ARCHAEOLOGY WALES

Field Evaluation:

Kronospan, Holyhead Road, Chirk Access road, lorry park, 132kV substation and other ancillary works

October 2022

Report No. 2130

By

Irene Garcia Rovira MCIfA

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Prepared for AxisPED

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Summary

In September 2022, Archaeology Wales was commissioned by AxisPED to carry out an archaeological field evaluation on land to the north of Kronospan, Holyhead Road, Whitehurst, Chirk, Wrexham.

The field evaluation was recommended by Clwyd-Powys Archaeological Trust – Development Control (CPAT-DC) following from the results obtained through a geophysical survey carried out by AW in June 2022 (Muller 2022).

Eight trenches were cut to evaluate the site and to assess the results obtained during the geophysical survey. Two features were evidenced during the field evaluation: a rubbish pit located at the northernmost end of the development area, and feature [5003] tentatively interpreted as a lime kiln of medieval, or post-medieval date.

No evidence of the Roman road Rhyn Park to Rhug (PRN 47505) was found during the excavation of the trenches.

All work conformed to Standard and Guidance for Archaeological Field Evaluation (CIfA 2020) and Standards and Guidance for Archaeological Artefact and Environmental Collection, Documentation Conservation and Research (CIfA 2020).

Crynodeb

Ym mis Medi 2022, comisiynwyd Archaeology Wales gan AxisPED i gynnal gwerthusiad maes archeolegol ar dir i'r gogledd o Kronospan, Ffordd Caergybi, Whitehurst, Y Waun, Wrecsam.

Argymhellwyd y gwerthusiad maes gan Ymddiriedolaeth Archeolegol Clwyd- Powys - Rheoli Datblygiadau (CPAT-DC) yn dilyn y canlyniadau a gafwyd yn sgil arolwg geoffisegol ar y safle a gynhaliwyd gan AW ym mis Mehefin 2022 (Muller 2022).

Torrwyd wyth ffos i asesu'r canlyniadau a gafwyd yn ystod yr arolwg geoffisegol. Nodwyd dwy nodwedd yn ystod y gwerthusiad maes; pwll ysbwriel wedi'i leoli ar ben mwyaf gogleddol yr ardal ddatblygu, a nodwedd [5003] a ddadansoddwyd yn lled ffyddiog fel odyn calch o'r cyfnod canoloesol, neu is-ganoloesol.

Nid chanfuwyd unrhyw dystiolaeth o'r Ffordd Rufeinig o Barc Rhyn i Rhug (PRN 47505) yn ystod y gwaith o archwilio'r ffosydd.

Roedd yr holl waith yn cydymffurfio â'r Safonau a'r Canllawiau ar gyfer Gwerthusiad Maes Archeolegol (Sefydliad Siartredig yr Archeolegwyr 2020) a'r Safonau a'r Canllawiau ar gyfer Casglu Arteffactau Archeolegol ac Amgylcheddol, Cadw Dogfennau ac Ymchwil (Sefydliad Siartredig yr Archeolegwyr 2020).

1. Introduction

1.1.1. In September 2022, Archaeology Wales was commissioned by AxisPED to carry out an archaeological evaluation on land to the north of Kronospan, Holyhead Road, Whitehurst, Chirk, Wrexham– NGR SJ 328825 339096 (Figure 1).

1.1.2. The evaluation was recommended by Clwyd-Powys Archaeological Trust – Development Control (CPAT-DC) following from the results of a geophysical survey carried out by Archaeology Wales in June 2022, that identified potential archaeological features within the Proposed Development site (Muller 2022).

1.1.3. A total of eight trenches were excavated, with each one targeting geophysical anomalies. The position and size of the trenches were agreed with CPAT-DC prior to the commencement of works.

1.1.4. The field evaluation was carried out under the supervision of Juan Moreno with Rachel Willmot. The project was managed by Irene Garcia Rovira (MCIfA) both of AW. The first fieldwork phase was undertaken between the 12th to the 16th of September 2022. The second fieldwork phase to further investigate Trench 5 was undertaken on 26th September 2022.

1.1.5. All work conformed to Standard and Guidance for Archaeological Field Evaluation (CIfA 2020) and Standards and Guidance for Archaeological Artefact and Environmental Collection, Documentation Conservation and Research (CIfA 2020).

2. Site description and archaeological background

2.1. Location, Topography, and geology

2.1.1. The Proposed Development site is located immediately north of the Kronospan complex. The site is bounded to the east by the B5070 and Chirk, to the west by a disused railway and Llangollen Canal, and to the south by open fields. The Proposed Development site has been used to grow crops and for grazing in recent years (Figure 1).

2.1.2. The site slopes down gently towards the north and the west, with the western slope becoming slightly steeper as it drops towards the canal. The eastern edge of the site is approximately 100m aOD, with the western edge approximately 90m aOD.

2.1.3. The underlying geology is comprised of mudstone, siltstone, sandstone, coal, ironstone and ferricrete from the Penine Lower Coal Measures and the South Wales Lower Coal Measures, formed during Carboniferous Period. These are overlain by superficial deposits of Till – Diamicton, formed during the Quaternary Period (BGS 2022).

2.2. Archaeological and Historic Background

2.2.1. The nature and the potential impact of the Proposed Development on the

archaeological and historic resource of the site and surrounding area has been examined through a Desk Based Assessment (DBA) and a geophysical survey (Garcia Rovira 2022; Muller 2022).

2.2.2. The DBA indicated that the earliest evidence of activity within the immediate vicinity of the Proposed Development site dated to the Roman period, with two Vexillation forts located to the south-east. The first fort is believed to date to AD 47, with second fort being constructed in around AD 75. There are no known civilian settlements in proximity to the site although findspots of brooches and coins suggest these did exist and are yet to be discovered.

2.2.3. The Proposed Development site is located to the east of Offa's Dyke, which is the UK's longest linear earthwork comprised of a bank and ditch. The dyke is believed to have been constructed during the reign of King Offa and so dates to the late 8th century AD. The Dyke is thought to have formed a boundary between the Saxon kingdom of Mercia and the Welsh kingdoms, although its exact function has been debated with suggestions it may have served as a defensive structure as well as a boundary (Hadley, 2017). There are six sections of the Dyke in the vicinity of Kronospan, where it runs along the top of the higher ground to the west and north-west of the site.

2.2.4. Settlement within the vicinity of the site intensified throughout the early medieval period, with the modern town of Chirk thought to have originated from an Early medieval maerdref, which was a township from where demesne land was administered (Silvester 2015). After the Norman conquest a motte and bailey castle, Castell-y-Waun, was constructed at Chirk in approximately 1165, located 1.3km to the south of the Proposed Development area. After the campaigns of Edward I in North Wales during the late 13th century a new castle was constructed 2km to the west.

2.2.5. The vast majority of settlement evidence around the Proposed Development site dates to the post-medieval period, largely due to the expansion of industry. This is most evident in the construction of the Pontcysyllte Aqueduct and Llangollen Canal (DE 175; PRN 124694, NPRN 405725), with the canal located just beyond the western edge of the Proposed Development area.

2.2.6. The subsequent geophysical survey identified several anomalies of likely natural origin, and a number of anomalies of uncertain origin which could be of archaeological significance. These were concentrated in the central and northern sections of the Proposed Development site. The DBA highlighted Roman through to modern activity within the vicinity of the Proposed Development site. As such the potential archaeological anomalies could date to anywhere from the Roman conquest of Wales to present.

3. Aims and Objectives

3.1.1. The objective of the intrusive trial trench evaluation was to locate and describe archaeological features identified by a previous geophysical survey in the area (Muller 2022). The work aimed at elucidating the presence or absence of archaeological material, its character, distribution, extent, condition, and relative significance.

3.1.2. The results have been contextualised through an assessment of regional context within which the archaeological evidence rests and have been assessed against relevant research issues within national and regional research frameworks.

4. Methodology

4.1.1. The work was undertaken to meet the standard required by The Chartered Institute for Archaeologist's *Standard and Guidance for Archaeological Field Evaluation* (2020) and in line with the agreed WSI.

4.1.2. The agreed evaluation trenches (Figure 2) were positioned to maximise the retrieval of archaeological information within accessible areas, and to ensure that the archaeological resource was understood. The trenches targeted anomalies detected during the geophysical survey (Muller 2022).

4.1.3. Eight trenches measuring between 10m and 50m long x 1.8m wide, were machine-excavated within the planned development area (Figures 2). The locations and dimensions of the trenches were agreed with CPAT-DC before the commencement of works as part of the WSI.

4.1.4. The evaluation trenches were excavated to the top of the archaeological horizon by a 15T tracked excavator fitted with a toothless grading bucket under close archaeological supervision.

4.1.5. Sufficient excavation was undertaken to ensure that the natural horizons were reached and proven.

4.1.6. Any archaeological remains encountered were hand cleaned, excavated where appropriate, and recorded through the use of proforma recording sheets, high resolution digital photography, and GPS.

5. Results

5.1. Trench 1 (Figure 2-3; Plates 1-2)

5.1.1. Trench 1 was located at the northernmost end of the surveyed area. The trench was positioned to assess anomaly F1 which was sub-linear in character and of possible archaeological origin (Figure 2).

5.1.2. Trench 1 measured 15m in length by 1.8m in width had a maximum depth of 0.34m. The natural horizon (1001) was encountered at a depth of 0.15m and had an exposed thickness of 0.14m. The natural was comprised of a mid-yellowish-brown sandy clay with occasional small angular stones throughout.

5.1.3. The natural was overlain by topsoil (1000) which had a thickness of 0.15m and was comprised of a mid-brownish-grey silty clay.

5.2. Trench 2 (Figure 2-3; Plates 3-4)

5.2.1. Trench 2 was located in the northwest of the site. The trench was positioned to assess anomaly F2 (Figure 2), a sub- rectangular anomaly clearly evidenced during the geophysical survey.

5.2.2. Trench 2 measured 30m in length by 1.8m in width and was oriented north- north-west to south-south-east. It was excavated to a maximum depth of 0.75m.

5.2.3. The natural horizon (2002) was encountered at a depth of 0.7m below the ground level. The deposit was characterised as mid-yellow-brown sandy clay with frequent small, rounded stones. It was overlain by subsoil (2001), a deposit of light-grey-brown sandy clay with frequent small, rounded stones, measuring between 0.3m and 0.48m in thickness.

5.2.4. A pit measuring 12.25m in width was recorded within the trench and had been cut through subsoil (2001). Pit [2003] was linear in plan, with irregular sides. It was excavated to a maximum of 0.77m. The pit contained fill (2004), which was a dark-brown sandy clay. The fill contained modern material including CBM, plastic, string, and rubble, which due to its modern date was not collected.

5.2.5. There were two thin parallel linear features of agricultural origin recorded at the northern end of the trench. These were interpreted as former field drains, which had been cut through the subsoil.

5.2.6. The features were overlain by topsoil (2000) which was the same as (1000) and had a maximum thickness of 0.3m.

5.3. Trench 3 (Figure 2-3; Plates 5-6)

5.3.1. Trench 3 was located in the northeast of the site. The trench was positioned to assess anomaly F4 (Figure 2), a sub-circular anomaly evidenced during the geophysical survey.

5.3.2. Trench 2 measured 50m in length by 1.8m in width and was oriented north-east to south-west. It was excavated to a maximum depth of 0.48m.

5.3.3. The natural substrate (3002) was located at a depth of 0.4m. The deposit was characterised as mid-yellow- brown sandy clay with frequent small, rounded stones. This deposit was overlain by the subsoil (3001), a deposit of light-grey-brown sandy clay with frequent small, rounded stones, measuring between 0.3m and 0.38m in thickness. The subsoil was overlain by topsoil (3000) which was characterised by mid-

grey-brown sandy loam (3000) measuring c. 0.15m in depth.

5.4. Trench 4 (Figure 2-3; Plates 7-8)

5.4.1. Trench 4 was located to the south of Trench 3. The trench was oriented north to south and was positioned across anomaly F5 (Figure 2), a small circular anomaly evidenced during the geophysical survey.

5.4.2. Trench 4 measured 21m in length by 1.8m in width. It was excavated to a maximum of 0.6m. The natural horizon (4005) was located at a depth of 0.5m below the ground level and was comprised of a mid-yellowish-brown sandy clay with occasional rounded stones.

5.4.3. The natural was overlain by subsoil (4001). The subsoil was comprised of mid-brown-grey silty clay with frequent small, rounded stones and occasional charcoal, measuring 0.023m in thickness.

5.4.4. The subsoil had been truncated by modern field drain [4003], which had a width of 0.26m. The field drain was overlain by topsoil (4000), which was comprised of mid-grey-brown sandy loam measuring 0.22m in thickness.

5.5. Trench 5 (Figure 2, 4, 6; Plates 9-14)

5.5.1. Trench 5 was positioned to target anomaly F6 (Figure 2), a circular anomaly evidenced during the geophysical survey.

5.5.2. Trench 5 measured 23m in length by 1.8m in width. It was excavated to a maximum of 0.63m and was oriented north-west to south-east.

5.5.3. The natural horizon (5002) was encountered at a depth of 0.6m and was comprised of a deposit of mid-yellow- brown sandy clay with frequent rounded stones. Deposit (5002) was truncated by circular feature [5003]. The trench was extended to expose the entire feature with an extension measuring 5m by 4.5m projecting from the south-west edge of the trench.

5.5.4. Feature [5003] was excavated by hand to c.1.5m from this depth its fill was removed by machine under careful supervision to a depth of 4m. At this point the excavation of the feature ceased due to health and safety constraints.

5.5.5. The sides of the cut were steep and had been heat affected, with the edge of the cut being a mid-reddish orange in colour, (5008). The heat affection measured 0.06m in thickness. There was evidence of potential charcoal staining observed within the heat affected clay.

5.5.6. There were two fills observed within the feature, with the lowest fill (5007) being comprised of a mid-grey-brown sandy clay with infrequent red patches throughout it. The excavated deposit measured 2.5m in depth with the base of the deposit not being reached due to the depth of the feature. This fill was overlain by (5006), a deposit of grey-brown sandy clay that measured 1.5m in thickness.

5.5.7. Comparison with other similar features as well as a detailed study of its fills was carried out during post-excavation (see section 7). This led to suggest that the feature could have been an early form of lime kiln of possibly of medieval or post-medieval date. It is worth noting that no lime kilns are mentioned at this location in historic cartographic sources.

5.5.8. The feature was overlain by subsoil (5001) which was a mid-brownish-grey sandy clay, with frequent angular stone inclusions. The subsoil had a maximum thickness of 0.23m. It was overlain by topsoil (5000), which was a mid-greyish-brown sandy clay, with a maximum thickness of 0.22m.

5.6. Trench 6 (Figure 3-5; Plates 15-16)

5.6.1. Trench 6 was positioned across anomaly F8 (Figure 2), a linear anomaly clearly evidenced during the geophysical survey.

5.6.2. Trench 6 measured 10m in length by 1.8m in width and was oriented north-west to south-east. It was excavated to a maximum depth of 0.65m.

5.6.3. The natural substrate (6002) was encountered at a depth of 0.55m. The deposit was characterised as mid-yellow- brown sandy clay with frequent small, rounded stones. It was overlain by topsoil (6000), which was a mid-grey-brown sandy loam, which had a thickness of 0.55m.

5.7. Trench 7 (Figure 3-5; Plates 15-16)

5.7.1. Trench 7 was positioned across anomaly F9 (Figure 2), a sub-circular anomaly evidenced during the geophysical survey.

5.7.2. Trench 7 measured 50m in length by 1.8m in width and was oriented north-east to south-west. It was excavated to a maximum depth of 0.69m.

5.7.3. The natural substrate (7002) was located at a depth of 0.68m. The deposit was characterised as mid-yellow- brown sandy clay with frequent small, rounded stones. It was overlain by the subsoil (7002), a deposit of light-grey-brown sandy clay with frequent small, rounded stones, measuring 0.43m in thickness. The subsoil was overlain by topsoil (7000), which was characterised as a mid-grey-brown sandy loam measuring 0.4m in thickness.

5.8. Trench 8 (Figure 3-5; Plates 17-18)

5.8.1. Trench 8 was positioned across anomaly F12 (Figure 2), a sub-circular anomaly evidenced during the geophysical survey.

5.8.2. Trench 8 measured 10m in length by 1.8m in width and was oriented west-north-west to south-south-east. It was excavated to a maximum depth of 0.65m.

5.8.3. The natural substrate (8001) was located at a depth of 0.59m. The deposit was characterised as a mid-yellow- brown sandy clay with small, rounded stones. This deposit was overlaid by topsoil (8000), which was a by mid-grey-brown sandy loam,

with a thickness of 0.59m.

6. The Finds

6.1.1. No finds were recovered from the evaluation.

7. Environmental Samples *Rhiannon Philp*

7.1.1. A total of three samples were recovered in samples of up to 20lts and returned to Archaeology Wales' Finds and Environmental processing facility, where they were processed using a three tank, recycled water flotation system. During the flotation process, a 500µm mesh was used to collect the residue and a 300µm mesh to collect the flot. Residues were then washed through a sieve stack containing 10mm, 5mm, 2mm and 500µm mesh sizes. Each fraction was kept separate to aid drying.

7.1.2. Once dry the residues were sorted for artefacts and ecofacts. Material was extracted from all residues greater than 2mm and separated according to type. A magnet was passed over the <2mm residue in order to collect any magnetic residue present. This was then scanned by eye for any obvious signs of hammerscale. The flots were scanned by eye for environmental remains.

Quantities of remains are described as occasional + (<5 items), moderate ++ (5-25 items), frequent +++ (25-100 items) or abundant ++++ (>100 items).

7.2. Flot Report

7.2.1. Highly fragmented charcoal in very occasional quantities was recovered within the flots from samples <2> (5008) and <3> (5007).

7.3. Residue Report

7.3.1. The residue results are displayed in Table 1 and described below:

Sample No.	Context No.	Magnetic residues	Charcoal	Mortar/ Lime	No finds?	Flot?	Comments
2	5008	+ No hammerscale	+			Charcoal + (very small fragments)	
3	5007	+ Occasional microslag	++	+++		Charcoal + (very small fragments)	Charcoal has lime/mortar attached. Small amount of heat affected stone fragments noted in residue.

Table 1: Results from the environmental samples.

7.3.2. Sample <1> (5004) contained no material of archaeological value.

Charcoal

7.3.3. A moderate quantity of highly vitrified charcoal was recovered in sample <3> (5007). Some of the charcoal had lime or mortar attached to the surface. Occasional very small fragments of charcoal were also present in sample <2> (5008).

Mortar and Limestone Chips

7.3.4. Frequent small fragments of what appear to be lime mortar were recovered from sample <3> (5007). A moderate quantity of fragmented limestone chips were also present.

Magnetic Residue

7.3.5. Magnetic residues were collected from samples <2> (5008) and <3> (5007). No hammerscale was recovered from sample <2>, but occasional microslag was identified in the magnetic residue from sample <3>. This is likely to be as a result of iron minerals within the limestone being processed, rather than as a result of direct metalworking.

7.4. Summary

7.4.1. Samples <1> (5004) and <2> (5008) both contained very little material of archaeological value. Both seem to have been taken from heat affected natural towards the upper level of the pit.

7.4.2. Sample <3> (5007) was taken from the lower fill at the limit of excavation during the evaluation. While the bottom of the pit was not reached, the remains present within this level of fill offer some insight as to the use of the pit. The sample contained a moderate quantity of highly vitrified charcoal, indicating that it had been heated to a high temperature. Frequent small fragments of possible limestone and lime mortar were also present within this sample with some fused to the charcoal.

7.4.3. The findings from the environmental samples indicate that this pit may have been a form of lime pit or kiln. No structure was identified within portion of the pit excavated, which could suggest a ‘clamp kiln’, also known as a ‘pye kiln’ or ‘sow kiln’ (Historic England 2018). These were pits cut directly into the ground within the base of which a hearth would be laid and then layers of limestone and fuel stacked on top and likely covered with turf. The process was similar to the production of charcoal, where slow burning is used to produce the desired outcome. Within this process the surrounding soil would often become reddened and hardened by the heat (Historic England 2018, 2). Features such as these have been used since the Roman period and were also common in the medieval period.

7.4.4. However, it is also possible that the pit represents a lime kiln where the structural elements have been removed. This was common practice, as they were temporary structures and often dismantled and recycled once they were no longer needed

(Historic England 2018, 2). This could mean that the kiln dated much later, perhaps into the 19th century.

8. Interpretation and Discussion

8.1.1. The field evaluation exposed two features, a modern rubbish pit located in Trench 2 at the northernmost end of the development area probably associated with the works at Afon Bradley Farm, and feature [5003] in Trench 5 which is likely to be the remains of a lime kiln.

8.1.2. Documentary research led to the suggestion that the lime kiln might be of medieval/post-medieval origin as it is not marked in any historic map editions.

8.1.3. No evidence of the Roman road Rhyn Park to Rhug (PRN 47505) was found during the excavation of the trenches.

9. Bibliography

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Figure 1. Site Location (red arrow).

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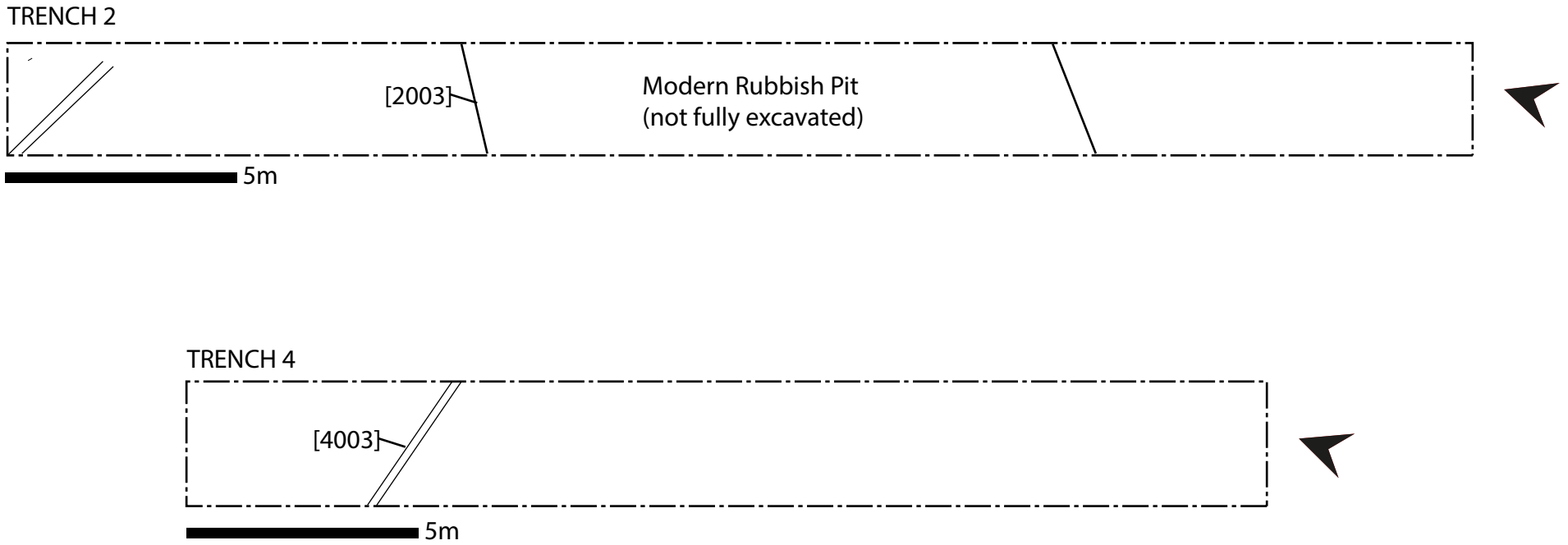

Figure 3. Plan of Trenches 2 and 4

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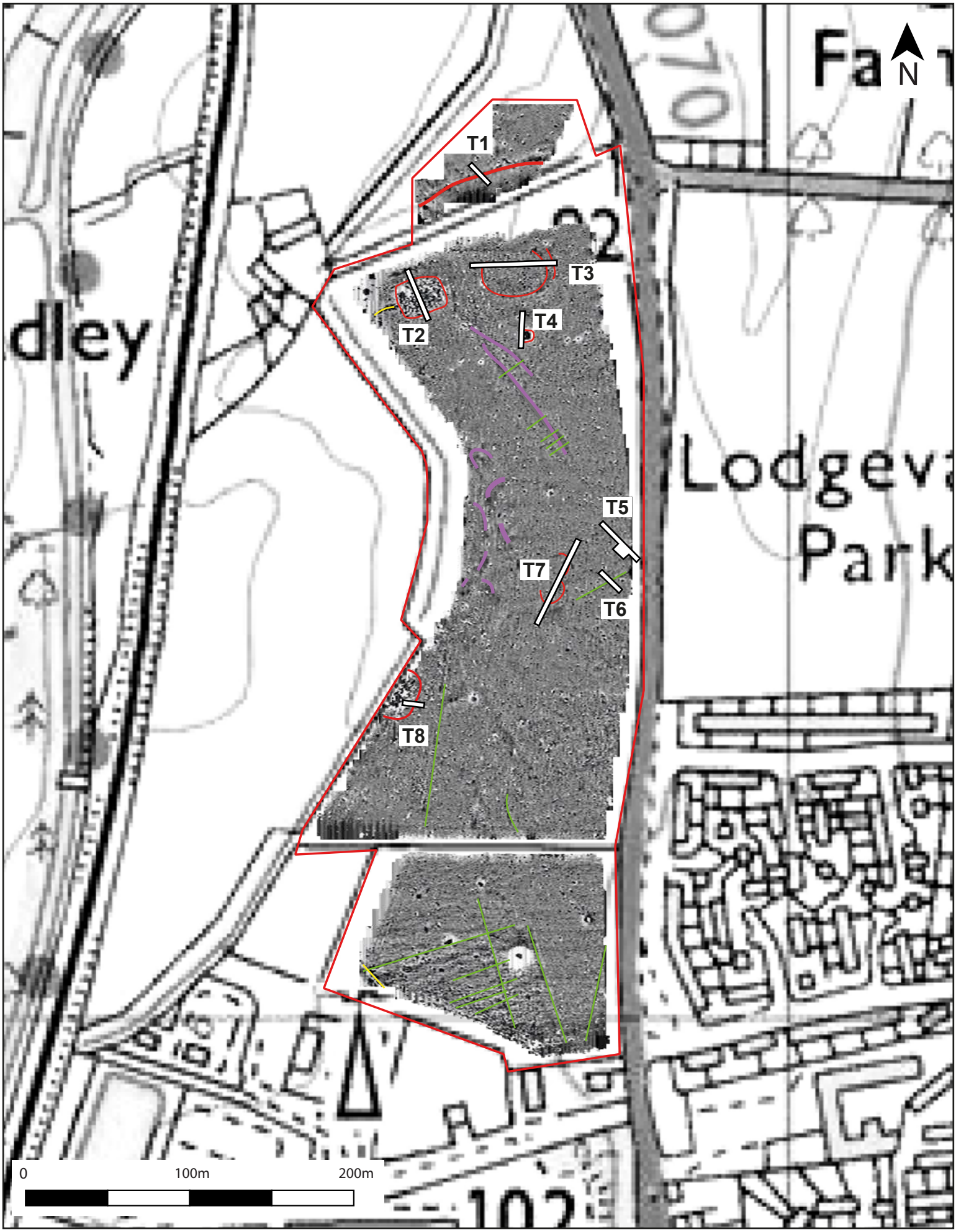

Figure 2. Location of trenches

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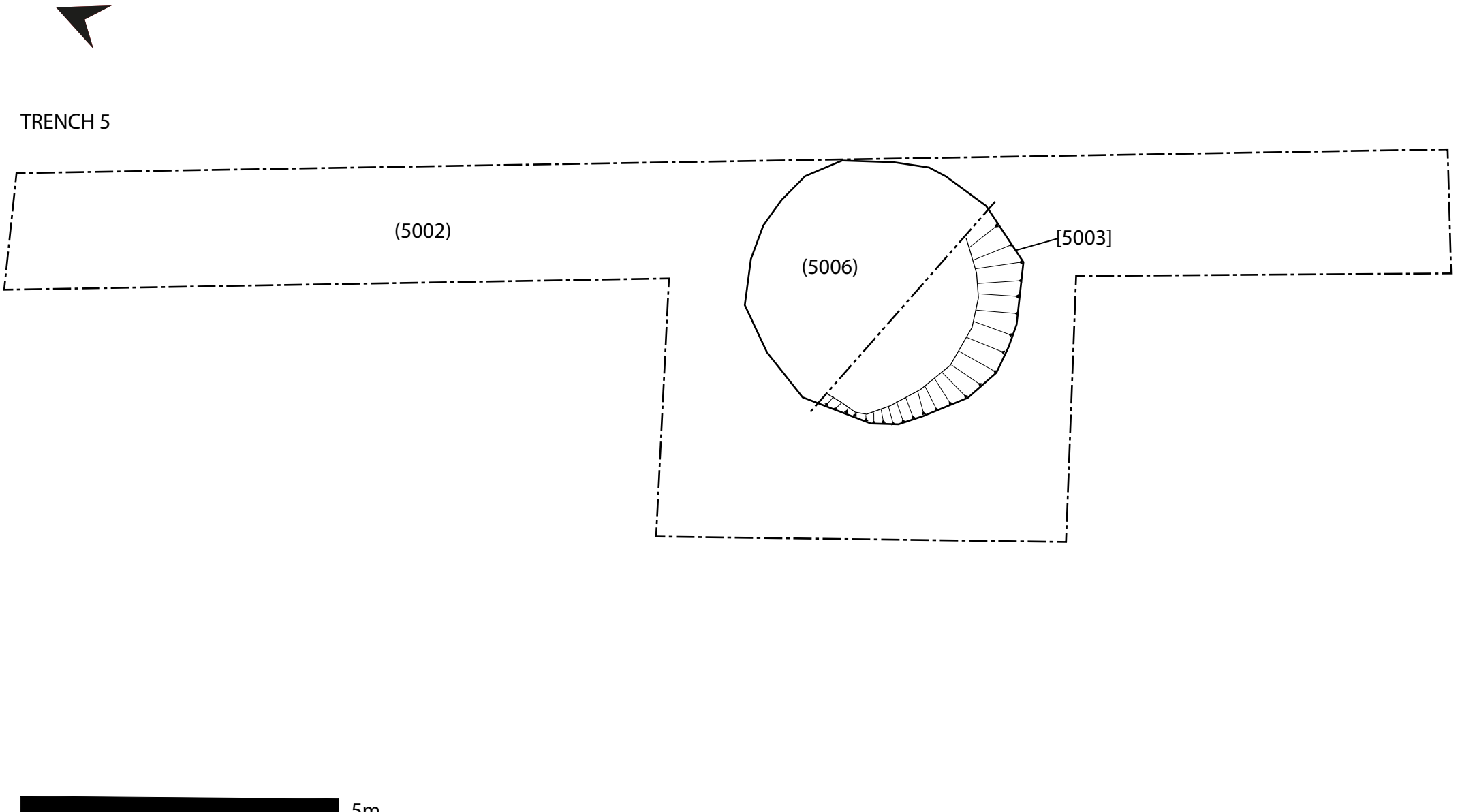

Figure 4. Plan of Trench 5

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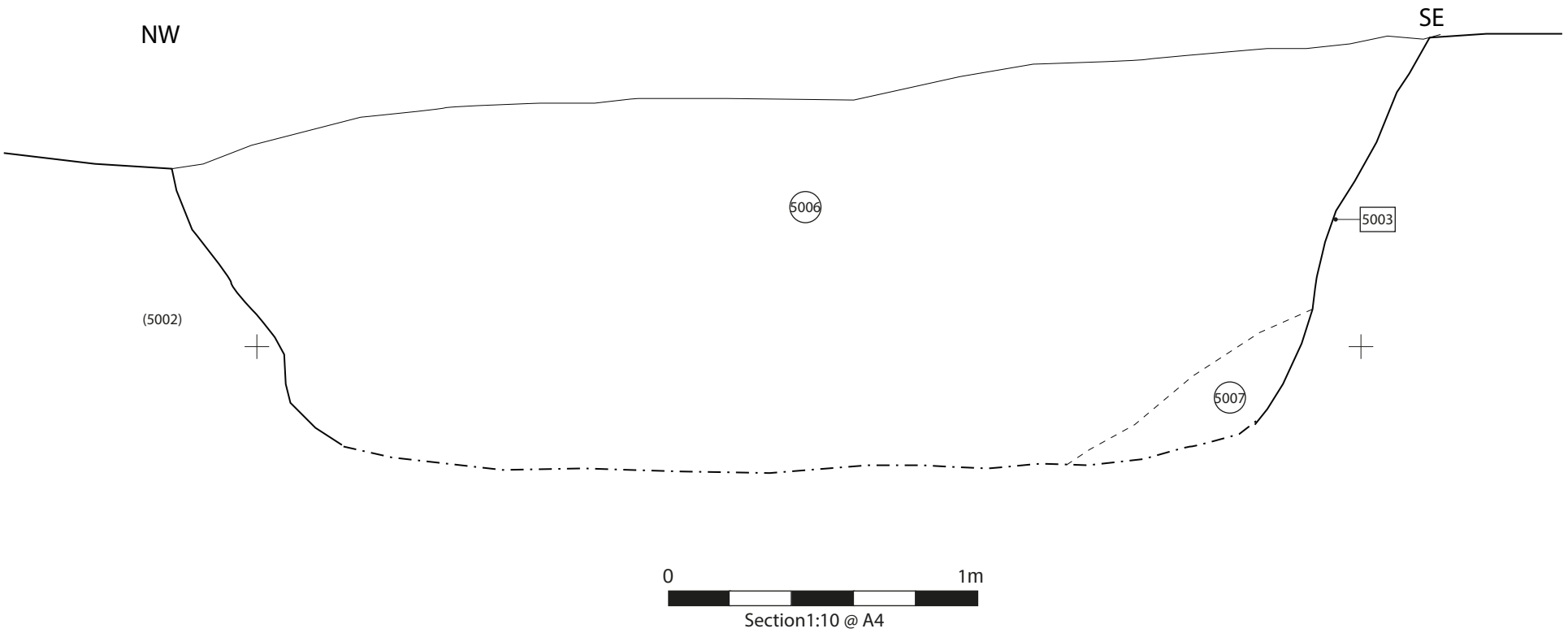

Figure 5.
SW facing section of [5003]

Plate 1. Trench 1 looking north-west

Plate 2. Trench 1 – north-east facing representative section

Plate 3. Trench 2 looking north

Plate 4. West facing representative section – Trench 2

Plate 5. Trench 3 looking south-south-west

Plate 6. Trench 3 – north-east representative section

Plate 7. Trench 4 looking east

Plate 8. Trench 4 – south facing representative section

Plate 9. Trench 5 looking north-east prior to the extension

Plate 10. South-east facing representative section Trench 5

Plate 11. Feature [5003] fully exposed - Trench 5

Plate 12. Feature [5003] half sectioned

Plate 13. Trench 5 - Detail of possible charcoal staining on sides of 5003. View to south-east

Plate 14. View to the north-west of feature [5003] at 4m below the ground level (not fully excavated)

Plate 15. Trench 6 looking north-west

Plate 16. South-west facing representative section , Trench 6

Plate 17. Trench 7 looking north

Plate 18. South-west facing representative section Trench 7

Plate 19. Trench 8 looking north

Plate 20. South-west facing representative section Trench 8

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WRITTEN SCHEME OF INVESTIGATION

FOR AN ARCHAEOLOGICAL

TRENCHED EVALUATION

Kronospan, Holyhead Road, Whitehurst, Chirk, Wrexham

Prepared for:

Wrexham County Borough Council

Project No: 2954

August 2022

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Figure 1. Site location

Figure 2. Trench location

Summary

This Written Scheme of Investigation (WSI) details the proposal for an archaeological field evaluation to be undertaken in association with the proposed construction of an access road, lorry park, 132kV substation other ancillary works on land north of Kronospan, Holyhead Road, Whitehurst, Chirk, Wrexham– NGR SJ 328825 339096. It has been prepared by Archaeology Wales Ltd for AxisPED.

Clwyd Powys Archaeological Trust- Development Control have requested that a field evaluation is carried out to confirm the nature and extent of any buried archaeological remains that may be affected by groundworks associated with the proposed development. The work is informed by a previous Desk Based Assessment and Geophysical Survey. The latter detected several anomalies of uncertain origin within the development area.

All work will be undertaken in accordance with the standards and guidelines of the Chartered Institute for Archaeologists (2020).

1. Introduction and planning background

1.1. This WSI details the proposal for a field evaluation to be undertaken in association with the proposed construction of an access road, lorry park, 132kV substation other ancillary works at land to the north of Kronospan, Holyhead Road, Whitehurst, Chirk, Wrexham– NGR SJ 328825 339096 (Figure 1).

1.2. Clwyd Powys Archaeological Trust- Development Control (CPAT-DC) has requested that an archaeological field evaluation is carried out to assess the potential impact of the development on the archaeological resource.

1.3. This WSI has been prepared by Menna Griffiths, Archaeology Wales Ltd (henceforth - AW) at the request of AxisPED.

1.4. The methodology set out in this WSI has been agreed with CPAT-DC in its capacity as archaeological advisors to the local planning authority. The purpose of the proposed field evaluation is to provide the local planning authority with the information they are likely to request in respect of the proposed development, the requirements for which are set out in Planning Policy Wales Revised Edition.11, Section 6.1 (2021) and Technical Advice Note (TAN) 24: The Historic Environment (2017). The work is to

highlight and assess the impact of the proposed development on the archaeological resource.

1.5. All work will conform to the Standard and Guidance for Archaeological Field Evaluation (CIfA 2020) and be undertaken by suitably qualified staff to the highest professional standards. AW is a Registered Organisation with the CIfA.

2. Site Description

2.1. The proposed development site is located immediately north of Kronospan complex. The site is bounded to the east by the B5070 and Chirk, to the west by a disused railway and Llangollen Canal, and to the south by open fields. The proposed development site has been used to grow crops and for grazing in recent years.

2.2. The underlying geology is comprised of mudstone, siltstone, sandstone, coal, ironstone and ferricrete from the Penine Lower Coal Measures and the South Wales Lower Coal Measures, formed during Carboniferous Period. These are overlain by superficial deposits of Till – Diamicton, formed during the Quarternary Period (BGS 2022).

3. Historic background

3.1. In June 2022, Archaeology Wales Ltd carried out a Geophysical Survey of the proposed development site (Muller 2022) following the results obtained by a Desk Based Assessment (Garcia Rovira 2022) and adhering to CPAT-DC recommendations.

3.2. The geophysical survey identified several anomalies of likely natural origin, and a number of anomalies of uncertain origin which could be of archaeological significance. These are concentrated toward the northern end of the proposed development site.

4. Objectives

4.1. The objective of the intrusive trial trench evaluation will be to locate and describe archaeological features that may be present within the development area as suggested. The work will elucidate the presence or absence of archaeological material, its character, distribution, extent, condition, and relative significance. The work will include an assessment of regional context within which the archaeological evidence rests and will

aim to highlight any relevant research issues within national and regional research frameworks.

4.2. A report will be produced that will provide information which is sufficiently detailed to allow the archaeological resource to be better understood. The information could then be used to help inform further archaeological work undertaken in association with the proposed development.

5. Timetable of works

5.1. The field evaluation is likely to start during September 2022. CPAT-DC will be informed of any changes to the schedule.

5.2. The report will be submitted to the client and CPAT-DC within a month of the completion of the fieldwork. A copy of the report will also be sent to the regional Historic Environment Record.

6. Methodology

Field Evaluation

5.17. The work will be undertaken to meet the standard required by The Chartered Institute for Archaeologist's *Standard and Guidance for Archaeological Field Evaluation* (2020).

5.18. The archaeological project manager in charge of the work will satisfy herself that all constraints to ground works have been identified, including the siting of live services and Tree Preservation Orders.

5.19. The agreed evaluation trenches (Figures 2) will be positioned to maximise the retrieval of archaeological information within accessible areas, and to ensure that the archaeological resource is understood. The trenches will target the anomalies detected during the geophysical survey (Muller 2022).

5.20. It is proposed that eight trenches measuring between 10m to 50m long x 1.8m wide, will be machine-excavated within the planned development area (Figures 2).

5.21. The exact positioning of the trenches will depend on the position of any extant services or other obstructions that come to light during the initial phase of ground works. The locations and dimensions of the trenches have been agreed with CPAT-DC.

5.22. The evaluation trenches will be excavated to the top of the archaeological horizon by a 360 excavator or similar machine fitted with a toothless grading bucket under close archaeological supervision.

5.23. All areas will be subsequently hand cleaned using pointing trowels and/or hoes to prove the presence, or absence, of archaeological features and to determine their significance. The excavation of the minimum number of archaeological features will be undertaken, to elucidate the character, distribution, extent and importance of the archaeological remains. As a minimum small discrete features will be fully excavated, larger discrete features will be half-sectioned (50% excavated) and long linear features will be sample excavated along their length - with investigative excavations distributed along the exposed length of any such feature and to investigate terminals, junctions and relationships with other features. Should this percentage excavation not yield sufficient information to allow the form and function of archaeological features/deposits to be determined full excavation of such features/deposits may be required.

5.24. Sufficient excavation will be undertaken to ensure that the natural horizons are reached and proven, where this can be practically and safely achieved. If safety reasons preclude manual excavation to natural, hand augering may be used to try to assess the total depth of stratification within each area. The depth of the excavation will conform to current safety requirements. If excavation is required below 1m the options of using shoring will be discussed with the client and CPAT-DC, but the intention would be to stop at safe depths.

Contingency

5.25. Should potentially significant archaeological features be encountered during the course of the evaluation then CPAT-DC and the client will be informed at the earliest possible opportunity.

5.26. CPAT-DC may subsequently request that further archaeological work is undertaken in order to fully evaluate areas of significant archaeological activity. Such work may require the provision of additional time and resources to complete the archaeological investigation. The scope of such work will be agreed with CPAT-DC and the client prior to any extended works being undertaken.

Recording

5.27. Recording will be carried out using AW recording systems (pro-forma context sheets, etc.) using a continuous number sequence for all contexts.

5.28. Plans and sections will be drawn to a scale of 1:50, 1:20 or 1:10 as required and related to Ordnance Survey datum and published boundaries where appropriate.

5.29. All features identified will be tied into the OS survey grid and fixed to local topographical boundaries.

5.30. Photographs will be taken in digital format with an appropriate scale, using a 10MP+ camera with photographs stored in Tiff format.

Finds

5.31. The professional standards set in the Chartered Institute for Archaeologists' Standard and guidance for the collection, documentation, conservation, and research of archaeological materials (2020) will form the basis of finds collection, processing, and recording.

5.32. Finds will be carefully excavated by hand. The excavation of fragile or particularly significant finds will be undertaken in consultation with an appropriate archaeological conservator. Finds will be bagged by archaeological context, the location of special finds and flint working deposits will be recorded three dimensionally.

5.33. All manner of finds regardless of category and date will initially be retained. These will be suitably bagged, boxed and marked. Following cataloguing and initial analysis finds of little archaeological significance may be discarded .

5.34. Finds recovered that are regarded as Treasure under The Treasure Act 1996 will be reported to HM Coroner for the local area.

5.35. Any finds which are considered to be in need of immediate conservation will be referred to a UKIC qualified conservator (normally Phil Parkes at Cardiff University).

Environmental Sampling Strategy

5.36. Deposits with a significant potential for the preservation of paleoenvironmental material will be sampled, by means of the most appropriate method (bulk, column etc). Where sampling will provide a significant contribution to the understanding of the site AW will draw up a site-specific sampling strategy alongside a specialist environmental

archaeologist. All environmental sampling and recording and will follow English Heritage's *Guidelines for Environmental Archaeology* (2nd Edition 2011).

Human remains

5.37. In the event that human remains are encountered, their nature and extent will be established, the client, CAPT-DC and the coroner informed. Measures will be put in place to ensure that any such remains are fenced off, covered, and protected from deterioration and damage, and that human remains, and burial goods will be treated in a respectful manner.

5.38. Where preservation in situ is not possible the human remains will be fully recorded and removed under conditions that comply with all current legislation and include acquisition of licenses and provision for reburial following all analytical work.

5.39. Human remains will be excavated in accordance with the Chartered Institute for Archaeologist's Updated Guidelines to the *Standards for Recording Human Remains* (2017). A Ministry of Justice Licence will be obtained before remains can be lifted, this applies to both inhumation and cremated remains.

Specialist advisers

5.40. In the event of certain finds, features or sites being discovered, AW will seek specialist opinion and advice. A list of specialists is given in the table below although this list is not exhaustive.

Artefact type	**Specialist**
Lithics	Dr Julie Birchenall (Freelance)
Animal bone	Dr Richard Madgwick (Cardiff University) Dr Hannah Russ (Freelance)
CBM, heat affected clay, Daub etc.	Dr Siân Thomas (Archaeology Wales) Dr Phil Mills (Freelance) Sandra Garside Neville (Freelance)
Clay pipe	Charley James Martin (Archaeology Wales)
Glass	Rowena Hart (Archaeology Wales)
Cremated and non-cremated human bone	Malin Holst (University of York) Dr Richard Madgwick (Cardiff University)
Metalwork	Dr Rhiannon Philp (Archaeology Wales) Dr Kevin Leahy (PAS/University of Leicester)

Artefact type	Specialist
	Quita Mould (Freelance)
Metal work and metallurgical residues	Dr Tim Young (GeoArch)
Neo/BA pottery	Dr Alex Gibson (Bradford University) Dr David Mullin (Freelance)
IA/Roman pottery	Dr Jane Timby (Freelance)
Roman Pottery	Dr Siân Thomas (Archaeology Wales) Dr Peter Webster (Freelance)
Medieval and Post Medieval Pottery	Paul Blinkhorn (Freelance)
Charcoal (wood ID)	Dana Challinor (Freelance)
Waterlogged wood	Professor Nigel Nayling (University of England – Lampeter) Damian Goodburn (MOLA) Mike Bamforth (Freelance)
Marine Molluscs	Dr Rhiannon Philp (Archaeology Wales)
Pollen	Dr Rhiannon Philp (Archaeology Wales)
Charred and waterlogged plant remains	Wendy Carruthers (Freelance) Kath Hunter Dowse (Freelance)

5.41. Specialist finds and paleoenvironmental reports will be written by AW specialists, or sub-contracted to external specialists when required.

Monitoring

5.42. CPAT-DC will be contacted approximately two weeks prior to the commencement of archaeological site works, and subsequently once the work is underway.

5.43. Any changes to the WSI that AW may wish to make after approval will be communicated to CPAT-DC for approval on behalf of the client.

5.44. CPAT-DC will be given access to the site so that they may monitor the progress of the mitigation work. No area will be back-filled until CPAT-DC has had the opportunity to inspect it unless permission has been given in advance. CPAT-DC will be kept regularly informed about developments, both during the site works and subsequently during post-excavation.

6. Post-Fieldwork Programme

Site Archive

6.1. An ordered and integrated site archive will be prepared in accordance with: *Management of Research Projects in the Historic Environment* (MoRPHE) (2015) upon completion of the project.

6.2. The site archive – including all artefacts, soil samples, paper, and digital records – will be subjected to selection in order to establish those elements that will be retained for long term curation. The selection strategy will be agreed with all stakeholders and will be detailed in the Selection Strategy and Data Management Plan (CIfA 2020). It will be developed taking into consideration the aims and objectives of the project and will be informed through a detailed consideration of the *Research Agenda of the Archaeology of Wales* and other relevant research frameworks. The manner in which the records will be prepared for long time storage will be guided by the requirements established by the repositories. A detailed justification for the disposal of both records and materials will be written and included within the Data Management Plan.

6.3. The site archive (including artefacts and samples) will be prepared in accordance with the National Monuments Record (Wales) agreed structure and deposited with an appropriate receiving organisation, in compliance with CIfA Guidelines (*Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives*, 2014). It will also conform to the guidelines set out in *The National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales* (National Panel for Archaeological Archives in Wales 2017). The legal landowner's consent will be gained for deposition of finds. The project will adhere to the Welsh Archaeological Trust's joint *Guidance for the Submission of Data to the Welsh Historic Environment Records* (2018).

Analysis

6.4. Following a rapid review of the potential of the site archive, a programme of analysis and reporting will be undertaken.

6.5. This will result in the following inclusions in the report:

- A bilingual non-technical summary

- The aims and methods adopted in the course of the archaeological works, and the background and circumstances of the report (including development proposals and planning background)
- Location plan showing the area/s covered by the trenched evaluation, including the locations of all artefacts, structures and features found
- Plans and section drawings (if features are encountered) with ground level, ordnance datum and vertical and horizontal scales.
- A written description and interpretation of all deposits identified, including their character, function, potential dating, and relationship to adjacent features. Specialist descriptions and illustrations of all artefacts and soil samples will be included as appropriate. An indication of the potential of archaeological deposits which have not been disturbed by the development, and proposals for further necessary analysis
- The report will contain a discussion of the local, regional, and national context of the remains by means of reviewing published reports, unpublished reports, historical maps, documents from local archives and the regional HER as appropriate.
- A detailed archive list at the rear listing all contexts recorded, all samples, finds and find types, drawings and photographs taken. This will include a statement of the intent to deposit, and location of deposition, of the archive.

Report to Client

6.6. Copies of all reports associated with the mitigation, together with inclusion of supporting evidence in appendices as appropriate, including photographs and illustrations, will be submitted to the client upon completion, and to the council for formal submission.

Additional Reports

6.7. After an appropriate period has elapsed, copies of all reports will be deposited with the relevant county Historic Environment Record (CPAT), the National Monuments Record and, if appropriate, Cadw. The report and all relevant information will be submitted to the Historic Environment Record following the guidelines and procedures laid out in the *Guidance for the Submission of Data to the Welsh Historic Environment Records* (WAT 2018).

Summary Reports for Publication

6.8. Short archaeological reports will be submitted for publication in relevant journals; as a minimum, a report will be submitted to the annual publication of the regional CBA group or equivalent journal.

Notification of Important Remains

6.9. Where it is considered that remains have been revealed that may satisfy the criteria for statutory protection, AW will submit preliminary notification of the remains to Cadw.

Archive Deposition

6.10. The final archive (site and research) will, whenever appropriate, be deposited with a suitable receiving institution. If artefacts are recovered, and dependent on the size of the final archive, the preferred receiving institution would be a suitable local institution. If no artefacts are recovered then the archive will be deposited with the National Monuments Record, RCAHMW, Aberystwyth. Arrangements will be made with the receiving institution before work starts.

6.11. Although there may be a period during which client confidentiality will need to be maintained, copies of all reports and the final archive will be deposited no later than 12 months after completion of the work.

6.12. Copies of all reports, the digital archive and an archive index will be deposited with the National Monuments Record, RCAHMW, Aberystwyth.

6.13. Wherever the archive is deposited, this information will be relayed to the HER. A summary of the contents of the archive will be supplied to CPAT-DC.

Finds Deposition

6.14. The finds, including artefacts and ecofacts, excepting those which may be subject to the Treasure Act, will be deposited with the same institution, subject to the agreement of the legal landowners.

7. Staff

7.1. The project will be managed by Irene Garcia Rovira MCIfA (AW Project Manager) and the assessment undertaken by suitably trained and experienced AW staff. Any alteration to staffing before or during the work will be brought to the attention of CPAT-DC and the client.

8. Health and Safety

8.1. Prior to the commencement of the site visit AW will carry out and produce a formal Health and Safety Risk Assessment in accordance with the Management of Health and safety Regulations 1999. A copy of the risk assessment will be kept on site and be available for inspection on request. A copy will be sent to the client (or their agent as necessary) for their information. All members of AW staff will adhere to the content of this document.

Other Guidelines

8.2. AW will adhere to best practice with regard to Health and Safety in Archaeology as set out in the FAME (Federation of Archaeological Managers and Employers) health and safety manual Health and Safety in Field Archaeology (2002).

Insurance

8.3. AW is fully insured for this type of work and holds Insurance with Aviva Insurance Ltd and Hiscox Insurance Company Limited through Towergate Insurance. Full details of these and other relevant policies can be supplied on request.

9. Quality Control

Professional standards

9.1 AW works to the standards and guidance provided by the *Chartered Institute for Archaeologists*. AW fully recognise and endorse the Chartered Institute for Archaeologists' *Code of Conduct*, *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology* and the *Standard and Guidance for archaeological watching briefs* currently in force. All employees of AW, whether corporate members of the Chartered Institute for Archaeologists or not, are expected to adhere to these Codes and Standards during their employment.

Project tracking

9.2 The designated AW manager will monitor all projects in order to ensure that agreed targets are met without reduction in quality of service.

10. Arbitration

10.1 Disputes or differences arising in relation to this work shall be referred for a decision in accordance with the Rules of the Chartered Institute of Arbitrators' *Arbitration Scheme for the Institute for Archaeologists* applying at the date of the agreement.

11. References

Garcia Rovira, I. 2022. Kronospan, Holyhead Road, Chirk Access road, lorry park, 132kV substation and other ancillary works. Desk Based Assessment. Report 2080.

Jones C, 2018. *Guidance for the submission of Data to the Welsh Historic Environment Records (HERs).* Welsh Archaeological Trusts

Muller, J. 2022. Land at Kronospan, Holyhead Road, Whitehurst, Chirk, Wrexham. Geophysical Survey. Report 2102.

National Panel for Archaeological Archives in Wales, 2019. Archaeological archives: selection, retention and disposal guidelines for Wales.

Welsh Archaeological Trust's, 2018. *Guidance for the Submission of Data to the Welsh Historic Environment Records*

Planning Policy Wales – Edition 11

https://gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf

Technical Advice Note – The Historic Environment -2017

https://gov.wales/technical-advice-note-tan-24-historic-environment

CIfA Standards and Guidance for Archaeological Field Evaluation, 2020

https://www.archaeologists.net/sites/default/files/CIfAS%26GFieldevaluation_3.pdf

Figure 1. Site Location (red arrow).

ARCHAEOLOGY WALES

Figure 2. Location of trenches

Appendix 1 – Data Management Plan

Project Name and ID
2954 - Kronospan, Holyhead Road, Whitehurst, Chirk, Wrexham KHR/22/EV
Project description
Field evaluation to be undertaken in association with the proposed construction of an access road, lorry park, 132kV substation other ancillary works on land north of Kronospan, Holyhead Road, Whitehurst, Chirk, Wrexham– NGR SJ 328825 339096.
Funder of client
AxisPED on behalf of Kronospan
Project Manager
Irene Garcia Rovira – AW project manager irene@arch-wales.co.uk
Principal investigator and contact
Same as above
Date DPM created and subsequent amendments
Created on 25.8.22
Related Data Management policies
Project Brief, CIfA Standards and guidance, trusted digital repository guidelines (ADS and RCAHMW) or other best practice guidance (see brief for details)

Data type
.pdf: final report, WSI, all the paper archive generated onsite. .jpeg: Digital photographs .xlsx: spreadsheets including registers, context inventory, finds quantification, environmental sample quantification. All site drawings that are selected during the DMP will be stored as AI and PDF files The survey data will be stored both as raw data (text file/csv) and as shapefiles (shp). This will include a polygon showing the limits of the development area. The database generated with GIS will be stored so it is accessible by future users
How will data be generated?
Project Brief will determine the nature of data collection. The project brief has been produced taking into consideration guidance offered by CIfA, and by relevant repositories.

While the data selection strategy may change during the course of the watching brief attending to the demands of the findings, an initial methodology is outlined in the brief which includes advice offered by specialists (e.g environmental specialist). A list of specialists that can be contacted to seek for advice is included in the brief.

Data generated during the site work will be regularly updated to the served and stored within well-defined folder. The folder hierarchy and organisation devised will be understood by all members of staff involved in the project. The data stored will be checked by the project manager regularly as a means of quality assurance. The survey data will also be plotted regularly to assure that it is correct and that the instruments on site are working properly.

Further documentation accompanying the resulting archive
Data collected will include standard formats which maximise opportunities for use and reuse in the future. The archive will be associated to metadata summary which outlines details of all data types, quantities and all archive components Data documentation will meet the requirement of the Project Brief, Museum Deposition Guidelines, Digital Repository Guidelines and the methodology described in the Project Design methodology. These details are checked and taken into consideration prior the start of the project.
Data protection
We have a GDPR compliant Privacy Policy. Sensitive data is never retained in the project folder. Copyright permission is sought from all specialists and other providers outside the organisation. Data sharing is also subjected to license agreements.
Storage
The project manager is responsible to the regular inspection of the data produced and stored in the server. The data produced is uploaded regularly as a way of backing up the information. Time and resources are given to the site staff to be able to back up the data. Alternatively, laptops are issued to use during the time onsite.
Data retention
The DMP will be updated in light with the findings. This process will also inform any possible future project designs and further work associated with the project. The data selection plan will take into consideration the research agenda for Wales and any other local frameworks.

At the deposition stage, the DMP will be finalised in agreement with all project stakeholders.

The project results will be included in the Historic Environment Record.

Long term preservation plan

The digital archive will be deposited with the Archaeology Data Service, which is a certified repository with Core Trust Seal.

Data repository and costs

The digital archive will be deposited with the National Monuments Record, RCAHMW, Aberystwyth. Estimated cost for deposition with ADS has also been included in the project budget.

Data sharing and accessibility

A summary of the project will be provided for the museum and digital archive repositories once the work begins. Regular updates will be carried out to fit the emerging needs of the project. The documents expected for this project include a WSI and Evaluation Report, although this is dependent on the results of the fieldwork, which may warrant a Post Excavation Assessment, Updated Project Design and possibly Final Report.

The final report is expected to be completed within 3 months of the completion of fieldwork. Should the work reveal significant archaeology and therefore, specialists are required during the post-ex process, then the report might take up to twelve months to be submitted

A final version of the project report will be supplied to the Historic Environment Record along with any further data they request.

DMP responsibility

The Project Manager will be responsible for implementing the DMP

Data capture, metadata production and data quality are the responsibility of the Project Team, assured by the Project Manager.

Storage and backup of data in the field is the responsibility of the field team.

Once data is incorporated into the organisations project server, storage and backup is managed by the project manager

Data archiving is undertaken by the Archives Officer, who is responsible for the transfer of the Archaeological Project Archive to the agreed repository.

ARCHAEOLOGY WALES

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