



NAA

ARCHAEOLOGICAL
EVALUATION REPORT

SEAHAM
COMMUNITY EXCAVATION,
FLOWER FIELD,
OLD SEAHAM,
COUNTY DURHAM

NAA 14/06
June 2014



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EVALUATION REPORT

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**SEAHAM COMMUNITY EXCAVATION
FLOWER FIELD, OLD SEAHAM, COUNTY DURHAM**

ARCHAEOLOGICAL EVALUATION REPORT

Summary

This report presents the findings of archaeological investigations carried out at Flower Field in Seaham, County Durham during December 2013. The work, which comprised trial trenching and geophysical survey, was carried out by Northern Archaeological Associates Ltd (NAA) on behalf of Durham County Council, as part of their Limestone Landscapes Partnership project. The primary aim of the project was to provide training in archaeological excavation and recording techniques to local volunteers, through the investigation of the known early medieval cemetery and potentially associated settlement remains. A geophysical survey (conducted by GSB Prospection) was also commissioned as part of this work, and the volunteers introduced to the basic principles and potential limitations of this method of non-invasive investigation. This augmented an earlier survey conducted in 1999.

The original settlement of Seaham lay around the parish church and the hall; the village being demolished and the present town of Seaham Harbour established in the late 18th and early 19th centuries respectively. The parish church contains standing masonry thought to be of 7th to 9th century date, and previous archaeological investigation undertaken both in the garden of Seaham Hall Lodge and in the north-west corner of Flower Field identified an apparently contemporary cemetery c.200m to its north. In the eastern part of the field, the results of the geophysical surveys would suggest that the land has been divided up into strips, with possible enclosures laid out to the west.

Eight skeletons were excavated in a trench in the north-west corner of the field, and the eastern extent of the cemetery was also established, although it does not seem to have had a formal boundary. All the individuals were adults when they died, four could be identified as men and three as women. One individual had suffered a broken leg, while one of the women had a minor abnormality of the lower spine. No evidence for coffins was found around any of the individuals, the only artefact being a ring, found on the left hand of another of the women.

To the south of the cemetery, further features were identified, most sealed by a probable ploughsoil of medieval date. Two of these features corresponded with geophysical anomalies in an area of possible enclosures. One ditch contained a quantity of animal bone, an antler comb fragment of probable Anglo-Saxon date, together with other finds, all suggesting the dumping of domestic rubbish. This is the first evidence for settlement between the church and the cemetery, and when combined with the results of the geophysical surveys and undated features excavated elsewhere in the field, may indicate a large area of occupation south of the cemetery and around the church during the Anglo-Saxon period. Radiocarbon dating is recommended to better understand the results of the investigation and inform an understanding of the potential significance of the site.

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ARCHAEOLOGICAL EVALUATION REPORT**

1.0 INTRODUCTION

- 1.1 This report presents the findings of archaeological investigations carried out in Flower Field in Seaham, County Durham during December 2013. The work, which comprised trial trenching and geophysical survey, was carried out by Northern Archaeological Associates Ltd (NAA) on behalf of Durham County Council as part of their Limestone Landscapes Partnership project. The project involved a number of local volunteers in the excavation and recording of the archaeological remains and in the processing of recovered finds and samples.
- 1.2 The excavation ran over a period of two and a half weeks, from the 3rd to the 17th of December. Despite the pre-Christmas chill and occasional winter storm, sixteen local volunteers were able to attend, some for the entire duration of the project.

2.0 LOCATION, TOPOGRAPHY AND GEOLOGY

- 2.1 The evaluation was carried out in the Flower Field, which lies to the east of Seaham Hall and north of St. Mary's parish church. The area around the hall and church was the site of the original Seaham settlement, approximately 1km north of the present town of Seaham Harbour (Fig. 1). The site comprises a field of permanent pasture, sloping gently down to the east and south (NZ423507 centred). The field is bounded to the south by St. Mary's church and to the west by Seaham Hall and its grounds. The eastern and northern limits are defined by North Road (the B1287) with Seaham Hall Lodge immediately north of the site.
- 2.2 The underlying geology is Permian Magnesian Limestone, overlain by areas of sand and clay (IGS 1979). The soils of the area are mapped as fine loam and clay soils of the Foggathorpe 1 association (SSEW 1984).

3.0 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 3.1 The original focus of Seaham lay around the hall and church. During restoration work on St. Mary's parish church in 1913, the remains of four small round-headed windows were uncovered in the walls of the nave, predating what was previously seen as a largely 13th century structure (Pevsner 1983, 398). Three of the windows, which survive intact, have carved decoration on

interior and exterior surfaces and have been dated to between the 7th and 9th centuries AD (Cramp 1984, 135). Herringbone stonework in the nave is also believed to be probably Anglo-Saxon in date. As part of the 1913 restoration, excavations further uncovered evidence of a larger nave, extending beyond the present tower (Pevsner 1983, 399). The presence of a stone church of this early date is widely seen as associated with pre-Viking monastic occupation of some sort, although the presence of a stone church is not confined exclusively to such sites (Morris 1989, 153; Cambridge 1984, 68-9).

- 3.2 The settlement of Seaham is first mentioned in a charter of AD 933, when it was in the hands of the community of St. Cuthbert, then based at Chester-le-Street. This charter is thought to have been a confirmation of ownership, rather than an initial grant, and relates to the estate of South Wearmouth with all its dependencies, including Seaham. Seaham may have been part of a land grant of c.700, when an estate centred on nearby Dalton-le-Dale was granted to the joint monastery of Wearmouth-Jarrow (Griffiths 1996, 12). Monastic ownership is also reflected in the presence of a late 8th or early 9th century stone cross, found at Dalton-le-Dale (Cramp 1984, 61).
- 3.3 The 9th and 10th centuries saw considerable expansion of the St. Cuthbert community's land holdings in what would become County Durham. These included blocks of land which must have originally belonged to the monastery of Wearmouth-Jarrow, and Seaham may have been one such estate. The grant of a large land block between the rivers Tyne and Wear, recorded in AD 883, suggests strongly that the monastic complex at Wearmouth-Jarrow had ceased to exist by this date (Morris 1977, 92).
- 3.4 The presence of a cemetery some distance to the north of the parish church was first identified in 1861, when 25-30 skeletons were found during digging of a drain near Seaham Hall Lodge. All were said to have been adult males and it was initially thought to have been a battlefield cemetery. Further skeletons were uncovered during excavation of an air-raid shelter in 1939 in the lodge garden, and during the laying of a gas main nearby in 1983. The date of this cemetery has been assigned variously to the Iron Age, Roman and post-Roman periods (Griffiths 1996, 12). A further possible Anglo-Saxon burial site was excavated in c.1860, when a burial mound, situated 'near the old town' was opened, producing sherds of samian pottery as well as a quern fragment. The presence of Roman-period finds in the mound could indicate a post-Roman date for this unlocated feature (*ibid*).
- 3.5 The estate of Seaham was alienated from the church at some point after this, probably before 1183, as it does not appear in the Boldon Book survey of the bishop's property. The manor was held in 1260 by the Hadham family for knight's service, and while this family continued to hold land in the village for several centuries, the manor was divided in the course of the late medieval period into a number of moieties (Hutchinson 1823, 686-7).

- 3.6 In the post-medieval period, ownership of the manor and village was dominated by two families; the Milbankes and the Lords Londonderry. The Milbanke family came to north east England from Scotland in the 17th century. During the later 18th century they acquired land and coal mines in Durham through marriage, including Seaham (www.historyofparliament.org). In the early 1790s Seaham Hall was greatly enlarged under the direction of Sir Ralph Milbanke (Pevsner 1983, 399). The work on the hall also involved the removal of much of Seaham village, which lay to the hall's south and east. The layout of the village prior to this is shown on a plan of 1774, with houses arranged along either side of a single east-west road. The area of the present evaluation prior to demolition of the village was part of a series of fields marked 'Glebe Land' (Fig. 2). A sketch of St. Mary's church, dated 1784, shows a row of houses, presumably those along the north side of the main road through the village (Fig. 3). After the extension of the hall, the land north of the old road became part of the hall's grounds (Fig. 4).
- 3.7 Seaham Hall was the setting in 1815 of the marriage of Sir Ralph's daughter, Anne, to Lord Byron. However, Milbanke's growing financial difficulties - which included considerable costs in the legal separation of Anne from Byron - caused him to sell Seaham in 1821 to the Marquis of Londonderry. The auction catalogue for this sale states that six cottages and an inn were still standing at the time (Abramson 1996, 3). The Londonderry family, although from Ulster, already owned estates in Co. Durham through marriage, and the 3rd Marquis was granted the title of Viscount Seaham in 1823 (Whithead, 1994). The new town and port of Seaham Harbour, to the south of the hall, was founded in 1828 by the 3rd Marquis to export coal from his mines. Although financed by the Londonderrys, the plan for the harbour and town had in fact originally been drawn up for Ralph Milbanke in 1820. Londonderry's widow remained at Seaham after his death in 1854, and had the hall considerably enlarged in the early 1860s (Pevsner 1983, 400, 399). The hall and surrounding area just prior to this work is shown on the 1st edition Ordnance Survey (OS) map of 1860 (Fig. 4). This final phase of construction also saw construction of North Road, linking the hall with Seaham Harbour, with the Seaham Hall Lodge beside it. The layout of the enlarged hall is shown on the 2nd edition OS map of 1898 (Fig. 5).
- 3.8 With the continuing development of Seaham Harbour as a coal port in the later 19th and 20th centuries, the site of the original settlement became known locally as 'Old Seaham'. Seaham Hall was used as a hospital during the First World War, and the Londonderry family left finally in 1922, gifting it to Durham County Council five years later. The hall was then used as a sanatorium until 1978. After some years unoccupied, the hall and grounds were bought and opened first as an hotel, then a nursing home. It is now an hotel and spa (www.seaham-hall.co.uk).

4.0 PREVIOUS ARCHAEOLOGICAL WORK

- 4.1 Due to the area's archaeological potential, it has been the focus of several phases of earlier investigation (Fig. 6), a number of which have involved the active participation of local volunteers. In 1995, geophysical survey and trial trenching was carried out to the east of the church and rectory following the demolition of the adjacent remand home. The excavation revealed several wall foundations, structural gullies and postholes, together with a number of ditches and the remains of agricultural ridge and furrow cultivation. Soil horizons contained pottery ranging in date from Roman to the 19th century. Many of the structural components and other features could be related to buildings associated with the former Vicarage Farm shown in this location on the OS map of 1860 (Fig. 4). One wall however was of late medieval or early post-medieval date. The largest of the trenches (4 and 5) also revealed a series of shallow, undated slots and ditches. These appeared to represent parts of one or more timber-built structures, although the outline of any complete building could not be discerned. A single sherd of pottery of possible Anglo-Saxon date was found in trench 4, although from a residual context (Abramson 1996, 5-8).
- 4.2 In 1997, Durham County Council commissioned a research excavation, carried out by NAA, to evaluate the potential cemetery first discovered in 1861. A single trench was opened in the garden of Seaham Hall Lodge to establish the date and level of survival of the remains. A total of 10 skeletons were identified within a trench measuring 7m by 3m, comprising eight complete or substantially complete skeletons, and a further two individuals represented by charnel (Fig. 7). The skeletons were recorded *in situ* and not removed. A row of five skeletons lay in the west end of the trench, while the remains of two further bodies were identified in the eastern half of the trench, where overlying soils were deeper (Adamson and Abramson 1997, 1-5). All appeared to be buried supine, while seven were buried with heads to the west, and a single with its head to the east. The grave cuts were extremely difficult to identify with any degree of certainty, while the level of bone preservation was variable. All had died in adulthood, with age at death estimated as between mid 20s and mid 40s. Five individuals were identifiable as men, and two as women. The gender of the remaining three could not be established (Langston 1997, 5-12). None of the burials were accompanied by grave goods, and no evidence of coffins were found. Radiocarbon analysis of two of the skeletons produced dates of the later 7th to late 9th centuries AD, contemporary with the earliest standing elements of St. Mary's church.
- 4.3 Further work was carried out by NAA in 1999 within Flower Field, again on behalf of Durham County Council. A geophysical survey of the field was conducted, followed by the excavation of six trenches (Fig. 6). The largest trench was located in the north-west corner of the field, to investigate the extent of the cemetery. The geophysical survey identified a range of anomalies suggesting both cut features (mostly ditches) together with stony areas possibly associated with surfaces or foundations. These anomalies included a possible trackway in the western part of the surveyed area, with enclosures to its south

(Fig. 6). The remaining trenches were positioned to investigate these anomalies but were largely empty of archaeological remains- a single ditch below subsoil and a 19th century garden feature were the only other features recorded (Parry 2001, 3-7).

- 4.4 A total of 15 fully or partly-exposed burials was identified within the trench, together with a further 10 individuals represented by disturbed burials or other chanel (Fig. 7). Exposed skeletons were recorded and removed for further study. Four other possible graves were identified, although not excavated. The southern edge of the cemetery lay beyond the limit of excavation, but a trench located 18m to the south did not contain any burials. All of the skeletons were extended, with the exception of a single semi-flexed individual. Two had been buried in a prone position, one on its left side, and the remainder were supine. All except one of the individuals had been buried with their head to the west, the exception being an east-west burial. Eight of the individuals were identified as women and six as men, with only a single individual whose gender could not be established. All were adults when they died, most being in the range of mid 20s to mid 40s at death, with three individuals who may have been in their mid 40s or a little older. Some degenerative joint disease was visible, while three individuals showed evidence of healed minor trauma (Langston 2001, 17-24).
- 4.5 The individuals were arranged in two short rows, with a number of outlying burials. Grave cuts were extremely difficult to identify, and it was proposed that further burials were likely to be present in the intervening ground. Three of the graves cut through, or overlay, earlier burials suggesting that the cemetery had more than one phase of use. Evidence survived to suggest that that two of the burials had been in coffins. Two small nails were recovered from near the head of a partly exposed skeleton. The second individual (sk15) – a woman who probably died in her 30s – had been buried in an iron-bound, lockable chest which had been reused as a coffin. Remains of hinges and the lock were recovered, and the woman's skeleton was slightly disarticulated, suggestive of decomposition within a coffin (Ottaway 2001, 14-16). In addition to the coffined burials, the position of several skeletons suggested that they had been buried in shrouds, although no pin fasteners were found. Two further skeletons were radiocarbon dated. An isolated, prone burial produced a date of the late 7th to the start of the 10th century. The woman buried in the chest was dated to between the late 8th and start of the 11th century (SUERC 2002).

5.0 METHODOLOGY

- 5.1 The aims, objectives and methodology for the present work are set out in full in the Specification issued by Durham County Council and are summarised below (DCC 2013). The site code was SCE13.

Aims and objectives

5.2 The main aims and objectives of the evaluation were:

- to provide training in archaeological methods and techniques to local volunteers and to equip them with new skills
- to define and identify the nature of archaeological deposits on site, and date these if and where possible using geophysical survey and targeted excavation
- to attempt to characterise the nature of the archaeological sequence and recover as much information as possible about the spatial patterning of features present on the site.

Methodology

5.3 All trenches were machine excavated under constant archaeological supervision down to the top of archaeological deposits or, where these were not present, to natural subsoil. Especial care was taken within the area of the cemetery, and here deposits below topsoil and subsoil were largely removed by hand.

5.4 Articulated human remains were fully exposed within the limits of the trench. Discrete archaeological features encountered elsewhere were a minimum of 50% excavated and all finds retained. Environmental soil samples were taken from suitable archaeological features other than graves. Burials and other features were photographed and recorded using the NAA recording system. Volunteers were encouraged to participate in all aspects of the excavation and recording of both burials and other archaeological features, under supervision of professional field staff.

5.5 Where articulated human remains were identified, these were exposed and recorded. Recording included specialist examination of both *in situ* remains and charnel by a palaeopathologist. No burials were lifted. The exposed skeletons were reburied following recording, with care to place sufficient depth of soil by hand to protect each body before machine backfilling took place.

5.6 All site records were checked, cross-referenced and computerised following completion of fieldwork. Harris matrices were constructed for all trenches. Recovered finds were washed, catalogued and sent to specialists for assessment and reporting. Recovered environmental soil samples were 100% processed and assessed by in house staff. Volunteers participated in both finds and sample processing as part of the post-excavation work.

5.7 This report will form the basis for a contribution in the Council's *Archaeology County Durham* annual publication.

5.8 All work was carried out according to archaeological best practice as set out in the appropriate national and regional publications (EH 1991; IfA 2008; WYAAS 2009).

6.0 RESULTS

Trial trenches

Trench 1

6.1 This was the largest of the excavated trenches and was located in the north-west corner of Flower Field, oriented east-west. It was positioned to establish the extent of the Anglo-Saxon cemetery and to evaluate a linear geophysical anomaly at its east end. The trench initially measured 25m by 2m, but the western end – believed to be within the area of the cemetery – was widened to 6m in order to expose a number of skeletons and to identify any features marking the boundary of the graveyard (Fig. 6 and 7).



Plate 1: Trench 1 under excavation, looking north-east

6.2 Topsoil (100) comprised a dark sandy silt, 0.3m in depth. This overlay a subsoil (101) of grey-brown silty sand, some 0.35m deep. This subsoil contained a quantity of animal bone, including identifiable horse, cattle, sheep/goat and pig. Seven sherds of pottery were also recovered, comprising five of medieval date, and one each of post-medieval and Roman (Appendix B). The medieval sherds were all heavily-abraded and covered a period potentially from the 12th

to the 15th centuries. The Roman sherd was similarly abraded and was of probable 3rd century date. The single post-medieval sherd was unabraded and may be intrusive from the topsoil, as the interface between topsoil and subsoil was not clear in some areas. As most of the pottery was abraded, it suggests that subsoil represents a ploughsoil of probable later medieval date. The graves had been cut into a mid brown, silty sand (105), up to 0.3m deep within the area of the graves. This was traceable as a progressively thinner layer in the trench section, extending for a distance of c.10m beyond the easternmost burial. Two fragments of animal bone were recovered from this deposit (one each of horse and sheep/goat), although it is possible that they in fact derived from the base of the subsoil above. This 'cemetery soil' was identical to the material filling the graves, making identification of individual grave cuts almost impossible. The cemetery soil in turn sealed a further mottled soil layer (106) which appeared to be a mix of 105 above and the yellow-cream sand natural subsoil (130) below. Graves could be traced where their base cut into this (106) layer.

- 6.3 A total of eight skeletons were excavated within the west end of the trench, all of which were adults (Figs. 6 and 7; Plate 1). Four of the skeletons were fully exposed (sk102, sk110, sk118 and sk126). The remains of a fifth individual (sk113) had been partly removed in antiquity by a later burial. Three further skeletons lying at the edges of the trench were partly exposed (sk107, sk121 and sk129).



Plate 2: Trench 1, eastern row of skeletons, looking south-east

- 6.4 The burials were arranged in two rows, with outliers beyond to the north-east. All the bodies had been buried in supine positions, although sk129, partly-exposed in the north-east corner of the trench, may have been in a semi-flexed

position as the legs were slightly bent. The four fully exposed individuals were each laid out with one hand over the waist or lap, and the head turned to one side. Three skeletons (sk102, sk118 and sk126) had their right arms across the body and the head turned to the left. This was reversed in the case of sk110. This may have been a deliberate mortuary practice, although its significance is unclear. It is also possible that both hands had been placed over the lap prior to burial and that this position merely resulted from the bodies being rolled into the graves from one side. As the body was placed in the grave, the arm away from those burying it is likely to straighten and the face to turn.

6.5 The eastern row of burials consisted of three fully exposed individuals (sk102, sk118 and sk126 (Fig. 8; Plate 2). The excavated row comprised a man (sk102), a woman (sk118) and a less well-preserved individual, possibly another man. No grave goods or evidence for the presence of coffins or other grave furniture were found around these skeletons. It was noted however that the arms of all three individuals were held tightly against their rib cages, suggesting that each had been buried in a shroud (Plate 3). All three individuals had also been buried at a similar depth and orientation, possibly suggesting that they were interred relatively shortly after one another. The ground between and to the south of these skeletons was excavated down into the top of layer 106, to locate further burials, but none were present, suggesting that sk102 was the southernmost in the row and no further burials lay to their east.

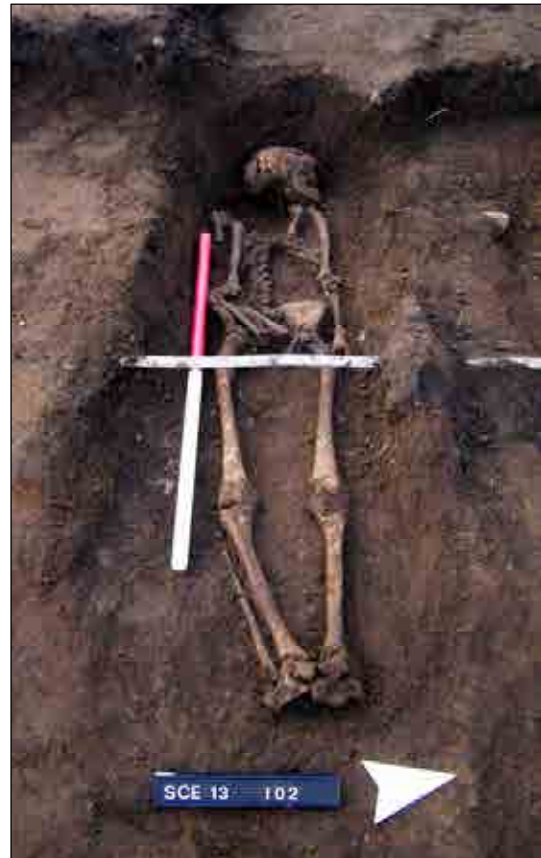


Plate 3: Skeleton 102, showing arms tightly against ribcage

6.6 The western row of burials was less well-defined, represented by the lower portions of three skeletons, sk107, sk113 and sk121 (Fig. 8; Plate 4). The western edge of the trench was deliberately positioned to overlap with the 1999 excavation, in order to relocate some of the previously-excavated remains and more accurately locate the old trench. This proved to be difficult, the only correlations being a single re-deposited skull above sk107 (originally dug as sk26) and the edge of the backfilled 1999 excavation seen in the southern trench section.



Plate 4: Trench 1, western row of skeletons, looking north-west

6.7 The depth of burial and orientation of the bodies in the western row showed greater variation than in the eastern row, suggesting that a period of time elapsed between each burial (Plate 4). Skeleton 113 comprised the legs, pelvis and part of the right arm, probably of a man. The torso had been cut away by what was thought to be a later burial, although no bones of this were found (Plate 5). When the 1999 excavation evidence is added, it can be seen that the upper portion of sk113 had been removed when the woman who had been buried in the chest (sk15) was inserted (Fig. 8). This latter burial (which was lifted as part of that excavation) had also cut through another burial (sk4) exposed in the 1999 trench. Skeleton 107 and sk121 were only partly exposed, as they lay at or near the western edge of the trench. The gender of sk107 could not be established, but a healed



Plate 5: Skeleton 113, showing torso truncated by later burial

fracture of the individual's right tibia was visible. Skeleton 121 was identified as the skeleton of a woman. There was again no evidence that any of these three bodies had been buried in coffins, but sk121 had been buried wearing a copper alloy ring on a finger of her left hand (Plate 6). The presence of such a ring in burials of later Anglo-Saxon date is not uncommon, and parallels are known at Norton on Tees and at Spofforth near Harrogate, where the single example was also worn by a woman (Appendix C). From its position in relation to the 1999 burials, sk121 seems to represent another grave in the row of burials found here in 1999 (Fig. 7).



Plate 6: Skeleton 121, showing remains of finger ring in situ

- 6.8 The final two skeletons (sk110 and sk129), which again showed considerable variance in depth of grave, lay 2-3m north-east of the eastern row (Fig. 8). The more shallow burial (sk110), which was the least well-preserved skeleton, was tentatively identified as a man (Plate 7). Like the other three completely exposed individuals, the proximity of the arms to the chest suggested he had been buried in a shroud. Skeleton 129, another woman, lay immediately to the south-east, and had been buried c.0.35m deeper. This individual, the legs of whom were only partly-exposed, was the only body which was thought to have been buried in a non-supine position. The cut (116) of this grave was considerably larger than necessary for the burial, extending c.0.6m beyond the skull to the west, although the reason for this is unclear (Plate 8). From the size and position of the grave cut, it would have been difficult – but not perhaps impossible – for sk129 to be buried without disturbing sk110. It seems more likely therefore that, given the close proximity but variation in orientation, that sk110 is a later inhumation. This could suggest that the earlier burial was unmarked or that there may have been a number of years between the two events.



Plate 7: Skeleton 110 under excavation, looking east

- 6.9 As stated, all eight individuals were adults when they died - age at death is estimated as between mid 20s and mid 40s (Appendix D). There were no obviously older individuals and no children. Of the seven whose gender could

be determined with some certainty, four were believed to be men, and three women. One of the women (sk129) had a developmental abnormality of the lower spine where the lowest vertebra had partly joined the sacrum, which would have caused her lower back pain. The woman buried with the ring (sk121) had a minor abnormality of the kneecap. The only observable sign of trauma was a healed leg fracture on sk107. It was also noted that sk118, the remains of a woman, had suffered some tooth loss during life, and that a disarticulated skull found in the grave of sk107 had severe tooth wear. The relative lack of observable non-metric traits and trauma may have been partly due to examination of the skeletons *in situ*, where the lower surfaces could not be seen. The height of four individuals could also be estimated from the remains. Two of the men (sk102 and sk113) are thought to have been 169cm (5'6½") and 164cm (5'4½") respectively, while two of the women (sk118 and sk121) are estimated at 163cm (5'4") and 151cm (4'11½"). Based on other excavated sites in the region, the taller woman (sk118) would have been above average for the time, the other shorter (Appendix D).



Plate 8: Skeleton 129, with later shallow grave (sk110) beyond

- 6.10 The area beyond the eastern row, and to the south of sk110 and sk129, was excavated down into the top of natural subsoil and contained no further burials, marking the eastern limit of the graveyard at this point. Two further features were identified east of the burials, and although there was no direct relationship between them and the graveyard, one or both might represent cemetery boundary features. A single posthole, (132), lay 1m south of sk129 (Fig. 8). Unfortunately, the shape of the posthole cut was impossible to trace,

the feature being only recognised by the presence of packing stones, which projected slightly into the overlying subsoil 101. On the basis of this limited evidence, the posthole might have been a cemetery feature, or may have been associated with the later ploughsoil. There is similar uncertainty regarding a collection of small, yellow rounded sandstones (124), seen in section in the south-east portion of the trench (Fig. 8). The lower stones lay in a shallow cut (125) into the cemetery soil (105). Most of the stones lay above this cut within the subsoil layer (101), where no cut could be traced. All soils within the trench were relatively stone-free, and these rounded sandstones had obviously been collected, but their small size did not suggest their use as packing stones. Their function, therefore, remains unclear. There was no direct evidence that the feature had cut into subsoil 101, but if layer 101 was a ploughsoil, it seems unlikely that such small stones would not have been dispersed by ploughing. It is perhaps more likely that although the cut (125) is largely invisible, it had been dug through layer 101 and represents a later feature of some sort.

- 6.11 East of posthole 132, the trench did not contain any archaeological features. A metal pipe was encountered at the eastern end of the trench, running from north-west to south-east, at a depth of 0.5m and cut into the subsoil layer (101). No evidence of the geophysical anomaly was found, and the same feature was absent in a trench excavated in 1999 (Parry 2001, 7).

Trench 2

- 6.12 This trench was located in the central part of Flower Field and measured 10m by 2m. It was positioned to investigate a marked change in the orientation of a former field boundary at this point shown on the first edition OS map. It was thought that this might have reflected the location of an earlier feature (possibly a barrow), now lost (Fig. 9). Topsoil (201), identical in nature to Trench 1, was 0.4m deep. This overlay a subsoil (202), again identical to that in Trench 1, but which was up to 0.5m thick. This layer sealed two features (203 and 205) and the remnants of ridge and furrow (group 207) seen in the trench section (Fig. 9).



Plate 9: Trench 2 features, sample excavated

- 6.13 A short length of gully (203) and part of a further shallow feature (205) – possibly sub-circular – were cut into the natural yellow sand subsoil (200) (Fig. 9; Plate 9). The gully, 0.45m wide and 0.15m deep at its south-west terminus, lay within the trench. A small quantity of animal bone was recovered from the gully, two fragments of which have been identified as cattle. The other feature

(205) was equally shallow (0.13m) and lay only partly within the trench. The fill of this feature was very similar to that of gully 203 but their stratigraphic relationship could not be established with any certainty. This feature also contained a small quantity of animal bone, in this case sheep or goat. Both gullies predated the ridge and furrow cultivation seen in the trench, but their function and date remain unclear.

Trench 3

- 6.14 This was positioned in the western part of the field, measured 15m by 2m, and was oriented approximately east-west (Fig. 10). The trench was located to evaluate two north-south linear anomalies on the geophysical survey, part of a concentration of such features identified in this part of the field (Fig. 6). Topsoil (300), up to 0.5m deep and subsoil (301), up to 0.4m thick, were identical in nature to the corresponding deposits in the other trenches. Three north-south linear features were uncovered; two ditches (305 and 306) at either end of the trench which corresponded with the geophysical anomalies, and a smaller gully (303) which lay between them (Fig. 10). Both ditches were 100% excavated to maximise finds recovery. The natural subsoil (310) changed from a yellow sand at the west end of the trench, to a pinkish grey clay in the centre and east.



Plate 10: Ditch 306, sample excavated

- 6.15 Ditch 306, at the western end of the trench, was filled with a material (309) which was indistinguishable from the subsoil layer (301) above. The ditch

measured 1.3m in width and was 0.4m deep (Plate 10). A sample of the fill contained a total of 66 charred cereal grains and small fragments of animal bone. Although 22 of the grains were poorly preserved, of the identifiable examples, 28 were oat, 13 wheat (possibly bread wheat), the remaining three being barley (Appendix E). The whole sample was processed, but no charcoal, chaff or other charred plant material was found except for the carbonised grains. The presence of only grain - of three separate species - is unusual and it is unclear why no charcoal was found. It is likely that a fuller explanation of the depositional process would be gained if the nature and date of the ditch, together with any associated features, were better established by further excavation in this part of the field. The dominance of oat in the sample, and its stratigraphic position, both suggest a medieval or post-medieval date.

- 6.16 The smaller gully 303 lay 2.4m east of the ditch. It was filled with a mixed deposit (302) of subsoil and natural clay, and cut through the subsoil. Although first thought to be a field drain, there was no evidence of any form of pipe or drain setting.
- 6.17 The ditch (305) at the east end of the trench was similar in size to ditch 306 at the west end, but was filled with a greyish-brown silty clay (307), sealed by the subsoil. The fill contained a large quantity of animal bone, identifiable species being horse, cattle, sheep/goat and pig as well as three bird bones. Cut marks were visible on several of the cattle and horse bones, while a small number of un-fused bones of sheep/goat and cattle, indicating young animals, were also noted. A soil sample of this feature again produced only charred cereal grain, although far fewer in number. Of the nine recovered grains, two were identified as oat, one as wheat and four as barley.
- 6.18 Three small artefacts were recovered from the soil sample; a fragment of comb, part of a iron pin (probably a brooch or buckle pin) and a polished goose wishbone which may have been a good luck charm (Appendix C). The comb fragment was part of a tooth-plate from a single sided comb made of antler, with an iron rivet and has a date range between the 7th and 12th centuries. The pin and modified wishbone are both medieval in date, although at this stage it is unclear whether they are Anglo-Saxon or post-conquest. Ditch 305 was clearly sealed by subsoil, which is interpreted as a ploughsoil of probable medieval date. The combination of stratigraphic position, animal bone (some clearly butchered), antler comb and other artefacts suggests that the ditch had been used to dispose of domestic refuse. The datable material suggests that the ditch is most likely of Anglo-Saxon date, although as it contains this material, it could conceivably be earlier.

Trench 4

- 6.19 This trench was located near the southern edge of Flower Field, to evaluate a linear geophysical anomaly (Fig. 10). It measured 5m by 2m and was excavated to a maximum depth of 0.8m. Topsoil (401) and subsoil (402) lay directly over a pinkish brown natural clay subsoil (403) and the trench

contained no archaeological features. Two ceramic field drains (not numbered) ran through the trench, one of which matched the orientation of the geophysical anomaly.

Geophysical survey

- 6.20 A magnetometry survey was conducted by GSB Prospecting Ltd on the 10th of December 2013 (Plate 11). This augmented the earlier survey undertaken by GeoQuest Associates in August 1999. It covered a slightly larger area, incorporating the outer edges of the field, although Trenches 1 to 3 were open when the survey took place (Fig. 11). The full findings of the survey have been incorporated into this report as Appendix F.



Plate 11. Geophysical survey of Flower Field

- 6.21 The eastern part of the field contained a series of parallel linear anomalies, probably ditches, aligned roughly east-west, four in the north of the field (G1 to G4) and a double feature in the south (G5). While they appeared on the earlier survey, the present work shows the northern anomalies more clearly as dividing this part of the field into fairly regular strips. The southern double feature lies to the south of an area of possible rig and furrow (G7), on a similar alignment. This apparent land division in the north-eastern part of the field is not seen on the 1774 or later maps and is presumed to predate this.
- 6.22 The south-east quarter of the field also contained a large (c.90m diameter) sub-circular feature, which survives as a shallow negative earthwork (G8 and G9).

It was interpreted on the 1999 survey as a short length of ditch and Trench 4 was positioned to cross it (see above). It could not be detected in the excavated trench however. The wider geophysical anomaly lay to the south of a walled entrance into the field, which was built during the enlargement of Seaham Hall in the early 1860s and the anomaly is likely to be a garden feature associated with the late 19th century hall grounds.

- 6.23 The survey identified a large area of magnetically disturbed ground (G15) covering the south-west corner of the field (Fig. 11). This was outside the earlier 1999 survey area. Also in 1999, Trench 3 was excavated in this area and contained a ditch, overlain by a soil containing modern building rubble, which has probably caused the widespread magnetic disturbance.
- 6.24 To the north of the disturbance, several more linear anomalies were identified, comprising possible ditches on the same alignment or at right angles to the divisions in the eastern half of the field. These included a curving ditch (G11) which may have formed one corner of an enclosure. The survey identified two further features within (south) of this possible enclosure, although few of the smaller enclosure-like anomalies seen on the earlier survey were recognised. The two ditches excavated as part of the present work in Trench 3 corresponded with anomalies in the earlier survey, increasing the likelihood that some or all of the features in this area are real.
- 6.25 The survey also identified areas of possible discrete pits or of burning (G13) near to the trenches in the cemetery. These again correspond roughly with areas of thick soil or stony patches of the earlier survey, although no such features extended into the excavated trenches.

7.0 DISCUSSION

- 7.1 Excavation and survey in Flower Field, Seaham has produced significant new information on the Anglo-Saxon occupation of the site. It has further contributed to the corpus of knowledge on the cemetery occupying the north-west corner of the field, identifying the eastern extent of the site and more about the lives of the community buried there. In addition, and perhaps of greater significance in terms of advancing our knowledge of the site, is the evidence of domestic material, probably of Anglo-Saxon date, in the ditch to the south, possibly indicating settlement between the church and the cemetery.
- 7.2 The current investigation, carried out as part of the Limestone Landscapes Partnership project, is the third phase of excavation within the cemetery and the fourth to investigate the historic headland of Seaham. Each phase has been organised by Durham County Council with the aim of engaging the local community in the excavation and recording of this important site (Plate 12), which is of exceptional significance in term of advancing our understanding of Anglo-Saxon settlement in the region, if not the country.



Plate 12. Volunteers excavating within the cemetery

The cemetery

- 7.3 The cemetery lies c.180m north of St. Mary's church, but would have been visible from it. To date, 43 burials have been identified from the excavations, with a possible further 40 from previous accidental finds. The present work has defined the eastern limit of the cemetery, while the absence of burials in trenches elsewhere in the field gives an approximate southern limit. However, the full extent of the site remains unclear, although the available evidence suggests it may have contained several hundred bodies. Dates obtained from radiocarbon analysis of four of the bodies from the earlier excavations suggest a maximum use of the burial ground from the late 7th to the early 11th centuries, with a minimum time-span of the late 8th to mid 10th centuries.
- 7.4 Combining the evidence from the three excavations, a number of points can be made. Many of the burials were laid in short rows, for instance the three in the 'eastern row' of the current evaluation and the two longer rows of bodies found in the 1999 excavation (Fig. 7). It is unclear how prevalent this custom was, as the grave cuts have consistently been difficult to trace and some areas in each trench remained unexcavated down to natural deposits.
- 7.5 The distribution of graves also suggested two phases of burial. The proximity, and the differences in depth and orientation between skeletons 110 and 129, imply that the two internments are divided by a period of time. The burial of the woman in the wooden chest (sk15) had cut through two previous graves.

This burial was near the southern end of a row of graves in the 1999 trench. Two burials at the northern end of the same row also overlay earlier burials. These again imply a significant time gap between the first burials and the later row.

- 7.6 There is no direct evidence that the cemetery was marked by a formal boundary. The two features east of the burials (the posthole and the collection of stones) are, on balance, later features, medieval or post-medieval in date. The absence of recognisable cut features may mean the cemetery had no defined boundary. Alternately, an above-ground boundary, such as a hedge, has been postulated at an 8th century cemetery on the headland at Hartlepool and the cemetery at Seaham may have been similarly-defined (Daniels 2007, 84-5).
- 7.7 In total, of the 43 excavated skeletons, 15 have been identified as men and 13 as women. Both sexes were slightly shorter than the average for the period. Relatively little in the way of trauma was observed, but instances of degenerative joint disease were seen on several of the individuals excavated in 1999. The majority of these were spinal, but also included examples in the hips and knees. It should be noted that only the 1999 skeletons were exhumed, allowing these conditions to be recognised and it is likely that some of the other individuals uncovered were similarly affected. Although the information is only partial, it seems likely that many of the residents of Anglo-Saxon Seaham led strenuous lives.
- 7.8 All the excavated individuals died in adulthood, although there were no obviously 'older' adults (mid 40s or over) among the dead. While there were more identifiable men than women, neither sex predominated. A lack of child burials and the possibility of a monastic presence implied by a contemporary stone church, could suggest those buried were monks and nuns, presumably of a mixed community of the type attested at several places in Northumbria from the mid 7th century onwards (Daniels 2007, 30). Even the presence of child burials in a cemetery would not necessarily preclude a monastic community. Textual references mention child novices at a number of monasteries, including possibly Bede himself at Jarrow (Colgrave and Mynors 1969, 567). Segregation by gender within monastic graveyards is also known from literary evidence (Colgrave and Mynors 1969, 357-61). Without additional evidence we cannot establish whether the cemetery was monastic or secular or, given that there appear to have been two phases, whether it changed from one to the other. At the present time, all we can conclude is that the community which buried their dead here seem to have reserved this part of the cemetery for adults. The presence of prone burials and of two bodies buried with their heads to the east can be paralleled with the cemetery at Norton on Tees, where three individuals were buried with their heads to the east. These types of burial are unusual but by no means unknown in cemeteries of this date in northern England (Johnson 2005, 9-10).

- 7.9 The most unusual rite seen in the burials is the reuse of a wooden chest as a coffin for the woman (sk15) excavated in 1999 (Ottaway 2001, 14-15). The remains of the chest comprised a pair of hinges, springs and a lock-plate. The reuse of a chest as a coffin has been observed at several cemeteries of 7th to 10th century date, most of which lie in northern England. These include both probable monastic and lay cemeteries. They occur at both historically-attested Anglo-Saxon centres (such as Ripon and Norton on Tees) and sites where no monastic, royal or aristocratic connections are known (such as Spofforth near Wetherby and Viewly Bridge near Northallerton). They include extensive cemeteries with only a single example of a 'chest burial', but also smaller cemeteries where almost one in ten were buried in this way. Both men and women, adults and children, could be interred in chests and the date range for burials of this type covers part of the pre-Viking (late 7th and 8th centuries) and much of the Anglo-Scandinavian periods (9th and 10th centuries). The distribution is distinctly 'Northumbrian' but outlying sites include the Old Minster at Winchester, as well as several sites in southern Scandinavia, again all of 8th to 10th century date. The use of a lockable chest – which is likely to have been an expensive item to make – as a coffin suggests that the individuals were of some status during life. The choosing of a portable chest as the most appropriate means of burial must surely have had considerable symbolism for the wider community, and may identify these individuals as transient, or immigrants within a more settled community (Johnson forthcoming, 25-6, 7, 170-7, 180-3).
- 7.10 The location of the burial ground, almost 200m north of the church, can in fact be paralleled at a number of contemporary cemetery sites in northern England, some of which include one or more chest burials. At Ripon, a 7th to 10th century graveyard lay c.200m east of the monastic church. The parish church at Norton on Tees has standing fabric of later 10th century date and lies c.500m west of the cemetery, the final burials of which may have been contemporary with the church. At Spofforth near Wetherby, the 12th century church lies c.50m north-west of a cemetery containing at least 180 graves, and 17 of the bodies were buried in chests. The presence of a fragment of 10th century sculpture in the church suggests a pre-conquest origin for the structure, but robbed-out foundations of a small building within the cemetery itself are perhaps a contemporary chapel (Johnson forthcoming, 184-6). The nature of Anglo-Saxon occupation - if any - at these sites is not known. The setting of an associated graveyard at Seaham, some distance from a contemporary church is therefore not unique, although as the full extent of the site is not known, the presence of a second, possibly earlier church, within the vicinity of the cemetery cannot be discounted.

Other Anglo-Saxon remains

- 7.11 Prior to the present work, evidence for medieval or earlier remains between the church and cemetery in Flower Field was a single undated ditch and a small collection of later medieval pottery from the subsoil. Two trenches excavated as part of the 2013 programme of work (2 and 3) both contained

features sealed by the subsoil. In Trench 2, subsoil was also associated with suspected ridge and furrow remains. In Trench 3, a single ditch was found to contain part of a bone comb of probable Anglo-Saxon date, two other medieval artefacts, together with a large quantity (over 5kg from the excavated segment) of animal bone and some burnt cereal grains. While only a single feature, the finds indicate the disposal of domestic rubbish including broken personal items, and therefore suggest a settlement of probable Anglo-Saxon date between the church and the cemetery. The ditch corresponded with a linear geophysical anomaly on the 1999 survey, as did the later, probably medieval ditch at the other end of Trench 3, and the survey shows many such anomalies in this part of the field. The recent survey identified fewer of these small anomalies in this area, but did suggest that this part of the field also contained at least one large enclosure (Fig. 11). The evidence therefore indicates that many of the ditches and putative enclosures on the 1999 survey could represent real features associated with settlement in this location. The difference in date of the excavated ditches however shows that they represent more than one period of activity.

- 7.12 Further south in the field, earlier excavation can add a little extra information. Subsoil in the 1999 trench 4 was not fully removed to see if the linear anomaly there was another ditch, although a further undated ditch - again sealed by subsoil - was encountered in this trench, in the south-west corner of the field (Fig. 6). The modern demolition rubble also seen in this trench seems to have obscured the survey in this part of the field. When the stratigraphically early features in Trench 2 of the current work are taken into account, the resulting area of possible Anglo-Saxon settlement and related activity is large. Two of the trenches dug east of the church in 1995 also contained evidence of several timber structures. While these were undated, the features were stratigraphically early, and one of the trenches contained the only sherd of possible Anglo-Saxon pottery recovered from the excavation. This might be further evidence of the extent of Anglo-Saxon occupation on the headland at Seaham.

8.0 CONCLUSIONS AND RECOMMENDATIONS

- 8.1 The present work has produced significant new information on the important early centre of Seaham. Excavation and survey, commissioned by Durham County Council as part of the Limestone Landscapes Partnership, has confirmed the eastern extent of the Anglo-Saxon cemetery. More significantly, it has produced the first evidence for domestic occupation of the same date between the cemetery and the parish church, which is also believed to be of Anglo-Saxon date. The work could not have been carried out successfully without the numerous volunteers who made up the majority of the excavation team, many of who used their work holidays to dig.
- 8.2 Excavation in the cemetery uncovered the skeletons of eight adults, three men, four women and one whose gender could not be identified. All died as adults, which matches results from previous excavations within the cemetery. None

suffered from severe disability or disease, although the excavated individuals seem to have been a little shorter than is found on similar sites of this date. The overall size of the graveyard is still unclear, but is likely to contain several hundred bodies. Its location, c.200m from the apparently contemporary church, is unusual, but can be paralleled at a number of sites in northern England.

- 8.3 The latest geophysical results agree broadly with the earlier survey. The present work showed more detail in the eastern half of the field, but disturbance in the western half of the field resulted in fewer of the possible enclosures being identified here, in comparison to the 1999 survey. The combination of the two geophysical surveys and the evidence from the excavation both suggest an area of settlement between the church and the cemetery, some of which is probably Anglo-Saxon in date. Further, undated land divisions have been identified to the east of this occupation area.
- 8.4 With the excavation revealing the first evidence of probable Anglo-Saxon occupation north of the church, it is possible that much of the intervening ground was already in use by the time the cemetery was established. As the evidence is limited to one dated ditch, several other undated features and the geophysical survey, this must remain speculation until a larger area can be examined through excavation. It is possible that the comb fragment is post-conquest in date, and therefore linked with the known medieval settlement. If this was indeed the case it would still represent only the second excavated evidence of settlement of this date.
- 8.5 Assessment of the recovered finds has identified some areas where further work could aid in interpretation of the excavation results. Recovered cereal grains from the probable Anglo-Saxon ditch could be radiocarbon-dated to confirm its age. Cereal from the later ditch could also establish the date of this later phase of activity. X-raying of the unidentified iron object from Trench 1 subsoil might establish its function and illustration of the ring, comb fragment and goose wishbone would add to the corpus of data from this regionally important Anglo-Saxon site.

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Online resources

[www.dur.ac/pip](http://www.dur.ac.uk/pip)

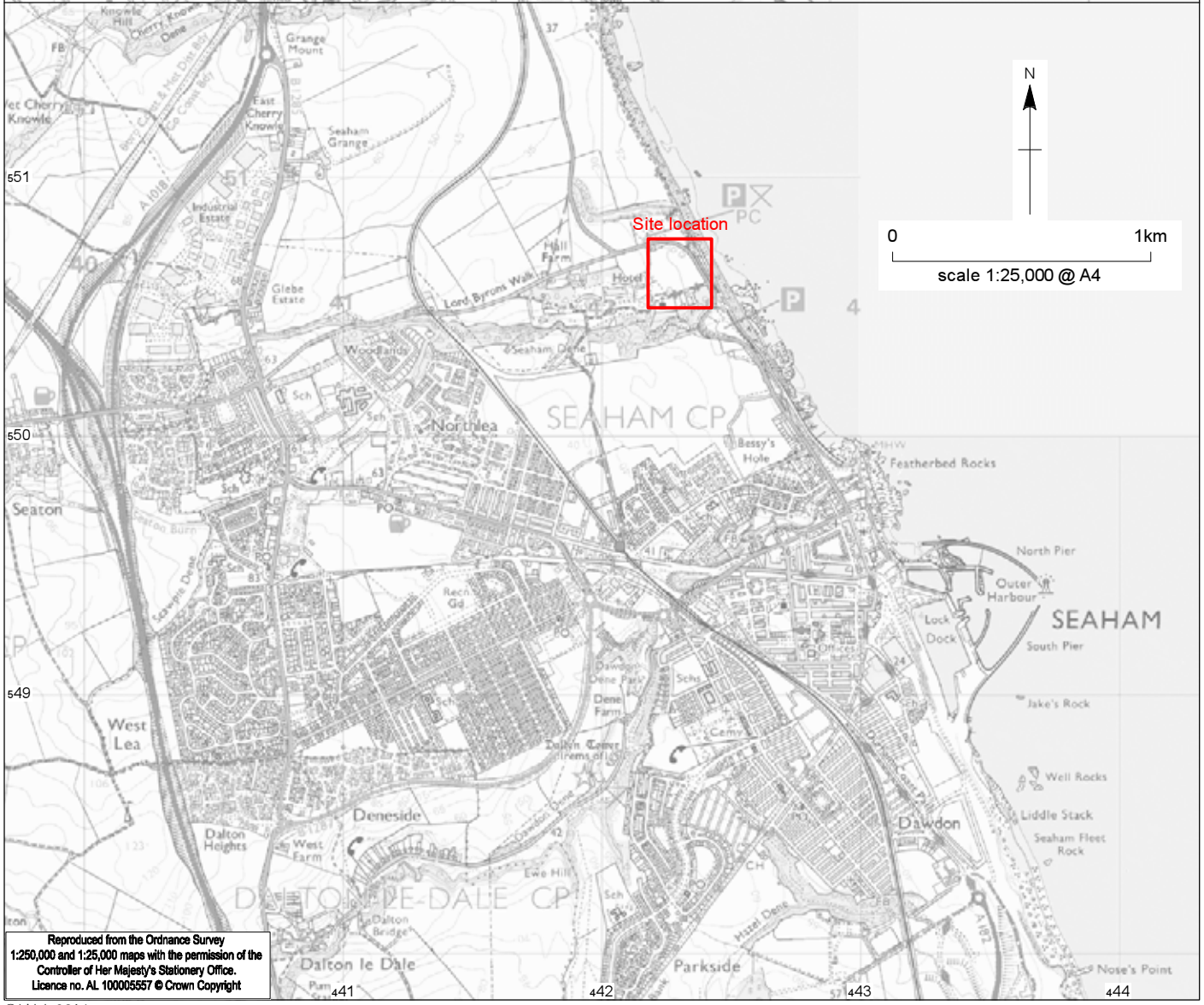
www.east-durham.co.uk

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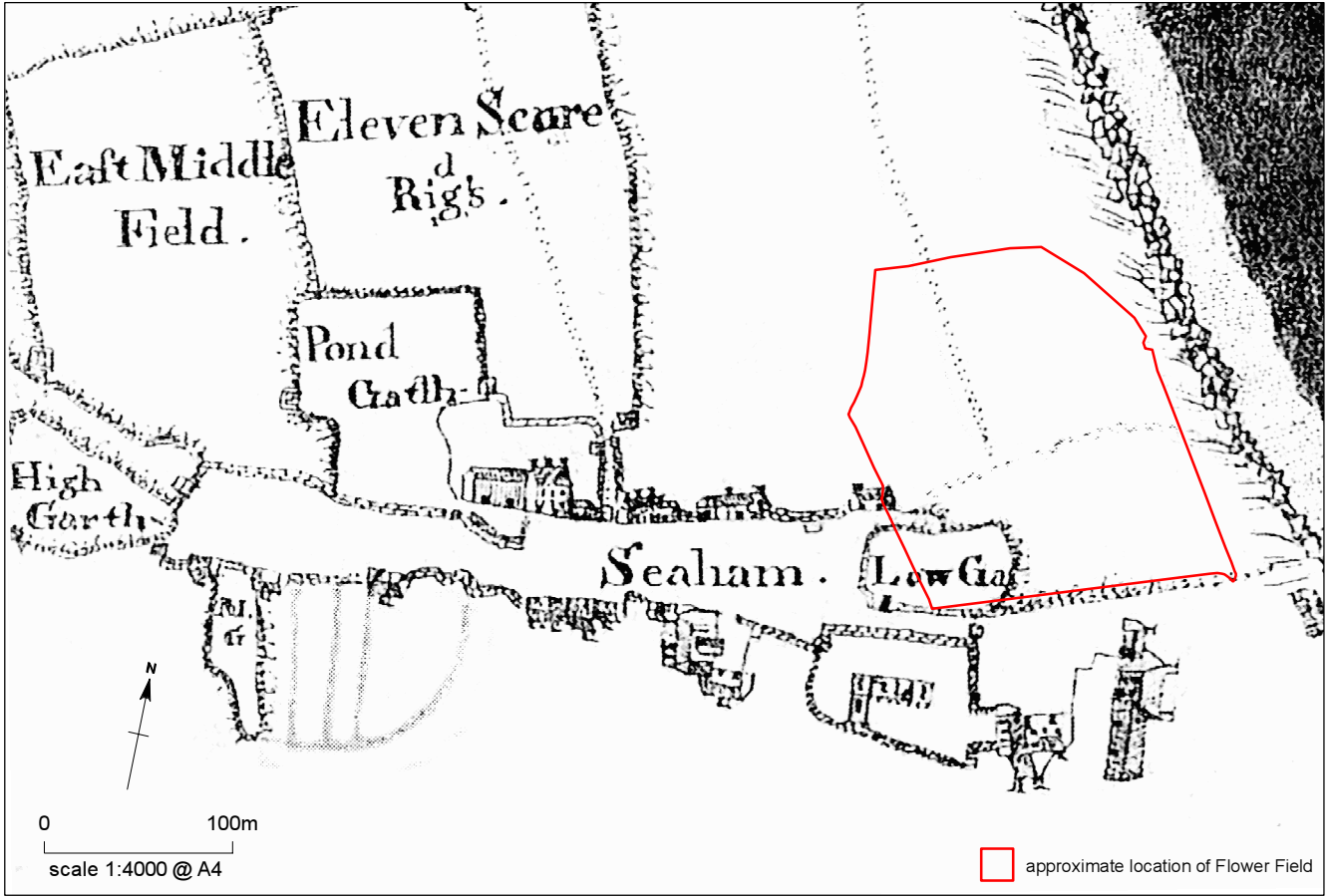
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Seaham Community Excavation: site location

Figure 1



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Seaham Community Excavation: Plan of Seaham village, 1774

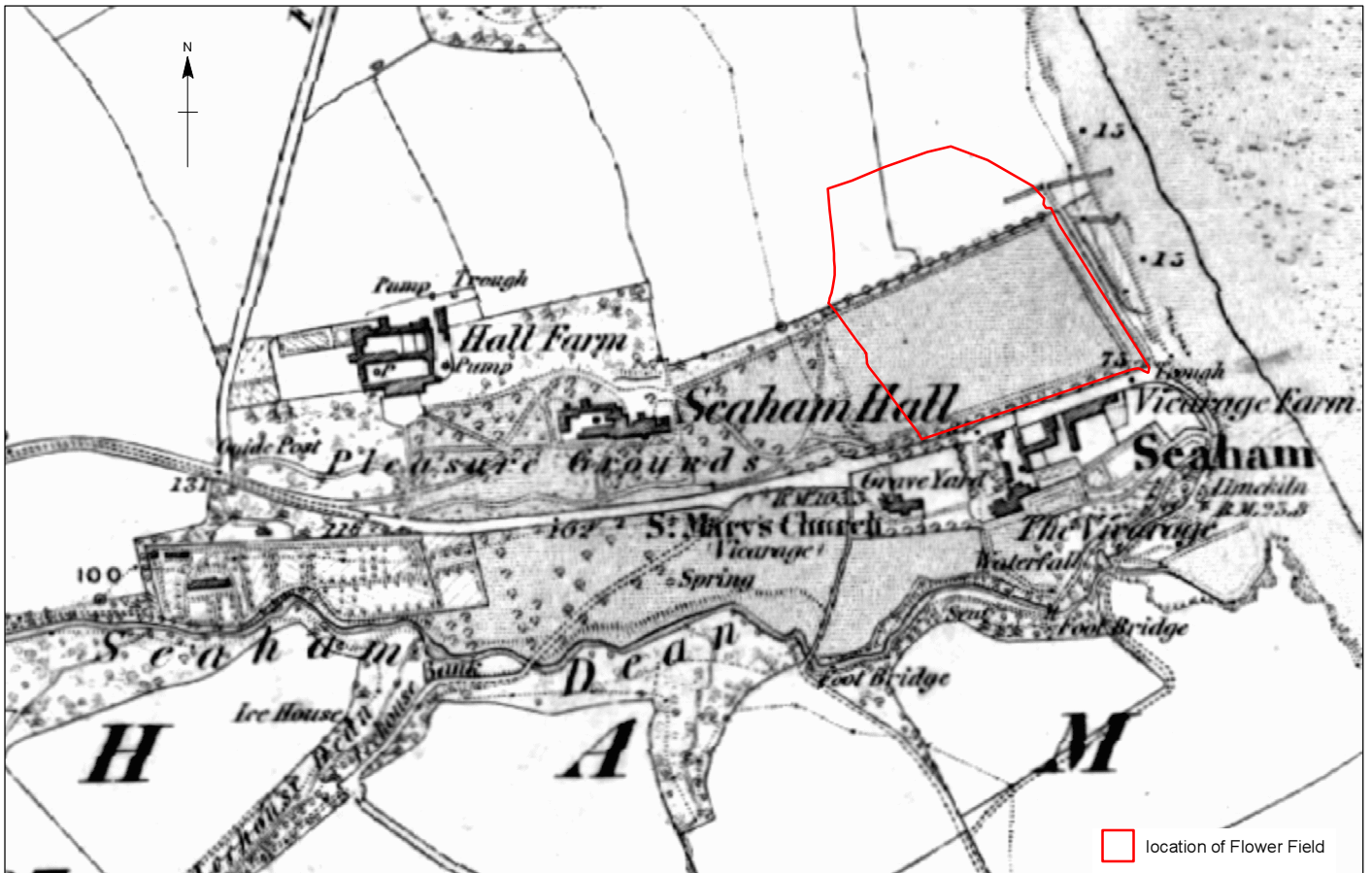
Figure 2



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Seaham Community Excavation: sketch of Seaham church and village by Richard Wallis, 1784

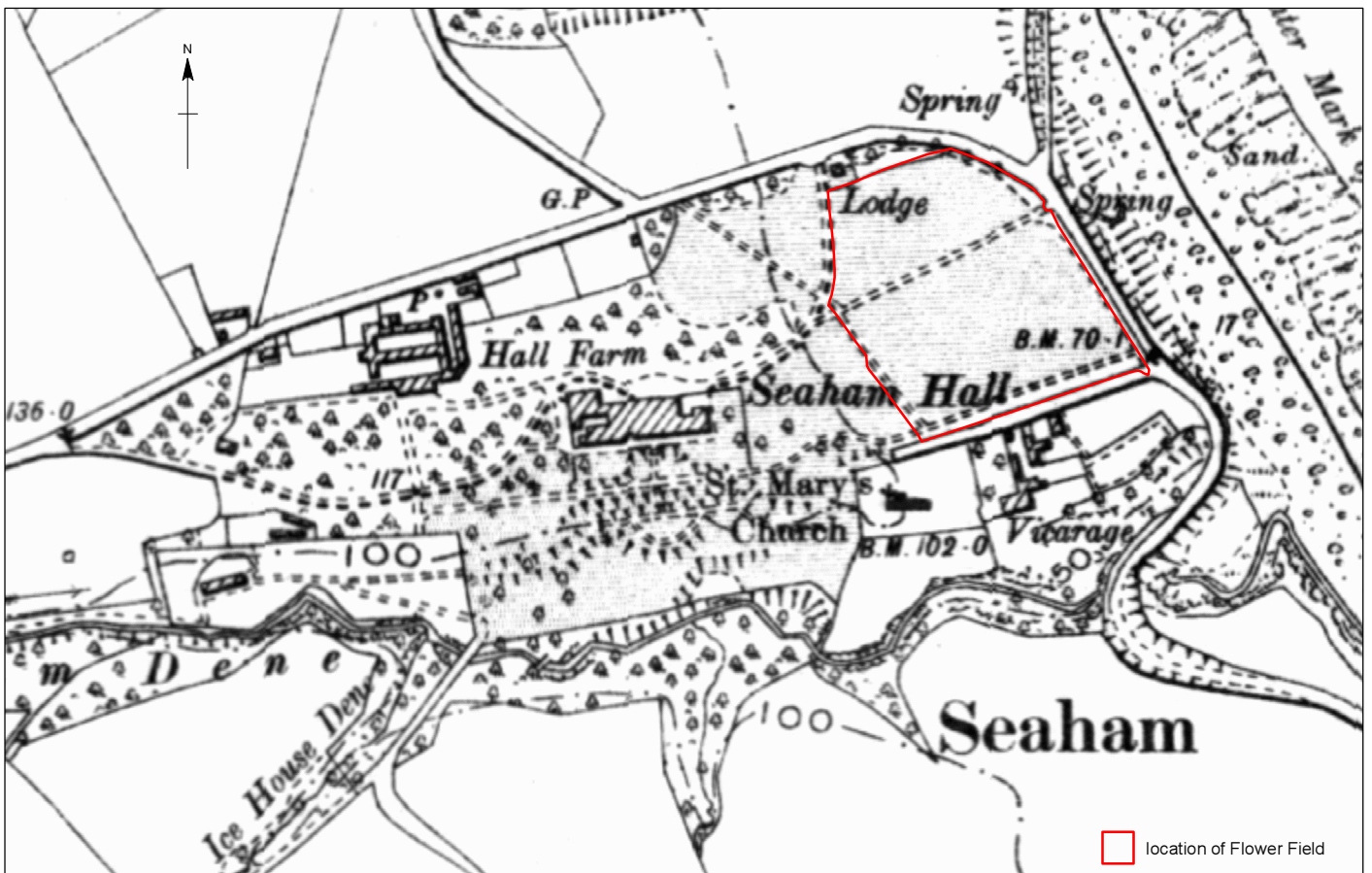
Figure 3



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Seaham Community Excavation: Ordnance Survey map, 1860

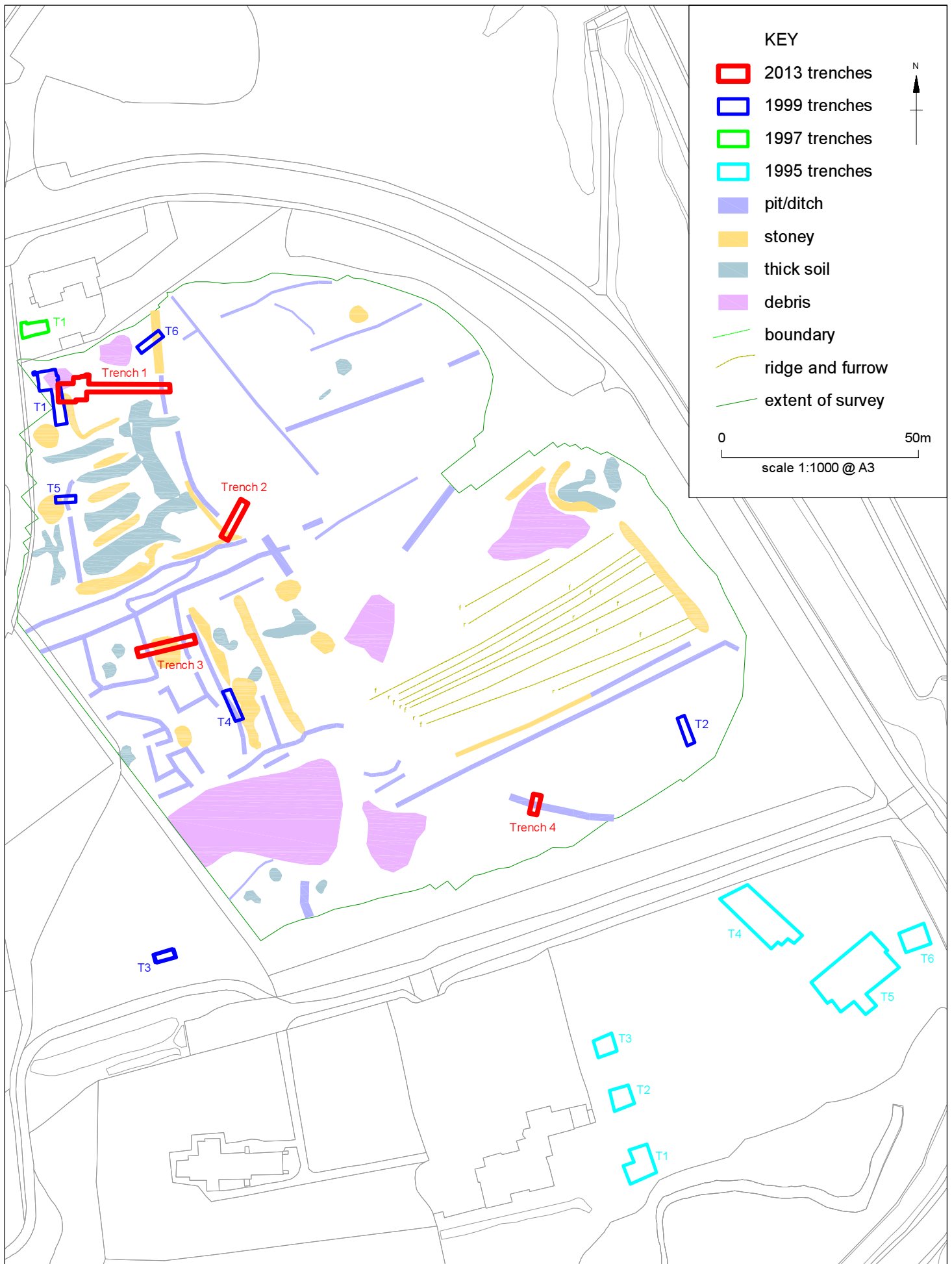
Figure 4



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Seaham Community Excavation: Ordnance Survey map, 1898

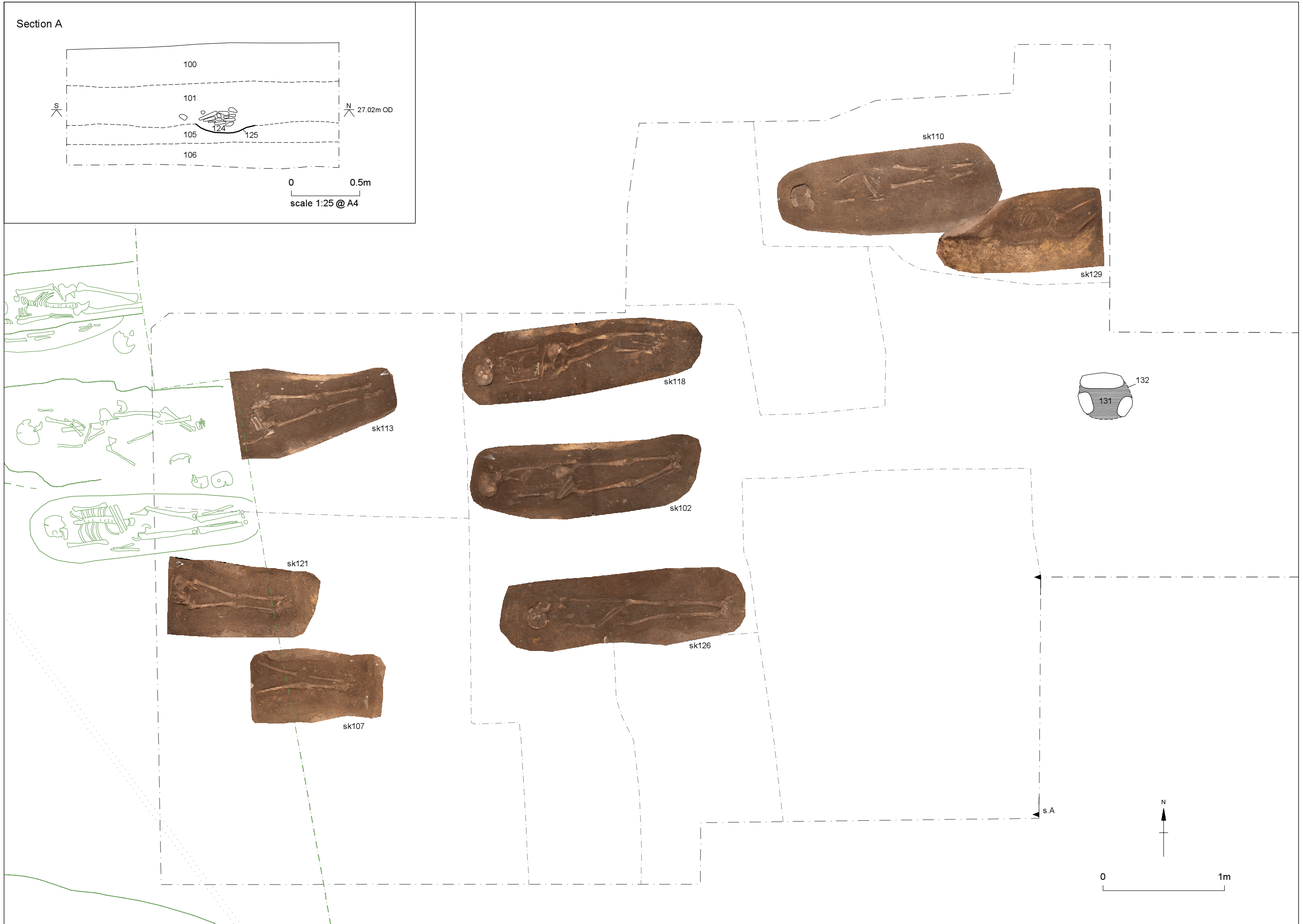
Figure 5





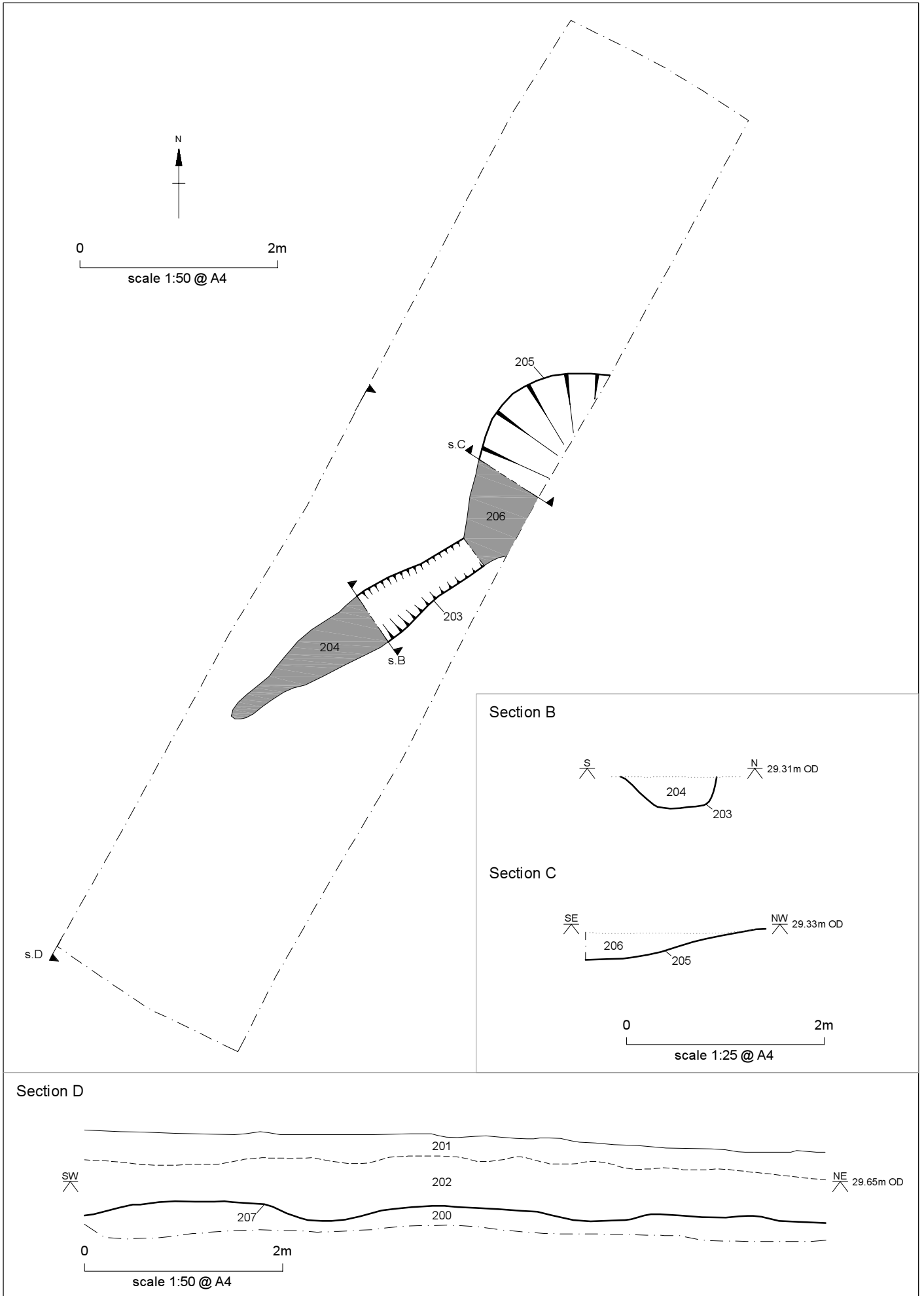
Seaham Community Excavation: west end of Trench 1, showing photo montage and locations of previous trenches within cemetery

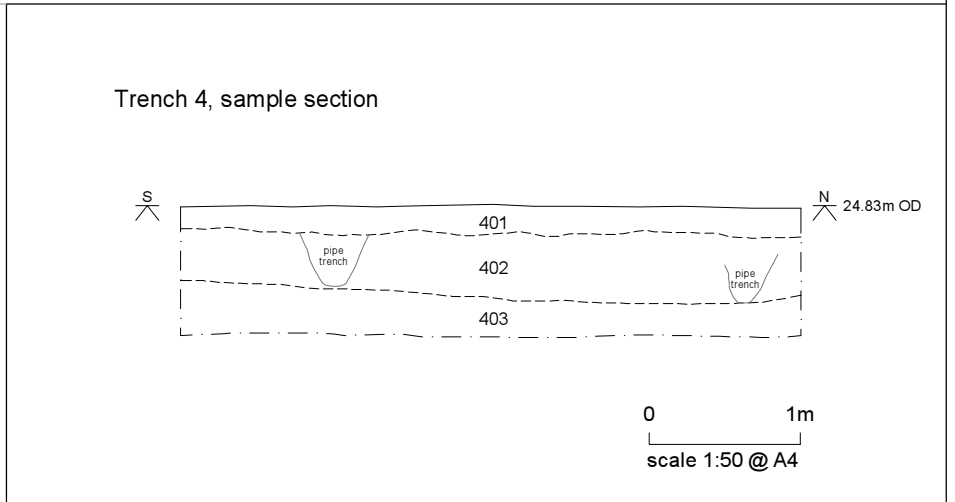
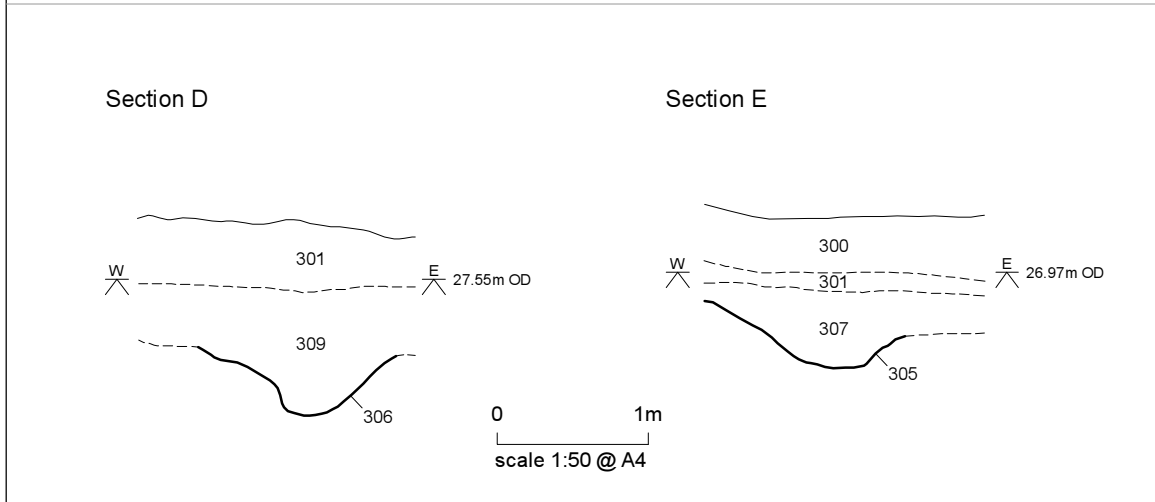
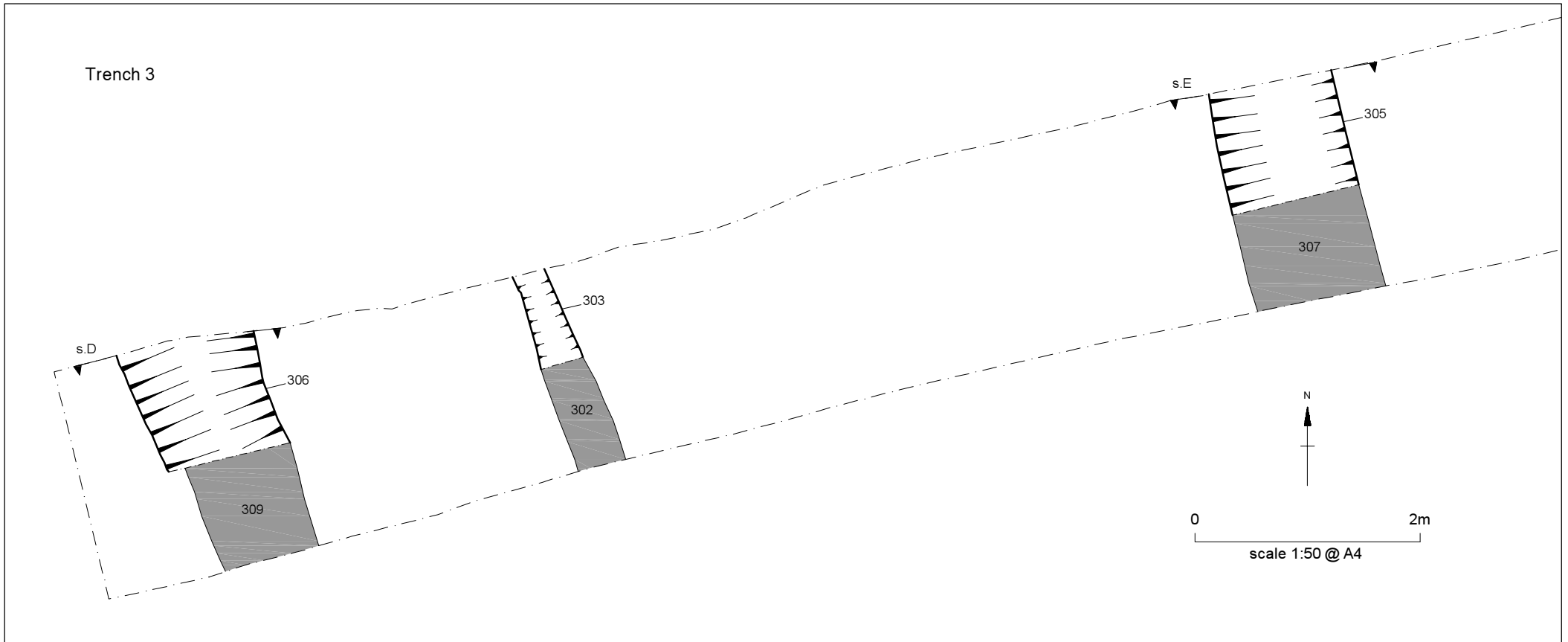
Figure 7



Seaham Community Excavation: west end of Trench 1, showing overlapping portion of the 1999 excavation

Figure 8





1999 GeoQuest Survey

KEY

- 2013 trenches
- pit/ditch
- stoney
- thick soil
- debris
- boundary
- ridge and furrow
- extent of survey



Based on survey data supplied by:
GeoQuest Associates
ref: Seaham Hall, Co.Durham
Survey date: 1999
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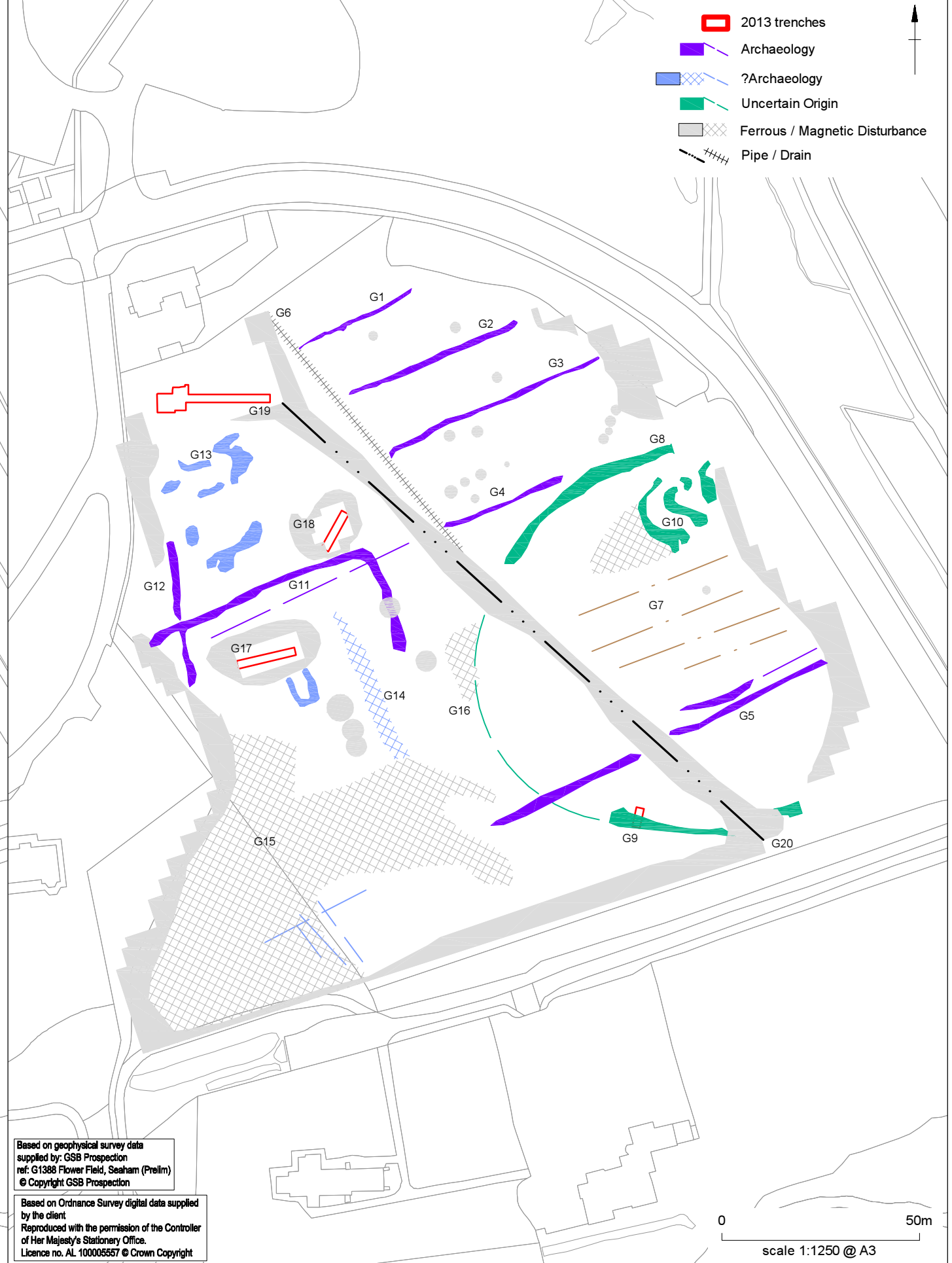
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2013 GSB Survey

KEY

- 2013 trenches
- Archaeology
- ?Archaeology
- Uncertain Origin
- Ferrous / Magnetic Disturbance
- Pipe / Drain



Based on geophysical survey data
supplied by: GSB Prospection
ref: G1388 Flower Field, Seaham (Prelim)
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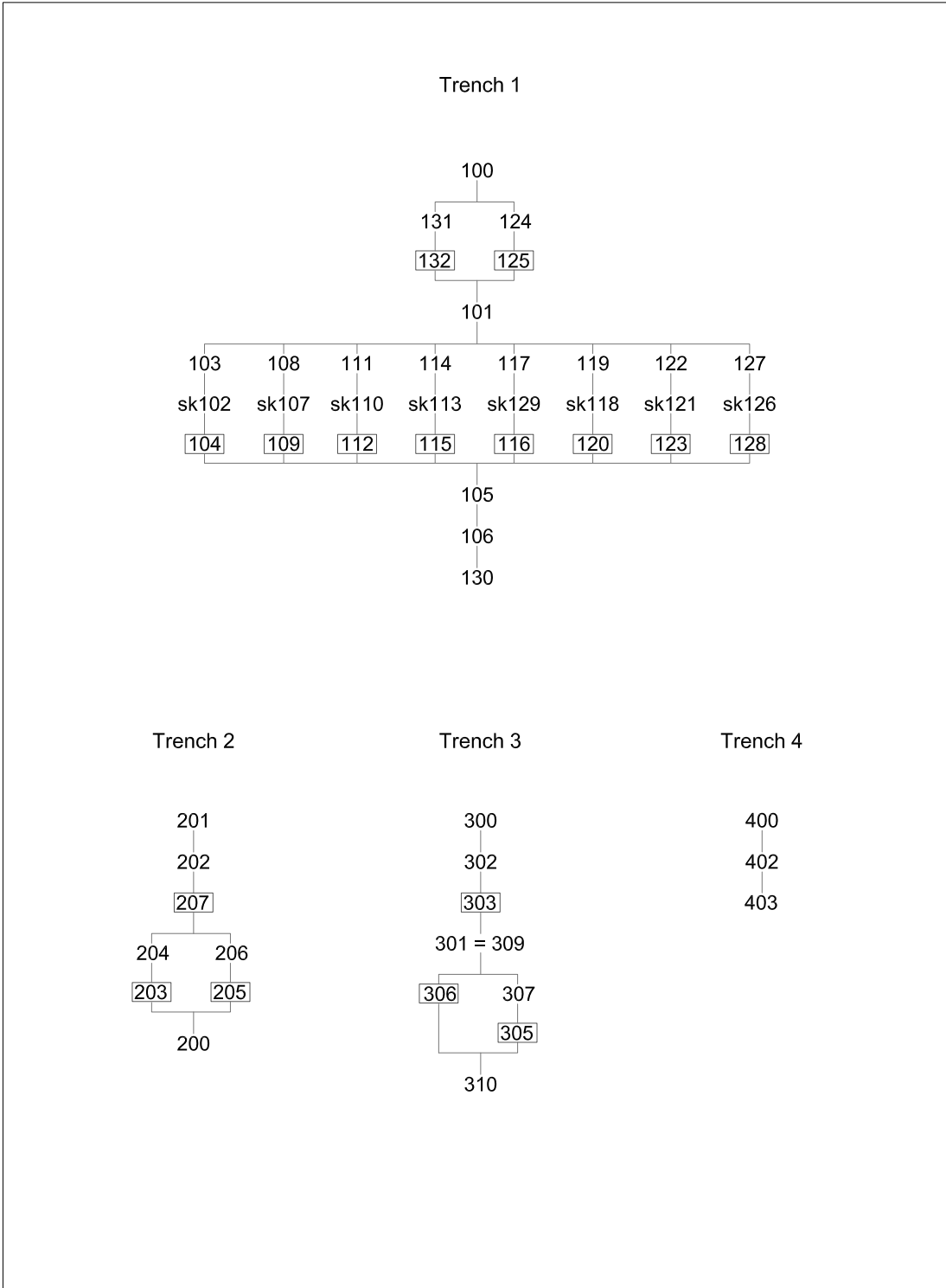
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0 50m

scale 1:1250 @ A3

Seaham Community Excavation: geophysical surveys with 2013 trenches overlain

Figure 11



APPENDIX A: CONTEXTS AND FINDS

Context	Interpretative description	Relationships	Trench	Notes	Finds and sample information
100	Topsoil within trench		1		3 sherds pottery
101	Subsoil within trench		1	Probably a relict ploughsoil	1 Fe object, 1 piece fired clay, 8 sherds pottery
102	Skeleton	Within grave 104	1		
103	Fill of grave 104		1		
104	Grave containing sk 102		1	filled by 103	
105	Layer: cemetery soil	All graves cut into this deposit	1	Soil is indistinguishable from grave fills	1 piece flint, 2 pieces animal bone
106	Layer: mixed deposit at cemetery/natural interface		1		
107	Skeleton	Within grave 109	1		
108	Fill of grave 109		1		
109	Grave containing sk 107		1	filled by 108	
110	Skeleton	Within grave 112	1		
111	Fill of grave 112		1		
112	Grave containing sk 110		1	filled by 111	
113	Skeleton	Within grave 115	1		
114	Fill of grave 115		1		
115	Grave containing sk 113		1	filled by 114	
116	Grave containing sk 129		1	filled by 117	
117	Fill of grave 116		1		2 pieces animal bone
118	Skeleton	Within grave 120	1		
119	Fill of grave 120		1		
120	Grave containing sk 118		1	filled by 119	
121	Skeleton	Within grave 123	1		
122	Fill of grave 123		1		Copper alloy finger ring, found on left hand of sk 121
123	Grave containing sk 121		1	filled by 122	

Context	Interpretative description	Relationships	Trench	Notes	Finds and sample information
124	Structure: pile of yellow stones in cut 125		1		
125	Cut for stones 124	Cuts layer 105	1		
126	Skeleton	Within grave 128	1		
127	Fill of grave 128		1		
128	Grave containing sk 126		1	filled by 127	
129	Skeleton	Within grave 116	1		
130	Natural subsoil		1	Yellow sand	
131	Packing stones and fill of posthole		1	Removed without recording by RF	
132	Posthole		1	Removed without recording by R	
200	Natural subsoil		2	Yellow sand	
201	Topsoil within trench		2		
202	Subsoil within trench		2		
203	Gully		2		
204	Fill of gully 203		2		2 pieces burnt limestone, 8 pieces animal bone
205	Pit or natural depression		2		
206	Fill of feature 205		2		6 pieces animal bone
207	Group: Rigg and Furrow seen in trench section	Filled by subsoil 202	2		
300	Topsoil within trench		3		
301	Subsoil within trench		3		
302	Fill of gully 303	same as 308	3		6 sherds pottery
303	Gully		3		
304	Layer: trench cleaning		3		10 pieces animal bone
305	Ditch		3		
306	Ditch		3		
307	Fill of ditch 305		3		40 litre soil sample, 100+ pieces animal bone, 1 Fe pin, 1 antler comb fragment, 1 worked bird bone

Context	Interpretative description	Relationships	Trench	Notes	Finds and sample information
308	Fill of ditch 306		3		40 litre soil sample, 2 pieces animal bone
309	Fill of gully 303	same as 302	3		
401	Topsoil within trench		4		
402	Subsoil within trench		4		
403	Natural subsoil		4	Pink-grey clay	

APPENDIX B: POTTERY

Christopher G. Cumberpatch and Ruth S. Leary

Introduction

The pottery from the Seaham Community excavation was examined by the authors in February 2013. The assemblage consisted of ten sherds of pottery weighing 173 grams from two contexts (100 and 101). The pottery was accompanied by a piece of ceramic building material, probably a fragment of roof tile, of recent date. The data are summarised in Table 1.

The pottery

ROMANO-BRITISH POTTERY

R.S. Leary

One bodysherd of grey ware pottery (32g) was recovered from context 101. Traces of burnishing were visible outside the vessel and the sherd seemed to come from near the base of a jar. This sherd is of Roman type and is likely to date from the second century at the earliest to the mid-fourth century. A date range in the third to mid-fourth century fits its general character in terms of hard firing, fine fabric and medium grey colour.

MEDIEVAL AND LATER POTTERY

C.G. Cumberpatch

The earliest sherds of medieval pottery were the three pieces of Buff-White ware from context 101. These included the handle of a jug and the rim of a jar or cooking pot. Buff-Whitewares date to the 12th and 13th centuries and the type forms part of a wider regional tradition of light-firing vessels in quartz tempered fabrics which is widespread in north-east England in the earlier medieval period and which share some characteristics with similar buff and white fabrics in northern Yorkshire and neighbouring areas. The tradition was overtaken by Reduced Greenware during the later 13th century (represented by two sherds from context 101) and this tradition dominates assemblages in the region into the late 15th century.

Late medieval and early post-medieval pottery is represented by a sherd of Green Glazed Sandy ware from context 100. A development of the Reduced Greenware tradition, Green Glazed Sandy ware is distinguished by its fine buff to pale orange sandy fabric and the use of green glaze internally as well as externally.

Late post-medieval to early modern wares are represented by the sherd of Redware type from context 100 and the sherd of Slipware from context 101. Redwares form an important component of local and regional assemblages from the later medieval period onwards and seem to owe something to the influence of imported European Redwares on local potters at this time, presumably because of their popularity amongst consumers. Vessels tend to be of utilitarian character and are often sooted externally as a result of their use over open fires. Imported Slipware is also a feature of local assemblages but Slipware such as the sherd from context 101, was also made locally. It is unclear at present whether local production precedes or follows that in Staffordshire (which begins in the 17th century) and further research is required to investigate this issue.

Discussion

Although small in size and from only two, apparently disturbed, contexts, the assemblage is an interesting one by virtue of the wide chronological range represented by the material. It would seem to indicate activity in the area during the Roman period, throughout the medieval and post-medieval periods and into the early modern period (c.1720 – 1840). Further work on the site will be necessary in order to determine the nature of this activity.

Context	Type	No	Wt	ENV	Part	Form	Decoration	Date range	Notes
100	CBM	1	21	1	Fragment	Tile?	U/Dec	Recent	
100	Green Glazed sandy ware	1	40	1	Body Sherd	Hollow ware	Dark green glaze int & partially ext; rilled ext	LC15th – C17th	Fine buff sandy fabric w/ abundant fine quartz & round rock fragments
100	Redware type	1	3	1	Body Sherd	Dish/Bowl?	Traces of clear glaze	C17th – EC18th	Heavily abraded
101	Buff-White ware	1	52	1	Rod handle	Jug	U/Dec	C12th – C13th	Fat rod handle; heavily chipped and abraded; coarse quartz temper
101	Buff-White ware	1	6	1	Rim	Jar/C-P	U/Dec	C12th – C13th	Small, flat-topped clubbed rim; fine buff sandy fabric
101	Buff-White ware	2	21	2	Body Sherd	Hollow ware	U/Dec	C12th – C13th	Abraded sherds in a fine, dense sandy buff fabric
101	Greyware	1	32	1	Body Sherd	Hollow ware	Burnished exterior	C2nd – C4th	Roman, sherd from near base of greyware vessel
101	Reduced Greenware	1	4	1	Body Sherd	Hollow ware	Traces of green glaze ext	LC13th – C15th	Abraded sherd
101	Reduced Greenware	1	5	1	Body Sherd	Hollow ware	U/Dec	LC13th – C15th	Abraded with ext surface pitted & abraded
101	Slipware	1	10	1	Body Sherd	Dish	White slip decoration int under clear glaze int	C17th – EC18th	Fine red sandy fabric

Wt weight. ENV estimated number of vessels. U/Dec undecorated. int internal. ext external.

Table B1. Recovered pottery and ceramic building material

APPENDIX C: FINDS REPORT

Gail Drinkall

Introduction

A total of 12 objects were submitted for examination. All the items were identified, quantified and the details recorded onto an Access database for the site archive. The results are presented in Table 1 (below) and include recommendations for further work, illustration and retention or discard of the finds assemblage. The following report has been prepared in accordance with English Heritage MAP2 guidelines (1991).

The assemblage was assessed for its archaeological potential and significance. The following discussion is limited to those items which were deemed to be of particular importance.

Discussion

A copper alloy finger ring was recovered from the left hand of SK 121, an adult female (Caffel and Holst, this report), though it was not possible to determine on which finger it had been worn. Unfortunately the ring is incomplete and although it appears to have been a plain closed band the possibility of it having had a bezel cannot be dismissed. It is, however, not of a spiral ring form typical of the 5th or 6th century (MacGregor and Bolick 1993, 169, 27.1-27.16). Finger rings are usually found in association with women, where the sex can be determined, and in pagan Anglo-Saxon cemeteries they tend to occur in well-furnished graves (Drinkall 1998, 274). However, their presence in, generally unfurnished, burials dating to the late 7th-early 8th century, is not uncommon. At Village Farm, Spofforth, North Yorkshire, a cemetery of 7th-9th century date, copper alloy staining was noted during excavation on one of the fingers of the woman in Grave 308 (SK 310), possibly from a ring that had corroded (Drinkall forthcoming). A copper alloy ring (SF 264) was the only item of personal adornment recovered from a cemetery of similar date at Norton, County Durham (Rogers 2005, 75). Although the practice of burial with grave goods was rare during this period, accompanied burial continued as an individual and personal commemorative act. There is also no direct evidence that grave goods were considered to be totally unchristian (Hadley 2005)

Ditch fill 307 yielded the most significant finds in terms of early medieval settlement at this site. An antler (Louisa Gidney pers. comm.) tooth-plate fragment from a single-sided composite comb can be broadly dated to between the 7th and 12th centuries: a comb of this period is expected to derive from occupation deposits (Martin Foreman pers. comm.), such as those found at Flixborough (Foreman 2009, 82-102) and Lurk Lane, Beverley (Foreman 1991, 184-185). A goose "wishbone" also came from this context. Louisa Gidney comments that it has a small flat facet on the anterior surface which is not natural, it looks as though it has been filed and it also feels as though it has been polished. A good luck charm is very possible. The wishbone was known as the Merrythought in 15th-18th-century carving instructions to Reare the Goose, suggesting that the wish association with the furcula is of some antiquity; if a wish was made with the bone and "came true", it might well be retained as a good luck charm (Louisa Gidney pers comm.). Finally a fragment of iron pin shaft was also retrieved from ditch fill 307 and is likely to have been part of a brooch or buckle, rather than a dress pin.

An iron object from context 101 could not be identified due to heavy corrosion products.

Statement of potential and recommendations

Although this is a small assemblage it adds to the corpus of, as yet unpublished, data for this regionally significant early medieval cemetery and its associated settlement.

Illustration is required for some of the items discussed in this report as well as x-radiography of the iron object from context 101 (see Table C1). Depending on the results of this x-ray, it may be necessary to add further details to this report. In addition it is strongly recommended that C14 dating is undertaken on any suitable material from context 307.

Context	Trench	RF no.	Material	Object type	Artefact description	Date	Qty	Wt (g)	Comments	K/D
u/s	1		Clay pipe	Stem	SBD 6	Mid 18th C	2		No further work required	D
101	1		Fe	Object	Form obscured by corrosion products. Possible fitting with bulbous terminal. L 45mm		1	14	Requires X-ray. Analysis report and illustration (depends on x-ray results).	K
101	1		Fired clay		Burnt, oxidised exterior. One fragment has a smoothed inner face.	Not determined	2	42	No further work required	K
105	1		Flint		Retouched	Prehistoric	1	11	No further work required	D
122	1	1	Cu alloy	Finger ring	From left hand of SK 121. Two joining fragments, c.75% complete. Elliptical cross-section. Undecorated. External D 25mm, internal D 22m, H 3mm. UK equivalent ring size: Z ^{1/2}	Anglo-Saxon	1		Illustration.	K
204	2		Magnesian limestone		Burnt		2	30	No further work required	D
307	3	3	Bird bone	Textile working gear	Highly polished/modified goose furcula (L. Gidney pers comm).	?Early medieval	1		Illustration.	K
307	3	2	Antler	Comb fragment	Tooth-plate from a single-sided composite comb with centrally placed rivet. Even tooth spacing. L 16mm+, W 15mm, Th 3mm	7th-12th C	1		Illustration.	K

Context	Trench	RF no.	Material	Object type	Artefact description	Date	Qty	Wt (g)	Comments	K/D
307	3		Fe	Pin shaft	Fragment of shaft, round in cross-section at one end, flattening out slightly towards the centre. Possibly part of brooch or buckle. L 15mm+, D 3.4mm. From sample AA	?Early medieval	1		No further work required	K

Table C1 Catalogue of finds by context

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APPENDIX D: HUMAN BONE

Malin Holst and Anwen Cafell

Summary

In December 2013 York Osteoarchaeology Ltd was commissioned by Northern Archaeological Associates (NAA) to carry out an on-site assessment of eight inhumation burials and two deposits of disarticulated bone uncovered during archaeological excavations at Flower Field, near Seaham Hall, Seaham, County Durham (NGR NZ 423 507). These burials form part of an early medieval cemetery (radiocarbon dated to the mid 7th to 10th centuries AD) identified during previous excavations in 1997 and 1999.

The eight skeletons had been interred in rows, in fairly uniform burial positions. They were buried on a west-east alignment (head to the west), supine with legs extended (one with legs slightly flexed to the left). One arm (usually the left) was extended alongside the body, while the other was flexed and placed over the opposite hip/ pelvis/ forearm. The heads were turned to one side and the position seemed to be correlated to arm position. When the left arm was straight, the skull lay on the left-hand side, while when the right arm was straight, the skull lay on the right-hand side. All individuals had apparently been buried in shrouds, and one female had been buried wearing a copper alloy ring. These burial practices are all fairly typical of the early Christian period.

Since all individuals were examined in situ this has limited the amount of data that it was possible to record. All eight individuals were adults, including four males, three females and one unsexed individual. Two females were young middle adults (26-35 years), two males were old middle adults (36-45 years) and another male was probably aged 26-45 years of age. The disarticulated skull was probably that of a mature adult possible male, and the remaining disarticulated bones belonged to adult individuals. This age and sex profile corresponded with the data on skeletons discovered at the site in 1997 and 1999, indicating the cemetery was used for the burial of adults of both sexes with the exclusion of children.

Two of the males and one of the female individuals were probably below average stature for the period, while one of the females was slightly taller than average. An unsexed adult had a well-healed fracture to their right fibula, and a young middle adult female had a developmental anomaly of her lower spine. There was limited evidence for dental disease, but one of the young middle adult females had lost a lower molar during life, and her third molar may have been unerupted or congenitally absent. The disarticulated skull had evidence for mineralised plaque on the teeth.

Introduction

In December 2013 York Osteoarchaeology Ltd was commissioned by Northern Archaeological Associates (NAA) to carry out an on-site assessment of eight inhumation burials and two deposits of disarticulated bone uncovered during archaeological excavations at Flower Field, near Seaham Hall, Seaham, County Durham (NGR NZ 423 507).

The old village of Seaham was demolished in the 19th Century during the building of Seaham Hall Lodge and gardens (Parry 2001, 2-3). It lay to the north of the current village, which is concentrated around Seaham Harbour (built in 1828). Ten skeletons were uncovered in the garden of Seaham Hall Lodge during excavations in 1997 (Adamson and Abramson 1998), and a further 26 skeletons were uncovered in an area south of the Lodge during excavations in

1999 (Parry 2001, 2-3). Radiocarbon dates obtained in 1997 provided a date range of the mid 7th to late 9th centuries AD (Adamson and Abramson 1998), while radiocarbon dates on skeletons excavated in 1999 indicated these burials dated to the late 8th to 10th centuries AD (Parry 2001). The cemetery therefore appears to date to the early medieval period. Evidence for Anglo-Saxon settlement (building foundations and associated pottery) has been found to the east of nearby St Mary's Church (*ibid.*).

Trench 1 excavated in 2013 lay immediately to the east of Trench 1 excavated in 1999, with the western edge of the 2013 trench overlapping the eastern edge of the 1999 trench. The eight articulated skeletons exposed in 2013 were each buried in an individual grave (Plate D1). There were two deposits of disarticulated remains: a skull (Context 108) located c. 30cm above Skeleton 107, and a deposit of disarticulated bone (Context 105) to the north of Skeleton 121. A water pipe lay across the centre of the trench, running north-south. Fortunately, the pipe passed c. 10cm above Skeletons 102, 118 and 126, and the burials had not been disturbed.



Plate D1 Photograph of the skeletons *in situ* (photograph provided by NAA)

Aims and objectives

The aim of the *in situ* skeletal assessment was to assess the skeletal preservation, completeness, age and sex and to record and diagnose any skeletal manifestations of disease and trauma that were visible while the remains were in the ground and unwashed.

Methodology

The remains were assessed *in situ* following accepted guidelines (McKinley 2004). None of the bones were washed or removed from the grave, which has limited the data it was possible to obtain for each skeleton. Preservation and completeness, and any information on the age and sex of the individuals were recorded, along with pathological lesions observed.

Preservation

Skeletal preservation depends upon a number of factors, including the age and sex of the individual as well as the size, shape and robusticity of the bone. Burial environment, post-depositional disturbance and treatment following excavation can also have a considerable impact on bone condition (Henderson 1987, Garland and Janaway 1989, Janaway 1996, Spriggs 1989). Preservation of human skeletal remains is assessed subjectively, depending upon the severity of bone surface erosion and post-mortem breaks, but disregarding completeness. Preservation is important, as it can have a large impact on the quantity and quality of information that it is possible to obtain from the skeletal remains.

Surface preservation, concerning the condition of the bone cortex, was assessed using an adaptation of the seven-category grading system defined by McKinley (2004), with categories simplified to 'good', 'moderate' and poor. Good preservation implied no/limited bone surface erosion and a clear surface morphology, whereas poor preservation indicated heavy (potentially penetrating) erosion of the bone surface resulting in complete loss of surface morphology and modification of the bone profile. The completeness of each skeleton was assessed as 1-25%, 25-50%, 50-75%, or 75-100% complete.

Minimum Number of Individuals

A count of the 'minimum number of individuals' (MNI) recovered from a cemetery is carried out as standard procedure in osteological reports on inhumations in order to establish how many individuals are represented by the articulated and disarticulated human bones (without taking the archaeologically defined graves into account). The MNI is calculated by counting all long bone ends, as well as other larger skeletal elements recovered. The largest number of these is then taken as the MNI. The MNI is likely to be lower than the actual number of skeletons which would have been interred on the site, but represents the minimum number of individuals which can be scientifically proven to be present. However, because the skeletal remains were not removed from the ground, and thus it was not possible to accurately record each bone completely, only a rough estimate of the MNI could be provided.

Assessment of Age

When estimating the age of an articulated skeleton, as many age indicators as possible are examined and used to arrive at the estimated age. Where possible, age was determined using standard ageing techniques, as specified in Scheuer and Black (2000a; 2000b) and Cox (2000). For non-adults age was estimated using the stage of dental development (Moorrees *et al.*

1963a; 1963b), dental eruption (Ubelaker 1989), measurements of long bones and other appropriate elements, and the development and fusion of bones (Scheuer and Black 2000b). In adults, age was estimated from stages of bone development and degeneration in the pelvis (Brooks and Suchey 1990, Lovejoy *et al.* 1985) and ribs (modified version of methods developed by İşcan *et al.* 1984; 1985 and İşcan and Loth 1986 provided in Ubelaker 1989), as well as examination of patterns of dental wear (Brothwell 1981, Miles 1962). However, due to the fact the skeletons remained *in situ* and the bones were unwashed, it was not always possible to observe the required features and so estimates of age will not be as reliable as those determined for fully excavated skeletons.

When examining disarticulated bone the ability to estimate age is limited by the disarticulated nature of the material. For the majority of disarticulated bones it was only possible to indicate whether the bone derived from an adult or non-adult based on the stage of development. If developmental markers were absent (e.g. due to incompleteness of the bone element) then size and robusticity was used as a broad indicator, but in these instances age was only indicated as possible (i.e. possible adult, rather than definite adult). A more precise age estimate may be obtained for those bones usually used in estimating age in articulated skeletons. However, it should be borne in mind that any such estimates are based on a single bone, and so may not be as reliable as estimates provided for articulated skeletons where multiple sources of evidence are used.

The age categories used were as follows. Non-adults were subdivided into 'foetus' (f: where the age estimate clearly fell below 38-40 weeks *in utero*), 'perinate' (p: where the age estimates converged around birth), 'neonate' (n: where the age estimate suggested 0-1 month), 'infant' (i; 1-12 months), juvenile (j; 1-12 years), and adolescent (ad; 13-17 years). Adults were divided into 'young adult' (ya; 18-25 years), young middle adult (yma; 26-35 years), old middle adult (oma; 36-45 years), and mature adult (46+ years). A category of 'adult' (a) was used to designate those individuals whose age could not be determined beyond the fact that they were eighteen or older. However, it is important to note that several studies (for example Molleson and Cox 1993, Molleson 1995, Miles *et al.* 2008) have highlighted the difficulty of accurately determining the age-at-death of adults from their skeletal remains, with age-at-death frequently being underestimated for older individuals. The categories defined here should be taken as a general guide to the relative physiological age of the adult, rather than being an accurate portrayal of the real chronological age.

Assessment of Sex

Sex determination was carried out using standard osteological techniques, such as those described by Mays and Cox (2000). Assessment of sex involves examination of the shape of the skull and the pelvis and can only be carried out once sexual characteristics have developed, during late puberty and early adulthood. Evidence from the pelvis was favoured as its shape is directly linked to biological sex (the requirements of childbirth in females) whereas the shape of the skull can be influenced by factors such as age (Walker 1995). Again, the fact the skeletons remained *in situ* meant that observations were restricted to those parts of the skeleton that were visible. Although the pelvis and/or skull may have been present, if the relevant features were obscured by the surrounding bones or the position in which the bones were lying, then it was not possible to determine the sex. Measurements of certain bones are usually used to supplement the morphological assessment (Bass 1987), but it was not possible to take measurements *in situ*.

As with estimation of age, sex estimation in disarticulated remains could only be carried out where appropriate bones were preserved (i.e. pelvis and skull). Metrics alone are an unreliable method for estimating sex.

Metric Analysis

Stature depends on two main factors, heredity and environment; it can also fluctuate between chronological periods. Stature can only be established in skeletons if at least one complete and fully fused long bone is present, but preferably using the combined femur and tibia as these carry the lowest error margin (Trotter 1970). Knowing the sex of the individual is also necessary. The bone is measured on an osteometric board, and stature is then calculated using a regression formula developed upon individuals of known stature (Trotter 1970). As none of the bones could be removed from the graves, stature measurements were not possible. However, where feasible it was attempted to measure bones using the less accurate method of a hand tape in the grave and an approximate idea of stature was gained this way.

Non-Metric Traits

Non-metric traits are additional sutures, facets, bony processes, canals and foramina, which occur in a minority of skeletons and are believed to suggest hereditary affiliation between skeletons (Saunders 1989). The origins of non-metric traits have been extensively discussed in the osteological literature and it is now thought that while most non-metric traits have genetic origins, some can be produced by factors such as mechanical stress (Kennedy 1989) or environment (Trinkhaus 1978). Non-metric traits were not systematically recorded and were only noted if they were obvious on the skeleton in the ground.

Pathological Assessment

Pathological conditions (disease) can manifest themselves on the skeleton, especially when these are chronic conditions or the result of trauma to the bone. The bone elements to which muscles attach can also provide information on muscle trauma and excessive use of muscles. All accessible bones were examined macroscopically for evidence of pathological changes, though some of these may have been masked by soil adhering to the bones, or the position in which bones were lying.

Dental Health Assessment

Analysis of the teeth from archaeological populations provides vital clues about health, diet and oral hygiene, as well as information about environmental and congenital conditions (Roberts and Manchester 2005). All teeth and jaws accessible were examined macroscopically for evidence of pathological changes. However, it must be considered that it is very difficult to examine unwashed teeth for pathology.

Mortuary Treatment

The funerary rituals were recorded *in situ*, including orientation and skeletal position.

Results of the in situ skeletal assessment

Skeleton 102

Skeleton 102 was buried on a west-east alignment, in a supine position with legs extended, right leg angled towards the left and ankles close together (Plate D1). The left arm lay straight alongside the torso with the hand next to the left hip, and the right arm was flexed c. 45° at the elbow with the hand over the left hip; the right humerus was rotated medially so the posterior surface was uppermost. The skull lay on its left-hand side, facing left (north). The skeleton was 75-100% complete and in moderate condition. The individual was probably an old middle adult male (c. 36-45 years of age), and approximately 169cm tall (5'6½") based on measurement of the tibia. No pathological conditions were observed.



Plate D1 Skeleton 102 *in situ* (photograph provided by NAA)

Skeleton 107

Only the legs of Skeleton 107 had been exposed, as a disarticulated skull that lay c. 30cm above the pelvis prevented exposure of more of the skeleton (Plate D2). The individual had been buried on a west-east orientation in a supine position, with legs extended and ankles close together. The arms and skull were not uncovered, so their positions could not be determined. Only about 25-50% of the skeleton was exposed, and it was in poor condition. The individual was an adult of unknown sex, who had a well-healed fracture to the proximal third of the right fibula, located c. 50mm distal to the proximal end.



Plate D2 Skeleton 107 *in situ* (photograph provided by NAA)

Skeleton 110

Skeleton 110 was buried on a west-east alignment, in a supine position with legs extended and knees close together (Plate D3). The left humerus was rotated medially (inwards), so the lateral surface was uppermost and the arm was flexed c. 45° at the elbow with the hand over the right forearm. The right arm lay straight alongside the torso. The skull lay on its right side, facing right (south). The skeleton was 25-50% complete and in poor condition. The individual was probably an old middle adult possible male (c. 36-45 years of age). No pathological conditions were observed.



Plate D3 Skeleton 110 *in situ* (photograph provided by NAA)

Skeleton 113

Skeleton 113 was buried on a west-east alignment, in a supine position with legs extended (Plate D4). The upper body had been disturbed and the skull, most of the torso and upper arms were missing. The left arm was flexed c. 90° at the elbow with the hand over the left pelvis, while the right arm lay straight alongside the body with the hand next to the right hip. The skeleton was 50-75% complete and in moderate condition. The individual was probably a middle adult male (c. 26-45 years of age), and about 164cm tall (5'4½") based on measurement of the tibia. No pathological conditions were observed.

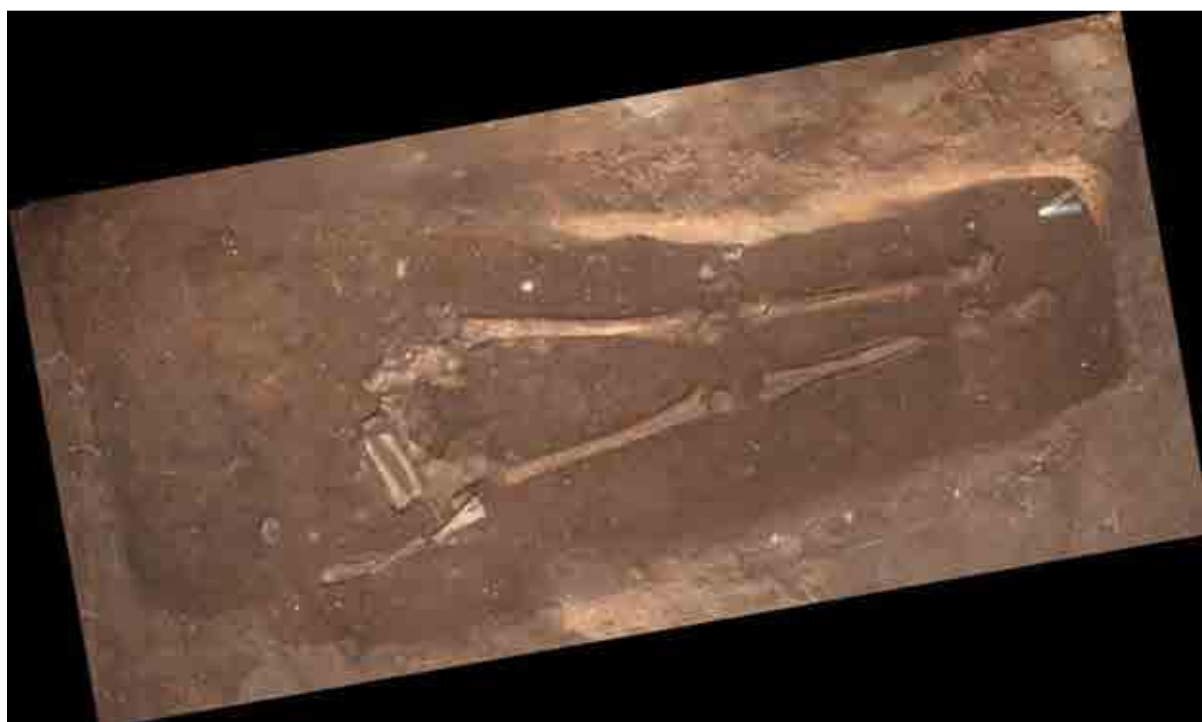


Plate D4 Skeleton 113 *in situ* (photograph provided by NAA)

Skeleton 118

Skeleton 118 was buried on a west-east alignment, in a supine position with legs extended (Plate D5). Both femora were rotated so the posterior surfaces were uppermost, and the tibiae were also rotated. The left arm lay straight alongside the torso with the hand next to the left hip, and the right arm was flexed c. 90° at the elbow with the hand over the left forearm. The skull lay on its left-hand side, facing left (north). The skeleton was 75-100% complete and in a moderate condition. The individual was a young middle adult female (c. 26-35 years of age), and about 163cm tall (5'4") based on measurement of the tibia. She had experienced ante-mortem tooth loss of her lower right second molar, and her lower right third molar was either also lost during life, or had not developed/erupted.



Plate D5 Skeleton 118 *in situ* (photograph provided by NAA)

Skeleton 121

Skeleton 121 was buried on a west-east alignment, in a supine position with legs extended, and knees and ankles close together (Plate D6). The upper half of the body lay beyond the edge of the trench, so it was not possible to determine the position of the left arm and skull, while the right arm was flexed 90° at the elbow. A copper alloy ring was present on one of the fingers of the left hand. The skeleton was 50-75% complete and in moderate condition. The individual was an adult female, and about 151cm tall (4'11½") based on measurement of the tibia. Vastus notches (a non-metric trait) were observed on both patellae. No pathological conditions were observed.



Plate D6 Skeleton 121 *in situ* (photograph provided by NAA)

Skeleton 126

Skeleton 126 was buried on a west-east alignment, in a supine position with legs extended, with knees and ankles close together (Plate D7). The left arm lay straight alongside the torso with the hand next to the left hip, and the right arm was flexed c. 45° at the elbow with the hand over the left hip. The right humerus was rotated medially, so the posterior surface was uppermost. The skull lay on its left-hand side, facing left (north). The skeleton was 50-75% complete and in a moderate condition. The individual was an adult possible male, aged over c.25 years. No pathological conditions were observed.



Plate D7 Skeleton 126 *in situ* (photograph provided by NAA)

Skeleton 129

Skeleton 129 was only partially exposed: most of the skull was buried in an area of soil that lay beneath Skeleton 110, while the lower legs extended beyond the eastern edge of the trench (Plate D8). The individual was buried on a west-east alignment. While the torso was supine, the legs were slightly flexed to the left. The left arm lay straight alongside the torso with the hand next to the left hip, while the right arm was flexed c. 45° at the elbow with the hand over the left pelvis. The right humerus was rotated medially, and the posterior surface was uppermost. The skull lay on its left-hand side, facing left (north). Around 50-75% of the skeleton was exposed and it was in moderate condition. The individual was probably a young middle adult female (c. 26-35 years of age). She had a minor congenital anomaly in her spine, in the form of partial sacralisation of her fifth lumbar vertebra on the right hand side: L5 had a large right transverse process apparently in contact with the right ala of the sacrum, while the left side seemed normal.



Plate D8 Skeleton 129 *in situ* (photograph provided by NAA)

Context 105: Disarticulated Bone

A small quantity of disarticulated bone was recovered from Context 105, to the north of Skeleton 121. This comprised: a single tooth (a lower left first premolar); one left and one right scapula (shoulder blades); bones from the legs (one left and one right tibia shaft; one unsided fibula shaft fragment) and feet (two unsided metatarsal shafts). Around twenty unidentified bone fragments, mainly of long bones, were also present.

Context 108: Disarticulated Skull above Skeleton 107

A disarticulated cranium and mandible were located c. 30cm above the pelvis of Skeleton 107 (see Plate D2). The skull was 25-50% complete, but in poor condition. It probably belonged to a mature adult, whose sex was tentatively estimated to be male. Severe wear was observed on the teeth, which were worn down to the roots, and slight dental calculus (mineralised dental plaque) was present on some teeth.

Discussion and summary

The fact that the skeletons discovered at Seaham were only examined *in situ* has meant that it was not possible to obtain the full level of detail that is normally recorded during analysis of fully excavated skeletons. This was because the position of the bone elements in the ground may have been such that particular features useful for age and sex estimation could not be observed, and because the bones were unwashed and soil adhering to the bones would have obscured finer details and potentially evidence of subtle pathology. Nevertheless, assessment of the skeletons still revealed useful data on the demographic profile, pathological conditions and funerary practices.

The majority of the skeletons were moderately well preserved, with two considered to be poorly preserved. There was a tendency for the smaller and more fragile bones to be damaged or completely lost through taphonomic processes. Vulnerable bones included the ribs, vertebral bodies, bones of the hands and feet, and the ends of the long bones.

The graves of five of the skeletons were fully uncovered. Two of these individuals were considered to be over 75% complete, two were 50-75% complete, while one was 25-50% complete. The upper body of one of these individuals (Skeleton 113) was missing, presumably following earlier disturbance of the grave. A water pipe passed across the centre of the graves of three of these individuals (Skeletons 102, 118 and 126), but fortunately the pipe lay just above the skeletons and did not appear to have disturbed them.

The graves of the remaining three skeletons were not fully uncovered, and as a result two were considered to be 50-75% complete and one was 25-50% complete. The upper part of Skeleton 121 extended beyond the western margin of the trench, but fortunately the pelvis lay within the trench, which enabled the sex of the individual to be determined. The lower legs of Skeleton 129 extended beyond the eastern edge of the trench, while most of the skull was buried in the soil that lay beneath the grave of Skeleton 110, but the presence of the pelvis meant that age and sex could be determined. Only the legs of Skeleton 107 had been exposed, as a disarticulated cranium lay above the pelvis, which meant that it was not possible to determine the age and sex of the individual.

Both femora were present in all eight articulated burials, indicating a minimum number of eight adults were present. Although there was a left and right tibia among the disarticulated remains from Context (105), the tibiae of Skeleton 129 were not exposed and so could not be included in the MNI estimate. Therefore an MNI based on the tibia also indicated the presence of eight individuals.

All eight articulated skeletons were adults, and these consisted of four males (including two possible males), three females and one unsexed individual (Table D1). Age was generally more difficult to determine. Two females were considered to be young middle adults (26-35 years of age), and two males were probably old middle adults (36-45 years of age). One male was probably between 26-45 years of age, and another was probably over 25 years of age. The remaining two individuals were older than eighteen years, but a more precise age category could not be determined. The disarticulated cranium from Context (108) was probably that of a

mature adult possible male, and the disarticulated bones adjacent to Skeleton 121 probably belonged to adult individuals.

SK No	Orientation	Position	Compl. (%)	Pres.	Age	Age Group	Sex	Stature (cm)	Dental Pathology	Pathology
102	West-east	Supine, extended	75-100	Mod.	36-45?	oma?	M	169	-	-
107	West-east	Supine, extended	25-50	Poor	18+	a	?	-	-	Healed fracture of right fibula
110	West-east	Supine, extended	25-50	Poor	36-45?	oma?	M?	-	-	-
113	West-east	Supine, extended	50-75	Mod.	26-45	yma/oma	M	164	-	-
118	West-east	Supine, extended	75-100	Mod.	26-35	yma	F	163	RM ₂ lost AM; RM ₃ either lost AM or NP/U	-
121	West-east	Supine, extended	50-75	Mod.	18+	a	F	151	-	-
126	West-east	Supine, extended	50-75	Mod.	25+	a	M?	-	-	-
129	West-east	Supine, extended	50-75	Mod.	26-35	yma	F	-	-	Partial sacralisation of L5

C(%) = completeness, expressed as a percentage; P = preservation;

Age group: ya = young adult (18-25 years); yma = young middle adult (26-35 years); oma = old middle adult (36-45 years); ma = mature adult (46+ years); a = adult (18+ years)

Table D1 Summary of osteological, pathological and funerary data

There is therefore evidence for the presence of adults of both sexes, whose ages clustered around younger and older middle age. There was no evidence for the presence of children or younger adults, and the only evidence for the presence of a more mature individual was provided by the disarticulated skull. This broadly corresponds with the data obtained during the excavations in 1997 and 1999. In 1997, Langston (1998) observed that all ten individuals were adults (including five males and two females), and where age could be determined they were all aged between 25-45 years. Following analysis of fifteen of the 26 skeletons discovered in 1999, Langston (2001) reported that all individuals were aged between 25 and 45 years and that eight of these individuals were female and six were male; the sex of one individual could not be determined. If Langston's (1998; 2001) data from both previous excavations is combined with the data from the 2013 excavations, then the sex ratio is roughly equal, with thirteen of 28 individuals being females (46.4%), and fifteen of 28 individuals being males (53.6%).

Age estimation in adults is usually more challenging, and there is a tendency for the methods used to over-age younger individuals and to under-age older individuals (Aykroyd *et al.* 1999). It is possible that this effect had occurred at Seaham, causing the appearance of clustering in the

middle age groups. However, the fact that no children were discovered in either the current, 1997 or 1999 excavations may suggest that this part of the cemetery was reserved for adult burials. Scott (1999, 90) has observed that expected levels of infant mortality ought to result in infant burials alone making up c. 15-30% of the cemetery population, and these figures would not account for the deaths of older children.

Stature calculations were based on measurements of the tibia taken with a hand-held tape measure while the bones were *in situ*. They can therefore only provide a general indication of the stature of these individuals. Stature could be calculated for two of the males, who were c. 164cm (5'4½") and 169cm (5'6½") tall, and two of the females, who were c. 163cm (5'4") and 151cm (4'11½") tall. Data based on the skeletons previously excavated at Seaham indicated a male average height of 172.5cm (range: 163.0-179.3cm; Langston 1998, 8) and 178.5cm (range: 176.0-180.6cm; Langston 2001, 19). The two male skeletons excavated in 2013 were therefore below both average statures previously calculated for this population, but fall within the range of statures previously reported. The female average stature was reported as 149.8cm (range 141.8-157.8cm) for the skeletons excavated in 1997 (Langston 1998, 8), and as 157cm (range 153-160cm) for the skeletons excavated in 1999 (Langston 2001, 19). Therefore, one of the 2013 female skeletons was taller than the upper range of female statures previously recorded for Seaham, and the other fell within the range of statures previously reported. In comparison, the average stature for males in the early medieval period is 172cm, and for females it is 161cm (Roberts and Cox 2003, 195). Therefore, both males and one of the females excavated in 2013 were probably below average height for the period, while one of the females was slightly taller than average.

The evidence for pathological conditions was limited by the fact the skeletons remained *in situ* and the bones were not washed. However, an unsexed adult (Skeleton 107) had suffered a fracture to their right fibula just below the knee, which had healed (Plate D9). This type of injury tends to be caused by a direct blow to the side of the leg, or by a rotation injury at the ankle (Galloway 1999; Dandy and Edwards 2003, 255-256). A study of fracture patterns in an early medieval British population found that the fibula was one of the bones most frequently broken, with 7% of fibulae fractured (Judd and Roberts 1999).



Plate D9 Healed fracture of right fibula of Skeleton 107 (arrowed)

A young middle adult female (Skeleton 129) had a developmental anomaly of her lower spine (known as sacralisation), where the right side of her fifth lumbar vertebra at the base of the spine had made an attempt to become incorporated into the sacrum. This condition affects 3-5% of the population (Aufderheide and Rodríguez-Martín 1998, 65), and has been associated with lower back pain, particularly when the sacralisation is asymmetrical (Sture 2001; Barnes 1994, 109-110). Sture (2001, 382-383) noted that women with sacralisation tended to be more likely to have died in young adulthood, and suggested that reduced mobility in the lower spine caused by sacralisation may have increased the risk of death during childbirth.

The evidence for dental disease was limited. A young middle adult female (Skeleton 118) had lost one of her lower molars during life. Ante-mortem tooth loss can be caused by several factors, including tooth decay, dental abscesses, heavy dental wear, periodontal disease and trauma to the tooth, and it is a condition that normally increases in frequency with age (Hillson 1996; Roberts and Manchester 2005, 74). Her lower third molar may also have been lost ante-mortem, but could also have simply failed to develop/erupt as the third molar is the tooth most likely to suffer from congenital absence or impaction (Hillson 1996, 113-114). In early medieval British populations, ante-mortem tooth loss had affected 8% of tooth sockets (Roberts and Cox 2003, 193).

The disarticulated skull (context 108) had slight deposits of calculus (mineralised plaque) of some of the teeth. Calculus was not observed on other dentitions, despite the fact that it is relatively frequently observed in most archaeological populations. For example, 39.2% of teeth from early medieval British population had deposits of calculus (Roberts and Cox 2003, 194). It is possible that calculus deposits had been damaged or lost through taphonomic processes, or that they were obscured by soil.

The skeletons appeared to have been buried in rows with similar mortuary practices, indicating a degree of organisation. They were all interred in an extended and supine position (although the legs of Skeleton 129 were slightly flexed to the left), with their heads to the west. The knees and ankles were frequently close together, and some long bones had rolled inwards, suggesting that they had been buried in shrouds. There was no evidence that any of the individuals had been buried in a coffin. There was a remarkable uniformity in arm and skull position. Where arm position could be determined, one arm lay alongside the body with the hand next to the hip, and the other arm was flexed (between 45° and 90°) at the elbow with the hand placed over the opposite hip/ pelvis/ forearm. In four individuals it was the left arm that was straight and the right arm that was flexed, and in two individuals it was the right arm that was straight and the left arm that was flexed. In all four individuals where the left arm was straight the skull lay on the left side, facing north. In one of the two individuals where the right arm was straight the skull lay on the right side, facing south; in the other individual with a straight right arm the skull was missing and so its position could not be determined.

These burial positions are broadly consistent with the pattern of burial observed at Seaham in 1999. These 26 burials were almost all extended (one was semi-flexed), and all but one was aligned west-east (Parry 2001, 5). Two burials were prone, and one individual was placed on their left-hand side, while the majority were supine. Regarding arm positions, one arm was usually flexed across the chest or pelvis, while the other was straight (as seen in 2013). However, two individuals varied in having both arms flexed across the body (*ibid.*). Supine burial on a west-east alignment with the legs extended also seemed more common among the ten skeletons excavated in 1997, but two skeletons were buried lying on their left hand sides

(Adamson and Abramson 1998, 3). Arm position appeared to be slightly more varied among the skeletons excavated in 1997 (*ibid.*).

All of the burials excavated in 1997, and the majority of the burials excavated in 1999, appeared to have been shroud burials, although no shroud pins were recovered (Adamson and Abramson 1998, 4; Parry 2001, 5), which is consistent with the lack of coffined burials observed during the 2013 excavations. However, one of the burials excavated in 1999 was probably buried within a coffin (Parry 2001, 5), and another was probably buried within an iron-bound chest (Parry 2001, 9).

Overall, the pattern of burial seen at Seaham is consistent with that observed in the early Christian period: beginning in the late 7th/early 8th century AD, there was a tendency for unfurnished, uniform burials in simple graves (Daniell and Thompson 1999, 72). Although one female (Skeleton 121) had been buried wearing a copper alloy ring, Daniell and Thompson (1999, 76) note that while burial with grave goods in the early Christian period was generally less common than previously, deposition of grave goods did not conflict with the practice of Christianity.

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APPENDIX E: PALAEOENVIRONMENTAL ASSESSMENT

Lynne F Gardiner

Summary

The samples and hand-collected animal bone from the excavation at Flower Field, Old Seaham, County Durham were submitted for assessment.

No charcoal was evident and the two samples yielded a collective total of 75 charred cereal grain. The most abundant grain was oat with much lesser quantities of possible bread wheat and barley.

The greatest yields of animal bone originated in the subsoil from Trench 1 (101) and ditch fill 307. The species noted from this assemblage included horse, cattle, pig and sheep/goat. The greatest range of elements were observed in 307, where almost all of the skeletal elements were presented. The bones from the ditch fill were the only ones that contained fragments with cut marks on them. The assemblage from the ditch fill was most likely to be that of domestic and butchery waste.

Radiocarbon AMS dating is possible using charred cereal grain from ditch 305 (307 AA) and the fill of the gully 303 (309 AA).

Introduction

Two bulk environmental samples were taken during the course of an excavation at Flower Field, Old Seaham. These, along with hand-collected animal bone weighing nearly 8kg, were submitted for assessment.

The preliminary results of the excavation are presented above. This report presents the results of the assessment of the palaeoenvironmental remains in accordance with Campbell et al. (2011) and English Heritage (1991).

Methodology

The bulk environmental samples were processed at NAA. The colour, lithology, weight and volume of each sample was recorded using standard NAA pro forma recording sheets. cf. Table 1. The samples were processed with 500 micron retention and flotation meshes using the Siraf method of flotation (Williams 1973). Once dried, the residues from the retention mesh were sieved to 4mm and the artefacts and ecofacts removed from the larger fraction and forwarded to the relevant specialists. The smaller fraction was not examined and has been retained.

The flot, plant macrofossils and charcoal were retained and scanned using a stereo microscope (up to x50 magnification). Any non-palaeobotanical finds were noted on the pro forma. cf. Table E2.

The animal bones were washed by some volunteers that attended the community excavation and were air dried.

The plant remains were identified to species as far as possible, using Cappers et al (2006), Cappers and Bekker (2013), Cappers and Neef (2012), Jacomet (2006) and the NAA reference collection. Nomenclature for plant taxa followed Stace (2010) and cereals followed Cappers

and Neef (2012). Hall and Huntley (2007) and Huntley and Stallibrass (1995) were consulted for comparitors. The animal bone was identified using Schmid (1972) and Hillson (2003).

Results

MAGNETIC MATTER

The magnetic matter from the scanning of the fine fraction residues was examined and no hammerscale was present.

CHARRED PLANT MATERIAL (CF. TABLE E3)

No charcoal was observed. The flots from both samples yielded charred plant material. No uncharred plant material was observed and no shell or significant quantities of earthworm capsules were present which may have inferred presence of charred plant material via bioturbation.

The flot from sample 307 AA (fill of ditch 305) yielded nine charred grain. The preservation was mostly poor and all had some endosperm showing which made identification slightly difficult. Sample 309 AA (fill of gully 306) yielded 66 charred grains. These were slightly better preserved with the identification of *Avena* sp. (oat), *Triticum* cf. *aestivum* (possible bread wheat) and *Hordeum* sp. (barley) possible.

ANIMAL BONE (CF. TABLE E4)

A total weight of 7719g of hand-collected animal bone and 105g from samples were submitted for assessment. The overall preservation was good but the animal bone from Trench 1 was of a more friable nature with poorer preservation. The assemblage was examined for species identification and potential for further analysis.

Two contexts yielded a significant quantity of animal bone when compared intrasite. The two contexts were from the subsoil from Trench 1 (context 101) and the fill of ditch 305 (307). The greater variation of elements originated from 307 where almost all of the skeletal elements were observed. These included elements from horse, cattle, pig, sheep/goat and bird. The only evidence for cut marks originated from this context as well, where six examples were observed and these were restricted to those elements from large mammals.

A small number of unfused ends of long bone were observed, indicating the presence of very young animals, and were assigned to either cattle or sheep/goat. The fill of gully 203 (204) and ditch fill 307 were the only contexts in which these juvenile bones were observed.

Table 5 contains number of elements per species that may be suitable for counting to enable ascertaining a minimum number of individuals (MNI). Other skeletal elements considered suitable for age-at-death analysis to be ascertained were also entered. However, once entered onto the table it became evident that this would not be a valuable exercise as the quantities recovered and/or the chronologies of the archaeological context would negate any meaningful analysis.

Discussion

CHARRED PLANT MATERIAL

Oat was the dominant cereal grain from this excavation. The charred grain assemblage is similar to that from the samples taken during previous excavations at Seaham to the east of the church. Huntley (1996, 19) stated that the oat, barley and bread wheat were used by the inhabitants of Seaham. She also states that the combination of these cereals can only be used to suggest a post-Roman date. This combination of cereal grain was observed at Lindisfarne for the late-medieval to early post-medieval range (Lowrie 2010, 28). This oat dominance contrasted with Anglo-Saxon Hartlepool, where it was the least favoured grain (Huntley and Rackham (2007 115). Oat did not become common in the North East until the medieval period (Lowrie 2010, 33). This may suggest that ditch 306 may be later medieval or post-medieval, but without a larger dataset this would be difficult to ascertain.

Ditch 305, which is stratigraphically earlier, had fewer oat grains in comparison with the overall number, although there were only nine grains in total. A fragment of antler comb was also recovered from sample 307. The ditch is therefore possibly of Anglo-Saxon date, contemporary with the cemetery, and the lower frequency of oat would be less in conflict with the evidence from Hartlepool.

Only the grain was present in both contexts. No chaff or other plant parts were observed. This may be a taphonomic issue or indicate that it was cleaned grain that was charred. However, the absence of chaff is usually indicative of a consumer site.

ANIMAL BONE

Previous excavations at Seaham have also yielded a suite of animal bone similar to this assemblage (Ward 2001, 27 and Stallibrass 1996, 15). Further afield at Ainderby Steeple near Northallerton a similar site (cemetery with additional archaeology) yielded a similar suite of animal bones, which Jaques et al. (2005, 55) suggested was indicative of both butchery waste and domestic refuse.

Statement of potential and recommendations

Radiocarbon AMS dating is possible using the charred grain from 307 AA and 309 AA.

The possibility for analysis of the animal bone exists, however, without an explanation of the ditch (it formed part of a ditched 'enclosure' evident on the geophysical survey) by further excavation of its interior and a date via AMS radiocarbon dating, it would be a relatively pointless exercise. However, the animal bone from ditch fill 307 should be retained and incorporated into the assemblage if this further work was to occur.

All the other animal bone may be discarded, along with all the sample residues, flots, magnetic matter and the charred plant remains (unless the latter were required for radiocarbon AMS dating).

Archive

All the fine fractions, flots, animal bone and palaeobotanical remains, along with the paper archive associated with the environmental samples are currently held with NAA.

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Table E1: Sample data

C	SC	CP	TP	MP	PW	PV	CS	Components (sorting)	SW	SV	>SW	>SV
307	AA	Dark greyish brown	Slightly sticky	Sandy silt	42	34	Yellowish brown	Stone>1cm 10%: stone<1cm 30%: sand 60%	10584	6700	3097	1800
309	AA	Dark yellowish brown	Loose	Sand	48	31	Yellowish brown	Stone>1cm 10%: stone<1cm 30%: sand 60%	7805	4500	1835	1100

Key: **C**= context, **SC**= sample code, **CP**= colour of pre-processed sediment, **TP**= texture of pre-processed sediment, **MP**= matrix of pre-processed sediment, **PW**= weight (kg) of sediment processed, **PV**= volume (l) of sediment processed, **CS**= colour of dried residue, **SW**= weight (g) of residue, **SV**= volume (ml) of residue, **>SW**= weight (g) of >4mm sorted residue, **>SV**= volume (ml) of >4mm sorted residue

Table E2: Flot data

C	SC	R?	Wt flot (g)	CPR	AMS?	CH	Components	EWC
307	AA	Yes	2.3	Yes	Yes	No	Sand 50%: fine rootlets 50%	No
309	AA	Yes	3.3	Yes	Yes	No	Sand 40%: fine rootlets 60%	No

Key: **C**= context, **SC**= sample code, **CPR**= charred plant material, **AMS?**= suitable for radiocarbon AMS dating?, **CH**= charcoal, **EWC**= earthworm capsules

Table E3: Plant remains (showing actual counts)

C	SC	Avena sp. Oat	Triticum cf. aestivum Possible bread wheat	Hordeum sp. Barley	Indet.	Total
307	AA	2	1	4	2	9
309	AA	28	13	3	22	66

Key: **C**= context, **SC**= sample code

Table E4: Animal bone

C	Countable												Ageable											
	Cattle		Sheep/goat		Pig		Bird		Fish		Other		Cattle		Sheep/goat		Pig		Bird		Fish		Other	
	T	B	T	B	T	B	T	B	T	B	T	B	T	B	T	B	T	B	T	B	T	B	T	B
T1 Res			6																					
T1 U/S			2																					
100	1		10																					
101											6	9		7										7
105			1								2													
117																								
204	2																							
206			4																					
304			1																					
307		6		6				3				5			17		10							

Table constructed After Baker and Worley(2013, 36). Consultation draft for English Heritage draft for Animal Bones and Archaeology: Guidelines for Best Practice (Key: C= context, T= teeth, B= bone)

Table E5: Animal bone commentary

C	SC	W(g)	Preservation	Species identified						Comments
				Horse	Cattle	Pig	Sheep/goat	Med. mammal	Bird	
T1 u/s		16	Poor/porous				yes			2 teeth (sh/g), 12 frags. indet long bone, 5 frags. other elements, 1 unfused element
100		95	Moderate		yes		yes			1 sh/g tooth, 1 x cattle tooth, 1x rib frag. 19 long bone frags.
101		2184	Moderate but porous	yes	yes	yes	yes			>100 frags, include astragalus, calcaneus, radius, mandible frag, incisors, molars
105		136	Moderate	yes			yes			1 x sh/g tooth, Proximal and distal end of horse tibia/fibula
117		5	Moderate					yes		1 x calcined med. mammal long bone frag., 1x long bone frag. (med. mammal)
204		88	Poor/porous		yes					1 x tooth (juvenile cattle), 1 x cattle tooth, 7 x frags in ?cattle scapula frag.
206		40	Good				yes			4 x teeth, 2 x rib frags, 1 x other element frag,
304		28	Moderate				yes		yes	tooth, 7 frags, 1x bird (leg bones)
307	AA	103	Moderate					yes		Mostly fragments, 1 complete small astragalus
307		5127	Good	yes	yes	yes	yes		yes	Phalanges, astragalus, calcaneus,, humerus, teeth, mandible frags. maxilla frags., radius, tibia, scapula frags, metacarpus, vertebrae, horn core, pelvis frag. metatarsus, unfused epiphyses, bird femur, cut marks on 6 large mammal frags.
309	AA	2	Poor/porous							2 x long bone frags. sm. mammal

Key: C= context, SC= sample code, W(g)= weight (g), sh/g= sheep/goat, frag/s= fragment/s, med. mammal= sheep/goat sized, large mammal= cattle/horse sized

APPENDIX F: GEOPHYSICAL SURVEY REPORT

GSB Prospection Ltd

GSB Survey Report No. G1388 Flower Field, Seaham

Aims

To locate and characterise any anomalies of possible archaeological interest within the study area. The work forms part of a wider archaeological investigation being carried out by Northern Archaeological Associates Ltd (NAA) on behalf of Durham County Council (DCC) as part of a Community Project.

Summary of Results

The site under investigation contains burials known to be associated with an Anglo-Saxon cemetery; in 1999 trial trenches and geophysical survey provided clear evidence for archaeological features being present. However, the magnetic survey results were somewhat inconclusive and, as a result of not being tied-in to the ground with sufficient accuracy, they could not be fully investigated by the trenching with any degree of certainty. Therefore, it was decided to re-survey the area magnetically, partly as a community activity, but also to see if more detail could be gathered with different / newer instruments.

The present survey results agree quite well with the earlier work, but there are several discrepancies, especially with regard to the interpretation. Unfortunately, the presence of a gas pipe, several areas of dumped material, considerable interference around the limits of the survey and the excavation trenches themselves (old and current ones) have resulted in a noisy magnetic site. Graves are nearly always difficult targets and in this context, identifying individual burials with any degree of confidence is not possible. Ditches and pits are more readily discernible in the data but the geophysics is far from clear. In particular there is no evidence in the current data for the complex of ditches interpreted in the earlier survey in the western part of the site.

Method

All survey data points had their position recorded using Trimble R8 Real Time Kinematic (RTK) VRS Now GNSS equipment. The geophysical survey area is georeferenced relative to the Ordnance Survey National Grid.

<i>Technique</i>	<i>Instrument</i>	<i>Traverse Interval</i>	<i>Sample Interval</i>
Magnetometer	CARTEASYN cart system	(Bartington Grad 601 sensors)	0.75m 0.125m

All survey work is carried out in accordance with the current English Heritage guidelines (EH 2008).

Data Processing

Data processing was performed as appropriate using the following in-house software packages (Carteasy). Magnetic Data: Zero Mean Traverse, Gridding

Interpretation

When interpreting the results several factors are taken into consideration, including the nature of archaeological features being investigated and the local conditions at the site (geology, pedology, topography etc.). Anomalies are categorised by their potential origin. Where responses can be related to very specific known features documented in other sources, this is done (for example: Abbey Wall, Roman Road). For the generic categories levels of confidence are indicated, for example: Archaeology – ?Archaeology. The former is used for a confident interpretation, based on anomaly definition and/or other corroborative data such as cropmarks. Poor anomaly definition, a lack of clear patterns to the responses and an absence of other supporting data reduces confidence, hence the classification ?Archaeology. Details of the data plot formats and interpretation categories used are given in the Appendix: Technical Information at the end of the report.

General Considerations

Conditions for survey were relatively good, with fine weather and short grass. Three trenches were being excavated at the time of the survey and they were fenced off with road irons; therefore a magnetic halo can be seen around them. There was marshy ground in the centre and north of the site and overgrown areas around the eastern perimeter. A large metal fence flanked the western limits of the survey.

Survey Results - Magnetometer Survey

The interpretation figure (NAA 2001: Fig 2) from the earlier geophysical survey work is reproduced here as (Figure 5); in the NAA diagram 'f1 to f11' are presumed to refer to anomalies highlighted in the text of the geophysical report, which was not available for cross reference. In discussing the results of the 2013 survey, anomalies have been assigned 'G' numbers and where these clearly relate to 'earlier anomalies' this is noted as follows [G1:f6].

Considering the eastern half of the survey first, which is magnetically less-disturbed, there are several ditch-like anomalies [G1:f6 / G2:f6 / G3:f6 / G4:f7 and G5:f2] aligned approximately east-west, but none are shown on the 1865 mapping (OS, 2014). These appear to have originally divided Flower Field into smaller parcels or strips of land. The linear response [G6:f8] which is on a north-south axis, may also be a dividing ditch with a more magnetic fill, or more probably a clay drain. Unfortunately a large pipe [G20] partially obscures the anomaly. The data indicate that [G4:f7 and G7] continue to the west though the latter is 'lost' in the magnetic disturbance [G15].

Between [G4:f7] and [G5:f2] the earlier survey shows an interpretation category of 'ridge and furrow'; whilst there are clear linear trends in the current magnetic data [G7] they are not particularly well-defined on the greyscale, but appear far more readily on the topographic model (Figure 6), which suggests that ploughing or cultivation beds covered a large proportion of the field.

There are two strong curving anomalies [G8] and [G9], smaller lengths of which were noted on the earlier survey, but they were not assigned a letter/number. At first sight they seem to form part of a large, segmented ring. However, [G8] coincides with a marked break in slope and a gate into the field; if it is associated with [G9] it could be a garden feature. The ground falls away very steeply to the east into overgrown scrub and could not be surveyed. There is an area of magnetic noise and possible garden features in both datasets [G10:f5]

The western half of the survey has resulted in a much noisier dataset, which is unfortunate as this area is closer to the known archaeology. Additionally, the interpretation results from the earlier survey (Figure 5) suggest that there is a complex of magnetic anomalies not all of which appear in the current data. However, there is good agreement at [G4:f7 / G11:f7] and [G12] which matches an unlabelled anomaly. There are minor differences in that [G11:f7] follows a west-east alignment before turning south through a right angle and then 'disappearing' in the noise, whereas [f7] is not shown as turning but as two separate anomalies perpendicular to each other.

There are a few pit-like responses or possible spreads of burnt material [G13] that coincide with an area of 'stoney' ground and 'thick soil' on the earlier survey. Discrepancies here between the interpretations are very subjective, probably simply a result of differing plotting levels. A negative linear trend [G14:f9] is visible in both datasets, as are the two ferrous spikes to the east and partially masking [G11]. However, the complex of ditch lengths forming small rectilinear features (around Trench 4) visible in the earlier survey is not apparent in the current results.

Some discrepancies in the two interpretations are due to the passage of time between the surveys. For example, whereas magnetic disturbance / debris at [G15:f3 and G16:f11] is apparent in both datasets, the disturbance at [G17 / G18 & G19] relates to fences around the current trenches.

It is not certain why the pipe [G20] is not on the earlier interpretation, unless it was laid after the survey. There is more magnetic disturbance around the edge of the current survey because the boundaries were larger than on the previous one.

Conclusions

The present survey results are not dramatically different from those of the earlier work, except for the fact that a number of archaeological features in the western half of the survey are not apparent in the most recent work. Although a series of archaeological ditches and possible pits has been recorded, the presence of pipes, the old and new excavation trenches, modern debris and back-filling have all clearly affected the quality of the magnetic data. In such circumstances it is always very difficult to successfully identify and interpret more ephemeral type archaeological features.

Survey Personnel

Field Co-ordinator: Jimmy Adcock BSc MSc

Report Author: Dr John Gater MIfA FSA

Project Assistants: Joe Perry BA, Emma Watson BSc PgDip, Emma Wood BSc MIfA

Dates

Fieldwork: 10th December 2013

Report: 30th January 2014

Report Approved: Dr John Gater MIfA FSA

Study Area c. 2.3ha

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0 metres 2000



1:50,000 @ A4



Site Location

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 Cowburn Farm, 21 Market Street
 Thornton
 Bradford
 BD13 3HW

+44 (0)1274 835016



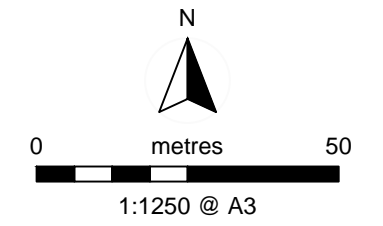
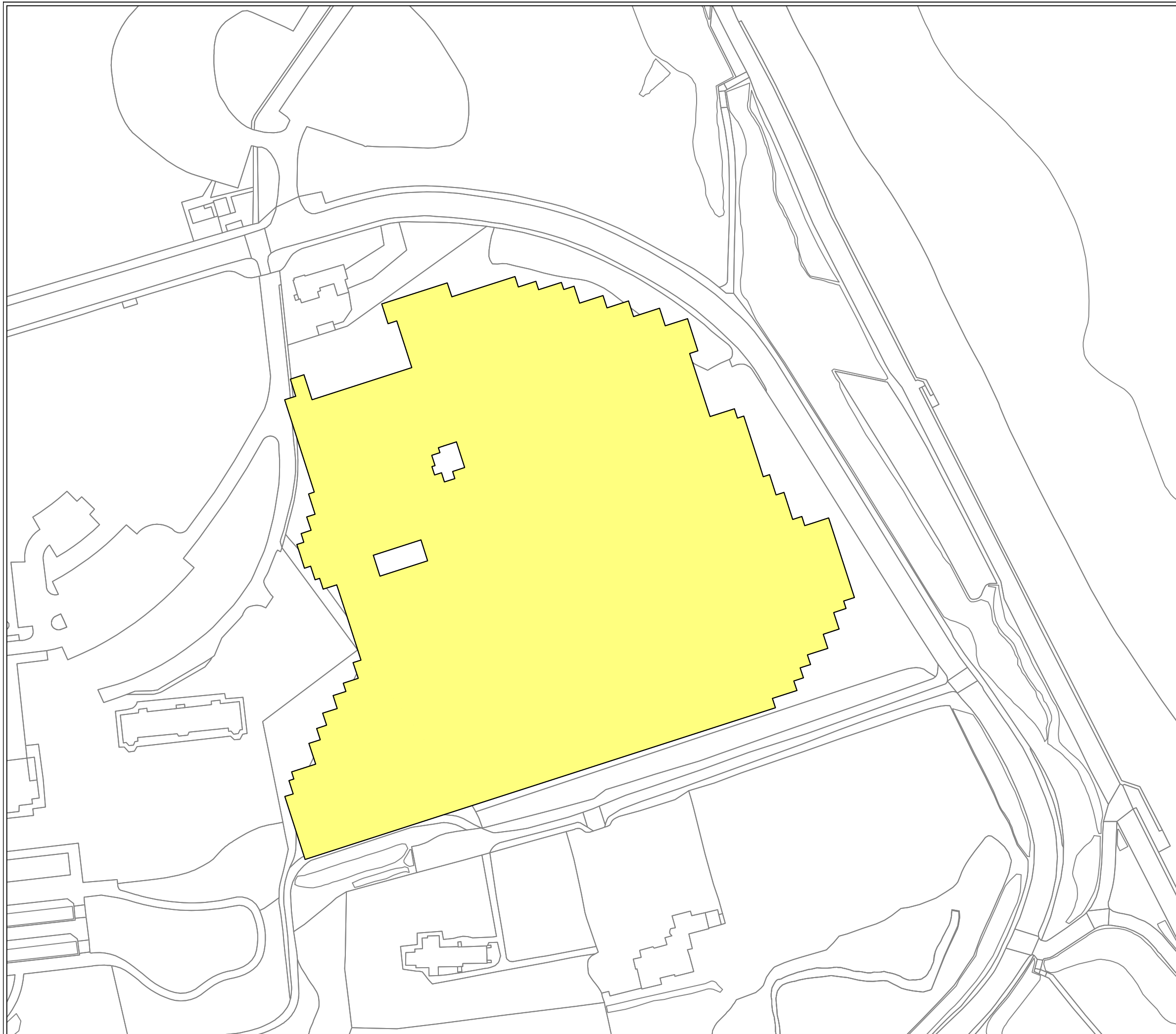
Project: G1388 Flower Field, Seaham


Title: Site Location Diagram

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Figure 1



 Magnetometer Survey Area

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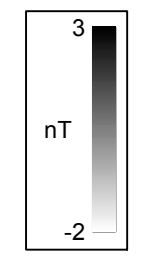
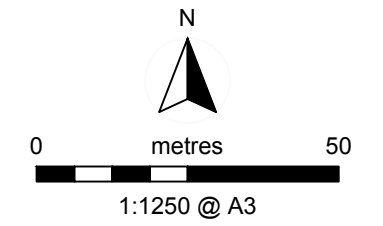
Project: G1388 Flower Field, Seaham

Title: Location of Survey Area

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Figure 2



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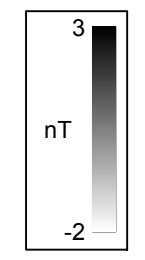
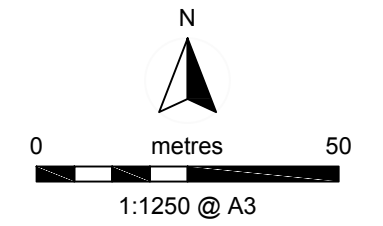
Project: G1388 Flower Field, Seaham

Title: Magnetometer Survey - Greyscale Plot

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Figure 3



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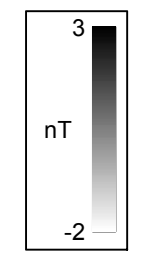
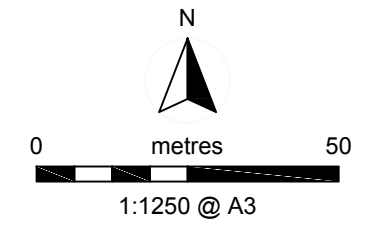
Project: G1388 Flower Field, Seaham

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Figure 3



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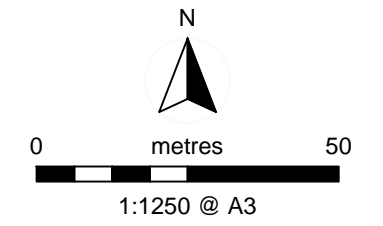
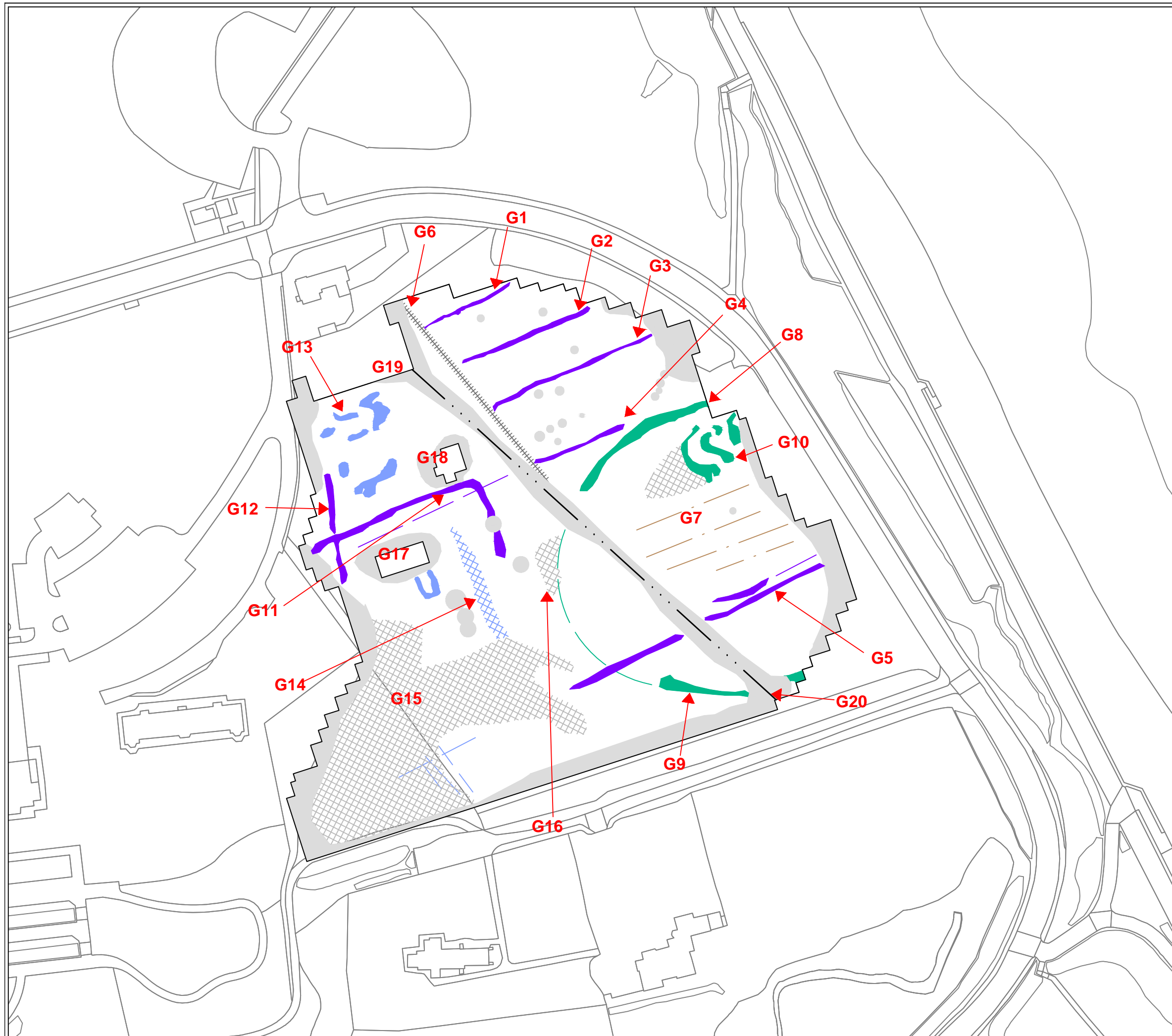
Project: G1388 Flower Field, Seaham

Title: Magnetometer Survey - Greyscale Plot

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Figure 3



- Archaeology
(discrete anomaly / trend)
- ?Archaeology
(discrete / increased response / trend)
- Uncertain Origin
(discrete anomaly / trend)
- Ferrous / Magnetic Disturbance
- Pipe / Drain

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Title: Magnetometer Survey - Interpretation	
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Drawn by: EWatson	Figure 4

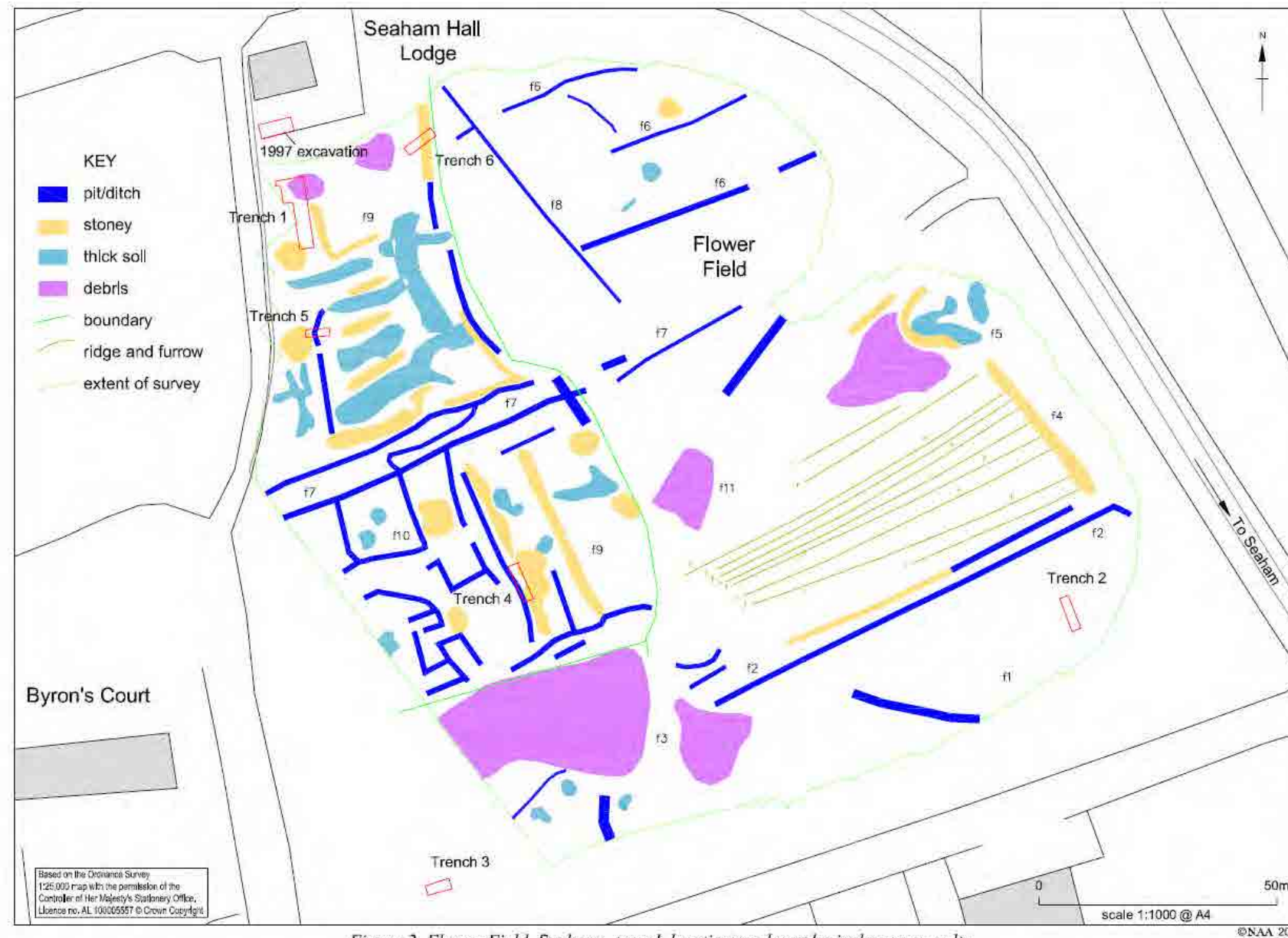


Figure 2 Flower Field, Seaham: trench locations and geophysical survey results

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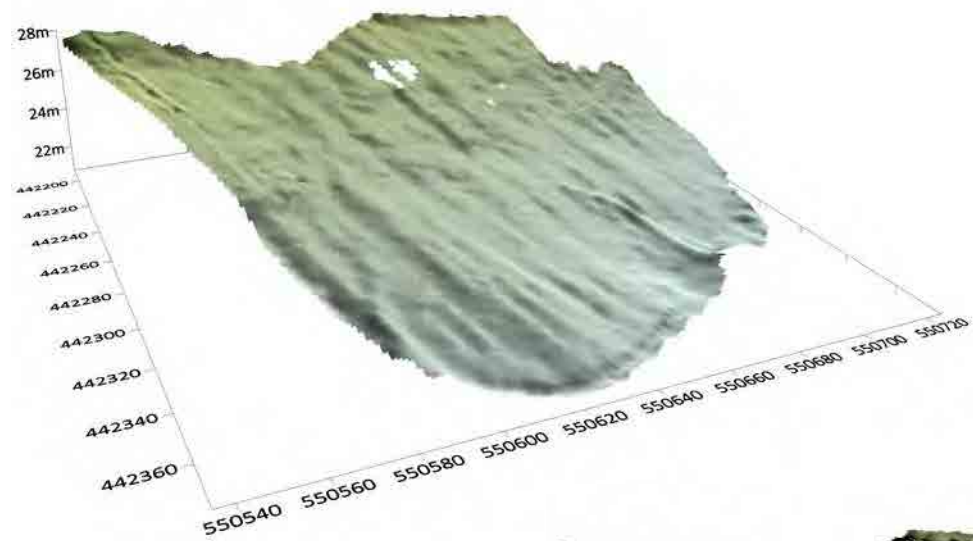


Project: G1388 Flower Field, Seaham

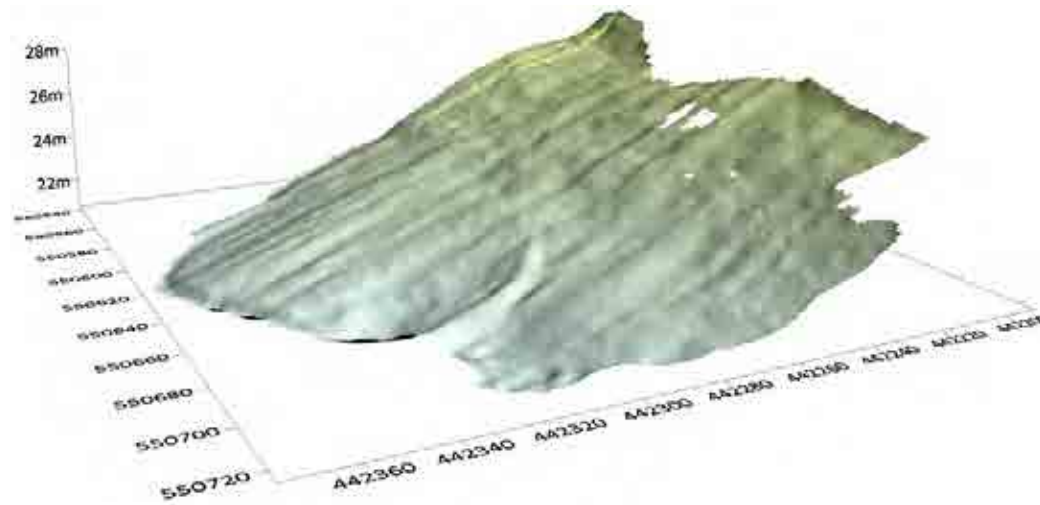
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Drawn by: JAA

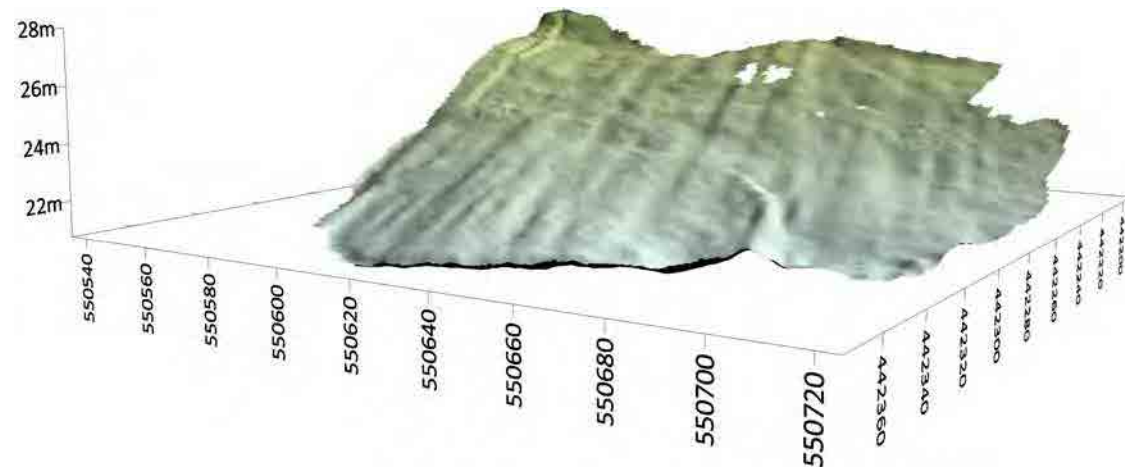
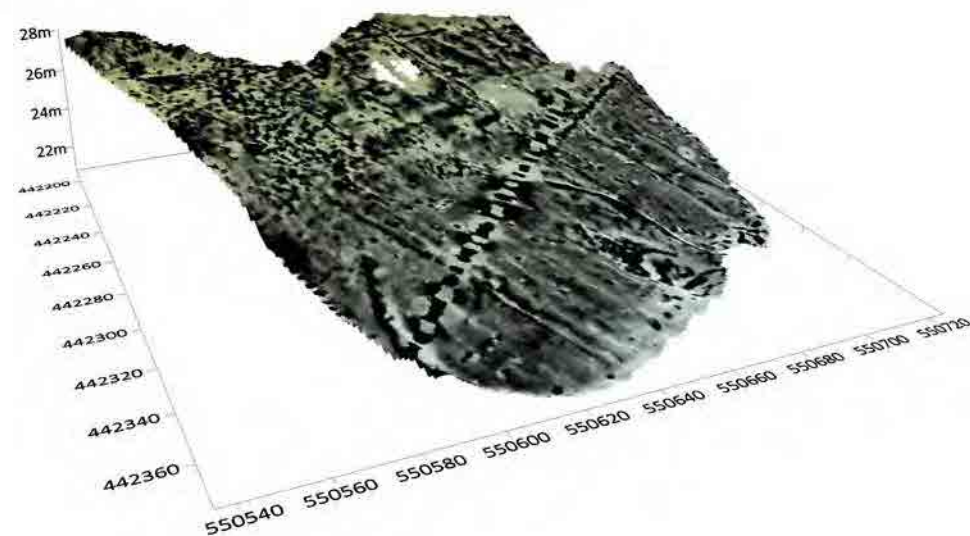
Figure 5



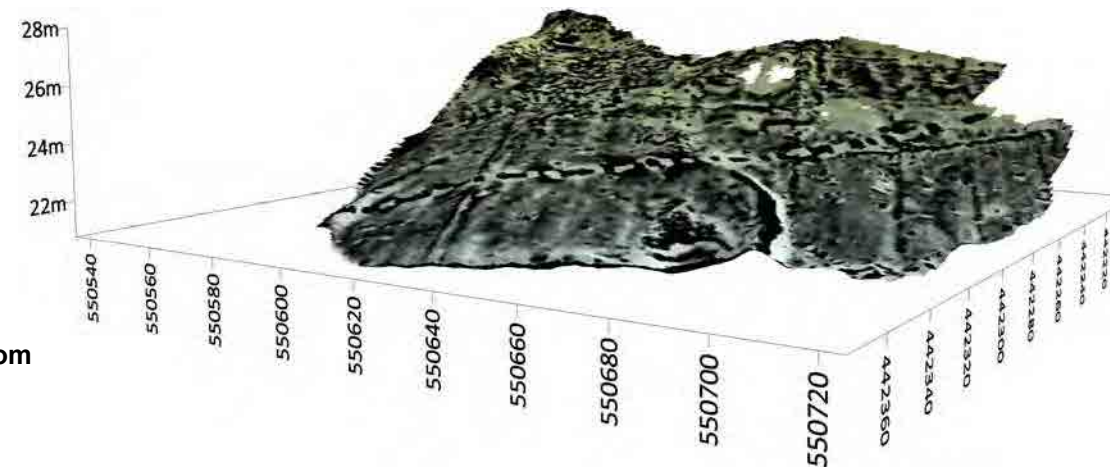
Viewed from South-East



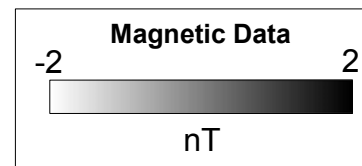
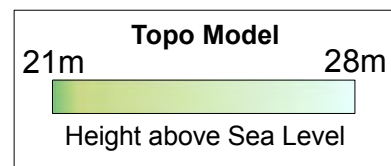
Viewed from North-East



Viewed from East



For Scale
See Plot Axes
—
Interpolated Data
—
Exaggerated
Vertical Scale



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Project: G1388 Flower Field, Seaham

Title: Topographic Model & Magnetic Data

Drawn by: JAA

Figure 6