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*Engineering Archaeological Services Ltd.*

**Ysgol Bontnewydd**  
**Archaeological Evaluation and Watching Brief on Drainage Works**



**Commissioned by**  
**Richard Farmer, Programme Manager,**  
**Housing and Property Department**  
**Gwynedd County Council**  
**Fieldwork by**  
**I.P. Brooks and M. Jones**  
**Engineering Archaeological Services Ltd**

***EAS Client Report 2024/18***

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## **NGR**

**Centred on: SH 48179 59948**

## **Status**

**NPRN:** Within 33008 (Bontnewydd)

**PRN:** Within 15701 (Bontnewydd Landscape)  
Contains 110606 (Geophysical Anomaly),  
102496 (Bontnewydd School)

## ***Location and Topography*** (Figures 1 and 2)

The evaluation consisted of five trenches dug within the area of Ysgol Bontnewydd, largely to the west and south of the current school buildings. Trench 1 was adjacent to the tarmac playground and was designed to sample the toilet block which map evidence suggests should have run along the western side of the playground. The other trenches were positioned to sample areas of the playing fields, with Trench 4 also sampling a, feint, magnetic anomaly recorded in the Fluxgate Gradiometer survey (Brooks 2023)

A watching brief was also held on the excavation of new drains along the southern and eastern sides of the current buildings. This drainage works also included two temporary drains which cut the tarmac playground to the west of the old school buildings.

## ***Archaeological Background***

Gwynedd County Council wish to redevelop the existing Bontnewydd School extending the footprint of the current school buildings. As part of the development, it is intended to place a series of temporary buildings on the current tarmac playground between the current building and the old school fronting onto Dol Bueno.

In September 2023 Gwynedd Council commissioned a Fluxgate Gradiometer survey from Engineering Archaeological Services Ltd (Brooks 2023) which covered the playing field to the north west of the current school buildings. Only a limited number of magnetic anomalies of potential archaeological origins were located, however, it was not possible to cover the area near to the current school building because of the level of modern magnetic disturbance and the area near to the original buildings was under tarmac.

In May 2024 a desktop study and standing building recording of the old school was commissioned (Brooks 2024) which included a map regression analysis showing the development of the school, particularly in the period 1906 – 1908. The school was founded in 1844 by the National Society for Promoting the Education of the Poor in the Principles of the Established Church throughout England and Wales and remained in the control of the Anglicans until 1906 when it was transferred into the control of the local authority.

## ***Aims of the Evaluation and Watching Brief***

To evaluate the development area of the new school, including to test the magnetic anomalies recorded in the Fluxgate Gradiometer survey. Also to record any archaeological features disturbed by the ground works associated with the new drainage works associated with the temporary buildings on tarmac playground.

## SUMMARY

*Engineering Archaeological Services Ltd were commissioned to carry out an archaeological evaluation and watching brief within the grounds of Ysgol Bontnewydd by Gwynedd County Council. The fieldwork took place between 13/08/2024 and 23/08/2024. Only a limited number of archaeological features were located which were largely associated with the school extended in 1907 and its associated building. The best-preserved feature was the girl's toilets which used to run along the western side of the playground. A stone-built chamber, with a slate slab roof was also recorded in the side of the trench dug as part of the new drainage. Some details of the 1938 playground were also recorded.*

*Comisiynwyd Engineering Archaeological Services Ltd i gynnal gwerthusiad archaeolegol a briff gwylio ar dir Ysgol Bontnewydd gan Gyngor Sir Gwynedd. Digwyddodd y gwaith maes rhwng 13/08/2024 a 23/08/2024. Dim ond nifer gyfyngedig o nodweddion archeolegol a leolwyd a oedd yn gysylltiedig yn bennaf â'r ysgol a estynnwyd ym 1907 a'i hadeilad cysylltiedig. Y nodwedd a gadwyd orau oedd toiledau'r merched a arferai redeg ar hyd ochr orllewinol y maes chwarae. Cofnodwyd siambr wedi'i hadeiladu o gerrig, gyda tho llechi, hefyd ar ochr y ffos a gloddiwyd fel rhan o'r draeniad newydd. Cofnodwyd rhai manylion am faes chwarae 1938 hefyd.*

## Methods

Five trenches were excavated within the grounds of Ysgol Bontnewydd, laid out as in Figure 2. The topsoil from these trenches was removed with a 13-tonne mechanical excavator using a smooth faced ditching bucket. All work after this point was carried out by hand. It was originally intended to excavate six trenches, however the position of the sixth trench was intended to be near to the course of the drainage. It was not, therefore, practical to dig a trench in this location and the presence of the drainage trench was used to evaluate the deposits in this area of the field.

Features and deposits of archaeological interest were recorded with a written description, drawn record and photographed. The photographs were taken with a Nikon Digital V5 Camera at a resolution of 24.3 MP with the photographs being taken in RAW (NEF) format. These photographs were converted into JPEG format for use as illustration in this report and TIFF for archiving. A series of photographs were also taken with a Akaso Brave 6 Plus camera, mounted on an extendable pole, at a resolution of 20 MP which were further processed with Agisoft Metashape Standard v. 2.0.2 to produce 3D models of the possible medieval walls.

For the watching brief, the trenches excavated for the new drains were observed and any archaeological features recorded as above.

## Results

### Evaluation

Five trenches were excavated to sample areas of known archaeology and areas where no previous archaeological features were known.

**Trench 1**, was 9.58 x 1.8 m in size and was positioned to sample the outdoor toilets associated with the girls' side of the playground associated with the 1907 school buildings (Figure 6, Plate 1). These can be seen as cropmarks on the Google Earth image (Figure 4) and on the Ordnance Survey mapping published in 1918 (Figure 5). Approximately 250 – 330 mm of topsoil was removed by machine from this trench before it was cleaned, by hand.

At the eastern end of Trench 1 (Figure 6, Plate 2) is the remains of the girls' toilets which formed the western side of the playground. The eastern, outer wall was constructed of brick and was at least

250 mm thick, extending beyond the extent of the trench. Whilst most of the wall was covered in mortar, the inner surface had brick laid in a header bond. Within the building was a concrete corridor, 940 mm wide which was edged with a band of slate, 240 mm wide along the western side. It is assumed that this band of slate marked the edge of the cubicles.

The cubicles, themselves had a brick pavement which appears to have been divided into individual cubicles by a line of bricks which extended into the area of broken concrete to the rear (western wall of the toilet block). The area of broken concrete was 560 mm wide and on the better preserved, southern side, the curved edge of the pedestal for the toilet itself can be determined. The northern side, however, was more disturbed with brick fragments and cobbles mixed in.

The rear wall of the toilet block was a single skinned, brick wall which survives for at least three courses (Plate 3). Passing through this wall was a sewer pipe 130 mm in diameter which fed into a pipe running parallel with the rear of the block which was 160 mm in diameter. This pipe probably ran along the length of the complete toilet block and is probably the same pipe seen in the watching brief for the drainage works. The outfall is unknown, but it is possible that it simply discharged into the Afon Gwyrfai. The sewage pipes sit within a broad trench 1.05 m wide, running along the rear of the building (Plate 4).

**Trench 2**, was 9.55 x 1.8 m in size and was designed to sample an area where no archaeological features were known as the area was unsuitable for geophysical survey. 250 mm of topsoil was removed and no archaeological features were recorded (Plate 5). The topsoil was heavily disturbed by roots from the trees growing along the banks of the Afon Gwyrfai. (Plate 5)

**Trench 3**, was 19.57 x 1.8 m in size with 250 mm of topsoil. It was designed to sample a “quiet” area of the geophysical survey. No archaeology was noted from this trench apart from the occasional sherd of post-medieval ceramics. (Plate 6)

**Trench 4**, was 14.55 x 1.8 m in size and was designed to sample a potential magnetic anomaly recorded in the fluxgate gradiometer survey (Brooks 2023, PRN 102476). The topsoil was between 250 and 500 mm thick with the deeper areas corresponding to the magnetic anomalies recorded in the Fluxgate Gradiometer survey. No clear edges were defined to the deeper areas of topsoil and it is probable that the magnetic anomalies were the result of paleochannels within the floodplain of the Afon Gwyrfai. (Plate 7)

**Trench 5**, was 19.62 x 1.8 m in size with 250 mm of topsoil (Plate 8). The trench was positioned to be as close to the footprint of the proposed new school building within the available land. No archaeology was noted, although the quantity of modern building debris within the topsoil was noticeably greater in this trench.

### ***Watching Brief***

The watching brief of the works for the temporary drainage works for the transition to the new school took place between 13/08/2024 and 23/08/2024. A series of trenches (Figure 3), each approximately 0.6 m wide was dug with a machine, however, the underlying subsoil consisted of a sandy gravel with large stone boulders that was not very stable in places. Also, some of the boulders were larger than the width of the trench meaning that in places the trench needed to be wider.

The location of the few features located are shown on Figure 7. At the western extent of the new drain a dump of modern building debris (Plates 9 and 10) was discovered covering an area at least 3.6 m wide. The building debris was of late 20<sup>th</sup> or early 21<sup>st</sup> century date and was probably associated with the construction of the current school buildings. This dump was extremely loosely packed and resulted in a very unstable trench.

At a depth of approximately 750 mm a series of animal bones were observed in the edge of the trench (Plate 13). These were of cattle and probably represents the burying of dead stock before the school was extended in 1907. No sign of the pit in which these bones were buried could be determined in the side of the trench.

Near to the point where the drain is divided into two, the rear wall of the toilet block was recorded (Plates 11 and 12) together with the sewage pipe which ran along the rear of the toilet block. Midway along the north – south leg of the drainage a stone-built chamber was exposed in the side of the trench at SH 48233 59945 (Plate 14). The chamber was 1230 x 950 mm in size and was at least 950 mm deep. It is built of boulders and has a slate slab roof (Plates 15 – 18). The eastern wall (Plates 15 and 18) has a ceramic drainage pipe set just below the roof which is packed by bricks. It would seem probable that the pipe was inserted at a later period. Whilst the slate slabs are sawn there is no sign of circular saw cuts which may suggest a possible construction date before the first half of the nineteenth century (Gwyn 2015, 115). No sign of the western face of the chamber was observed and it may be that this face was originally open, however, it is equally likely that pressure from the excavation of the trench pushed the face in resulting the boulders scattered within the chamber.

At the northern end of the drain a brick chamber (Plate 19) was located. This is presumably part of the drainage system for the 1907 school.

In the southern leg of the new drainage system, the removal of the current tarmac surface of the revealed a series of tile bands set in the underlying concrete surface (Figure 8, Plates 20 and 21). These are probably some sort of decorative element set in the concrete playground laid in 1938 (Brooks 2024, 10). Each of the tiles used for this decoration were up 410 mm long and 50 mm wide, with the hint of a series of right angles within the pattern.

## ***Conclusions***

Both the Evaluation and the Watching Brief have revealed very little archaeology apart from that associated with the 1907 extension Ysgol Bontnewydd. The best-preserved fragments are part of the girls' toilets which were along the western side of the playground, which can also be seen as parch marks on the GoogleEarth image (Figure 4). These were part of a range of buildings which ran along the western side of the playground with the boys' toilets at one end and the girls at the other as is shown on the 1918 Ordnance Survey map (Figure 5). The toilets were separated by two other rooms which are probably the "playsed" mentioned in the specification for the painting of the outside of the building and glazing of both the school buildings and the ancillary buildings of June 1935 (Brooks 2024, 10). Behind this range was a sewage pipe linking the two toilet ranges. It is not certain where this pipe discharges, however, it runs, downhill, towards the Afon Gwyrfa.

The main feature recorded within the watching brief was a stone-built chamber with a slate slab roof. The function of this feature is uncertain, particularly as it was not possible to see the bottom of the chamber. However, it is likely to be associated with the drainage from the school, possibly acting as a chamber to hold flood water and allow it to dissipate through the sandy gravels of the flood plain of the Afon Gwyrfa.

The playground would appear to have been decorated, or at least divided, with red clay tiles forming bands running across and along the playground within the boys' playground to the north. These tiles were only recorded in a limited area and it may be that only the southern end of the boys' playground was decorated in this way.

The only evidence for a phase of activity before the 1907 school extension is the animal burial in the side of the drainage trench which is assumed to be the disposal of fallen stock in the field.

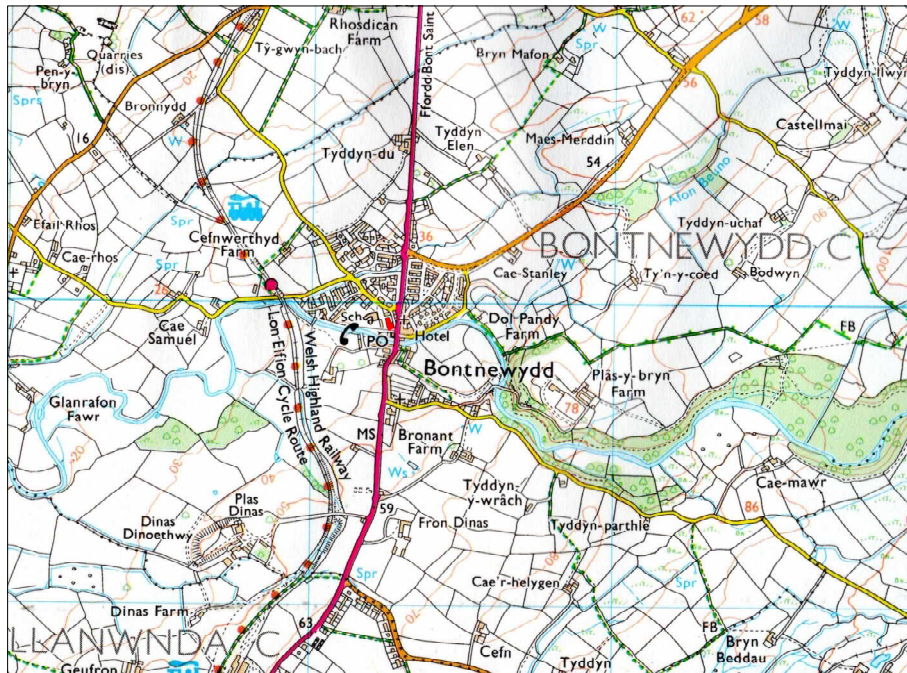
## ***Acknowledgements***

The project was commissioned by Richard Farmer, Programme Manager, Housing and Property Department, Gwynedd County Council. The project was monitored by Tom Fildes for the Gwynedd Archaeological Planning Service. Thanks are due to Matt Jones of CR Archaeology for his help during both the evaluation and watching brief. The machine was provided by XTPlant Ltd and driven with skill by Terry. Thanks, are also due to the contractors on site for their help facilitating the watching brief.

## **References**

- Brooks, I.P. 2023. *Bontnewydd School, Gwynedd: Fluxgate Gradiometer Survey*. EAS Client Report 2023/09
- Brooks, I.P. 2024. *Bontnewydd School Standing Building Record*. EAS Client Report 2024/15
- Gwyn, D. 2015 *Welsh Slate. Archaeology and History of an Industry*. Royal Commission on the Ancient and Historical Monuments of Wales. Aberystwyth.





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Figure 1: Location  
 Scale 1:25,000



Based on Drawing 230711-08-GC/01 by Angle Surveys Ltd

Figure 2: Location of the Trenches  
Scale 1:500

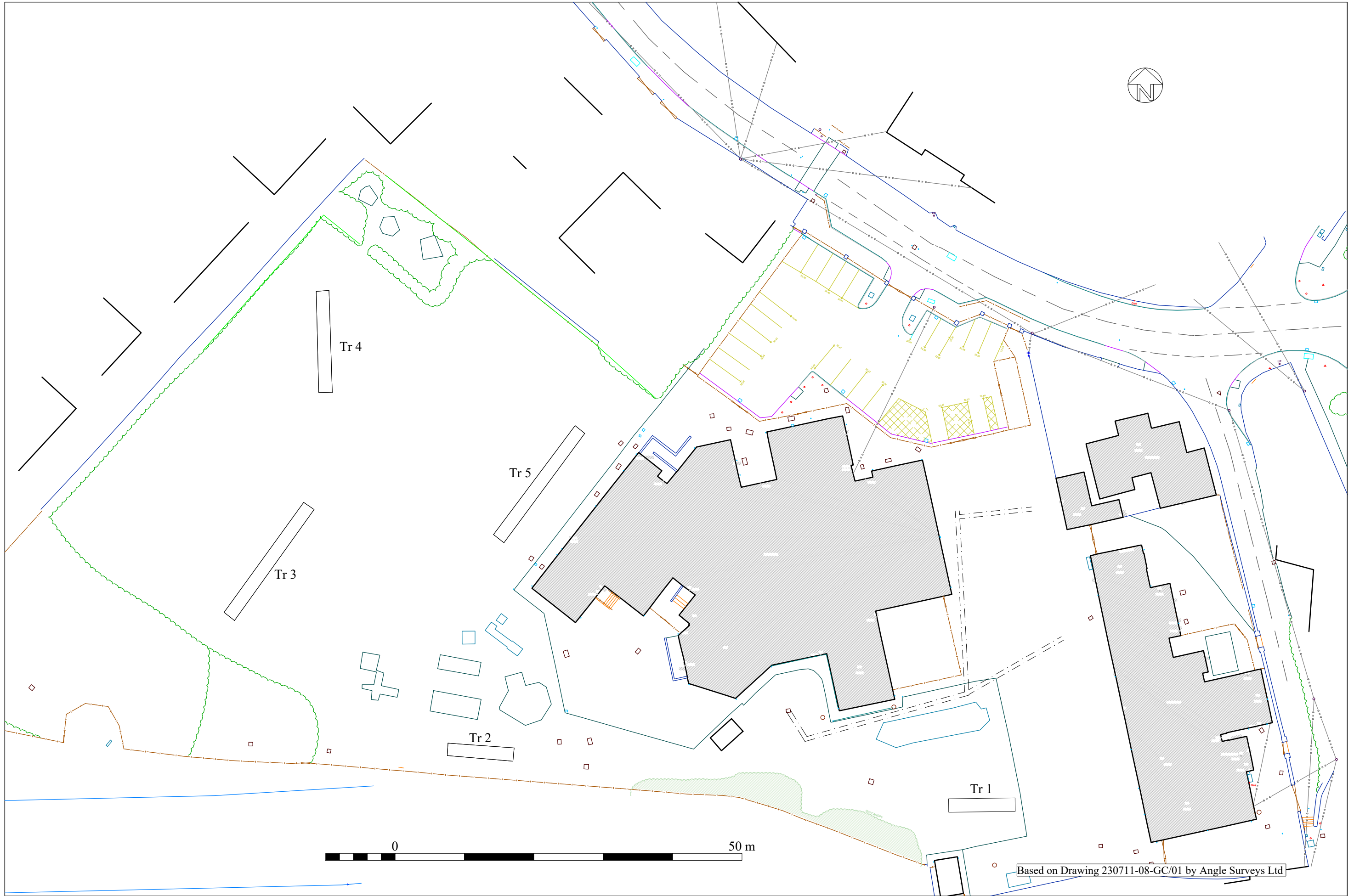


Figure 3: Location of the Trenches and Drainage Works  
Scale 1:500



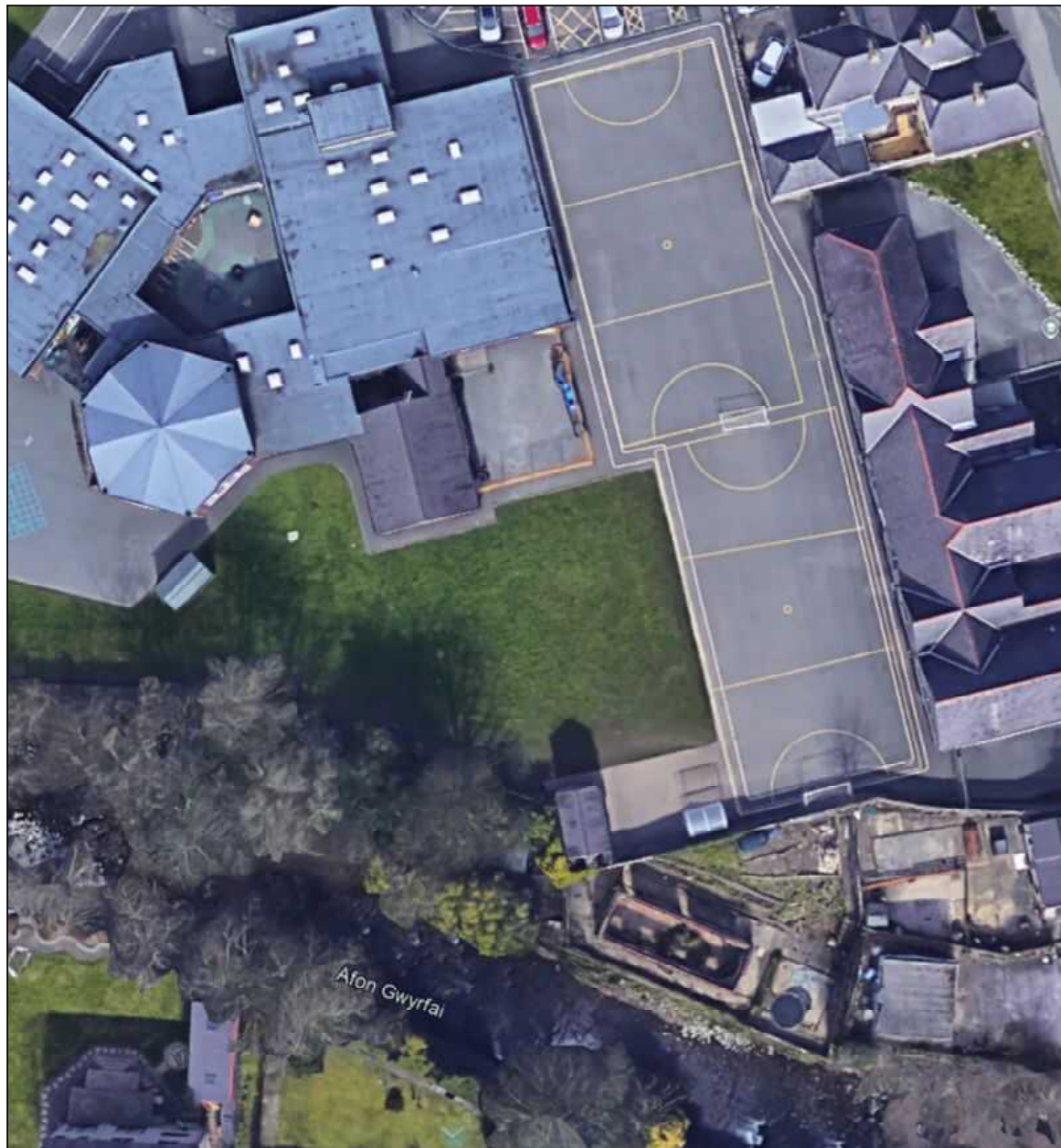
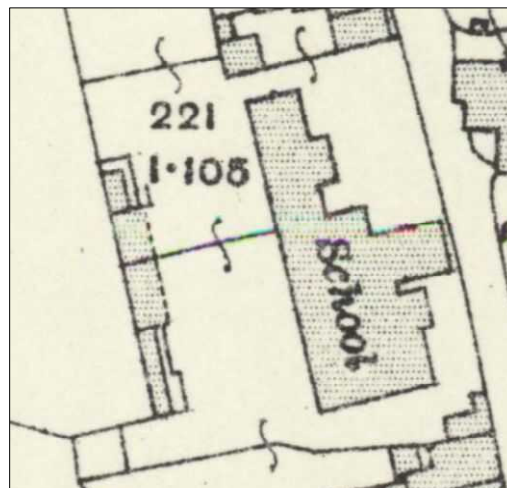


Figure 4: Extract from the GoogleEarth image  
Re-scaled to 1:500



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Figure 5: Extract from the Ordnance Survey, Caernarvonshire XV.12 map  
published in 1918  
Re-scaled to 1:1,000

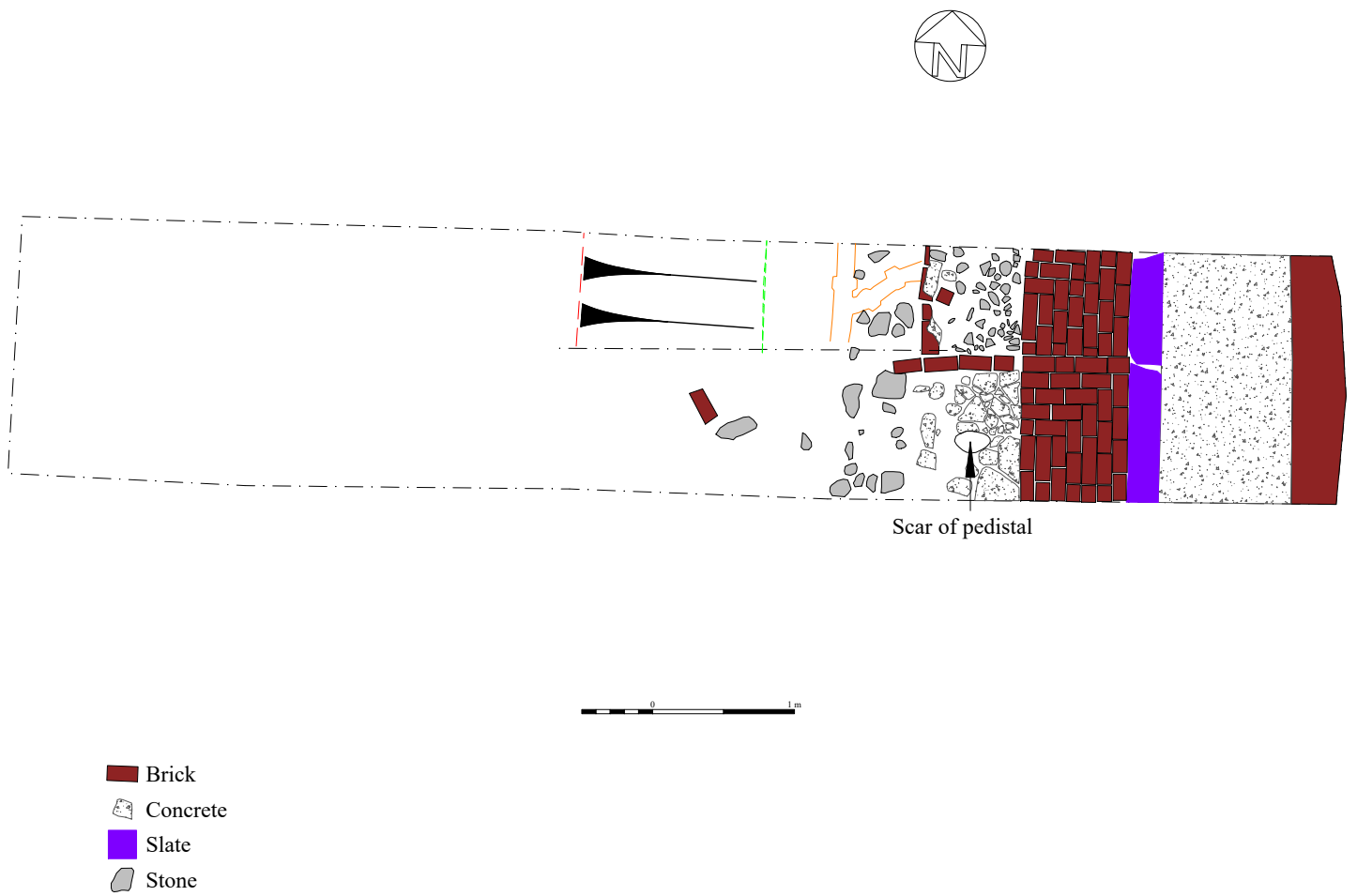


Figure 6: Trench 1 plan  
Scale 1:50



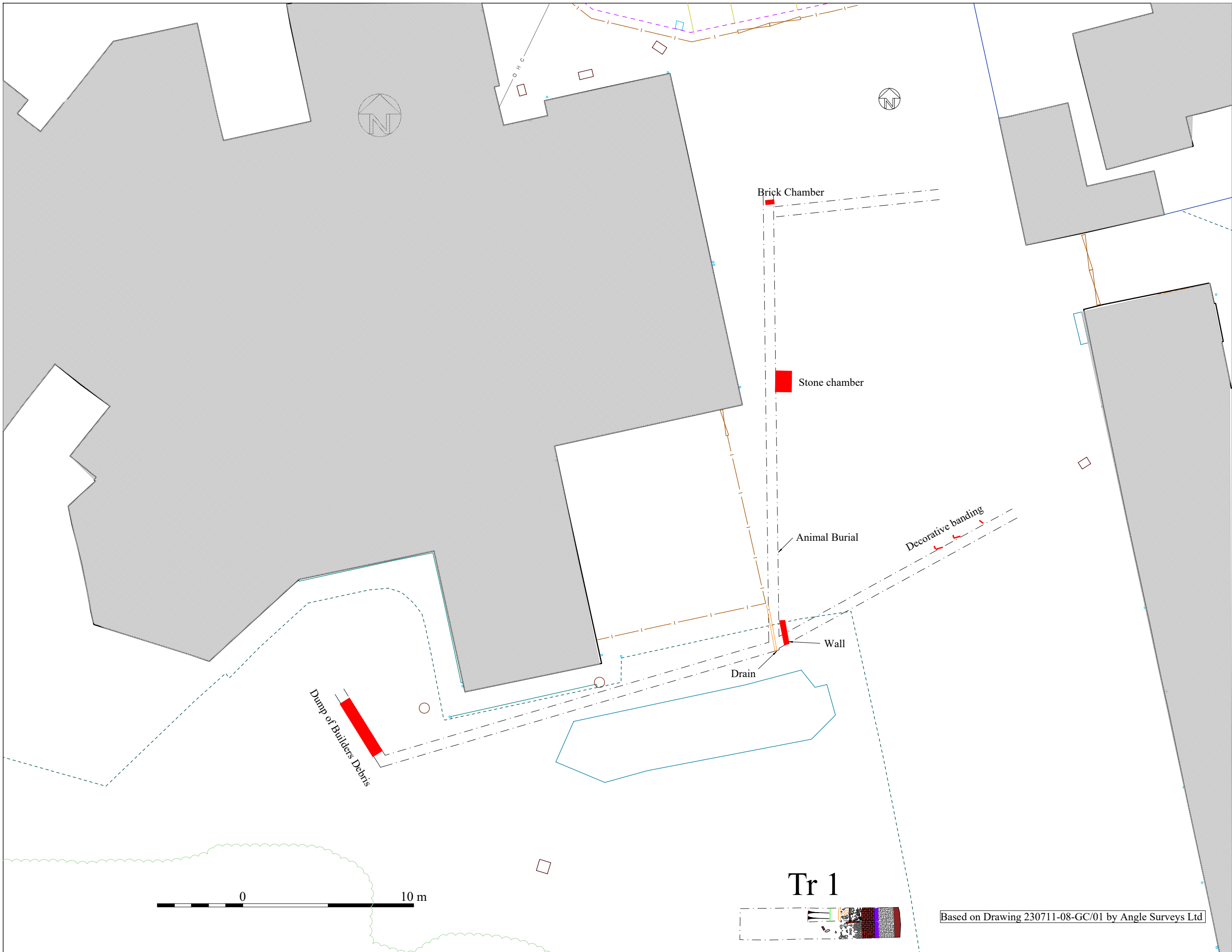


Figure 7: Location of the Features from the Watching Brief  
Scale 1:200



Figure 8: Decorative Banding in the Playground  
Scale 1:20





Plate 1: Photogrammetric plan of Tr 1



Plate 2: Detail of the Toilet block in Tr 1





Plate 3: Rear wall of the toilet block



Plate 4: Trench to the rear of the toilet block in Tr 1





Plate 5: Tr 2, looking east



Plate 6: Tr 3, looking SW





Plate 7: Tr 4, looking north



Plate 8: Tr 5, looking NE





Plate 9: Modern disturbance in the new drainage trench



Plate 10: Modern disturbance in the new drainage trench





Plate 11: Wall of the toilet block cut by the modern drainage



Plate 12: Section through the wall of the toilet block and associated drain





Plate 13: Animal bones



Plate 14: Stone built chamber





Plate 15: Rear wall of the stone chamber



Plate 16: NE corner of the stone chamber





Plate 17: SE corner of the stone chamber



Plate 18: Rectified composite image of the rear wall of the stone chamber





Plate 19: Brick chamber



Plate 20: Decorative banding within the playground



Plate 21: Rectified composite image of the decorative banding in the playground

## ***Appendix 1: Specification***

### **Specification for an Archaeological Evaluation at Bontnewydd School, Caernarfon LL55 2UF**

**Compiled by I.P. Brooks 08/07/2024**

#### ***1. Non-Technical Summary***

- 1.1. It is planned to carry out construction works at Ysgol Bontnewydd including the rebuilding and extension of the current school and the demolition of the historic school buildings fronting onto Dol Bueno (Figure 1).
- 1.2. Gwynedd Council have already commissioned a Fluxgate Gradiometer within the playing fields and a desktop study and standing building recording of the historic buildings. These suggest a level of potential archaeological activity which will be evaluated by digging a series of trenches.

#### ***2. Background***

- 2.1. It is intended to re-build and extend the current school at Bontnewydd, Caernarfon, LL55 2UF.
- 2.2. Gwynedd Council have previously commissioned a Fluxgate Gradiometer survey of the development area (Brooks 2023) which had a limited number of magnetic anomalies which may have archaeological origins.
- 2.3. An analysis of the historic mapping also shows part of the service ranges (as part of the 1907 phase of the school development) is within the proposed development.
- 2.4. As a result of the geophysical survey, T. Fildes (Development Control Archaeologist from the Gwynedd Archaeological Planning Service) has recommended a programme of evaluation

#### ***3. Objectives***

- 3.1. The principal objectives of the proposed evaluation are as follows:
  - 3.1.1. To evaluate the results of the geophysical survey and characterise the archaeological record.

#### ***4. Fieldwork Program***

- 4.1. A program of field work is proposed for this area that will include:
  - 4.1.1. The excavation of three 20 x 1.8 m trenches and three 10 x 1.8 m
  - 4.1.2. Analysis
  - 4.1.3. Archive preparation
  - 4.1.4. Report preparation

#### ***5. Methodology***

- 5.1. Fieldwork
  - 5.1.1. The trenches will be laid out as in Figure 2

- 5.1.2. All topsoil and superficial deposits will be removed using a smooth faced bucket under constant archaeological supervision and monitoring.
- 5.1.3. The trench will be cleaned by hand and any subsequent excavation will also be carry out by hand.
- 5.1.4. All features or archaeologically significant deposits revealed will be fully recorded including:
  - 5.1.4.1. A written description of deposit: type, components etc.
  - 5.1.4.2. Hand drawn plans and sections at suitable scales. Typically plans will be drawn at a scale of 1:20 or greater and sections at a scale of 1:10.
  - 5.1.4.3. Photographs will be taken with Nikon V5 Digital Camera at a resolution of 24.2 MP
  - 5.1.4.4. If appropriate photographs will be taken with a Akaso Brave 6 Plus camera, with a resolution of 20.1 MP, on an extendable pole. These photographs will be processed with Agisoft Metashape v. 1.6.3 to produce photogrammetric images of the trenches.
  - 5.1.4.5. Plan drawings showing the extent and nature of any archaeological deposits or features encountered.
  - 5.1.4.6. Section drawings of any features recorded to record vertical stratigraphy.
- 5.1.5. The Gwynedd Archaeological Planning Service will be notified immediately if significant archaeological deposits, features or artefacts are located.
- 5.1.6. The photographs will include metric scales
- 5.1.7. All artefacts and ecofacts will be recorded by context.
- 5.1.8. Each deposit, feature or layer will be identified by a unique context number to which all other records will be related
- 5.1.9. Where possible, features will be sampled to obtain dating and functional evidence.
- 5.1.10. All discrete features will be excavated by hand, whilst a minimum of 10 % of the length of linear features will be sampled. The approach to spreads will be assessed on site with the intension of excavating approximately 50% of spreads being sampled.
- 5.1.11. Where possible, elevation drawings of feature half sections to record vertical stratigraphy.
- 5.1.12. Where appropriate, deposits will be sampled for environmental, dating or technological evidence. Samples will be fully recorded and packed appropriately for future analysis.
  - 5.1.12.1. Sampling will be carried out in accordance with the procedures outlined in English Heritage. 2011. Environmental Archaeology. A guide to the theory and practice of methods, from sampling and recovery to post-excavation.
  - 5.1.12.2. Bulk samples are likely to be in the range of 10 – 40l depending on the reason for the sample and the availability of suitable material.



- 5.1.13. If human remains are encountered all works will stop until the appropriate permissions have been obtained. A further specification will be submitted to detail the excavation of any human remains and the subsequent specialist reports.

## 5.2. Post Excavation Analysis

- 5.2.1. If there is little, or no, archaeological deposits/features or remains recorded during the evaluation will progress immediately on to the archive report.
- 5.2.2. If significant archaeological remains/features/deposits are encountered. On completion of the fieldwork an assessment of the archaeological record from the site, will be made and the project design updated. Including an estimate on the cost of the post-excavation process.
- 5.2.3. On approval of the updated project design the full archaeological report will be undertaken to including the commissioning of all specialist reports recommended by the revised project design.

## 5.3. Finds

- 5.3.1. The intention is to archive any suitable finds with a suitable museum.
- 5.3.2. Any flint artefacts will be studied by I.P. Brooks for Engineering Archaeological Services Ltd.
- 5.3.3. Any pottery will be studied by an appropriate specialist to be agreed in consultation with the Curatorial Archaeologist
- 5.3.4. Any metal or other special finds will be studied by an appropriate specialist to be agreed in consultation with the Curatorial Archaeologist
- 5.3.5. All ceramic, bone and stone artefacts will be cleaned and processed immediately following the watching brief.
- 5.3.6. Metal artefacts will be stored and managed on site according to the UK Institute of Conservation Guidelines.
- 5.3.7. Any samples taken for environmental analysis will be assessed and studied by an appropriate specialist to be agreed in consultation with the Curatorial Archaeologist
- 5.3.8. All finds will be bagged by context with the exception of closely datable or “special” finds which will be recorded with a 3 D position and will be bagged separately
- 5.3.9. The requirement for specialist archaeological reports will be discussed with the Curatorial Archaeologist. The extent and cost of any such report will be discussed with the client and a suitable level of response formulated in discussion between the Archaeologist and the Curatorial Archaeologist.
- 5.3.10. The initial report will include an assessment of the finds from the work and a recommendation for further study if require.

## 5.4. Archive Preparation and Report Preparation

- 5.4.1. The regional Historic Environment Record will be consulted in order to place any archaeological features in their regional perspective.
- 5.4.2. On completion of fieldwork an archive of the results will be prepared.
- 5.4.3. The digital records will be archived with the Royal Commission on Ancient and Historic Monuments of Wales

- 5.4.4. The digital archive will be prepared in line with Royal Commission on Ancient and Historic Monuments of Wales. 2015. Guidelines for digital archives
- 5.4.5. The deposition of any find with a local museum will be discussed with the owner and the development control archaeologist with a strong recommendation that any finds are deposited in a suitable local museum.
- 5.4.6. A summary report on the findings of the investigations will be prepared and completed within four weeks from completion of the project. This will summarise the results of the project including;
  - 5.4.6.1. A site location plan
  - 5.4.6.2. A plan of the site locating any features or archaeological deposits located.
  - 5.4.6.3. An outline methodology
  - 5.4.6.4. The results of the Evaluation.
  - 5.4.6.5. A full bibliography
  - 5.4.6.6. A copy of the agreed specification
  - 5.4.6.7. An assessment of the potential for further archaeological investigation
  - 5.4.6.8. Up to five copies of the report will be provided.
  - 5.4.6.9. A digital copy of the report will also be provided.
  - 5.4.6.10. A digital copy of the report will be supplied to the Gwynedd Historic Environment Record
  - 5.4.6.11. A digital copy of the report will be supplied to Gwynedd Archaeological Planning Service
  - 5.4.6.12. The preparation of the report will conform to the Welsh Archaeological Trusts 2018 “Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)”

## **6. Staff**

- 6.1. The project will be carried out by Ian Brooks, PhD, BA, MCIfA., FSA
- 6.2. The staff will include M. Jones (CR Archaeology)

## **7. Timetable**

- 7.1. It is intended to start the fieldwork on 19<sup>th</sup> August 2024.
- 7.2. The trenches will be marked out with a series of flags
- 7.3. The following are estimates of the time required:
  - 7.3.1. Marking out: 1-man day (two people for 1/2 day).
  - 7.3.2. Removal of topsoil with the machine: 1 day
  - 7.3.3. Fieldwork: 8-man days (two people for four days)
  - 7.3.4. Backfilling: 1 day
  - 7.3.5. Assessment and report: 3 days

## **8. General**

### **8.1. CIfA Code of Conduct**

8.1.1. All staff will abide by, and all procedures be carried out in accordance with the Chartered Institute for Archaeologists' Code of Conduct

### **8.2. Health and Safety**

8.2.1. EAS Ltd adopt and adhere to safe working practices at all times.

8.2.2. A copy of the company's general statement of policy is available on request.

### **8.3. Staff**

8.3.1. The project will be directed by Dr I.P. Brooks MCIfA FSA

8.3.2. Project Staff will include Dr I.P. Brooks MCIfA FSA and M. Jones BA.

### **8.4. Curatorial Monitoring**

8.4.1. The Gwynedd Archaeological Planning Service will be informed as to the start date and progress of the fieldwork.

### **8.5. Insurance**

8.5.1. EAS Ltd carries all necessary Public and Employee Liability Insurances.

8.5.2. EAS Ltd carries Professional Indemnity Insurance

## **9. Data Management**

### **9.1. Photographs will be taken in Nikon NEF (Raw) format**

9.1.1. These will be converted to TIFF for archiving and JPEG for illustrations and general use.

9.1.2. Photographs for photogrammetry will be taken in JPEG format and processed using Agisoft Metascape v. 1.6.3. Orthographically corrected elevations photos will be produced in JPEG format and converted to TIFF for archiving.

### **9.2. Any topographic survey will be carried out using a Leica TS06 total station with the data processed using NRG Engineering Surveying System V2016.00.**

9.2.1. Survey files will be converted to DXF format.

### **9.3. Initial written notes will be made on an "i Pad" using the "Pages" app. These will be converted to WORD format (.docx) format on downloading**

### **9.4. The text for the report will be produced in Word (.docx) format**

### **9.5. Drawing will be made in TurboCad 2021 v. 28.0 and stored in .TCW format. These will be converted into .DXF or .DWG format for archiving.**

### **9.6. The report will converted to .PDF format using Expert PDF 15.**



9.7. All files will be stored on the company laptop computer and backed up onto a suitable storage device.

## 10. Copyright

10.1. EAS Ltd shall retain full copyright of any commissioned reports, tender documents or other project documentation, under the Copyrights, Designs and Patents Act 1988 with all rights reserved: excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project as described in the Project Specification.

10.2. EAS Ltd is prepared to assign a licence to the client for the use of the report and any associated data.

## 11. References

Brooks, I.P. 2023 *Bontnewydd School, Gwynedd: Fluxgate Gradiometer Survey*. EAS Client Report 2023/09



Reproduced from the Explorer 253 Map, 1:25,000 scale by permission of the Ordnance Survey ® on behalf of The Controller of Her Majesty's Stationary Office © Crown Copyright 2002 All Rights Reserved Licence Number AL 100014722

Figure 1: Location

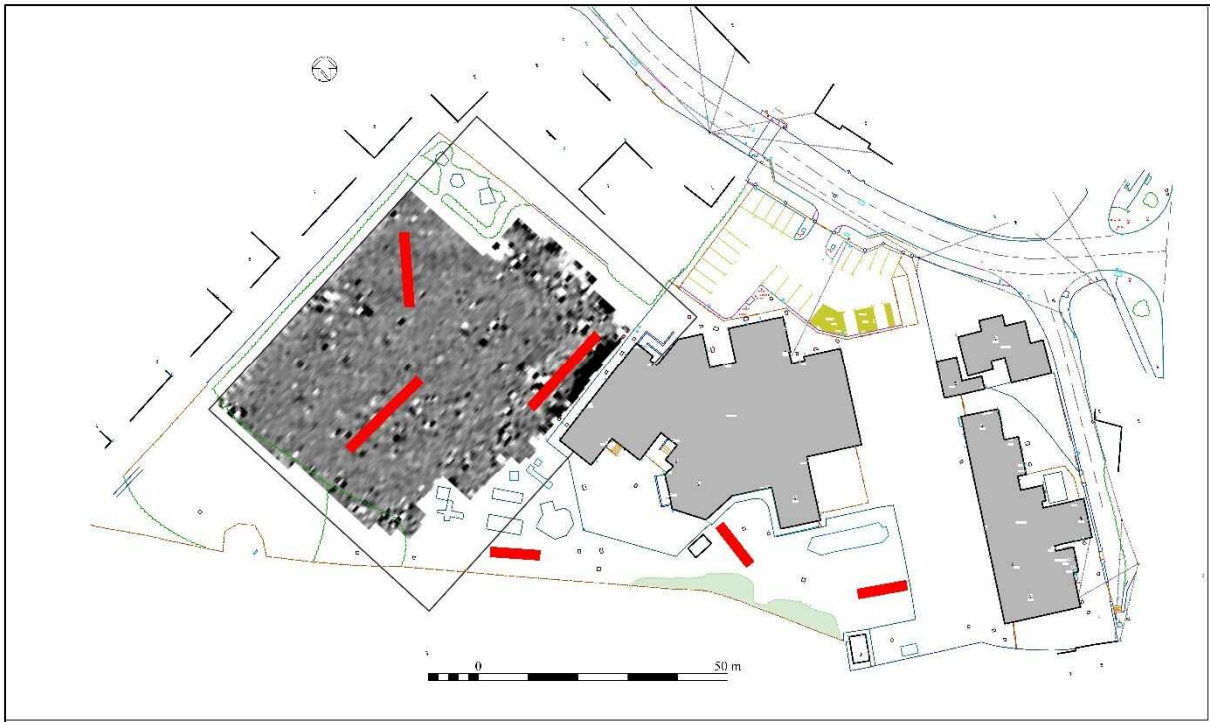


Figure 2: Location of the trenches

## *Appendix 2: List of Photographs in the Archive*

<b>File</b>	<b>Scale</b>	<b>Description</b>
YB24_001.TIF	1 m	Tr 1 rectified composite photograph
YB24_002.TIF	none	Marking out of the main trench for the drainage
YB24_003.TIF	1 m	Initial attempt at digging the drainage trench, showing the conditions
YB24_004.TIF	1 m	Initial attempt at digging the drainage trench, showing the conditions
YB24_005.TIF	1 m	Initial attempt at digging the drainage trench, showing the conditions
YB24_006.TIF	1 m	Initial attempt at digging the drainage trench, showing the conditions
YB24_007.TIF	1 m	Initial attempt at digging the drainage trench, showing the conditions
YB24_008.TIF	1m	Western end of the drainage work
YB24_009.TIF	none	Modern building debris near to the western end of the drainage works
YB24_010.TIF	none	Modern building debris near to the western end of the drainage works
YB24_011.TIF	none	Modern building debris near to the western end of the drainage works
YB24_012.TIF	1 m	Tr 2, looking west
YB24_013.TIF	1 m	Tr 2 looking east
YB24_014.TIF	1 m	Rear wall of the toilet complex in the drainage works
YB24_015.TIF	1 m	Rear wall of the toilet complex in the drainage works
YB24_016.TIF	1 m	Rear wall of the toilet complex in the drainage works
YB24_017.TIF	1 m	Rear wall of the toilet complex in the drainage works
YB24_018.TIF	1 m	Rear wall of the toilet complex in the drainage works
YB24_019.TIF	1 m	Rear wall of the toilet complex and its associated sewer crossing the drainage works
YB24_020.TIF	none	Sewer behind the toilet complex in the drainage works
YB24_021.TIF	1 m	Eastern end of Tr1 showing the girl's toilet, looking north
YB24_022.TIF	1 m	Eastern end of Tr1 showing the girl's toilet, looking west
YB24_023.TIF	1 m	Eastern end of Tr1 showing the girl's toilet, looking west
YB24_024.TIF	1 m	Tr 1, looking west
YB24_025.TIF	1 m	Eastern end of Tr1, looking north
YB24_026.TIF	1 m	Eastern end of Tr1, looking north
YB24_027.TIF	1 m	Eastern end of Tr1, looking north
YB24_028.TIF	1 m	Tr 1, looking east
YB24_029.TIF	1 m	Tr 1, looking east
YB24_030.TIF	1 m	Tr1, section through the sewer, looking south
YB24_031.TIF	1 m	Tr1, section through the sewer, looking south
YB24_032.TIF	1 m	Tr1, section through the sewer, looking south
YB24_033.TIF	1 m	Rear wall of the girl's toilet in Tr1
YB24_034.TIF	1 m	Rear wall of the girl's toilet in Tr1
YB24_035.TIF	1 m	Rear wall of the girl's toilet in Tr1
YB24_036.TIF	1 m	Rear wall of the girl's toilet in Tr1
YB24_037.TIF	1 m	Tr 3, looking SW

<b>File</b>	<b>Scale</b>	<b>Description</b>
YB24_038.TIF	1 m	Tr 3, looking SW
YB24_039.TIF	1 m	Tr 3, looking SW
YB24_040.TIF	1 m	Tr 3, looking NE
YB24_041.TIF	1 m	Tr 3, looking NE
YB24_042.TIF	1 m	Tr 3, looking NE
YB24_043.TIF	1 m	Animal burial in the side of the drainage works
YB24_044.TIF	1 m	Animal burial in the side of the drainage works
YB24_045.TIF	1 m	Animal burial in the side of the drainage works
YB24_046.TIF	1 m	Animal burial in the side of the drainage works
YB24_047.TIF	1 m	Animal burial in the side of the drainage works
YB24_048.TIF	1 m	Animal burial in the side of the drainage works
YB24_049.TIF	1 m	Tr 4, looking N
YB24_050.TIF	1 m	Tr 4, looking N
YB24_051.TIF	1 m	Tr 4, looking S
YB24_052.TIF	1 m	Tr 4, looking S
YB24_053.TIF	1 m	Rear wall of the toilet complex in the drainage works
YB24_054.TIF	1 m	Rear wall of the toilet complex in the drainage works
YB24_055.TIF	1 m	Rear wall of the toilet complex in the drainage works
YB24_056.TIF	none	Digging trench for the new drains
YB24_057.TIF	none	Digging trench for the new drains
YB24_058.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_059.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_060.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_061.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_062.TIF	1 m	Location of tile banding
YB24_063.TIF	1 m	Location of tile banding
YB24_064.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_065.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_066.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_067.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_068.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_069.TIF	1 m	Tr 5, looking NE
YB24_070.TIF	1 m	Tr 5, looking NE
YB24_071.TIF	1 m	Tr 5, looking SW
YB24_072.TIF	1 m	Tr 5, looking SW
YB24_073.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_074.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_075.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_076.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_077.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_078.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_079.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_080.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_081.TIF	none	Eastern wall of the stone-built chamber
YB24_082.TIF	1 m	Decorative tile banding in the concrete of the playground
YB24_083.TIF	none	NE corner of the stone-built chamber
YB24_084.TIF	none	Slate slab roof of the stone-built chamber

<b>File</b>	<b>Scale</b>	<b>Description</b>
YB24_085.TIF	none	NE corner of the stone-built chamber
YB24_086.TIF	none	Eastern wall of the stone-built chamber
YB24_087.TIF	none	SE corner of the stone-built chamber
YB24_088.TIF	none	Stone-built chamber in the drainage trench
YB24_089.TIF	1 m	Stone-built chamber in the drainage trench
YB24_090.TIF	none	Ceramic pipe in the rear of the stone-built chamber
YB24_091.TIF	none	NE corner of the stone-built chamber
YB24_092.TIF	none	SE corner of the stone-built chamber
YB24_093.TIF	none	Ceramic pipe in the rear of the stone-built chamber
YB24_094.TIF	none	Ceramic pipe in the rear of the stone-built chamber
YB24_095.TIF	1 m	Stone-built chamber in the drainage chamber
YB24_096.TIF	1 m	Stone-built chamber in the drainage chamber
YB24_097.TIF	1 m	Stone-built chamber in the drainage chamber
YB24_098.TIF	none	Rear wall of the toilet complex and associated sewage pipe crossing the drainage works
YB24_099.TIF	none	Rear wall of the toilet complex and associated sewage pipe crossing the drainage works
YB24_100.TIF	none	Rear wall of the toilet complex and associated sewage pipe crossing the drainage works
YB24_101.TIF	none	Rear wall of the toilet complex and associated sewage pipe crossing the drainage works
YB24_102.TIF	1 m	Brick chamber in the drainage works
YB24_103.TIF	1 m	Brick chamber in the drainage works
YB24_104.TIF	none	Backfilling Tr 4
YB24_105.TIF	none	Backfilling Tr 4
YB24_106.TIF	none	Tr 4 after backfilling
YB24_107.TIF	none	Tr 3 after backfilling
YB24_108.TIF	none	Backfilling Tr 5
YB24_109.TIF	none	Backfilling Tr 5
YB24_110.TIF	none	Tr 5 after backfilling
YB24_111.TIF	none	Tr2 after backfilling
YB24_112.TIF	none	Backfilling Tr 1
YB24_113.TIF	none	Tr 1 backfilled
Chamber.TIF	none	Rectified composite image of the eastern wall of the stone-built chamber
Playground detail.TIF	1 m	Rectified, composite image of the decorative banding in the playground surface