

# **Kempsey Pumping Station, Worcestershire**

## **Archaeological Monitoring of Ground Investigation Works**

**September 2022**

## Ecus Ltd

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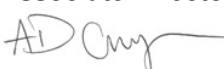
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## Summary

*Archaeological monitoring was undertaken by Ecus Archaeology during Ground Investigation (GI) prior to the proposed replacement of a debris screen at Kempsey pumping station, Worcestershire (Fig. 1). The monitored works comprised four hand-dug pits for Window Sampling (WS01 and WS02), one Rotary Drilling borehole (BH01), and one Handheld Window Sample pit (HWS01).*

*Archaeological investigations carried out on the site between 2007-2012, prior to the construction of the pumping station, identified activity dating from the prehistoric to the post-medieval period. This included an area of inhumation burials to the west of the previously understood extent of the churchyard.*

*Given the archaeological sensitivity of the area around the site, it was proposed that there would be an archaeological watching brief undertaken during the GI work, the results of which would inform subsequent archaeological mitigation.*

*The hand-dug pits were excavated under constant archaeological supervision, and the subsequent cores removed from the Window Sampling were monitored by the archaeologist on site.*

*Evidence of prior construction related disturbance was evident in all GI locations, with c. 1m of made ground present in BH01 and HWS01. No archaeological features, deposits or finds were encountered in either GI location. However, due to the limited surface area excavated in each location, and the record of proximate remains, the presence of additional archaeological remains within the proposed development cannot be ruled out on the basis of these GI works.*

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## Introduction

- 1.1.1 Ecus Archaeology were commissioned by Dunelm, on behalf of Environment Agency, to conduct archaeological monitoring of Ground Investigation (GI) works at Kempsey Pumping Station, Worcestershire (NGR: SO 84759 48942; Fig. 1). The GI works were undertaken in advance of the proposed replacement of a debris screen across the pump well inlet culvert (Fig. 2). Monitoring was undertaken during the hand-excavation of starter pits for two window samples (WS), one borehole (BH), and one handheld window sample (HWS).
- 1.1.2 The ground investigation was undertaken to inform the scheme and construction design. The archaeological monitoring was undertaken in accordance with a Written Scheme of Investigation (WSI; Ecus 2022), which was compiled following a Scope issued by ARUP (2022a).
- 1.1.3 The archaeological monitoring was undertaken between 14<sup>th</sup> September to 16<sup>th</sup> September 2022.

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## 2. Location, topography and geology

- 2.1.1 The area of investigation was located on the western outskirts of Kempsey, Worcestershire (Fig. 1). It was bounded to the south and east by Hatfield Brook, to the west by meadows and to the north by the cemetery of the Grade I Listed Church of St Mary (NHLE: 1157621).
- 2.1.2 The pumping station is located on a level floodplain between the River Severn and the Hatfield Brook, with steep slopes leading down to the brook.
- 2.1.3 The solid geology is composed of Triassic mudstone of the Sidmouth Mudstone Formation. Superficial deposits comprise Quaternary sand and gravel formed between 116 and 11.8 thousand years ago (BGS 2022). Soils in the immediate area are mapped as freely draining slightly acid loamy soils (Jarvis *et al.* 1984).

### **3. Summary archaeological and historical background**

- 3.1.1 The archaeological background to the site was examined in an Initial Archaeological Review (ARUP 2022b). Archaeological investigations carried out on the site between 2007-2012, prior to the construction of the pumping station, identified activity dating from the prehistoric to the post-medieval period. This included an area of inhumation burials to the west of the previously understood extent of the churchyard.
- 3.1.2 A series of archaeological investigations, which included evaluation, open area excavation, watching brief and topographical analysis, identified that the medieval church stood on or near the site of an early medieval minster church and Bishop's Manor House. In addition to 69 grave cuts, the excavations also identified a deeply cut linear feature, interpreted as the southern boundary of the late Saxon/medieval churchyard, and a demolition layer of a substantial medieval building, which may have been the Bishop's Palace (Vaughan and Webster 2017).

## 4. Aims and objectives

4.1.1 Given the archaeological sensitivity of the area around the site, and following discussion with the Local Planning Authority (LPA) Archaeologist, Aidan Smythe, it was proposed that there would be an archaeological watching brief undertaken during the GI work, the results of which would inform subsequent archaeological excavation (strip, map and sample) of previously undisturbed parts of the site which would be impacted by the proposed construction.

4.1.2 The specific aims of the watching brief were:

- To identify and record any archaeological deposits, structures or built fabric within the identified areas of interest;
- To determine the extent, condition, character, significance and date of any encountered or exposed archaeological remains;
- To recover artefacts disturbed by the site works;
- To prepare a comprehensive record of and report on archaeological observations during the site work;
- To identify mitigation strategies to ensure the recording, preservation or management of archaeological remains within the Site; and
- undertake a scheme of work that meets national and regional standards (Historic England 2015a, b; ClfA 2020a–c, 2021; MDC, WCC and WDC 2019).



## 5. Methodology

### *Archaeological monitoring*

- 5.1.1 The GI works were conducted according to three different sampling strategies, comprising boring to a depth of c. 15m, window sampling to c.5m and handheld window sampling to c. 2m.
- 5.1.2 Boring and window sampling focus on the extraction of sediment cores for analysis, with all work conducted within a hand excavated starter pit, measuring up to 0.4m wide and 1.2m deep.
- 5.1.3 The hand-dug pits were excavated under constant archaeological supervision and were completed using an insulated double shovel-holer to remove spoil from the pits. The spoil was separated into distinct piles for sampling depending on changes within the sub-surface deposits and assessed and recorded by the monitoring archaeologist. Once the pits were excavated to 1.2m, a section of the pit was digitally photographed and the depth of the deposits recorded. Samples were taken from designated depths by Dunelm engineers before excavation continued with the drilling rig. The subsequent cores removed from the window sampling were monitored by the archaeologist on site.
- 5.1.4 A full photographic record was maintained, using a digital camera equipped with an image sensor of 10 megapixels. Digital images will be subject to managed quality control and curation processes, which will embed appropriate metadata within the image and ensure long term accessibility of the image set. Output will be in TIFF/JPEG format. Digital records created as part of the project will comply with specific data standards (Historic England 2015c).

## 6. Results

6.1.1 The GI works comprised one borehole (BH01) excavated to a depth of 15m, two window samples (WS01, WS02) excavated to a depth of c.5m, and one handheld window sample (HWS01) excavated to a depth of 1m (Fig. 2). No archaeological features, deposits or finds were encountered in either GI location. However, due to the limited surface area excavated in each location, the presence of archaeological remains within the proposed development cannot be ruled out.

6.1.2 Deposit descriptions and their depths are presented in tabular form in Appendix A

### ***BH01 (Plate 1)***

6.1.3 The starter pit for BH01 was excavated by hand through the hard standing in the central area of the pumping station. Below two layers of made ground, redeposited colluvium overlying alluvial clay was encountered at a depth of 1m. The starter pit was excavated down to a depth of 1.2m, after which drilling commenced.



**Plate 1: BH01**



***WS01 and WS02 (Plates 2 and 3)***

6.1.4 The starter pits for WS01 and WS02 were excavated at the top of a landscaped slope to the east of the pumping station buildings. The pits were excavated by hand to a depth of 1.2m, after which window sample drilling commenced. The cores were monitored for archaeological material and depth of deposits recorded. An unexpected service was encountered during excavation of the starter pit for WS01. Excavation ceased and the starter pit was relocated to a position 2.5m south-west of the original location. WS01 and WS02 showed a near identical sequence of deposition, with brown-red colluvium overlying alluvial clay deposits at depths of c. 2m. The upper levels of the colluvium appeared to have been disturbed by landscaping of the slope during construction of the pumping station.



**Plate 2: WS01**





**Plate 3: WS 02**

***HWS01 (Plate 4)***

6.1.5 HWS01 was excavated downslope from WS01 and WS02, over the existing debris screen. The pit was excavated by hand down to the top of the screen culvert, at a depth of c. 1m. The culvert was overlain by demolition debris, which in turn had been covered by redeposited colluvium identical to that seen within WS01 and WS02.





**Plate 4: WHS01**

## 7. Archive deposition

- 7.1.1 At this stage, in anticipation of further archaeological mitigation on the site, the archive will initially be retained by Ecus in order to be incorporated into a single combined archive for the project. If no further archaeological works are undertaken, the archive from the watching brief will be deposited with Museums Worcestershire within six months of the completion of fieldwork.
- 7.1.2 A digital and paper archive has been prepared, consisting of all primary written documents, photographs and electronic data arising from the archaeological monitoring in accordance to industry standards (Brown 2011; ClfA 2020c). This will be offered to the relevant archive for deposition.
- 7.1.3 In determining which material will form part of the archive, the ClfA Archive Selection Toolkit will be used (available online at <http://cifa.heritech.net/selection-toolkit>).
- 7.1.4 The archiving of digital data arising from the project was undertaken in a manner consistent with professional standards and guidance (Archaeology Data Service/Digital Antiquity 2011). Preparation of the digital archive followed policy, guidance and procedures issued by the Archaeology Data Service (2020), Historic England (<https://historicengland.org.uk/research/methods/archaeology/archaeological-archives/adapt-toolkit/>) and DigVentures (<https://digventures.com/projects/digital-archives/>).
- 7.1.5 An OASIS online record was initiated at the start of works (Oasis ID: northern1-509513). All parts of the OASIS online form will be completed for submission to the local Historic Environment Record / Archaeological Data Service. This will include an uploaded .pdf version of the assessment report and any subsequent reports (a paper copy will also be included within the archive).

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## Appendix A: Deposit descriptions and depths

### BH01

Depth	Description
0-0.2m	Type 1 crushed limestone laid on a membrane
0.2-0.7m	Mixed sand/gravel with modern demolition rubble laid on a membrane.
0.7-1m	Brown-red silty sand colluvium (redeposited)
1-1.2m+	Blue-grey silty clay alluvium

### WS01

Depth	Description
0-0.1m	Turf and topsoil
0.1-2m	Brown-red silty sand colluvium
2-2.5m	Brown-grey gravelly alluvial clay
2.5-4m	Red-brown sandy/silty alluvial clay
4-4.5m	Blue-grey silty alluvial clay with organic matter
4.5-5.3m	Red-purple clayey sand glacial till

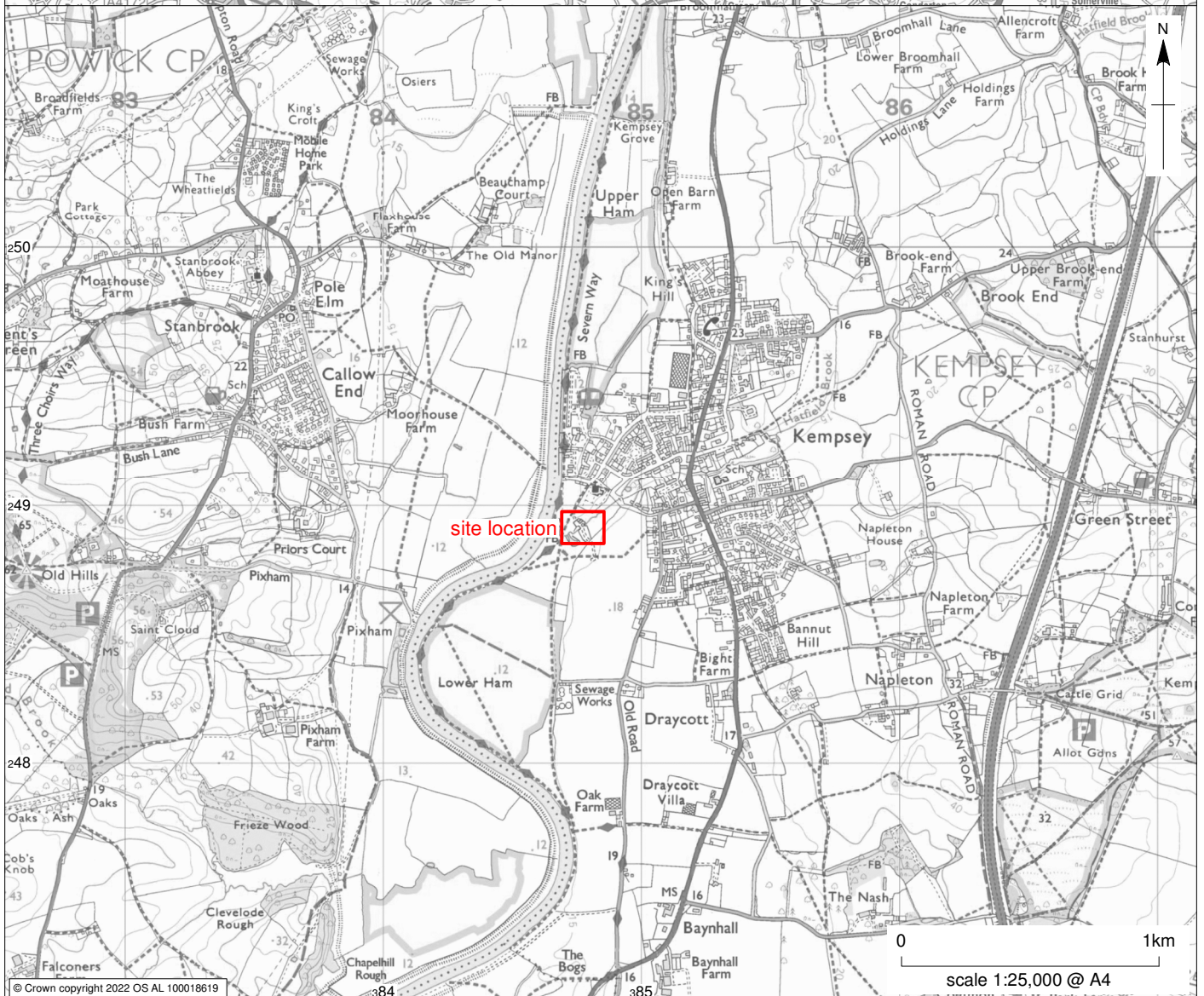
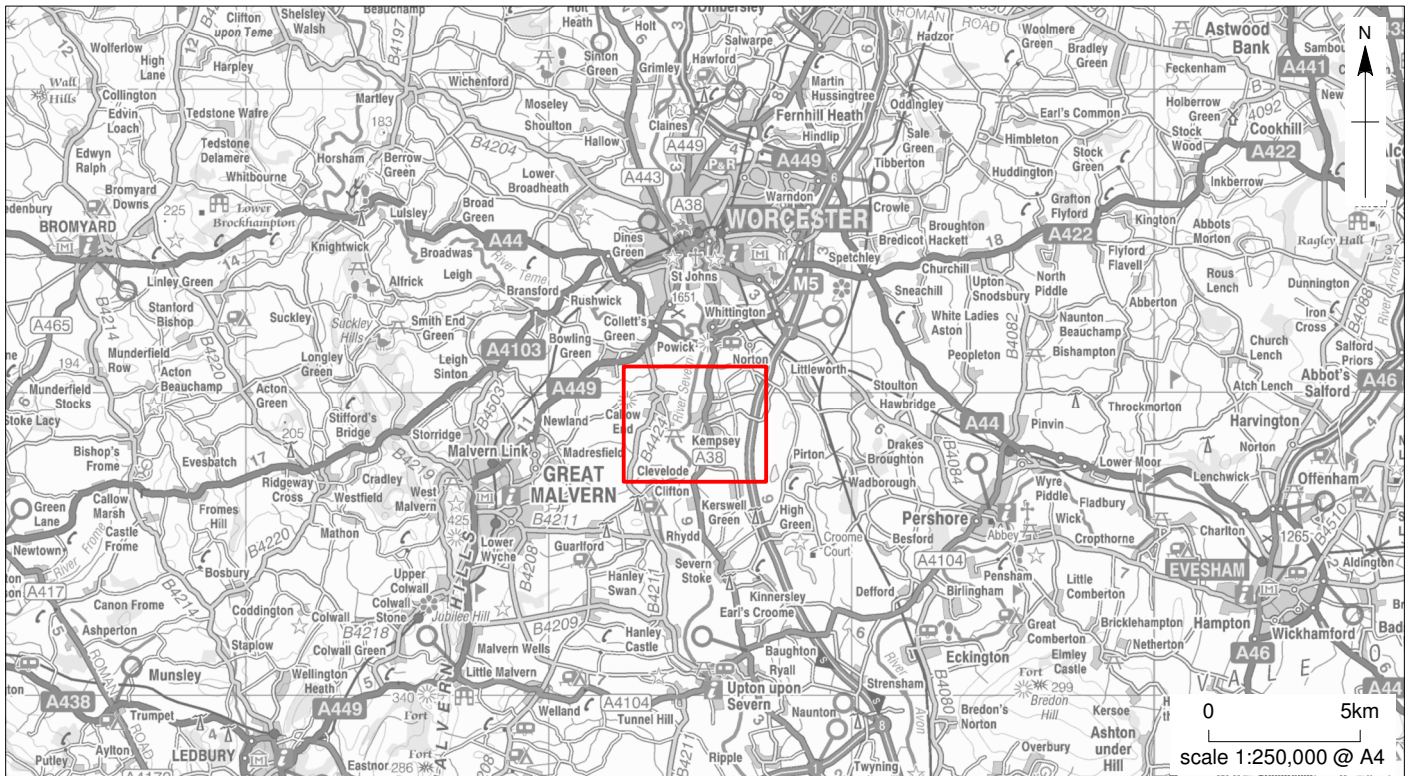
### WS02

Depth	Description
0-0.1m	Turf and topsoil

0.1-2m	Brown-red silty sand colluvium
2-2.5m	Brown-grey gravelly alluvial clay
2.5-4m	Red-brown sandy/silty alluvial clay
4-5m	Red-purple clayey sand glacial till

**HWS01**

<b>Depth</b>	<b>Description</b>
0-0.2m	Turf and topsoil
0.2-0.45m	Brown-red silty sand colluvium (redeposited)
0.45-1m	Demolition rubble overlying the plate of the debris screen chamber



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Kempsey Pumping Station: site location

Figure 1



