

Oak Archaeology Wales

MASTER INTEGRATED DBA

Targeted Exploratory Excavations and Structural Investigation

Ruperra–Machen Landscape, South-East Wales

March 2026

Exhibit A – Investigation Trenches Layout.

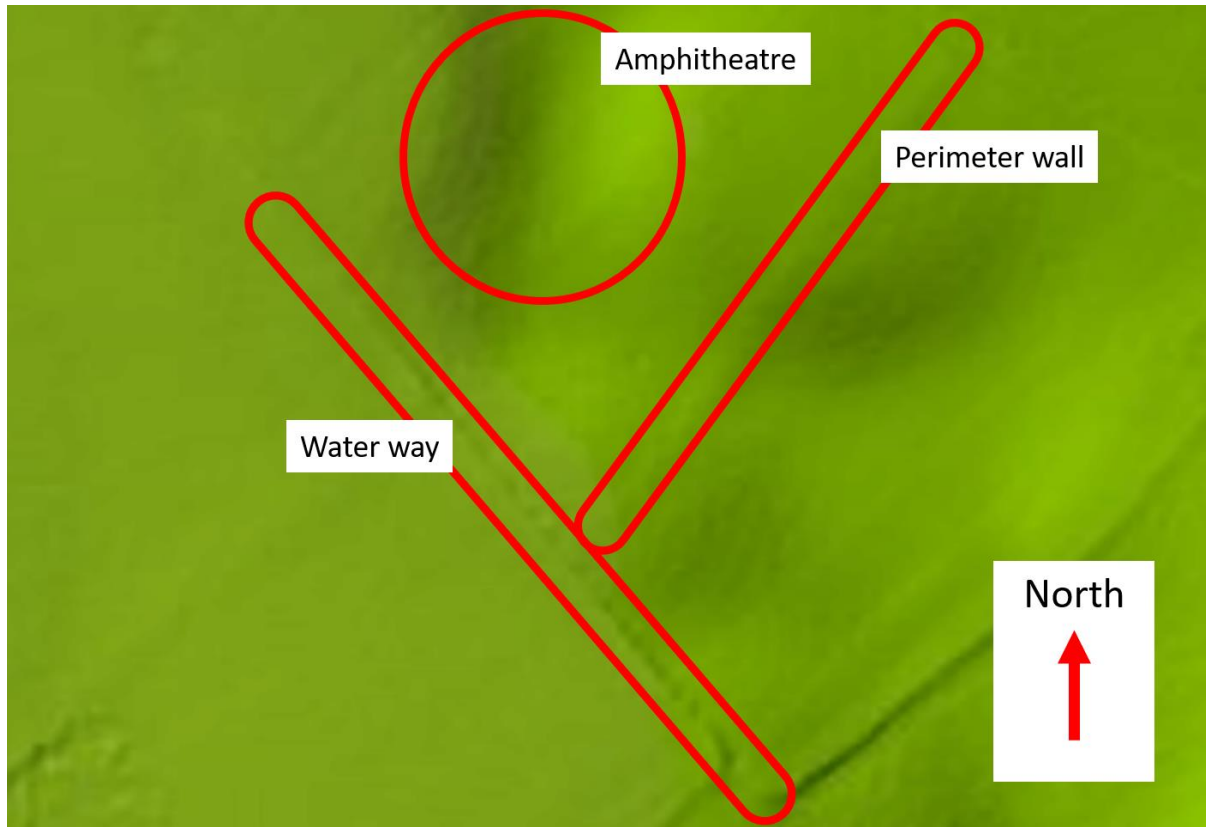


Digital Terrain Model (DTM) visualization showing topographic relief and features near Ruperra. Data derived from DataMapWales elevation data, © Welsh Government / licensed data. Contains public sector information licensed under the Open Government Licence v3.0. Image processed and annotated by Daryn Groves.

Plan showing the spatial distribution of Trenches 1–10 in relation to the bathhouse structure, roadway alignment, waterway, and associated features.

Distances between features are indicated, including approximate alignments of c.80 m and c.125m across the site, and gateway/track widths of c.4m–7m.

Exhibit B – LiDAR Structural Alignment



Digital Surface Model (DSM) visualization showing topographic relief and features near Ruperra. Data derived from DataMapWales elevation data, © Welsh Government / licensed data. Contains public sector information licensed under the Open Government Licence v3.0. Image processed and annotated by Daryn Groves.

LiDAR-derived terrain model illustrating:

- Linear perimeter wall alignment
- Relationship to Trenches 8 and 9
- Amphitheatre earthwork
- Waterway corridor.

This exhibit demonstrates correlation between topographic expression and excavated features.

Exhibit C – Site Context within Wider Complex.



Digital Surface Model (DSM) visualization showing topographic relief and features near Ruperra. Data derived from DataMapWales elevation data, © Welsh Government / licensed data. Contains public sector information licensed under the Open Government Licence v3.0. Image processed and annotated by Daryn Groves.

Composite plan showing the targeted excavation area within a larger rectilinear complex. The figure illustrates the scale and organisation of the site and positions the excavation zone within a broader structured landscape.

Introduction

This document presents the results of targeted exploratory excavations (Trenches 1–10) undertaken within a wider landscape investigation.

The report integrates:

Initial excavation results (Figures 1–27)

Subsequent trenching (Figures 28–47)

...into a single continuous assessment, supported by spatial analysis (Exhibits A–C).

About the investigator

The investigation was undertaken by Daryn Groves of Oak Archaeology Wales CIC. The work forms part of a wider community-led heritage initiative aimed at documenting previously unrecorded archaeological features within the Ruperra–Machen landscape. The investigator brings a combination of practical landscape experience and observational field skills developed through years of outdoor work, site surveying, and heritage exploration. Particular strengths include landscape interpretation, structural observation, and practical ground investigation. Initial anomaly identification was assisted through a process of intuitive landscape reading supported by traditional dowsing techniques. Within this investigation these methods were used as a hypothesis-generation tool to identify potential subsurface anomalies requiring further investigation. Importantly, the locations identified through these methods were subsequently tested through direct exploratory excavation, allowing physical verification of the predicted structural features.

Methodology

Marked trenching was undertaken based on pre-identified alignments and landscape indicators. Excavation aimed to test predicted features and establish their presence, extent, and structural relationships. All trenches were recorded through photographic documentation and measured field observations.

Excavation was intentionally limited to confirm the presence and alignment of features without full exposure.

Bathhouse Investigation

Figure 1- Simplified plan of suspected bathhouse structure showing targeted trench locations.

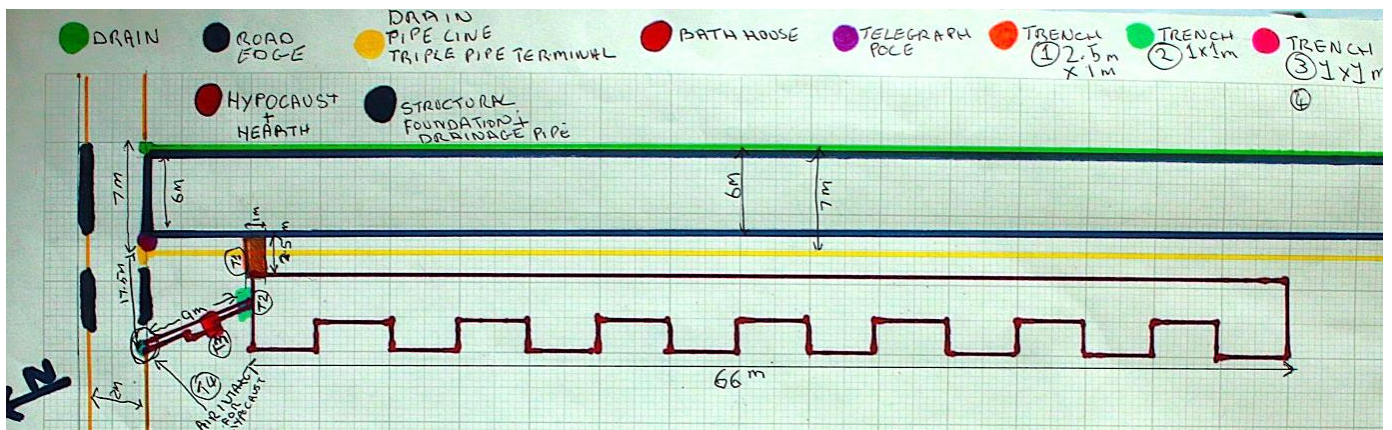


Figure 1: Simplified Site Plan (not to scale) showing trench locations, Roman road alignment, waterway, drainage infrastructure and bathhouse heating system.

Figure 2–4 (Trench 1 – Roadside Edge / Pipe / Foundation)

Trench 1 (2.5m × 1m × 1m) revealed:

- Roadside edge definition
- Ceramic pipe
- Structural foundation material
- Indicating integration of transport and drainage infrastructure.



Figure 2: Location of Trench 1 positioned to investigate the predicted pipeline, roadside edge and bathhouse foundations.



Figure 3A: Trench 1 extended west showing foundation stone adjacent to drain pipe and road correlation.



Figure 3B: Close-up view showing structural intent and stone placement.



Figure 4: Eastern trench extension revealing further roadside edge and metalling deposits.

Figure 5–8 (Trench 6 – Roadface and Triple Pipe Terminal)

Trench 6 (c.3m length × 1m depth) exposed:

- Road surface continuation
- Triple pipe terminal system
- This confirms continuity with Trench 1 and demonstrates engineered service infrastructure.



Figure 5: Exposed road face at waterway crossing showing roadside edge and metalling.



Figure 6: Road support structure and bearing stones.

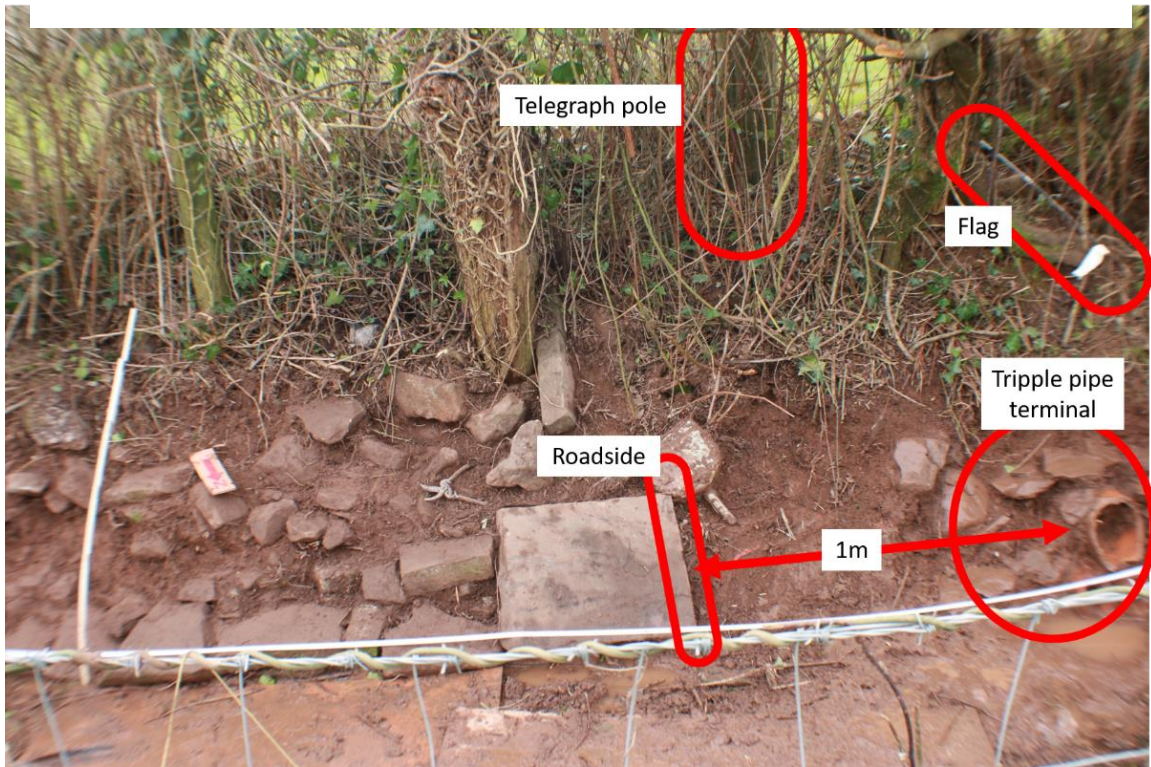


Figure 7: Road alignment showing position relative to the telegraph pole marker and triple pipe terminal.



Figure 8: Triple ceramic pipe drainage terminal exiting the waterway bank with measurement scale.

Figure 9–13 (Trench 2 – Hot Air Intake Terminal)

Trench 2 (1m × 1m × 1m) revealed features consistent with a hypocaust intake system, suggesting heated building infrastructure.



Figure 9: Position of trench 2 and predicted hypocaust route heading north.

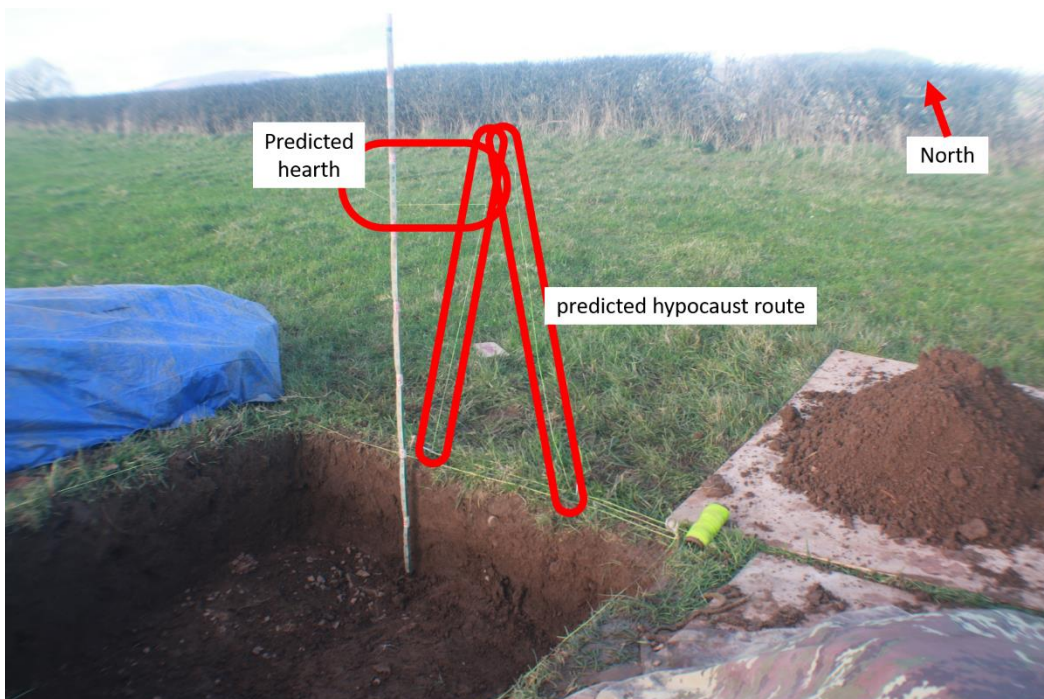


Figure 10: Showing trench 2 and the predicted hypocaust route heading north to its predicted inlet terminal (see trench 4) at water way SW face. Please note mid-way along route the predicated hearth.



Figure 11: Completed trench 2.



Figure 12: Flue terminal interface in trench 2.



Figure 13: Recovered heat affected materials from trench 2.

Figure 14–19 (Trench 3 – Hearth Zone)

Trench 3 identified:

- Burnt deposits.
- Stone collapse.
- Heat-affected soils.

Consistent with a hearth or combustion feature.



Figure 14: Trench 3 location.



Figure 15: Alignment view of trench 3.



Figure 16: Completed trench 3.



Figure 17: Structural collapse and hearth remains.



Figure 18: Structural collapse and hearth remains.



Figure 19: Recovered hearth materials.

Figure 20–23 (Trench 4 – Air Intake)

Evidence of:

- Airflow channelling
- Structural interface

Supporting interpretation of a managed heating system.



Figure 20: Predicted intake alignment



Figure 21: Predicted intake alignment



Figure 22: completed trench 4



Figure 23: Air intake arch close-up

Drainage and Structural Integration (Figures 24–27)

Figure 24–27 (Trench 5 – Drainage / Foundation Structure)

Trench 5 (1.5m length × 1m depth) revealed:

- Drainage channel
- Structural base material

Indicating coordinated water management and building support systems.



Figure 24: Masonry remains in waterway



Figure 25: Masonry remains in waterway



Figure 26: Bath stone arch block



Figure 27: Bath stone arch block

Road Crossing and Hydrological Integration (Figures 28–35)

Figure 28–30 (Trench 7 – Road Crossing)

Trench 7 (2m × 1m depth) exposed:

South-west face of metalled road

Located opposite Trench 8 across the waterway, suggesting a crossing point.



Figure 28: Initial exposure of Trench 7 showing the south-western edge of a metallated surface, representing the continuation of a roadway approaching the watercourse.



Figure 29: Further definition of the road surface in Trench 7, illustrating compacted metallating and a gradual edge slope consistent with drainage design.



Figure 30: Detail of the road edge in Trench 7, highlighting the transition from compact surface to softer adjacent material, indicating lateral runoff or drainage.

Figure 31–35 (Trench 8 – Road Crossing Continuation)

Trench 8 (2.5m × 1m × 10–65cm depth) revealed:

- Metalled surface
- Softer gravels (drainage layer)
- Compacted base

Consistent with engineered road construction across a watercourse.

Measured road width approximately 4m, aligning with Exhibit A.

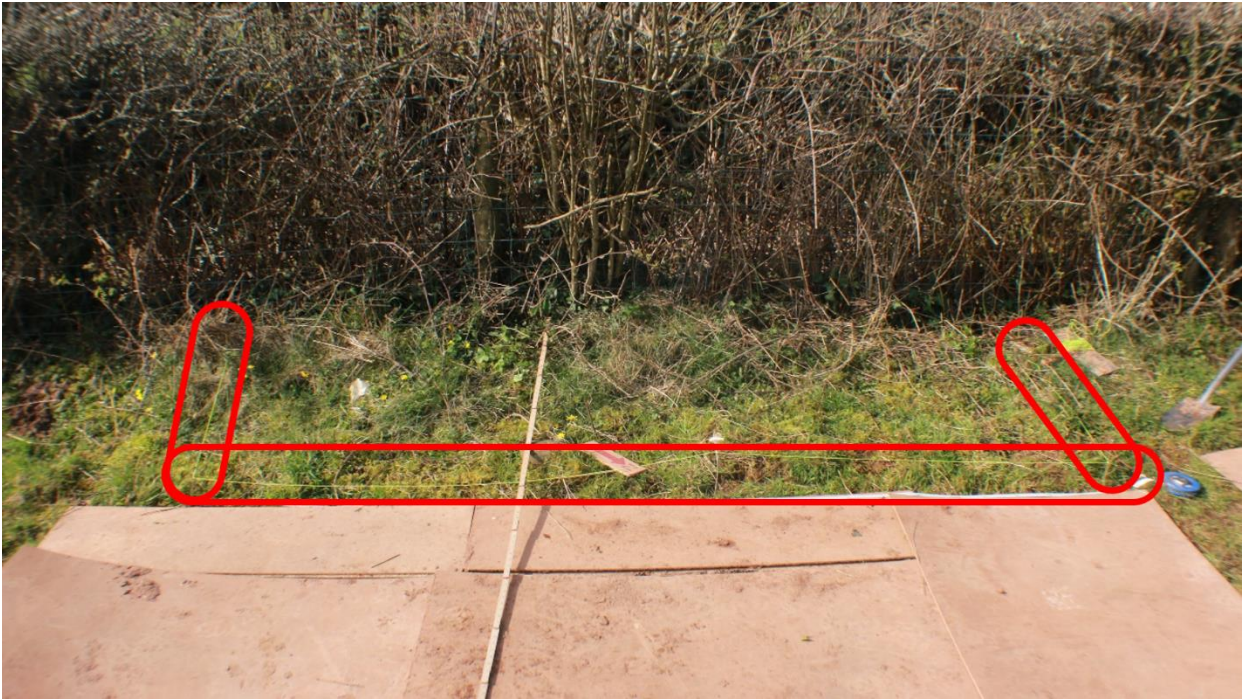


Figure 31: Outlined targeted area of trench 8 before excavation.



Figure 32: Trench 8 showing stratified layers beneath the road surface, including softer gravels consistent with a drainage or bedding layer.



Figure 33: Detail of compacted base material within Trench 8, supporting interpretation of an engineered road foundation.



Figure 34: Expanded view of Trench 8 illustrating the width and composition of the metallised surface across the crossing point.



Figure 35: Expanded view of Trench 8 illustrating the width and composition of the metallated surface across the crossing point.

Boundary Definition (Figures 36–41)

Figure 36–38 (Trench 9 – Associated Materials)

Recovered materials include:

- Ceramic fragment
- Structural debris



Figure 36: Close-up of ceramic fragment recovered from Trench 9, showing fabric and surface characteristics consistent with structural or domestic material associated with the perimeter wall context.



Figure 37: Close-up of ceramic fragment recovered from Trench 9, showing fabric and surface characteristics consistent with structural or domestic material associated with the perimeter wall context.



Figure 38: Recovered material assemblage from Trench 9, including pottery, mortar structural fragments supporting interpretation of constructed surfaces and associated features.

Figure 39–41 (Trench 9 – Perimeter Wall)

Trench 9 revealed:

- Hard-packed structural alignment
- Foundation material

Consistent with a perimeter wall, correlating with LiDAR alignment (Exhibit B).

Measured alignment corresponds to broader linear feature extending across the landscape.



Figure 39: Clearer definition of the linear feature in Trench 9, interpreted as part of a perimeter wall foundation.



Figure 40: Extended view of Trench 9 showing alignment of the foundation feature consistent with LiDAR-derived linear anomalies.



Figure 41: Sectional view of Trench 9 illustrating depth and composition of the wall foundation in relation to surrounding deposits.

Trackway, Drainage and Terminal Structure (Figures 42–47)

Figure 42–43 (Trench 10 – Pre-excavation Targeting)

Shows predicted structural alignment prior to excavation.

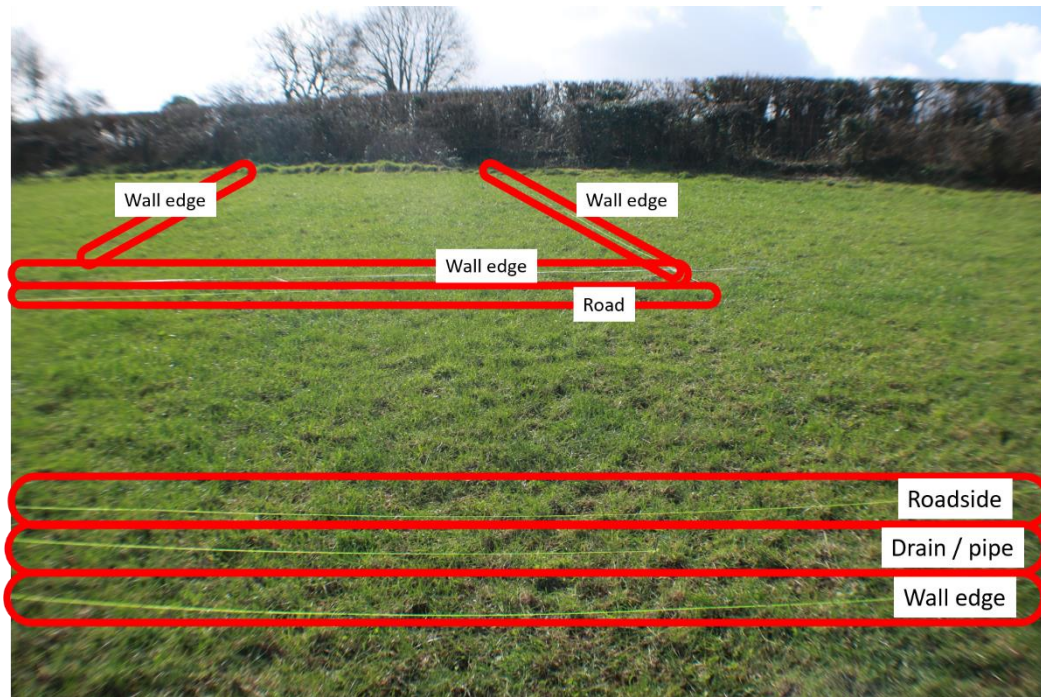


Figure 42: Pre-excitation view of Trench 10 location, showing surface indicators suggesting underlying structural alignment.

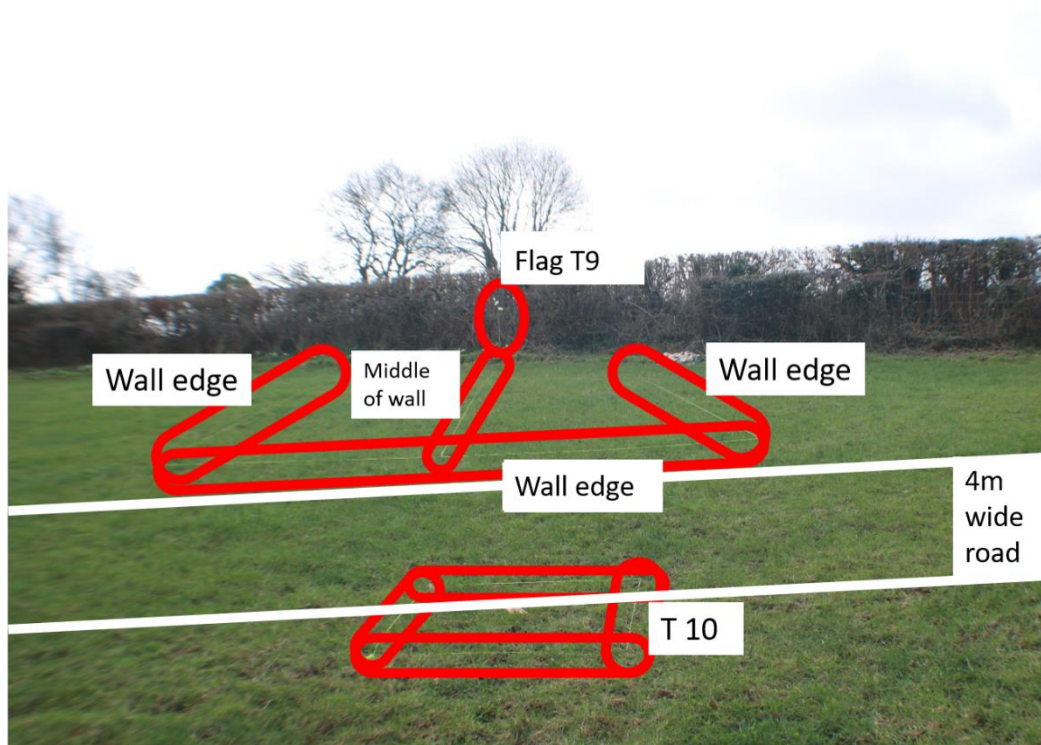


Figure 43: Marked trench layout for Trench 10 prior to excavation, aligned with predicted trackway and boundary transition.

Figure 44 (Track Surface and Metalling)

Reveals:

- Metalled surface
- Gutter formation
- Hard-packed edge



Figure 44: Exposed metalled track surface within Trench 10, showing compacted material and defined edge formation.

Figure 45 (Drainage Gutter Detail)

Demonstrates:

- Softer gravel layers
- Stratified drainage profile



Figure 45: Detail of drainage gutter adjacent to the track surface, demonstrating softer gravel deposits and stratified runoff channel.

Figure 46 (Track Edge and Wall Terminal)

Shows:

- Defined edge of track
- Transition into perimeter structure
- Track width approximately 4m, with gateway/transition zone measuring c.7m, consistent with Exhibit A.



Figure 46: Interface between track edge and adjoining structural alignment, indicating transition into a boundary or terminal feature.

Figure 47 (Recovered Materials)

Assemblage of recovered material from Trench 10, supporting structural interpretation.



Figure 47: Recovered material assemblage from Trench 10, including structural fragments supporting interpretation of constructed surfaces and associated features.

Integrated Spatial Analysis

The combined evidence demonstrates:

Perimeter System

Confirmed in Trench 9

Extends along LiDAR-defined alignment Access and Gateway.

Trench 10 indicates controlled access

- Width c.7m
- Track width c.4m

Suggestive of secondary/service entrance.

Road Network

Trenches 1, 6, 7, 8 confirm:

- Engineered roadway
- Crossing of waterway

Distances between features (c.45m–125m) indicate planned spacing.

Water Management

Drainage systems identified across:

Trenches 1, 5, 8, 10

Integration with road and structural features.

Structural Complex

Bathhouse (c.66.6m length, c.15m width)

Heating system (Trenches 2–4)

Associated infrastructure.

Site Interpretation

The evidence indicates a planned and integrated complex, incorporating:

- Perimeter enclosure
- Controlled access
- Internal road network
- Drainage and water management
- Heated structural zone

Spatial organisation, construction methods, and infrastructure are consistent with Roman-period engineering principles.

Conclusion

The integration of all trenches and spatial data demonstrates a coherent archaeological landscape, rather than isolated features. Consistent with organised and engineered construction, comparable to known Roman-period infrastructure”

The scale, alignment, and structural relationships indicate a significant and organised site, warranting further investigation.

Addendum: Ceramic Distribution and Site Function

The relative scarcity of ceramic material recovered during the course of the targeted excavations should be considered within the functional context of the site.

Across Trenches 8, 9, and 10, a small quantity of ceramic fragments was recovered through sieving of lower stratigraphic layers. These materials were not concentrated within a single discrete context but instead represent a dispersed and low-density assemblage.

This pattern may be consistent with a controlled and managed occupation zone, potentially of a logistical or organised character, where accumulation of domestic refuse was limited.

Such conditions are often associated with sites operating under structured use, where maintenance and clearance of waste materials reduce the archaeological visibility of artefact spreads.

It is also noted that the current trench locations are situated within areas interpreted as infrastructure zones (roadway, drainage systems, boundary features, and access points). These functional areas would not typically be expected to yield high densities of ceramic material.

As investigation progresses toward areas interpreted as structural or utility zones—particularly those associated with building activity—the potential for increased artefact recovery, including ceramics, may be anticipated.

The limited ceramic assemblage recovered to date should therefore be viewed as part of a broader spatial pattern rather than an absence of activity, and does not detract from the structural and engineering evidence identified across the site.



Figure 48 – Ceramic assemblage from Trenches 8–10, showing fragmented, low-density material recovered from lower deposits, consistent with dispersed occupation or managed site conditions.

Recommendations

- Expansion of excavation programme.
- Wider geophysical survey.
- Development of collaborative research.