Archaeological excavations along the route of the A284 Lyminster Bypass

Archaeological excavations undertaken ahead of the A284 Lyminster Road Bypass construction have revealed new details in the story of Lyminster's past. Read on to find out more about these exciting discoveries and the processes that led to them being unearthed.

AOC archaeologist Ruth, surveying the southern end of the site

Aerial view south of the excavation looking toward Littlehampton, where the Bypass will eventually connect with Fitzalan Road

Why do archaeologists dig and how do they know where to dig?

Excavating archaeology that could be destroyed by a construction project is required by UK planning law, which is why archaeologists are involved with projects like the Lyminster Bypass (North). But the entire route is not subject to excavation, so how do archaeologists know where to dig?

Step 1 - Evaluate the archaeological potential of a site by considering what has been found in the area previously. This includes searching a database known as the Historic Environment Record and investigating other sources, like aerial photographs and historic maps. This can be done from the comfort of a library or office, but if the potential turns out to be good, then it is time to head into the field and hope for some good weather!

Step 2 - A series of long, thin trenches, usually no more than 2 metres wide, are then excavated across a sample area of the site to see if any archaeology exists below ground.

Step 3 - If the answer is yes, then a larger excavation area will be fully opened up.

A mechanical excavator removes topsoil and subsoil and an AOC archaeologist commences the survey

How does the archaeology end up under ground and how do we record it?

Two main ways that archaeology gets buried is through the natural build-up of soils (or natural disasters!), or the building up of material for earthworks, landscaping, or buildings. On the Lyminster Bypass (North) site, the archaeology predominantly consists of pits and ditches. When these features fell out of use, they were gradually infilled with soil that was slightly different in colour and texture to the natural ground. Archaeologists can spot these differences, meaning they can re-excavate such

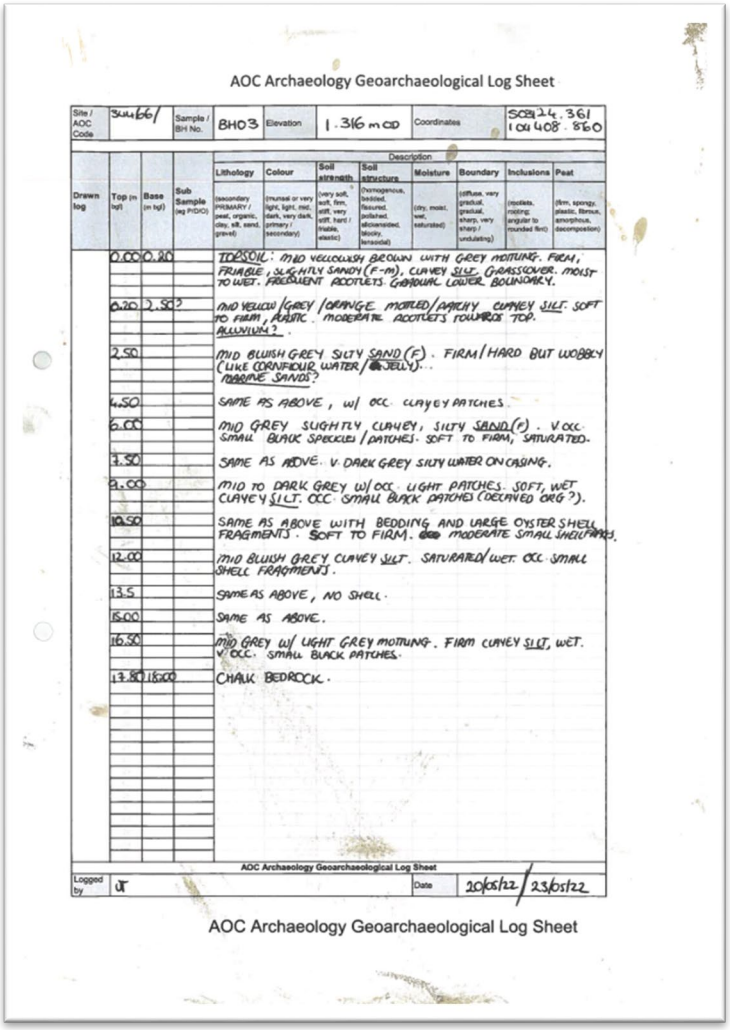
features, determine their original shape, and recover any artefacts that were dumped into them in antiquity.

Left - Darker soil can clearly be seen both within and immediately around this Bronze Age cremation urn from the A284 site, left. Such colour changes indicate where archaeologists should dig. Right - archaeologists make measured drawings, write descriptions, take photographs, and take samples. After the excavation is over, the data is analysed and often published. The records are archived in a museum for future generations.

Generally, a feature is dated by the latest artefact recovered from it, as was the case with this sherd of Roman pottery

Using geoarchaeology to peel back the landscape

Geoarchaeology is a form of earth science which studies how landscapes have changed over the course of human history, as far back as the Ice Age. Alongside the excavations, we also undertook a geoarchaeological investigation using a borehole rig, extracting long samples of earth deep into the ground.



AOC Archaeology Geoarchaeological Log Sheet

Site / AOC Code	3446/	Sample / BH No.	BH03	Elevation	1.316 m OD	Coordinates	SO 924.361 / 104408.860

Drawn log	Top (m bgl)	Base (m bgl)	Sub Sample (eg P/D/O)	Description: Lithology (secondary (PRIMARY) / peat, organic, clay, silt, sand, gravel)	Colour (munsell or very light, light, med, dark, very dark, primary / secondary)	Soil strength (very soft, soft, firm, stiff, very stiff, hard / friable, elastic)	Soil structure (homogeneous, bedded, fissured, polished, slickensided, blocky, fenestral)	Moisture (dry, moist, wet, saturated)	Boundary (diffuse, very gradual, gradual, sharp, very sharp / undulating)	Inclusions (rootlets, rooting; angular to rounded flint)	Peat ((fen, sponge, plastic, fibrous, amorphous, decomposition)
	0.00	0.80		TOPSOIL: MID YELLOWISH BROWN WITH GREY MOTTLING. FIRM, FRIABLE, SLIGHTLY SANDY (F-M), CLAYEY SILT. GRASSROOT. MOIST TO WET. FREQUENT ROOTLETS. GRADUAL LOWER BOUNDARY.							
	0.80	2.50?		MID YELLOW/GREY/ORANGE MOTTLED/MARBLY CLAYEY SILT. SOFT TO FIRM, PLASTIC. MODERATE ROOTLETS TOWARDS TOP. ALLUVIUM?							
	2.50			MID BLUISH GREY SILTY SAND (F). FIRM/HARD BUT WOBBLY (LIKE CORNFLOUR WATER/JELLY). MARINE SANDS?							
	4.50			SAME AS ABOVE, w/ OCC. CLAYEY PATCHES.							
	6.00			MID GREY SLIGHTLY CLAYEY, SILTY SAND (F). V OCC. SMALL BLACK SPECKLES/PATCHES. SOFT TO FIRM, SATURATED.							
	7.50			SAME AS ABOVE. V. DARK GREY SILTY WATER ON CASING.							
	9.00			MID TO DARK GREY w/ OCC. LIGHT PATCHES. SOFT, WET CLAYEY SILT. OCC. SMALL BLACK PATCHES (DECAYED ORG?).							
	10.50			SAME AS ABOVE WITH BEDDING AND LARGE OYSTER SHELL FRAGMENTS. SOFT TO FIRM. MODERATE SMALL SHELLFRAGS.							
	12.00			MID BLUISH GREY CLAYEY SILT. SATURATED/WET. OCC. SMALL SHELL FRAGMENTS.							
	13.5			SAME AS ABOVE, NO SHELL.							
	15.00			SAME AS ABOVE.							
	16.50			MID GREY w/ LIGHT GREY MOTTLING. FIRM CLAYEY SILT, WET. V. OCC. SMALL BLACK PATCHES.							
	17.80	18.00		CHALK BEDROCK.							

AOC Archaeology Geoarchaeological Log Sheet

Logged by	JT	Date	20/05/22 / 23/05/22

AOC Archaeology Geoarchaeological Log Sheet

Example of a geoarchaeological borehole log sheet

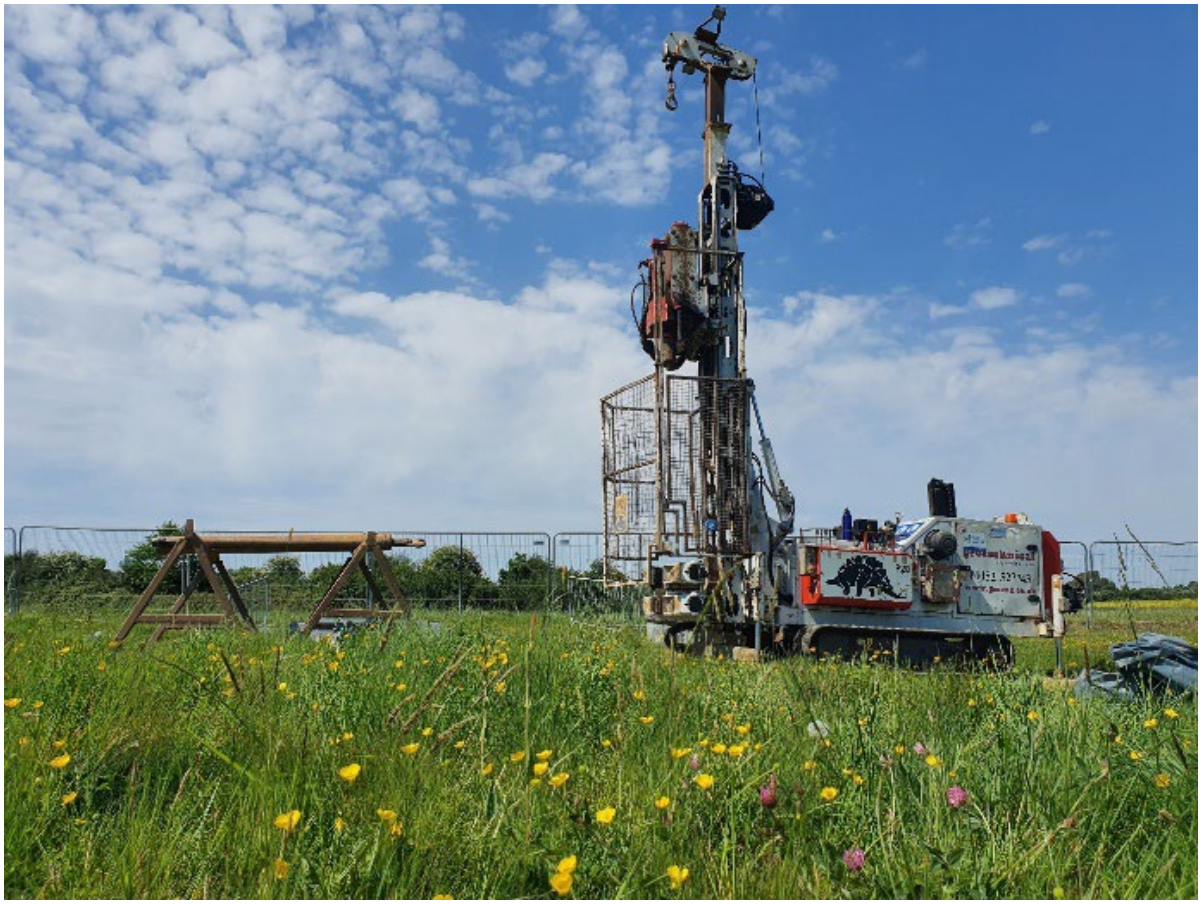
Geoarchaeologists study these samples and can reconstruct landscape change through analysing changes in soil and the remains of microscopic animals and plant organisms that survive within each layer. Pollen can be used to figure out what plants and trees grew.

On the Lyminster Bypass (North) site, geoarchaeologists have identified a layer of ‘marine deposits’ that formed 240,000–119,000 years ago in a warm climate, when Lyminster was covered by shallow sea. These deposits were recorded and sampled to find out how they relate to similar deposits that

have been found nearby, which contain Palaeolithic (early Stone Age) stone tools and animal bones of ancient bears and rhinoceros that once roamed England.

After the sea retreated, rivers and valleys formed and erosion resulted in a massive hollow, 20 metres deep, which stretched east to west across the southern end of the site. This is no longer visible today, as over the course of 12,000 years, this valley was flushed through with intertidal and freshwater silts and clays which slowly infilled it. It was also partly backfilled by people in historic times who were seeking to improve and reclaim the land for agriculture, when it became known as ‘The Black Ditch’.

The Black Ditch was once a dominant landscape feature, in the time of Prehistoric, Roman and Medieval people, however today it survives as a small stream. The borehole samples from the Black Ditch have been analysed back at the lab, and will tell us so much more about the environments in which the people of the past lived.



ABOVE: A machine drives a borehole through the 'Black Ditch' sediment. BELOW: A borehole sample showing different layers from the Black Ditch.

Want to know more?

We'll be explaining how these discoveries have changed our understanding of Lyminster's past in the third and final newsletter in this series. Be sure to check West Sussex County Council's website.