

Guide to the excavations at
FIVE MILE LANE



6,000 Years of Life in the Vale of Glamorgan





Guide to the excavations at FIVE MILE LANE

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Prehistoric Pit Alignment PA-01 in SMR19.

Summary Overview

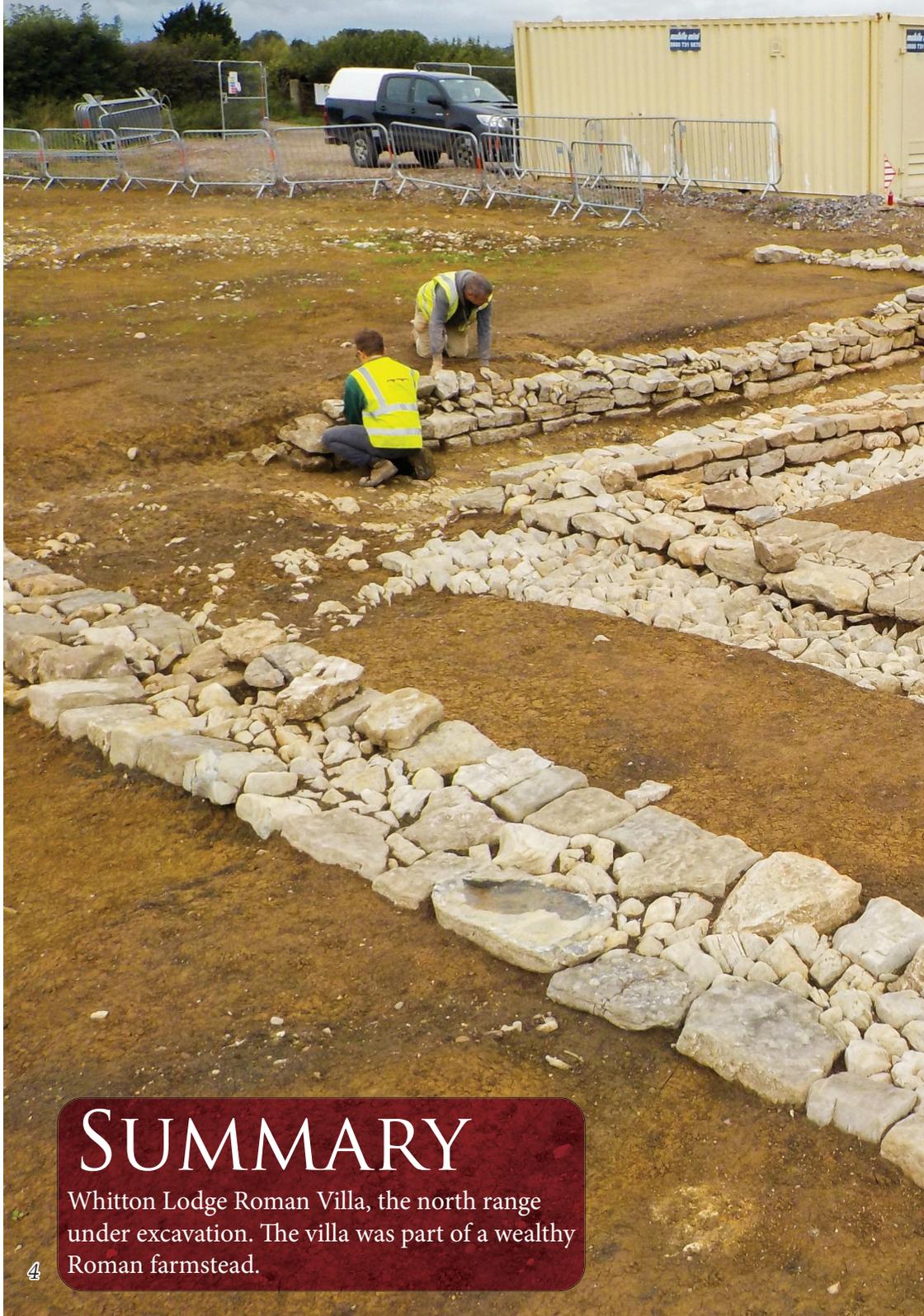


Image: Plan view of the Bronze Age burial mound at SMR19, which was reused as a burial ground in the medieval period.

The excavations at Five Mile Lane, just outside Barry, uncovered a previously unknown multi-period landscape which has been used in a multitude of ways since humans first settled the Vale of Glamorgan.

From a ceremonial and funerary landscape in the Neolithic and Bronze Age periods, through to farming in the Iron Age and being part of a wealthy Roman farmstead, to a Medieval burial ground which reused the earlier burial mound, and finally to the post-medieval agricultural landscape we see today, the archaeologists were able to trace the development of this swathe of land, uncovering many surprises along the way.

SUMMARY

Whitton Lodge Roman Villa, the north range under excavation. The villa was part of a wealthy Roman farmstead.



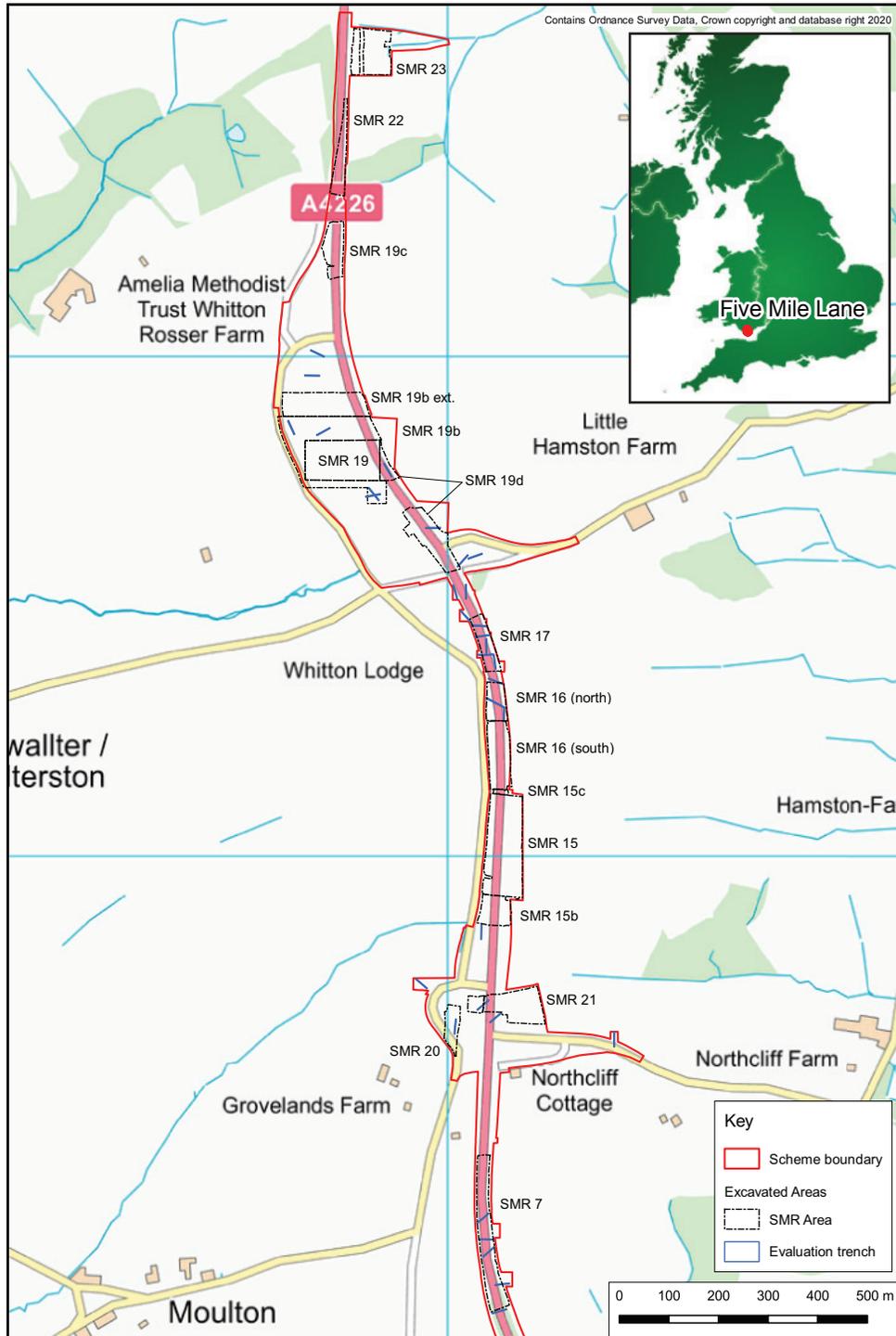


Image: Maps showing the project location and SMR sites along the development.

Introduction

This ebook is an initial publication to explain the work undertaken to date for the excavations and preliminary assessment for the archaeology at Five Mile Lane. This will be followed by a further ebook along with a full published volume when the analysis is finished.

The investigations were undertaken by Rubicon Heritage Services Ltd. in advance of the A4226 road improvement scheme funded by the Vale of Glamorgan Council. The entire length of the road was divided into sections by fields and numbered from south to north, with any excavated fields labelled as SMR areas.

The scheme was initially subject to an archaeological desk-based assessment (by Parsons Brinckerhoff) and a geophysical survey (by GSB Prospection Ltd.) which identified key areas that needed further exploration. Three areas were identified as highly significant with extensive remains and were fully excavated from the start of the project. These included the ceremonial monument and burial mound in site SMR19, the Whitton Lodge Roman Villa in SMR16 and a complex of round barrows, round houses and field systems along with some intriguing magnetic signals in SMR15.

The remaining length of the scheme was investigated through evaluation trenching targeted on anomalies identified during the geophysical survey. This highlighted



Image: View of SMR15 and SMR16 in the foreground with SMR19 visible in the distance. SMR17 (located in the green area between) is unexcavated at this point.

six further areas for excavation including part of two large enclosures in SMR7 and SMR17, two possible prehistoric settlements or barrows at SMR19c and SMR23, a ditch and two large pits in SMR20, and further prehistoric activity in SMR21.



WELSH ARCHAEOLOGICAL CHRONOLOGY

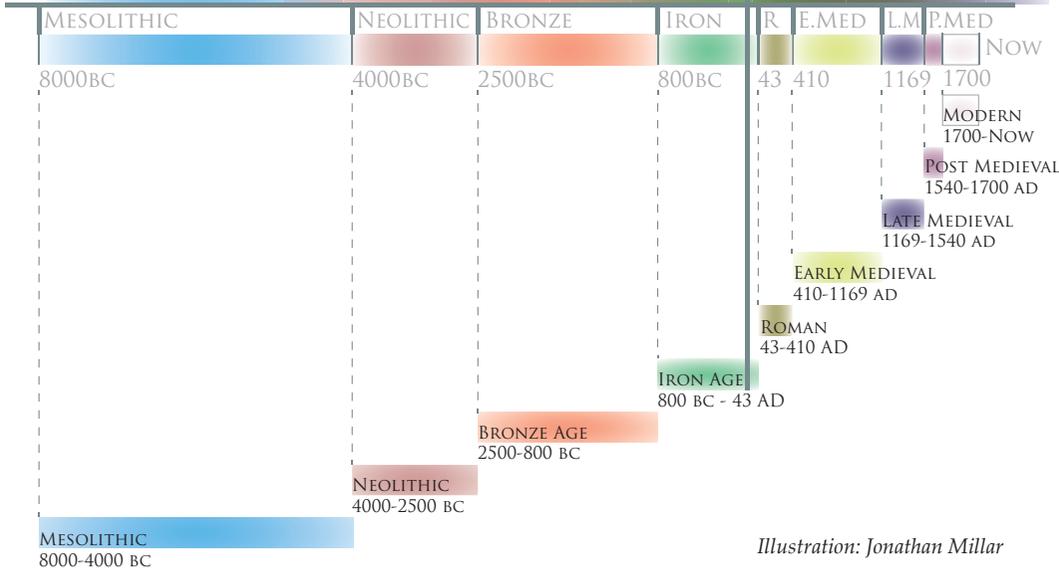
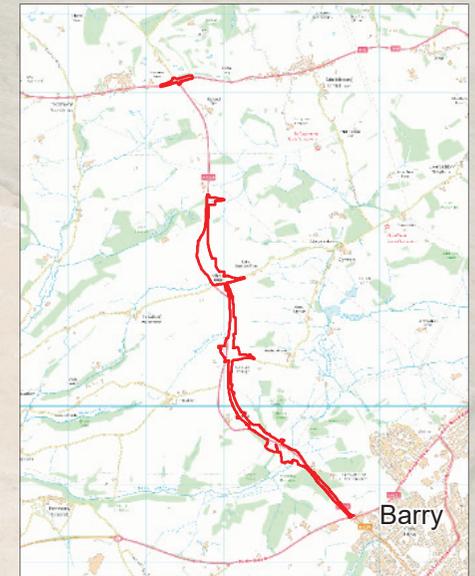


Illustration: Jonathan Millar

Chronology and Landscape

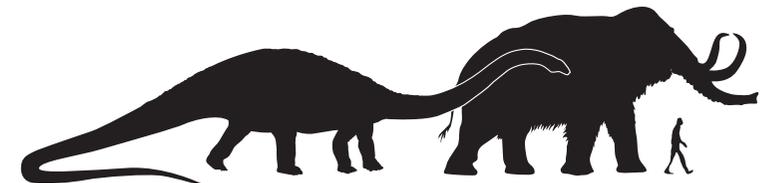
The site ran from 1.5km south of the Sycamore Cross Junction of the A48 to the north, along the east side and roughly parallel with the earlier line of Five Mile Lane, the A4226, to Weycock Cross roundabout where Five Mile Lane meets the Port Road and Port Road West A4226 which heads roughly northeast-southwest from Cardiff to Cardiff Airport and beyond. The surrounding landscape is predominately gently undulating pastoral fields enclosed by hedgerows with sparse areas of woodland throughout which become more common towards the south end of the road. The area is riven with small streams, springs and ponds.

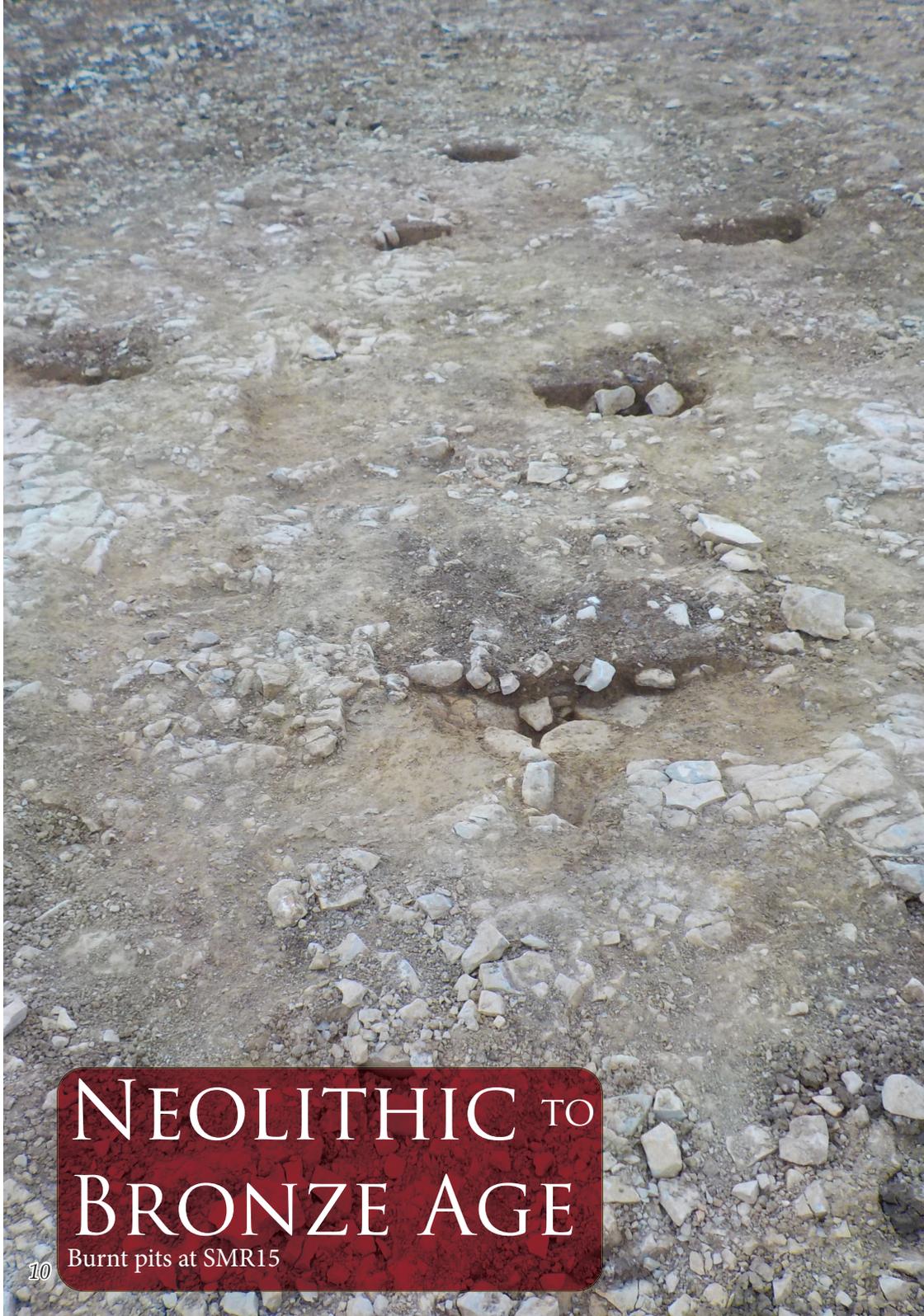
years ago and Mary's Well Bay Member, an interbedded limestone and mudstone formed approximately 199-210 million years ago, both in shallow seas. Beside the River Waycock superficial deposits were recorded as clay, silt, sand and gravel alluvium formed in the Quaternary period up to 2 million years ago in a riverine environment (BGS 2021).



Map showing the location of the road scheme

The underlying geology is predominantly Porthkerry Member, an interbedded mudstone and limestone sedimentary bedrock which formed during the Jurassic Period approximately 191-201 million years ago in shallow lime-mud seas. The site was also crossed by ribbons of Lavernock Shales Member, a sedimentary mudstone formed during the Jurassic Period approximately 199-201 million





Neolithic to Bronze Age

Settling the Landscape and Burying the Dead

The earliest features found on the site were three alignments of large pits or postholes in SMR19; two parallel lines oriented north-northeast by south-southwest and one line oriented northwest-southeast. Two of the postholes at the south end of the alignments were cut through by a large Bronze Age penannular ring ditch which formed a monument 36m wide with an entrance to the southeast. A crouched burial was found in the base of the ditch in the northwest corner although no other inhumations could be definitively associated with the monument. The limestone sides of the ring ditch showed evidence of weathering indicating the monument was open for a long period and maintained during its lifetime, and artefacts from the ditch dated from the early to middle Bronze Age.



Image: SMR19 Late Bronze Age crouch burial in the base of the Phase 2 monument.

Cutting the northwest side of the penannular ditch was another large penannular ditch which formed a monument 27m wide with an entrance to the south. The inside of this monument

retained a slight burial mound which contained several hundred burials, however, none of these could be

NEOLITHIC TO BRONZE AGE

Burnt pits at SMR15



NEOLITHIC BRONZE AGE BC AD





Image: Bronze Age Roundhouse, at SMR23



Image: Enclosure ditch at SMR7



Image: Bronze Age burnt pits, SMR15

attributed to the original construction of the monument. The monument was thoroughly remodelled during the medieval period when much of the original material associated with the ditch and mound was lost, however some Bronze Age artefacts were recovered from the ditch fills along with later material. An early Bronze Age beaker burial was also found just to the north of the burial mound.

Two other, smaller round barrows were present in the immediate area, one to the north and another to the southeast although neither of these contained dating evidence or any evidence of central inhumations.



Image: Bronze Age cremations and an arrowhead (inset) from SMR19

Four other smaller Bronze Age round barrows were present within SMR15 c.800m southeast of the larger monuments. These also contained no dating evidence or central inhumations, however a cluster of 4 posthole and 13 small pits which contained evidence of burning were found in the vicinity and contained pottery sherds dating to the mid- to late Bronze Age showing activity in the area at the time.

The landscape surrounding the burial monuments appears to have been settled at the time, with a Bronze Age roundhouse in the northernmost part of site at SMR23, and another possible roundhouse at SMR19c. In the south of site, part of a large rectangular enclosure was found at SMR7 which is also thought to date to

this period. Known Bronze Age settlement within the Vale is sparse so these features greatly add to current knowledge.

The wider surrounding landscape contains Neolithic funerary structures such as the Tinkinswood and St. Lythan's burial chambers just over 2km to the northeast and east respectively, and the possible collapsed or unfinished burial chamber of Coed y Cwm 2km to the north. Further monuments dated to the Bronze Age include the Wenvoe Round Barrow to the east, the St. Nicholas Chambered Tomb to the northwest and the standing stones of Redland and Cottrell Park to the north. These posthole alignments and burial monuments therefore form part of a wider ceremonial and funerary landscape in the Vale during this period.





IRON AGE

Crouched inhumation, excavated at SMR15

Farming the Land - The Later Iron Age

After the mid- to late Bronze Age activity the next known settlement of the landscape occurred during the late Iron Age to early Roman transition period. At this time three distinct areas of activity were discovered across the site. The two large late Iron Age to early Roman roundhouses which pre-dated the Roman buildings at Whitton Lodge Roman Villa were already known from excavation in the 1960s. However, the recent investigations highlighted two further areas of activity, at SMR15 to the south of the villa and at SMR19c to the north of the burial monuments in SMR19 as well as a possible earlier enclosure ditch around the Iron Age settlement at Whitton Lodge.

Five or 6 structures interpreted as roundhouses were present in SMR15, 3 of which appeared to be located within rectilinear enclosure ditches. Three of the roundhouses contained pits or postholes by the entranceway and 3 contained sherds of late Iron Age to early



Image: Late Iron Age to early Romano-British Roundhouse SMR15

Roman pottery within the ring ditches. Roundhouse II enclosed a large pit which contained burnt material and also showed evidence of re-modelling of the ring-ditch. Roundhouse VI consisted of 3 concentric ring-ditches with an entranceway to the south, 2 pits either side of the inner ditch and a possible central fire pit. The 3 ditches appear to represent episodes of re-modelling of a single structure. Late Iron Age to early Roman pottery sherds were found within the inner and outer



IRON AGE



ditches along with a broken jet pit in the outer ditch. Three further enclosure ditches across the site did not appear to contain any structures and so may represent associated field boundaries or possible stock enclosures.

To the north of these areas, 2 roundhouses with probable associated stock pens and a four-post structure thought to be a granary were located in SMR19c. Pottery sherds recovered from the features suggests the site also dated to the late Iron Age to early Roman transition period.



Image: Late Iron Age to Early Romano British four-post structure, SMR15

Image: Iron Age enclosure ditch SMR15 under excavation, facing southeast



Image: Late Iron Age to early Romano-British Roundhouse under excavation, SMR15



Image: Late Iron Age-early Romano-British structure with 3 ring ditches, SMR15



Whitton Lodge villa, SMR16
 - smaller, angled stones in the foundations allowed groundwater to drain more easily while still providing a firm base for the stone walls above.

Continuity and Change - The Roman Interlude

Whitton Lodge Roman Villa formed the focus of a farmstead during the Roman period, providing continuity from the late Iron Age to early Roman roundhouses which preceded it on the site.

The villa had previously been excavated between 1965-70 by Cardiff University when all 4 range buildings were investigated. The recent excavations re-investigated the western range and the western halves of the north and south ranges along with sections excavated through the deep boundary ditch around the buildings. A series of field systems extended south from the boundary ditch towards and partially overlying the earlier Iron Age settlement in SMR15, and a rectangular enclosure was located immediately to the north of the villa boundary.



Image: Excavating the enclosure ditch of Whitton Lodge Roman Villa - no mean feat!

ROMAN

The excavations revealed varying construction techniques used in different parts of the villa.



ROMAN



Image: Aerial view of Whitton Lodge Villa during excavation. The use of unmanned aerial vehicles (UAV), or drones, allowed both for spectacular images of the remains from above and to build 3D models of the excavations.

Evidence of further Roman agriculture was found in SMR7 which could have been associated with the nearer Moulton Villa rather than Whitton Lodge. Five inhumations and a handful of cremations found within the fields south of the villa likely dated to the Roman occupation of the area.

The enclosure ditch around the villa varied from 6.5 to 8m wide and between 2.5 to 3m deep and was slightly larger to the north, possibly as this side of the farmstead would have been approached from the main Cardiff to Neath road. The ditch surrounded an internal bank, part of which remained in the southwest corner of the farmstead, which would have abutted the range buildings. A sherd of pottery from the base of the ditch dated to the 1st century AD with subsequent finds within the deposits dating to the 1st to 4th centuries during which time the ditch was gradually filled in, although a re-cut recorded in each section showed the ditch and bank underwent at least one major episode of maintenance during this time.

The south range was interpreted in the 1960s excavations as being the earliest of the three ranges. The western end of the building extended c.13.5m into site and consisted of a roughly east-west aligned rectangular stone structure. A small shallow section of the original demolition material within the main range building had been left in place during the 1960s excavation as part of a north-south baulk, which extended across the building. A pottery sherd recovered from this material dated to the mid-2nd century AD.



Image: A Romano-British Quernstone discovered in a field boundary ditch.



Image: An aerial view of the three ranges of Whitton Lodge Roman Villa under excavation.

The remainder of the interior features had been completely excavated during the 1960s and a pentice structure and drain to the north had been removed or ploughed away later. At the western end of the range a c.4m square sunken annex had been added to the northern side which originally contained an opening to the south. This northern half contained square, vertical voids in the corner of the room which was originally interpreted as hypocaust flues as fragments of possible pilae were found during the original excavation. However, there was no evidence for an associated furnace, and no sign of burning, so instead, these voids may have been for timbers to support a floor above. The annex was subsequently extended south to the full width of the building at the sunken level, dated to the mid-1st to early-2nd century by a sherd of pottery recovered from the backfill of a wall.

The west range was found to have been constructed in a single episode as a rectangular north-south building of rubble foundations, with internal subdivisions creating three roughly evenly sized rooms, the central one of which was also divided in half along its length. The range was supposed to have been 2 storeys due to the depth of the outer wall foundations, with the inner walls being too shallow to have been load-bearing. A clay layer which was present in the south room could have been a floor foundation layer as it overlay one of the earlier Iron Age roundhouses but was not firm enough to have been a beaten earth floor itself.

During the 1960s excavations, the north range was interpreted as a two-phase building constructed in the final phases of occupation of the site, at the end of the 3rd century AD, and occupied until c.340AD. The western end of the building extended c.10m into site and consisted of a two-phase rectangular structure on a roughly east-northeast by west-southwest axis.

A curvilinear stone wall to the northwest of the north range, identified during the 1960s excavations, was found in-situ, however, no trace remained of a cobbled surface and midden to the north, which were presumably either removed during the excavation or destroyed by subsequent ploughing. As with the south range, the westernmost room of the north range consisted of a sunken annex structure, which in this case shallowed to its southern extent to reach the same

ground level as the remaining rooms.

A series of six phases Roman field boundary ditches extended south from the villa's enclosure ditch into SMR15. The 3 rectilinear ditches closest to the villa appeared to represent sequential expansion of the fields possibly from the 2nd to 4th centuries whereas those in SMR15 appeared to be more irregular in spatial layout and orientation and show the layout of the field system was altered, although appear to date from the same time period. A T-shaped grain drier was located in the southernmost field in SMR16 and 3 areas of metal working were located in the north of SMR15 indicating some small-scale industry. The metal-working areas all appear to have been locations of secondary smithing, with slag and hammerscale present around a central area of heat-affected clay. Each of the metal-working areas



Image: Detail of the wall construction in part of the North Range

had 2 to 4 regularly spaced, shallow sub-rectangular depressions which contained slag which in 3 areas centred around an area of heat-affected clay thought to be the site of a brazier or other heat source. The 1960s excavations at Whitton Lodge Roman Villa had indicated some possible on-site blacksmithing, due to a handful of smithing tools found including a rare smith's poker.

About 750m south of these fields were 4 further grain driers, however, these consisted of pits dug into the bedrock rather than constructed in the classic Roman T-shape. Pottery sherds dated these driers to sometime between the 2nd-4th century AD, and their proximity to Moulton Villa could associate them with that villa rather than Whitton Lodge. A large rectilinear enclosure ditch to the north of the villa outlined an area at least 75 by 30m however no internal features were present and this could represent a large stock enclosure. Pottery recovered from the ditch dated from the Bronze Age, late Iron Age and possibly the 3rd to 4th century AD. The V-shaped profile



Image: The rock-cut defensive ditch around Whitton Villa. The stone is natural bedrock. The layers within the rock just look like built walls! The excavation was stepped to make working in the ditch safe for the archaeologists.



Image: Romano-British grain dryer, SMR16



Image: Romano-British burial, with the head placed at the feet

of the ditch seen in some sections would indicate a Roman date as most likely.

Five inhumations found within the field systems to the south of the villa likely date to the Roman period. Two of the burials were aligned east-west and 2

north-south, with 1 of the burials have been decapitated and the skull placed at the feet. Most of the burials were not precisely dated, however 1 contained Roman military regalia dated to the late 4th to early 5th century AD.



Image: Whitton Lodge Roman Villa north range, SMR16

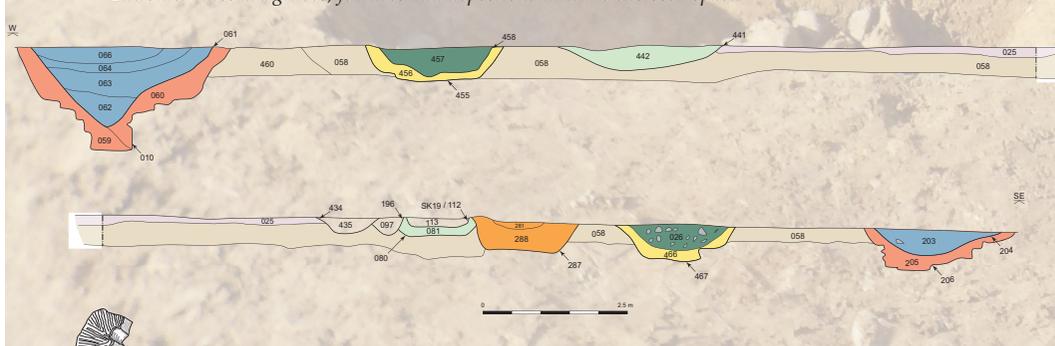


Image: Overview of Whitton Lodge Roman Villa SMR16





Images: (above) The two burial monuments seen in the undulating landscape of the Vale of Glamorgan. When first built, these must have been prominent within the landscape, and remained so for at least 1000 years. (below) Illustration of cross-section through the burial mound - the two portions join together. The blue and pink parts are the outer ditch, the green and yellow are the middle ditch and the pale green is the inner ditch. The other lines are graves, features and deposits within the enclosed space.



SMR19 - A Monument for Millennia

The Bronze Age burial mound at SMR19 appeared to have been extensively remodelled and reused during the medieval period. The outer ditch appeared to have been emptied and the central burial mound re-used for inhumations with over 430 individuals interred within the burial mound.

Although many respected the position of other burials, suggesting grave markers of some kind, others showed evidence of intercutting indicating the mound was in use for some time.

The monument was remodelled several times, with both an inner and middle ditch subsequently cut into the mound and the outer ditch re-cut to close the entrance at the south end.

The inner ditch initially contained entrances to the northwest and southeast sides which were later closed by remodelling. The middle ditch also had an entrance to the south side, mirroring that of the outer ditch, which was also closed by subsequent remodelling. Artefactual material was sparse throughout the monument, however pottery sherds from the outer ditch fills dated the remodelling to the 11-12th century while radiocarbon dating of a skeleton buried in the upper fills of the ditch produced a date of late-10th century to early-11th century for the latest burials.



Image: One of the Medieval Christian burials located within the re-used earlier Bronze Age burial monument.





Managing the Land and Defending the Realm: Medieval, Post-Medieval and Modern

To the north of the re-used burial mound was a D-shaped enclosure which encompassed an area of 25 by 28m. Several pits within the enclosure appear to be contemporary as the ditch and pits contain pottery sherds dated to the 11-12th century, making the enclosure contemporary with the re-used burial mound.

To the east, southwest and west of the re-used burial mound were a series of northeast-southwest oriented gullies which likely denoted field boundaries. Pottery sherds from the gullies dated to the 11-12th centuries making the fields contemporary with the D-shaped enclosure and the re-used burial mound. To the north of SMR19 a further series of field boundary gullies were oriented north-south, however no dating material was recovered from these features and they could date to a later period. Four large amorphous features found in this northern area could be the remains of tree-root boles and could therefore

indicate an episode of undated landscape clearance. This could have caused the deposition of a colluvial layer over prehistoric features at the south of site



Image: Medieval burials in the earlier Bronze Age Burial Monument SMR19

MEDIEVAL TO MODERN

An early medieval skeleton from the re-used
Bronze Age burial monument in SMR19



EARLY-LATE MEDIEVAL



through lack of vegetation to prevent silt run-off.

The modern field layout was established sometime during the medieval and/or post-medieval periods.

A large post-medieval field kiln was found to the west of the road in SMR20. This had two drawing areas separated by a low stone wall, each with double draw-holes leading into a single elongated fire cavity to the north. The sides and rear of the fire cavity were lined with limestone. No pottery was recovered from the kiln, only a long iron rod, probably used for stoking, was retrieved from the base. The form of the kiln and the rod make this likely to date from the post-medieval period. A large quarry pit lay to the southeast of lime kiln and was presumably the source for some of the limestone burned in the kiln. The pit appeared to have been mostly backfilled before the limekiln went out of use, as there was only a very small, localised dump of burnt limestone within the backfill.

A modern concrete and asbestos structure was found towards the south end of the road corridor on the west side of the road. An iron girder embedded in a northeast-southwest aligned bank to the south of the structure could represent additional defensive measures. These structures could represent a defensive structure or decoy bomb target related to the nearby airfields of the former RAF Rhoose and nearby World War 2 anti-landing measures. Southwest of the structure was a northwest-southeast line of horizontal iron barrels aligned



Image: Medieval Middle ditch of Bronze Age Burial Mound re-use in SMR19



Image: Quarry pit at SMR20



Image: Digging in progress, medieval graves SMR19



Image: Inhumation from the Medieval re-use of the Bronze Age Burial Mound SMR19



Image: Post-medieval lime-kiln in SMR20

end to end and encased in cement. This could be a 'flame fougasse', a World War 2 defensive measure often deployed by roadblocks designed to be filled with a mix of oil and petrol to be detonated using fuse wire inserted through a pipe in one end. Such defences are recorded as protecting nearby RAF St Athan.



Image: WWII Binoculars found during the project



Image: WWII Flame Fougasse uncovered at Five Mile Lane





After the Dig - When the Real Work Starts!

Analysis of human remains

Human osteoarchaeology is the analysis of human skeletal remains, which provides a unique insight that enables us to reconstruct the lives of people who lived in the past. Examining the bones of past individuals allows us to decipher the clues the remains hold, to reveal what kind of life they may have lived.

The osteological assemblage at Five Mile Lane consisted of 456 skeletons that range in date from the bronze age to medieval period.

Several methodologies will be applied during the analysis of the skeletal remains, the information obtained from the examination of the skeletons are age-at-death, sex, and stature of an individual.

Human bones also offer an indication of possible diseases and injuries that people

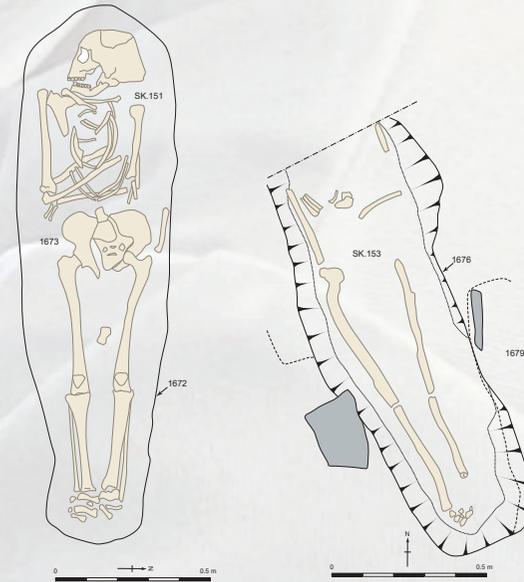


Image: Examples of skeleton illustrations, by Hannah Sims

may have suffered from, all which leave traces on the skeleton.

AFTER THE DIG-

Post-excavation analysis underway on human remains from Five Mile Lane





The analysis of human remains can provide a valuable source of information that allows us to answer a wide range of questions regarding past populations, giving a unique insight into our history.

Radiocarbon (C14)

Acquiring radiocarbon dates directly from human bone is often the best way to date the occupation or use of a site.

It is particularly useful when it comes to understanding and unravelling the sequence of burial grounds. The radiocarbon analysis of the human remains from Five Mile Lane plays a crucial part in the archaeological phasing of the site.

Using radiocarbon dating makes it possible to track developments or changes within a population and highlights variations in the health of the individuals that lived and died in this area.

The ability to chronologically divide the human population of the site allows for enhanced insight and appreciation of the inhabitants, especially when combined with other investigations such as stable isotope analysis.

Isotopes

Stable isotope analysis has also been heavily utilised within the fields of archaeology for many years. Stable isotope analyses of human bone and teeth can provide information on health, lifestyle and diets of people in the past. It can also shed light on geographical



Image: Osteoarchaeological analysis underway in the lab.



Image: Assessment of environmental samples from Five Mile Lane in progress at Rubicon's lab in Cardiff.



Image: Schistosoma haematobium egg, By CDC, Public Health Image Library (PHIL)

origin, life histories and how past peoples migrated through their landscapes.

Sixty individuals from across the site at Five Mile Lane have been selected for stable isotope analysis. Stable carbon and nitrogen isotopic analysis will be employed to estimate the individual's diet. The application of strontium and oxygen stable isotope analysis will be used to infer the individual's geographical movements.

Parasites

The study and detection of intestinal parasite eggs in skeletonised burials has become an increasingly popular field of research, as it provides evidence for a past disease that cannot otherwise be detected. The analysis of parasites samples have been selected for individuals that represent interesting subset of the population at Five Mile Lane.

Analysing these ancient parasites is beneficial as it not only helps us uncover patterns of disease in past populations but can also enable us to understand the components of the ancient diet.



Images: (top) Queen's Univeristy Belfast C14 processing machinery. Five Mile Lane samples are processed here. (bottom) Strontium Isotope analysis of teeth and bones can give geographical indications of where ancient people were born and lived during the span of their lifetimes!





Image: Recording a young cow burial - measured drawing

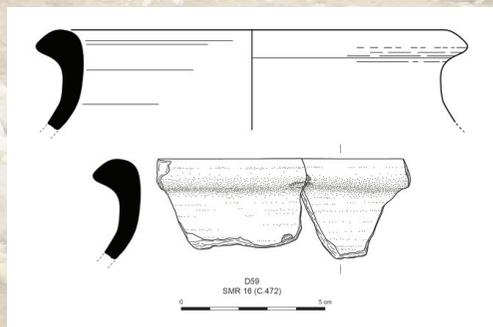


Image: FMLG17_SMR16_Roman Pottery SMR 16, context 472- fill of the boundary ditch



Image: Sherd of Roman Samian Ware pottery, with a cool animal decoration (from context 145, SMR 15, Dwg No. 28)

Zooarchaeology

Zooarchaeology is the study animal remains from archaeological sites which include bone, teeth, and antler. Zooarchaeologists extract as much information as possible from the animal remains left by people in the past to help inform our understanding of cultural and social behaviours. Analysis includes species and element identification, age at death, size, quantification, and biomolecular studies. Often remains are fragmentary and represent waste from activities such as food preparation and consumption, crafts, and other secondary animal products, such as horn. Deliberate whole or partial carcass deposition can also be symbolically significant, such as ritualist offerings, premature death through casualty or disease, or even pets.

The location of deposited material in and around settlements can add to the understanding of the site. By determining the species and part of the skeleton zooarchaeologists can understand which species were exploited and why. Marks on the bones from butchery, burning and gnawing can give information about how bones were processed such as chopping, burning, boiling, and trampling. These techniques show how human and animals lived together in the past, how that relationship changed and how technologies developed, for instance changes in species over time, animal husbandry techniques and butchery practices.



Image: Osteological analysis of human remains can often reveal data about the person's age at death, sex, height and diet. Marks left on bones can sometimes even give indication of their social status, lifestyle, employment/regualr activity and cause of death

The analyses will build life and death profiles for the Bronze Age to Medieval animal remains recovered from the Five Mile Lane excavations. Bone has been recovered from settlement deposits and deposits associated with the burial monuments, including the burial of a young cow, as well as domestic food waste. Biomolecular studies, including carbon and nitrogen stable isotope analysis from cattle, sheep and pig samples will be used along with the human isotopic analysis to help better understand past diet and husbandry practices. Radiocarbon dating of animal bones will also help further refine the dating of the site.

Artefacts Analysis

One of the most prevalent finds from archaeological sites is pottery. While almost always fragmented into small sherds these can still tell us a lot about the original object and the past society that made it. Often it is possible to piece some of the sherds back together to reveal the form that pot originally had, the form can often throw light on its function as well. Recording the locations of the sherds on site can help to identify activity areas with different pots used for storage and cooking.

We will also be undertaking technological analysis of the pottery to look at the materials from which the ceramic is made and how it was constructed. Thin section analysis involves cutting a section of the pottery, so that it is only microns thin to be studied under a microscope. This will





Image: Romano-British quernstone detail



Image: Recording a section drawing of a ditch



Image: Busy archaeologists digging and recording

provide information on the clay used, the tempering materials added and the proportion of each. Often the traces of coils forming the walls of the pot can be seen in hand-built vessels. Another method that we are employing is ICP-MS this analyses the chemical composition of the clay to provided data on the location of the raw clay material and the vicinity of the production site. While not only building our knowledge of locally manufactured wares it will also help to show vessels that were imported through trade either as the trade good or the container.

The excavation at Five Mile Lane also recovered a number of other items from a range of periods. There was a small collection of prehistoric flint artefacts dating from the Neolithic onwards, including arrowheads and scrapers indicating hunting and processing of the animal carcass was taking place in the area.

In later periods we found more personal items including Roman hobnails from boots, dress pins, and items of jewelry and ornamentation. Other finds recovered included millstones, tools and worked animal bone, all of which cast light on the past societies of the Vale of Glamorgan over time.

Archaeobotany

Archaeobotany is the study archaeological sites and landscapes through analysis of archaeological plant remains. By studying plant remains we can find out many aspects of past peoples' lives; what they ate, built their homes from, used as fuel, medicine, dyes. Plant remains can also be used to construct the wider landscape and economy; whether the area was forested or cleared for agriculture and how it changed through time. Presence of species not grown locally or concentrations of grain but absence of chaff from processing it may suggest trade. Plant remains can also be used to date the site either through identifying presence of species used prominently during a period of time or directly through Carbon 14 dating.

During the excavation of Five Mile Lane, we collected of over 1000 bulk soil samples for the recovery of plant macrofossils; visible and recognisable pieces of plants such as seeds, grain, chaff, tubers and wood. Bulk soil samples are processed in a flotation tank; as the samples are washed in flowing water, charred plant remains float to the surface and the tank channels them into a nest of sieves for collection. The residue of material too heavy to float is collected in a fine mesh and once clean it can be dried and sorted through to recover any artefacts or ecofacts present. This material and the floating element "flot"



Image: Examples of Plant Macrofossils:

(a) *Carex* floret; (b) *Campyllum stellatum* stem with leaves; (c) *Conioselinum cnidii* folium carpel; (d) *Asteracea* achenese, pappus; (e) *Lepidium densiflorum*; (f) *Phlox hoodii* capsule; (g) *Taraxacum ceratophorum* achene; (h) *Pedicularis* sp. achene; (i) *Silene* cf. *taymirensis* capsule with seeds inside; (j) *Polemonium* capsule; (k) *Ranunculus pensylvanicus-macounii* type achene; (l) *Plantago* cf. *canescens* capsule. <https://doi.org/10.1371/journal.pone.0192713.g003>.



can then be analysed by the specialist.

Additional specialist samples were taken for the assessment of plant micro fossils, those too small to be seen without magnification, such as pollen and phytoliths.

Phytoliths are microscopic silica bodies found in and around the cells of many plants and released as they break down. The shapes of phytoliths vary and can allow for the identification of different plant species and in some cases interpretation of what the plant was used for (e.g. floor deposits, animal fodder). Pollen from different plants can be identified by its differing size, shape and surface texture.

Phytoliths typically remain close to where they fell, whereas pollen species may be blown by the wind, potentially bringing in species from the wider area. On Five Mile Lane a range of different specialist samples were taken to give the best possible chance of recovering usable data. By bringing together all the information available from this range of techniques we can shed light on the changing environment at Five Mile Lane throughout time and gain insight into the lives of the people who lived there.

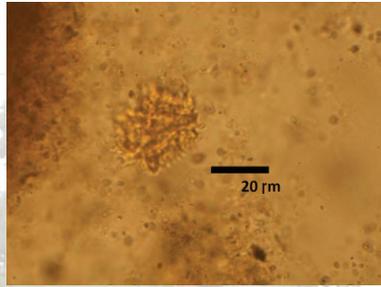


Image: Lactuceae pollen grain (possibly Cichorium Intybus-type), partly obscured by siliceous particles, sample 4 (x1000). From Five Mile Lane.

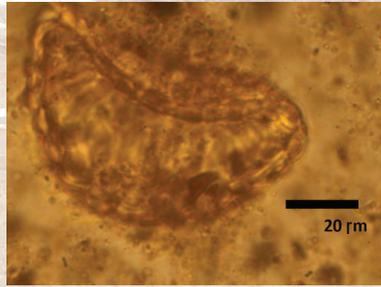


Image: Polypodium spore, partially obscured by siliceous particles, sample 3 (photographed at x1000 magnification). From Five Mile Lane.

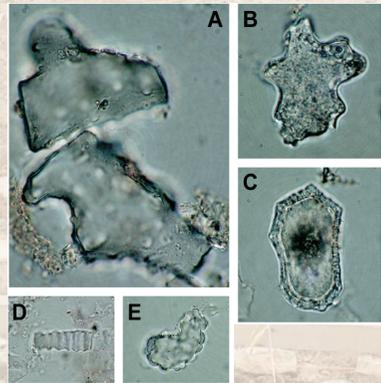


Image: Examples of Phytoliths. (https://link.springer.com/chapter/10.1007/978-3-319-94265-0_12)

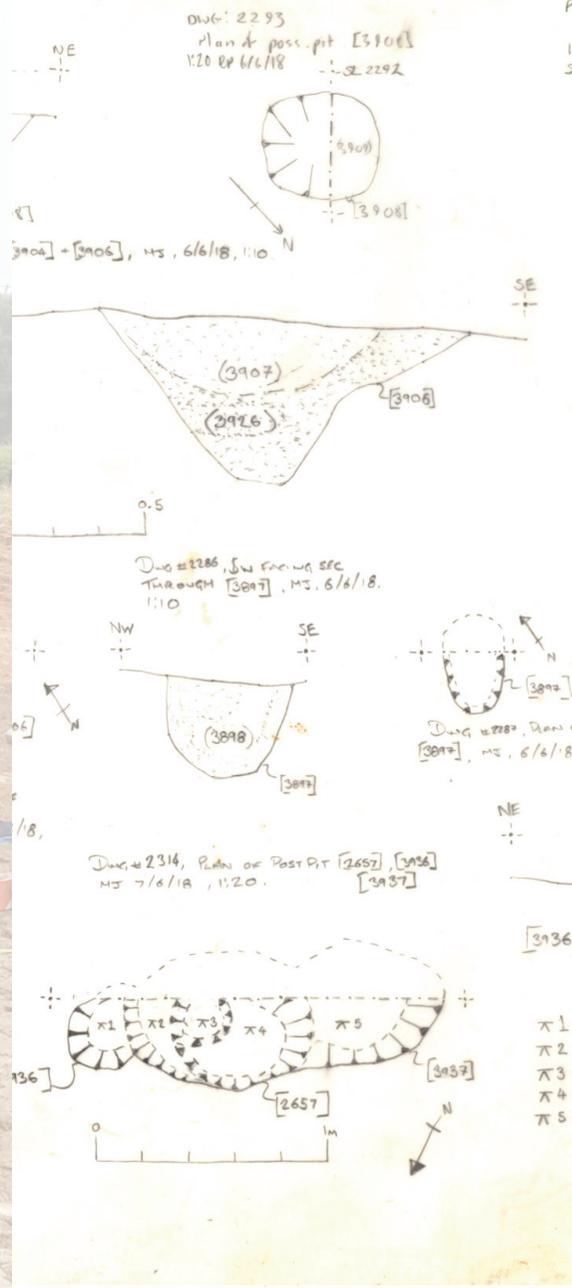


Image: Site recording involves the creation of measured plans and section drawings. These 'sections' record the soil layers or 'contexts' of the archaeological site. Every 'context' is given a unique number and any finds, samples or bio-artefacts from it can help during post-ex to date and interpret the formation processes it underwent in the past.

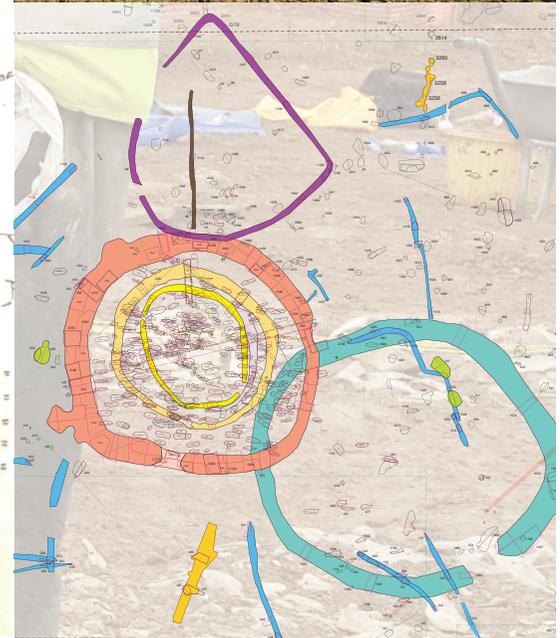


Image: On-site digital recording (top: Sean Owen) with hi-tech GPS survey instruments feeds directly into final site plans (maps) which are prepared during post-excavation work using Adobe Illustrator and AutoCAD software (bottom: by Hannah Sims)





Further Reading

- Bebb, Lynne 2004 *Welsh Pottery*. London: Shire Publications.
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- Reynolds, Peter. J. 2011 *Ancient Farming*. London: Shire Library.
- Stirland, Ann 1999 *Human Bones in Archaeology*. London: Shire Archaeology.
- Walker, David 2008 *Medieval Wales*. Cambridge: Cambridge University Press.

FURTHER READING

This list of books will help you learn more about what we have introduced you to here



Local Sites to Visit



Tinkinswood Burial Chamber – a Neolithic and Bronze Age dolmen tomb located near the village of St. Nicholas. <https://cadw.gov.wales/visit/places-to-visit/tinkinswood-burial-chamber>.

St. Lythans Burial Chamber (pictured) – a Neolithic dolmen tomb originally part of a chambered long barrow located on the outskirts of the village of St. Lythans. <https://cadw.gov.wales/visit/places-to-visit/st-lythans-burial-chamber>.

Caerau Hillfort – an Iron Age Hillfort built on the site of a Neolithic causewayed enclosure, and later re-used as a Roman settlement. <https://caerheritageproject.com/discover/>.

Cosmeston Medieval Village – a reconstructed 14th century village located south of Penarth. <https://www.valeofglamorgan.gov.uk/en/enjoying/Coast-and-Countryside/cosmeston-lakes-country-park/cosmeston-medieval-village/Cosmeston-Medieval-Village.aspx>.

St. Fagans National Museum of History – a working museum in the grounds of a 16th century manor house which includes over forty buildings relocated from across Wales and galleries telling the story of life in Wales. <https://museum.wales/stfagans/>

LOCAL SITES

Here's a list of nearby sites of archaeological and historical interest you can hopefully visit soon...



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Rubicon Heritage Services would like to thank every member of the team who contributed to the success of the excavation. The amazing results would not have been possible without your dedication and hard work.

THANKS...

A partial group photo of some of the Rubicon Heritage Services Ltd Archaeological team.