

AD381

**Quarry Farm Phase 3, Elwick Road,
Hartlepool**

**Archaeological Evaluation
and Recording of former Limestone Quarries**



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EXECUTIVE SUMMARY

AD Archaeology Ltd. was commissioned by Cecil M. Yuill to carry out evaluation trenching at the site and a photographic recording of a quarry in advance of a proposed third phase of residential development on land at Quarry Farm, Hartlepool.

No significant archaeological features were located in Fields 1-3 where the housing development is proposed. The only feature of note was a former field boundary running through Trenches 18-20 in Field 3, forming two arms of an enclosure. This former field boundary is visible on 19th Century mapping evidence and its line was traced as a geophysical anomaly. During the 19th Century the present large northern field (Field 3) was sub-divided into a number of smaller parcels of land, a field arrangement which is likely to be of post-medieval date. In view of the lack of significant archaeological features in Fields 1-3 no further archaeological work would be appropriate.

In a valley located between Fields 1-2 and 3 was a former limestone quarry, which in the 19th Century contained limekilns. A photographic record of the quarry was made forming part of this report. A trench within the quarry cut across the site of the limekilns located the foundation platform for the kilns. It is likely that much of the superstructure of the limekilns has been destroyed, the area adjacent to the quarry face where they would have been situated now being densely covered by trees and vegetation. However, it is possible that some of the superstructure may survive in the area immediately adjacent to the face of the quarry wall.

1 INTRODUCTION

1.1 The Project

1.1.1 The archaeological works were undertaken in advance of a proposed third phase of residential development on land at Quarry Farm, Hartlepool. The archaeological works also involved the photographic recording of limestone quarries and investigating the former site of a limekiln. The site consists of three fields (Fields 1-3) either side of a small valley that lies between two roads which run alongside the ridges of higher ground; Worset Lane to the north and Elwick Road to the south). Fields 1 and 2 lie to the north of Elwick Road on the south side of the valley with an overall gentle slope to the north-east. Field 3, on the opposite side of the valley, consists of a large field which runs from a plateau of higher ground at the north end before falling away with an undulating slope in a general south and SSE direction. A former quarry occupied the base of the valley with a now grassed over former trackway leading east from it down the valley. A stream flows eastwards within a ditch around the edge of the quarry bordering the southern edge of Field 3, turning northwards briefly in the southwest corner of the field. The site measures 22.16ha and is centred on NGR NZ 4770 3330.

1.2 Geology

1.2.1 The underlying geology at the site consists of Roker Formation Dolostone, sedimentary Bedrock formed approximately 251 to 271 million years ago in the Permian Period. The superficial geology is Devensian glacial till formed up to 2 million years ago in the Quaternary Period (BGS 2021).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.2.1 There are a scatter of recorded prehistoric artefactual finds within the environs of the site. Bronze Age activity was recorded at Catcote approximately 2km southeast of the site near to the Summerhill Country Park where a series of enclosures were found containing the postholes of small buildings. Two round barrows were also found to the south of this site, one containing three cist burials. An Iron Age settlement was also found at Catcote near the Bronze Age settlement consisting of a series of ditched enclosures containing roundhouses. In the wider area around the site analysis of aerial photographs has also identified a number of cropmark features which may represent prehistoric period settlements or features.

2.2.2 There are no known sites or finds spots of medieval date on the site itself. In the study area around the site the HER lists the site of the deserted medieval village of Low Throston, a Scheduled Ancient Monument which lies 850m east of the development site. The HER also lists the site of the deserted medieval village of High Throston, the core of which is believed to have been approximately 200m north-east of the northern edge of the development site. Associated with this village the HER lists a medieval field system of ridge and furrow, earthworks and finds of pottery, a coin and a seal matrix of medieval date.

2.2.3 Hartlepool, to the east of the site, continued to grow in the 11th century and documents suggest that at this time Robert de Brus was given lands in the area and became Lord of Hartness and Lord of the Manor of Hartlepool. The harbour was an important component of the settlement and was originally founded by the de Brus family.

2.2.4 Within the site boundary the HER lists two limestone quarries and an associated limekiln of post-medieval date on the site itself. In the study area around the site the HER lists a field system of narrow rigg post-medieval ridge and furrow at High Throston to the north-east of the site, along with a farmstead and barn from the post-medieval period.

2.2.5 Historic mapping suggests that the majority of the site would have been agricultural land during the post-medieval period with the exception of the area of limestone quarrying and processing. The fields forming the development site are depicted on the Throston tithe map of 1840 which also shows the location of the limekilns on the site at this time. The plan also marks one of the central fields of the site as 'four-man shaws lane' and shows an unusual layout with a long narrow field in the centre of the site which is still present within the modern field layout. It is possible that this represents the remains of a road or track leading from the quarries and limekilns. Historic map regression shows the location of the limestone quarries and limekilns on the site on the first edition Ordnance Survey of 1857. The remainder of the development site is shown as agricultural land, with the first buildings of Quarry Farm at the southern edge of the site depicted. The map shows that the earlier patchwork of fields, in the north of the site (occupied by Field 3) depicted on

earlier mapping had by this time been consolidated into one very large field. The second edition Ordnance Survey of 1896 shows quarries still in use and the track to the east of the site is depicted as having an east-west embankment heading east toward Hartlepool, running a short distance to the south of Low Throston Village. By the time of the third edition Ordnance Survey of 1914 the quarries and limekilns are marked as Old indicating that they had gone out of use at this time. During WWII the quarry was used as a firing range and had an anti-aircraft gun positioned there (*pers.comm*).

2.2.6 A geophysical survey (AD Archaeology 2020) was undertaken at the site. Overall no clear archaeological site could be identified from the results of the geophysical survey. The geophysical survey detected a small number of positive anomalies of uncertain origin that did not follow the orientations of the numerous anomalies clearly associated with various ploughing regimes over many years. The geophysical survey detected numerous linear magnetic anomalies associated with former field systems of ridge and furrow throughout the site. The results of the survey corresponded with some of the earlier field systems now no longer extant that were depicted on the earlier township plan and tithe map of 1839/40 and the Ordnance Survey first edition map of 1857.

3 AIMS AND OBJECTIVES

3.1 The objective of the evaluation trenching was to establish the presence or absence of archaeological features on the site and to determine their nature, depth, importance and level of preservation. A Level 1 Photographic Recording (Historic England) of the area of the limestone quarries was undertaken to record features in this area of the site.

4 METHODOLOGY

4.1 General Methodology

4.1.1 The evaluation and recording was carried out in compliance with all the relevant codes of practice by suitably qualified and experienced staff.

4.2 Excavation and Recording

4.2.1 The evaluation trench strategy and photographic recording was agreed with Tees Archaeology and was undertaken in accordance with a specification prepared for the works (Appendix 2).

5 RESULTS OF THE EVALUATION

Field 1

5.1 Trench 1 (Fig. 2)

5.1.1 Trench 1, which was 25m by 1.8m in size, was oriented north-east/south-west and located in the south-west corner of the field. The natural subsoil (102) consisting of a reddish-brown clay was located at a depth of 0.32m BGL (73.14m AOD) and was overlain by a brown sandy clay ploughsoil (101), 0.05m in depth and a grey loam topsoil (100), 0.27m in depth.

5.2 Trench 2 (Fig. 2)

5.2.1 Trench 2, which was 25m by 1.8m in size, was oriented north-south and located in the south-west corner of the field. The natural subsoil (202) consisting of an orange-brown clay was located at a depth of 0.28m BGL (73.88m AOD) and was overlain by a brown sandy clay ploughsoil (201), 0.16m in depth and a grey loam topsoil (200), 0.12m in depth. A north-south furrow ran along the eastern bank of the southern half of the trench.

5.3 Trench 3 (Fig. 2)

5.3.1 Trench 3, which was 40m by 1.8m in size, was oriented NNW-SSE and located in the central area of the field. The natural subsoil (302) consisting of a reddish-brown clay was located at a depth of 0.27m BGL (71.14m AOD) and was overlain by a grey loam topsoil (300), 0.27m in depth. Five north-south furrows, 1m in width, filled with a brown sandy clay ploughsoil (301) were located with a wavelength that varied between 2-5m.

5.4 Trench 4 (Fig. 2)

5.4.1 Trench 4, which was 25m by 1.8m in size, was oriented east-west and located in the central area of the field. The natural subsoil (402) consisting of a reddish-brown clay becoming a brown clay at its eastern end was located at a depth of 0.52m BGL (70.67m AOD). It was overlain by a brown sandy clay ploughsoil (401), 0.20m in depth and a grey loam topsoil (400), 0.32m in depth.

5.5 Trench 5 (Fig. 2; Plate 1)

5.5.1 Trench 5, which was 25m by 1.8m in size, was oriented north-east/south-west and located in the north-western sector of the field. The natural subsoil (502) consisting of a reddish-brown clay was located at a depth of 0.35m BGL (70.55m AOD). It was overlain by a brown sandy clay ploughsoil (501), 0.05m in depth and a grey loam topsoil (500), 0.30m in depth.

5.6 Trench 6 (Fig. 2)

5.6.1 Trench 6, which was 25m by 1.8m in size, was oriented east-west and located in the north-western sector of the field. The natural subsoil (602) consisting of a reddish-brown clay was located at a depth of 0.45m BGL (70.65m AOD). It was overlain by a brown sandy clay ploughsoil (601), 0.15m in depth and a grey loam topsoil (600), 0.30m in depth. Three 1.5m wide north-south furrows were located with a wavelength of 7-8m.

5.7 Trench 7 (Fig. 2)

5.7.1 Trench 7, which was 25m by 1.8m in size, was oriented north-east/south-west and located in the eastern sector of the field. The natural subsoil (702) consisting of a reddish-brown clayey sand was located at a depth of 0.37m BGL (68.47m AOD). It was overlain by a brown sandy clay ploughsoil (701), 0.07m in depth and a grey loam topsoil (700), 0.30m in depth.

5.8 Trench 8 (Fig. 2)

5.8.1 Trench 8, which was 25m by 1.8m in size, was oriented east-west and located in the eastern sector of the field. The natural subsoil (802) consisting of a reddish-brown sandy clay was located at a depth of 0.40m BGL (65.84m AOD). It was overlain by a brown sandy clay ploughsoil (801), 0.05m in depth and a grey loam topsoil (800), 0.35m in depth.

Field 2

5.9 Trench 9 (Fig. 2)

5.9.1 Trench 9, which was 25m by 1.8m in size, was oriented NNE-SSW and located in the north-western corner of the field on land falling steeply to the north. The natural subsoil (902) consisting of a brown clay merging into a degraded magnesium limestone in a gravel matrix in the northern third of the trench. This change in the natural subsoil is likely to account for the geophysical anomaly (anomaly 16) identified at this end of the trench. The natural subsoil (902) was located at a depth of 0.28m (61.36m AOD) and was overlain by a grey loam topsoil (900) 0.28m in depth. Two 1m wide east-west furrows, filled with a brown sandy clay ploughsoil (901), were located 3m apart.

5.10 Trench 10 (Fig. 2)

5.10.1 Trench 10, which was 25m by 1.8m in size, was oriented north-west/south-east and located in the western sector of the field. The natural subsoil consisting of a yellow-brown clay (1002) was located at a depth of 0.35m BGL (64.09m AOD) and was overlain by a grey loam topsoil (1000), 0.35m in depth. Two 2m wide east-west furrows, were located 4m apart and were filled with a brown silty clay ploughsoil

(1001).

5.11 Trench 11 (Fig. 2)

5.11.1 Trench 11, which was 25m by 1.8m in size, was oriented north-east/south-west and located in the south-western sector of the field. The natural subsoil consisting of a yellow-brown clay (1102) was located at a depth of 0.39m BGL (63.54m AOD) and was overlain by a grey loam topsoil (1100), 0.39m in depth. Three east-west furrows, up to 3.2m in width were located, filled with a brown silty clay ploughsoil (1101), with a wavelength of 7m.

5.12 Trench 12 (Fig. 2)

5.12.1 Trench 12, which was 25m by 1.8m in size, was oriented WNW-ESE and located in the southern sector of the field. The natural subsoil consisting of a yellow-brown clay (1202) was located at a depth of 0.30m BGL (62.38m AOD) and was overlain by a grey loam topsoil (1200), 0.30m in depth. One east-west furrow, filled with brown silty clay (1201) ran adjacent to the southern baulk of the trench.

5.13 Trench 13 (Fig. 2)

5.13.1 Trench 13, which was 25m by 1.8m in size, was oriented WSW-ESE and located in the south-eastern corner of the field on land that sloped sharply to the east. The natural subsoil consisting of a brown clay (1302) was located at a depth of 0.62m BGL (57.42m AOD) and was overlain by a brown silty clay ploughsoil (1301), 0.27m in depth and a grey loam topsoil (1300), 0.35m in depth.

5.14 Trench 14 (Fig. 2)

5.14.1 Trench 14, which was 25m by 1.8m in size, was oriented north-east/south-west and located in the north-eastern corner of the field on land that sloped sharply to the north and east. The natural subsoil consisting of a brown clay (1402) was located at a depth of 0.28m BGL (54.36m AOD) and was overlain by a grey loam topsoil (1400), 0.28m in depth. One 1.5m wide east-west furrow was located filled with a brown silty clay (1401).

5.15 Trench 15 (Fig. 2; Plate 2)

5.15.1 Trench 15, which was 25m by 1.8m in size, was oriented NNE-SSW and located in the central area of the field. The natural subsoil consisting of a brown clay (1501) was located at a depth of 0.32m BGL (60.91m AOD) and was overlain by a grey loam topsoil (1500), 0.32m in depth.

Field 3

5.16 Trench 16 (Fig. 2)

5.16.1 Trench 16, which was 25m by 1.8m in size, was oriented north-east/south-west and located in the southern area of the field on land sloping to the south. The natural subsoil consisting of a brown clay (1602) was located at a depth of 0.44m BGL (62.18m AOD) and was overlain by a brown sandy clay ploughsoil (1601), 0.14m in depth and a grey loam topsoil (1600), 0.30m in depth. Two east-west furrows up to 2.50m in width, filled with brown sandy clay ploughsoil (1601) were located 1.5m apart.

5.17 Trench 17 (Fig. 2)

5.17.1 Trench 17, which was 25m by 1.8m in size, was oriented WNW-ESE and located in the south-western area of the field. The natural subsoil consisting of a reddish-brown clay (1701) with degraded magnesium limestone concentrations was located at a depth of 0.24m BGL (67.48m AOD) and was overlain by a grey loam topsoil (1700), 0.24m in depth.

5.18 Trench 18 (Fig. 2 & 5; Plate 3)

5.18.1 Trench 18, which was 25m by 1.8m in size, was oriented WNW-ESE and located in the south-west corner of the field. The natural subsoil consisting of a reddish-brown clay (1803) was located at a depth of 0.30m (64.39m AOD) being overlain by a brown sandy clay ploughsoil (1801), 0.05m in depth and a grey loam topsoil (1800), 0.25m in depth. A former north-south stream bed (fill 1802) was located at the western end of the trench, being excavated to a depth of 1.30m BGL. The streambed could not be clearly distinguished from the north-south arm of a boundary gully whose east-west arm was located in Trenches 19 and 20. This former field boundary was visible on the first edition Ordnance Survey of 1856 and a tithe map of 1839/40. Both arms of this boundary gully were also traced as geophysical anomaly 8 (Fig. 5).

5.19 Trench 19 (Figs. 2-3&5; Plates 4-5)

5.19.1 Trench 19, which was 25m by 1.8m in size, was oriented NNE-SSW and located in the western area of the field. The natural subsoil consisting of a reddish-brown sandy clay (1902) was located at a depth of 0.45m BGL (66.20m AOD) and was overlain by a brown sandy clay ploughsoil (1901), 0.07m in depth and a grey loam topsoil (1900), 0.38m in depth. Two 1.5m wide east-west furrows were identified located 6m apart. Toward the northern end of the trench was a WNW-ESE gully (1904) forming part of the same boundary feature as gully 2004. In Trench 19 the gully was a 3.50 wide shallow feature with gently sloping concave sides and a flattish base. The ditch was a 0.35m deep feature and was filled with a brown sandy clay (1903) which merged with ploughsoil 1901. The southern side of the ditch (1904) was cut by a field drain. This gully (1904=2004) formed part of a field boundary

visible on the first edition Ordnance Survey and traced as geophysical anomaly 8 (Fig.5).

5.20 Trench 20 (Figs. 2&4-5; Plates 6-7)

5.20.1 Trench 20, which was 40m by 1.8m in size, was oriented NNE-SSW and located in the western area of the field. The trench was cut in two lengths and staggered due to the presence of a field drain. The natural subsoil consisting of a reddish-brown sandy clay (2002) was located at a depth of 0.42m BGL (66.70m AOD) and was overlain by a brown sandy clay ploughsoil (2001), 0.12m in depth and a grey loam topsoil (2000), 0.30m in depth. Toward the northern end of the trench was a WNW-ESE gully (2004) forming part of the same boundary feature as gully 1904. In Trench 20 the gully was 2.20m wide and 0.50m deep and was filled with a grey-brown sandy clay (2003) which merged with overlying ploughsoil 2001. On its northern side it had a steep concave side coming down onto a rounded-base. On its southern side it had a gentle sloping concave profile steepening near its base. The southern side of the gully (2004) was cut by a field drain.

5.21 Trench 21 (Fig. 2)

5.21.1 Trench 21, which was 25m by 1.8m in size, was oriented north-east/south-west and located in the south-eastern corner of the field on land that sloped to the south. The natural subsoil consisting of an orange sandy clay (2102) was located at a depth of 0.52m BGL (59.85m AOD) and was overlain by a brown sandy clay ploughsoil (2101), 0.22m in depth and a grey loam topsoil (2100), 0.30m in depth.

5.22 Trench 22 (Fig. 2)

5.22.1 Trench 22, which was 25m by 1.8m in size, was oriented east-west and located in the south-eastern corner of the field on land that sloped steadily to the south. The natural subsoil consisting of grey-brown sandy clay (2202) was located at a depth of 0.51m BGL (57.41m AOD) and was overlain by a brown sandy clay ploughsoil (2201), 0.21m in depth and a grey loam topsoil (2200), 0.30m in depth.

5.23 Trench 23 (Fig. 2)

5.23.1 Trench 23 which was 25m by 1.8m in size, was oriented north-south and located in the eastern area of the field. The natural subsoil consisting of a reddish-brown clay (2302) was located at a depth of 0.29m BGL (62.97m AOD) and was overlain by a grey loam topsoil (2300), 0.29m in depth. Three 2m wide east-west furrows were located, filled with a brown sandy clay (2301) with a wavelength of 7m.

5.24 Trench 24 (Fig. 2)

5.24.1 Trench 24 which was 25m by 1.8m in size, was oriented east-west and located in the eastern area of the field. The natural subsoil consisting of a brown

sandy clay (2402) was located at a depth of 0.28 BGL (64.48m AOD) and was overlain by a grey loam topsoil (2400), 0.28m in depth. One 1.8m wide east-west furrow filled with brown sandy clay (2401) was located. A modern fence post (2403) 0.10m by 0.08m in size was located in the northern third of the trench.

5.25 Trench 25 (Fig. 2)

5.25.1 Trench 25 which was 25m by 1.8m in size, was oriented east-west and located in the north-eastern area of the field. The natural subsoil consisting of a brown clay (2502) was located at a depth of 0.30m BGL (67.50m AOD) and was overlain by a grey loam topsoil (2500), 0.30m in depth. Four 2m wide north-south furrows filled with brown sandy clay (2501) were located with a wavelength of 5-7m.

5.26 Trench 26 (Fig. 2)

5.26.1 Trench 26 which was 25m by 1.8m in size, was oriented north-east/south-west and located in the north-eastern area of the field. The natural subsoil consisting of an orange sandy clay (2601) was located at a depth of 0.22m BGL (68.49m AOD) and was overlain by a grey loam topsoil (2600), 0.22m in depth.

5.27 Trench 27 (Fig. 2)

5.27.1 Trench 27 which was 25m by 1.8m in size, was oriented WNW-ESE and located in the northern area of the field. The natural subsoil consisting of an orange-brown sandy clay (2701) was located at a depth of 0.30m BGL (70.05m AOD) and was overlain by a grey loam topsoil (2700), 0.30m in depth.

5.28 Trench 28 (Fig. 2)

5.28.1 Trench 28 which was 25m by 1.8m in size, was oriented north-east/south-west and located in the northern area of the field. The natural subsoil consisting of a brown clay (2801) was located at a depth of 0.28m BGL (69.50m AOD) and was overlain by a grey loam topsoil (2800), 0.28m in depth.

5.29 Trench 29 (Fig. 2)

5.29.1 Trench 29 which was 25m by 1.8m in size, was oriented east-west and located in the north-eastern area of the field. The natural subsoil consisting of an orange sandy clay (2902) was located at a depth of 0.30m BGL (67.36m AOD) and was overlain by a grey loam topsoil (2900), 0.30m in depth. Four north-south furrows up to 3.8m wide, with a fill of brown sandy clay (2901) were located, with a wavelength of 5-7m.

5.30 Trench 30 (Fig. 2)

5.30.1 Trench 30 which was 25m by 1.8m in size, was oriented north-east/south-

west and located in the northern area of the field. The natural subsoil consisting of a brown clay (3002) was located at a depth of 0.34m BGL (69.19m AOD) and was overlain by a brown sandy clay ploughsoil (3001), 0.07m in depth and a grey loam topsoil (3000), 0.27m in depth.

5.31 Trench 31 (Fig. 2)

5.31.1 Trench 31 which was 25m by 1.8m in size, was oriented north-east/south-west and located in the northern area of the field. The natural subsoil consisting of an orange-brown silty clay (3102) was located at a depth of 0.75m BGL (69.97m AOD) and was overlain by a brown sandy clay ploughsoil (3101), 0.45m in depth and a grey loam topsoil (3100), 0.30m in depth.

5.32 Trench 32 (Fig. 2)

5.32.1 Trench 32 which was 25m by 1.8m in size, was oriented north-east/south-west and located in the north-western corner of the field. The natural subsoil consisting of an orange sandy clay (3201) was located at a depth of 0.28m BGL (71.31m AOD) and was overlain by a grey loam topsoil (3200), 0.28m in depth.

Site of former Quarry

5.33 Trench 34 (Figs. 2&6; Plates 8-14)

5.33.1 Trench 34 which was 8m by 1.8m in size, was oriented north-west/south-east and located in the eastern sector of the quarry. In the eastern half of the trench a 3.50m length of platform forming the base for the kiln was located and recorded. The platform, although disturbed, survived as two compacted surfaces (3402 and 3403). The lowest level (3403) consisted of a level area of compacted and worn magnesium limestone fragments set in a matrix of brown clay and degraded limestone. The upper level of the platform (3402), set at a height of 0.50m (52.40m AOD) above the lower level (3403) was constructed from magnesium limestone fragments in a matrix of degraded limestone and clay containing occasional brick fragments. A scree of disturbed platform material sloped down from the upper (3402) to the lower (3403) levels of the platform.

5.33.2 The lower level (3403) of the platform was constructed with a vertically faced wall on its western side (3404). This was constructed from a line of roughly dressed magnesium limestone blocks up to four courses in height, which would have presented a vertical face to the west, standing 0.50m above the contemporary ground level. The wall facing (3404) was constructed from roughly dressed rectangular magnesium limestone blocks up to 0.44m by 0.20m by 0.18m in size, set in a matrix of degraded limestone and brown clay. Some of the upper facing stones were missing revealing the rubble and degraded limestone core of the platform (3403). The wall facing (3404) was built on a foundation (3405) set in a construction trench (3406). The foundation consisted of three courses of magnesium limestone

fragments, 0.50m in depth, with an upper course consisting of thinner magnesium limestone fragments laid so as to form a plinth for the wall face (3404) itself. The foundation (3405) was set in a 1.20m wide construction trench (3406). The construction trench (3406), which was 0.50m in depth, had a concave cut and was filled with magnesium limestone rubble and bricks in a matrix of degraded limestone and brown clay (3410).

5.33.3 At western end of the trench a layer of brown clay (3409) was exposed on the base of the trench. Overlying this was a 0.50m deposit of crushed yellow lime (3408) representing material derived from processing the limestone. To the east this deposit of lime was cut by the construction trench (3406) for the wall face of the kiln platform. Overlying the lime deposit was a 0.20m deep layer of degraded magnesium limestone and brown clay (3411). Lying against the face (3404) of the platform was a 0.45m deep deposit of rubble and degraded limestone (3407), representing demolition material. A 0.20m deep layer of grey loam topsoil (3400) sealed the demolished remains of the platform.

5.34 Quarry Face

5.34.1 An additional trench (Trench 33) was scheduled to be sited in the quarry but the site of a second limekiln could not be located. A possible site for a limekiln was identified, but hand clearance showed only the face of the quarry wall to be present (see below 6.2.3).

6 PHOTOGRAPHIC RECORD OF LIMESTONE QUARRIES (Figures 7 -12; Plates 15-37)

6.1 INTRODUCTION

6.1.1 The quarries extended 240m along the base of the valley cutting into the southern side of the hillslope (Figs. 7 and 12 and Plate 15). The quarry (HER4507, 4508) once formed a works used for limestone extraction and for the processing of this raw material within a kiln (no longer extant) to produce lime. The kiln (HER4509) was situated at the eastern end of the quarry adjacent to the entrance. Historic map regression first shows limestone quarries and limekilns on the site on the Ordnance Survey (OS) map of 1857 and 1897 OS map (Figure 9). On the OS map revised in 1914 the kiln is labelled *Old* and presumably out of use by this time (Figure 10), and by the time of the OS map revised 1939 the kiln is no longer shown, probably having been comprehensively demolished (Figure 11). The quarry sides are heavily eroded and mostly covered in soil overgrown with dense thickets of trees and shrubs, with few visible rock faces (plates 23, 28-30). The quarry currently forms the western extension of a horse's field that runs along the base of the valley where the quarry track once ran to High Throston Farm and Hartlepool. A seasonal stream (plate 36) that runs along the bottom of the valley was diverted around the northern perimeter of the quarry (Plate 37).

6.1.2 The quarry was specified as requiring a Level 1 photographic record (see Appendix 2) which is essentially a basic visual record, supplemented by the minimum of information needed to identify the location of features identified.

6.2 PHOTOGRAPHIC RECORD

Quarry entrance area (area A)

6.2.1 The quarry entrance (Plate 16) ran through a low cutting to a large level area (area A) within the eastern end of the quarry (Plate 15-17). This area would have served as a large working area where carts could be loaded, and it provided access to the top of the limekiln (see below, Plate 17), depicted on earlier OS maps (figure 9) which was built into the quarry face forming the western edge of area A. Limestone and coal would be loaded through the top of the kiln from this upper platform before firing. A track curved down into the quarry from the northern corner of this area (Plate 18, 19).

Northeast portion of Quarry, including former Kiln (area B)

6.2.2 The track led down to a lower level of the quarry with a small platform on its eastern edge which overlooked a deeper sub-oval shaped depression where the quarry was deeper, and where the kiln once stood (Plate 19, 20). It is possible that the platform area was contemporary with the kiln or alternatively was associated with the considerable task of demolishing and removing the kiln. A track

extended up a bank on the west side of the area (Plate 22) towards the western portion of the quarry, and another track headed south to the southern area of the quarry (Plate 21). The kiln (Figure 6) once stood against the eastern side of the deeper cutting (Plates, 17, 19; refer 5.33). No upstanding remains of the former kiln were visible prior to the excavation of evaluation Trench 34 which exposed the retaining wall for the west side of the kiln base. Near the kiln the ground level was uneven at least in part caused by the dumping of lime from the kiln exposed within Trench 34 (refer 5.33). Where exposed amongst the trees the north face of the quarry edge in area A was cut through glacial till rather than limestone (Plate 23). No trace survived of a *Cave* last shown on the 1919 OS map within area A (Figure 10). The farmer (*pers. comm.*) related how a cave was destroyed on the behest of his grandfather by the army that he said used the quarry as a firing range for some time.

South portion of Quarry (area C)

6.2.3 An access track headed south from area B within a narrow cutting (Plate 21), connecting to the largest portion of the quarry (area C; Plates 24, 25). The track opened out on to a large, level area that formed a terrace above the deeper cutting of the quarry base to the east (Plate 24, 26). This terrace extended around much of the southern side of the cutting (Plate 27) where it was higher; the terrace was shallower on its western side which projected as a narrowing cutting in a northwest direction. The deeper flat-bottomed cutting was separated by a narrow unexcavated ridge between the quarry base of area A to the north (Figure 10, Plate 24). The base was accessed by a ramp on its northern side running from the end of the access track (Plate 25). A natural outcrop of eroded limestone exposed on the west side of the cut; was stripped of vegetation to confirm that it was not a man-made structure such as a wall (Plates 24, 26). Very few areas of exposed rockface could be observed in the densely wooded sides of the quarry that were uneven and heavily eroded (Plate 28). A few areas of rockface were exposed alongside the north and south sides of the northwest projection of area C (Plate 30, 29 respectively).

West portion of Quarry (area D)

6.2.4 Access to the western portion of the quarry was gained through a winding track (Plate 22, 31) up from the lower portion of the quarry in area A. The track extended to the northeastern edge of what appears to be a natural scarp presumably created when a stream once ran along the base of the valley (Plate 32, 33; refer 6.2.5). The scarp itself is surmounted by an oblong earthwork probably constructed from excavated spoil (Plate 31). A long flat strip of land in the northern corner of the area lies at the same level as the neighbouring western field beyond the quarry and has clearly not undergone excavation (plates 32, 33). The quarrying in area D was restricted to the northwest corner, and against the southern hillside, where there is a cut similar in size to the quarry base within area C (figure Plates 34, 35). The quarry area again has a flat- base with steep, tree covered, sides which are considerably higher against the southern hillside (Plate 35).

Diverted Stream

6.2.5 A stream ran along the northern edge of the level area to the side of area D. The stream bed (which was dry at the time of the survey) lay within a steeply incised narrow cut (Plate 36). The course of the stream was diverted sharply northwards, where it lay within a dyke along the top of the northern boundary avoiding the quarry area B (Plate 37). The farmer (pers. comm.) related that both areas B & C are prone to flooding; though area B rapidly drains after flooding, area C can remain flooded for much of the winter if badly inundated.

7 DISCUSSION

7.1 No significant archaeological features were located in Fields 1-3 where the housing development is proposed. The only feature of note was a former field boundary running through Trenches 18-20 in Field 3, forming two arms of an enclosure. This former field boundary is visible on 19th Century mapping evidence and its line was traced as a geophysical anomaly. During the 19th Century the present large northern field (Field 3) was sub-divided into a number of smaller parcels of land, a field arrangement which is likely to be of post-medieval date. In view of the lack of significant archaeological features in Fields 1-3 no further archaeological work would be appropriate.

7.2 In the valley located between Fields 1-2 and 3 was a former limestone quarry, which in the 19th Century contained limekilns. A photographic record of the quarry was made forming part of this report. A trench within the quarry cut across the site of the limekilns located the foundation platform for the kilns. It is likely that much of the superstructure of the limekilns has been destroyed, the area adjacent to the quarry face where they would have been situated now being densely covered by trees and vegetation. However, it is possible that some of the superstructure may survive in the area immediately adjacent to the face of the quarry wall.

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APPENDIX 1: LIST OF CONTEXTS

Context	Depth	Description
100	0.27m	Trench 1- Topsoil
101	0.05m	Trench 1- Ploughsoil
102	-	Trench 1 – Natural subsoil
200	0.12m	Trench 2-Topsoil
201	0.16m	Trench 2- Ploughsoil
202	-	Trench 2- Natural subsoil
300	0.27m	Trench 3- Topsoil
301	-	Trench 3- Ploughsoil
302	-	Trench 3 – Natural subsoil
400	0.32m	Trench 4 – Topsoil
401	0.20m	Trench 4- Ploughsoil
402	-	Trench 4 – Natural subsoil
500	0.30m	Trench 5 – Topsoil
501	0.05m	Trench 5 – Ploughsoil
502	-	Trench 5 – Natural subsoil
600	0.30m	Trench 6 – Topsoil
601	0.15m	Trench 6- Ploughsoil
602	-	Trench 6- Natural subsoil
700	0.30m	Trench 7 – Topsoil
701	0.07m	Trench 7 – Ploughsoil
702	-	Trench 7- Natural subsoil
800	0.35m	Trench 8-Topsoil
801	0.05m	Trench 8- Ploughsoil
802	-	Trench 8- Natural subsoil
900	0.28m	Trench 9-Topsoil
901	-	Trench 9-Ploughsoil
902	-	Trench 9-Natural subsoil
1000	0.35m	Trench 10-Topsoil
1001	-	Trench 10-Ploughsoil
1002	-	Trench 10-Natural subsoil
1100	0.39m	Trench 11- Topsoil
1101	-	Trench 11-Ploughsoil
1102	-	Trench 11-Natural subsoil
1200	0.30m	Trench 12-Topsoil
1201	-	Trench 12-Ploughsoil
1202	-	Trench 12-Natural subsoil
1300	0.35m	Trench 13-Topsoil
1301	0.27m	Trench 13-Ploughsoil
1302	-	Trench 13-Natural subsoil

1400	0.28m	Trench 14- Topsoil
1401	-	Trench 14-Ploughsoil
1402	-	Trench 14-Natural subsoil
1500	0.32m	Trench 15-Topsoil
1501	-	Trench 15-Natural subsoil
1600	0.30m	Trench 16-Topsoil
1601	0.14m	Trench 16-Ploughsoil
1602	-	Trench 16-Natural subsoil
1700	0.24m	Trench 17-Topsoil
1701	-	Trench 17-Natural subsoil
1800		Trench 18-Topsoil
1801	0.05m	Trench 18-Ploughsoil
1802	-	Trench 18- Natural subsoil
1803		Trench 18-Fill of gully
1804		Trench 18-Cut of gully
1900	0.38m	Trench 19-Topsoil
1901	0.07m	Trench 19-Ploughsoil
1902	-	Trench 19-Natural subsoil
1903	0.35m	Trench 19-Fill of gully
1904	0.35m	Trench 19-Cut of gully
2000	0.30m	Trench 20-Topsoil
2001	0.12m	Trench 20-Ploughsoil
2002	-	Trench 20-Natural subsoil
2003	0.50m	Trench 20- Fill of gully
2004	0.50m	Trench 20-Cut of gully
2100	0.30m	Trench 21-Topsoil
2101	0.22m	Trench 21-Ploughsoil
2102	-	Trench 21-Natural subsoil
2200	0.30m	Trench 22-Topsoil
2201	0.21m	Trench 22-Ploughsoil
2202	-	Trench 22-Natural subsoil
2300	0.29m	Trench 23-Topsoil
2301	-	Trench 23-Ploughsoil
2302	-	Trench 23-Natural subsoil
2400	0.28m	Trench 24-Topsoil
2401	-	Trench 24-Ploughsoil
2402	-	Trench 24-Natural subsoil
2403	-	Trench 24-Fence post
2500	0.30m	Trench 25-Topsoil
2501	-	Trench 25-Ploghsoil
2502	-	Trench 25-Natural subsoil
2600	0.22m	Trench 26-Topsoil
2601	-	Trench 26-Natural subsoil

2700	0.30m	Trench 27-Topsoil
2701	-	Trench 27- Natural subsoil
2800	0.28m	Trench 28-Topsoil
2801	-	Trench 28-Natural subsoil
2900	0.30m	Trench 29-Topsoil
2901	-	Trench 29-Ploughsoil
2902	-	Trench 29-Natural subsoil
3000	0.27m	Trench 30-Topsoil
3001	0.07m	Trench 30-Ploughsoil
3002	-	Trench 30-Natural subsoil
3100	0.30m	Trench 31-Topsoil
3101	0.45m	Trench 31-Ploughsoil
3102	-	Trench 31-Natural subsoil
3200	0.28m	Trench 32-Topsoil
3201	-	Trench 32-Natural subsoil
3400	0.20m	Trench 34-Topsoil
3402	-	Trench 34-Platform for limekiln
3403	-	Trench 34-Platform for limekiln
3404	0.50m	Trench 34- wall face
3405	0.50m	Trench 34-foundation
3406	0.50m	Trench 34-construction trench
3407	0.45m	Trench 34 –rubble
3408	0.50m	Trench 34-lime deposit
3409	0.25m	Trench 34-clay layer
3410	0.50m	Trench 34-fill of construction trench 3406
3411	0.20m	Trench 34-layer

APPENDIX 2: SPECIFICATION

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL EVALUATION AND RECORDING OF FORMER LIMESTONE QUARRIES AT QUARRY FARM PHASE 3, ELWICK ROAD, HARTLEPOOL

1 Introduction

1.1 This written scheme of investigation represents a method statement for undertaking an archaeological evaluation in advance of a proposed third phase of residential development on land at Quarry Farm, Hartlepool, Cleveland. The archaeological works also involve the photographic recording of limestone quarries and a limekiln. The site consists of three fields (Fields 1-3) either side of a small valley that lies between two roads which run alongside the ridges of higher ground; Worset Lane to the north and Elwick Road to the south). Fields 1 and 2 lie to the north of Elwick Road on the south side of the valley with an overall gentle slope to the north east. Field 3, on the opposite side of the valley, consists of a large field which runs from a plateau of higher ground at the north end before falling away with an undulating slope in a general south and SSE direction. A former quarry occupied the base of the valley with a now grassed over former trackway leading east from it down the valley. A stream flows eastwards within a ditch around the edge of the quarry bordering the southern edge of Field 3, turning northwards briefly in the southwest corner of the field. The site measures 22.16ha and is centred on NGR NZ 4770 3330.

1.2 A Geophysical Survey (AD Archaeology 2020) was undertaken in Fields 1-3 in advance of the proposed development. The geophysical report contained an archaeological and historical background supported by a site specific search of HER records.

1.3 Policy relating to the assessment and mitigation of impacts to the heritage resource within the planning system is set out in the National Planning Policy Framework. The Framework identifies that the planning system should perform an environmental objective – to contribute to protecting and enhancing our natural, built and historic environment (NPPF 2018, para 8, page 5).

1.4 The Framework further clarifies that, in circumstances where heritage assets will be damaged or lost as a result of development, local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible (NPPF 2018, para 199, page 56).

2 Archaeological and Historical Background

2.1 An archaeological desk-based assessment for Phase 2 of the Quarry Farm development site was carried out in 2015 by AD Archaeology (2015a). This work provided a detailed archaeological and historical background for the site, a summary of which is reproduced below.

2.2 Prehistoric Period

2.2.1 There are no known prehistoric sites or finds spots on the development site itself, though the possibility of as yet unrecorded prehistoric remains being present cannot be discounted. Within the study area of the site the HER lists a polished stone axehead of Neolithic date found 785m east of the development site and a scatter of twelve worked flint artefacts found by fieldwalking in the field directly to the south-west of the development site.

2.2.2 In the wider vicinity of the site, Mesolithic tools found on the beach and Neolithic cist burials found along the coast near Hartlepool show the evidence of occupation and activity in the area during the early prehistoric period probably in the form of seasonal hunter-gather activity.

2.2.3 Bronze Age activity was recorded at Catcote approximately 2km southeast of the site near to the Summerhill Country Park where a series of enclosures were found containing the postholes of small buildings. Two round barrows were also found to the south of this site, one containing three cist burials. To the north of the site at High Throston a pit was found containing a bronze artefact and Bronze Age pottery.

2.2.4 An Iron Age settlement was also found at Catcote near the Bronze Age settlement consisting of a series of ditched enclosures containing roundhouses. In the wider area around the site analysis of aerial photographs has also identified a number of cropmark features which may represent prehistoric period settlements or features.

2.3 Romano-British Period

2.3.1 Although there is no evidence for Roman activity on the development site the settlement at Catcote continued into the Roman period.

2.4 Early-Medieval Period

2.4.1 There is no evidence for activity of this date on the site itself or in the immediate area of the site. Near to the site the village of High Throston may have its origins in the early-medieval period as its name is from the Saxon *thosson* meaning hill.

2.5 Medieval Period

2.5.1 There are no known sites or finds spots of medieval date on the site itself. In the study area around the site the HER lists the site of the deserted medieval village of Low Throston, a Scheduled Ancient Monument which lies 850m east of the development site. The HER also lists the site of the deserted medieval village of High Throston the core of which is believed to have been approximately 200m north-east of the northern edge of the development site. Associated with this village the HER lists a medieval field system of ridge and furrow, earthworks and finds of pottery, a coin and a seal matrix of medieval date.

2.5.2 The development site lies to the south-west of the deserted medieval village of High Throston. The site lies some distance to the west of the medieval moated site and deserted medieval village of Low Throston and as such it is considered highly unlikely that structural remains associated with this settlement would be present on the development site. It is probable that the area of the site fell within the agricultural lands of these villages and may contain evidence of medieval agricultural activity.

2.5.3 Hartlepool, to the east of the site, continued to grow in the 11th century and documents suggest that at this time Robert de Brus was given lands in the area and became Lord of Hartness and Lord of the Manor of Hartlepool. There are various references to the town in the 12th century, with one document referring to it as Hertepol. The settlement continued to grow throughout the medieval period and became a well-established port, which was borne out by the booming fishing industry. The harbour was an important part to the settlement and was originally founded by the de Brus family.

2.5.4 Throughout its medieval history the town has been the focus of a number of attacks due to its strategic position and importance as a port. The port became a regular target for marauding Scots and seaborne attacks, which led to the fortification of the peninsula with defensive walls by Robert de Brus.

2.6 Post-medieval Period

2.6.1 Within the site boundary the HER lists two limestone quarries and an associated lime kiln of post-medieval date on the site itself. In the study area around the site the HER lists a field system of narrow rigg post-medieval ridge and furrow at High Throston to the north-east of the site, along with a farmstead and barn from the post-medieval period. The HER also records a farmstead at High Tunstall 320m south of the site and the line of a historic road leading from Naisberry Quarry which runs to the east of the site.

2.6.2 Historic mapping and tithe maps suggests that the majority of the site would have been agricultural land during the post-medieval period with the exception of the area of limestone quarrying and processing. The fields forming the

development site are depicted on the Throston tithe map of 1840 which also shows the location of the limekilns on the site at this time. The plan also marks one of the central fields of the site as 'four man shaws lane' and shows an unusual layout with a long narrow field in the centre of the site which is still present within the modern field layout. It is possible that this represents the remains of a road or track leading from the quarries and limekilns. On the 1839 plan of the Township of Throston in the Parish of Hart the site is listed as being part of Throston Farm owned by The Duke of Cleveland and occupied by Edward Wilson.

2.6.3 Hartlepool saw significant development in the post-medieval period and the town's expansion continued into the agricultural landscape.

2.7 Victorian and Modern Periods

2.7.1 There are no features of archaeological or historical significance recorded on the site from the Victorian or modern periods. In the study area around the site the HER lists a number of modern features associated with the defence of Britain during the Second World War. These include the site of pillboxes at Sea View Farm 300m north of the site, at High Throston immediately north of the site and at Naisberry Park immediately adjacent to the eastern boundary of the site, and the site of a searchlight battery at Low Throston. The HER also records the probable location of a First World War training ground at Naisberry 460m south-east of the site though its exact location has not been found.

2.7.2 Historic map regression shows the location of the limestone quarries and limekilns on the site on the first edition Ordnance Survey of 1857. The majority of the remainder of the site is shown as being undeveloped agricultural land.

2.7.3 The second edition Ordnance Survey of 1896 shows the quarries as still being in use at this time and also shows the possible line of the track or road leading from the quarries through the central band of the site. The remainder of the development site is shown as agricultural land, with the first buildings of Quarry Farm at the southern edge of the site depicted at this time. The map shows that the earlier patchwork of fields, in the north of the site (occupied by Field 3) depicted on earlier mapping had by this time been consolidated into one very large field.

2.7.4 By the time of the third edition Ordnance Survey of 1914 (Figure 7) the quarries and limekilns are marked as Old indicating that they had gone out of use at this time. The majority of the site is again shown as agricultural land with Quarry Cottages marked.

2.7.5 A geophysical survey (AD Archaeology 2020) was undertaken at the site. Overall no clear archaeological site could be identified from the results of the geophysical survey or from the earlier archaeological assessment of the site. The geophysical survey detected a small number of positive anomalies of uncertain origin in Fields 1 & 2 that did not follow the orientations of the numerous anomalies clearly

associated with various ploughing regimes over many years. Although these fragmentary anomalies are of potential archaeological interest, an agricultural or relatively recent origin is still the most likely origin for them. The geophysical survey detected numerous linear magnetic anomalies associated with former field systems of ridge and furrow throughout the site. The results of the survey corresponded with many of the earlier field systems now no longer extant that were depicted on the earlier township plan and tithe map of 1839/40 and the Ordnance Survey first edition map of 1857. The best example of this was in the southern portion of Field 3 where a well-defined ridge and furrow system (anomaly 7) was detected possibly in association with a boundary ditch (anomaly 8) of field depicted on the early mapping.

3. Level 1 Photographic Recording (Historic England) of area of Limestone Quarries

3.1 Historic map regression shows the location of the limestone quarries (HER 4507 and HER 4508) and limekiln (HER 4509) on the site on the first edition Ordnance Survey of 1857. The second edition Ordnance Survey of 1896 shows the quarries as still being in use at this time and also shows the possible line of the track or road leading from the quarries through the central band of the site. By the time of the third edition Ordnance Survey of 1913 the quarries and limekilns are marked as 'Old' indicating that they had gone out of use by this time.

3.2 A photographic record of all features of significance within the area of the former limestone quarries will be taken using digital photography with a clearly visible graduated metric scale. All recording will follow ClfA Standards and Guidance (2014).

3.3 Recording will be carried out of the former quarries and will be primarily photographic, supplemented by a written account.

3.4 A formal photographic record will be made, to comprise general photographs of the site and setting, along with detailed photographs of the limekiln. Such detailed photographs will be taken at medium to close range and framed in such a way as to ensure that the element being photographed clearly constitutes the principal feature of the photograph.

3.5 Detailed photographs will contain an appropriately positioned graduated photographic scale. A graduated ranging-rod, discretely positioned, will be included in a selection of general shots, sufficient independently to establish the scale of all elements of the subject.

3.6 Photographs will be taken using a digital camera with a resolution of 10 mega pixels.

3.7 The locations of the photographs will be marked on a site plan that will identify the main elements of the quarry.

3.8 A copy of the digital images will be deposited in the archive. The images will be saved as RAW format files for image capture and converted to 8 bit TIFF files for archive purposes.

4 Evaluation Trenching -Aims and Recommended Course of Action

4.1 The aim of the archaeological evaluation is to establish the presence or absence of significant archaeological features and/or deposits. Should significant deposits and/or features be located the aim of the evaluation is to determine the nature, extent, date and state of preservation of the deposits in order to inform potential subsequent stages of mitigation.

4.2 'Shared Visions: The North-East Regional Research Framework for the Historic Environment' by David Petts with Christopher Gerrard, 2006 notes the importance of research questions as a vital element of development-led archaeological work. It sets out key research priorities for all periods of the past allowing commercial contractors to demonstrate how their fieldwork relates to wider regional and national priorities for the study of archaeology and the historic environment. The aim of NERRF is to ensure that all fieldwork is carried out in a secure research context and that commercial contractors ensure that their investigations ask the right questions.

4.3 Whilst there are no known archaeological features on the site, there is a growing awareness of the density of prehistoric settlement activity. Additionally in recent years development control-led archaeological investigation in the area has contributed significantly to our knowledge of the density of settlement and activity in this area during the prehistoric period (North East Regional Research Framework, Petts & Gerrard, 2006).

Recent excavations have begun to challenge established models of prehistoric settlement morphology. It is therefore important for any evidence of prehistoric settlement to be studied in order to establish more firm chronologies. Also needed is the study of site function and the social role of settlements in the landscape (NERRF Research Priority Iii).

4.4 A trenching strategy consisting of 34 trenches (2 40m by 1.8m trenches and 32 25m by 1.8m trenches) has been designed to test for the presence/absence of archaeological features. This has been designed to test geophysical anomalies and provide a sample coverage across the site. Two trenches have been sited over limekilns within the quarry area.

4.5 During the course of the trenching it may become apparent that variation is required, dependent on the nature, extent and importance of archaeological remains uncovered. It also may become apparent during the course of the operation that some areas where trenches have been sited are inappropriate for potential archaeological activity (for instance lying entirely within the line of a furrow) or due to logistical or practical reasons. Trenches can only be moved with the approval of the County Archaeology Officer.

4.6 Additional trenches to answer specific questions or clarify results of the evaluation trenches would require approval by the County Archaeologist and developer.

5 General Standards

5.1 All work will be carried out to the standards set by the codes of practice of the Chartered Institute for Field Archaeologists CfA (2014a) and will follow the CfA (2014b) Standard and Guidance for Archaeological Field Evaluation. All work will be in compliance with the Regional Statement of Good Practice (Yorkshire, The Humber and the North-East 2009).

6 Pre-Site Work Preparation

6.1 All staff will familiarise themselves with the archaeological background of the site, and the results of any previous work in the area, prior to the start of work on site. All staff will be briefed in the work required under the specification and the project aims and methodologies.

6.2 An environmental sampling strategy in accordance with the previous advice of the Historic England Science Advisor (see 8 below) will be followed.

7 Fieldwork

7.1 Each evaluation trench will be accurately surveyed and related to the National Grid, using a Total Station Theodolite or GPS system, and located on a map of the area at an appropriate scale.

7.2 Topsoil and unstratified modern material will be removed mechanically by a back-acting machine using a wide toothless ditching blade. This machine stripping will be carried out under continuous archaeological supervision.

7.3 The topsoil or recent overburden will be removed in successive level spits down to the first significant archaeological horizon or the natural subsoil, whichever is encountered first.

7.4 All faces of the trenches that require examination or recording will be cleaned sufficiently to establish the presence or absence of archaeological remains, particularly the top of the first significant archaeological horizon or the natural subsoil. All subsequent deposits will be hand-excavated.

7.5 In the event that small discrete archaeological features are revealed, including, but not limited to, postholes and pits, during machining or subsequent cleaning of the trench, the trench will be expanded either side of the feature by a machine bucket width as standard. If further additional trench expansion is required this should be carried out following discussions with the County Archaeologist and the client.

7.6 The archaeology will be investigated sufficiently to establish its nature, extent and date, unless it is deemed of sufficient importance to require total preservation *in situ*. This will be achieved by excavation of the following samples of all exposed features.

- Minimum 50% of every discrete feature but potentially 100% (ie post-holes)
- Up to 50% of the area of linear/curvilinear features (e.g. ditches, gullies) with 100% of feature intersections and terminals will be examined

7.7 Within the constraints of the site, the excavations will be maintained in a manner that allows quick and easy inspection without any requirement for additional cleaning.

7.8 Deposits will be assessed for their potential for providing environmental or dating evidence. Sampling will be in line with the strategy agreed with Historic England Science Advisor and the County Archaeologist.

7.9 In the event of human burials being discovered, they will be left *in situ*, covered and protected and the coroners' office will be informed. If removal is essential, work will comply with the relevant Ministry of Justice regulations.

7.10 Appropriate procedures under the relevant legislation will be followed in the event of the discovery of artefacts covered by the provisions of the Treasure Act 1996.

7.11 The drawn record from the site will include a representative selection of long sections from the excavations that clearly allow the nature and depth and any significant changes in the deposits recorded to be demonstrated. If there is any uncertainty, advice will be sought from the County Archaeologist as to which sections may be appropriate for inclusion within the site record.

7.12 During and after the excavation, all recovered artefacts will be stored in the appropriate materials and storage conditions to ensure minimal deterioration and loss of information (this will include controlled storage, correct packaging, and regular monitoring of conditions, immediate selection for conservation of vulnerable material. All finds work will be undertaken in line with the standards set out “A strategy for the Care and Investigation of Finds” (English Heritage 1995); “First Aid for Finds” (Wilkinson & Neal 2001); and “Packaging and Storage of Freshly Excavated Artefacts from Archaeological Sites”(UKIC 1993).

8 Archaeological Recording

8.1 A full and proper record (written, graphic and photographic as appropriate) will be made for all work, using pro forma record sheets and text descriptions appropriate to the work. Accurate scale plans and section drawings will be drawn at 1:50, 1:20 and 1:10 scales as appropriate.

8.2 The stratigraphy of all trenches will be recorded even where no archaeological deposits have been identified.

8.3 All archaeological deposits and features, the current ground level and base of each trench will be recorded with an above ordnance datum (AOD) level.

8.4 A photographic record of all archaeological features will be taken, both in detail and in a wider context.

8.5 Where stratified deposits are encountered, a 'Harris' matrix will be compiled

9 Environmental Sampling and Scientific Dating Strategy

9.1 This sampling strategy is intended to provide sufficient data to characterise the nature and informative potential of deposits and features identified during the works. Because this is the first stage of intrusive works and there is a possibility that a wide range of features may be encountered, this strategy is best set out as a series of principles.

These are:

- 30 litre samples will be taken from structural, occupational and industrial features, as well as pits and ditch fills. Other features should be sampled to help to characterise the deposits on the site. Priority should be given to processing samples from identifiable, dated features, or to those undated features which have potential for other forms of dating (e.g. radiocarbon dating).
- Bulk sample residues should be checked for the presence of industrial waste (e.g. slags, hammerscale) and small faunal remains (e.g. fishbones, small mammal/avian bones) as well as for plant material.

- The potential of buried soils and ditch fills to provide dated (using radio-carbon dating) pollen cores or Optically Stimulated Luminescence (OSL) dating of sediments should be considered, although this type of sampling will be undertaken in consultation with the Historic England's Regional Scientific Advisor.

9.2 In the event that hearths, kilns or ovens are identified, provision will be made to collect at least one archaeo-magnetic date to be calculated from each individual hearth surface (or in the case of domestic dwellings a minimum of one per building identified). Where applicable, samples to be collected from the site and processed by a suitably trained specialist for dating purposes.

9.3 The selection of suitable deposits for sampling will be confirmed at site meetings with the County Archaeologist. In principle palaeo-environmental samples will be taken from deposits which have clear stratigraphic relationships. Particular attention will be paid to the recovery of samples from any waterlogged samples that may be present.

10 Monitoring

10.1 The County Archaeologist will be informed on the start date and timetable for the evaluation in advance of work commencing (ideally 1 weeks' notice but as a minimum 48 hours before commencement).

10.2 Reasonable access to the site will be afforded to the County Archaeologist or his/her nominee at all times, for the purposes of monitoring the archaeological evaluation.

10.3 Regular communication between the archaeological contractor, the DCC Archaeology Section and other interested parties will be maintained to ensure the project aims and objectives are achieved.

10.4 If appropriate, specialists will be contacted and allowed access to the site to help inform any detailed study / information retrieval depending upon the nature of the archaeological features being revealed.

- Pottery and ceramic building material (Rob Young; Alex Croom; Paul Bidwell; Andy Sage)
- Bone (Louisa Gidney)
- Flint (Rob Young)
- Metal work (David Dungworth)
- Industrial debris (David Dungworth)

- Environmental micro and macro fossils (Charlotte O'Brien ASDU)
- Residue analysis (ASDU)
- Radio carbon dating (ASDU/SUERRC)
- Any other analysis identified as necessary during the fieldwork or post excavation work

11 Post Excavation Work, Archive, and Report Preparation

11.1 Finds

11.1.1 All finds processing, conservation work and storage of finds will be carried out in compliance with the ClfA Guidelines for Finds Work (2014c) and those set by UKIC.

11.1.2 The deposition and disposal of artefacts will be agreed with the legal owner and recipient museum prior to the work taking place. Where the landowner decides to retain artefacts, adequate provision will be made for recording them. Details of land ownership will be provided by the developer.

11.1.3 All retained artefacts will be cleaned and packaged in accordance with the requirements of the recipient museum.

11.2 Site Archive

11.2.1 The final location for the site archive is with Tees Archaeology at Sir William Gray House, Clarence Road, Hartlepool, TS24 8BT.

11.2.2 Archiving work will be carried out compliance with the ClfA Guidelines for Archiving (2014d).

11.2.3 Before fieldwork, contact will be made with the landowners and with the appropriate local museum to make the relevant arrangements. Details of land ownership will be provided by the developer.

11.3 Report

11.3.1 The HER requires one bound paper copy and one digital copy (in PDF) of the report.

11.3.2 The report will include the following as a minimum:

Each page and paragraph will be numbered within the report and illustrations cross referenced within the text.

The report will include the following as a minimum:

- OASIS reference numbers and an 8 figure grid reference

- The nature and extent of the proposed development and client information
- A location plan of the site at an appropriate scale of at least 1:10 000
- A location plan showing trench locations within the site. This will be at a recognisable planning scale, and located with reference to the national grid, to allow the results to be accurately plotted on the Historic Environment Record
- Plans and sections of main trench axes and excavated features located at a recognisable planning scale (1:10, 1:20, 1:50 or 1:100, as appropriate)
- Period based discussion of the known and potential archaeological sites within the proposed development area
- A summary statement of the results
- A table summarising the deposits, features, classes and numbers of artefacts encountered and spot dating of significant finds
- A description of the geology on the site
- Discussion of the physical impact of the proposed development on known and potential archaeological sites

11.3.3 Any variation to the above requirements will be approved by the planning authority prior to work being submitted

11.3.4 Post-Excavation Assessment Report

11.3.5 Should a significant archaeological site be located a post-excavation assessment report will include all the information necessary to make decisions about the future direction of the project in line with Historic England's Guidelines on the Management of Research Projects in the Historic Environment (Historic England 2015). The report will be submitted to the County Archaeology Officer for comment and approval prior to any further analysis or publication work commencing.

11.3.6 This document will be submitted within six months of the end of fieldwork unless previously agreed with all relevant parties.

11.3.7 The archaeological contractor will submit an updated specification for full analysis and publication in line with Historic England's Management of Research Projects in the Historic Environment. An appropriate level of publication will then be agreed with the County Archaeologist will be prepared in line with Historic England's Management of Research Projects in the Historic Environment. A short report of the work will be submitted to a local journal if appropriate.

11.4 OASIS

11.4.1 The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large scale developer funded fieldwork.

11.4.2 The archaeological contractor will therefore complete the online OASIS form at <http://ads.ahds.ac.uk/project/oasis/>. A pdf copy of the report will be uploaded to Oasis within 3 months of its production.

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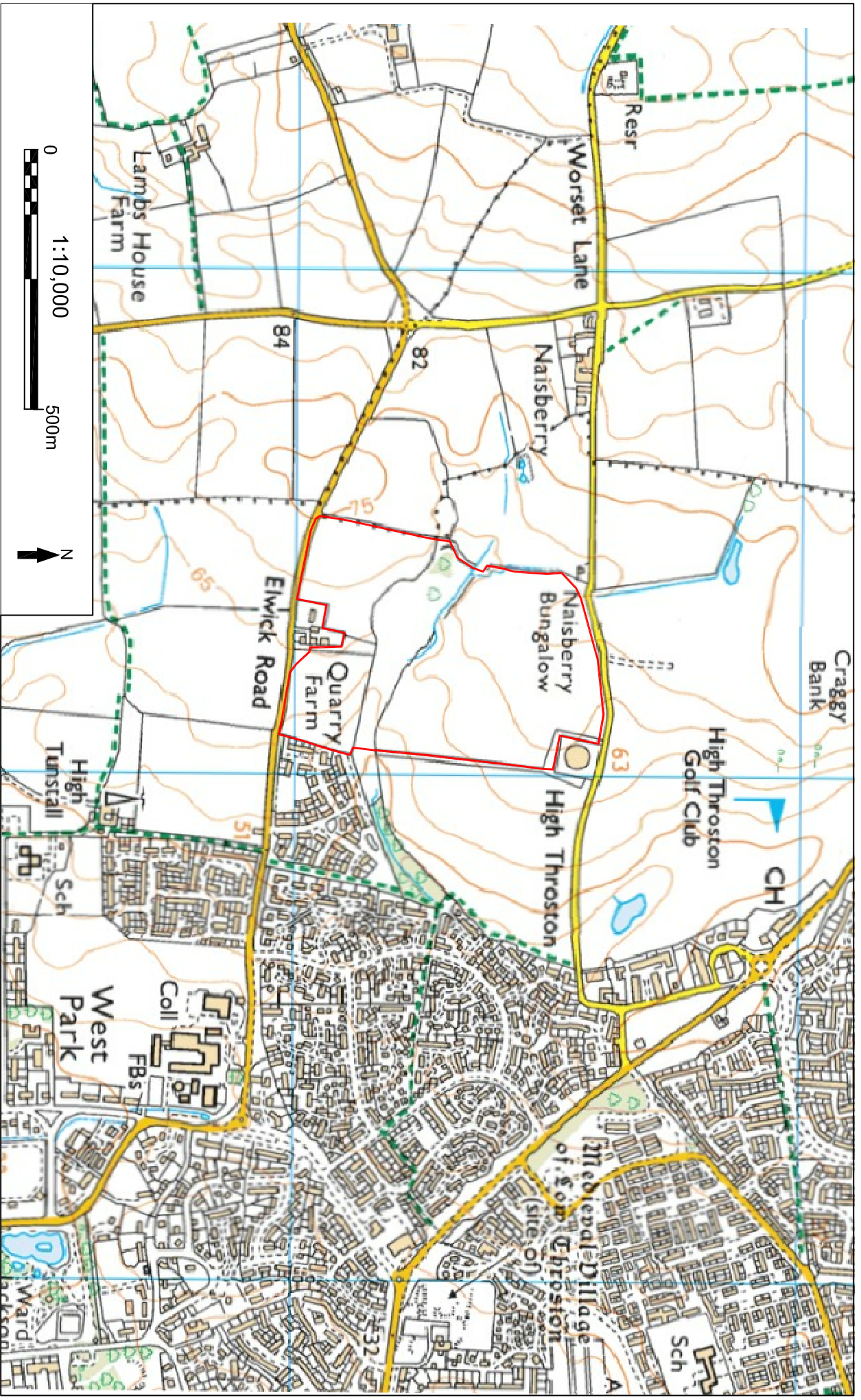
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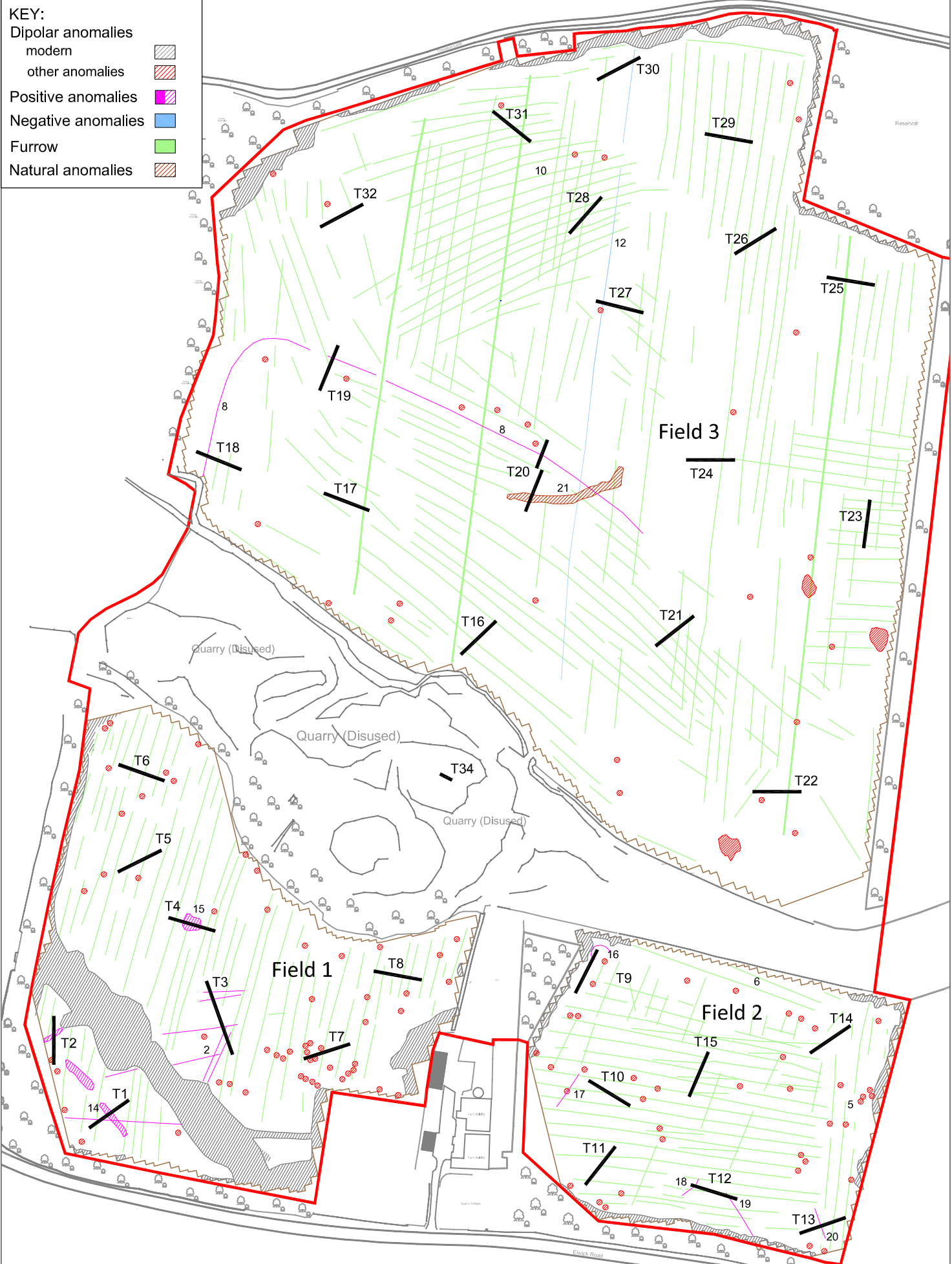
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Figure 1: General location of site

- KEY:**
- Dipolar anomalies
 - modern
 - other anomalies
 - Positive anomalies
 - Negative anomalies
 - Furrow
 - Natural anomalies



Base map from topographical survey by Gibson Surveying and Mapping 2013



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Figure 2: Trench location plan
(with underlay of geophysical survey interpretation)



0 1:2500 at A4 100m



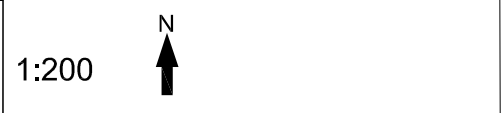
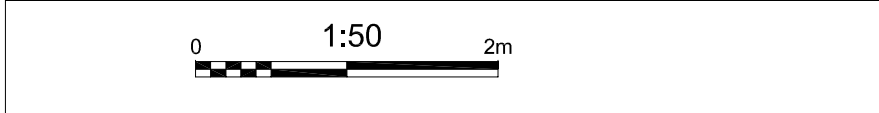
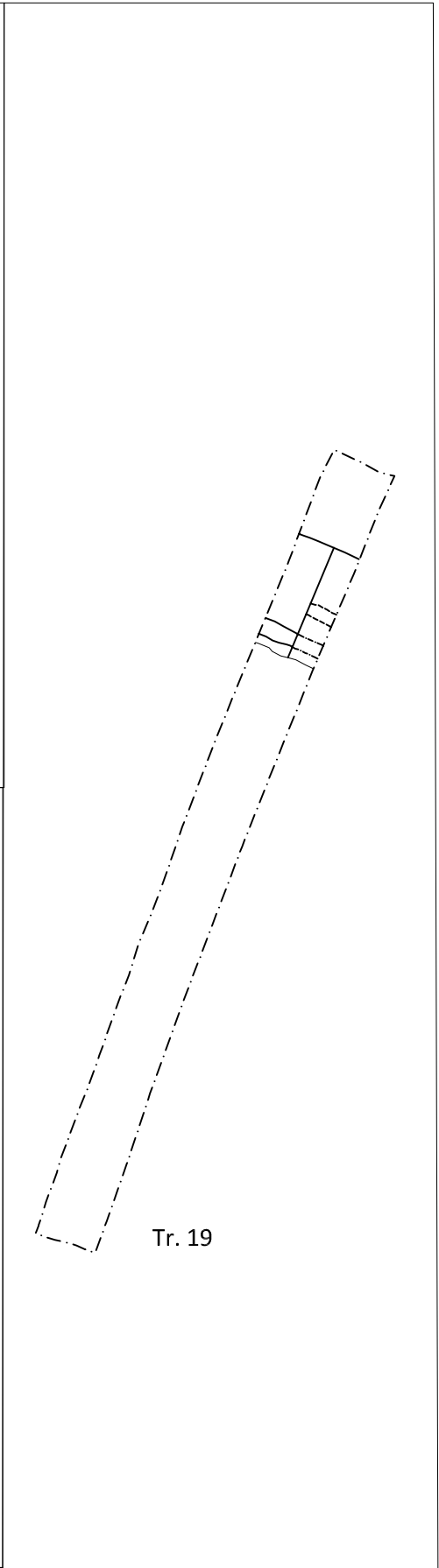
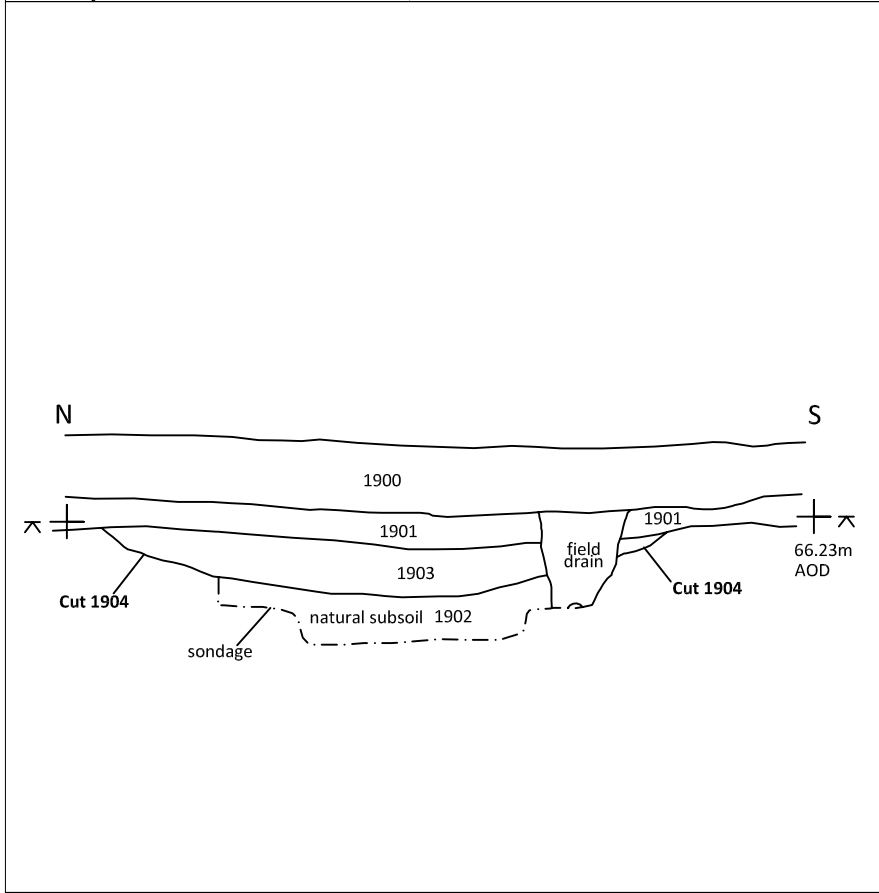
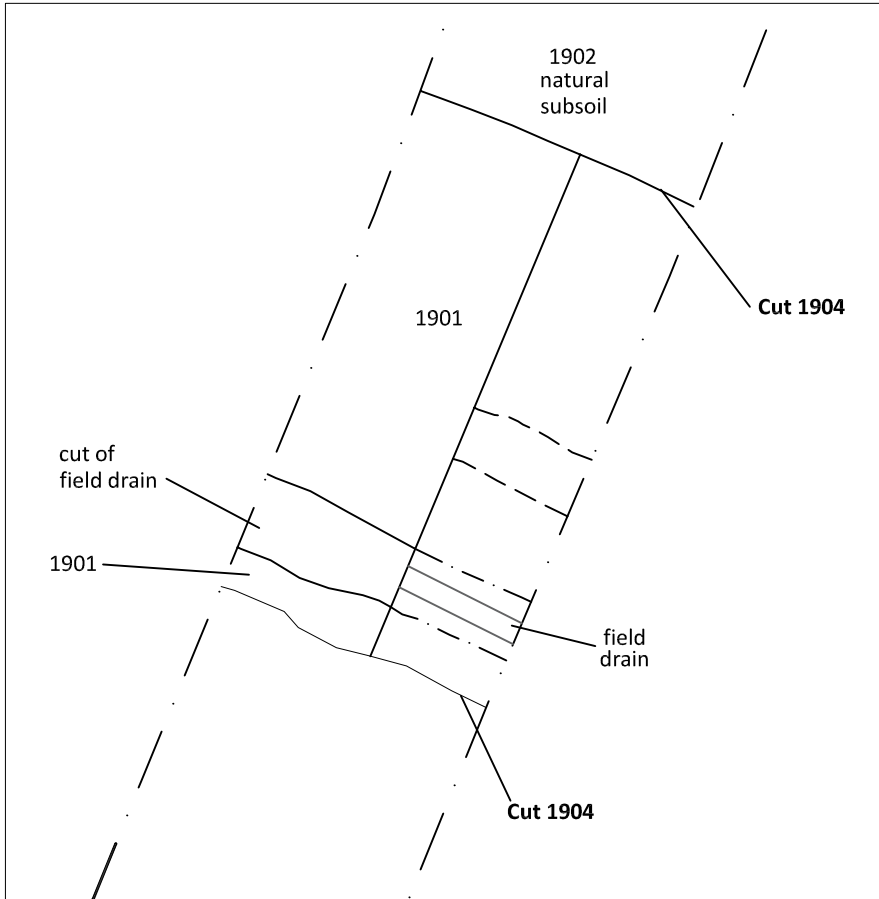


Figure 3: Trench 19



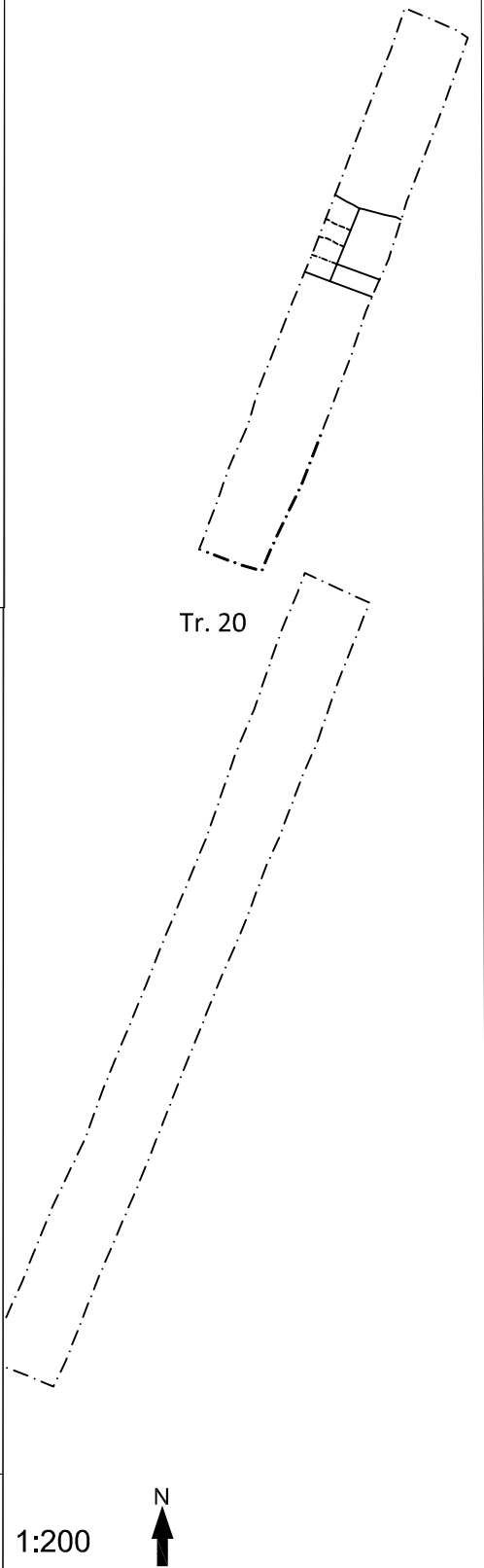
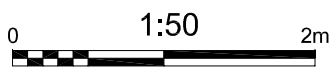
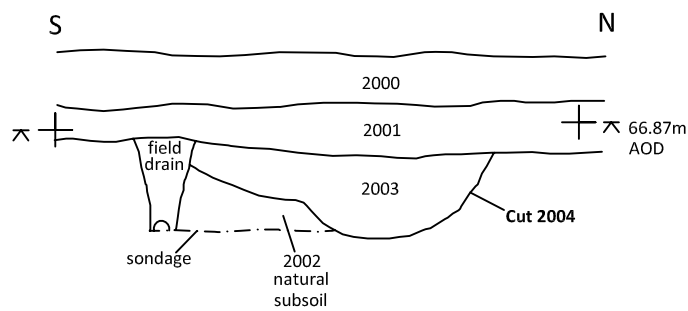
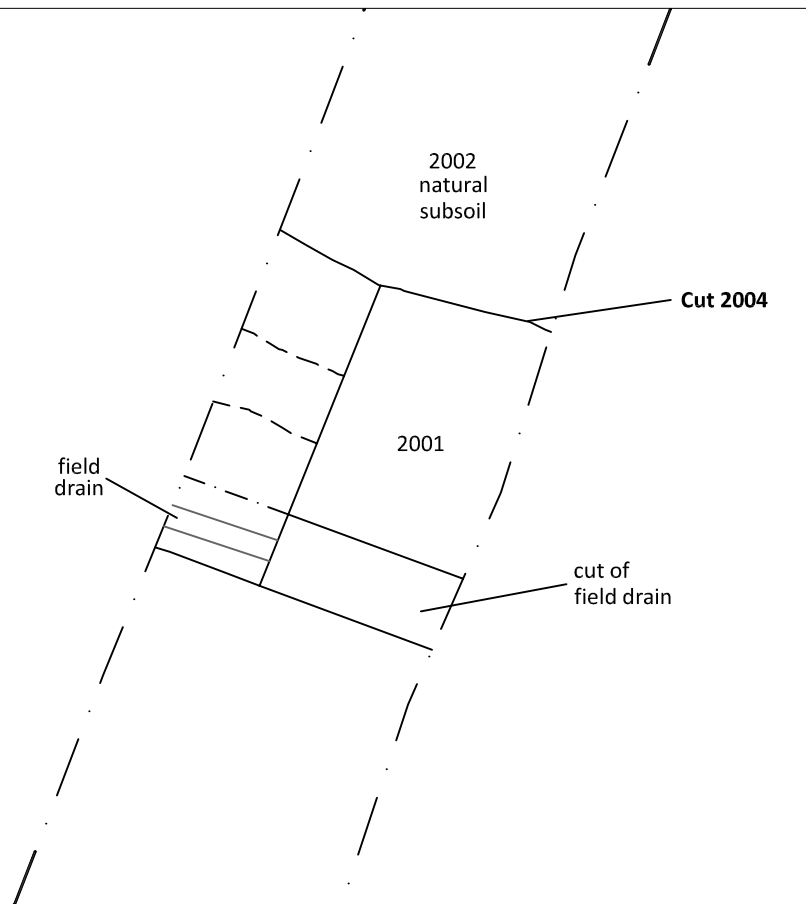


Figure 4: Trench 20

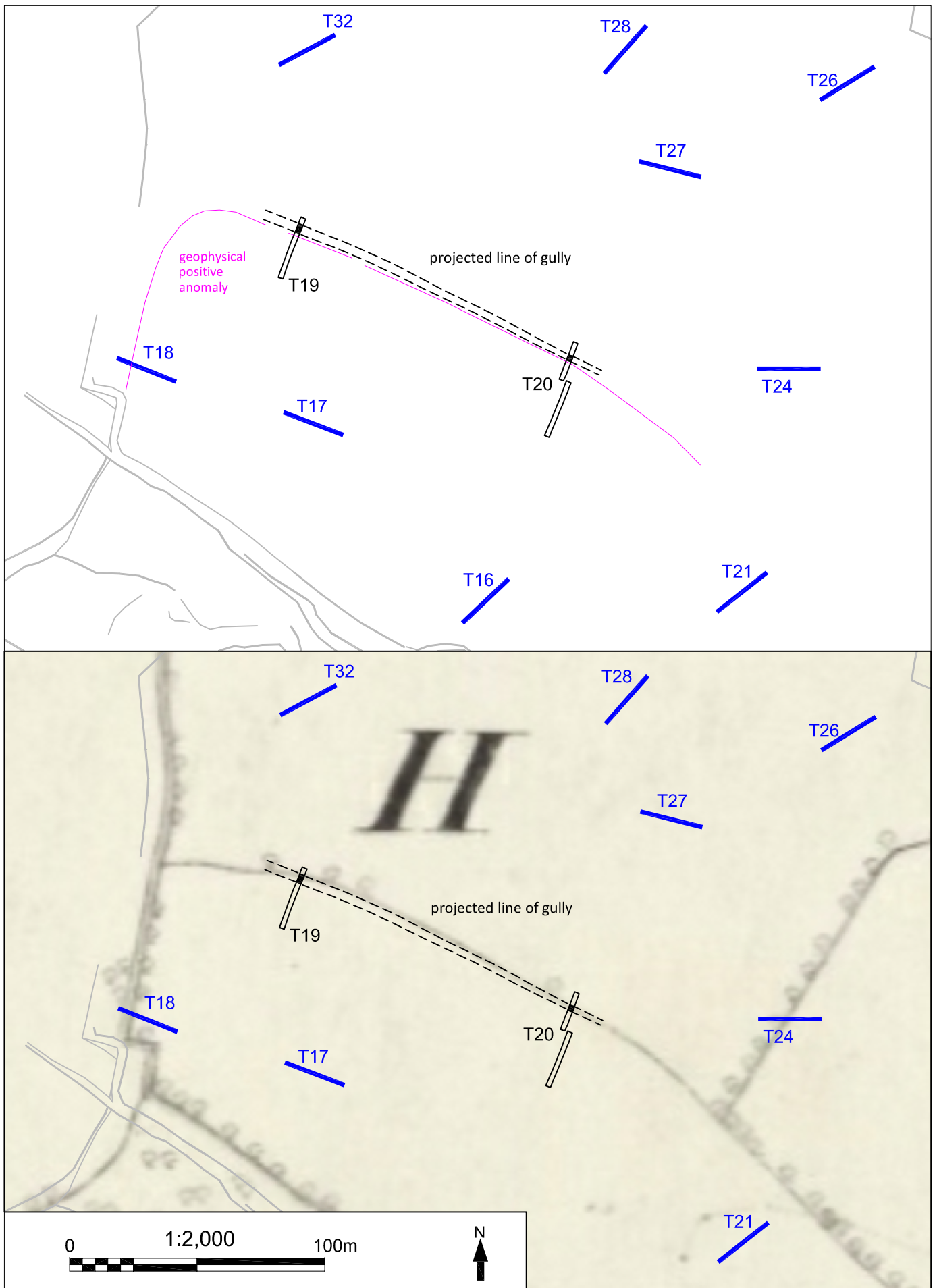


Figure 5: Projected line of gully found in Trenches 19 and 20 in comparison to geophysical survey and OS 1st ed. 1856

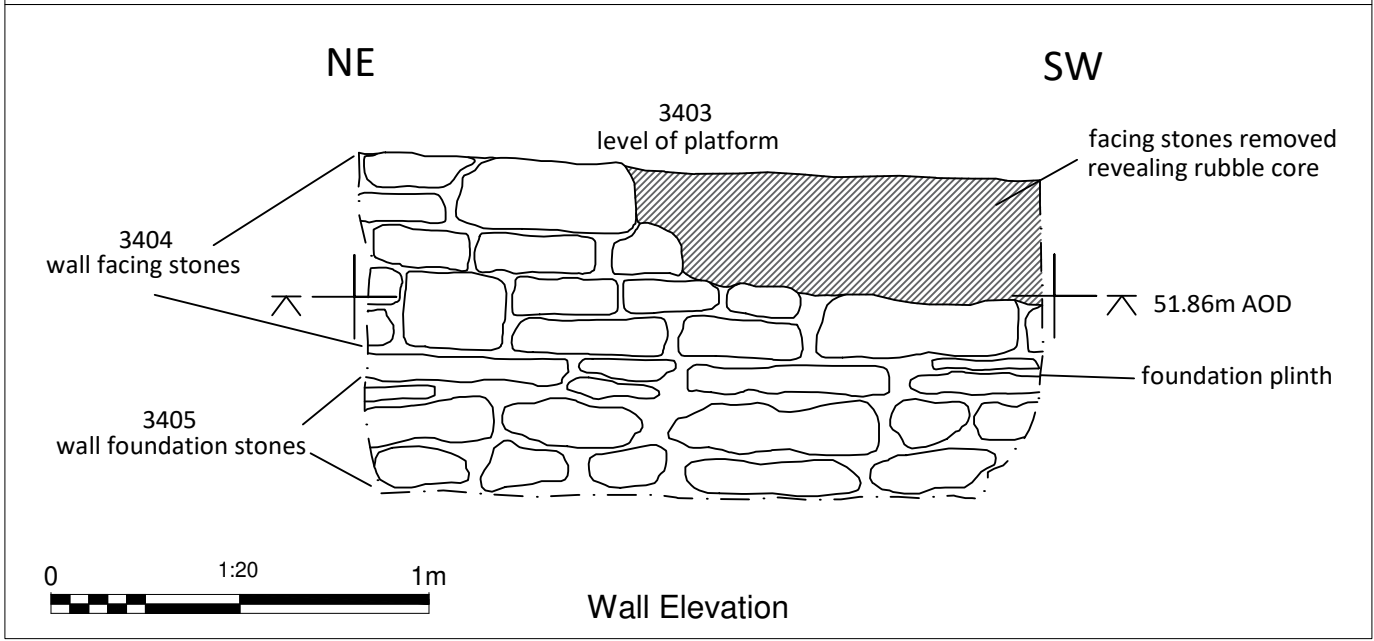
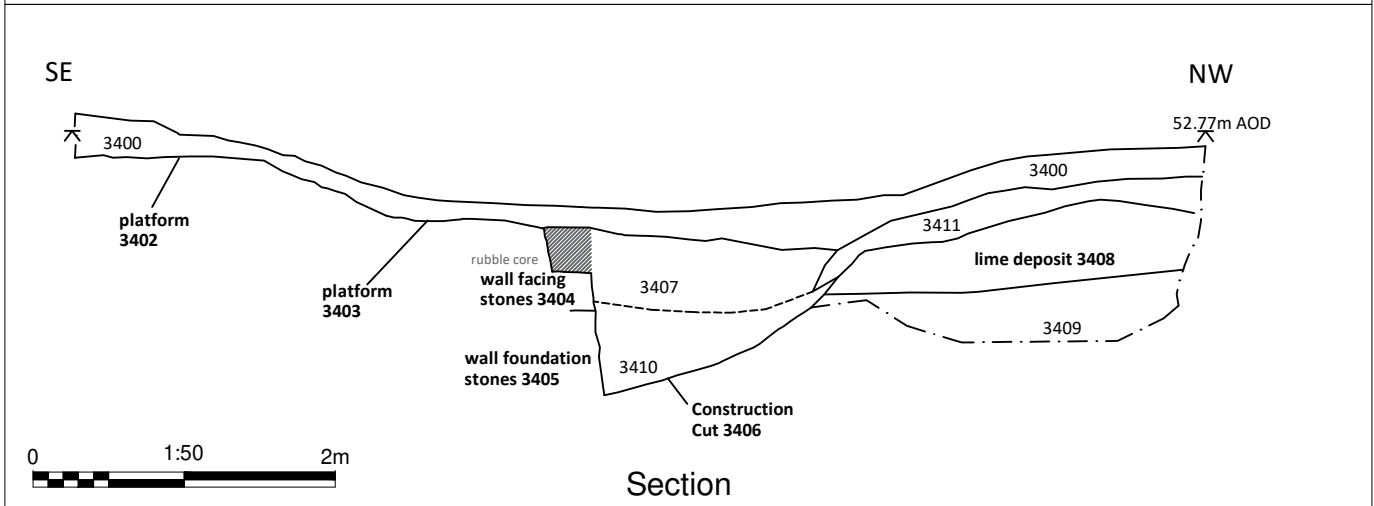
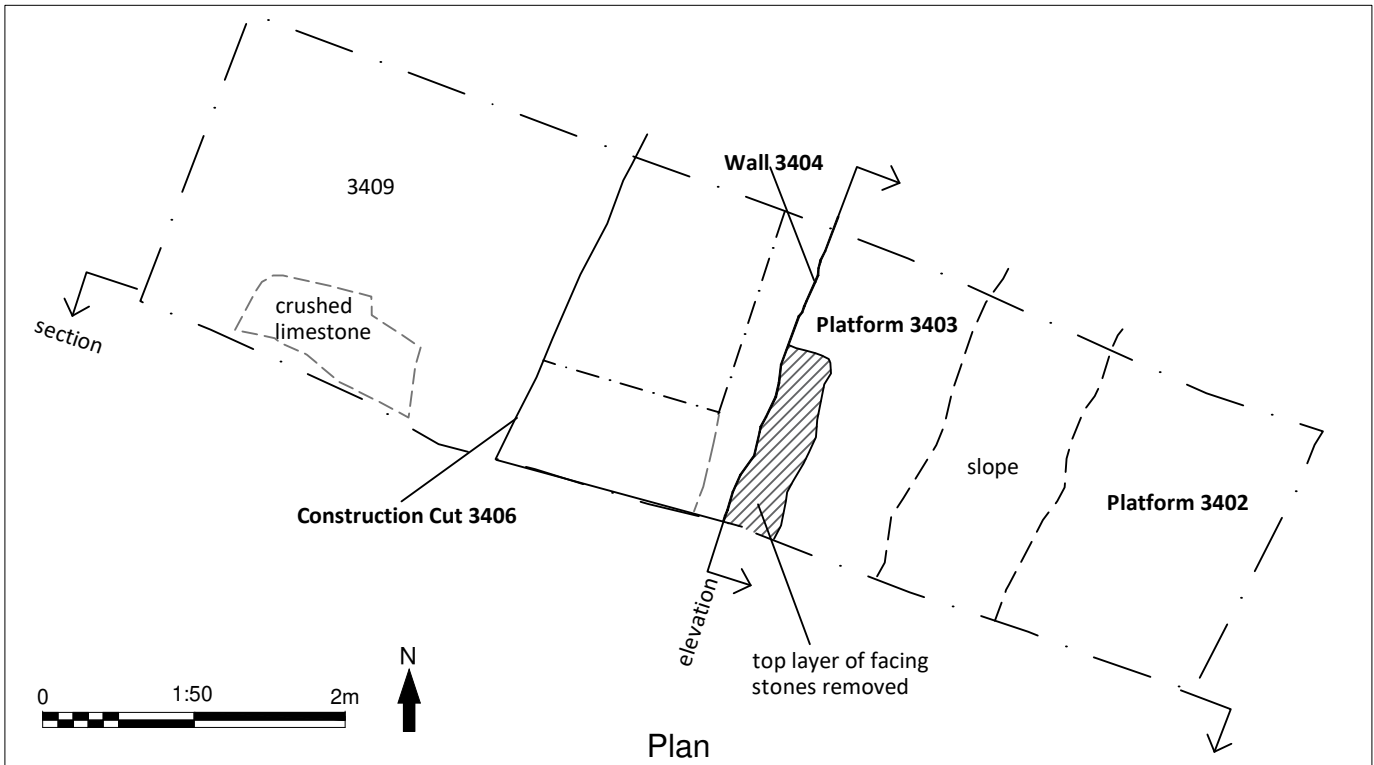
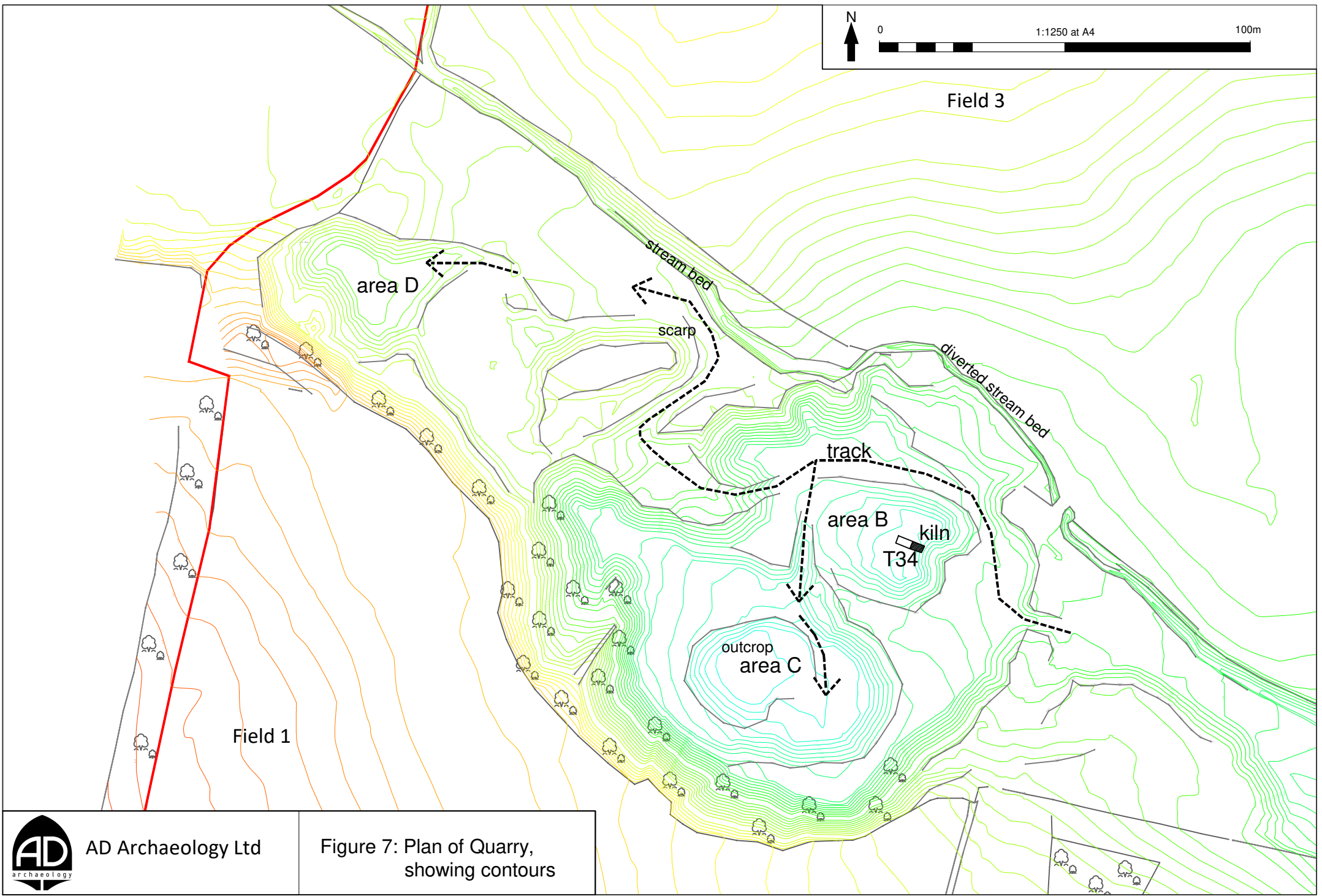


Figure 6: Trench 34 (quarry)



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Figure 7: Plan of Quarry, showing contours

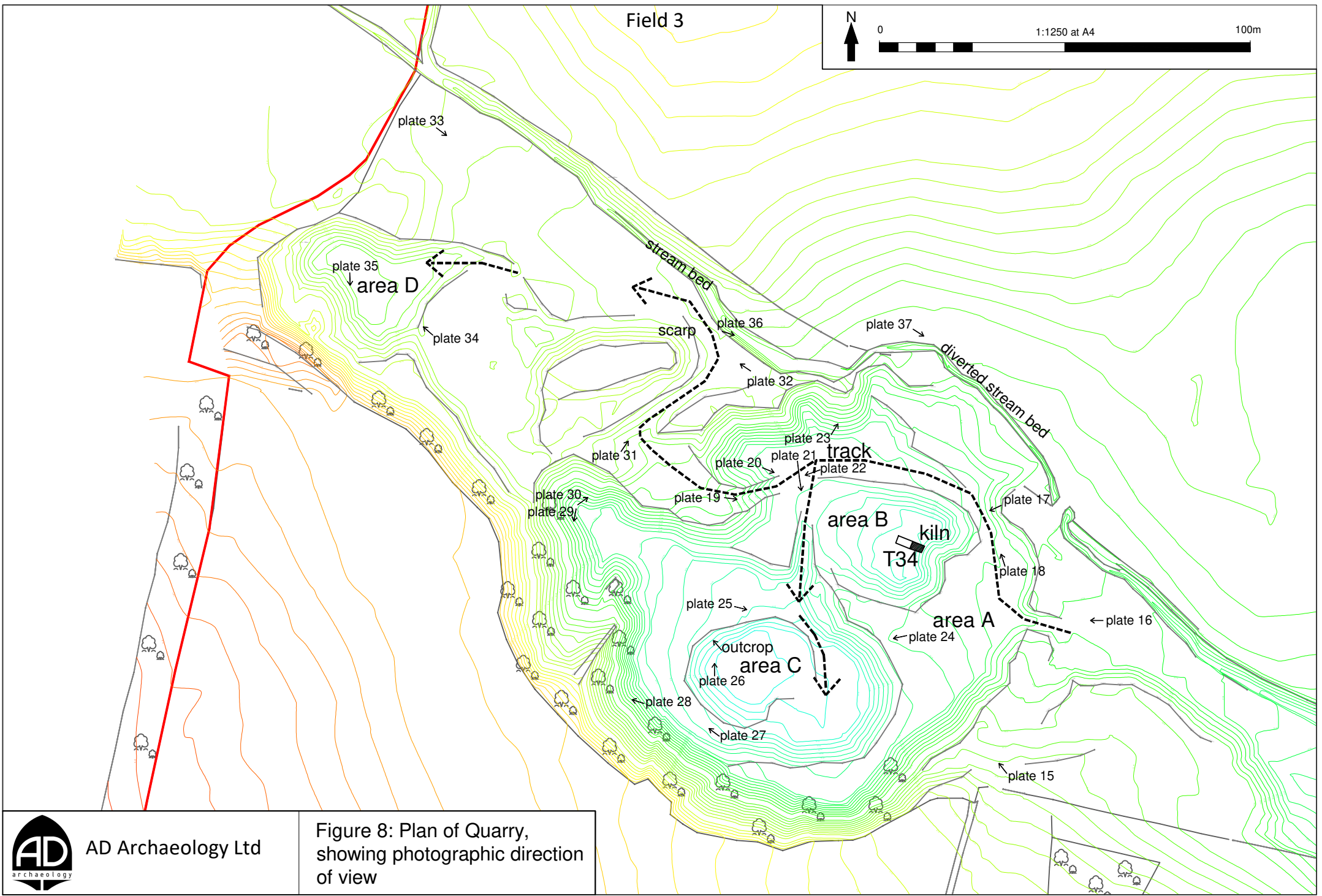


Figure 8: Plan of Quarry, showing photographic direction of view



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Figure 9: Overlay of 1897 Ordnance Survey
twenty five inch map, revised 1896

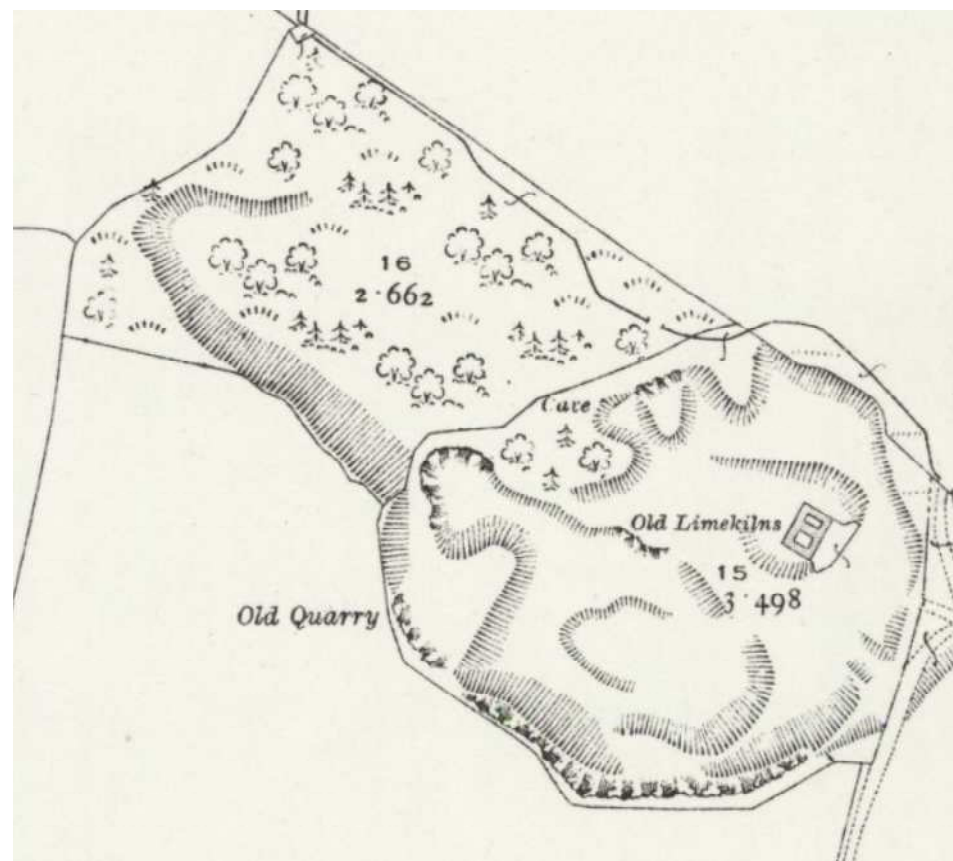
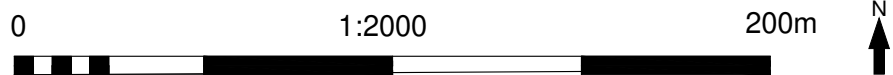


Figure 10: Overlay of 1919 Ordnance Survey
twenty five inch map, revised 1914



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Quarry Farm Photographic Survey 2021

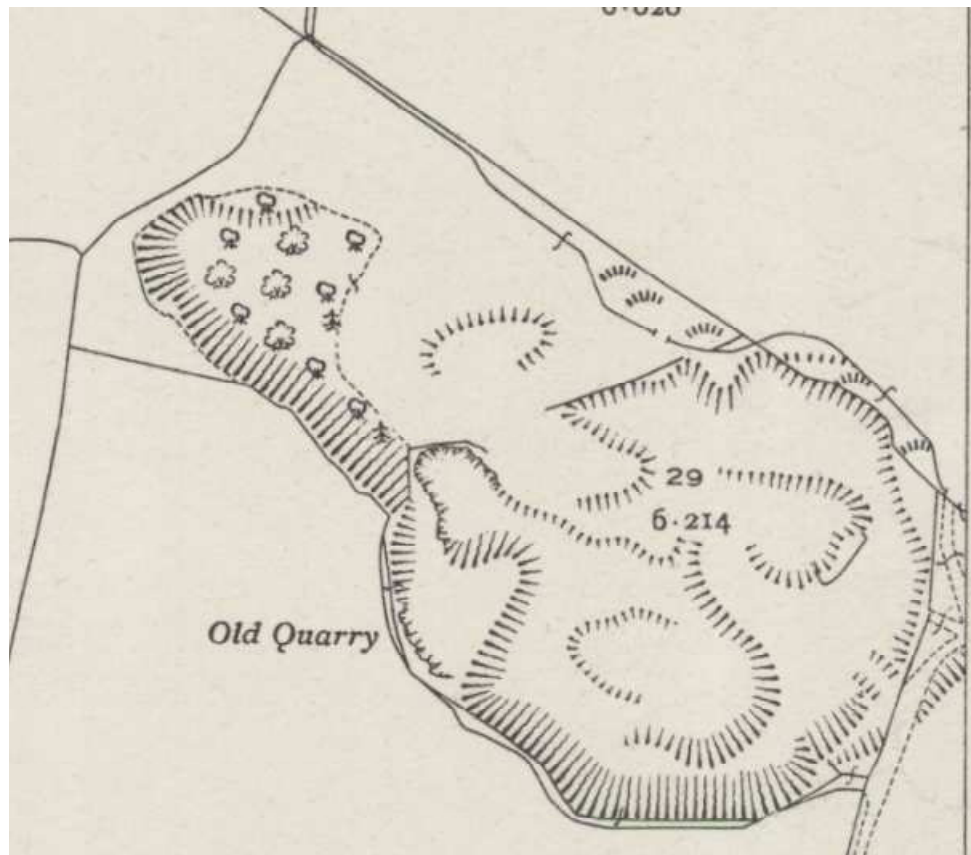


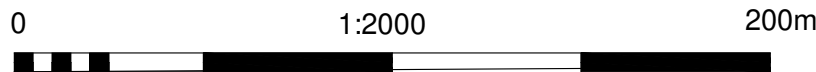
Figure 11: Overlay of 1946 Ordnance Survey
twenty five inch map, revised 1939



Figure 12: Bing maps aerial photograph (copyright Microsoft 2021)



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Quarry Farm Photographic Survey 2021



Plate 1: Trench 5-looking north-east



Plate 2: Trench 15-looking north-east



Plate 3 Trench 18 -looking west



Plate 4 Trench 19- gully 1904 looking south-east



Plate 5 Trench 19-gully 1904 looking east



Plate 6 Trench 20-gully 2004 looking north-west



Plate 7 Trench 20—gully 2004 looking south-west



Plate 8 Trench 34— looking east



Plate 9 Trench 34– kiln platform looking east



Plate 10 Trench 34—looking north-east



Plate 11 Trench 34– wall face 3404/3405



Plate 12 Trench 34– wall face 3404/3405



Plate 13 Trench 34– looking south-west



Plate 14 Trench 34– working shot



Plate 15: Overall view of eastern end of quarry, facing north-



Plate 16: Quarry entrance facing west



Plate 17: View of entrance area (area A), with the quarry cutting below (area B), facing southwest

The former kiln once stood where the tree now grows in the centre of photo with area A providing access to the top of the kiln for loading.



Plate 18: Trackway down to quarry base and kiln (area B)



Plate 19: View of trackway and quarry cutting (area B), facing east..

The flat area in the centre of the photo may represent a platform contemporary with the kiln



Plate 20: View of platform near former kiln (area B) facing east



Plate 21: View of narrow track from area B to area C of quarry, facing south



Plate 22: View of track in area B heading towards the western portion of the quarry (area D), facing west



Plate 23: View of the north face of quarry cutting (area B), facing north
The diverted stream lies within a dyke immediately beyond the trees on the edge of Field 3



Plate 24: Overall view of area C, facing west



Plate 25: View of area C showing terrace and quarry bottom (left and right side respectively), facing east.

Note, ramp to quarry bottom along the centre of photo and the upper terrace at the southern end of area A in the background.



Plate 26: View of outcrop of limestone in area C after vegetation removed, facing north.



Plate 27: View of southern terrace above the quarry base (area C), facing northwest



Plate 28: Southern edge of quarry above area C, facing west



Plate 29: Limestone outcrop in area C, facing south



Plate 30: Limestone outcrop in area C, facing northeast



Plate 31: Trackway heading towards area D, showing spoil heap on top of scarp, facing northeast



Plate 32: View of scarp on edge of unquarried area along northern side of area D, facing northwest



Plate 33: View of unquarried area along northern side of area D
(stream bed lies within the trees to left), facing southeast



Plate 34: View of quarry within area D, facing northwest



Plate 35: View of southern edge of quarry within area D, facing southeast



Plate 36: View of dry stream bed within area D, facing east



Plate 37: View of the dyke for diverted stream alongside area B, facing east