

2020

Tyne and Wear

Archaeological
Desk-based
Assessment

LAND AT THE FORMER CARLEY HILL PRIMARY SCHOOL

Carley Hill
Sunderland

NGR 438579 559370

Archaeological Desk-based Assessment

Project 323-20-DBA | September 2020



on behalf of Gentoo

VINDOMORA SOLUTIONS LTD
Archaeological Practice

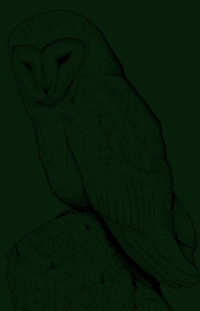
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Archaeological Desk-based Assessment

Land at the former Carley Hill Primary School

Carley Hill, Sunderland
Tyne and Wear

September 2020



VINDOMORA SOLUTIONS LTD
Archaeological Practice

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SUMMARY

Name of location:	Land at the former Carley Hill Primary School, Carley Hill, Sunderland, Tyne and Wear SR5 2QA
National Grid Reference:	NGR 438579 559370 (NZ 38577 59377)
Client:	Gentoo
Project Type:	Archaeological desk-based assessment
Local Authority Conservation Team:	Tyne and Wear Archaeology Service
Local Authority Reference:	MON17199
Planning application reference:	PRE-APP
Vindomora Solutions Reference:	323-20-DBA
Report Author:	Tony Liddell
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CONCISE SUMMARY OF REPORT

In July 2020 Vindomora Solutions Ltd were commissioned by Gentoo to undertake an *archaeological desk-based assessment* on land surrounding the former Carley Hill Primary School, Sunderland, to inform archaeological consultation on potential development of the site. The research project was deemed necessary by the Tyne and Wear Archaeology Service (due primarily to the site's proximity to surrounding prehistoric activity and the potential for survival of a late 18th/early 19th century waggonway), in line with paragraph 189 of the National Planning Policy Framework.

The study of the known archaeological/historical sites and historic mapping of a 650m radius study area from the centre of the proposed development area (PDA) highlights that the site lies within an area of prehistoric activity, with a Neolithic axe found 475m northeast of the development site and a potential Neolithic barrow found 445m to the northwest of the PDA. Further burials have also been identified at the PDA's eastern boundary during the quarrying works, and 320m to the west of the PDA. A ditched enclosure was identified by Tyne and Wear Museums in 1990, located 100m north of the development boundary, with radio-carbon dating of the site suggesting activity with the Bronze Age.

The PDA also lies within an area of background Roman activity. A Roman figure was recovered from quarrying 335m to the west of the PDA, which also noted human remains being recorded in the same area. Roman coins were recovered from quarrying 112m to the east of the PDA boundary and Late Roman pottery and quernstones were recovered from Fulwell quarry in 1927 and 1933, located 475m to the northwest of the PDA: the Neolithic barrow noted to lie to the northwest of the site was also re-used for an inhumation during the Roman period.

While there are no known Early medieval sites within the vicinity of the proposed development area, there was a burial recovered 270m north of the PDA boundary, noted in the HER to be potentially Viking in date (though also possibly 17th century). There are also no known Later medieval sites within the study area, with the nearest known medieval settlement lying 250m east of the overall study area boundary.

Moving into the Post-medieval period, just under a half of the eastern section of the PDA was effectively removed by Carley Hill Quarry in the late 18th or early 19th century, with the quarry already out of use by 1855. A waggonway, potentially built between 1790-1800 also intersected the PDA running between a limestone quarry to the northwest and the lime works to the south (the waggonway had been removed by the late 19th century). The overall study area saw major expansions of limestone quarrying through the 19th and into the 20th centuries.

Through the 20th century the quarry in the PDA was gradually backfilled and landscaped, with the remainder of the site remaining as fields, presumably servicing the expansion of Carley Hill Farm to the southeast. In the 1960s Carley Hill Junior Mixed and Infant School was built on the site. The school closed in 2004.

The presence or survival level of any archaeology predating the late 18th century is unknown within the PDA though due to the level of background prehistoric and Roman activity in the surrounding area, it is likely that settlement dating to those periods may have extended into area: any such material within the quarried area will not have survived.

We do know that the 1790 waggonway ran through the site west of the quarry, and while it was no longer shown on the late 19th century mapping, there is every likelihood the waggonway will survive to some extent beneath the modern ground surface. So too will the 19th and early 20th century field boundaries, which may survive as lines of post holes and/or ditches. Against the southeastern boundary, there may also be the remains of an early 20th century farm building associated with Carley Hill Farm. Survival of any archaeological material may also be unlikely within areas of the 1960s Carley Hill school buildings, though depending on the depth of works, survival may be possible beneath the road, path and hard standing surfaces. The trees that have established in the school grounds west of the former buildings will also have an impact on any potential archaeological remains existing in those areas.

Only approximately 23% of the PDA remains potentially undisturbed by quarrying, modern building and tree coverage. This area predominantly covers the south and western section of the site: the southern portion of the site comprises mostly flat grassland: the ground investigation works along this undisturbed section revealed natural geology at between 0.3m deep in the west to 1.8m southeast of the school. The ground investigation works suggest that the south-eastern corner of the site, initially thought to have been outside of the quarried area is indeed part of it (with natural geology not encountered at 5m depth), suggesting that the 1940s farm building was likely constructed on reconstituted ground. The land rises sharply north up the slope to the school site and the quarry beyond. Only a small section of potentially undisturbed land remains north of the school and west of the quarry.

A geophysical survey **would not be recommended** for this site due to the small amount of undisturbed and accessible land for such a survey: it is likely that less than 20% of the site would be potentially suitable for survey. An archaeological evaluation **would be recommended** for this site to investigate the extent and nature of the waggonway remains, as well as to check for earlier archaeological elements within the site.



Figure 1. Location of the site, regionally.

1. SCOPE OF PROJECT



Plate 1. Aerial view of the proposed development area (dataset © 2020 Google)

1.1 Project location

- 1.1.1 The proposed development area lies at the site of the former Carley Hill Primary School, Carley Hill, Sunderland (centred at NGR 438579,559370). Emsworth Road lies to the south, with Eymouth Lane to the west and Eversley Crescent to the north. *Figure 1* shows the location of the site regionally and *Figure 2* shows the location locally. The site covers approximately 42,015m².
- 1.1.2 The site area is located over the Roker Formation comprising dolostones and limestones. The superficial upper geological horizon consists of Devensian Till, comprising clays, sand, gravels and silts (British Geological Survey 2020).
- 1.1.3 The site lies at an average of 61m OD (Ordnance Datum, above sea level) at its northern extent, dropping sharply towards the southern extent to 52m OD.

1.2 Circumstances of the Project

- 1.2.1 On the 8th July 2020 Vindomora Solutions Ltd were commissioned by Gentoo to undertake an archaeological desk-based assessment on land surrounding the former Carley Hill Primary School, Sunderland, to inform archaeological consultation on potential development of the site.
- 1.2.2 In June 2020 Sophie Laidler, Archaeology Officer for the Tyne and Wear Archaeology Service had confirmed the need for the desk-based assessment, primarily due to the site's proximity to surrounding prehistoric activity and the potential for survival of a late 18th/early 19th century waggonway (in line with paragraph 189 of the National Planning Policy Framework).

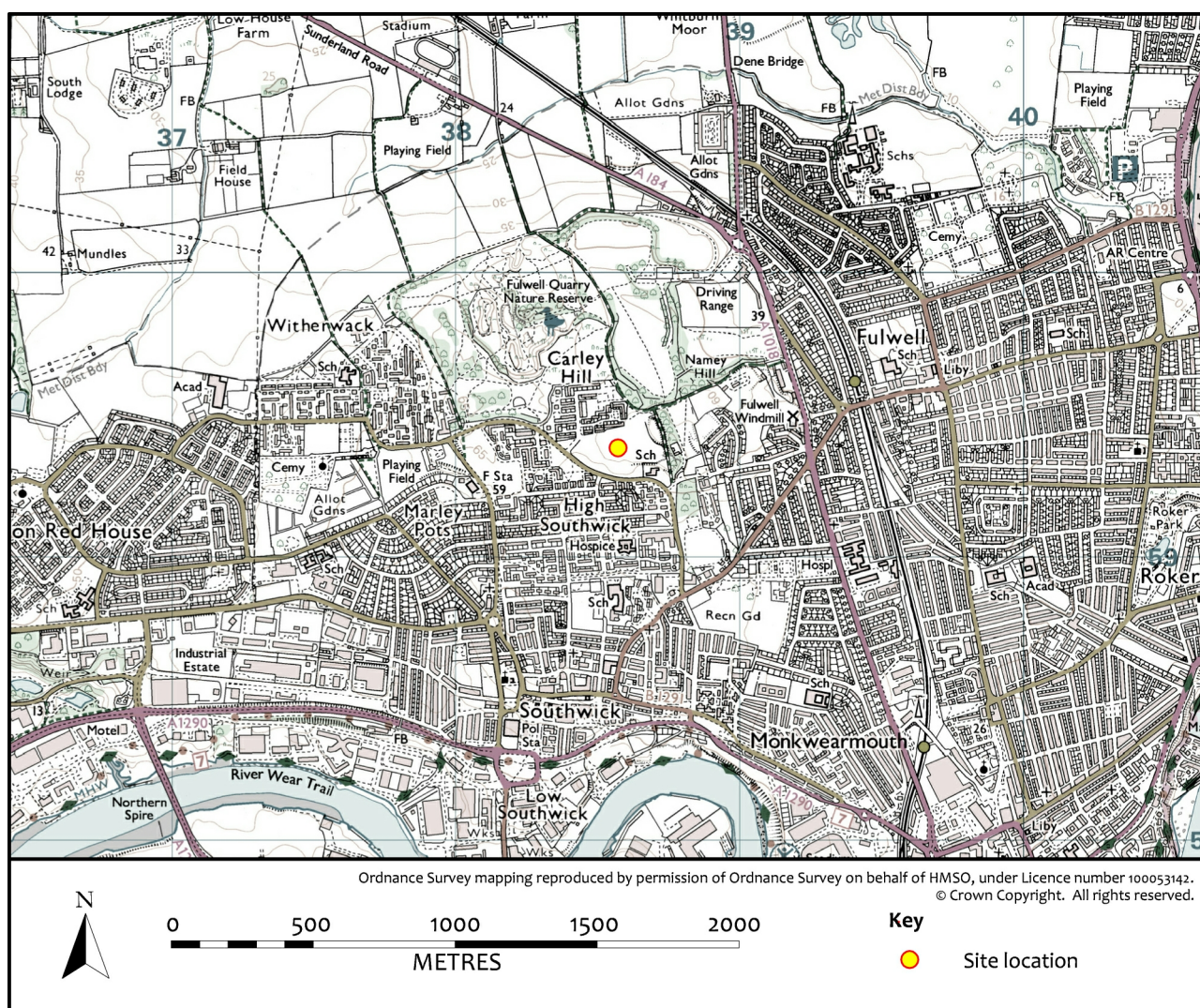


Figure 2. Location of the site, locally.

1.3 Timetable

- 1.3.1 The site visit was undertaken on the 17th July 2020.
- 1.3.2 The Historic Environment Record Search data was provided by Newcastle City Council on 26th August 2020.
- 1.3.3 The Geo-environmental report was provided by Gentoo on the 5th September 2020
- 1.3.4 This report was finalised on Wednesday, September 30, 2020.

1.4 Project Personnel

- 1.4.1 The report, its associated illustrations and research for this desk-based assessment were undertaken and produced by Tony Liddell B.Sc. (Hons).

1.5 Professional standards

- 1.5.1 All work undertaken was in accordance with the Institute for Archaeologists' Code of Conduct (CIfA 2014) and their *Standard and Guidance for historic environment desk-based assessment* (CIfA 2014). Standards were also in accordance with the British Archaeologists' and Developers' Liaison Group's *Code of Practice* (1988).

1.6 Archive

- 1.6.1 A full archive has been compiled in line with the specification and current UKIC and English Heritage Guidelines. Vindomora Solutions support the **Online Access** to the **Index of Archaeological Investigations** project (OASIS). As a result, this report will be made available to the project under the unique identifier **vindomor1-403782**.

2. THE OVERALL STUDY AREA

2.1 Introduction

- 2.1.1 Discussion with the Tyne and Wear Archaeology Service suggested that for the purposes of this report, the study area should include a **650m** radius of known material centred at NGR 438579 559370. This section (Section 2) details the study area as a whole, with Section 3 looking at the development area specifically.
- 2.1.2 The Historic Environment Record (HER) Search data results were provided by Sophie Laidler, Archaeology Officer for the Tyne and Wear Archaeology Service on the 7th August 2020. The following report is based on the provided HER data along with the study of appropriate records. **Vindomora Solutions Ltd accept no responsibility for missing or erroneous data within the historical record that impacts on the assessment of the study and development area.**
- 2.1.3 *Figure 3* shows the extent of the overall survey area with the proposed development area (PDA) centred.
- 2.1.4 **COVID-19 Restrictions:** Please note that due to Covid-19 restrictions at the time of producing this report, not all repositories were able to be visited.

2.2 Scheduled Ancient Monuments

- 2.2.1 There are no Scheduled Ancient Monuments (SAMs) within the overall study area.

2.3 Conservation Areas

- 2.3.1 The overall study area does not contain any designated Conservation Areas.

2.4 Registered Parks and Gardens

- 2.4.1 No Registered Parks and Gardens were recorded within the overall study area.

2.5 Registered Battlefields

- 2.5.1 No Registered Battlefields were recorded within the overall study area.

2.6 Portable Antiquities Scheme

- 2.6.1 No finds spots are registered on the Portable Antiquities Scheme (PAS) within the study area (based upon a map and post-code search).

2.7 Early prehistoric within the overall study area

- 2.7.1 Lower and Middle Palaeolithic (circa 45,000 to 800,000 BP): *The Lower and Middle Palaeolithic cover the first development of simple tools such as cleavers and hand-axes manufactured from stone. Later lower palaeolithic cultures are associated with early Homo Erectus. The Middle Palaeolithic saw changes in tool manufacture techniques, and the development of the species, with a lot of studies concentrating on Neanderthals.*
- 2.7.2 Upper Palaeolithic (circa 10,000 to 45,000 BP): *The Upper Palaeolithic often refers to the development of modern Homo Sapiens and the increased use of well made tools from stone, bone, antler and wood.*
- 2.7.3 No known archaeological material relating to these periods lies within the study area.

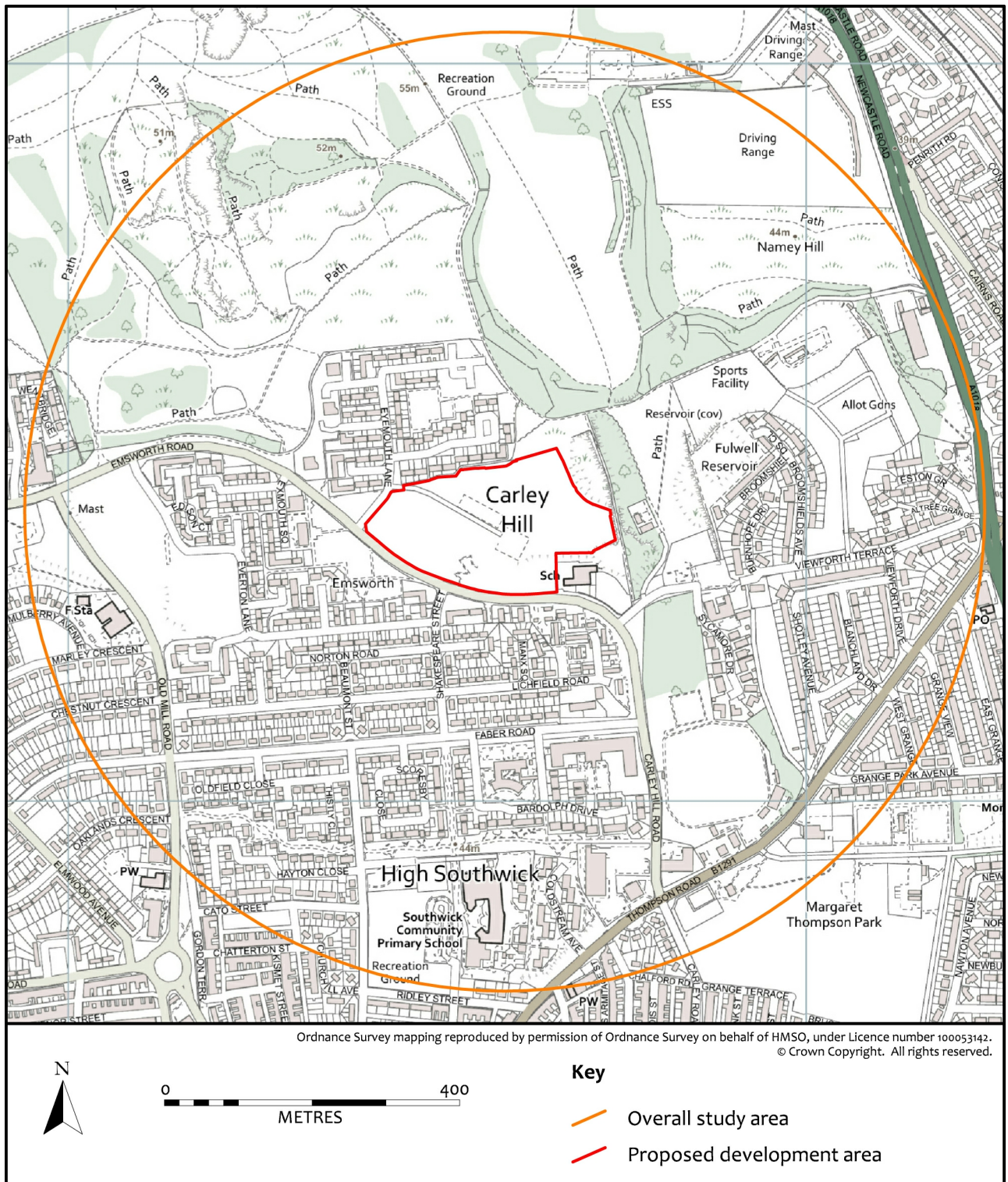


Figure 3. Location of the site and overall study area

- 2.7.4 Mesolithic (circa 5,500 to 10,000 BP): The Mesolithic is often characterised by the beginning of settled communities and the development of more sophisticated weaponry and tools, derived from stone, bone and wood.
- 2.7.5 **HER 376**: Fulwell Quarry, flint scraper. Gibbs recorded "a flat scraper" from a "pocket of bedded clay" in the Fulwell Quarries. Potential late Mesolithic/Early Neolithic in date.
- 2.7.6 Neolithic (circa 2,200 to 4,000 BC): This period of prehistory marks the introduction and establishment of farming in Britain, as well as the building of a number of monumental structures.

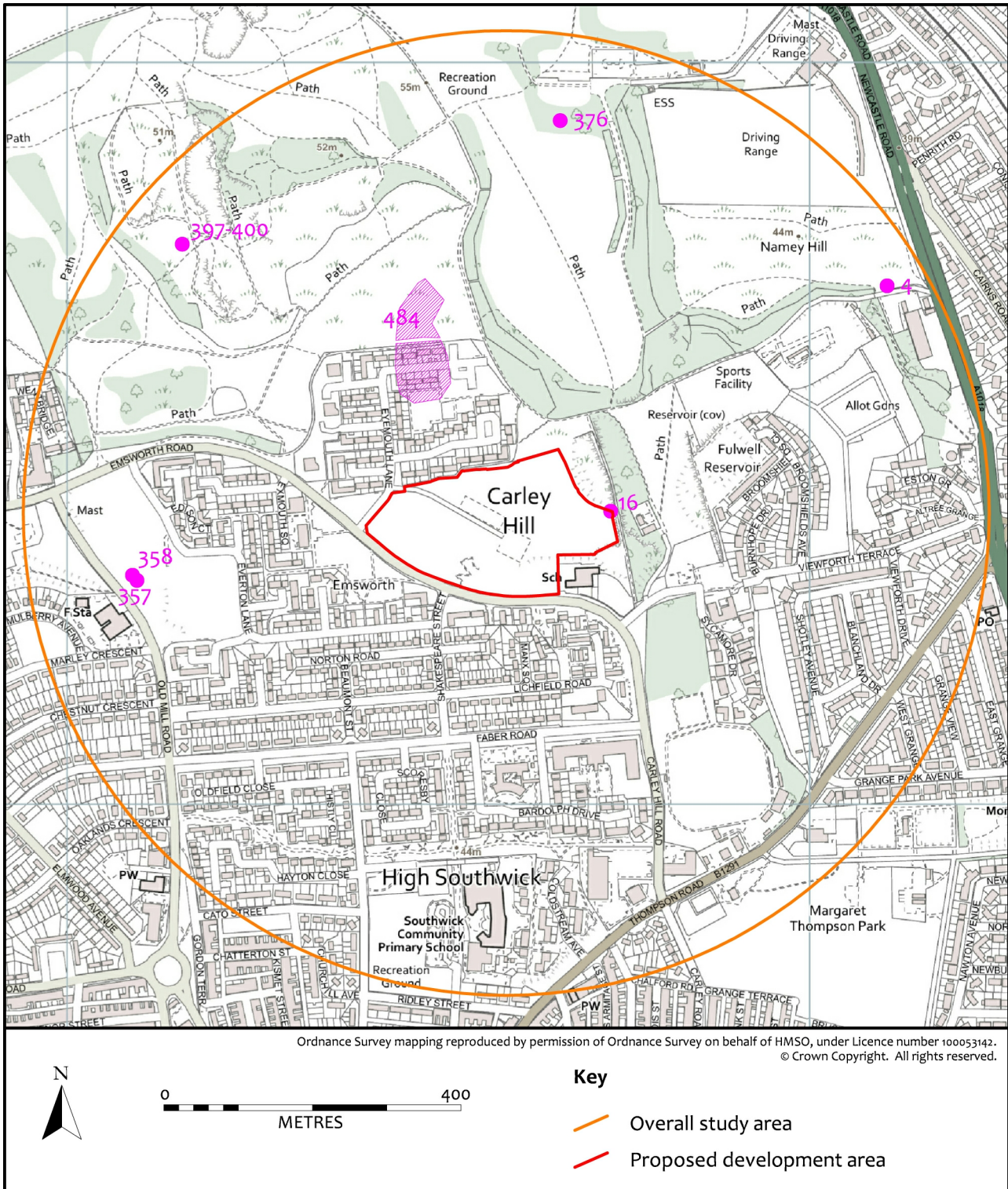


Figure 4. Known prehistoric remains within the overall study area.

- 2.7.7 **HER 4:** Fulwell Quarries, polished small Neolithic axe, in Langdale volcanic tuff; length 82 mm, width 57 mm, thickness 24 mm. Found in 1972 "near the path that runs from Mill Garages to Fulwell Quarries". Donated to Sunderland Museum.
- 2.7.8 **HER 397-399:** Fulwell Quarries, barrow. In 1759, in the course of working the limestone quarries, "a ridge of limestone and rubble" (sic) was removed. "The ridge was about 25 yards in length from east to west, its perpendicular height was about a yard and a half, its breadth at the top was near six yards, and the sides were sloping like the ruins of a rampart". In the middle of this bank,

apparently covered by large flat stones (HER 398), there was a large human skeleton (HER 399), with 2 Roman coins near its right hand (HER 400). A later account adds that "a small urn of unbaked clay" was also found. Welfare suggests that this mound could well have been a Neolithic long cairn, and the burial a Roman insertion.

2.8 Late prehistoric within the overall study area

- 2.8.1 *Bronze Age (700 to 2,600 BC): Named as such because of the notable increase in bronze being utilised for tools, arms and decoration. This period also includes the Neolithic-Bronze Age transitional period.*
- 2.8.2 **HER 16:** Southwick Hills, "Human bones, and sometimes entire skeletons, have been frequently discovered on Southwick Hills, half a mile north-west of the village [1834], during the operation of moving the soil or clay, for the purpose of working the limestone. A few years ago, two or three skeletons were found near Mr. Brunton's quarry; and, what is most remarkable, around each of the skulls, as they lay, was placed a circle of limpet shells... as if for ornament". Micket suggests they may have been prehistoric.
- 2.8.3 **HER 357:** Fulwell, Carley Hill Quarry. In donating a Roman object to the Newcastle Society of Antiquaries, Dr. Clanney reported that, at the same time as its discovery in November 1820, "immediately above the excavation of the Limestone at Carley Hill Quarry,... about 200 yards West of Hill House...whilst removing the surplus soil,... there were found...several portions of Human Bones and a quantity of common rock Limpet Shells imbedded in limestone rubbish and surface soil".
- 2.8.4 **HER 358:** Fulwell, inhumations at Carley Hill. "It is worthy of remark that several excavations have been discovered in the solid limestone rock, at Carley Hill, (similar to stone coffins) containing human Bodies". Thus said Dr. Clanney when he reported the discovery in November 1820 of a Roman figure and human bones at Carley Hill.
- 2.8.5 **HER 484:** Fulwell, Carley Hill, ditched enclosure. In 1990 TWCMS excavated 17 trial trenches on the open ground on Carley Hill between a disused quarry (N) and a housing estate (S). This work revealed part of "an irregular oval-shaped enclosure" with a perimeter ditch 5-7 m wide, and 1 m deep except on the W side where it petered out. A posthole here was perhaps part of a W gate. The bottom of the ditch was filled with dolerite nodules and charcoal, the upper part with silt. The charcoal had a radio carbon date of 3,790 +/- 80 (1,840 +/- 80 b.c.). Pollen analysis suggests that "when the enclosure was built much of the surrounding area was covered with alder forest, and this was later cleared for cereal cultivation". Above the enclosure were traces of 18th century-19 ridge and furrow.
- 2.8.6 *Iron Age (AD 43 to 800 BC) This period marks the increased use of iron for tools and general use, moving away from the softer bronze-work. It also marks the increased building of large structures such as hillforts and includes the transitional Bronze Age to Iron Age period.*
- 2.8.7 No known archaeological material relating to this period lies within the study area.

2.9 The Roman period within the overall study area

- 2.9.1 *The Roman period in Britain is marked by Claudius' invasion in AD 43 and ends with Honorius' withdrawal of Roman legion support from the island in AD 410.*
- 2.9.2 **HER 27:** Roman artifacts have been found on two occasions at Southwick Quarry, in 1927 and 1933. "Roman pottery has been found at the Fulwell quarries, near Sunderland, and also a quern bearing what looks like, but is not, a Greek inscription". "A number of Roman sherds including late 4th century 'Huntcliff' cooking pots (now kept at the Manor House, Bridge Street, Sunderland) and an amphora handle stamped MAT were found at a depth of 1 ft below the surface at Southwick quarry near Fulwell in 1927. Two querns were also found and nearby a V-shaped pit containing miscellaneous refuse was also seen. In 1933 a few more fragmentary sherds including the rim of a flanged grey ware bowl and a spindle-whorl were found at the same quarry".

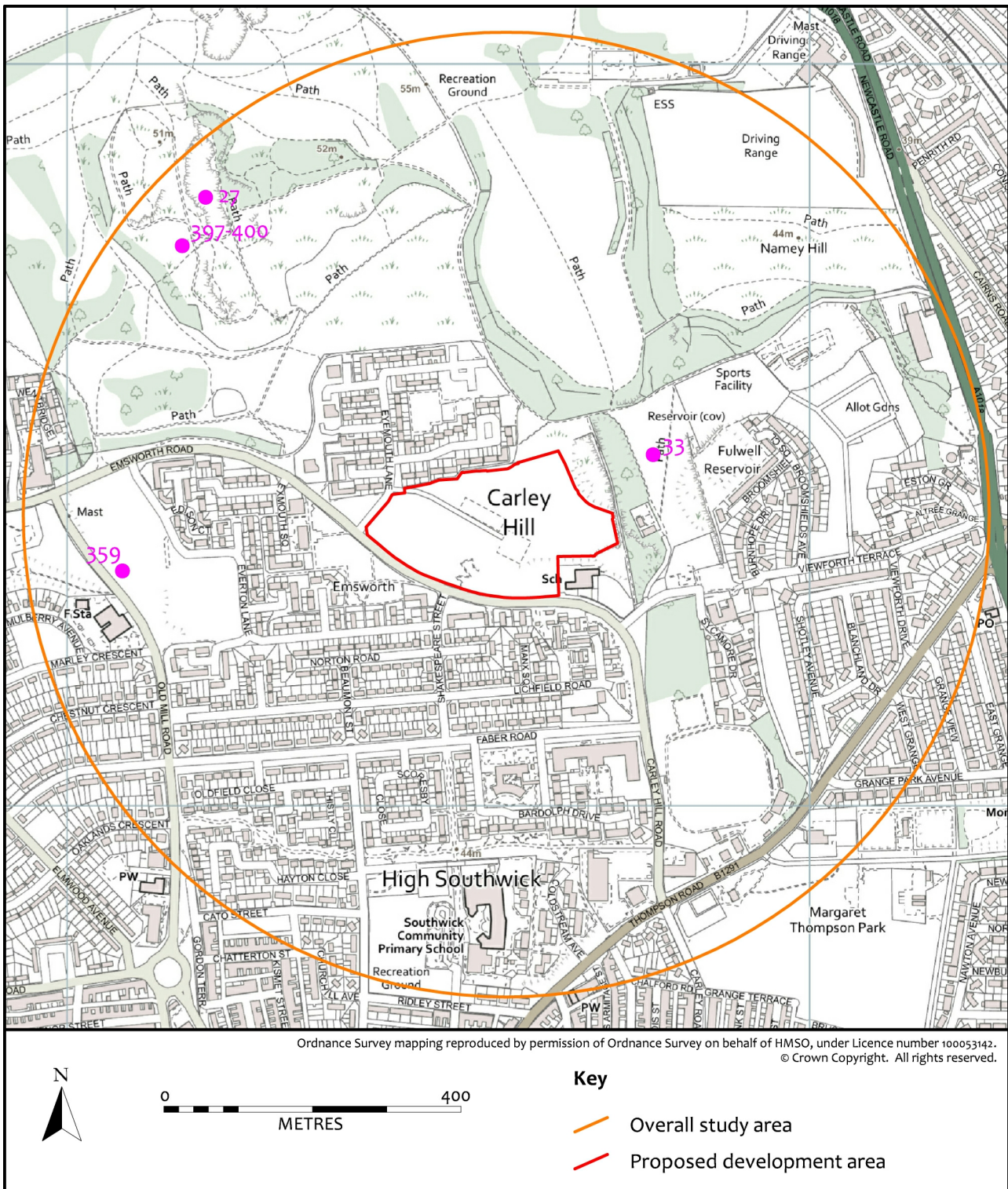


Figure 5. Known Roman remains within the overall study area.

- 2.9.3 **HER 33:** Fulwell, Carley Hill Quarry, Roman coins "Follis of Diocletian (284-305) and sestertius of Hadrian (117-38) found at Carley Hill Quarry in 1971.
- 2.9.4 **HER 359:** "A Roman Figure found at Fulwell, near Sunderland...Dr. Clanney accompanied this Donation with the following account: - 'In the month of November, 1820, immediately above the excavation of the Limestone at Carley Hill Quarry, which is situated about a quarter of a mile West of Fulwell Hill, in the parish of Monkwearmouth, and about 200 yards West of Hill House, the

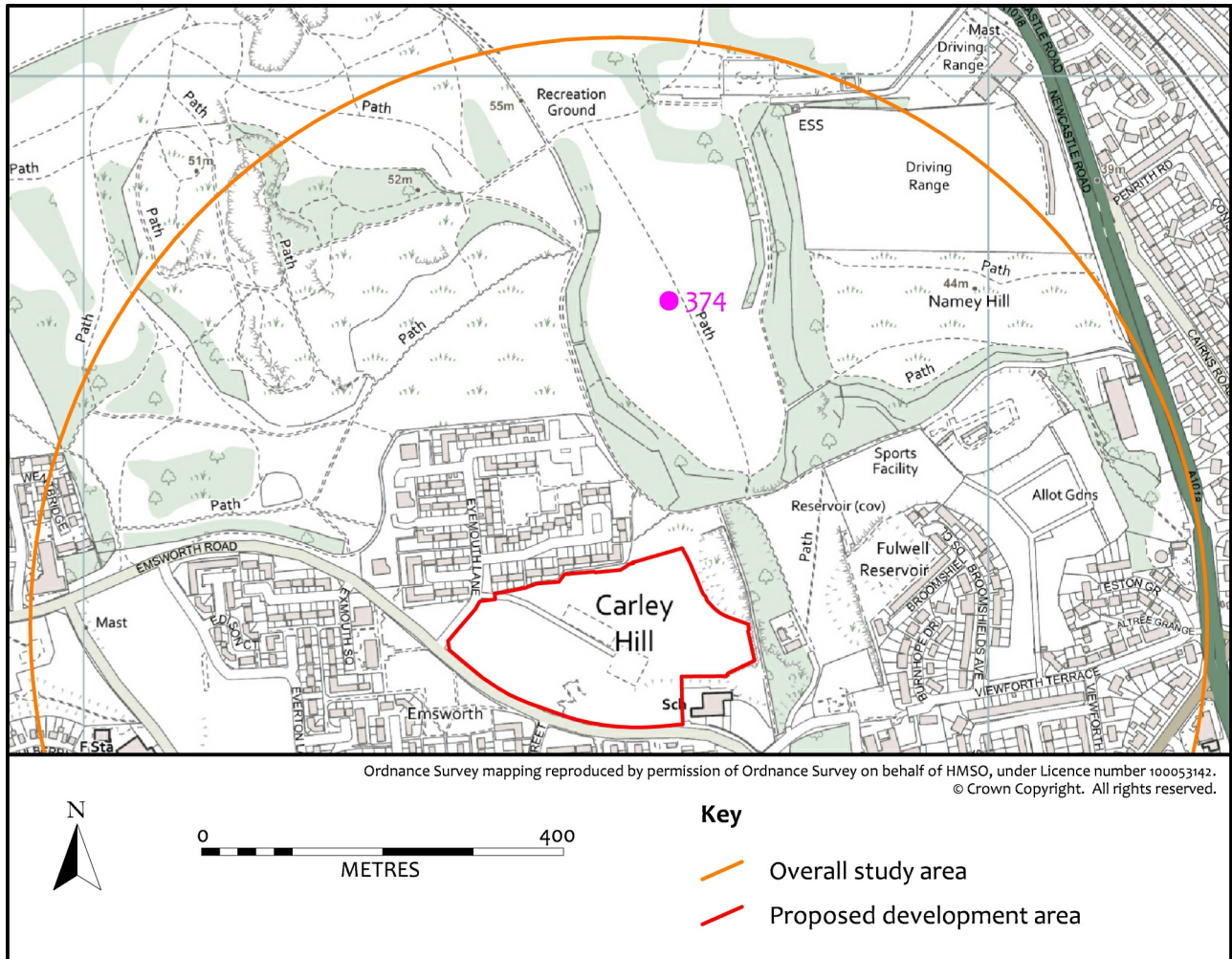


Figure 6. Potential Early medieval remains within the overall study area.

residence of Mr. Wake, sen., whilst removing the surplus soil, Thomas Dobson, quarryman, found the Roman Figure. There were found at the same time, several portions of Human Bones..."

- 2.9.5 **HER 397-400:** Fulwell Quarries, barrow. In 1759, in the course of working the limestone quarries, "a ridge of limestone and rubble" (sic) was removed. "The ridge was about 25 yards in length from east to west, its perpendicular height was about a yard and a half, its breadth at the top was near six yards, and the sides were sloping like the ruins of a rampart". In the middle of this bank, apparently covered by large flat stones (398), there was a large human skeleton (399), with 2 Roman coins near its right hand. (400) A later account adds that "a small urn of unbaked clay" was also found. Welfare suggests that this mound could well have been a Neolithic long cairn, and the burial a Roman insertion. The coins and the burial were contemporary, and probably not earlier than the beginning of the C3.

2.10 The early medieval period within the overall study area

- 2.10.1 **Post-Roman Britain** (AD 410 to mid/late 5th century): *The post-Roman period covers Britain from the breakdown of society after the departure of the Roman legions in AD 410, to the invasion and subsequent settlement of the Saxons in the later years of the same century.*
- 2.10.2 **The Saxon Migration** (Mid/late 5th century to AD 1066) *The Saxons first arrived en-masse in Britain following the departure of the Roman legions, though the date of the actual establishment of Saxon colonies is unknown, and assumed to be in the mid-late 5th century. It is also unknown whether the*

colonisation was peaceful or enforced, though the one written description of the process by Gildas suggests the latter. The Saxon period came to an end in the battle of Hastings in 1066.

- 2.10.3 No known archaeological material relating to these periods lies within the study area.
- 2.10.4 The Viking incursions and settlement (8th to 11th centuries) *There were a number of viking raids and limited colonisation of Britain during this time period, the oldest known attack being at Lindisfarne, Northumberland, in AD 793.*
- 2.10.5 **HER 374:** Fulwell, inhumation. "...a human skull and some bones, much in decay, were dug up by the side of Fulwell-hill, near Sunderland". Sykes goes on to remind the reader that, in C9, there had been battles with the Danes here, and in C17 Civil War actions.

2.11 The later medieval period within the overall study area

- 2.11.1 The later medieval Period (AD 1066 to 1485) *The later medieval period starts with the success of the Norman invasion at the Battle of Hastings in 1066, and sees a huge increase in building technology (such as the building of stone castles) and social expansion. The period ends with the beginning of the Tudor period in AD 1485.*
- 2.11.2 No known archaeological material relating to this period lies within the study area.

2.12 The post-medieval period within the overall study area

- 2.12.1 The Tudor Period and Elizabethan Era (AD 1485 to 1603): *This marks the period of time where Britain was ruled by the Tudor monarchs and includes pivotal events such as the Dissolution of the Monasteries in circa 1540. The Elizabethan era marked the end of the Tudor period and was named such due to the reign of Queen Elizabeth I (1558-1603).*
- 2.12.2 No known archaeological material relating to this period lies within the study area.
- 2.12.3 Stuart Period (AD 1603 to 1714): *This era covers the reign of the Stuart monarchs, with King James I being the first and the last being Queen Anne. This period is known for civil unrest and includes the English Civil War, the Popish Plot, the Glorious Revolution of 1688 and the Anglo-Dutch Wars. The last of the Stuart monarchs, Queen Anne died in 1714 without an heir to the throne and was succeeded by her second cousin, George of the House of Hanover, who became George I on the 1st August 1714.*
- 2.12.4 **HER 374:** Fulwell, inhumation. "...a human skull and some bones, much in decay, were dug up by the side of Fulwell-hill, near Sunderland". Sykes goes on to remind the reader that, in C9, there had been battles with the Danes here, and in C17 Civil War actions.
- 2.12.5 **HER 10887:** Southwick, Scottish army camp. On 24 March 1644, Leven mustered the Scottish troops to Southwick Hill. Cannons had been brought up river by Sunderland seamen.
- 2.12.6 Georgian era (AD 1714 to 1837): *The Georgian era covers the period from when George I was crowned on the 1st August 1714 to when Queen Victoria became monarch in 1837. The Georgian era marked a period of further unrest, and includes the Jacobite Risings or 1715 and 1745.*
- 2.12.7 **HER 2676:** waggonway connecting a limestone quarry, (HER 2675), to the Wear Lime Works, (HER 2679). Haulage was provided by an engine, (HER 2677), and a windlass, (HER 2678). The line was probably built c.1790-1800.
- 2.12.8 **HER 2682:** Carley Hill waggonway, took limestone from Carley Hill Quarry, (HER 2681), to the Carley Lime Works, on the Wear, (HER 2686). Traction was provided by Carley Hill Engine, (HER 2683). The line was probably built c.1790-1800.
- 2.12.9 **HER 2692:** waggonway from Fulwell Quarry, (HER 2691), to the Sheepfold Lime Works on the Wear, (HER 2753). Features along the line included a turntable, (HER 2693) and an engine, (HER 2694). It seems likely that the turntable gave access to a battery of Lime Kilns, (HER 2695). On the 1st edition OS mapping the waggonway appears to run through a short tunnel to the south of Monkwearmouth Station. The line was probably laid circa 1790-1800. It was abandoned in 1870

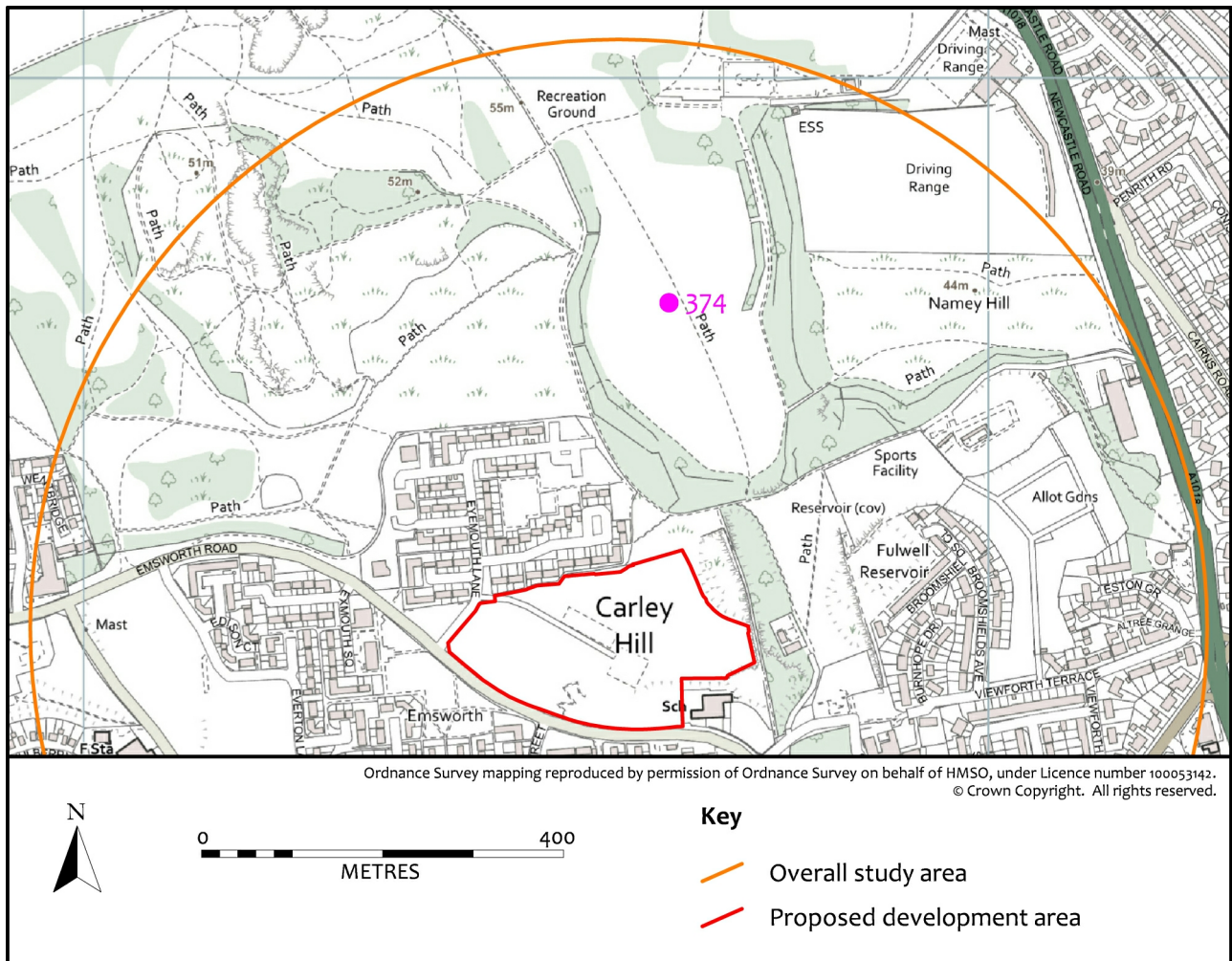


Figure 7. Potential Civil War remains within the overall study area.

when a link with the North Eastern Railway was built. First shown on Robson's map of 1827. Replaced a steep track shown on Raine's 1790 Eye Plan. On the first edition OS map of 1862, the lime kiln waggonway is carried through a tunnel under the tenements to the east of Bridge Pottery. The tunnel has presumably been backfilled with debris.

- 2.12.10 **HER 2697:** This is the most complete windmill in the region. Built in 1821 on the site of a previous mill, it remained in use until 1949 although it had lost its sails long before then. A gas engine installed c1900 powered the stones until closure. Some external restoration was undertaken by Sunderland Corporation in the 1950s. Since the early 1980s the Trust has stabilised the structure, reintroduced the floor levels and staircasing, reopened some blocked openings, installed new doors and windows, renewed the timber sail framework and reconstructed a non-operational fantail. The base of the mill is cylindrical, the large diameter set into sloping ground. The base occupies two floors and it supports a tapering 4-storey tower of smaller diameter so that the base also forms a reefing stage. The cap is hemispherical; its framing supports an iron windshaft with wooden brake wheel, iron cross-end and 4 sails. The base and tower, both of attractively weathered magnesian limestone are a special possibly unique feature being an extension of the podium design at Cleadon. Internally the first floor contains a dressing machine and a small alcove office with fireplace. The second floor houses the underdrives to two pairs of millstones with 3 ball governor operating on both pairs of stones together with a free standing belt driven pearl barley machine. The third floor has 2 pairs of millstones, the fourth is empty and fifth gives access to the cap. The striking and fantail gears are missing.

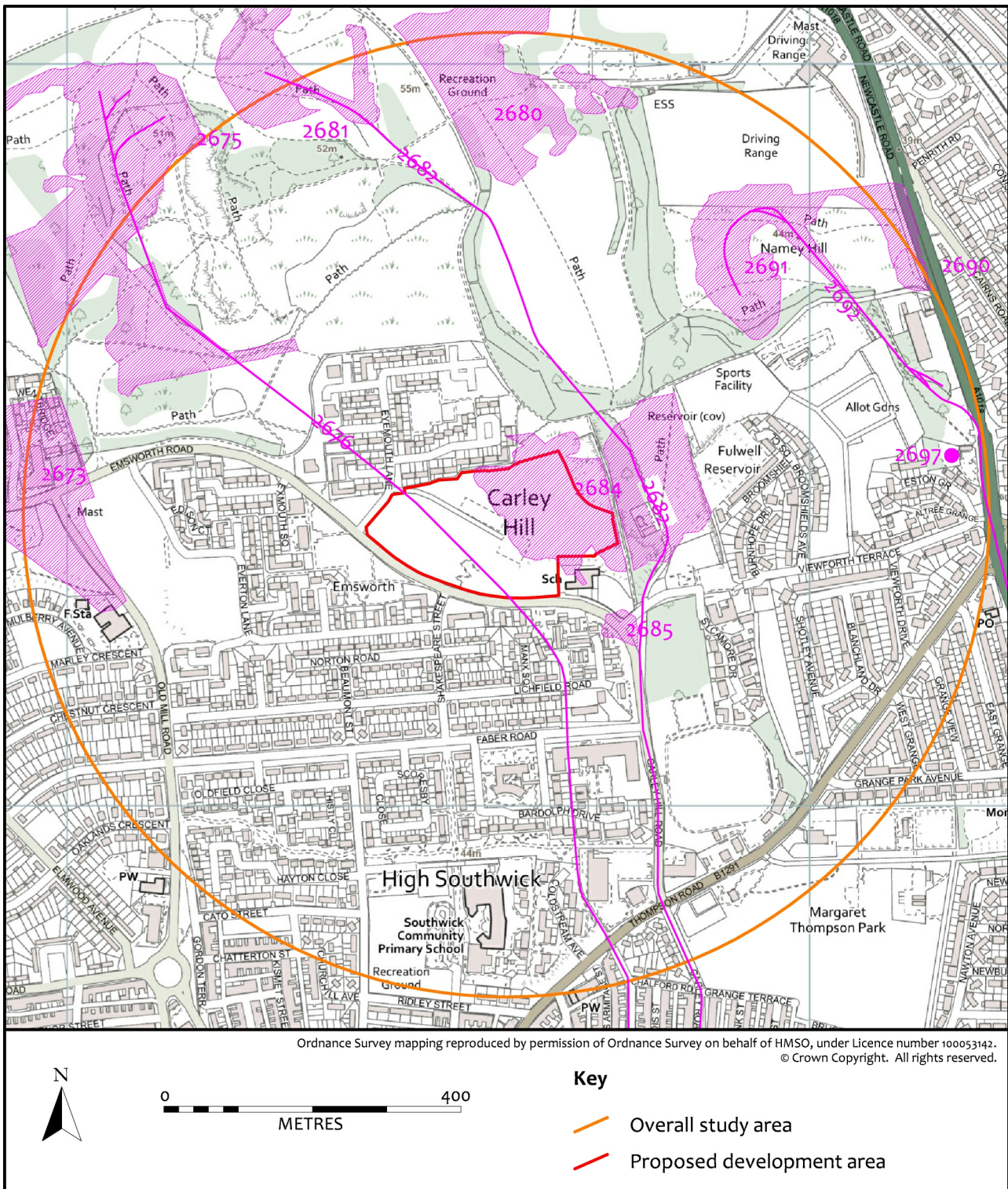


Figure 8. Potential late Georgian or early Victorian remains within the overall study area.

- 2.12.11 **HER 2673:** Limestone Quarry, marked as Old on the 1st edition OS mapping, so was out of use by 1855. Possibly late Georgian or early Victorian.
- 2.12.12 **HER 2675:** Limestone Quarry, linked to the Wear Lime Works (HER 2679) by a waggonway, (HER 2676). 1st edition Ordnance Survey Map, c.1855. Still active at the time of the production of the first edition Ordnance Survey, but likely to have been originally cut in c.1790-1800 at the time of the waggonway being constructed.

- 2.12.13 **HER 2680:** Limestone Quarries, marked as Old on the 1st edition OS mapping, which shows two old lime kilns within the quarry boundary (though just outside of the study area to the north). The site was probably out of use by 1855. Possibly late Georgian or early Victorian.
- 2.12.14 **HER 2681:** Carley Hill Quarry (Limestone), was linked to Carley Lime Works, (HER 2686), by Carley Hill waggonway, (HER 2682). Still active at the time of the production of the first edition Ordnance Survey, but likely to have been originally cut in c.1790-1800 at the time of the waggonway being constructed.
- 2.12.15 **HER 2684:** Limestone Quarries at Carley Hill, marked as Old on the 1st edition OS mapping, so was probably out of use by 1855. The Carley Hill waggonway (HER 2682) passed through this site. Possibly late Georgian or early Victorian.
- 2.12.16 **HER 2685:** Limestone Quarry at Carley Hill, marked as Old on the 1st edition OS mapping, so was probably out of use by 1855. Possibly late Georgian or early Victorian.
- 2.12.17 **HER 2690:** The eastern extent of this limestone quarry was marked as Old on the 1st edition OS mapping, so was out of use by 1855. Possibly late Georgian or early Victorian. The rest of the quarry however appeared to continue in use certainly until 1855.
- 2.12.18 The Victorian era (1837 to 1901): *The Victorian era covers the reign of Queen Victoria from her coronation on 20th June 1837 to her death on 22nd January 1901. This era marked a period of prosperity and reform.*
- 2.12.19 According to 1862 mapping, most of the quarries remained in use from the late 18th/early 19th century with the exception of the Carley Hill quarries HER 2684 and 2685, the Hill House quarry HER 2680 and the Namey Hill/Fulwell Quarry eastern extent HER 2690.
- 2.12.19 **HER 2673:** Limestone Quarry, marked as Old on the 1st edition OS mapping, so was at least partially out of use by the mid 19th century. The 1862 mapping does show potential active tracks between HER 2673 and 2674 to the southeast, so it may have been partially still in use.
- 2.12.20 **HER 2674:** Limestone Quarry. 1st edition Ordnance Survey Map, c.1855. Southeastern extension of quarry HER 2673.
- 2.12.21 **HER 2675:** Limestone Quarry, linked to the Wear Lime Works (HER 2679) by a waggonway, (HER 2676). 1st edition Ordnance Survey Map, c.1855. Still active at the time of the production of the first edition Ordnance Survey, but likely to have been originally cut in c.1790-1800 at the time of the waggonway being constructed.
- 2.12.21 **HER 2677:** An Engine House on waggonway HER 2676. On the 1st edition OS mapping it is shown as standing within the quarry HER 2675.
- 2.12.22 **HER 2681:** Carley Hill Quarry (Limestone), was linked to Carley Lime Works, (HER 2686), by Carley Hill waggonway, (HER 2682). 1st edition Ordnance Survey Map, c.1855.
- 2.12.23 **HER 2683:** Carley Hill Engine, on the Carley Hill waggonway, (HER 2682). 1st edition Ordnance Survey Map, c.1855.
- 2.12.24 **HER 2690:** The eastern extent of this limestone quarry was marked as Old on the 1st edition OS mapping, so was out of use by 1855. Possibly late Georgian or early Victorian. The rest of the quarry however appeared to continue in use certainly until 1855.
- 2.12.25 **HER 2691:** Fulwell Quarry (Limestone) was served by a waggonway, (HER 2692). 1st edition Ordnance Survey Map, c.1855.
- 2.12.26 **HER 2693:** A Turntable on waggonway HER 2692. This probably gave access to the adjacent battery of lime kilns, (HER 2695). 1st edition Ordnance Survey Map, c.1855.
- 2.12.27 **HER 2694:** Engine House, on waggonway HER 2692. 1st edition Ordnance Survey Map, c.1855.
- 2.12.28 **HER 2695:** Possibly five lime kilns, as shown on the 1st edition OS mapping. These probably used lime from the nearby Fulwell Quarries (HER 2691), brought via a waggonway (HER 2692). Generally well-preserved, multi-phased, battery of lime kilns of random, roughly-dressed magnesium

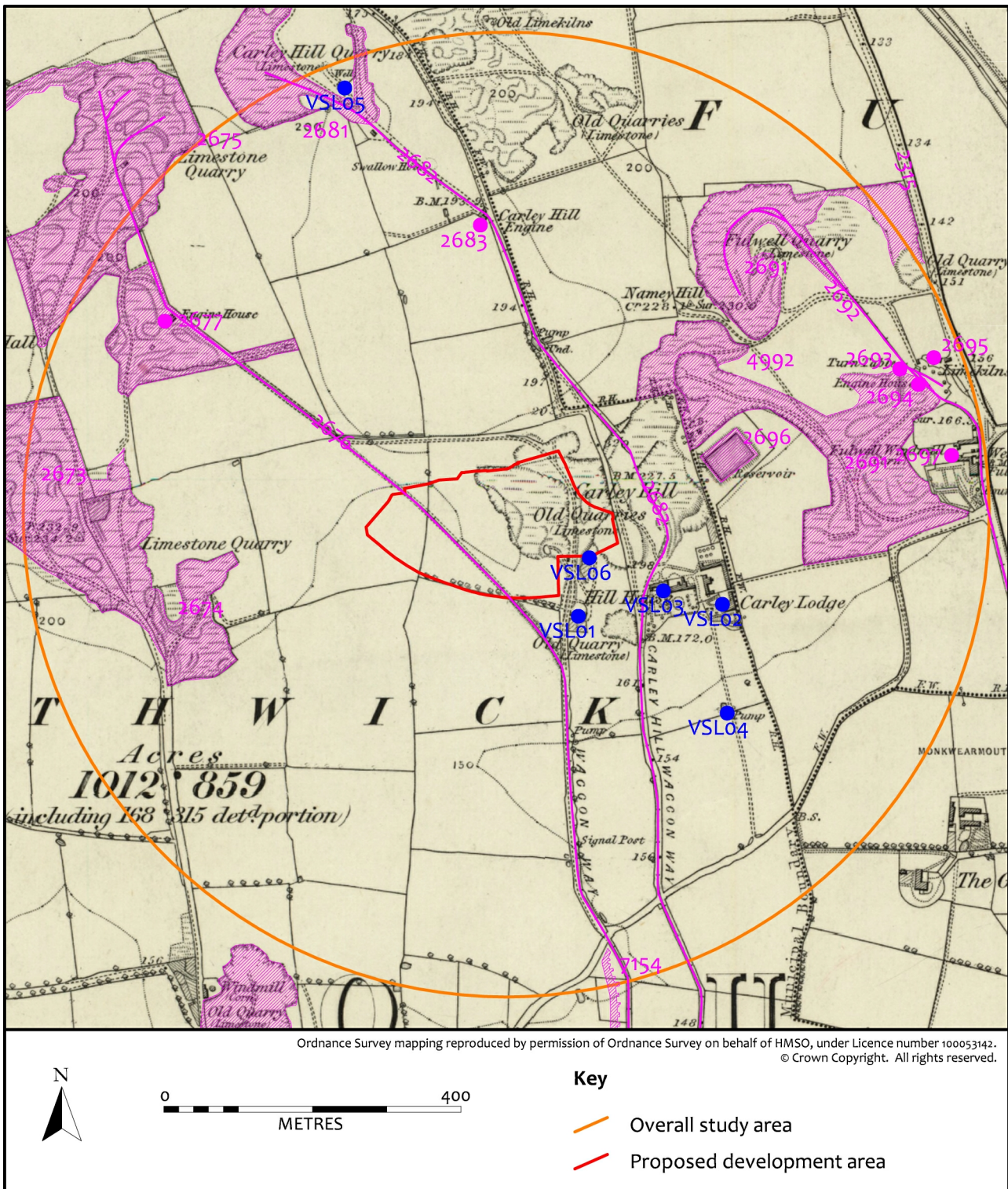


Figure 9. Extract from the 1862 Ordnance Survey map showing sites of historic interest.

limestone masonry, which operated for c200 years until closure in 1957. Kilns, which were formerly linked by three waggonways to the River Wear, burnt magnesium limestone from the adjacent 140 acre Fulwell quarry (now landfilled). North and south ends of the range are visible, central area currently occupied by a garage which employs the kilns façade as its west wall. North end, situated with the forecourt of a car showroom, consists of a series of four openings of different dimensions. Two openings have round-headed corbelled brickwork arches and have been blocked with firebricks except for a later inserted doorway. The other two have square iron girder lintelled

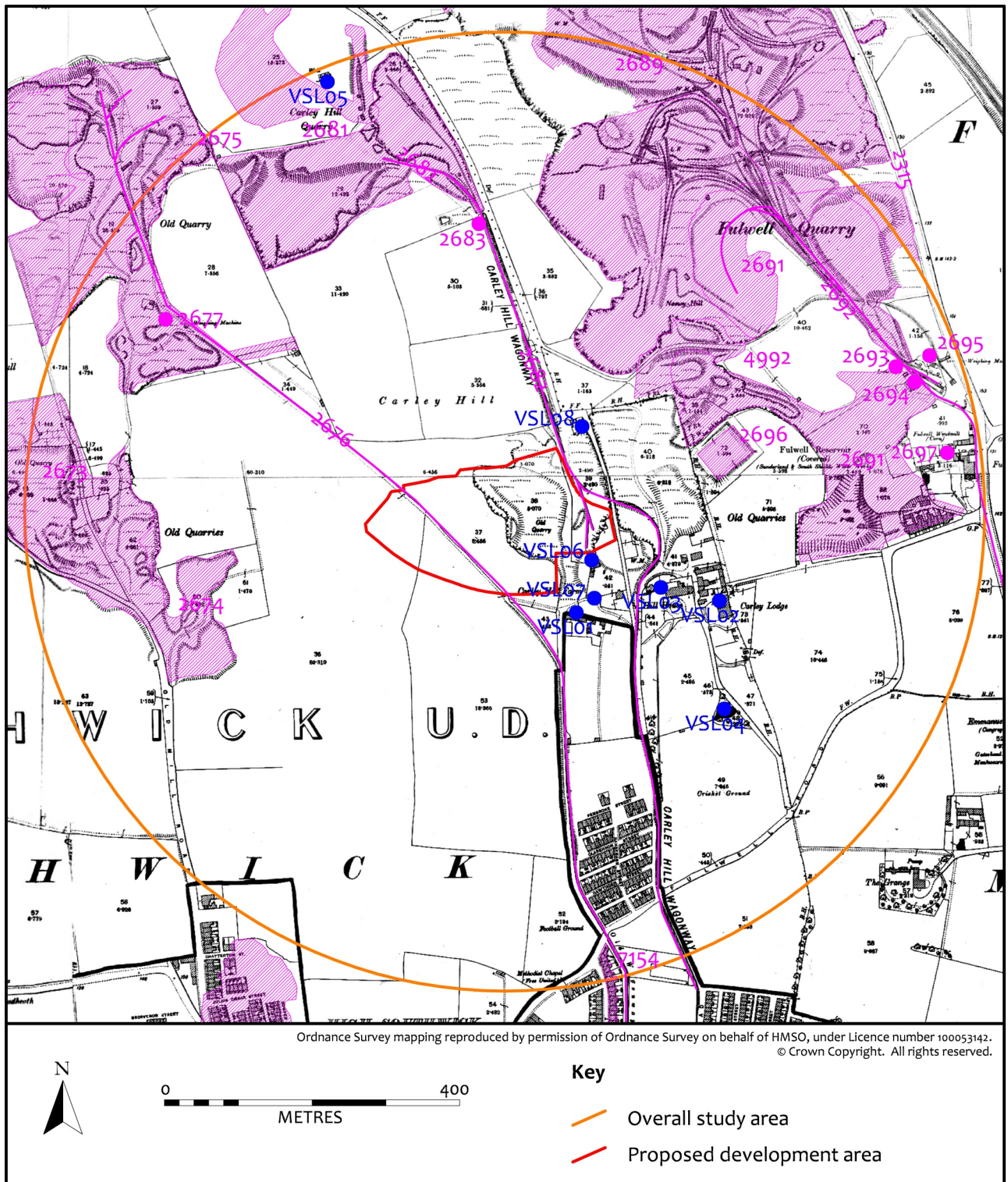


Figure 10. Extract from the 1897 Ordnance Survey map showing sites of historic interest.

roofs. Drawing eyes are obscured by debris. South end has four round-headed brickwork drawing arches and shows much evidence of remodelling. Further draw arches are believed to lie in the central area. Three oval pots are now infilled and grassed over. Site of additional kiln at NZ 391 599 now beneath recent housing development. A complex of kilns constructed in magnesian limestone to burn the same stone extracted from extensive quarries behind. The kiln structure is now within the Mill Garage site. Much of the quarried area with its unique "cannonball" formation has been reclaimed but formerly the routes of three 19th century waggonways for lime carriage

to the Wear could be followed. The multi-phased battery of kilns operated for around 200 years before closure in 1957. They burnt limestone from the 140 acre Fulwell Quarry. The aim of the recording was to understand how the garage building was built onto the listed structure, to advise how the garage could be removed without damaging the kilns and to ascertain if any repair work to the kilns is likely to be needed once the garage has been removed. Archaeological Research Services Ltd was to undertake the recording in September 2008. The report concludes that three drawing arches with round-headed corbelled archwork are visible inside the ground floor showroom and have been used as storage and office space. Two of the arches have been blocked at the rear by brickwork and the floors covered with concrete. The arch openings, which have iron girder lintelled roofs, have inserted modern wooden frames with glass panes and wooden doors. These panels should be able to be removed quite easily with little damage to the kilns. The opening to arch 3 has been completely blocked by modern limestone blocks. The stone façade of the kilns is also visible within the first floor of the garage building and in the first floor male toilets. The removal of the garage will be beneficial to the listed kilns as it will expose those areas presently hidden and will greatly improve its overall appearance. It will allow air to circulate around the façade, which is currently suffering from severe damp and water ingress due to being enclosed by the modern structure.

- 2.12.29 **HER 2696**: Reservoir, west of Carley Hill. 1st edition Ordnance Survey Map, c.1855. Covered by 1897. Sunderland and South Shields Water Works.
- 2.12.30 **HER 7154**: Southwick, James Armitage Street. Terrace of 15 cottages. No. 95 at left end facing Fulwell Road, is dated 1874; main terrace perhaps slightly earlier. Brick, some painted and No. 91 pebble-dashed, with painted ashlar dressings. Roofs originally Welsh slate but some renewed in synthetic composition slates. One storey. No. 95 has central renewed door in architrave with MILL VIEW COTTAGE inscribed in stone plaque above cornice. Flat stone lintels and projecting stone sills. Renewed sashes, pointed arched heads to renewed end windows. Date 1874 in panels in gable peak. These houses have sociological as well as architectural interest, representing the Sunderland single-storey cottage which was the preferred house-type for C19 working class housing in the town. In similar streets elsewhere in the Durham Coalfield, the larger houses would be for colliery officials.
- 2.12.31 **HER 2689**: Limestone Quarry, northwest extension of Fulwell Quarry. Marked on the 1897 Ordnance Survey map.
- 2.12.32 **VSL01**: Site of building, marked on 1862 Ordnance survey map (NGR 438688 559255). Not present on Historic Environment Record. The site had expanded by the time the 1897 mapping was produced.
- 2.12.33 **VSL02**: Site of Carley Lodge, marked on 1862 Ordnance survey map (NGR 438882 559271). Not present on Historic Environment Record. The site had expanded by the time the 1897 mapping was produced.
- 2.12.34 **VSL03**: Site of Hill House, marked on 1862 Ordnance survey map (NGR 438803 559289). Not present on Historic Environment Record.
- 2.12.35 **VSL04**: Site of pump house, marked on 1862 Ordnance survey map (NGR 438889 559125). Not present on Historic Environment Record.
- 2.12.36 **VSL05**: Site of well, marked on 1862 Ordnance survey map (NGR 438374 559967). Not present on Historic Environment Record.
- 2.12.37 **VSL06**: Site of building, marked on 1862 Ordnance survey map (NGR 438703 559334). Not present on Historic Environment Record. By 1942, this building had been subsumed by Carley Hill Farm.
- 2.12.38 **VSL07**: Site of Carley Hill Farm, marked on 1897 Ordnance survey map (NGR 438713 559275). Not present on Historic Environment Record.
- 2.12.39 **VSL08**: Site of a set of buildings, marked on 1897 Ordnance survey map (NGR 438696 559507).

2.13 The early modern period within the overall study area

- 2.13.1 [The Edwardian Period \(1901 to 1914\)](#): *The Edwardian period begins with the coronation of King Edward VII in 1901 and whilst his reign ended in 1910, the period is extended until the beginning of the Great War in 1914.*
- 2.13.2 No known archaeological material relating to this period lies within the study area.
- 2.13.3 [The War Years \(1914 to 1945\)](#): *The period in the 20th century beginning with the Great War and ending with the close of the 2nd World War.*
- 2.13.4 **HER 16815**: Sunderland, Carley Hill Rd, Wearmouth Colliery Welfare Ground. Opened in 1928 with a cricket pitch and bowling greens. This was the result of the setting up of the Miners Welfare Fund in 1920. The fund was raised via a levy on colliery revenues. The bulk of the fund was spent on the provision of pithead baths, but also community halls, indoor swimming pools and sports grounds like this one. The sports ground is pleasant but has no buildings of architectural merit.
- 2.13.5 **HER 16909**: Southwick, Margaret Thompson Park, bowling club. Opened 1938.
- 2.13.6 **HER 4992**: The Fulwell mirror has been revealed recently in modern reclamation work, and was designed to keep German zeppelins at bay. Examples of acoustic mirrors have long been known at RAF Biggin Hill and on the Kentish Coast, as well as in Malta. The mirrors are of three types. The Fulwell dish mirror was one of the Coastal Watcher type or Track Plotting Mirrors. It would have supplemented information derived from other sources such as the Radio Direction finding Stations, for example the Stockton on Tees Y station. This had a limited range of some 15 to 20 miles and was capable of giving a 4 minute Early Warning Alarm via London or the Senior Naval officers at Newcastle or Hull. The technology of these mirrors was remarkably modern. A signal was reflected by the dish to a collector head and thence to a receiver. The modus operandi was for the Duty Observer or 'Listener' to take up position in a bunker, usually in front of the 15ft mirror with the stethoscope head-set connecting him to the collector head, usually an amplified microphone, above his own head. The optimum sound effect received, coupled with the Doppler effect, nicely illustrated the track of the intruder. By evolving an excellent reporting system, its course could be tracked and plotted sufficiently accurately to allow the anti-aircraft defences to take defensive action. The Fulwell mirror was of a similar type to the two Yorkshire examples at Redcar and Boulby. The Fulwell example consisted of an 11ft high rear wall, some 18ft across, containing a 15ft mirror. This was made possible because the mirror was tilted backwards so that its axis was above the horizontal. This provides some evidence that its original purpose was to detect aircraft and not ships. It had two short walls for stability and to exclude ground noises. The noise of an approaching zeppelin's engine could be picked up some 15 minutes away. The Fulwell example has its own interest in that not only does the whole mirror seem somewhat smaller than the Redcar example, but the collector head may have been secured in front of the mirror by wires across the arms, so allowing the head to be variably positioned, unlike the fixed stand-pipe still surviving at Kilnsea. The Fulwell Mirror probably dates to the 1917-1918 period. A watching brief revealed projecting concrete foundations within the immediate curtilage of the mirror which may have been a raft or plinth and a concrete plinth of a pyramidal shape surrounding a hollow metal column or pipe. A similar construction to this has been noted at Kilnsea and interpreted as a listening post. The Kilnsea example was previously thought to be the only surviving example. There is no evidence of a listening trench in front of the mirror.
- 2.13.7 **HER 5778**: WW2 roadblock constructed 1940-1, now destroyed. Stop-lines included permanent and moveable road barriers. The most substantial works were formed from square or cylindrical concrete blocks entwined with barbed wire and fitted with explosives. Moveable obstacles consisted of horizontal or vertical bars or poles of steel, set between concrete blocks. Bent steel girders could also be slotted into sockets cut into the road surface. Modern road improvements are removing evidence for both, but some of the original blocks or apertures have been observed

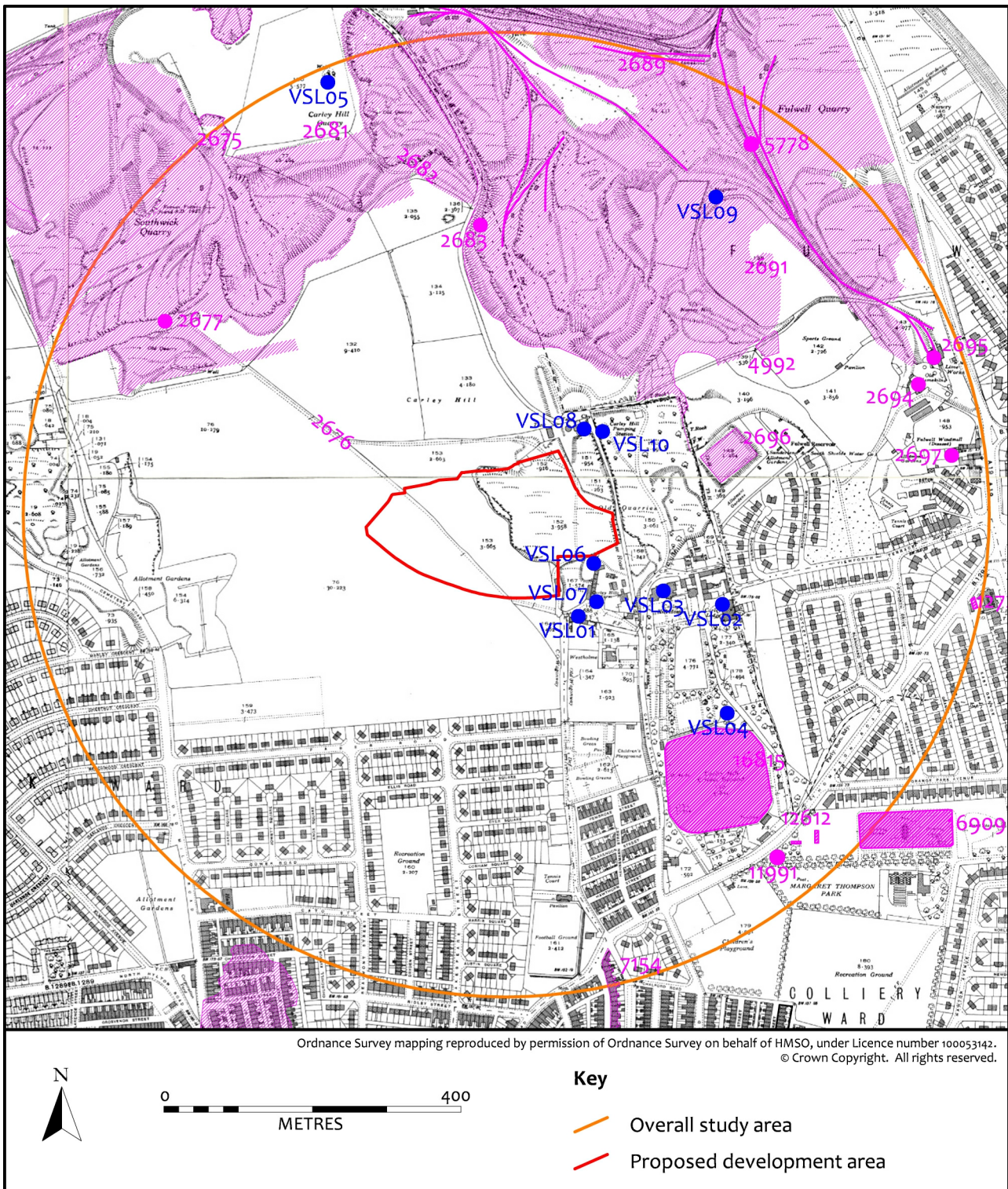


Figure 11. Extract from the 1942 Ordnance Survey map showing sites of historic interest.

in-situ. Cylindrical blocks have been used to line private roads or placed on river banks to combat erosion.

- 2.13.8 **HER 11991:** Southwick, Thompson Road, war memorial. On left side of entrance to recreation ground in the grass. Originally in the Miners Union Hall on Roker Avenue. The memorial was later moved to Wearmouth Colliery and placed outside the canteen. Then it was moved here. It was unveiled at the Miners Union Hall in March 1921.

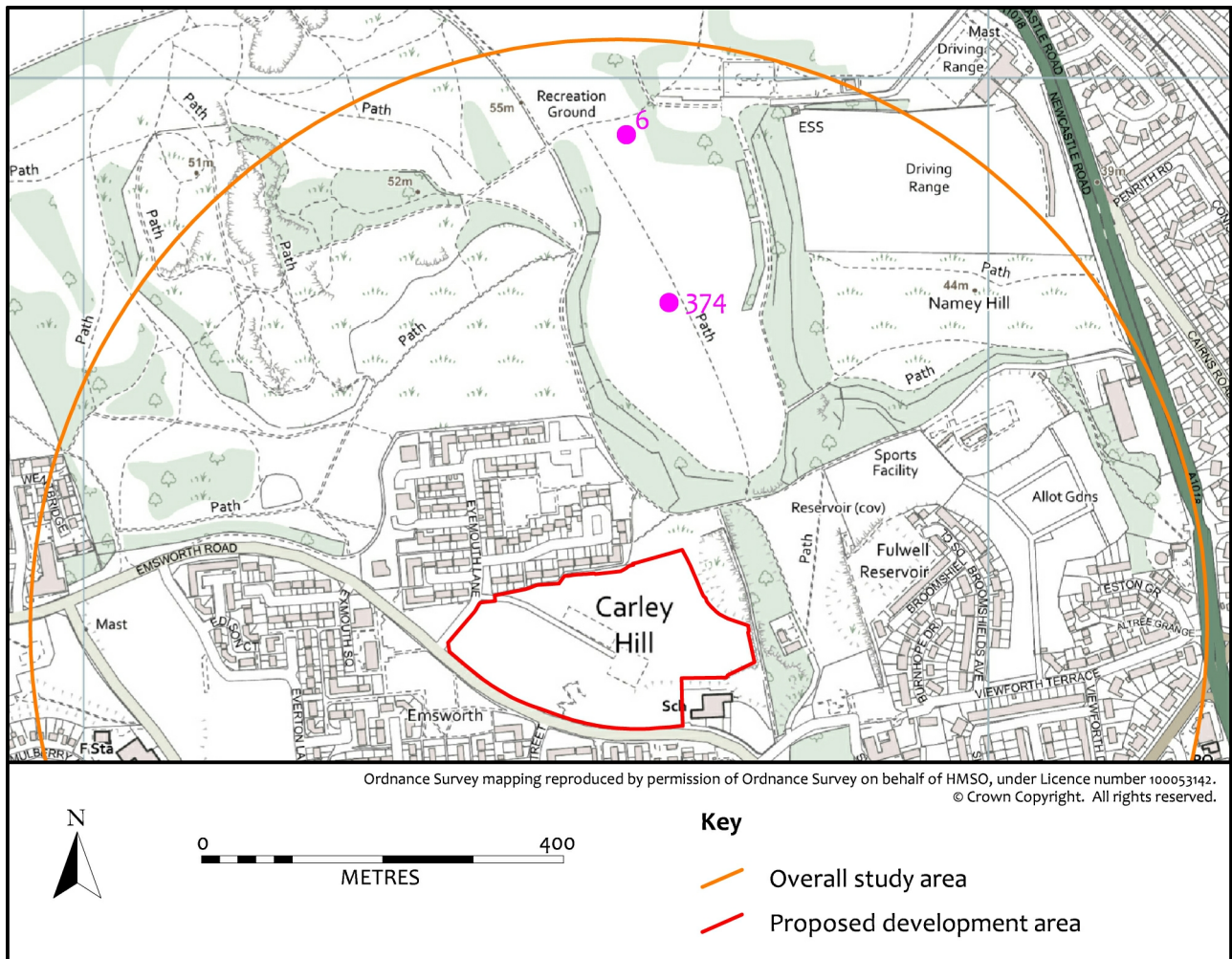


Figure 12. Location of sites of unknown or uncertain date within the overall study area.

- 2.13.9 **HER 12612**: Fulwell, Newton Avenue, air raid shelters. Two are in Margaret Thompson Park close to the Anti Aircraft Battery (HER 5510). There is also a long row of shelters behind the houses on Newton Avenue.
- 2.13.10 **HER 12728**: Fulwell, Thompson Road, air raid shelters.
- 2.13.11 By 1942, the Fulwell and Southwick quarries had both expanded massively, with changes to the rail system moving product from those quarries.
- 2.13.12 **VSL09**: Site of magazine, marked on 1942 Ordnance survey map (NGR 438874 559820).
- 2.13.13 **VSL10**: Site of Carley Hill Pumping Station, marked on 1942 Ordnance survey map (NGR 438721 559504).
- 2.14 Sites of an uncertain date within the overall study area
- 2.14.1 **HER 6**: Fulwell Quarries, stags' horns. "A discovery...was made several years ago. In working the lime-stone quarries, 'a kind of square pit was opened,...within which were deposited, a quantity of stags' horns cut into lengths of three or four inches, and resting amongst a deep-coloured substance most resembling animal matter". Recorded in 1820. Likely prehistoric in date.
- 2.14.2 **HER 374**: Fulwell, inhumation. "...a human skull and some bones, much in decay, were dug up by the side of Fulwell-hill, near Sunderland". Sykes goes on to remind the reader that, in C9, there had been battles with the Danes here, and in C17 Civil War actions. Likely either Saxon/Viking or 17th century in date.

2.15 Previous archaeological investigations undertaken

- 2.15.1 **HER Event 4156:** Fulwell Acoustic Mirror Assessment 2014, The Archaeological Practice. Archaeological assessment on Fulwell Acoustic Mirror to advise on potential/constraints for renovation work to remove the mirror from English Heritage's Buildings at Risk register.
- 2.15.2 **HER Event 4266:** Fulwell Acoustic Mirror Geophysics survey 2014, Phase Site Investigations Ltd. Ground penetrating radar survey of the site around the Fulwell Acoustic Mirror to determine if any features such as a trench or bunker may be present. An area of disturbance could indicate the presence of an infilled cut feature and as such could potentially be associated with the remains of an infilled trench.
- 2.15.3 **HER Event 3102:** Fulwell Lime Kilns Building Recording 2008, Archaeological Research Services. An archaeological building recording was carried out prior to the demolition of a modern former car showroom standing against the limekilns since the 1950s. Three drawing arches were visible inside the building and had been used as storage space. The stone façade of the kilns was exposed on the ground and first floor. The kilns were constructed in phases during the 18th and 19th centuries. Four kilns were located outside the showroom in the present car forecourt. This work records the area within the showroom only. The removal of the modern buildings will be beneficial to the kiln structure as it will expose those areas presently hidden and will improve the overall setting of the monument.
- 2.15.4 **HER Event 3110:** Whitchurch Road, Witherwack Evaluation 208, Archaeological Services University of Durham. Excavation of 4 evaluation trenches uncovered natural sub-soil at a shallow depth below the topsoil.
- 2.15.5 **HER Event 2096:** Fulwell Windmill Building Recording 1996, Heritage Engineering. Fulwell Windmill is one of only 16 grade II* listed buildings in the City of Sunderland. It is a nationally important example of a vaulted tower windmill and is a cherished community asset and iconic landmark. Dating from the early years of the 19th century, the Windmill is an unusually complete example of a 'vaulted tower mill'. Its design is typical of five floor English tower mills, but Fulwell Mill is unique among this group for having the outside gallery built as part of the main structure, topping the first two floors. Built of magnesian limestone blocks from the adjacent Fulwell quarry, it is actually six storeys tall, but its height is deceptive because the structure is built into the slope of the hill. Fulwell Mill is also unique regionally for being the most internally complete example of its type, retaining almost all of its machinery and working parts and providing physical evidence of crafts and traditions that span over seven hundred years of English history.
- 2.15.6 **HER Event 2202:** Carley Hill Evaluation 1990, Tyne and Wear Museum Service. 17 trenches were excavated in an area which has produced prehistoric and Roman objects. A ditched enclosure of prehistoric date was found. The enclosure was oval shaped. The perimeter ditch was 5-7m wide and 1m deep. A posthole may have been part of an entrance. The bottom of the ditch was filled with dolorite nodules (from Teesdale). Only a small part of the interior was examined. Part of a circular setting of stake holes were found. Half of the enclosure lies under housing. C18 and C19 ridge and furrow overlay the enclosure. In 1992 four more trenches were opened. It found that archaeological features are unlikely to survive in the interior. The ditch had a bank on its interior side and a probable exterior counterscarp.
- 2.15.7 **HER Event 2203:** Carley Hill Geophysical survey 1992, Tyne and Wear Museum Service. Survey over the site of a prehistoric enclosure. Evidence of quarrying and field boundaries were identified. The enclosure did not show up due to ferrous litter on the site.
- 2.15.8 **HER Event 3718:** Marley Crescent Assessment 2012, Ian Farmer Associates Ltd. An archaeological and geotechnical desk-based study of a small area of land bounded by Marley Crescent and Old Mill Road, Southwick. Archaeological trial trenches were recommended across the site to assess the nature of any potential deposits. Prehistoric and Roman finds and burials are known within 500m of the site.

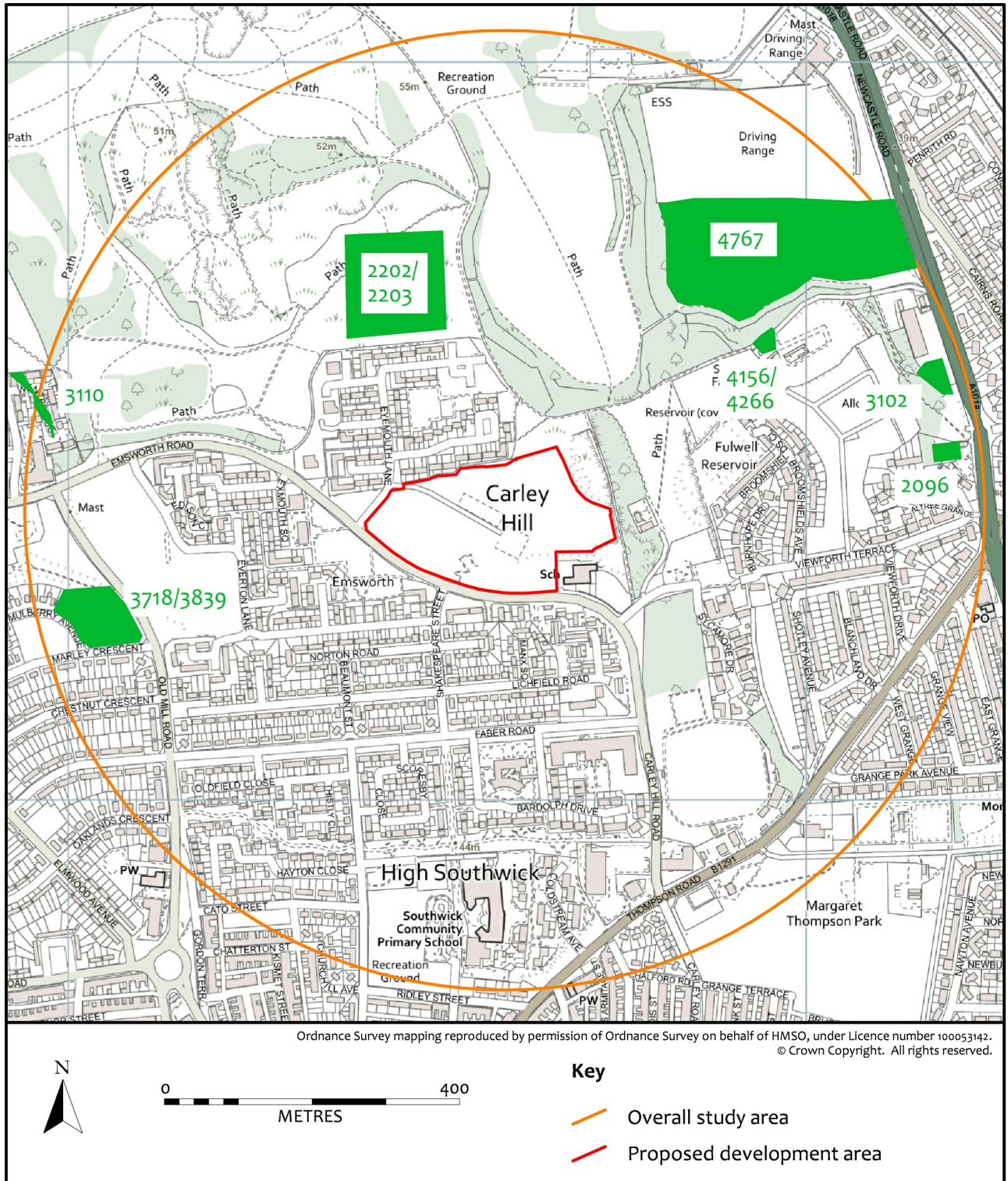


Figure 13. Location of sites of previous archaeological investigations within the overall study area.

- 2.15.9 **HER Event 3839:** Marley Crescent, High Southwick Evaluation 2013, Tyne and Wear Museum Service. Two trial trenches measuring 30m and 10m x 1.8m were excavated on the site following a DBA which identified high density prehistoric and Roman activity within the vicinity. No archaeological features or finds were found in either trench. Natural bedrock was encountered in both trenches close to the modern ground surface.
- 2.15.10 **HER Event 4767:** Newcastle Road Geophysics, 2018 Phase Site Investigation Ltd. Geophysical survey of c.4.4 ha. The anomalies identified by this survey all probably relate to modern material / objects

and geological / pedological variations. There are several areas of strong responses and magnetic disturbance from features / material across the site such as an infilled quarry and former mineral railway.

3. FOCUS ON THE PROPOSED DEVELOPMENT AREA



Plate 2. Extract from the 1862 Ordnance Survey map with the proposed development area outlined in red.

3.1 Introduction

3.1.1 With Section 2 dealing with the 650m radius study area as a whole, Section 3 focuses on the proposed development area and its immediate surroundings. The site visit was undertaken on the 20th July 2020.

3.2 Historic mapping

3.2.1 Plate 2 above shows the boundary of the development area overlaid on the 1862 Ordnance Survey map (surveyed originally in 1855 but published in 1862). The map shows the northeastern segment of the site as Carley Hill 'Old Quarry' - a limestone quarry likely originally worked in the late 18th century or early 19th. This quarry (HER 2684, see Section 2.12.15) would have removed early archaeological material, including potential human remains some one which were discovered during quarrying in 1834 (HER 16, see Section 2.8.1).

3.2.2 As well as the quarry, the map also shows the line of the late 18th century waggonway (HER 2676, see Section 2.12.7) which connected the limestone quarry northwest of the development area (HER 2675) to the Wear Lime Works (HER 2679) so the south, cutting northwest-southeast through the western section of the PDA.

3.2.3 By the time the 1897 Ordnance Survey map (Plate 3) was published (surveyed in 1895), further rail sidings had moved into the eastern extent of the development area (re-using the backfilled quarry) with the Carley Hill waggonway (HER 2682, see Section 2.12.8) altering course. The southern section of the old quarry had also been further backfilled and footpaths removed, and the 18th century waggonway previously noted running northwest-southeast through the western segment of the

site had also been removed and was by then a field boundary with a marked foot-path to the south of it.

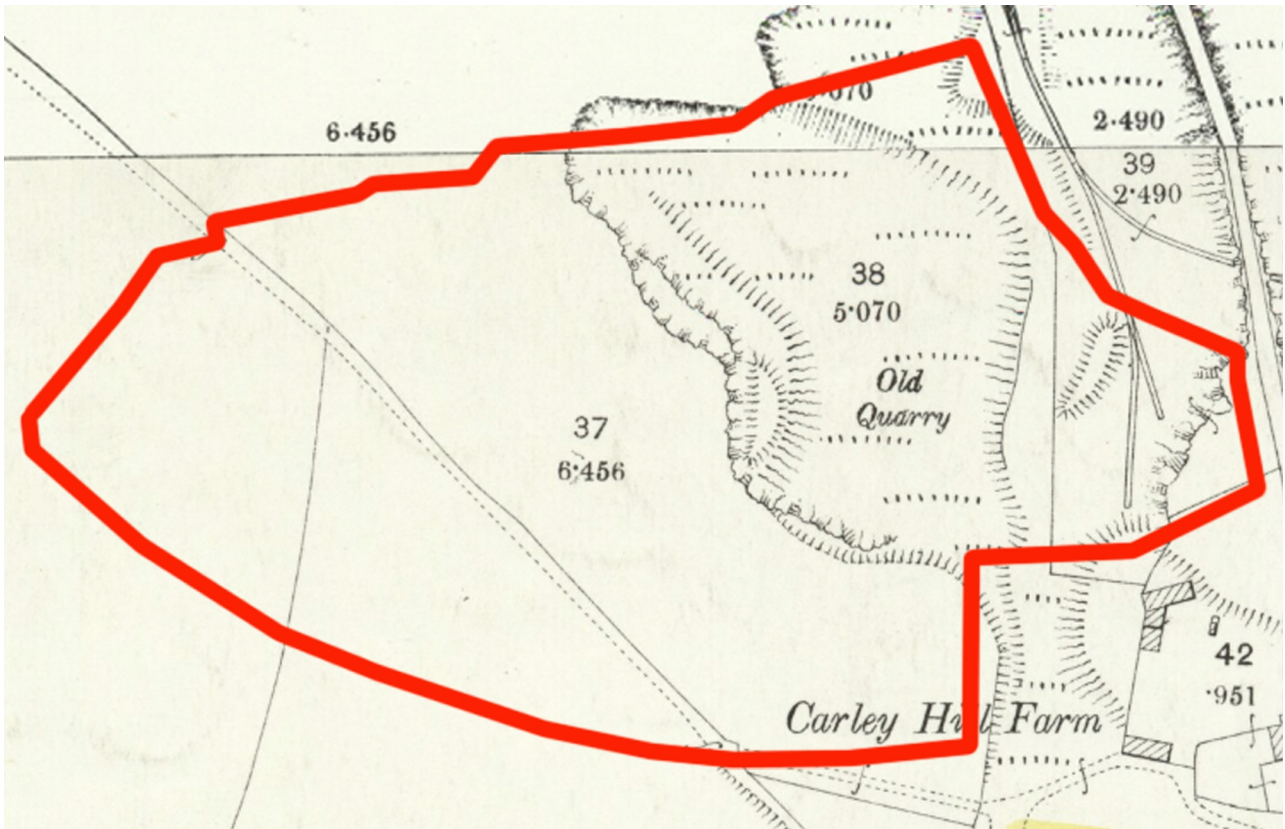
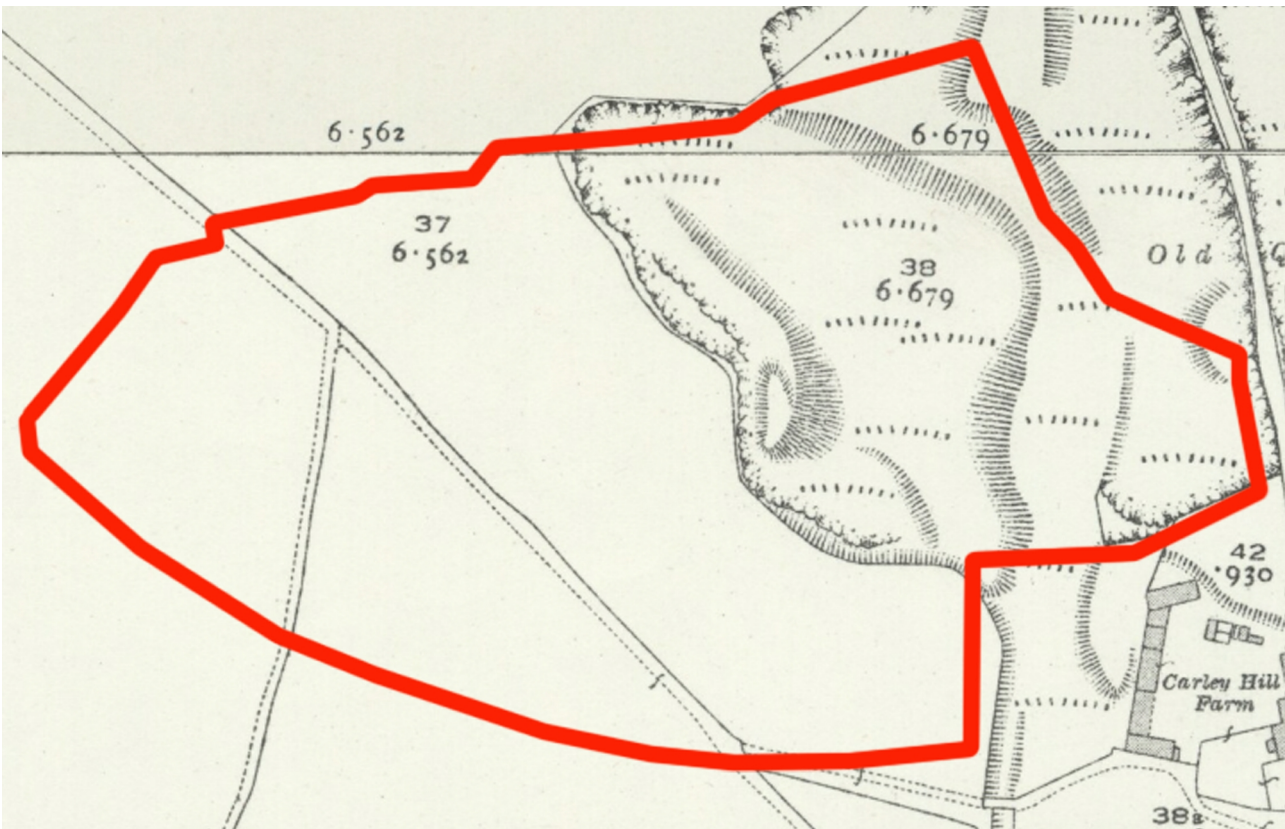


Plate 3. Extract from the 1897 Ordnance Survey map with the proposed development area outlined in red.

Plate 4. Extract from the 1919 Ordnance Survey map with the proposed development area outlined in red.



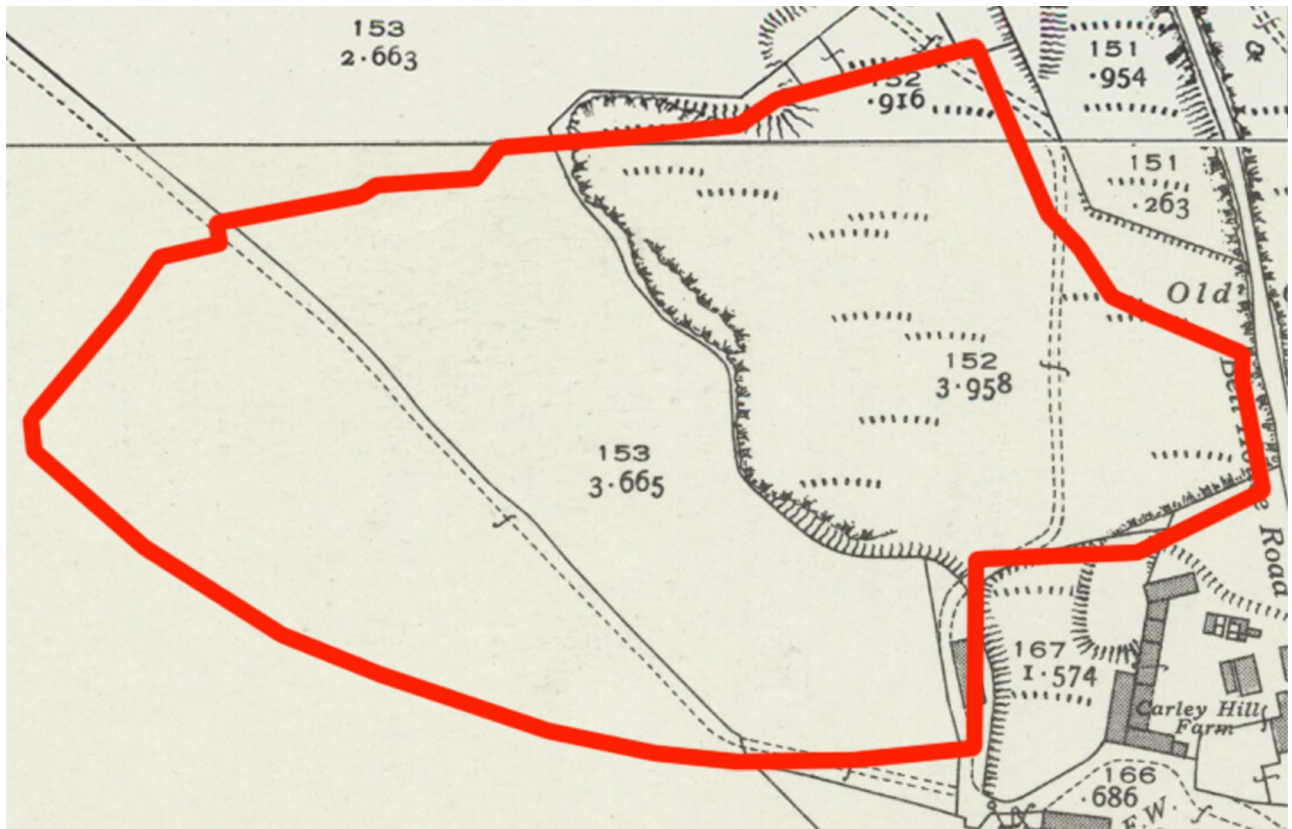


Plate 5. Extract from the 1946 Ordnance Survey map with the proposed development area outlined in red.

- 3.2.4 The 1919 Ordnance Survey map (surveyed in 1914, *Plate 4*) shows much the same picture as the late 19th century mapping, bar the fact that the railway sidings in the eastern section of the site had been removed.
- 3.2.5 The 1946 Ordnance Survey map (surveyed in 1941, *Plate 5*) shows that the quarry had for the most part been landscaped, and by this time had an active footpath through it. The southwest-northeast aligned field boundary in the western section of the site had also been removed. A building, presumably part of the Carley Hill Farm complex can be seen on the southeastern border of the PDA.
- 3.2.6 By the time the 1955 Ordnance mapping was produced (not included here due to copyright) the quarry was not shown at all within the PDA, so it can be assumed that the feature had been completely backfilled and landscaped by that time.
- 3.2.7 The Carley Hill Junior Mixed and Infant School had been built by 1966 - the school closed in 2004.

3.3 Previous planning applications

- 3.3.1 Based upon a post-code search (SR5 2QA) no previous planning applications for the PDA could be found.

3.4 Aerial photography

- 3.4.1 *Plates 6-8* show the aerial photography of the site available at the time of the assessment being produced.
- 3.4.2 *Plate 6* shows the site as it was in 2012, eight years after the school had closed. Between the 1966 Ordnance mapping and the extent of the buildings on this aerial image, we can extrapolate the extent of damage on any archaeological remains present caused by modern school foundations (see Section 4).



Plate 6. Aerial view of the proposed development area in April 2012 (dataset © 2020 Bluesky)

Plate 7. Aerial view of the proposed development area in April 2017 (dataset © 2020 Google)





Plate 8. Aerial view of the proposed development area in April 2018 (dataset © 2020 Google)

- 3.4.3 Plate 7 shows the site in 2017, after the school has been demolished. Debris from the demolition can be seen north of the tarmac hard standing areas (left *in-situ*).
- 3.4.4 Plate 8 shows the site in April 2018: the disturbed ground of the backfilled quarry and subsequent levelling of school demolition deposits north of the hard-standing shows as disturbed and uneven against the land to the south of the tarmac areas.

3.5 LIDAR

- 3.5.1 *LIDAR is an abbreviation of Light Detection and Ranging which is a survey method wherein light is used in the form of a pulsed laser to measure heights and distances from an overhead aircraft, essentially generating a 3D laser model of the landscape. Originally conceived in the 1960s to detect submarines from aircraft, the method is now used to map terrain. The data set available for general use and in this case for identifying potential archaeological surface features is open data provided by the Environment Agency, with the best resolution for the study area being 1m. For the most part, the LIDAR data is centred around water systems and as such is often incomplete.*
- 3.4.2 Only a low resolution file, DSM resolutions 2m (2017 dataset) was available for the proposed development area. The data is represented in Plate 9, with the current settings: vertical scale ratio 2; light azimuth 315; light altitude 25.
- 3.4.3 The LIDAR highlights a ridge and platform north of the school, but both lie within the quarried areas and thus must be 20th century backfilling/landscaping features.
- 3.4.4 The sharp decline and fall to the south from the quarried area in the southeastern section is evident on the LIDAR: no further features are notable from the data due to the poor resolution of the dataset.

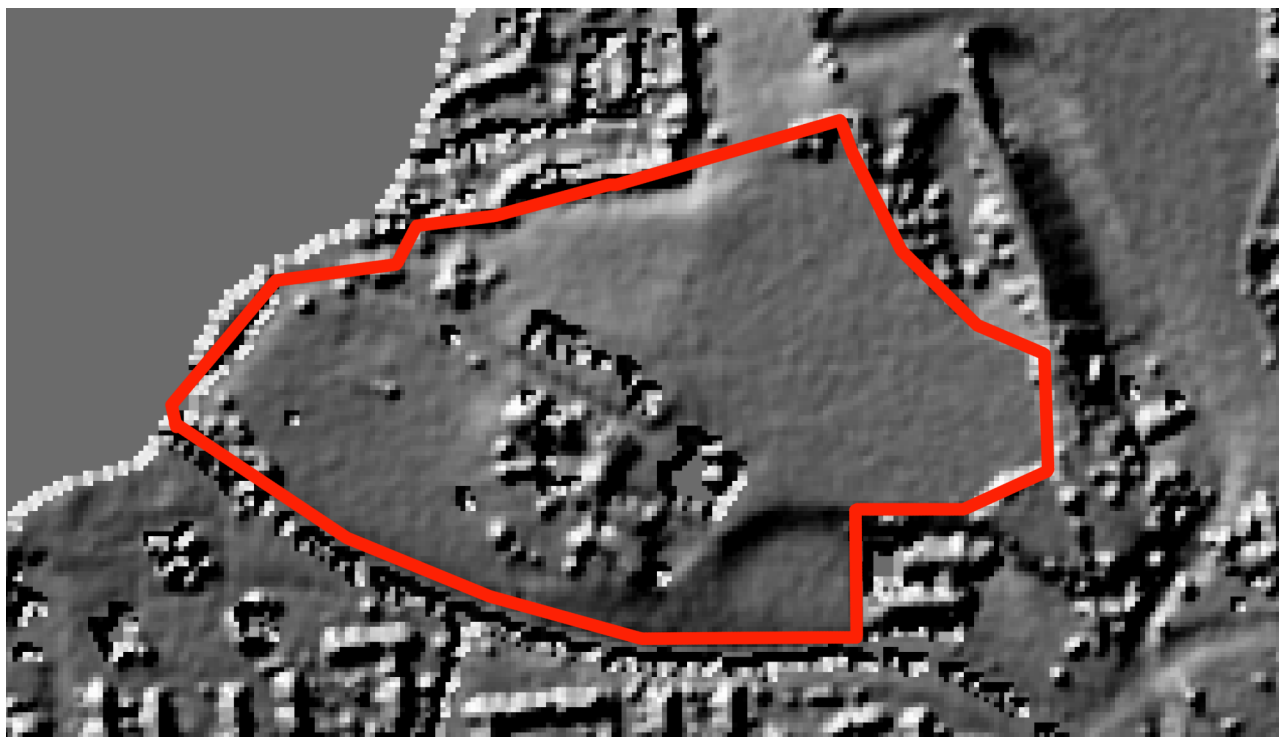


Plate 9. LIDAR of the PDA

3.6 Ground investigation works

3.6.1 On 20th - 22nd July 2020 JNP Group undertook the Phase I and Phase I Geo-Environmental survey of the site. This comprised four trial trenches, thirteen trial pits, four dynamic sampler boreholes and three cable percussion boreholes. *Note that the data from the four trial trenches was not included in the survey report: due to their location it can be seen on the plan that TT01-03 lay on the edge of the quarry and as such would have little or no impact on archaeological remains. However, TT04 appears to lie outside of the quarried area in a potentially undisturbed section of ground at the southern extent of the site, suggesting that the trench may have impacted on archaeological remains if any were present in this area.*

- TP01 did not encounter the undisturbed geological horizon by 3m below the modern ground surface;
- TP02 did not encounter the undisturbed geological horizon by 2.1m below the modern ground surface;
- TP03 encountered the undisturbed geological horizon at 0.6m below the modern ground surface;
- TP04 encountered the undisturbed geological horizon at 0.3m below the modern ground surface;
- TP05 encountered the undisturbed geological horizon at 0.6m below the modern ground surface;
- TP06 did not encounter the undisturbed geological horizon by 1.2m below the modern ground surface;
- TP07 encountered the undisturbed geological horizon at 1.1m below the modern ground surface;
- TP08 encountered the undisturbed geological horizon at 1.4m below the modern ground surface;

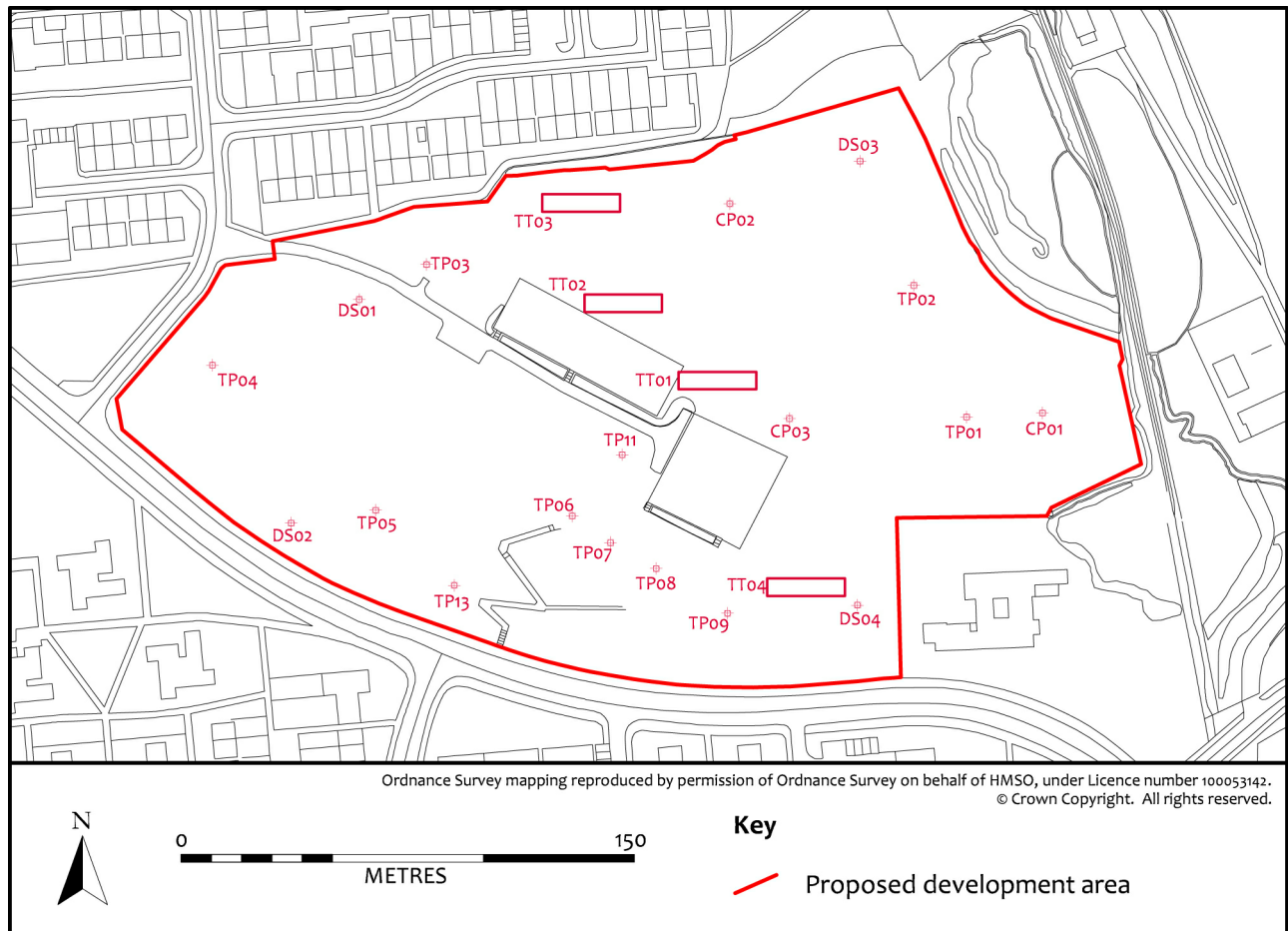


Figure 14. Location of ground investigation survey works within the proposed development area.

- TP09 encountered the undisturbed geological horizon at 1.8m below the modern ground surface;
- TP10 (not located on site plan in survey report) encountered the undisturbed geological horizon at 0.1m below the modern ground surface;
- TP11 encountered the undisturbed geological horizon at 0.4m below the modern ground surface;
- TP12 (not located on site plan in survey report) encountered the undisturbed geological horizon at 0.4m below the modern ground surface;
- TP13 was not detailed in the report;
- DS01 encountered the undisturbed geological horizon at 0.7m below the modern ground surface;
- DS02 encountered the undisturbed geological horizon at 0.7m below the modern ground surface;
- DS03 did not encounter the undisturbed geological horizon by 5m below the modern ground surface;
- DS04 did not encounter the undisturbed geological horizon by 5m below the modern ground surface;
- CP01 encountered the undisturbed geological horizon at 7.5m below the modern ground surface;
- CP02 encountered the undisturbed geological horizon at 11.5m below the modern ground surface;

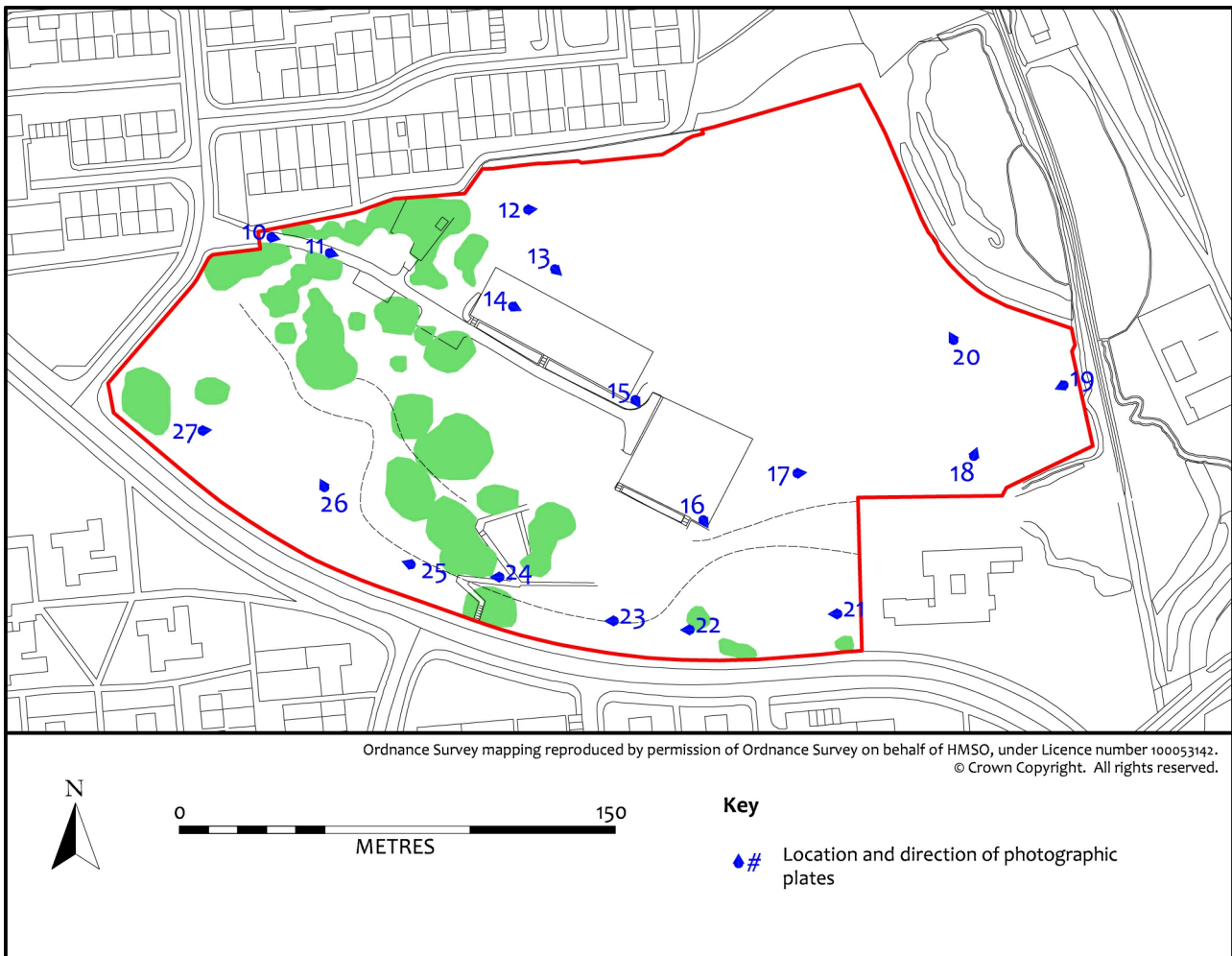


Figure 15. Location and direction of Plates 10-27 within the proposed development area.

- CP03 encountered the undisturbed geological horizon at 12m below the modern ground surface.

3.7 Site visit

- 3.7.1 Figure 15 shows the location and direction of Plates 10-27, included here to illustrate the results of the site visit.
- 3.7.2 Plate 13 shows the excavation of TT02, which was approximately 3m wide rather than the 5.8m width shown on the ground investigation survey plan.
- 3.7.3 Plates 14 and 15 show the current hard standing tarmac areas remaining from the school.
- 3.7.4 Plates 18 and 19 show the drilling of CP01.
- 3.7.5 Plates 16, 21-27 show the lower ground (the dashed lines in the plan represent a break/base of slope) to the south of the school grounds, most likely to be undisturbed by the school foundations and former quarry works.



Plate 10. The main access road into the site, looking east.

Plate 11. The main access road into the site, looking east.





Plate 12. The northern extent of the site, looking east.

Plate 13. Excavating TT02.





Plate 14. Area of tarmac hard standing, looking southeast.

Plate 15. Area of tarmac hard standing, looking southeast.





Plate 16. The lower southeastern extent of the site, looking east.

Plate 17. Looking east toward the eastern extent of the site.





Plate 18. Drilling CP01.

Plate 19. Drilling CP01.





Plate 20. The northeastern section of the site, looking northwest.

Plate 21. The southeastern section of the site, looking west.





Plate 22. The south-facing slopes looking west.

Plate 23. The south-facing slopes looking west.





Plate 24. Fragments of school footpath remaining.

Plate 25. The southwestern section of the site, looking west.





Plate 26. The western section of the site looking northwest.

Plate 27. The western section of the site looking northeast.



4. ARCHAEOLOGICAL IMPACT ASSESSMENT

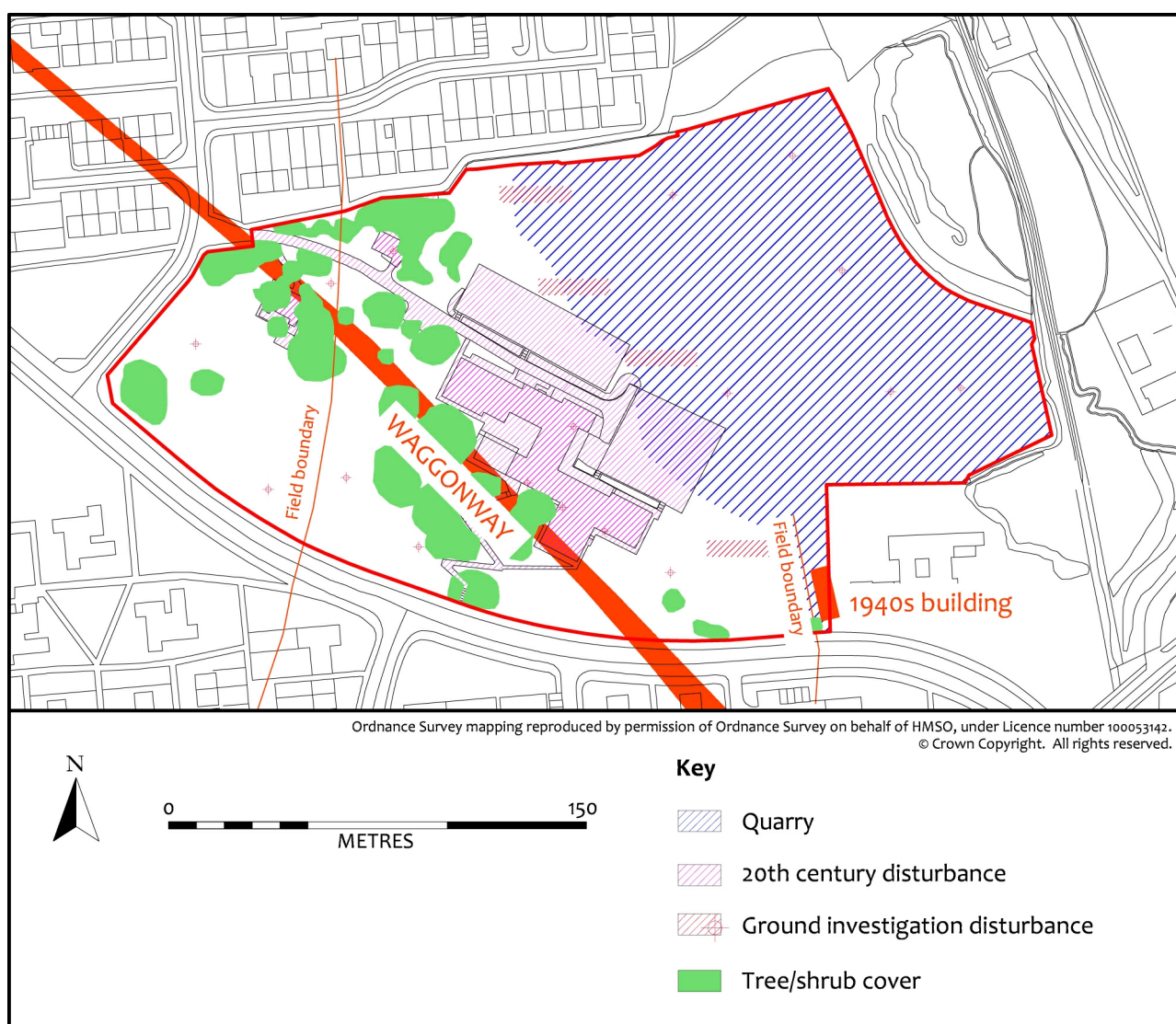


Figure 16. Areas of disturbance and known historical/archaeological remains.

4.1 The archaeological potential within the overall study area

- 4.1.1 The study of the known archaeological/historical sites and historic mapping of a 650m radius study area from the centre of the PDA highlights that the site lies within an area of prehistoric activity, with a Neolithic axe found 475m northeast of the development site and a potential Neolithic barrow found 445m to the northwest of the PDA. Further burials have also been identified at the PDA's eastern boundary during the quarrying works, and 320m to the west of the PDA.
- 4.1.2 A ditched enclosure was identified by Tyne and Wear Museums in 1990, located 100m north of the development boundary, with radio-carbon dating of the site suggesting activity with the Bronze Age, 1840 BC (+/- 80 years).
- 4.1.3 The PDA also lies within an area of background Roman activity. A Roman figure was recovered from quarrying 335m to the west of the PDA, which also noted human remains being recorded in the same area. Roman coins were recovered from quarrying 112m to the east of the PDA boundary and Late Roman pottery and quernstones were recovered from Fulwell quarry in 1927 and 1933, located 475m to the northwest of the PDA, with the Neolithic barrow noted to lie to the northwest of the site re-used for an inhumation during the Roman period.

- 4.1.4 While there are no known Early medieval sites within the vicinity of the proposed development area, there was a burial recovered 270m north of the PDA boundary, noted in the HER to be potentially Viking in date (though also possibly 17th century). There are also no known Later medieval sites within the study area, with the nearest known medieval settlement lying 250m east of the overall study area boundary.
- 4.1.5 Moving into the Post-medieval period, just under a half of the eastern section of the PDA was effectively removed by Carley Hill Quarry in the late 18th or early 19th century, with the quarry already out of use by 1855. A waggonway, potentially built between 1790-1800 also intersected the PDA running between a limestone quarry to the northwest and the lime works to the south (the waggonway had been removed by the late 19th century). The overall study area saw major expansions of limestone quarrying through the 19th and into the 20th centuries.
- 4.1.6 Through the 20th century the quarry in the PDA was gradually backfilled and landscaped, with the remainder of the site remaining as fields, presumably servicing the expansion of Carley Hill Farm to the southeast.
- 4.1.7 In the 1960s Carley Hill Junior Mixed and Infant School was built on the site. The school closed in 2004.

4.2 Known archaeology within the development area

- 4.2.1 The presence or survival level of any archaeology predating the late 18th century is unknown, though due to the level of background prehistoric and Roman activity in the surrounding area, it is likely that settlement dating to those periods may have extended into the PDA, though of course any such material within the quarried area will not have survived.
- 4.2.2 We do know that the 1790 waggonway ran through the site west of the quarry, and while it was no longer shown on the late 19th century mapping, there is every likelihood the waggonway will survive to some extent beneath the modern ground surface. So too will the 19th and early 20th century field boundaries, which may survive as lines of post holes and/or ditches. Against the southeastern boundary, there may also be the remains of an early 20th century farm building associated with Carley Hill Farm. Survival of any archaeological material may also be unlikely within areas of the 1960s Carley Hill school buildings, though depending on the depth of works, survival may be possible beneath the road, path and hard standing surfaces. The trees that have established in the school grounds west of the former buildings will also have an impact on any potential archaeological remains existing in those areas.

4.3 Archaeological Potential

- 4.3.1 Based upon the data within this study, the presence of prehistoric features (**including potential human remains**) within the site boundary is classed as **LOW-MODERATE**.
- 4.3.2 Based upon the data within this study, the presence of Roman features within the site boundary is classed as **LOW-MODERATE**.
- 4.3.3 Based upon the data within this study, the presence of Early or Later medieval features within the site boundary is classed as **LOW**.
- 4.3.4 Based upon the data within this study, the presence of post-medieval and/or modern features within the site boundary is classed as **HIGH**.

4.4 Discussion and recommendations

- 4.4.1 Only approximately 23% of the PDA remains potentially undisturbed by quarrying, modern building and tree coverage. This area predominantly covers the south and western section of the site: the southern portion of the site comprises mostly flat grassland: the ground investigation works along this undisturbed section revealed natural geology at between 0.3m deep in the west to 1.8m

southeast of the school. The ground investigation works suggest that the south-eastern corner of the site, initially thought to have been outside of the quarried area is indeed part of it (with natural geology not encountered at 5m depth), suggesting that the 1940s farm building was likely constructed on reconstituted ground. The land rises sharply north up the slope to the school site and the quarry beyond. Only a small section of potentially undisturbed land remains north of the school and west of the quarry.

4.4.2 **Recommendation:** A geophysical survey **would not be recommended** for this site due to the small amount of undisturbed and accessible land for such a survey: it is likely that less than 20% of the site would be potentially suitable.

4.4.3 **Recommendation:** An archaeological evaluation **would be recommended** for this site to investigate the extent and nature of the waggonway remains, as well as to check for earlier archaeological elements within the site.

5. REPOSITORIES AND SOURCES

5.1 Repositories

Beamish Museum People's Collection. Online at <http://collections.beamish.org.uk/>

Britain from Above Project. Online at <http://www.britainfromabove.org.uk/>

British Library. Online at <http://www.bl.uk/>

British Geological Survey. Online at <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>

Department for Environment Food and Rural Affairs (DEFRA): Online at <https://environment.data.gov.uk/DefraDataDownload/?Mode=survey>

Durham Record Office. County Hall, Durham DH1 5UL

Google Earth Pro 2020

Historic England Archive. Online at <http://archive.historicengland.org.uk>

Keys to the Past. Online at <http://www.keystothepast.info>

Newcastle City Library. Local studies section, Princess Square, Newcastle upon Tyne, NE99 1DX

PastScape Project. Online at <http://www.pastscape.org.uk/default.aspx>

Portable Antiquities Scheme. Online at <https://finds.org.uk/>

Tyne and Wear Archaeology Service. Newcastle City Council, Planning, 9th Floor, Civic Centre, Newcastle upon Tyne, NE1 8QH

Tyne and Wear Archives. Blandford House, Blandford Square, Newcastle upon Tyne NE1 4JA

ViewFinder Project. Online at <http://viewfinder.english-heritage.org.uk/>

Vindomora Solutions Ltd Archive. Prospect House, Prospect Business Park, Leadgate, Consett, County Durham DH8 7PW

5.2 Sources

ClfA (2014) Code of Conduct. *Chartered Institute for Archaeologists*

(ClfA revised 2014) *Standard and Guidance for historic environment desk based assessment.* Chartered Institute for Archaeologists.

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Department for Communities and Local Government (2019) *Communities and Local Government: National Planning Policy Framework*

English Heritage (2008) *Conservation Principles - Policies and Guidance*

English Heritage (1991) *Managing Archaeological Projects.* Second edition

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Historic Environment Record Search. Dataset 2020.

Ordnance Survey mapping: 1862, 1877, 1896, 1898, 1919, 1921, 1938, 1946, 1951, 1956, 1967, 1975, 1987, 1994 and 2020 editions

Petts, D. & Gerrard, C. (2006) *Shared Visions: The North-East Regional Research Framework for the Historic Environment*. Durham