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Marchwiel Mill House, Marchwiel, Wrexham LL13 0SS (P/2020/0106).

December 2021 V 1.0



Archaeological Watching Brief
Project Code: A0305.1
Report no. 0317
Event PRN: 167076

REGISTERED ORGANISATION CIfA

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Archaeological Watching Brief

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Project Code: A0305.1
Date: 13/12/2021
Client: Mr. Mark Creighton
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1.0 NON-TECHNICAL SUMMARY

Comisiynwyd Aeon Archaeology gan Mr. Mark Creighton, i gynnal briff gwylio archeolegol yn ystod y gwaith daear a oedd yn gysylltiedig ag adeiladu estyniad deulawr i ddrychiad gorllewinol Adeilad Rhestredig gradd II Marchwiel Mil Housel, Marchwiel, Wrecsam LL13 0SS.

Roedd y briff gwylio yn canolbwyntio ar gloddio dau bwll prawf i'r gorllewin o Marchwiel Mill House ac o fewn hen ffin sylfaen wal siâp 'C' yn y lle hwn. Datgelodd y pyllau prawf fod sylfeini'r wal yn ymestyn yn ddyfnach na gwaelod y pyllau prawf (>1.00m). Ar ben hynny, gwagiwyd pwll olwyn cynnwys yr hen felin a chynhyrchu rhai darganfyddiadau a oedd wedi cwympo i hen bridd ar waelod y pwll. Dangoswyd proffil sylfaen y pwll olwyn - roedd cromlin i waelod y pwll, o dan y gilfach (i'r de) a oedd â sylfaen ar oleddf ysgafn i'r gogledd a fyddai â dŵr allfa i mewn i frics wedi cwympo- twnnel wedi'i adeiladu.

Aeon Archaeology was commissioned by Mr. Mark Creighton, to carry out an archaeological watching brief during the groundworks associated with the construction of a two-storey extension to the west elevation of the grade II Listed Building of Marchwiel Mill House, Marchwiel, Wrexham LL13 0SS.

The watching brief focussed on the excavation of two test pits located to the west of Marchwiel Mill House and within the footprint of a 'C' shaped configuration of walls found at that location. The test pits revealed that the foundation of these walls extended deeper than the limit of the test pits (>1.00m) it is surmised that these relate to a series of retaining walls rather than a former building.

Furthermore, the wheel pit of the former mill was emptied out and produced some finds (some glass bottles and corroded iron) which had subsided into the accumulated silts at the base of the pit. The profile of the southern base of the wheel pit was revealed, demonstrating a gentle curve. To the north there was an outlet for water which appeared as a now collapsed brick-built culvert.

2.0 INTRODUCTION

Aeon Archaeology was commissioned by Mr. Mark Creighton, to carry out an archaeological watching brief during the groundworks associated with the construction of a two-storey extension to the west elevation of the grade II Listed Building (**ref: 17844**) of Marchwiel Mill House, Marchwiel, Wrexham LL13 0SS (centred on **NGR SJ34056 48273**) (figures 01-03).

Planning permission was secured by the Client from Wrexham Council on the 15th October 2020 with the following condition concerning archaeology being applied to the consent (**ref: P/2020/0106**):

Condition 11

No part of the development / works shall commence until details of an on-site watching brief, prepared and to be carried out by a suitably qualified archaeologist, for the duration of the construction works has been submitted to and approved in writing by the Local Planning Authority. The archaeological watching brief must meet the standards laid down by the Chartered Institute for Archaeologists Standard and Guidance for archaeological watching briefs.
REASON: The site contains archaeological remains which it is essential should be protected from damage in accordance with Policies GDP1 and EC11 of the Wrexham Unitary Development Plan.

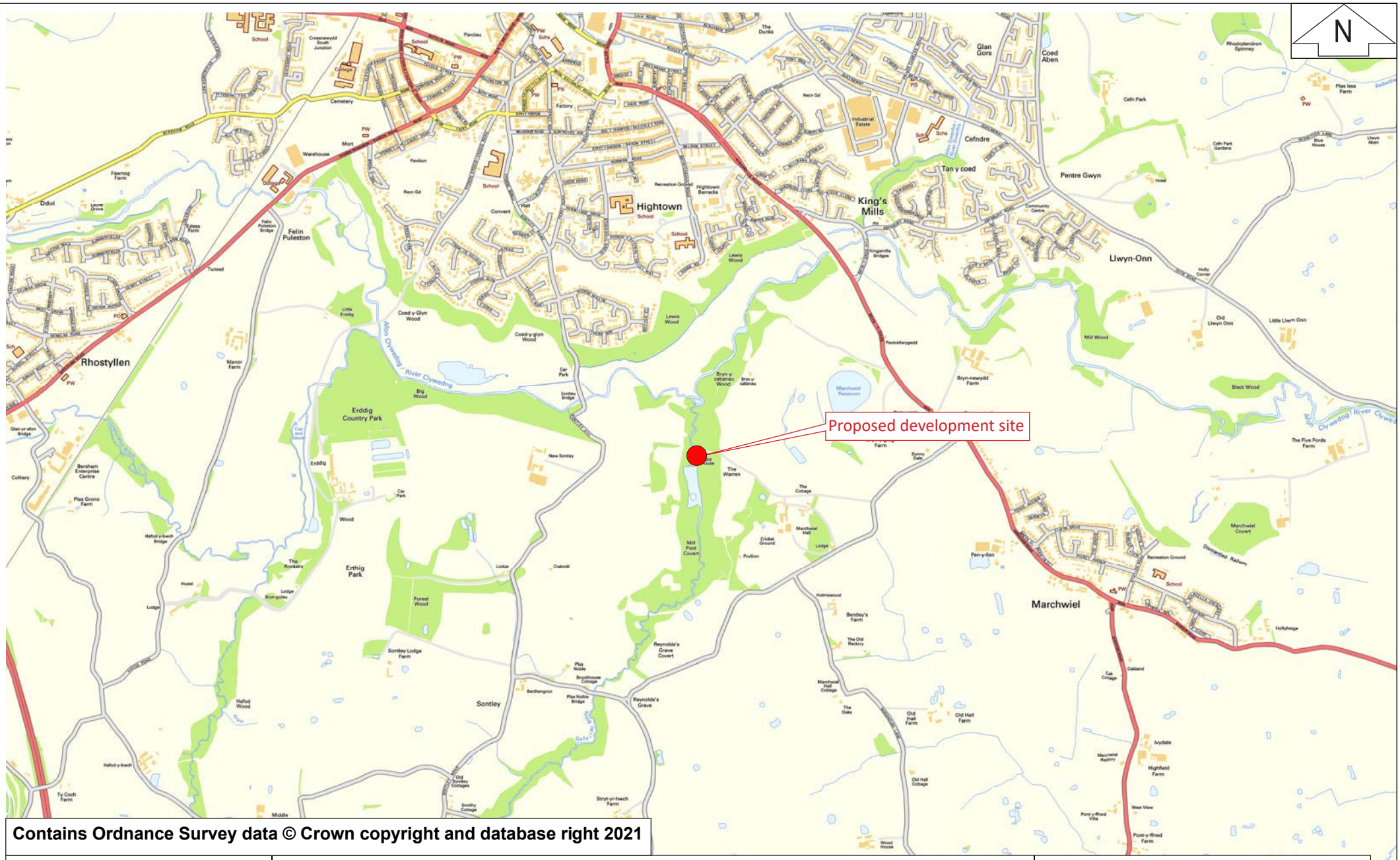
The previously prepared written scheme of investigation (WSI) was to detail the aims and objectives of the project and the methods by which they will be met in order to meet the spirit and intent of the recommended archaeological condition of planning application P/2020/0106.

The Development Management Archaeologist (DMA) at the Clwyd-Powys Archaeological Trust (CPAT) made the following consultee comments regarding the planning application (email correspondence Mark Walters 23rd September 2020):

Thank you for the consultation on the amended plans. We understand from discussion with Anna Irwin that the extension on the west side now requires the stanchions to be placed inside the wheel pit rather than beyond it. Provided the stanchions avoid removal of the wheel pit wall fabric, which seems the case, we would have no objection to this. The watching brief condition that has already been recommended would cover any removal of material from the wheel pit base and across the ground to the west of it with a provision for excavation where archaeological remains are encountered.

We note the walls recorded to the west of the wheel pit in the earlier archaeological survey are to be retained within the development scheme as a feature and this is welcomed. We would therefore have no objection to the proposed amendments provided damage to the wheel pit wall fabric is minimised as far as possible during insertion of the stanchions and the western walls beyond the wheel pit are retained as a feature.

The work will adhere to the guidelines specified in Standard and Guidance for Archaeological Watching Brief (Chartered Institute for Archaeologists, 2020).

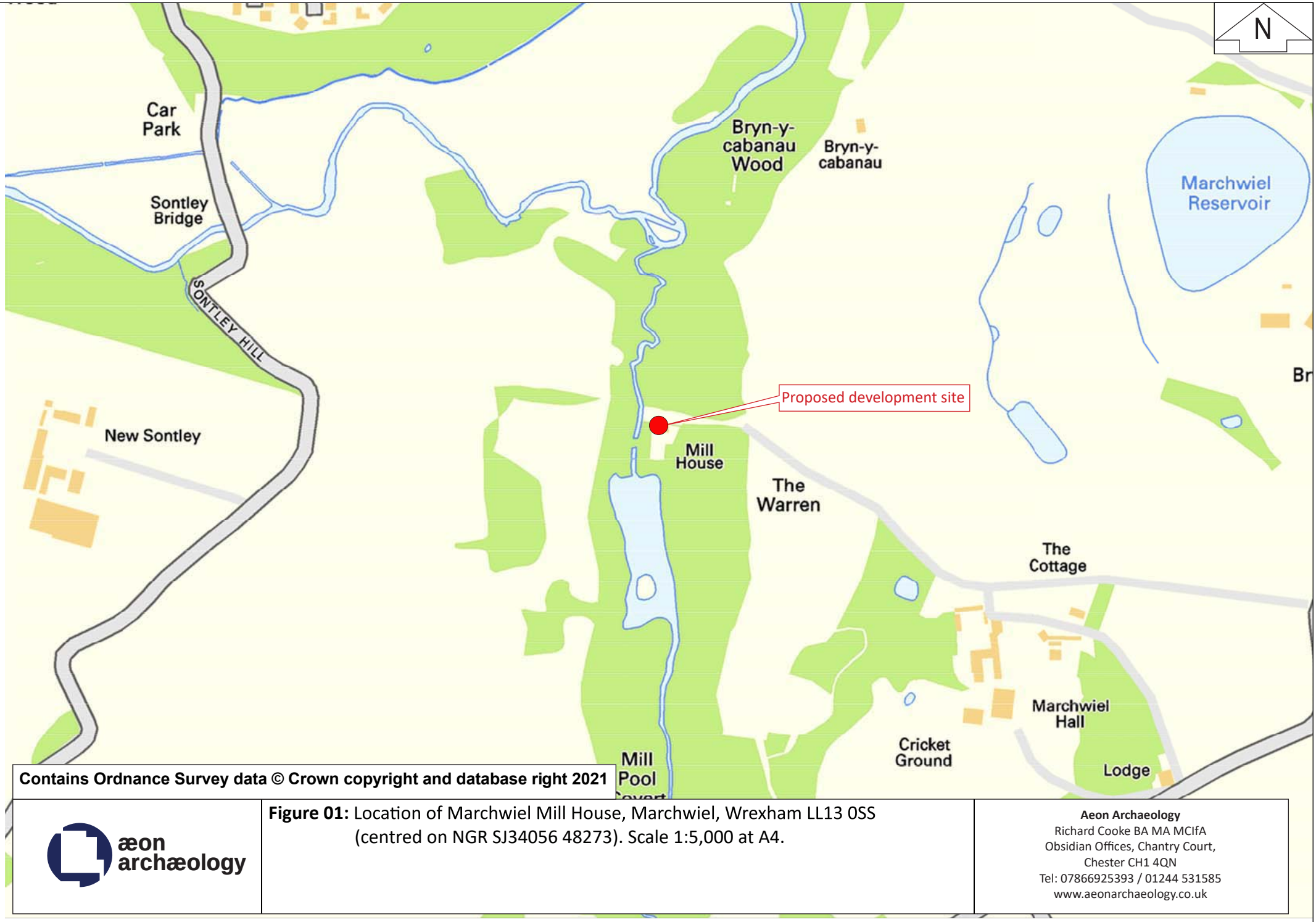


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Figure 01: Location of Marchwiel Mill House, Marchwiel, Wrexham LL13 0SS (centred on NGR SJ34056 48273). Scale 1:20,000 at A4.

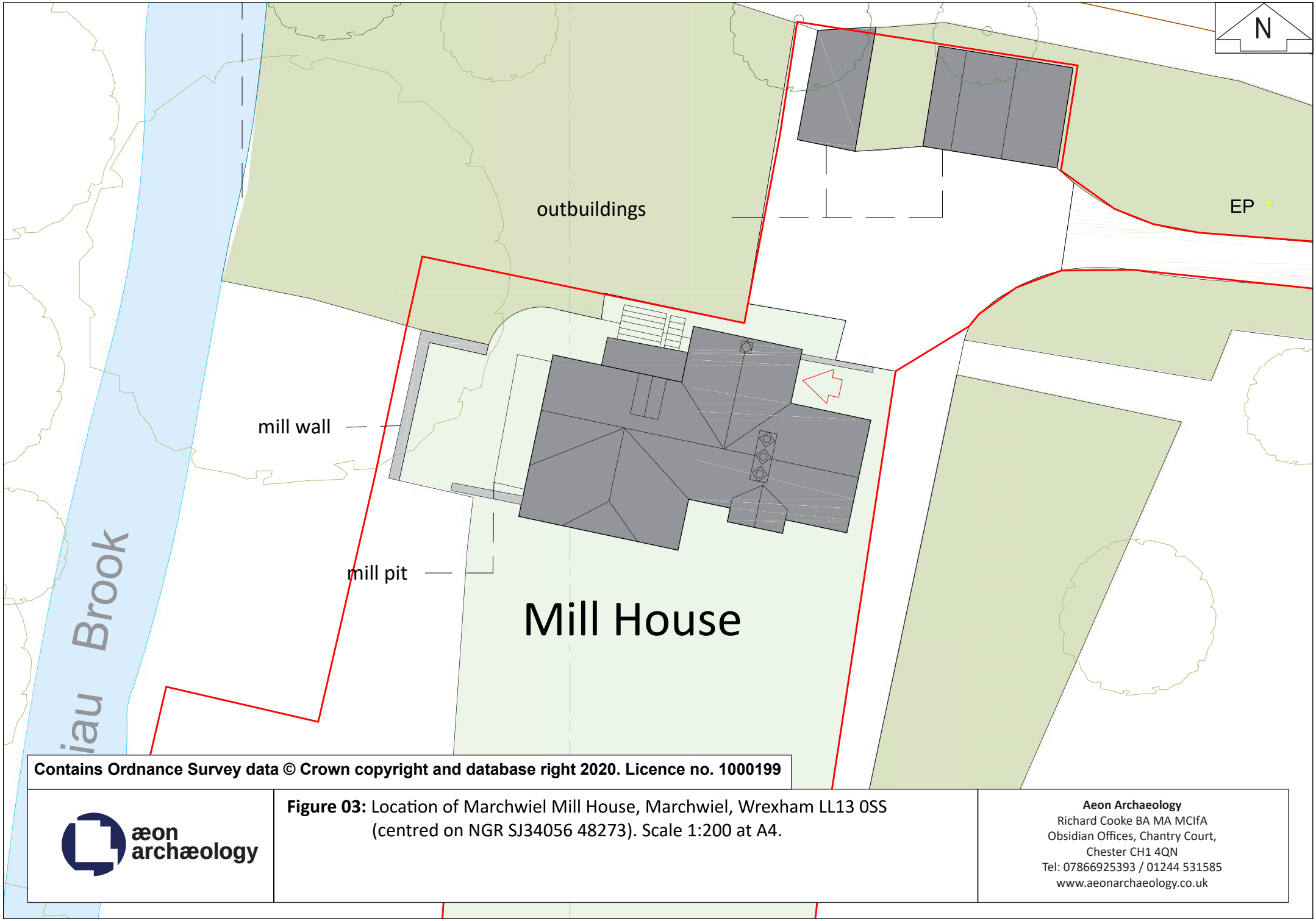
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Figure 01: Location of Marchwiel Mill House, Marchwiel, Wrexham LL13 0SS (centred on NGR SJ34056 48273). Scale 1:5,000 at A4.

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Figure 03: Location of Marchwiel Mill House, Marchwiel, Wrexham LL13 0SS (centred on NGR SJ34056 48273). Scale 1:200 at A4.

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3.0 POLICY CONTEXT

At an international level there are two principal agreements concerning the protection of the cultural heritage and archaeological resource – the UNESCO Convention Concerning the Protection of World Cultural and Natural Heritage and the European Convention on the Protection of the Archaeological Heritage , commonly known as the Valetta Convention. The latter was agreed by the Member States of the Council of Europe in 1992, and also became law in 1992. It has been ratified by the UK, and responsibility for its implementation rests with Department for Culture Media and Sport.

The management and protection of the historic environment in Wales is set out within the following legislation:

- The Planning (Listed Buildings and Conservation Areas) Act 1990 (As amended)
- The Historic Environment (Wales) Act 2016
- The Town and County Planning Act 1990
- The Ancient Monuments and Archaeological Areas Act 1979
- The Town and Country Planning (General Permitted Development Order) 1995 (As amended)

The Historic Environment (Wales) Act is the most recent legislation for the management of the Historic Environment and amends two pieces of UK legislation — the Ancient Monuments and Archaeological Areas Act 1979 and the Planning (Listed Buildings and Conservation Areas) Act 1990. The new Act has three main aims:

- to give more effective protection to listed buildings and scheduled monuments;
- to improve the sustainable management of the historic environment; and
- to introduce greater transparency and accountability into decisions taken on the historic environment.

With respect to the cultural heritage of the built environment the Planning (Conservation Areas and Listed Buildings) Act 1990 applies. The Act sets out the legislative framework within which works and development affecting listed buildings and conservation areas must be considered. This states that:-

"In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses" (s66(1))

Other known sites of cultural heritage/archaeological significance can be entered onto county-based Historic Environment Records under the Town and Country Planning 1995.

Planning Policy Wales sets out the land use planning policies of the Welsh Government. Chapter 6 covers the historic environment and emphasises that the positive management of change in the historic environment is based on a full understanding of the nature and significance of historic assets and the recognition of the benefits that they can deliver in a vibrant culture and economy.

Various principles and polices related to cultural heritage and archaeology are set out in the Planning Policy Wales which guide local planning authorities with respect to the wider historic environment.

The following paragraphs from Planning Policy Wales are particularly relevant and are quoted in full:

Paragraph 6.1.5 concerns planning applications:

The planning system must take into account the Welsh Government's objectives to protect, conserve, promote and enhance the historic environment as a resource for the general well-being of present and future generations. The historic environment is a finite, non-renewable and shared resource and a vital and integral part of the historical and cultural identity of Wales. It contributes to economic vitality and culture, civic pride, local distinctiveness and the quality of Welsh life. The historic environment can only be maintained as a resource for future generations if the individual historic assets are protected and conserved. Cadw's published Conservation Principles highlights the need to base decisions on an understanding of the impact a proposal may have on the significance of an historic asset.

Planning Policy Wales is supplemented by a series of Technical Advice Notes (TAN). Technical Advice Note 24: The Historic Environment contains detailed guidance on how the planning system considers the historic environment during development plan, preparation and decision making on planning and listed building consent applications. TAN 24 replaces the following Welsh Office Circulars:

- 60/96 Planning and the Historic Environment: Archaeology
- 61/96 Planning and the Historic Environment: Historic Buildings and Conservation Areas
- 1/98 Planning and the Historic Environment: Directions by the Secretary of State for Wales

4.0 PROJECT AIMS

The aim of the watching brief works was to characterise the known, or potential, archaeological remains uncovered during site investigation/ groundworks associated with the construction of a two-storey extension to the west elevation of the grade II Listed Building of Marchwiel Mill House, Marchwiel, Wrexham LL13 0SS.

The broad aims of the archaeological watching brief were to:

- To allow, within the resources available, the opportunity to gain information about and record the presence/absence, nature and date of archaeological remains on the Site affected by excavations and groundworks, the presence and nature of which could not be established with sufficient confidence in advance of works which may disturb them.

- To provide the facility to signal to the relevant authorities, before irreversible impact to remains that an archaeological and/or historic find has been made for which the resources allocated to the watching brief itself are inadequate to support their treatment to an adequate and satisfactory standard.

The detailed objectives of the archaeological watching brief were to:

- To observe and recover any artefacts of archaeological significance.

- To record the location, dimensions and nature of any deposits, features, structures or artefacts of archaeological significance.

- To recover samples of any deposits considered to have potential for analysis for palaeoenvironmental data should the opportunity arise.

The management of this project has followed the procedures laid out in the standard professional guidance *Management of Research Projects in the Historic Environment Project Manager's Guide* (English Heritage 2006; rev 2015), and in the Chartered Institute for Archaeologists *Archaeological Watching Brief* (Chartered Institute for Archaeologists, 2014). Five stages are specified:

Phase 1: project planning
Phase 2: fieldwork
Phase 3: assessment of potential for analysis and revised project design
Phase 4: analysis and report preparation
Phase 5: dissemination

The current document reports on the phase 4 analysis and states the means to be used to disseminate the results. In this instance it was not necessary to prepare a revised project design as alluded to in Phase 3; as there was a paucity of evidence recovered in Phase 2 in terms of archaeological features and therefore did not warrant any alteration to the initial project design.

The site is to be set in its landscape context so that its full character and importance can be understood. All the information is to be presented in a report that will be held by the Clwyd-Powys Archaeological Trust (CPAT) Historic Environment Record (HER) and the National Monument Record of the Royal

Commission on the Ancient and Historic Monuments of Wales (RCAHMW) for long term archiving so that it can be accessible to the public and future researchers. This phase of work also includes archiving the material and documentary records from the project.

5.0 METHODOLOGY – ARCHAEOLOGICAL WATCHING BRIEF

5.1 Watching Brief

The CIfA maintains a standard for archaeological watching brief which states that:

An archaeological watching brief will record the archaeological resource during development within a specified area using appropriate methods and practices. These will satisfy the stated aims of the project, and comply with the Code of conduct and other relevant by-laws of CIfA.

An archaeological watching brief is defined by the CIfA as a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons (CIfA 2014a). The watching brief will take place within a specified area within the Site where there is a possibility that archaeological deposits may be disturbed or destroyed.

The CIfA further identifies the purpose of a watching brief as allowing, within the resources available, the preservation by record of archaeological deposits, the presence and nature of which could not be established in advance of development or other potentially disruptive works.

It is also important to note that a watching brief provides an opportunity, if needed, for a signal to be made to all interested parties, before the destruction of the archaeological materials, that an archaeological find has been made for which the resources allocated to the watching brief itself are not sufficient to support treatment to a satisfactory and proper standard.

A watching brief is, therefore, not intended to reduce the requirement for excavation or preservation of known or inferred deposits, and it is intended to guide, not replace, any requirement for contingent excavation or preservation of possible deposits.

All excavations were undertaken using a mechanical excavator fitted with a toothless ditching bucket. A photographic record was maintained throughout, using a digital SLR camera (Canon 6000D) set to maximum resolution and any subsurface remains were to be recorded photographically, with detailed notations and measured drawings being undertaken if required.

In the event of archaeological discovery features were to be excavated by hand and fully recorded using Aeon Archaeology pro-formas, digital photographs, and plan and section drawings taken at a suitable scale (usually 1:20 for plan drawings and 1:10 for section drawings).

The archive produced is held at Aeon Archaeology under the project code **A0305.1**.

5.2 Data Collection from Site Records

A database of the site photographs was produced to enable active long-term curation of the photographs and easy searching. The site records were checked and cross-referenced and photographs were cross-referenced to contexts. These records were used to write the site narrative and the field drawings and survey data were used to produce an outline plan of the site.

All paper field records were scanned to provide a backup digital copy. The photographs were organised and precisely cross-referenced to the digital photographic record so that the Clwyd-Powys Archaeological Trust (CPAT) Historic Environment Record (HER) can curate them in their active digital storage facility.

5.3 Artefact Methodology

All artefacts were to be collected and processed including those found within spoil tips. They would be bagged and labelled as well any preliminary identification taking place on site. After processing, all artefacts would be cleaned and examined in-house at Aeon Archaeology. If required artefacts would be sent to a relevant specialist for conservation and analysis.

The recovery policy for archaeological finds was kept under review throughout the archaeological watching brief. Any changes in recovery priorities would be made under guidance from an appropriate specialist and agreed with the Client and the Clwyd-Powys Archaeological Trust (CPAT) Development Control Archaeologist. There was a presumption against the disposal of archaeological finds regardless of their apparent age or condition.

5.4 Environmental Samples Methodology

The sampling strategy and requirement for bulk soil samples was related to the perceived character, interpretational importance and chronological significance of the strata under investigation. This ensured that only significant features would be sampled. The aim of the sampling strategy was to recover carbonised macroscopic plant remains, small artefacts particularly knapping debris and evidence for metalworking.

Advice and guidance regarding environmental samples and their suitability for radiocarbon dating, as well as the analysis of macrofossils (charcoal and wood), pollen, animal bones and molluscs would be obtained from Oxford Archaeology if required.

5.5 Report and dissemination

A full archive including plans, photographs, written material and any other material resulting from the project was prepared. All plans, photographs and descriptions were labelled, and cross-referenced, and will be lodged within a suitable repository to be agreed with the archaeological curator within six months of the completion of the project.

A draft copy of the report has been sent to the client and upon written approval from them paper and digital copies of the report will be sent to the regional HER, the CPAT Development Control Archaeologist, and will be logged with the RCAHMW. Copies of all notes, plans, and photographs arising from the watching brief will be stored at Aeon Archaeology under the project code **A0305.1** with the originals being lodged in a suitable repository to be agreed with the archaeological curator.

6.0 ARCHAEOLOGICAL BACKGROUND

On the Clwyd & Powys Archaeological Trust's (**CPAT**) Regional Historic Environment Record (***HER***), Primary Reference Numbers (***PRN***) are assigned to specific heritage assets and these are catalogued with descriptions and relevant sources to generate a searchable database, this is available online at https://archwilio.org.uk/arch/.

For this site there are two main listings; *Mill House (**PRN: 41527**), a post medieval house, grade II listed building (**ref: 17844**)* and *Marchwiel Mill (**PRN: 104285)**, post medieval mill, adjoined to the west of Mill House.* There are also separate numbers for the other features associated with the mill system, which is true for this site but not all mill sites on the database (Hankinson & Silvester 2012); *Marchwiel Mill Pond* (***PRN 166744***), *Marchwiel Mill, Pool* (***PRN 166751***), *Marchwiel Mill, Weir* (***PRN 166746***), *Marchwiel Mill, Sluice* (***PRN 166745***) & *Marchwiel Mill, Sluice II* (***PRN 166747***).

The planning application for this project was accompanied by a Heritage Impact Assessment carried out by the fieldwork division of CPAT. The following is a historical background from that report and is reproduced in full (CPAT report 1674):

According to the listed building description, there has been a mill at this site for many centuries, with the current mill said to have been a result of remodelling in the 1840s. Marchwiel Hall is also recorded as having been remodelled at the same time.

However, the 1837 Old Series 1" map of Wales records no evidence of a Mill at the current site. The tithe map of 1840 again records no building at the mill site, in addition to which, the site of the mill pool is shown as a parcel of woodland, and is recorded in the apportionment as 'wood'. Marchwiel Hall is recorded to the south-east and a 'Crab Mill' is recorded further to the west on the outskirts of Erddig Park.

The fields surrounding the mill site on the north and western sides were recorded in the tithe apportionment as 'Ruff Moor' and 'Meadow' and there is no reference to a mill.

The mill is first recorded on the 1st edition Ordnance Survey map of 1872. The mill is described as a 'Corn Mill', with the mill building shown as rectangular in plan, with the wheel pit clearly marked at the western end. The mill house adjoins the mill at its eastern end and is shown as L-shaped in plan. This reflects the layout of the upstanding buildings visible on the site today.

An additional building is shown around 10m to the north-east of the mill buildings, and this, a brick structure, is also still upstanding.

The mill pool is situated to the south of the mill, utilising water from the Gefeiliau Brook, an off shoot from the River Clywedog which is located to the north. An additional off-shoot from the brook is shown just to the north of the mill house.

A small pond is shown between the mill buildings and pool, which appears to have been managed by a sluice at the north-eastern corner of the larger mill pool. An additional sluice is shown to the west. Presumably, water from the larger pool was diverted to the smaller pond via the sluice at the north-eastern corner and then on to the water wheel, probably via a launder (a wooden trough). The wheel is thought to have been fed with water from above, with the watercourse to the north of the mill acting as the tail race, allowing the water to flow back into the Gefeiliau Brook. It is likely that a culvert runs below ground from the wheel pit to the north before the water joined the small water course shown on the Ordnance Survey mapping.

Two boat houses are shown on the 1872 map at the northern end of the mill pool and an additional structure is shown to the east within the woodland.

By the time the 2nd edition Ordnance Survey map was published in 1899, the mill is recorded as disused. A small structure is shown projecting from the southern side of the wheel pit, likely to have been the launder.

On this map, the mill pool is recorded as 'Manley Pool' and the woodland to the west of it 'Mill Pool Covert'. The woodland to the east of the pool is recorded as 'The Warren'.

7.0 QUANTIFICATION OF RESULTS

7.1 The Documentary Archive

The following documentary records were created during the archaeological watching brief:

Watching brief day sheets	1
Context Sheets	0
Digital photographs	58

7.2 Environmental Samples

No environmental samples were taken as part of the watching brief as no suitable archaeological deposits were encountered.

7.3 Artefacts

Below is a table of finds recovered from the wheel pit silts followed by a brief discussion of the artefacts below.

Find No.	Context	Description	Material	Date
1	Wheel Pit	Brown Bottle	Glass	22/11/21
2	Wheel Pit	Brown Bottle	Glass	22/11/21
3	Wheel Pit	Clear Jam Jar	Glass	22/11/21
4	Wheel Pit	Clear Jam Jar	Glass	22/11/21
5	Wheel Pit	Milk Bottle	Glass	22/11/21
6	Wheel Pit	Mineral Water Bottle	Glass	22/11/21
7	Wheel Pit	Bar	Cast Iron	22/11/21
8	Wheel Pit	Bolt	Cast Iron	22/11/21
9	Wheel Pit	Bar	Cast Iron	22/11/21
10	Wheel Pit	Broom Head	Wood	22/11/21
11	Wheel Pit	2x Rollers	Wood/Cast Iron	22/11/21
12	Wheel Pit	Blue Bottle	Glass	22/11/21
13	Wheel Pit	Bracket	Wood/Cast Iron	22/11/21

Table 01: Finds recovered from the mill wheel pit at Marchwiel Mill House

The predominant variety of find recovered from the wheel pit were bottles which conform to common anthropogenic uses; consumption of water (6), milk (5), beer (1,2) and preserves (3,4) and medication a blue milk of magnesia bottle (12).

Beer Bottles

The brown bottles (1,2) were beer bottles are made by Automatic Bottle Machine (ABM) - the side seams run thru the top of the lip. The first ABM bottles started appearing in 1905, and by 1920 most bottles were being made by this method. The screw tops also suggest a post 1920 date (Lindsey 2019). Non-alcoholic beverages were bottled in a diverse array of bottle styles. However, like with beer/ale bottles, the (usually) carbonated nature of soda and mineral waters narrowed the possible bottle variety in several ways. Most importantly, the bottles had to be made of relatively heavy/thick glass in order to withstand the gaseous pressures of the product itself. (Bottles made to withstand internal carbonation pressure were known as "pressure ware" in the bottle making industry. Also contributing to a degree of

uniformity and related to the carbonation is the fact that a large majority of soda water bottles were round in cross section – cylindrical (Lindsey 2019).

Milk Bottles

The milk bottle (5) was embossed with '*Wrexham Dairies Ltd*.' which presumably relates to the industry which centred on Wrexham during the early part of the 20th century. In general terms the delivery of milk to homes began by at least the mid-19th century, although the earliest delivery method was to retrieve milk by dipping from larger metal containers into the customers smaller containers - an unsanitary process at best. The urgency for more efficient, healthy packaging of milk was led to the design of the glass milk bottle. Milk bottles are representative of a later style of bottle manufacture and only become an identifiable bottle "type" by the 1880s. Milk bottle production went through four relatively recognizable stages of development with the first three stages being distinct in that they comprise of cylindrical milk bottle production in the main. The fourth stage pertains to the production of square/rectangular bottles and is more about the shape than the manufacture (Lindsey 2019);

1. Mouth-blown (mid-1880s into the mid-1910s)
2. Press-and-Blow machine manufacture (late 1890s to at least the mid-20th century)
3. Owens Automatic Bottle Making machine (1905 through at least the 1940s)
4. Square/rectangular blow-and-blow machine-made bottles (mid-1940s through 1960s and later)

Mineral/ Soda water bottles

A single, clear glazed, round shouldered mineral water bottle (6) was recovered from the wheel pit bearing the embossed name and details of; *Caergwle Castle Mineral Water*, the noted bottler and wholesaler of Caergwle (*PRN: 96080*) *Caergwrle, Rhyddyn Hill, Rhyddyn Hall Mineral Water Works*. As with beer/ale bottles, the (usually) carbonated nature of soda and mineral waters narrowed the possible bottle variety in several ways. Most importantly, the bottles had to be made of relatively heavy/thick glass in order to withstand the gaseous pressures of the product itself (Glass Industry 1959).

Medicinal/Chemist

A single, very small round-shouldered chemists' bottle (12) was recovered from the wheel pit silts the bottle was blue and had a metal screw cap with '*Milk of Magnesia*' emblazoned on the cap. Medicinal or chemists' bottles were probably the largest and most diverse group of bottles produced through the 19th through mid-20th centuries. Mid-19th century medicine bottles seem to possess a general shape (rectangular with indented panels) which was used for tens of thousands of different medicinal products from the mid-19th century Most medicinal bottles also had a narrow neck and mouth (aka bore or throat) since this configuration was most useful for pouring out the typically liquid contents. A narrow neck and bore also likely limited evaporation through or around the cork also (Fike 1987).

8.0 DIGITAL DATA MANAGEMENT PLAN

8.1 Type of study

An archaeological watching brief during the erection of a new single storey rear extension to the grade II Listed Building of Old Hall, Overton Road, Penley, Wrexham LL13 0LS. (Centred on **NGR SJ34056 48273**)

8.2 Types of data

Photographs, measured plans, context sheets, context register, photographic register, trench sheets.

8.3 Format and scale of the data

Photographs taken in *RAW* format and later converted to *TIF* format for long term archiving and *JPEG* format for use in the digital report, converted using *Adobe Photoshop*. All photographs renamed using *AF5* freeware with the prefix (*project code_frame number*) and a photographic metadata created using Microsoft Excel (*.xlsx*) or Access (*.accdb*).

8.4 Methodologies for data collection / generation

Digital data will be collected / generated in line with recommendations made in the Chartered Institute for Archaeologists (CIfA) *Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives* (2020). Sections 3.3.1 and 3.3.3 are relevant:

> *3.3.1 Project specifications, research designs or similar documents should include a project specific Selection Strategy and a Data Management Plan.*
>
> *3.3.3 Project designs or schedules of works etc should outline the methodology used in recording all information, in order to demonstrate that all aspects of archive creation will ensure consistency; for instance in terminologies and the application of codes in digital data sets, highlighting relevant data standards where appropriate*

8.5 Data quality and standards

Consistency and quality of data collection / generation shall be controlled and documented through the use of standardised procedure as outlined in the WSI. This will include the use of standardised data capture file formats, digital proformas, data entry validation, peer review, and use of controlled vocabularies.

8.6 Managing, storing and curating data.

All digital data will be organised into Aeon Archaeology proformae project file systems and backed up to the cloud using *Digital River's Crashplan* with additional copies made to external physical hard drive.

8.7 Metadata standards and data documentation

Digital metadata created using Microsoft Excel (*.xlsx*) or Access (*.accdb*) of all photographic plates.

Paper metadata created from Aeon Archaeology proformas for contexts, artefacts, environmental samples, watching brief day sheets, trench sheets, and basic record sheets and then scanned to create digital .PDF copies.

8.8 Data preservation strategy and standards

Long term data storage will be through the submission of digital (.PDF) reports to the regional Historic Environment Record (HER); submission of digital (.PDF) reports and a project completion form to the Oasis database; submission of the scanned (.PDF) archive, photographic plates (.TIF), and metadata (*.xlsx*) (*.accdb)* to the Archaeology Data Service (ADS); and retention of copies of all digital files at Aeon Archaeology on physical external hard drive and uploaded to the cloud.

8.9 Suitability for sharing

All digital data will be placed within the public realm (through the channels in 6.8) except for where project confidentiality restricts the sharing of data. All data sets will be selected / discriminated by the Senior Archaeologist at Aeon Archaeology and written permission will be sought from all project specific Clients prior to the sharing of data.

8.10 Discovery by potential users of the research data

Potential users of the generated digital data (outside of the organisation) will be able to source the data and identify whether it could be suitable for their research purposes through access granted via the RCAHMW website. Requests can also be made for data through the regional HER's and directly to Aeon Archaeology (info@aeonarchaeology.co.uk).

8.11 Governance of access

The decision to supply research data to potential new users will be via the associated website request (RCAHMW) or via the Senior Archaeologist when made directly to Aeon Archaeology.

8.12 The study team's exclusive use of the data

Aeon Archaeology's requirement is for timely data sharing, with the understanding that a limited, defined period of exclusive use of data for primary research is reasonable according to the nature and value of the data, and that this restriction on sharing should be based on simple, clear principles. This time period is expected to be six months from completion of the project however Aeon Archaeology reserves the right to extend this period without notice if primary data research dictates.

8.13 Restrictions or delays to sharing, with planned actions to limit such restrictions

Restriction to data sharing may be due to participant confidentiality or consent agreements. Strategies to limit restrictions will include data being anonymised or aggregated; gaining participant consent for data sharing; and gaining copyright permissions. For prospective studies, consent procedures will include provision for data sharing to maximise the value of the data for wider research use, while providing adequate safeguards for participants.

8.14 Regulation of responsibilities of users

External users of the data will be bound by data sharing agreements provided by the relevant organisation or directly through Aeon Archaeology.

8.15 Responsibilities

Responsibility for study-wide data management, metadata creation, data security and quality assurance of data will be through the Senior Archaeologist (Richard Cooke BA MA MCIfA) at Aeon Archaeology when concerning data generation and early/mid-term storage. Upon deposition with digital depositories the study-wide data management, metadata creation, data security and quality assurance of data will be the responsibility of the specific organisations' themselves.

8.16 Organisational policies on data sharing and data security

The following Aeon Archaeology policies are relevant:

- Aeon Archaeology Archive Deposition Policy 2019
- Aeon Archaeology Quality Assurance Policy 2019
- Aeon Archaeology Conflict of Interest Policy 2019
- Aeon Archaeology Outreach Policy 2019
- Aeon Archaeology Digital Management Plan 2020

9.0 RESULTS OF THE ARCHAEOLOGICAL WATCHING BRIEF

9.1 Overview

The archaeological watching brief was maintained by Josh Dean BA, archaeological contractor for Aeon Archaeology. The site was attended on the 22nd November 2021 and the weather conditions were periodically sunny and overcast. The area to be excavated had been left untouched until the arrival of the archaeologist with vegetation and debris undisturbed. The wheel pit is located immediately to the west of the western elevation of *Marchwiel Mill* and its walls are constructed from dressed sandstone blocks. The southern wall of the wheel pit (inlet for mill race) was 1.75m higher than the western wall. Located to the west of the wheel pit was an area of vegetation cover and this was bounded on three sides (north, west and south) by sandstone, rubble walls which formed a 'C' shaped configuration; the internal measurements of this area in plan were 5.64m by 3.64m.

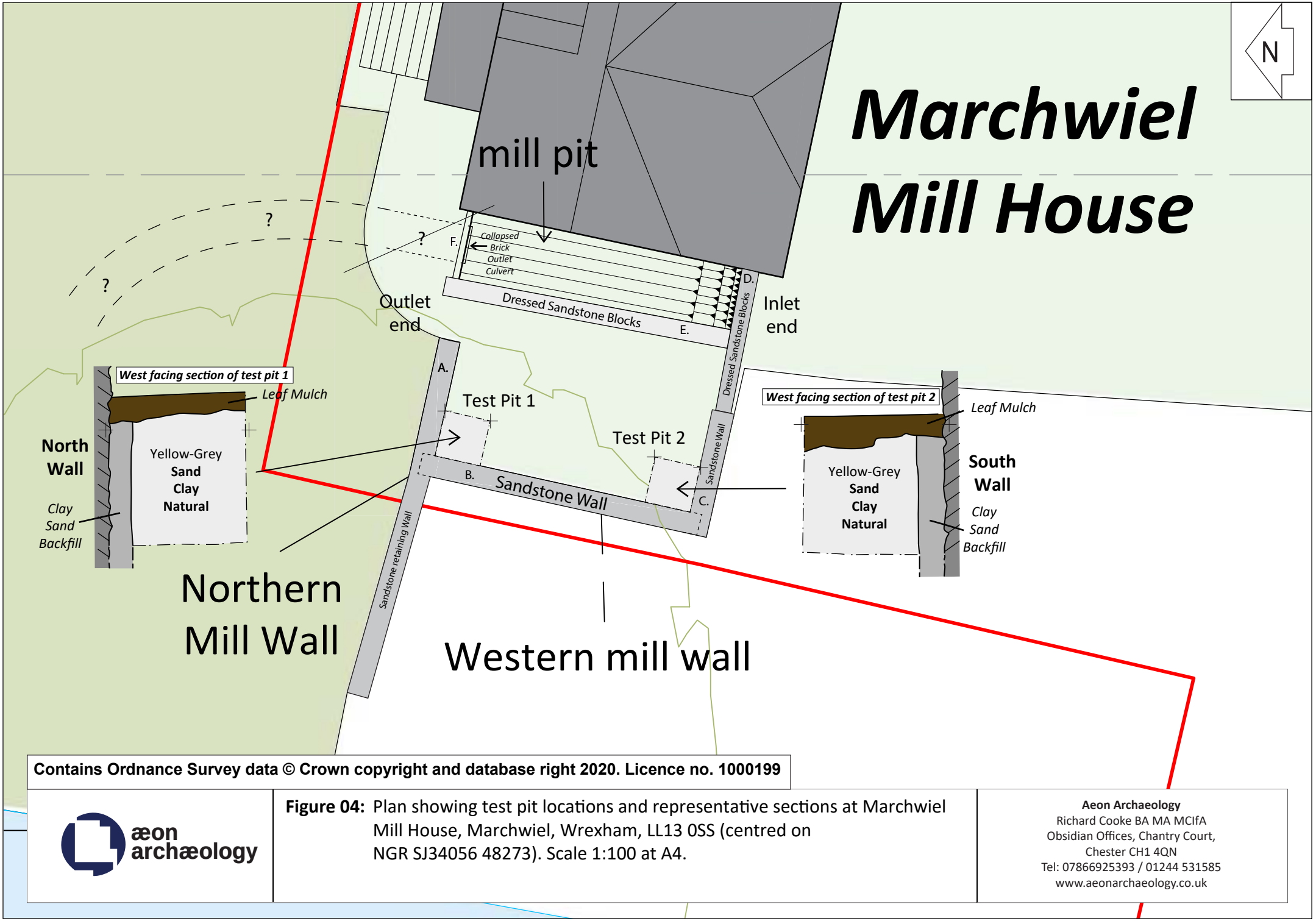
The watching brief was to observe the excavation of two test pits which would house wall stations which in turn would support a future extension. There are numerous sandstone walls which will be made reference to throughout this report and these have been designated (**A. -F.,** (see **Figure 04**). As mentioned, this area was initially overgrown with vegetation and this was removed by mechanical excavator. This machine was also used to remove the deposits from within the wheel pit of the Mill. Due to the depth (2.43m – maximum depth to northern end) and the unknown structural integrity of the mill pit, the archaeologist did not enter the area due to health and safety concerns - and as such all photographs and measurements were taken from the top of the wheel pit. The finds recovered from the wheel pit remain in the possession of the client.

9.2 Test Pit 1 (*Plates 6-9*)

Test Pit 1 was excavated within the north western corner of the area within the 'C' shaped foundation. This measured 1.00m in length by 1.00m in width and was 1.00m in depth. The pit cut through 0.22m of dark black-brown, clay-silt, decomposed vegetation which lay above >0.78m of light, blue-grey, clay natural. During the excavation; the northern retaining wall (**A.**) and the southern sandstone wall (**B.**) were exposed on their internal faces. These walls were of identical construction, comprising of rough dressed, small to medium sized, sandstone rubble, blocked bonded together by lime mortar. Both of the walls were found to extend deeper than 1.00m and had been situated within narrow, almost vertical excavation cuts visible in plan on the internal face; it is therefore unclear whether these walls were cut into the ground in defined foundation cuts or were acting as retaining walls for material to the north and west.

9.3 Test Pit 2 (*Plates 10-13*)

Test Pit 2 was excavated within the south western corner of the area within the 'C' shaped foundation. This second pit also measured 1.00m in length by 1.00m in width and was 1.00m in depth. Once again, the pit cut through 0.22m of dark black-brown, clay-silt, decomposed vegetation which lay above >0.78m of light, blue-grey, clay natural. During the excavation; the southern retaining wall (**C.**) and the southern sandstone wall (**B.**) were exposed on their internal faces. Once more, these walls were found to be of of identical construction, comprising of rough dressed, small to medium sized, sandstone rubble, blocked bonded together by lime mortar. Both of the walls were found to extend deeper than 1.00m and had been situated within narrow, almost vertical excavation cuts visible in plan on the internal face.

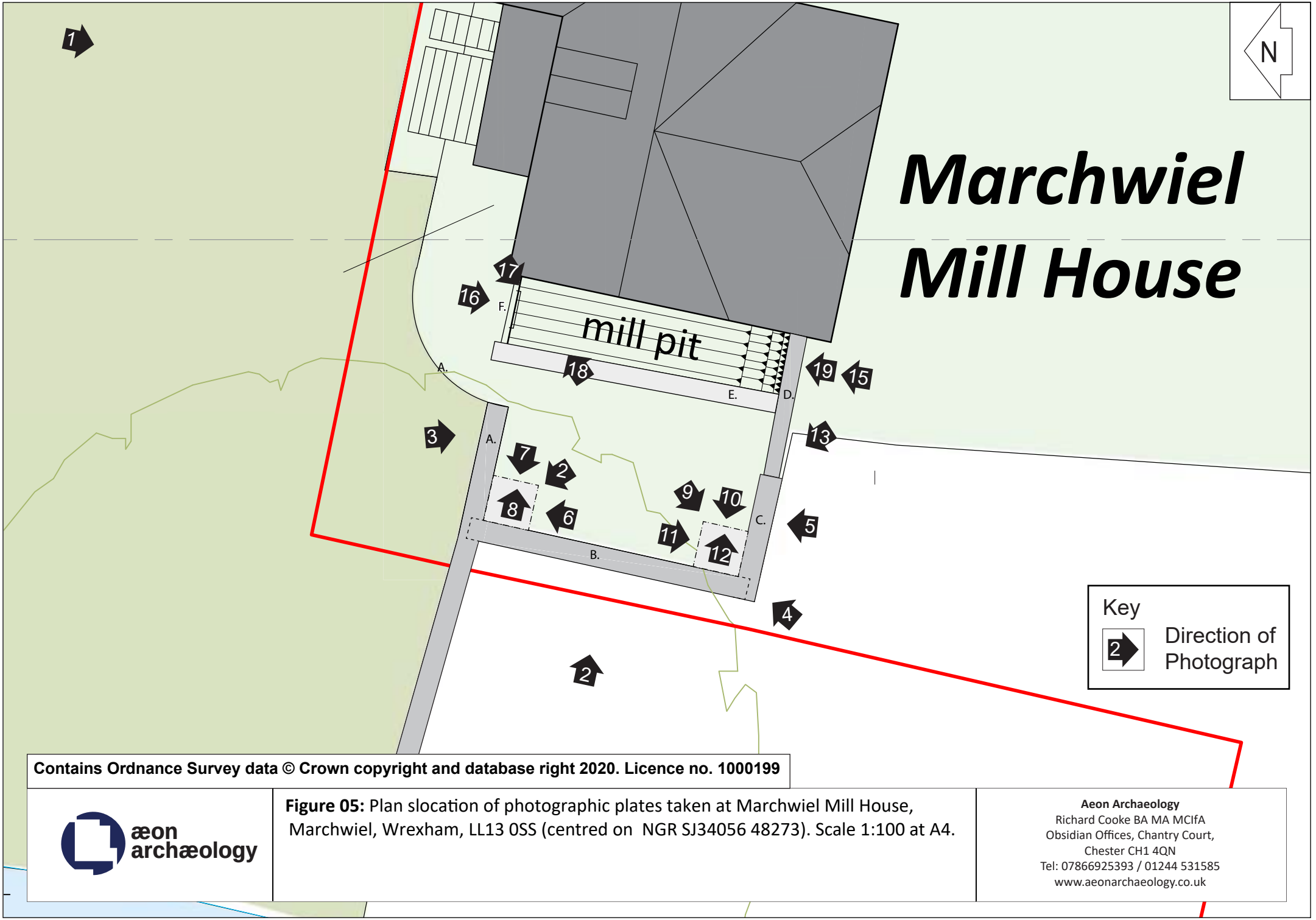


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Figure 04: Plan showing test pit locations and representative sections at Marchwiel Mill House, Marchwiel, Wrexham, LL13 0SS (centred on NGR SJ34056 48273). Scale 1:100 at A4.

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Figure 05: Plan slocation of photographic plates taken at Marchwiel Mill House, Marchwiel, Wrexham, LL13 0SS (centred on NGR SJ34056 48273). Scale 1:100 at A4.

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Plate 01: North facing elevation of Marchwiel Mill House, Marchwiel, Wrexham - from the north - scale 1.00m



Plate 02: West facing elevation of Marchwiel Mill House, Marchwiel, Wrexham - from the west - scale 1.00m



Plate 03: Pre excavation shot of test pit area, Marchwiel Mill House, Marchwiel, Wrexham - from the north - scale 1.00m



Plate 04: Pre excavation shot of test pit area, Marchwiel Mill House, Marchwiel, Wrexham - from the southwest - scale 1.00m



Plate 05: Pre excavation shot of test pit area, Marchwiel Mill House, Marchwiel, Wrexham - from the south - scale 1.00m



Plate 06: Pre excavation shot of test pit 1, Marchwiel Mill House, Marchwiel, Wrexham - from the southeast - scale 1.00m



Plate 07: South facing wall elevation of test pit 1, Marchwiel Mill House, Marchwiel, Wrexham - from the south - scale 1.00m



Plate 08: East facing wall elevation of test pit 1, Marchwiel Mill House, Marchwiel, Wrexham - from the east - scale 1.00m



Plate 09: External shot of northern elevation, outbuilding at Fron Isaf, Llangwm, Conwy - from the north - scale 1m



Plate 10: West facing section of test pit 1, Marchwiel Mill House, Marchwiel, Wrexham - from the west - scale 1.00m



Plate 11: East facing wall elevation of test pit 2, Marchwiel Mill House, Marchwiel, Wrexham - from the east - scale 1.00m



Plate 12: North facing wall elevation of test pit 2, Marchwiel Mill House, Marchwiel, Wrexham - from the north - scale 1.00m



Plate 13: West facing section of test pit 2, Marchwiel Mill House, Marchwiel, Wrexham - from the west - scale 1.00m



Plate 14: Post excavation shot of test pit area, Marchwiel Mill House, Marchwiel, Wrexham - from the southeast - scale 1.00m

Discussion

Given the limited observation of the deposits and the construction of the walls it appears as if the northern wall (**A.**) and the southern wall (**C.**) were constructed as retaining walls for the higher ground levels to the north and south. Furthermore, the absence of topsoil and subsoil deposits in the area where the test pits were excavated suggests that the former slope of the hill (which probably) fell westward to *Gefailiau Brook* was benched into and removed. The persistence of the natural clay which was revealed below a shallow layer of leaf mulch demonstrated that this area had been reduced, probably during the construction of the mill in the 1840's (during the remodelling of the hall).

9.2 The Wheel Pit (*Plates 15-19*)

The wheel pit was constructed from sandstone blocks and measured 5.98m long by 1.33m wide. The eastern elevation was formed by the western gable of *Marchwiel Mill*. The southern (**D.**) and western (E.) elevations were of dressed sandstone blocks; the southern elevation comprised of 12 courses whereas the western elevation was 7 courses high. The northern elevation (**F.**) was comprised of red-bricks bonded by lime mortar, this was >26 courses high and located in the centre of the elevation near the base was a rectangular aperture with a stone lintel above; this formed the mouth of the culvert which had appeared to have collapsed internally. The depth of the pit at its deepest point (north) was 2.42m. At the southern end the pit was 2.35m meaning that there was a slope from south to west of 7cm across approximately 5.00m. The southern wall (**D.**) was level with the ground located to the south of Marchwiel Mill House (1.75m above upper most course of the dressed sandstone wall (**E.**).

Discussion

The water wheel for the mill appears to have been an overshot wheel; this was fed from the south by a leat (presumably overground via a timber trough) which in turn was fed from a sluice gate (**PRN: 166747**) in the north western corner of the mill pond (**PRN: 166744**). The base of the wheel pit sloped from south to north, with the base of the southern wall (**D.**) being curved to facilitate the flow of the water to the northern end of the pit. At the northern end of the pit it water then would have exited via a culvert – the mouth of which was constructed into the northern elevation. As for this culvert it is located at the base of the pit and must have achieved a reliable fall (between the pit and the brook) in order to flow into the *Gefeiliau Brook.* Therefore it is surmised that; either this culvert was cut to depth into the deposits which make up the ground surface located to the north and west of the Mill House (**PRN: 41527**) *or* the ground surface in this area had been built up over the years via repeated events of deposition which have served to fill in the outlet (*tail race*) culvert after the mill ceased operations.



Plate 15: Pre excavation shot of wheel pit area, Marchwiel Mill House, Marchwiel, Wrexham - from the south - no scale



Plate 16: Post excavation shot of wheel pit area, Marchwiel Mill House, Marchwiel, Wrexham - from the north - no scale



Plate 17: Post excavation shot of wheel pit area, Marchwiel Mill House, Marchwiel, Wrexham - from the northeast - no scale



Plate 18: Post excavation shot of wheel pit outlet, Marchwiel Mill House, Marchwiel, Wrexham - from the southwest - no scale



Plate 19: Post excavation shot of wheel pit inlet curve, Marchwiel Mill House, Marchwiel, Wrexham - from the south - no scale



Plate 20: Finds recovered from wheel pit area, Marchwiel Mill House, Marchwiel, Wrexham - 0.50m & 1.00m scale



Plate 21: Wooden Rollers (finds number 11) recovered from wheel pit area, Marchwiel Mill House, Marchwiel, Wrexham - 0.50m scale



Plate 22: Wooden Rollers [reverse] (finds number 11) recovered from wheel pit area, Marchwiel Mill House, Marchwiel, Wrexham - 0.50m scale



Plate 23: Glass bottles recovered from wheel pit area, Marchwiel Mill House, Marchwiel, Wrexham - 0.50m scale

10.0 CONCLUSION AND RECOMMENDATIONS

Aeon Archaeology carried out an archaeological watching brief during the groundworks associated with the construction of a two-storey extension to the western elevation of the grade II Listed Building of Marchwiel Mill House, Marchwiel, Wrexham.

To the west of the building the 'C-shaped' arrangement of rubble sandstone walls was not easily characterised following the excavation of the two test pits. These walls all extended to a depth greater than 1.00m into the ground and it is possible the western and southern walls may have been truncated, at least partially along their vertical axis. Furthermore, if this was in fact a former structure which had previously occupied the area (to the west of the wheel pit), it would have been open along its eastern elevation facing the pit *or* the elevation would have been founded upon the western wall of the wheel pit, but no discernible bonding to that wall was evident.

There are a couple of examples from further south into Wales where separate mills are thought to have persisted almost immediately adjacent to one another;

"*Corn mills could be converted into fulling mills and vice versa, or corn mills and fulling mills might run almost literally side by side*" (Hankinson & Silvester 2012).

Such adjacent mills might process different materials for example; *Coed Trewernau* in *Llanddewi Ystradenny* (Radnorshire) which was originally a fulling mill (*cleansing and thickening wool*) in the 1630s (***PRN: 22998***) was then later linked to a corn mill (***PRN: 22997***). Another example is *Felin Dolgau* (Montgomeryshire) (***PRN: 37435***), which was originally a corn mill in 1673 but had a separate fulling mill, Pandy Dolgau later added. The corn mill at the site continued to function until the 19th century when it was then replaced by a woollen factory (Hankinson & Silvester 2012). There remains the possibility that is the case a *Mill House/Marchwiel Mill (**PRN: 41527, 104285**)* where a later fulling mill was perhaps added and then demolished to its current level.

However, at *Mill House/Marchwiel Mill* the evidence for a separate building located to the west of the wheel pit appears to be quite low. The absence of any formal floor deposit(s) within the internal space of these walls does not support the concept that this is a former building. It appears more likely that these elevations were performing the role of retaining walls; the former slope which fell westward towards the brook has apparently been benched into the natural clay sub-strata. The northern wall shored the elevated land to the north whilst the southern wall may have performed the same role on land to the south – providing it was once taller than it appears today. The western wall's function is less apparent although it may be adding stability to the brook side of the wheel pit by retaining an area of land adjacent to the wheel pit; this area across the eastern bank of the *Gefeiliau Brook* is heavily waterlogged in places and perhaps this wall afforded a measure of reassurance to workers who may have operated on this side of the wheel pit – the wall now revetting a now horizontal area where people could work in safety.

The water wheel for the mill was an overshot wheel fed from the south by a former inlet leat – or *mill race* (which may have taken the form of a of timber flue or trough), this was fed from a sluice gate (***PRN: 166747***) located in the north western corner of the mill pond (***PRN: 166744)***. The base of the wheel pit slopes from south to north, with the base of the southern wall (**D.**) was concave, this would function in the similar manner to an 'upside down' weir – forcing backwashed water up instead of down

and consequently aiding the momentum of the wheel. At the northern end of the pit there is a brick-built culvert which was constructed into the northern elevation.

The culvert is located at the lowest point of the wheel pit acting as an outlet for the water. For this culvert to function correctly it must have had a reliable fall (between the pit and the brook) over a shorter distance than the mill race, in order to flow consistently (English Heritage 2018, Firth & Date, 2014).

Subsequently, what is not understood is how was this outlet feed (*tail race*) to the brook constructed. There could have been another large benching event of the ground level north of the culvert mouth which facilitated its construction or it may have been cut into a very deep, narrow trench and constructed in situ. It is also possible that this area had been built up over repeated events of deposition spoil which could have backfilled the outlet culvert after the mill ceased operations - where the outlet leat was previously exposed at the base of a sharper bank.

Considering the results of the archaeological watching brief and the requirements of this project, no recommendations for further archaeological mitigatory works are proposed and it is recommended that the archaeological condition be discharged.

11.0 SOURCES

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APPENDIX I: WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL WATCHING BRIEF