserved part of a curved iron coffin handle with remnants of the back-plate and mineralised wood fragment.. 23mm in length.83g							
21	128	u/s	Bay 5	CBM	**?'Stopper'**	Roman to Med	-
Roughly oval shaped roof tile fragment. May have been modified to form a crude object, possibly a stopper or lid for a jar. 53mm Length, 47mm width, 16mm thick. 51g							
22	189	Soil (302)	Bay 43	Fe	**Nail**	L.med-P.med	P.med
A square shanked, round headed carpentry nail. Complete but bent. 23mm length, 18mm max head. 11g							
23	210	u/s	W.Range	Fe	**Nail**	P.med	
A well preserved coffin nail, with a tapering, square shank and a flat, oval head (missing its point) 38mm length, Head max. 14mm. 7g							
NB: see Addendum for SF 24							

Appendix 6: Coins

SF	SSD	Context	Type	Qty	Weight (g)	Context Type
01	Bay 9	u/s	Hammered Silver Penny	1	1.26	Unstratified spoil find

Denomination: Penny, small cross type
Date: 975-978 (Late Anglo-Saxon)
Metal: Silver
Mint: Stamford
Moneyer: BOIA or Boga
Ruler: Edward the Martyr
Weight:1.26g
Diameter: 20mm
Description: The coin has an oxidised dark grey patina. Between the 9 and 12 o'clock position on the obverse edge there is a 90° bend. Some wear but otherwise in good condition.
Reference: North EHC Vol I page 157, 763

Obverse Description: Diademed bust left
Obverse Legend: EADP[E]ARD REX ANGLO
Reverse Description: Small cross patee
Reverse Legend:
BOI.A M-O STANFORD IM Cross patee three pellets at end of legend

SF	SSD	Context	Type	Qty	Weight (g)	Context Type
02	Bay 23	u/s	Nuremberg Jetton	1	1.12	Unstratified spoil find

Denomination: Rose/Orb Jetton Anonymous type
Date: 1500-1550 (Late Medieval)
Metal: Copper-alloy
Mint: Nuremberg
Moneyer: Anonymous
Weight:1.12g
Diameter: 25mm
Description: Worn and corroded. This jetton has had two segments clipped fron its edge, forming a rude shield shape.
Reference: Mitchiner Vol I page 378, 1196

Obverse Description: Three alternate crowns and fleurs around a central rose
Obverse Legend: Fictitious legend

Reverse Description: Imperial orb surmounted by a cross within an ornamental tressure
Reverse Legend: Fictitious legend

SF	SSD	Context	Type	Qty	Weight (g)	Context Type
03	Bay 48	u/s	Nuremberg Jetton?	1	0.97	Unstratified spoil find

Denomination: Jetton?, small form
Date: 16th to 17th C. (Post-medieval)
Metal: Copper-alloy
Mint: Nuremberg?
Moneyer: Unknown
Weight: 0.97g
Diameter: 21mm
Description: Very worn with surface corrosion. Battered and creased.
Reference: -

Obverse Description: No remaining detail
Obverse Legend: Illegible
Reverse Description: Possible remnants of a tresssure are visible. Little else remains
Reverse Legend: Illegible

SF	SSD	Context	Type	Qty	Weight (g)	Context Type
04	Bay 34	211	Nuremberg Jetton	1		Upper soil horizon

Denomination: Jetton Louis XIV type
Date: 1643-1668 (Post-medieval)
Metal: Copper-alloy
Mint: Not known
Moneyer: Not known
Weight: 1.01g
Diameter: 18mm
Description: Good condition. DG is missing from obverse legend and LaVFFEr is spelled with one F in reverse legend. Style is simple almost crude in comparison to 1765 in Mitchener. Probably a contemporary forgery.
Reference: Mitchiner Vol I page 496, 1765

Obverse Description: Laureate bust right
Obverse Legend: LVD:XIIII:FR.ET.NAV.R.
Reverse Description: Crowned French shield with three lis
Reverse Legend:
CON:LAVFERS.RECH.PFENING

Addendum

Archaeological Excavation of a reburial trench located within the south-west corner of Norwich Cathedral Garth

Location:	Norwich Cathedral
Grid Ref:	TG 2346 0865
NHES Event No:	ENF131601
Date of fieldwork:	13th May 2013

1.0 Introduction

Norvic Archaeology was commissioned by Dr Roland Harris (Cathedral Archaeologist), on behalf of the Dean and Chapter of Norwich Cathedral, to hand excavate a small trench to accommodate the reburial of human remains collected during previous archaeological work during the development of the new Hostry (NHER39455, NPS Archaeology Report No. 1289b). The trench was located in the south-west corner of the cloister garth, placed at the suspected return of possible early medieval *lavatorium*, thus allowing a secondary objective; keyhole investigation of potential archaeological deposits. The results of this work have been included here as part of the monitoring work, although a separate NHER Event Number was issued for the trench.

2.0 Summary of Results

The trench revealed a sequence of deposits and features, including post-medieval graves. A 19th to 20th century pit contained a mixture of crushed mortar and soil along with three redeposited human leg bones.

No solid flint packed footings were revealed as was hoped, although an ephemeral deposit of flint cobbles with small fragments of degraded limestone was present at the expected depth which may be tentative residual evidence, implying that if any such footings were once present here they had been more thoroughly robbed out. A small backfilled posthole of medieval date of uncertain function was recorded, which may relate to a temporary structure or timber scaffolding required during construction or demolition work.

Noteworthy finds include a modified musket ball, which has been cut to create a flat base for possible use as a gaming counter.

3.0 Methodology

The trench was located to allow for assessment of potential evidence for a *Lavatorium* in the south-west corner of the garth. The trench was positioned in the estimated position of a return in the footings, based on projections inferred from evidence recorded in the monitoring phase of works.

It measured 1m by 0.6m and was entirely excavated by hand to a depth of c. 0.75m, with all spoil, exposed surfaces and features scanned with a metal detector (Minelab XTerra 705). All metal-detected and hand-collected finds were retained for inspection, other than those which were obviously modern.

Archaeological features and deposits were recorded using Norvic Archaeology *pro forma* sheets. Trench locations, plans and sections were recorded at appropriate scales and digital images were taken of all relevant features and deposits.

All levels were tied to known spot heights located on the existing drain, with values provided by the Cathedral Archaeologist.

Site conditions were generally good with occasional light showers and heavier rain arriving at the completion of works.

4.0 Results (Figures 4 & GRT) *(Addendum Appendix 1a)*

- ***Upper soil horizon & modern pit [414]***

Below the topsoil was a layer of greyish-brown sandy-loam c. 0.3m deep with occasional inclusions of late post-medieval brick and tile, chalk and charcoal (401). Truncating the soils was a sub-rectangular pit with steep sides and a flat base ([414]). It contained a dark grey loam in its base (415), with a main fill of loose soil mixed with crushed mortar and 19th century tile fragments (416). Three redeposited adult human leg bones were present in the main fill, two femurs (from different individuals) and the proximal half of a tibia. The remains were carefully lifted and reburied at the base of the trench following the completion of all recording work.

Plate 14: Redeposited Human Remains (402) [1x0.5m & 1x1m scales] (looking east).

- ***Probable Graves***

Three probable graves were encountered, orientated c. east-west, of likely post-medieval to late-post-medieval date. Grave cut [403] contained well mixed fills, including a layer of redeposited sandy-gravel. Stratigraphically this grave may be relatively recent (late 19th century). It truncated an earlier 'grave-like' feature with near vertical sides ([407]). A third grave was encountered along the northern edge of the trench ([405]) which contained a dark loamy fill with occasional post-medieval tile fragments (406).

- ***Medieval deposits***

Stratigraphically the earliest deposit was a poorly defined collection of flint cobbles (411) above the natural sand, concentrated in the north-east corner of the trench where they became more compact. Amongst the stones were occasional, small, degraded fragments of fine limestone. This deposit could be interpreted as the highly disturbed remnant of stone footings which may equate to the medieval structure recorded to the west. Although fairly ephemeral, the deposit did occur at the expected levels and it remains a possibility that later levelling activity or active robbing may have removed any former evidence for solid foundations here.

The stony deposit was truncated by at least one identifiable shallow cut ([418)], the fill of which was a well-mixed greyish-brown silty-sand containing inclusions of flints and small mortar lumps (419). A single medieval sherd of Grimston-type ware was collected from this deposit. Deposits recorded primarily in the southern end of the trench may represent either make-up deposits or fills of undefined features; these comprised of silty-sands with flecks of chalk and burnt clay present in the lower deposit (420) and degraded pieces of limestone in the upper deposit (417). Along with a single sherd of medieval coarseware, the base of a late medieval ?jar was collected from the lower deposit (420).

Plate 13: Features at the base of the trench [1x0.5m & 1x1m scales] (looking east).

- ***Posthole [409] and feature [412]***

The sub rectangular base of a posthole ([410]) containing a friable mix of silty-sand with frequent soft white mortar lumps, flints and Caen stone fragments was recorded in the base of the trench. It was partly truncated by a later grave and appeared to be sealed by deposit (420). This feature may be a backfilled medieval post-pipe within a shallow post-pit ([411]), which contained a soft, mid-yellowish brown silty-sand. Alternatively [411] may be an earlier feature, similar in character to several Late Saxon features recorded along the southern range.

- ***Natural***

Natural sand was revealed at a depth of c. 0.65m below the surface, c. 150mm lower than the recorded just 2m to the west. No buried soils or subsoils of Late Saxon or medieval date were present above the natural here, probably as a result of truncation associated with medieval activity.

5.0 Finds Analysis *(Addendum Appendix 2)*

- **Pottery** *(Addendum Appendix 3)*

Introduction

A total of 14 sherds of pottery weighing 215g were collected from three contexts. This small assemblage has the potential to assist in interpreting the stratigraphy specific to the reburial trench from which it was collected, although it adds little to the general interpretation of historic activity represented by the larger assemblage collected during the monitoring project.

Methodology

Quantification was carried out using sherd count and weight. All fabric codes were assigned following the post-Roman fabric series of Sue Anderson, which includes East Anglian and Midlands fabrics, as well as imported wares. Local wares and common imports were

identified from Jennings (1981). Form terminology follows MPRG (1998). Recording uses a system of letters for fabric codes.

The assemblage

Description	Fabric	Code	No	Wt/g	Eve	MNV
Thetford-type ware	THET	2.50	1	3	0.04	1
Total Late Saxon			*1*	*3*	*0.04*	*1*
Medieval coarseware micaceous	MCWM	3.24	1	19	0.05	1
Grimston-type ware	GRIM	4.10	2	24	0.06	1
Total medieval			*2*	*43*	*0.11*	*2*
Late medieval and transitional	LMT	5.10	4	91	0.25	1
Total late medieval			*4*	*91*	*0.25*	*1*
Glazed red earthenware	GRE	6.12	4	30	0.21	2
Iron-glazed blackwares	IGBW	6.11	1	45	0.16	1
Tin glazed earthenwares	TGE	6.30	1	3	0.03	1
Total post-medieval			*2*	*78*	*0.40*	*2*
Grand Total			**14**	**215**	**0.8**	**8**

Table 1. Pottery quantification by fabric

Summary

A single small body sherd of Late Saxon Thetford-type ware was collected from the upper soil (401). Of the three medieval sherds collected, one was collected from the upper soil (401) while another came from context (419), the fill of a possible feature or horizon of disturbance ([418]). The remaining piece appears to be residual, collected along with the fragmented base of a late medieval jar from layer (420) above the natural sand. Examples of post-medieval pottery were only present in the upper soil (401).

SSD	Context	Feature	Interpretation	Fabric	Fabric Spot date
GRT	401	-	layer	IGBW, GRE, GRIM, TGE, THET	18th c.
GRT	419	-	?layer	GRIM	L12th-14th c.
GRT	420	[419]	Fill	LMT, MCWM	15th-16th c.

Table 2. Pottery types present by context

- **Modified 'musket-ball'** (SF: 24)

A small 'musket ball', of a calibre that falls into the size range for pistols (Harding 2012) with a cut base was collected from the upper soil (401). This object was given a Small Find number consecutive to those collected during the monitoring works.

Sub-spherical lead gaming pieces/counters with flat bases are a relatively common post-medieval find, a smaller number of modified lead musket balls identified as gaming counters are known, some having been hammered flat while others are more simply modified also having simple decoration carved onto the surface; such as one identified recently from Lancashire (Portable Antiquities Scheme; Unique ID: LANCUM-981132). It also remains a possibility that some individual examples may alternatively have served as lead weights, adjusted to suit the needs of their function.

SF	Context	Feature	SSD	Material	Object	Object Date	Feature Period
24	401	Soil	GRT	Lead	**Musket Ball**	P.med	L.P.med
11mm diam. Light patina, 'battered' & pitted surface, no prominent mould seam. Approx. 2/5ths of the ball has been cut away. The reason for this is uncertain, on suggestion it that the ball may have been reused as a crude gaming counter. According to Harding's (2012) Lead shot of the Civil War, this falls into the size range for pistols. 6.35g							

- **Worked Stone**

Two fragments of stone were collected. One is a fairly abraded piece of fine grained Caen stone (180g) with two flat surfaces exhibiting rough tool marks collected from context (410), the fill of a posthole ([409]). The other is a very worn and abraded fragment of shelly limestone (234g), possibly a piece of rough shelly "Barnack rag" collected from context (413).

- **Mortar**

A single weakly consolidated lump of white mortar was collected from context (410), the fill of posthole ([409)]. It weighs 61g and comprises of a very chalky, gritty-sandy fabric with quartz granules up to 3mm in diameter.

- **Clay Tobacco Pipe**

A clay tobacco pipe bowl weighing 20g was collected from the upper soil (401). The bowl retains part of the stem and is heelless, with full rouletting. It is of a basic form which typically dates from the mid-19th century into the first decade of the 20th century. This example still retains carbonised residue of tobacco within the bowl.

6.0 Conclusions

The excavation of a keyhole trench within the south-west corner of the cloister garth afforded the opportunity to further assess for any subsurface deposits which could relate to the former presence of an early medieval *lavatorium.* No substantial evidence for footings relating to the projected dimensions of such a structure was encountered. However, a more ephemeral deposit of flint cobbles and small limestone fragments was recorded directly above the natural sand at the expected depth. This layer was truncated by medieval activity and has been tentatively interpreted as residue from a robber or levelling event, implying that if any such footings were once present here they had been more thoroughly robbed out than those surviving just 2m to the west at Bay 28.

Addendum Appendix 1a: Bulk Finds by Context

Context	Type	SSD	Fill of	Brief Description	Interpretation	Assigned Period
400	Deposit	GRT			Topsoil	*Modern*
401	Deposit	GRT			Upper soil	*Late Post-medieval*
402	Human Skeletal Remains	GRT	[414]	Disarticulated femurs (x2) and tibia (x1)	Redeposited Human Remains	
403	Cut	GRT		Grave	Grave	*Late Post-medieval*
404	Deposit	GRT	[403]	Fill of Grave [403]	Fill	
405	Cut	GRT		Grave	Grave	*Post-medieval*
406	Deposit	GRT	[405]	Fill of Grave [405]	Fill	
407	Cut	GRT		?Grave	?Grave	*? Post-medieval*
408	Deposit	GRT	[407]	Fill of ?Grave [407]	Fill	
409	Cut	GRT		Posthole	Posthole	*Medieval*
410	Deposit	GRT	[409]	Fill of [409]	Fill	
411	Deposit	GRT		Stony deposit	?Footing 'residue'	*Early Medieval*
412	Cut	GRT		?Shallow Pit	?Pit	*Late Saxon/ Early Medieval*
413	Deposit	GRT	[412]	Fill of [412]	Fill	

Context	Type	SSD	Fill of	Brief Description	Interpretation	Assigned Period
414	Cut	GRT		Pit	Pit	*Modern*
415	Deposit	GRT	[414]	Primary fill of [414]	Fill	
416	Deposit	GRT	[414]	Secondary, main fill of [414]	Fill	
417	Deposit	GRT		Layer	?Make-up	*?Medieval*
418	Cut	GRT		Feature	?Robber cut	*Medieval*
419	Deposit	GRT	[418]	Fill of [418]	Fill	
420	Deposit	GRT		Layer	?Make-up	*?Medieval*
421	Deposit	GRT		Natural sand	Natural	

Addendum Appendix 1b: OASIS feature summary table

Period	Feature type	Quantity
Medieval (1066 to 1539AD)	Posthole	1
Post-medieval (1540 to 1900AD)	Graves	3
Modern (1900 to 2050 AD)	Pit	1

Addendum Appendix 2a: Bulk Finds by Context

Context	Material	Quantity	Weight (g)
401	Clay tobacco pipe	1	20
	Musket ball – gaming piece	1	6
	Pottery	8	91
410	Mortar	1	61
	Worked stone	1	180
413	Worked stone	1	234
419	Pottery	1	14
420	Pottery	5	110

Addendum Appendix 2b: NHER finds summary table

Period	Material	Quantity
Late Saxon (851 to 1065AD)	Pottery	1
Medieval (1066 to 1539AD	Pottery	8
	Worked stone	2
Post-medieval (1540 to 1900AD	Clay tobacco pipe	1
	Musket ball – gaming piece	1
	Pottery	6

Addendum Appendix 3: Pottery Catalogue

Context	Fabric	Form name	Rim	No	Wt/g	Fabric date range
401	IGBW			1	45	16th-18th c.
401	GRE			4	30	16th-18th c.
401	GRIM			1	10	L.12th-14th c.
401	TGE			1	3	16th-18th c.
401	THET			1	3	10th-11th c.
419	GRIM			1	14	L.12th-14th c.
420	LMT	?jar		4	91	15th-16th c.
420	MCWM			1	19	12th-14th c.

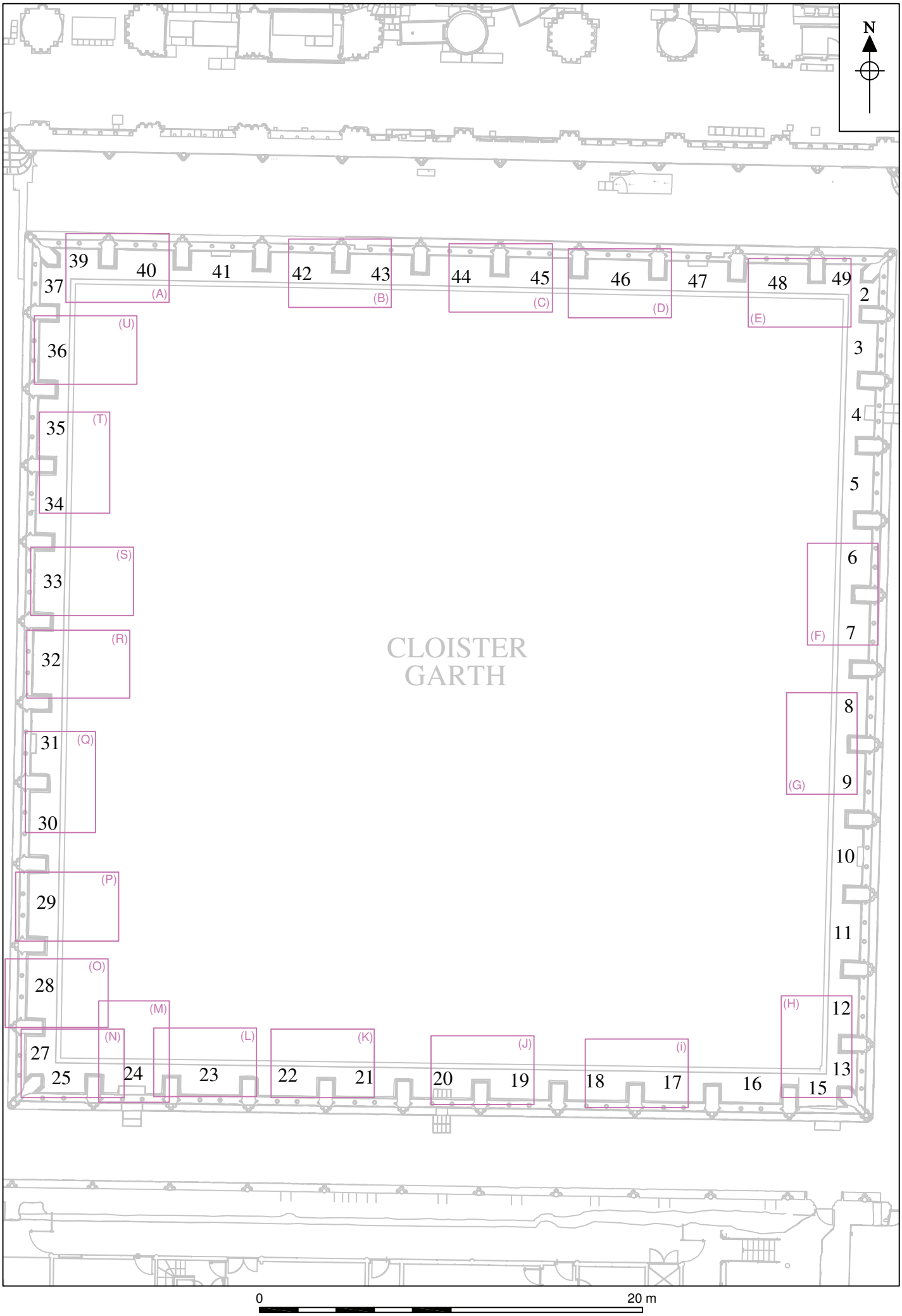

Figure 2. Simplified Reference Plan Showing Bay Numbers. Scale 1:250

Figure 3. Detailed Plan. Scale 1:250

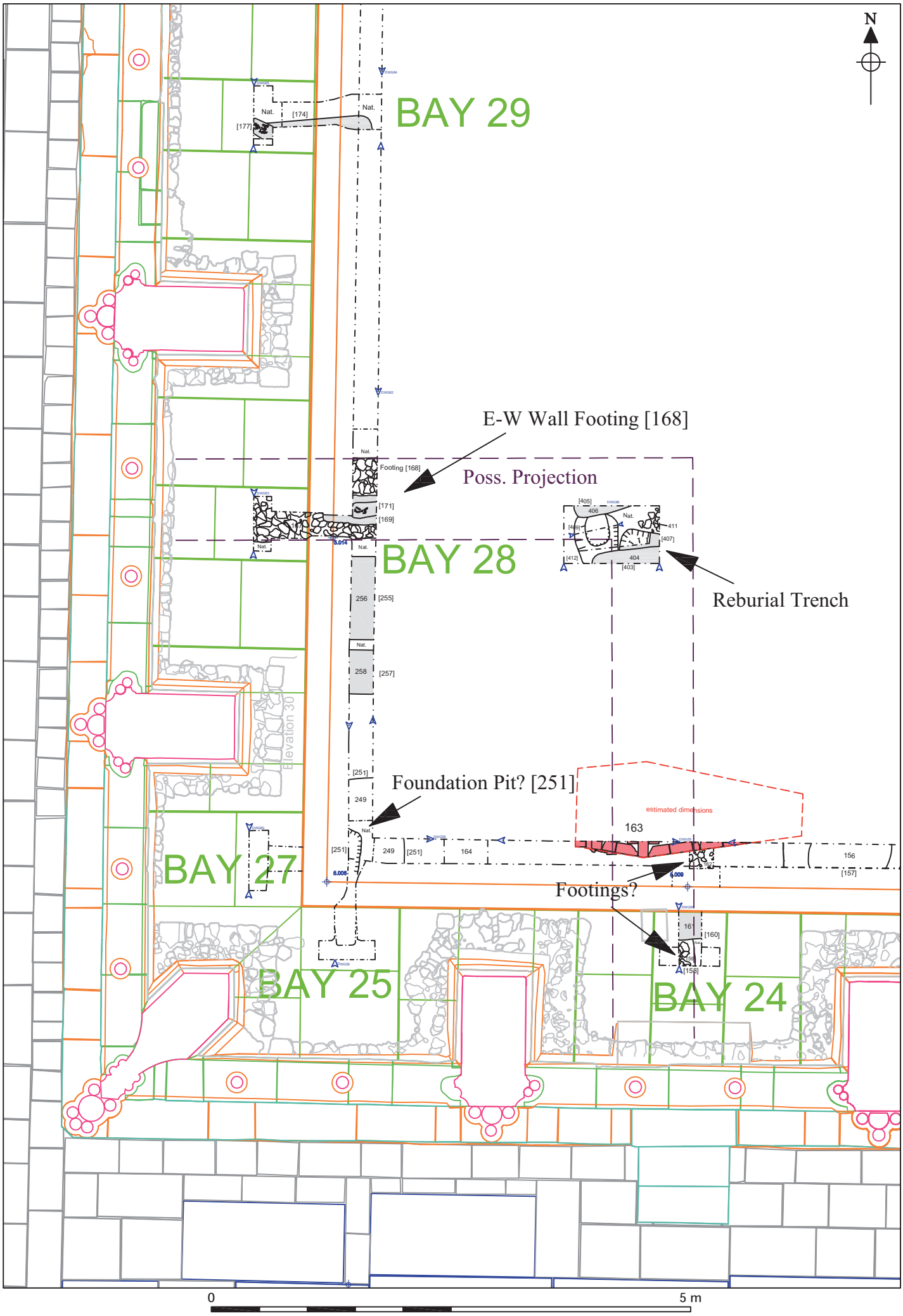

Figure 4. Possible Lavatorium Structure. Scale 1:50

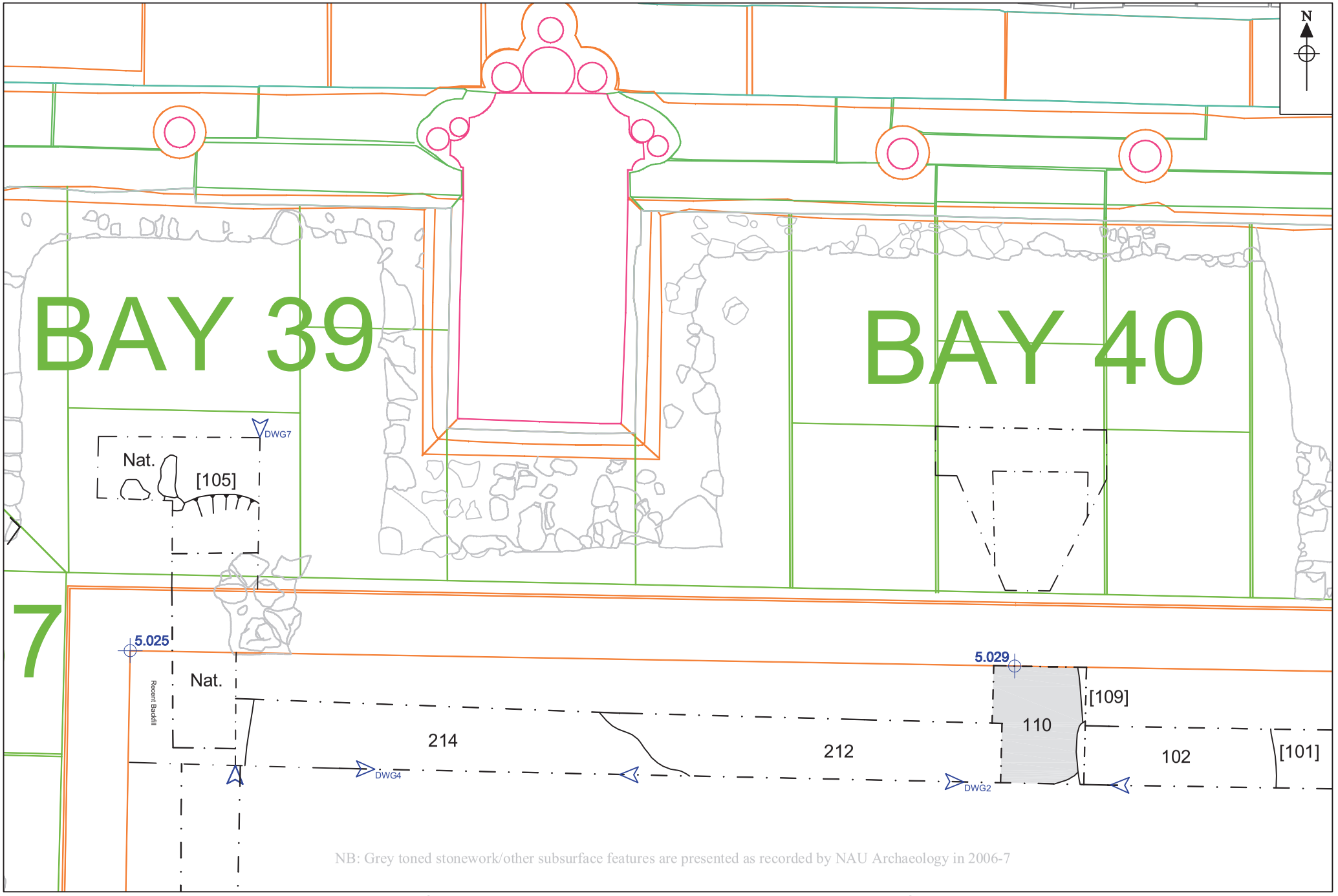

Figure A. Site plan. Scale 1:20

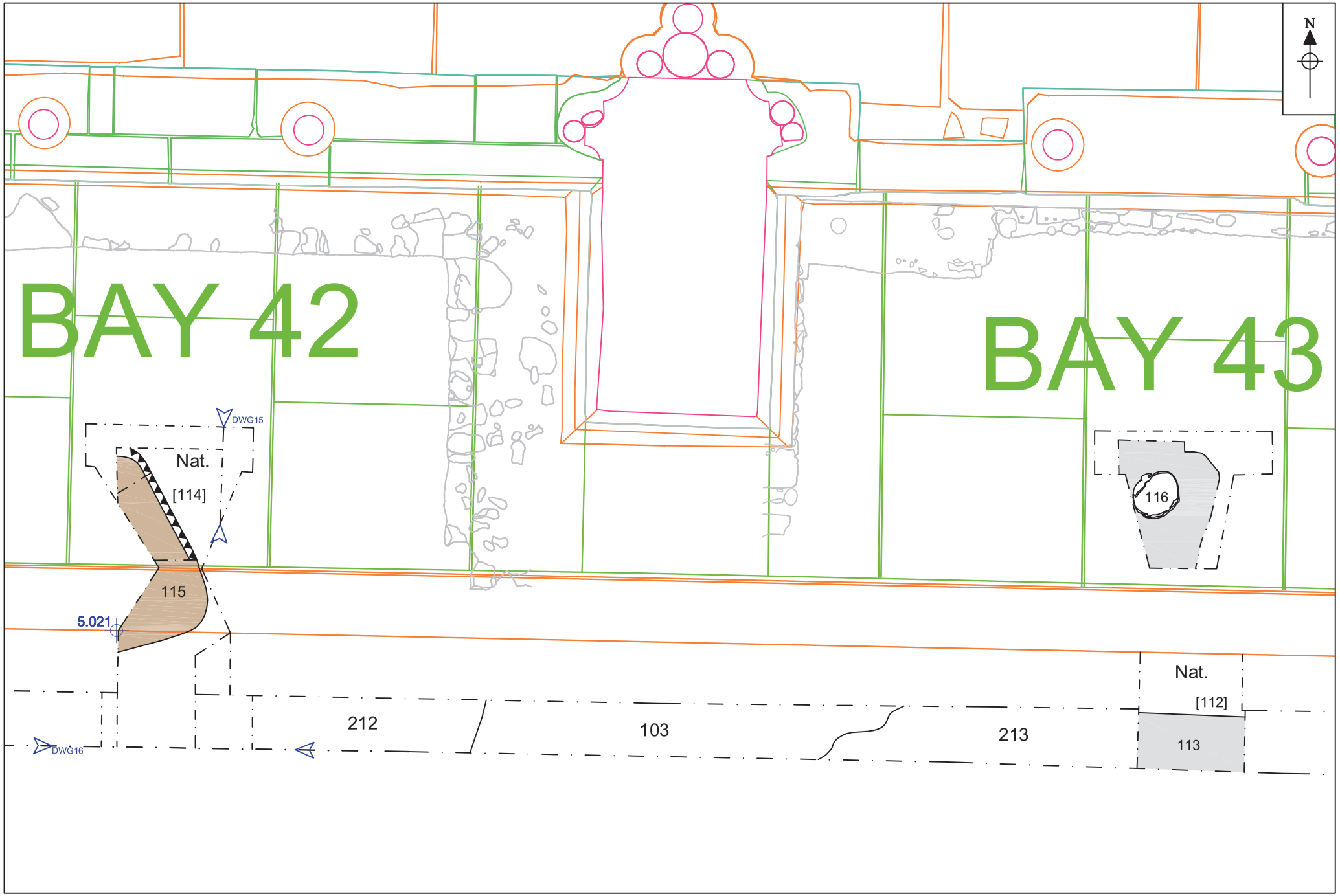

Figure B. Site plan. Scale 1:20

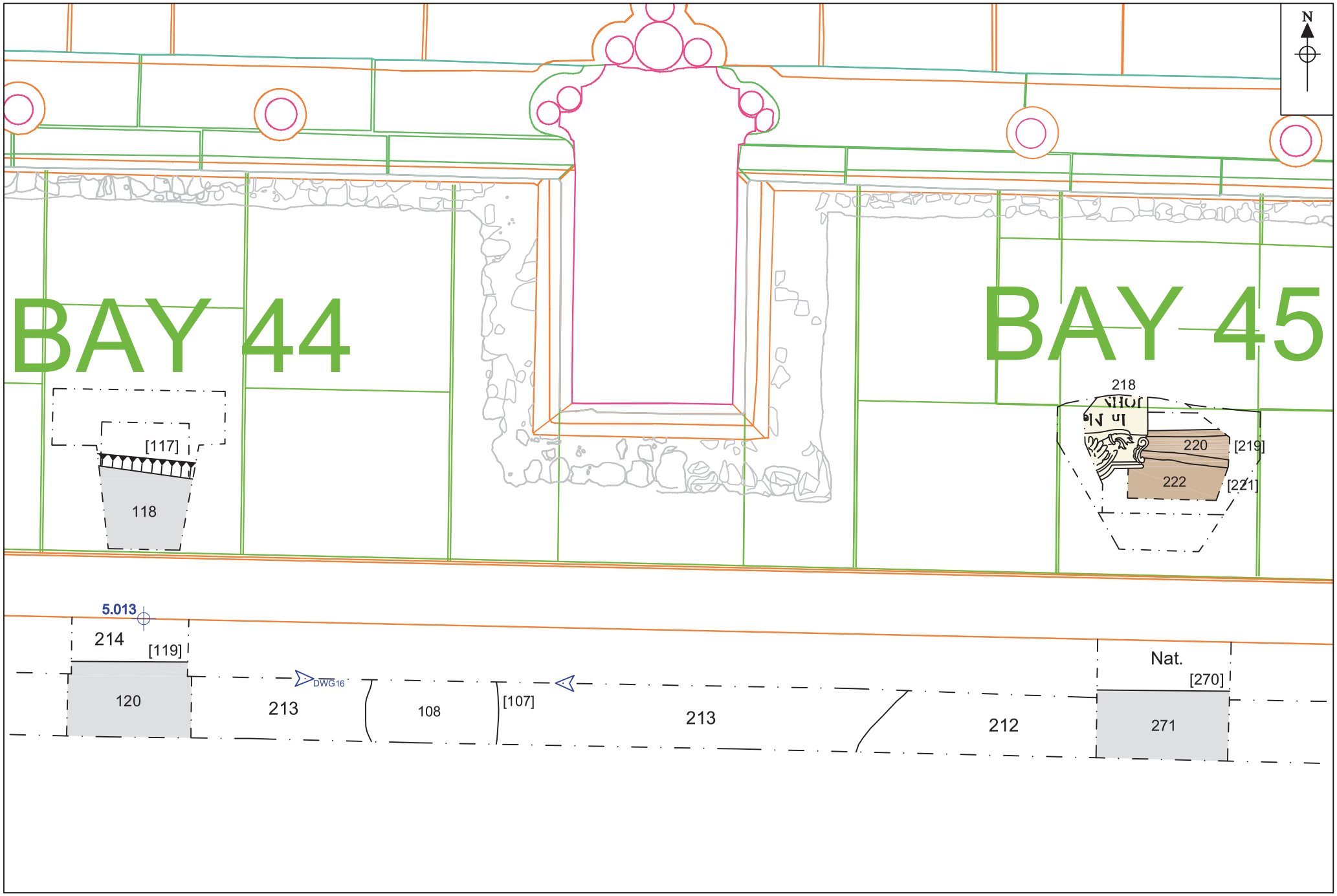

Figure C. Site plan. Scale 1:20

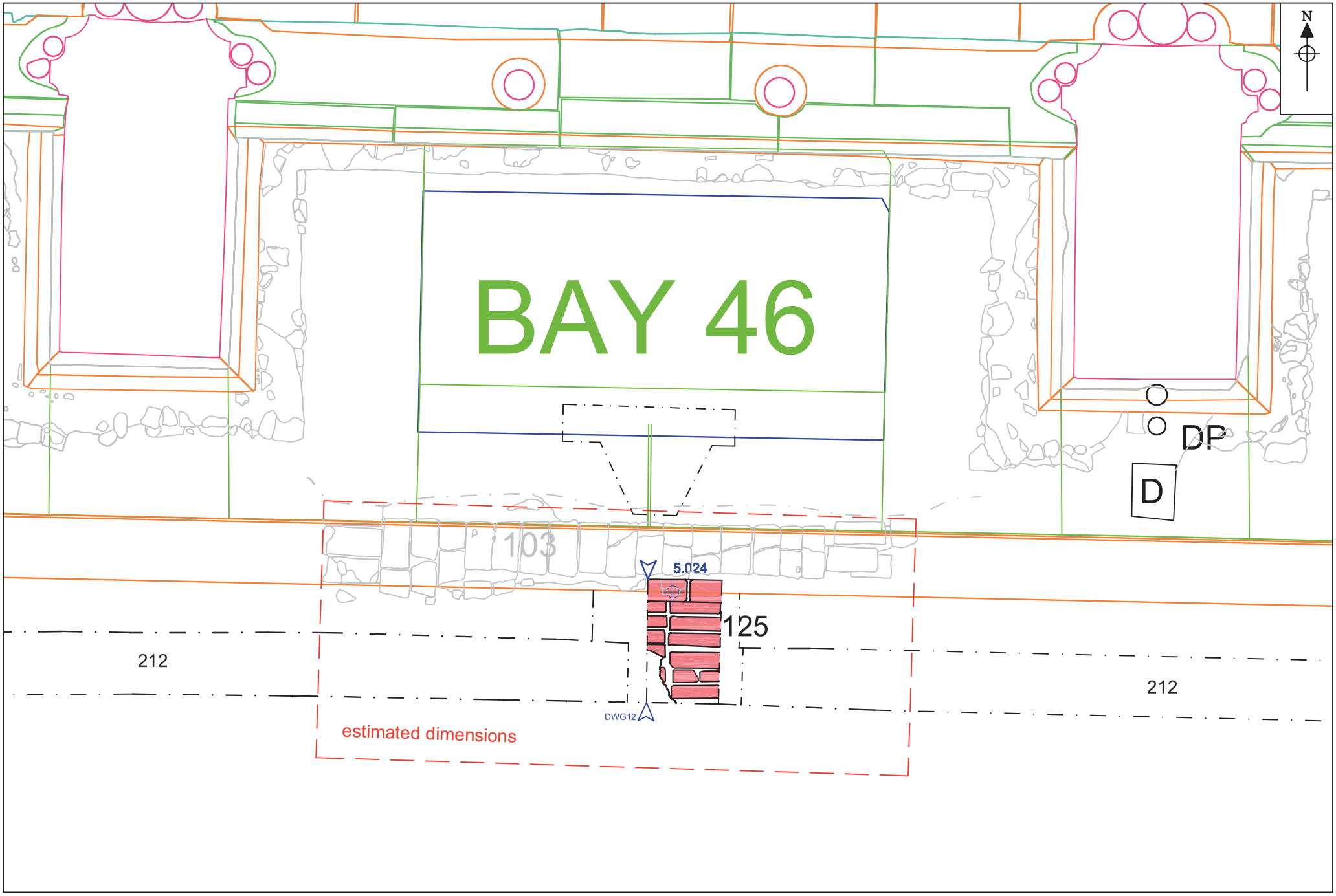

Figure D. Site plan. Scale 1:20

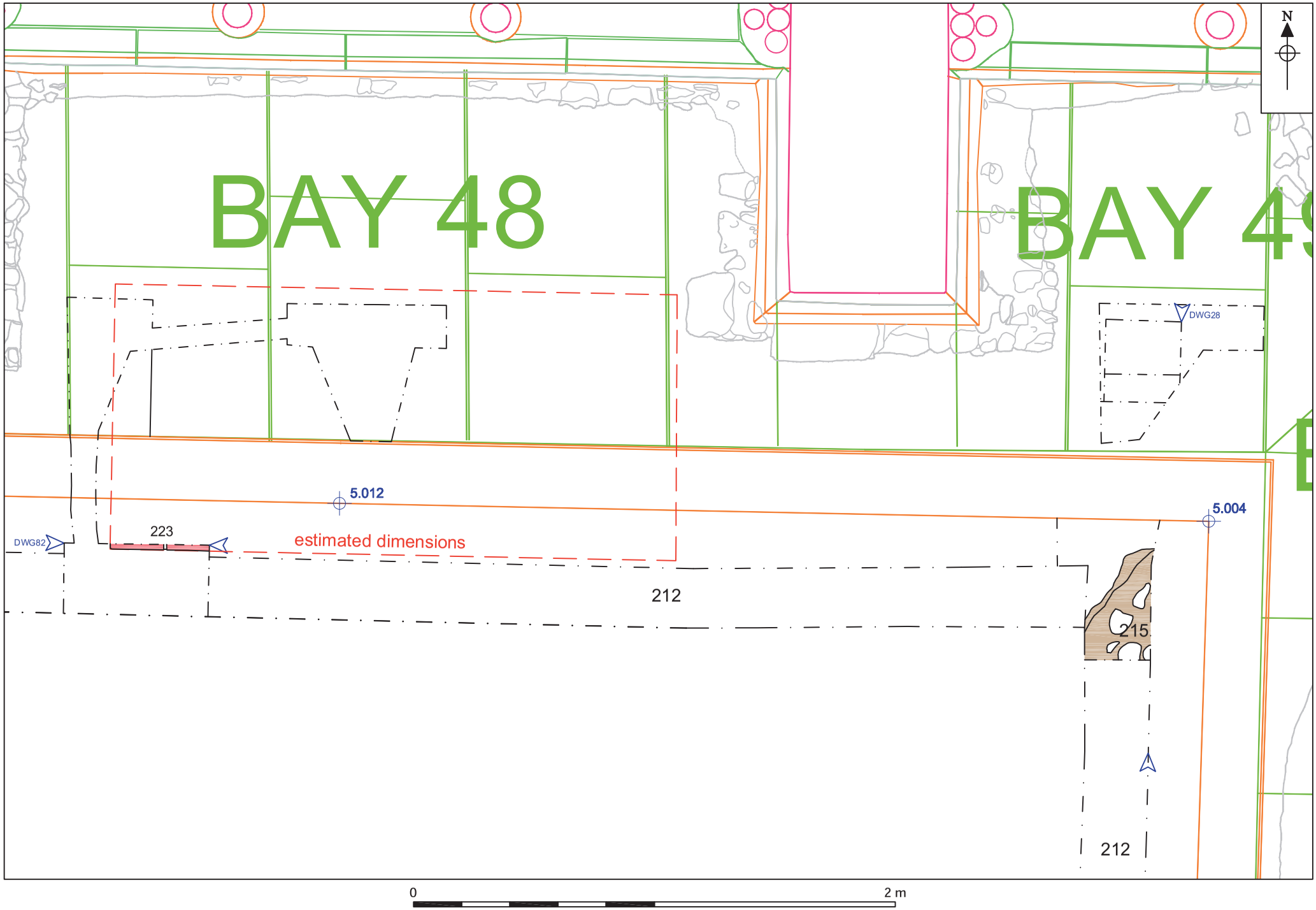

Figure E. Site plan. Scale 1:20

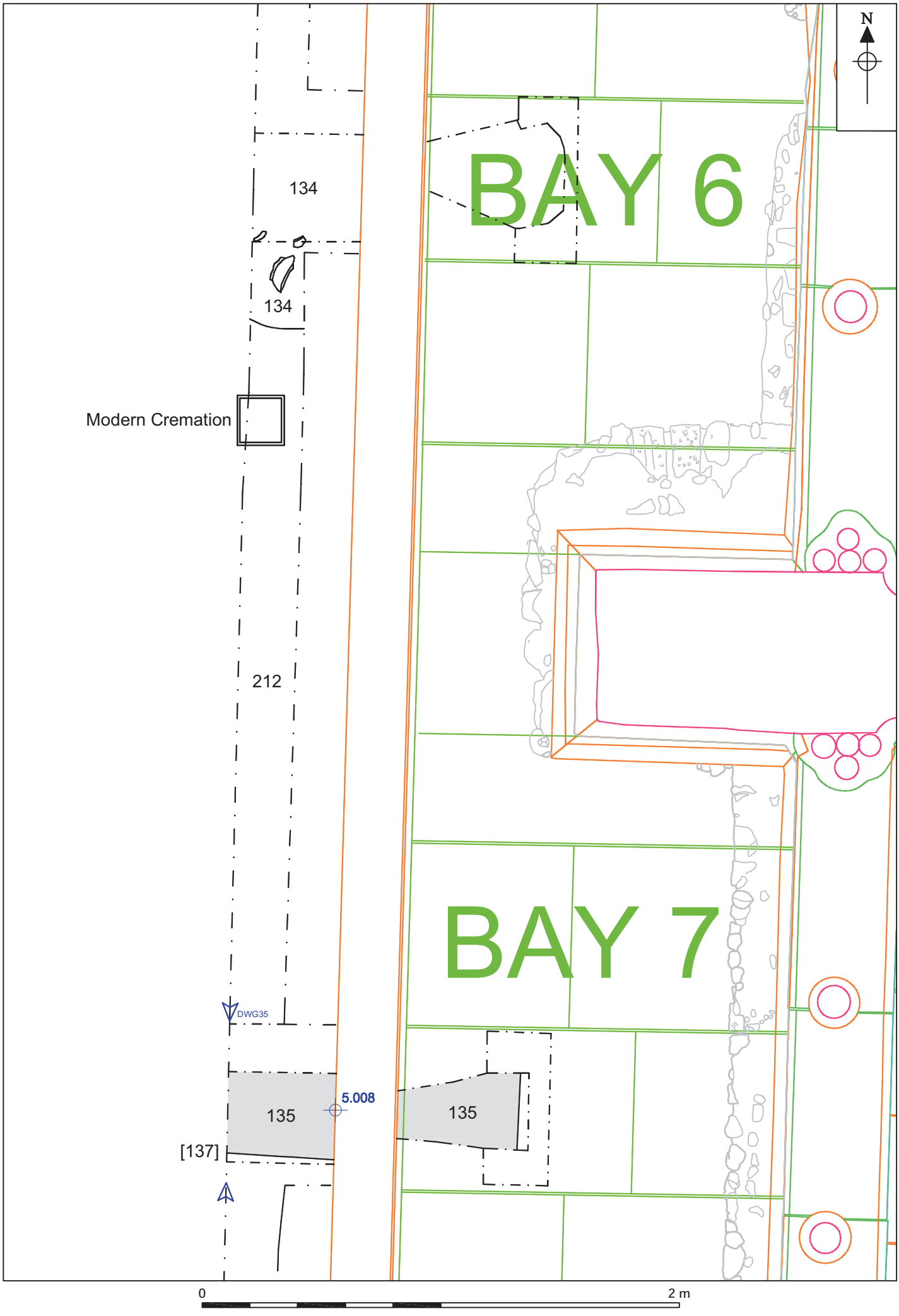

Figure F. Site plan. Scale 1:20

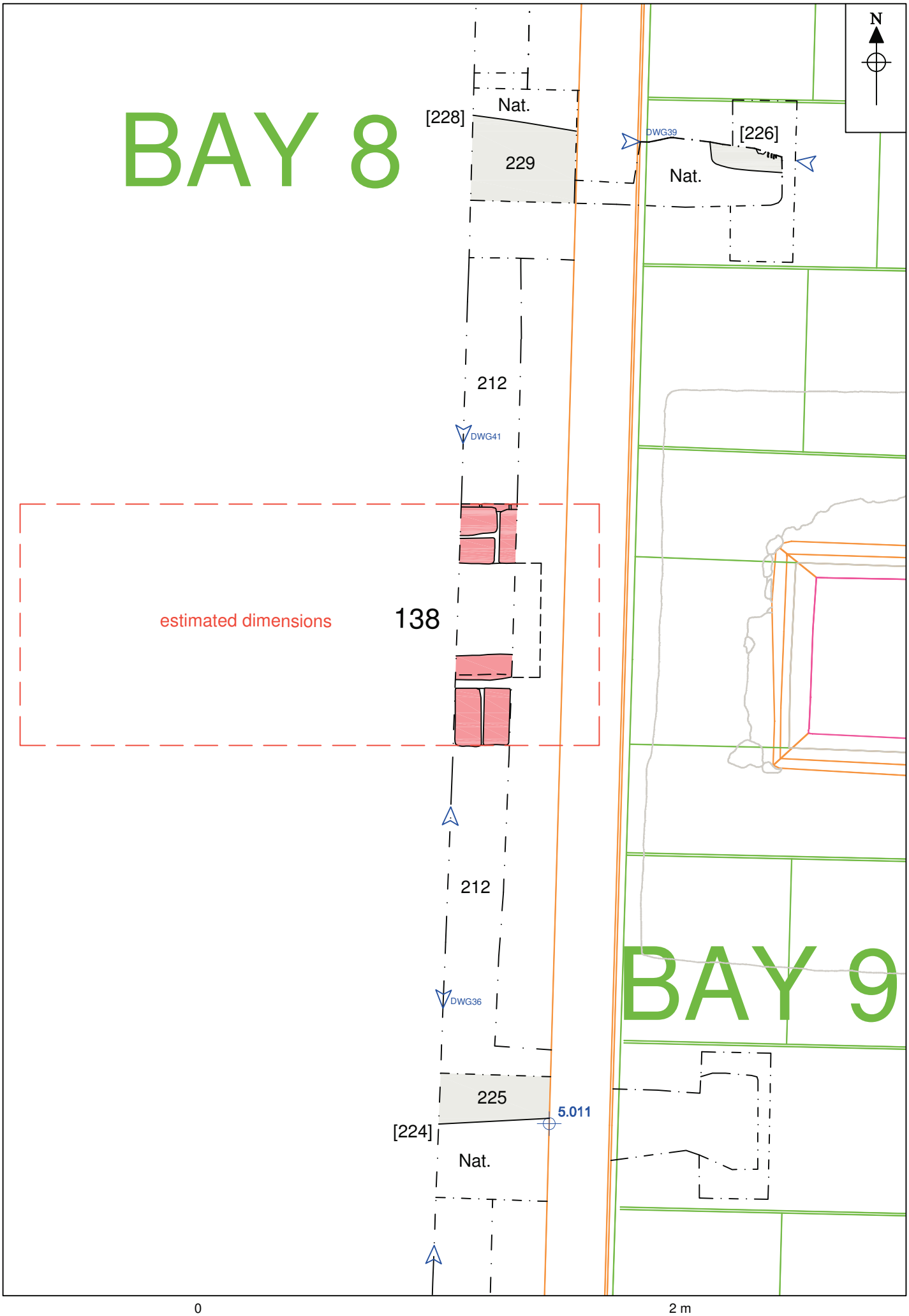

Figure G. Site plan. Scale 1:20

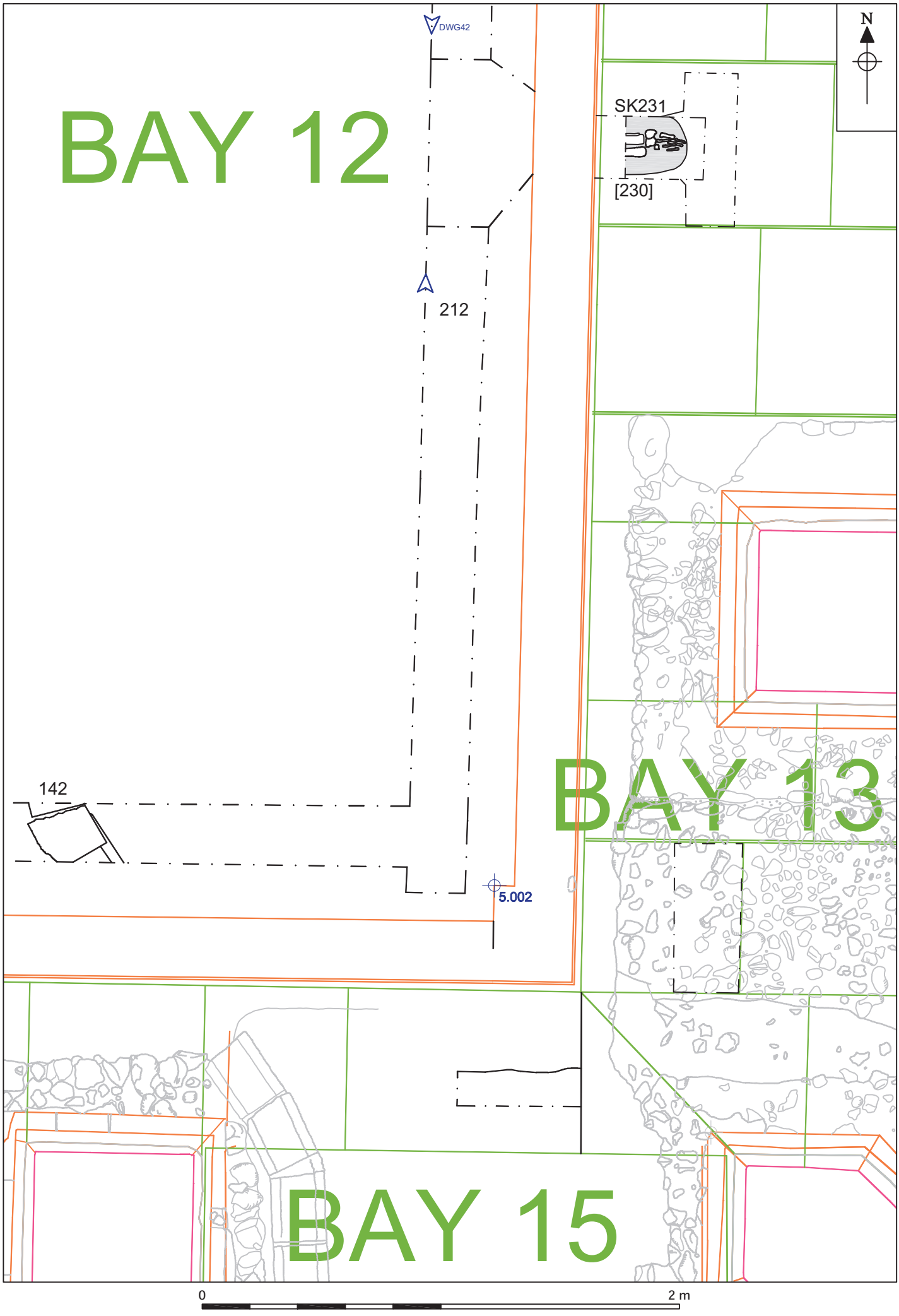

Figure H. Site plan. Scale 1:20

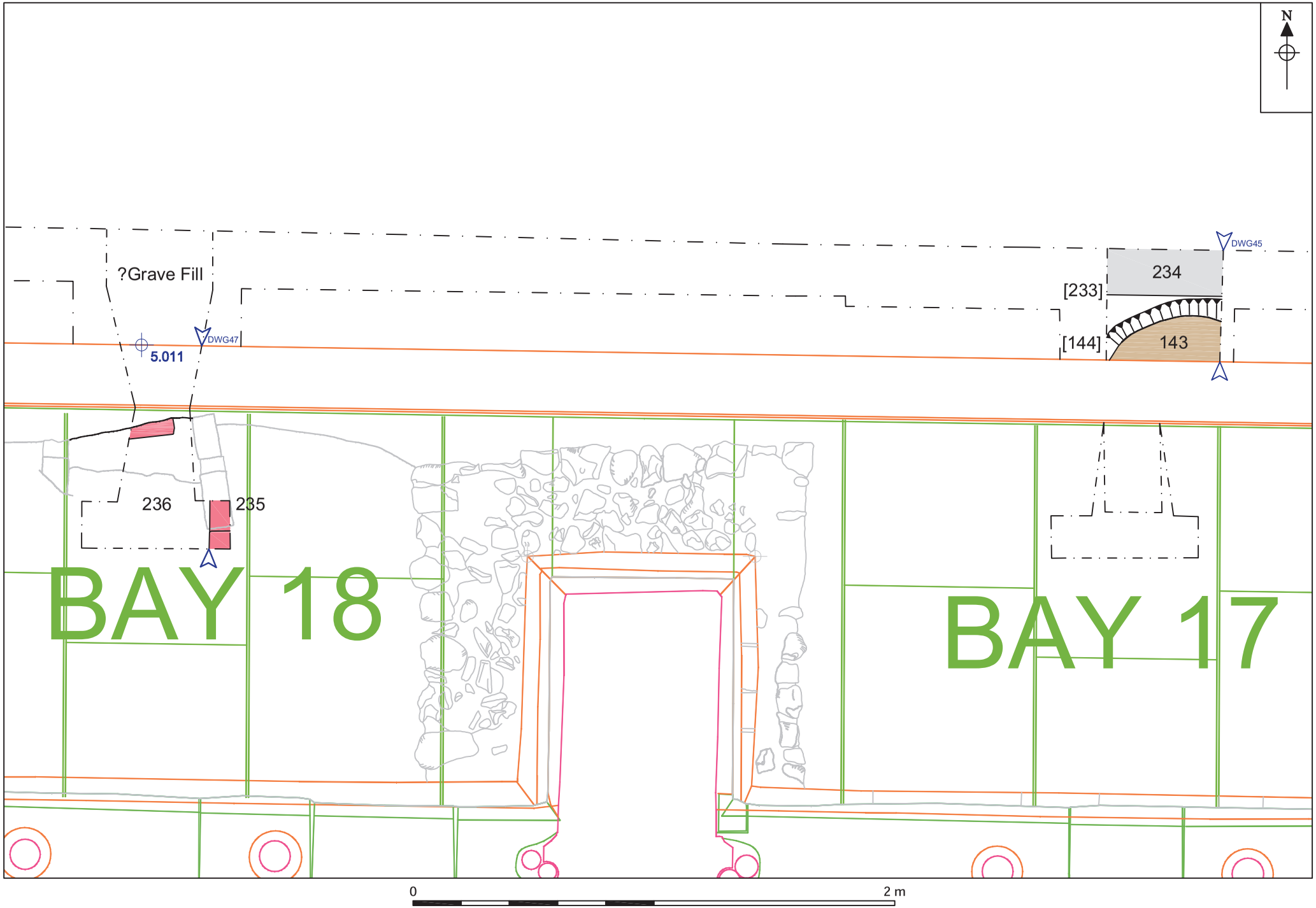

Figure i. Site plan. Scale 1:20

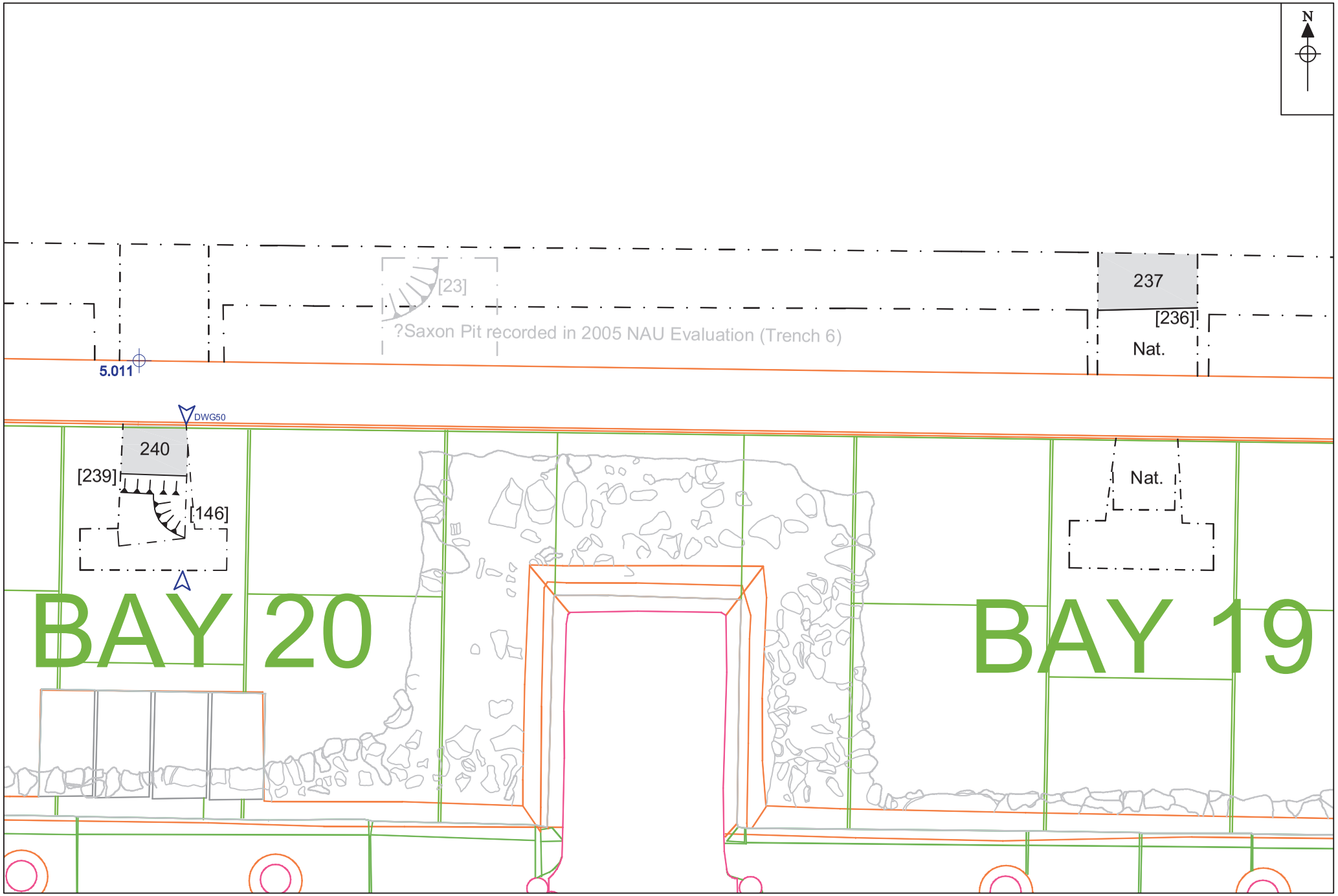

Figure J. Site plan. Scale 1:20

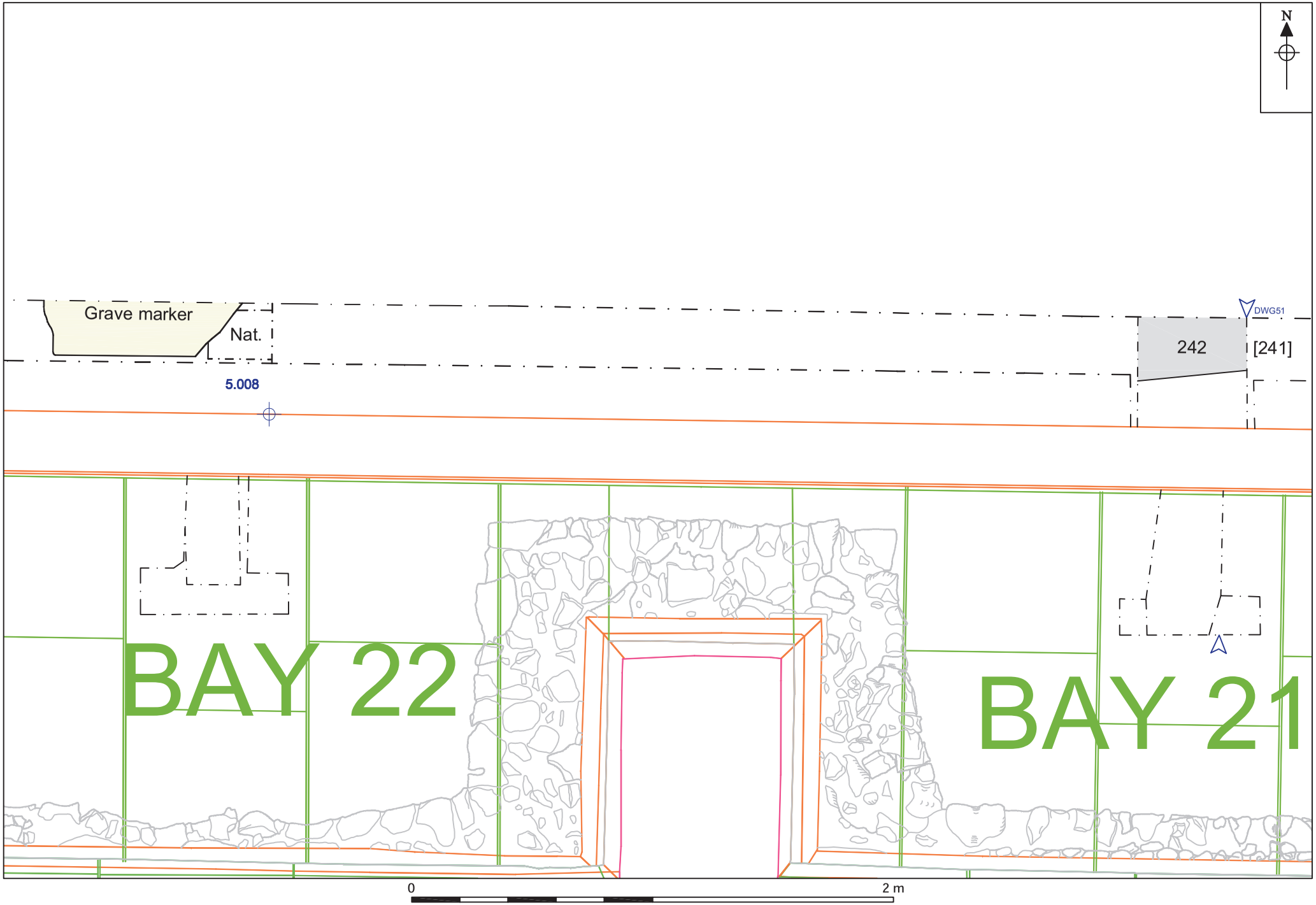

Figure K. Site plan. Scale 1:20

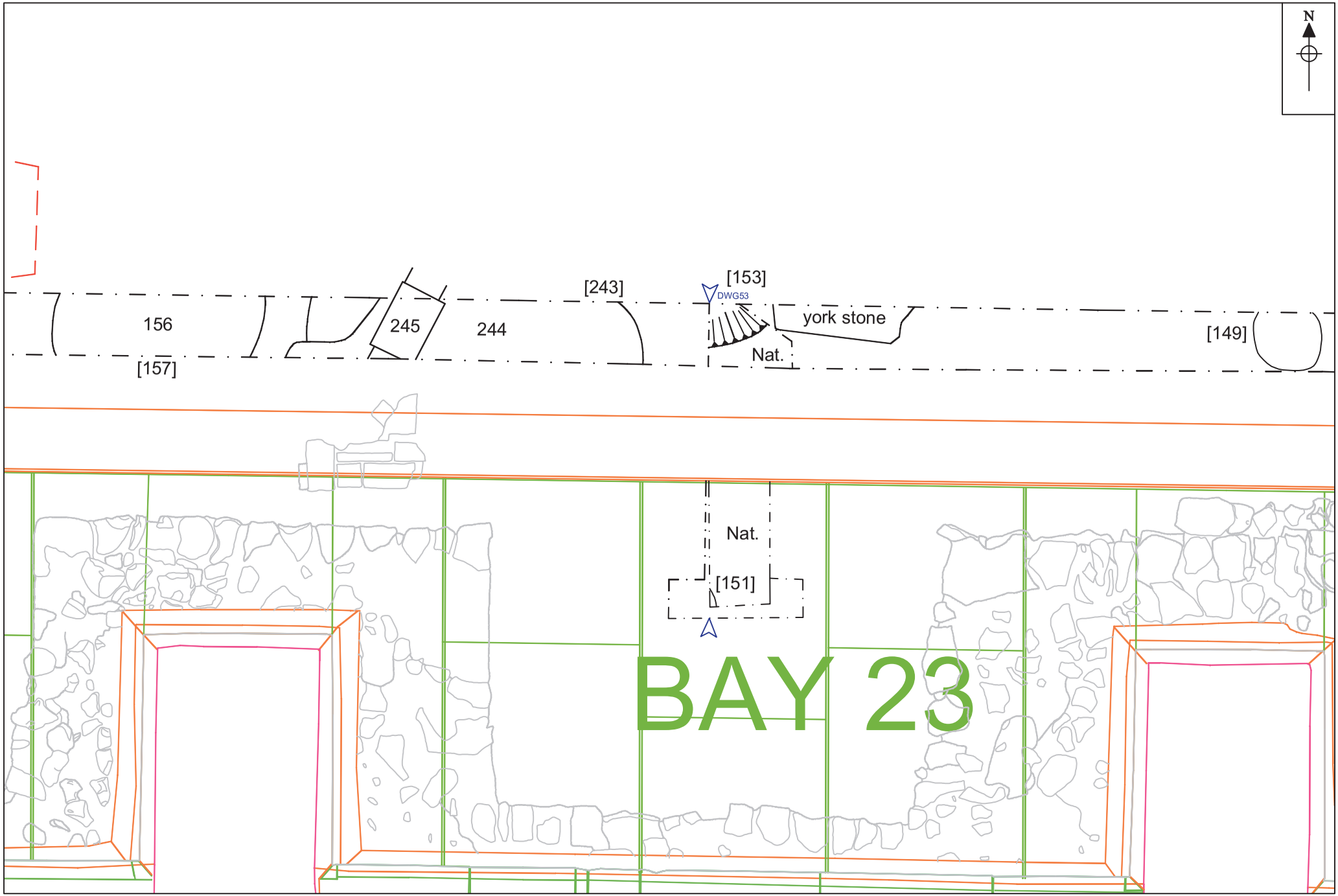

Figure L. Site plan. Scale 1:20

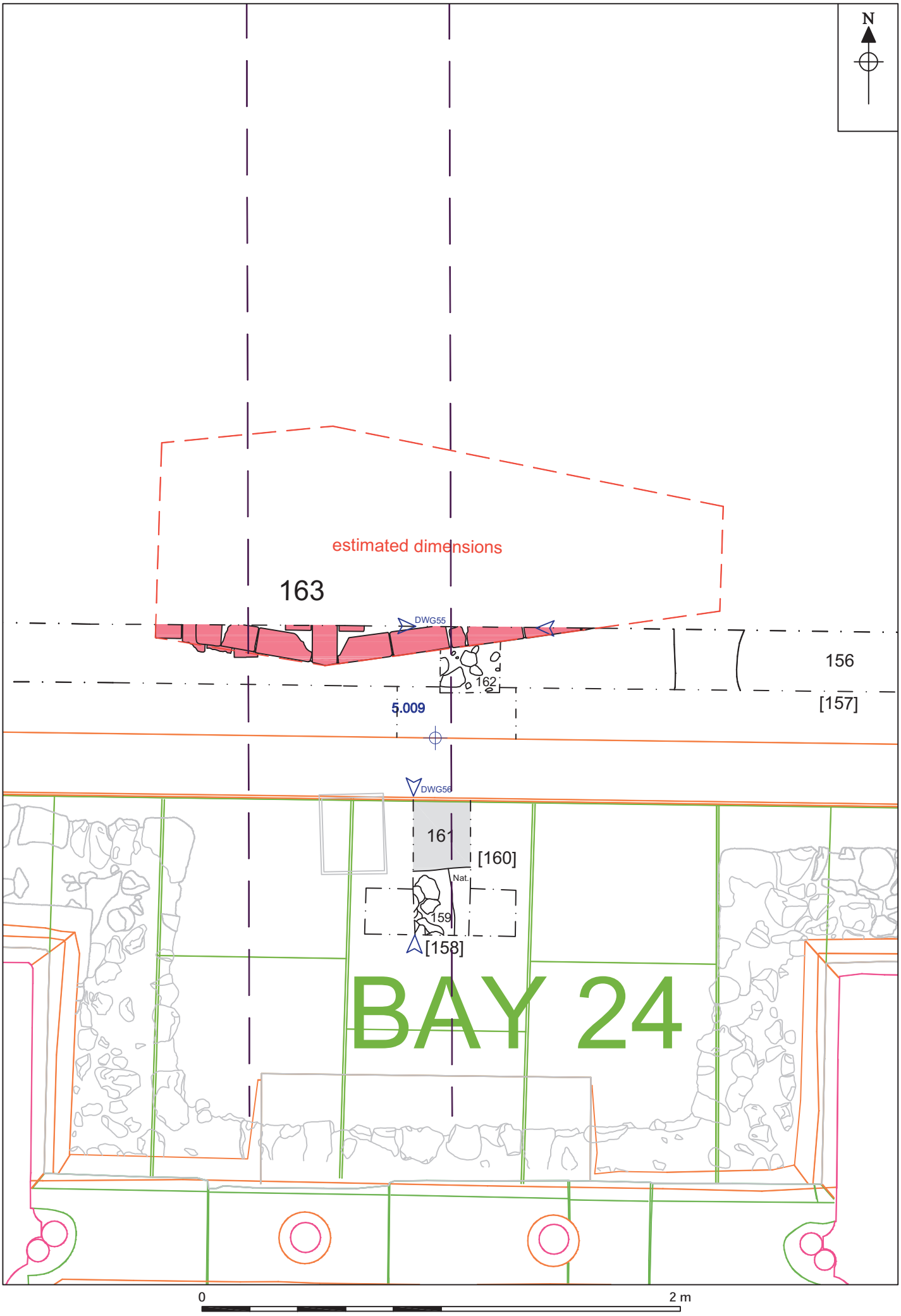

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Figure M. Site plan. Scale 1:20

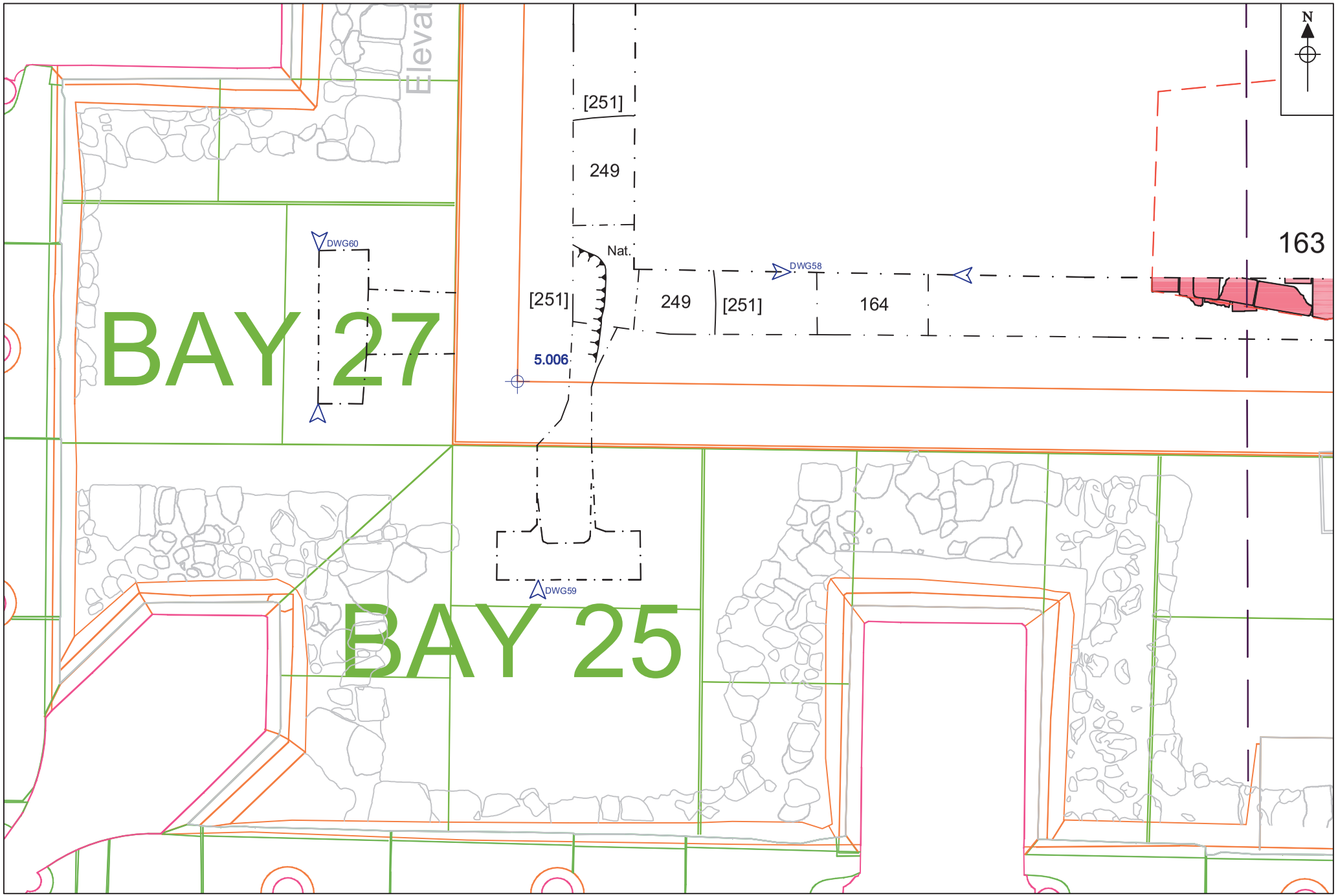


Figure N. Site plan. Scale 1:20

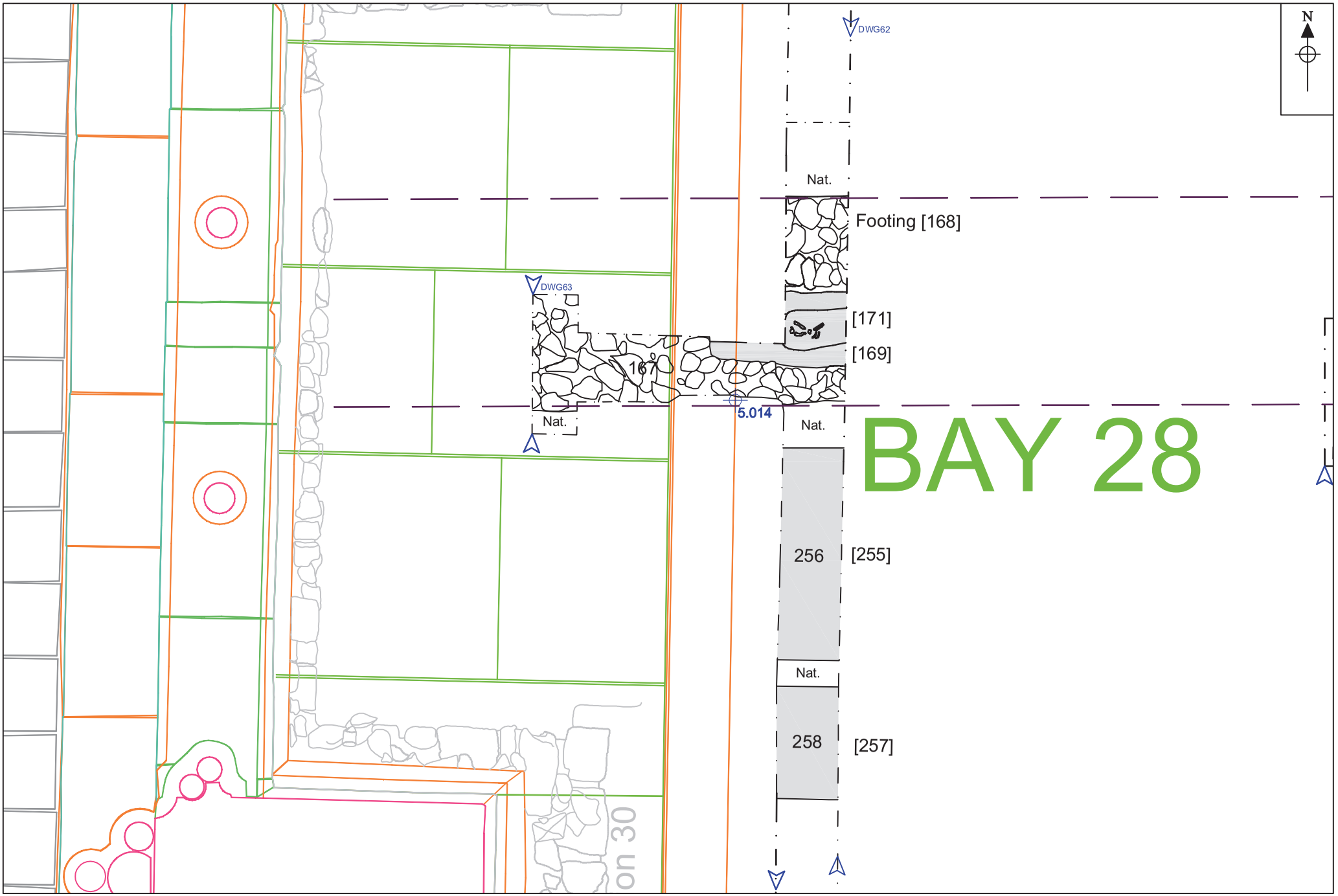


Figure O. Site plan. Scale 1:20

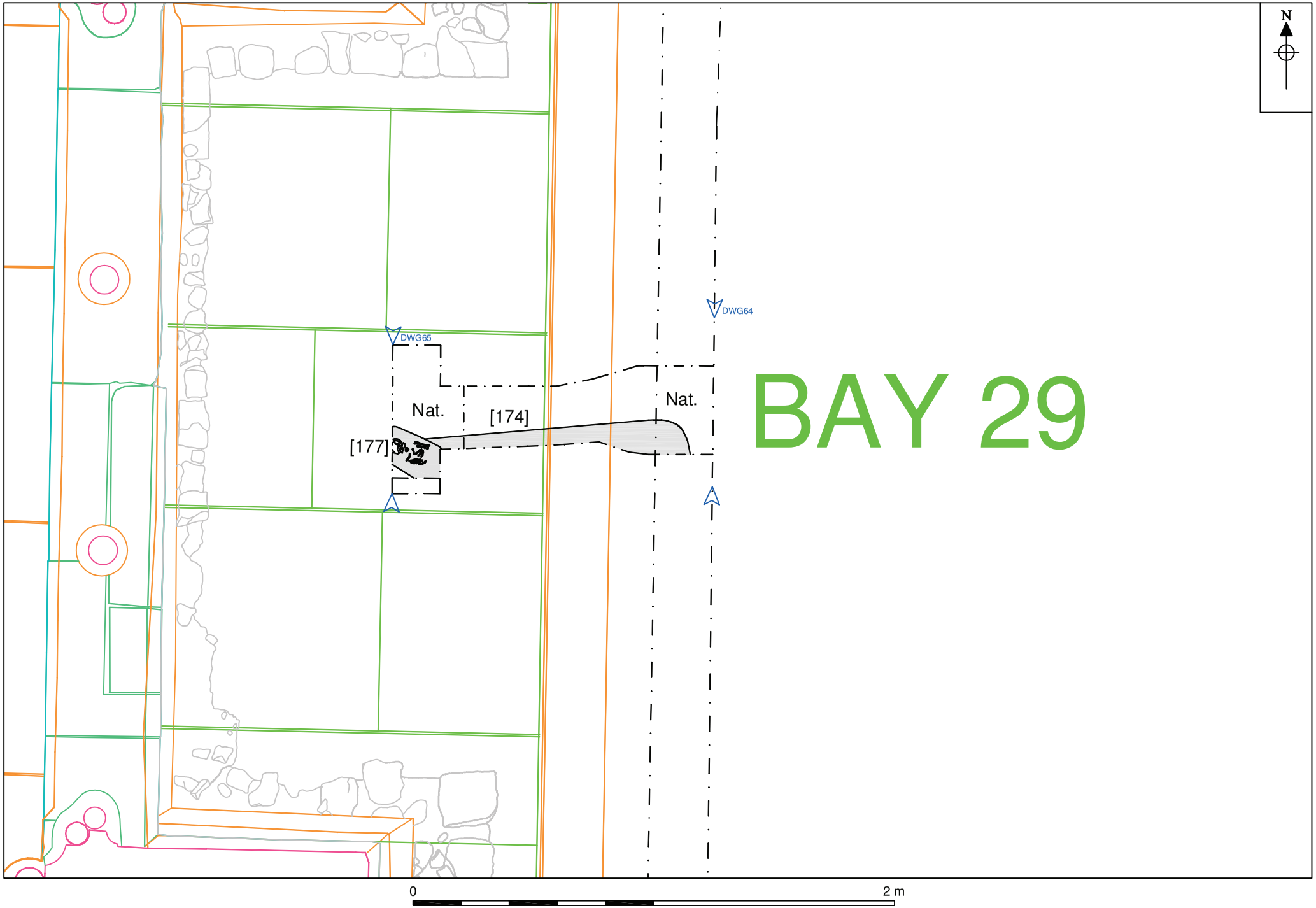


Figure P. Site plan. Scale 1:20

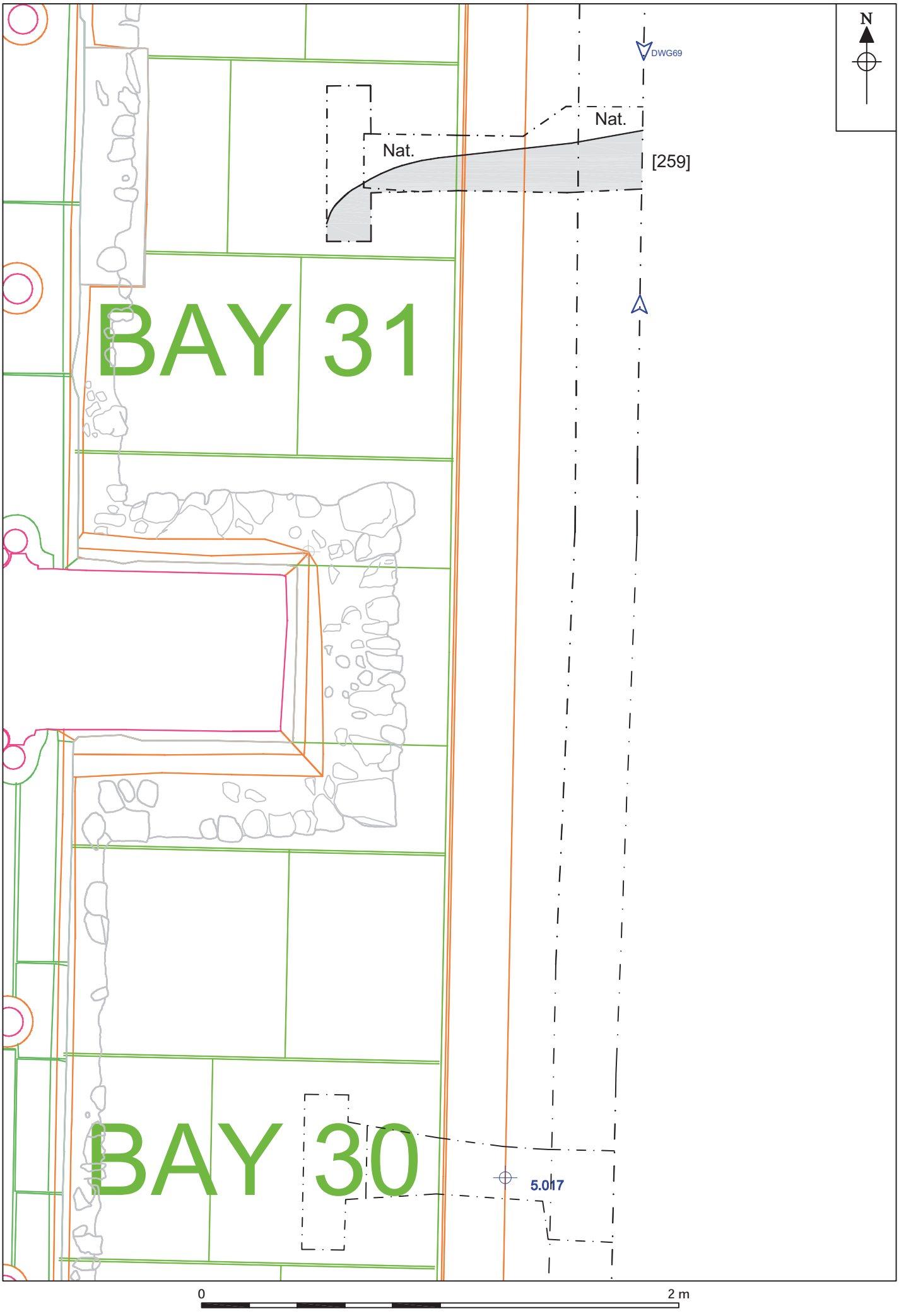


Figure Q. Site plan. Scale 1:20

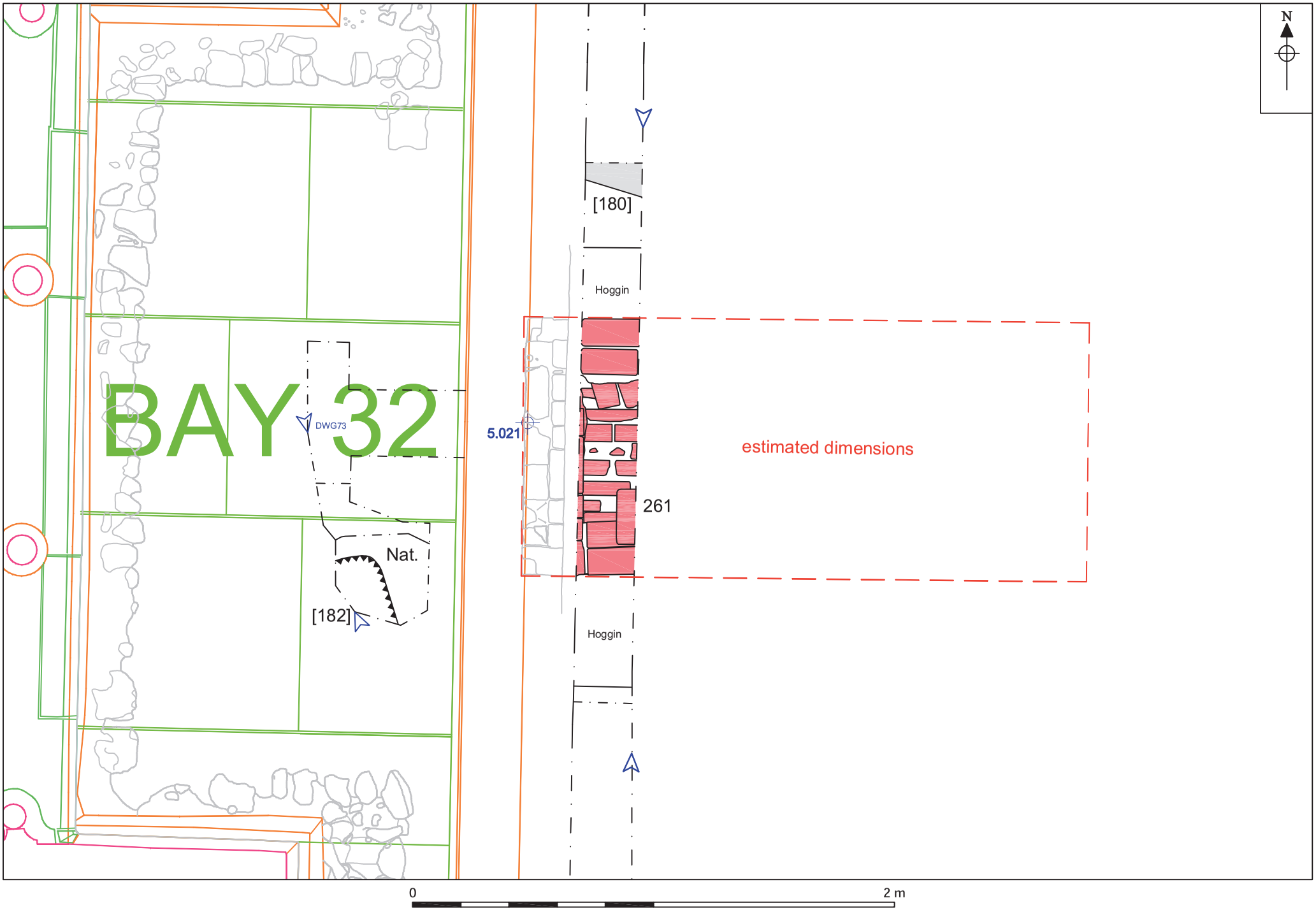


Figure R. Site plan. Scale 1:20

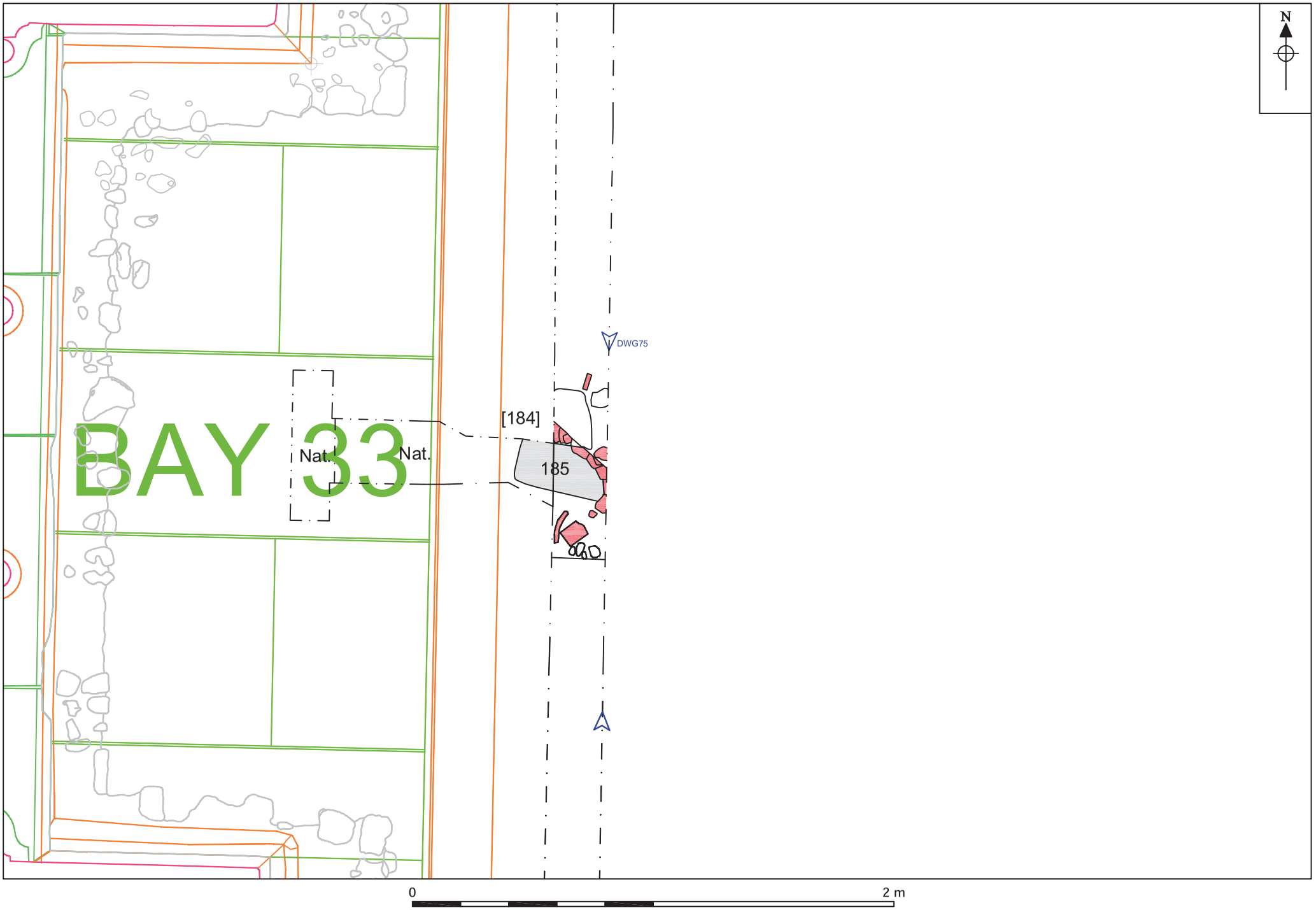


Figure S. Site plan. Scale 1:20

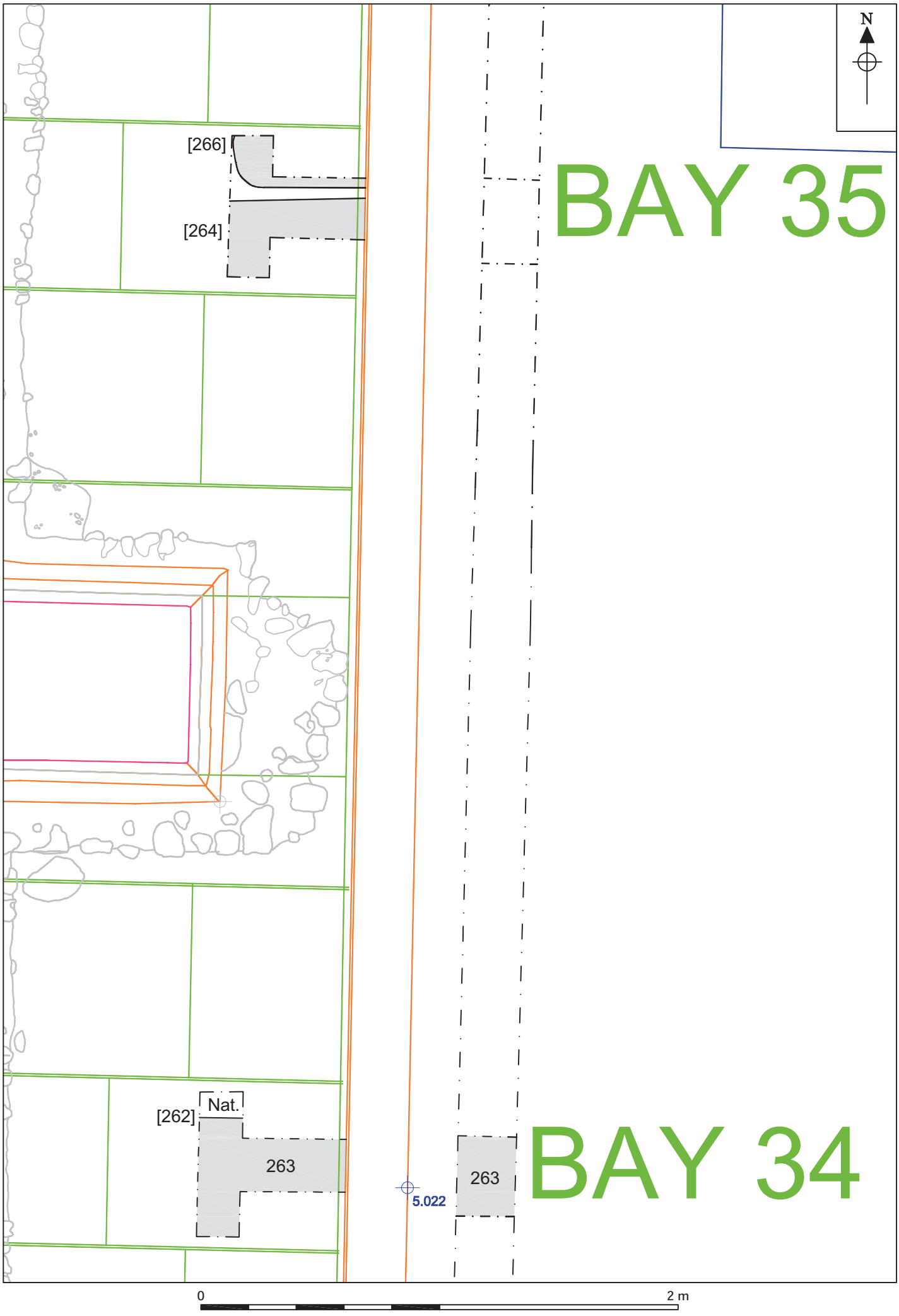


Figure T. Site plan. Scale 1:20

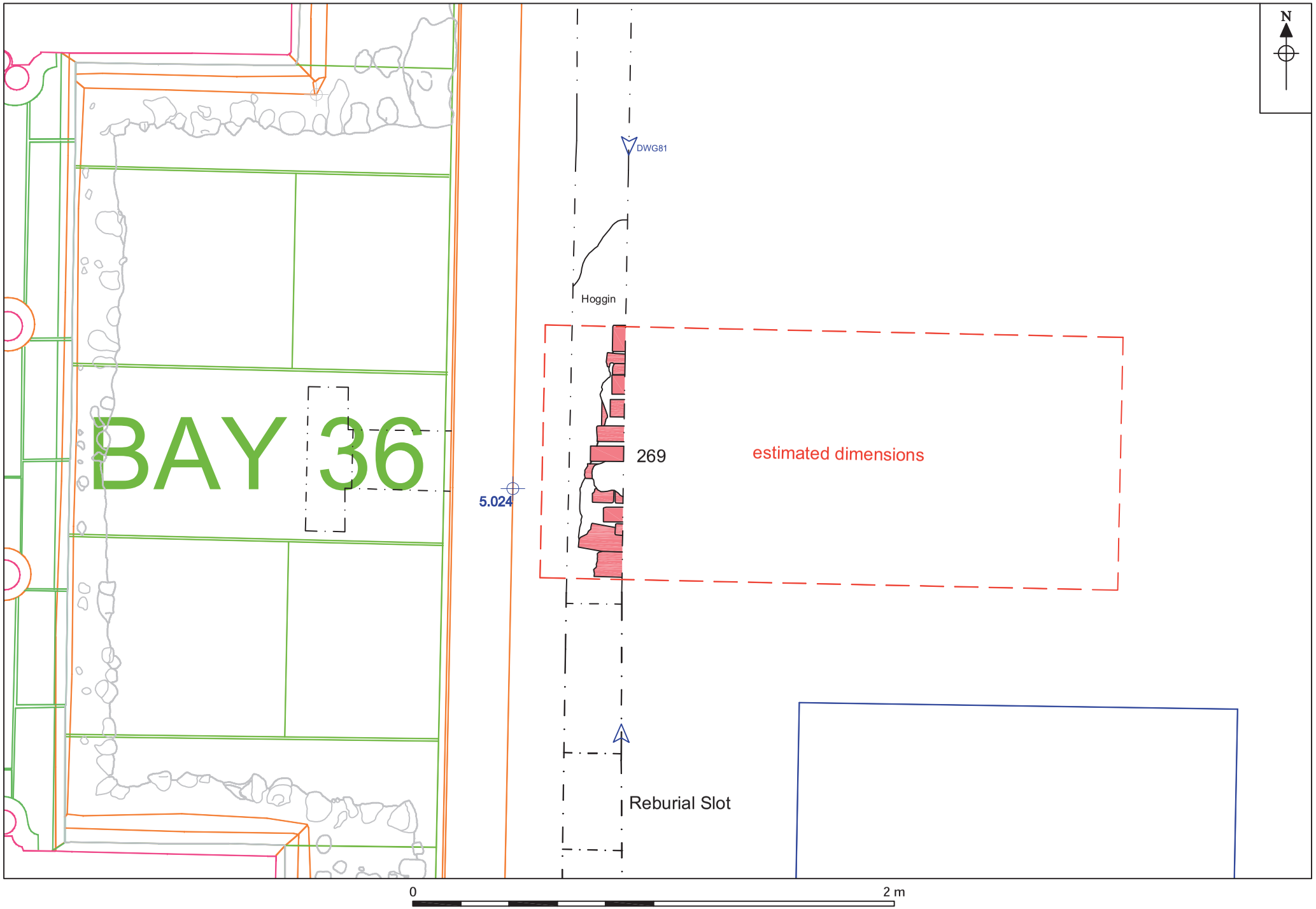


Figure U. Site plan. Scale 1:20

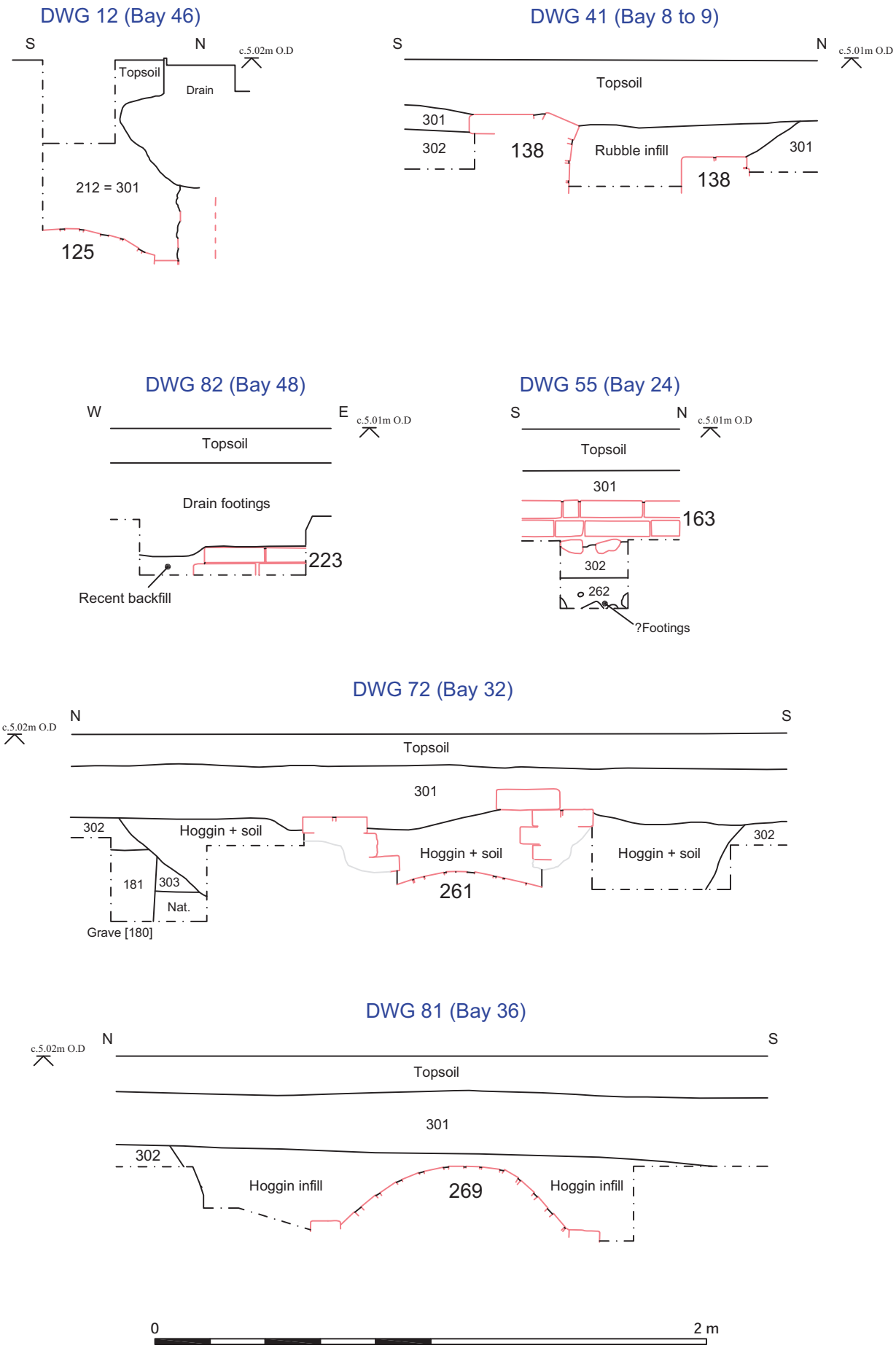


Figure S1. Sections showing Brick Burial Vaults. Scale 1:20

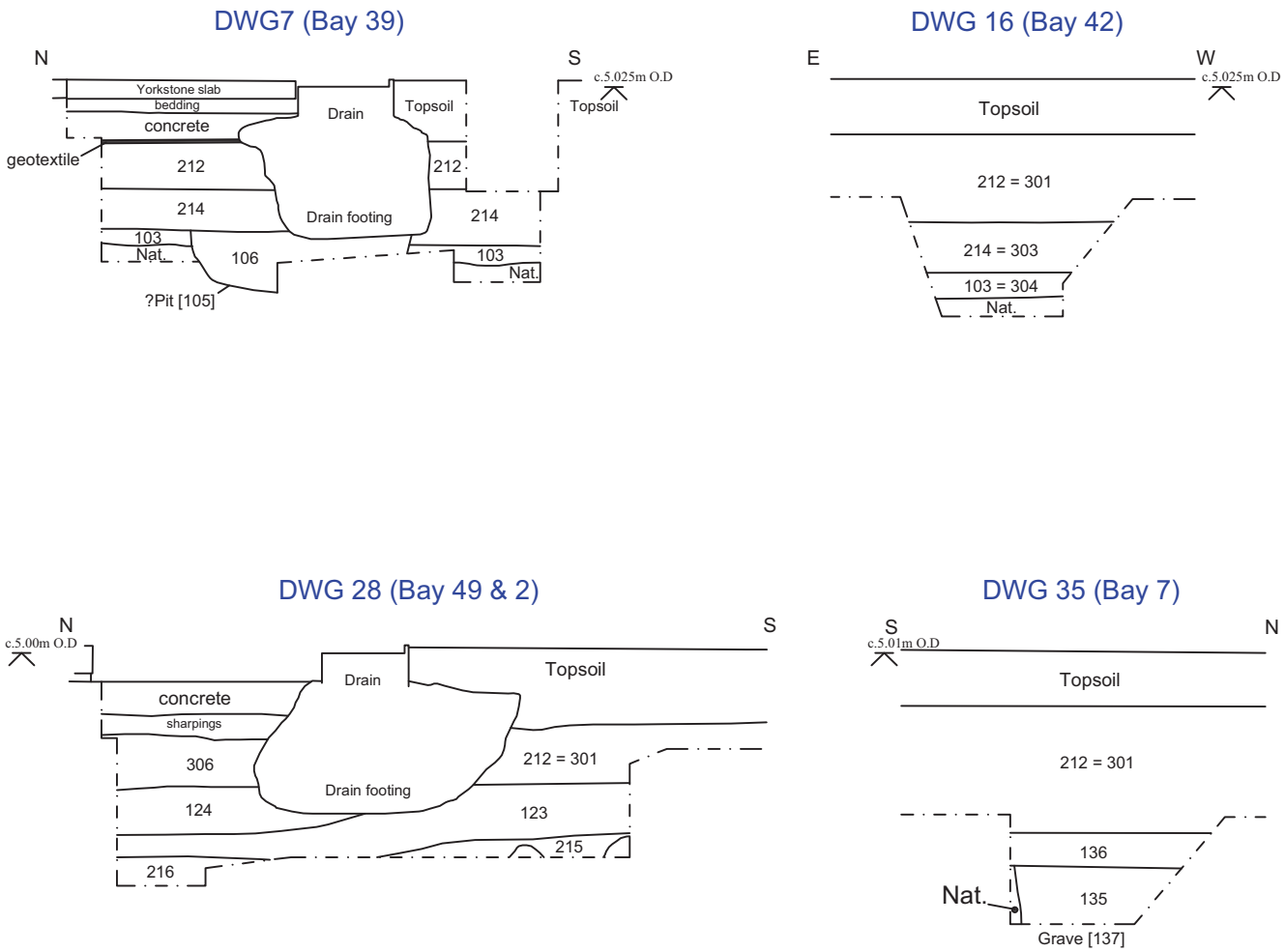


Figure S2. Illustrated Sections from Bays 39 to 9. Scale 1:20

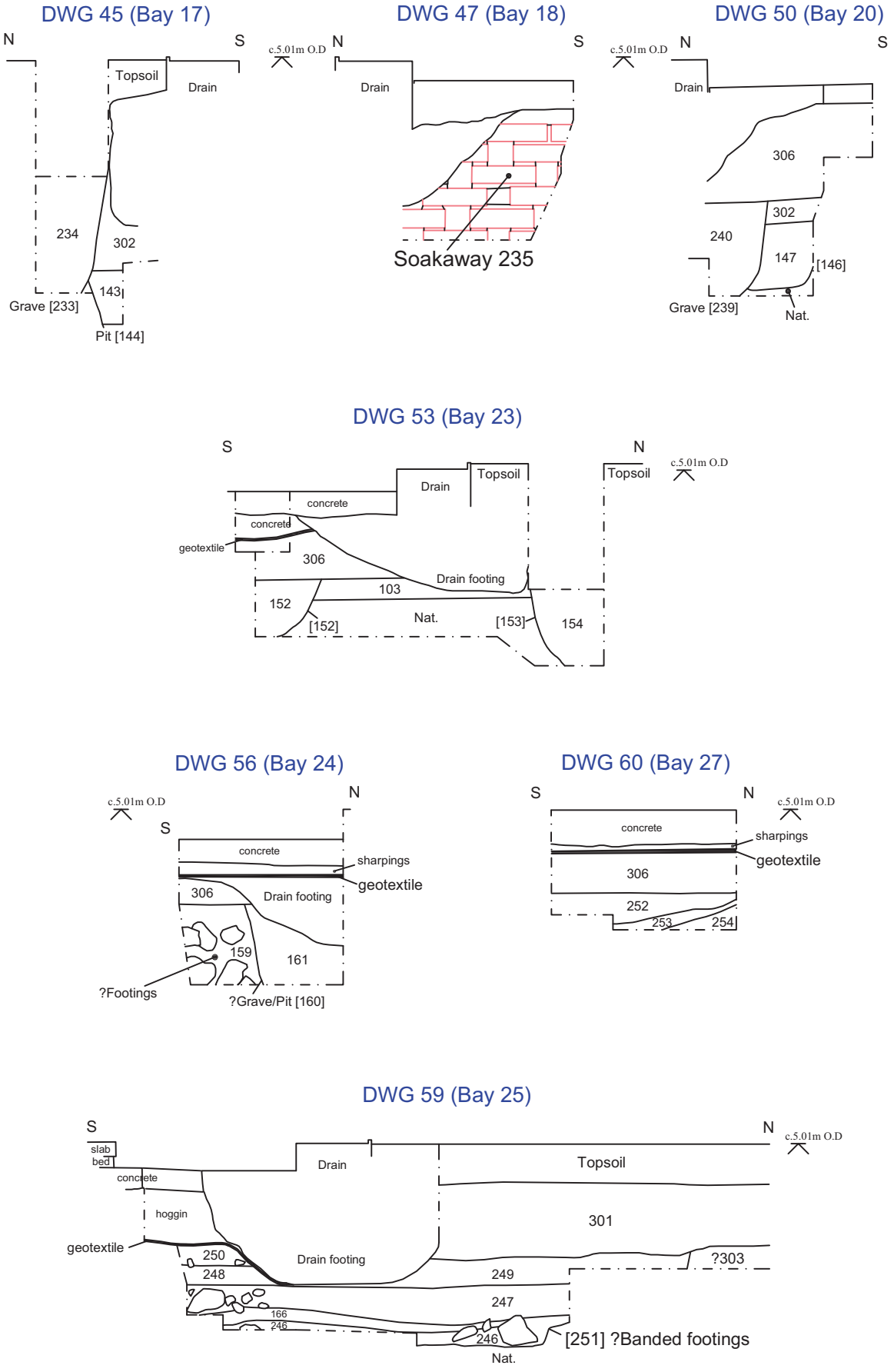
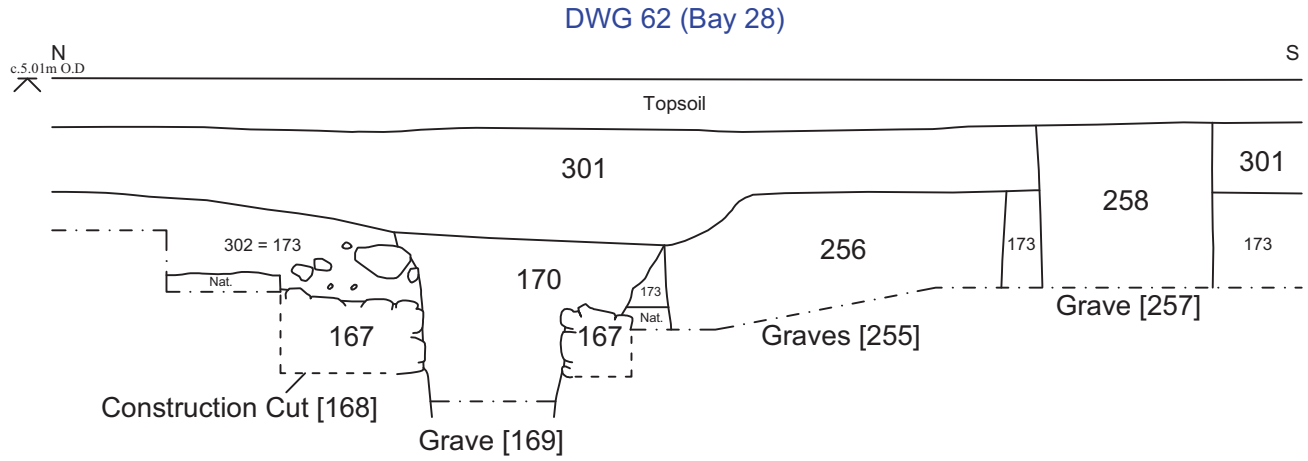
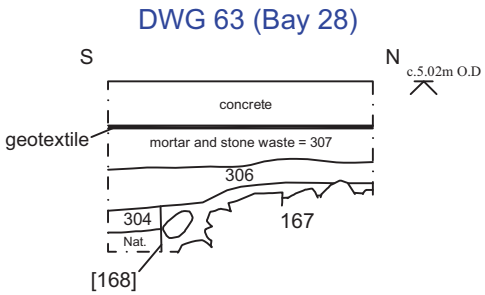
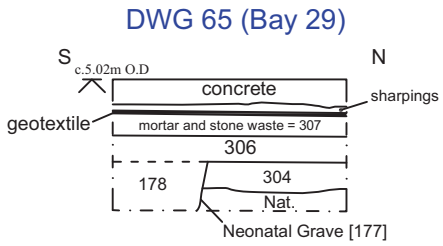
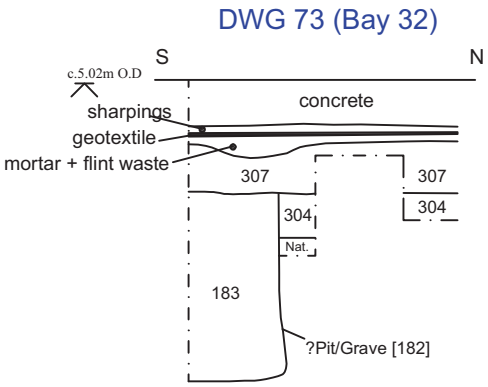


Figure S3. Illustrated Sections from Bays 17 to 27. Scale 1:20









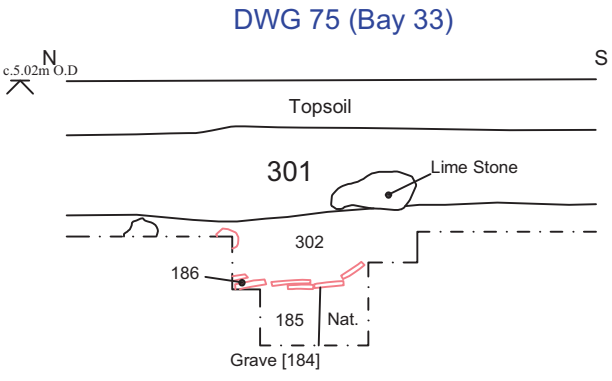


Figure S4. Illustrated Sections from Bays 28 to 33. Scale 1:20

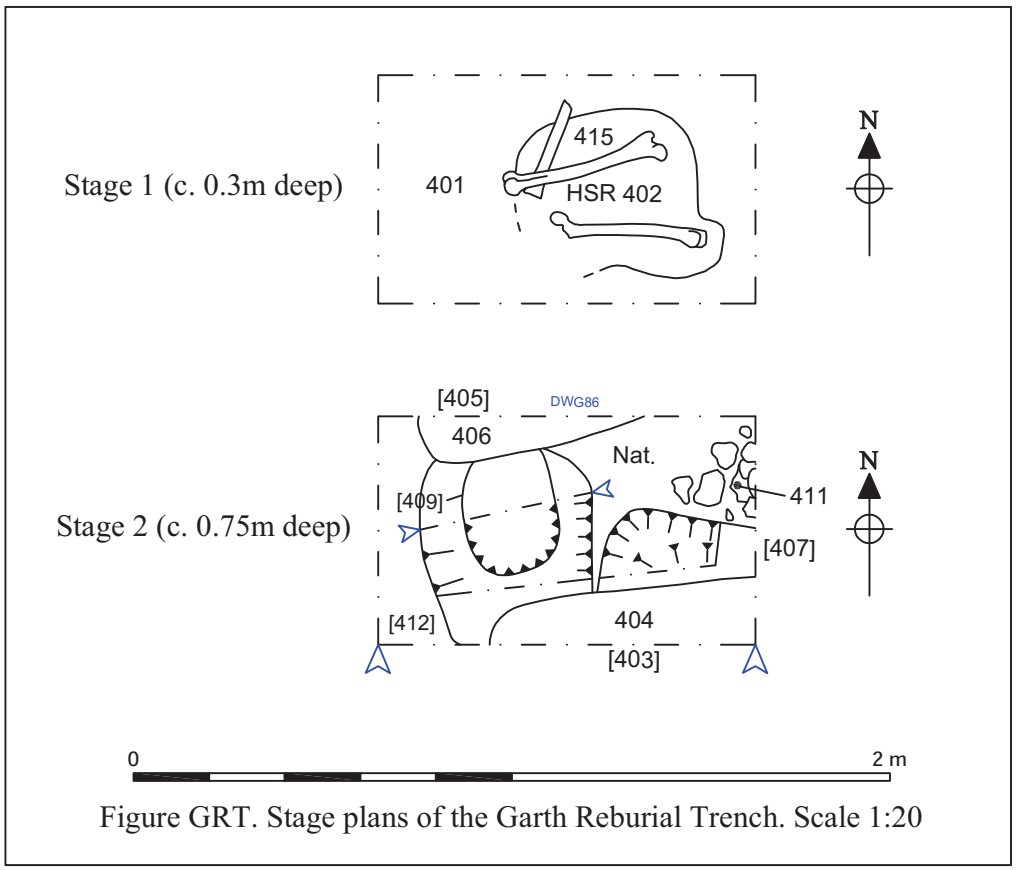
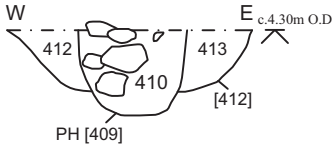
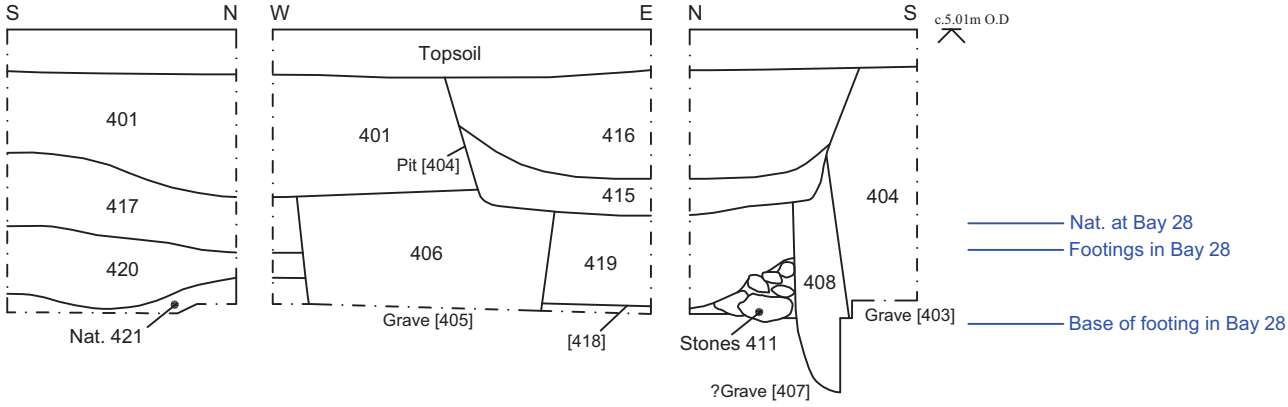


Figure GRT. Stage plans of the Garth Reburial Trench. Scale 1:20

DWG 85 (PH [409] & [412]



DWG 86 Recorded Baulk Sections



GRT. Illustrated Sections. Scale 1:20