

Archaeological Desk Based Assessment:
On Land North of Bronwylfa Road, Rhostyllen, Wrexham.
February 2024



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By

John Davey and Jennifer Muller



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Innova Renewables Developments Limited

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Non Technical Summary

In December 2022, Archaeology Wales was commissioned by Innova Renewables Developments Limited to carry out an Archaeological Desk-Based Assessment and site visit to determine the archaeological potential of land North of Bronwylfa Road, Rhostyllen, to the west of Wrexham centred on NGR SJ 29470 48398. The assessment has been undertaken in support of a forthcoming planning application in association with the proposed Energy Storage System, substation and a buried 400kV cable at Rhostyllen. The local planning authority is Wrexham County Borough Council.

No Conservation Area, Registered Historic Park and Garden, or Historic Landscape of Outstanding Historic Interest will be directly or indirectly affected by the proposed development.

There are five Scheduled Monuments that lie within 500m of the proposed development area. Offa's Dyke: Section extending 120m from Railway to Bronwylfa Road, Legacy (DE194); Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the Railway (DE132); Offa's Dyke: Pentre-Bychan Hall Section, extending 540m S from Bron-Wylfa (DE137); Moated Site near Groesfoel Farm Rhostyllen (DE193), and the Croes-Foel Round Barrow (DE048). Offa's Dyke may be impacted by groundworks associated with the installation of a cable linking the proposed Energy Storage System with the existing Legacy Electrical substation. Options to route the cable along roads are also being considered if necessary.

The Croes Foel Moated Site (DE193) and the Croes Foel Round Barrow (DE048) will not be directly impacted by the proposed Energy Storage System development. Nevertheless, both are likely to suffer an indirect visual impact. This impact is already partially mitigated by the presence of intervening semi-mature woodland for the Croes Foel Moated Site. Suitable enhanced mitigation might include retaining and enhancing all trees and hedgerows around the chosen site, particularly on the south side. Such measures could ensure that any indirect visual impact on scheduled monuments will be minor. There may also be minor indirect visual impacts on three Scheduled monuments lying further afield: Cadwgan Hall Mound (DE131); Offa's Dyke: Section S of Bryn yr Owen Farm (DE174); and Hafod-y-Bwlch Round Barrow (DE047). Again, enhancement of the green infrastructure along the southern boundary of the site could ensure that any such impact will be minor.

There are three listed buildings within close proximity to the site that may have a moderate indirect visual impact from the proposed development: Timber framed building in yard at Croesfoel Farm (LB16573); Croesfoel Farmhouse (LB16571); Gate Piers at Hafod-y-Bwlch Hall (LB16572). Enhanced green infrastructure on the south side of the chosen site would help to mitigate against this impact.

There is medium potential for non-designated archaeological sub surface deposits surviving along the possible cable routes associated with the earthwork remains of ridge and furrow cultivation (PRN 128267), and the findspot of a lead spindlewhorl near Cadwgan Hall (PRN 97000). The cable trench would have a direct impact on any such deposits. Nevertheless, their heritage significance is low and can be mitigated through suitable archaeological condition attached to any forthcoming planning consent. The impact on the settings of all designated monuments within a 3km radius of the site will be considered in more detail in a forthcoming Stage I Settings Assessment and Heritage Impact Assessment.

Crynodeb Annhechnegol

Ym mis Rhagfyr 2022, comisiynwyd Archaeology Wales gan Innova Renewables Developments Services Cyf i gynnal Asesiad Desg Archeolegol ac ymweliad safle i bennu potensial archeolegol tir yn Rhostyllen, i'r gorllewin o Wrecsam, y mae ei ganolbwynt wedi'i leoli yn NGR SJ 29470 48398. Cynhaliwyd yr asesiad i gefnogi cais cynllunio arfaethedig mewn perthynas â'r, System Storio Ynni, yr is-orsaf a chebl 400kV wedi'i gladdu yn Rhostyllen. Yr awdurdod cynllunio lleol yw Cyngor Bwrdeistref Sirol Wrecsam.

Ni fydd unrhyw Ardaloedd Cadwraeth, Parciau a Gerddi Hanesyddol Cofrestredig, na Thirwedd Hanesyddol o Ddiddordeb Hanesyddol Eithriadol yn cael eu heffeithio'n uniongyrchol nac yn anuniongyrchol gan y datblygiad arfaethedig.

Mae pum Heneb Gofrestredig o fewn 500m o'r ardal ddatblygu arfaethedig. Clawdd Offa: Y rhan sy'n estyn 120m o'r Rheilffordd i Heol Bronwylfa, Legacy (DE194); Clawdd Offa: Rhan Neuadd Cadwgan, yn estyn o Afon Clywedog i'r Rheilffordd (DE132); Clawdd Offa: Rhan Neuadd Pentre-Bychan, yn estyn 540m i'r de o Bron-Wylfa (DE137); Safle â ffos ger Fferm Groesfoel, Rhostyllen (DE193), a Chrug Crwn Croes-Foel (DE048). Mae'n bosibl y bydd Clawdd Offa'n cael ei effeithio gan y gwaith tir sy'n gysylltiedig â gosod cebl sy'n cysylltu'r System Storio Ynni arfaethedig â'r is-orsaf drydan bresennol yn Legacy. Mae'r opsiynau o osod y cebl ar hyd ffyrdd yn cael eu hystyried os oes angen.

Ni fydd Safle â ffos Croes Foel (DE193) a Chrug Crwn Croes Foel (DE048) yn cael eu heffeithio'n uniongyrchol gan y datblygiad arfaethedig. Fodd bynnag, mae'n debygol y bydd y naill a'r llall yn dioddef effaith weledol anuniongyrchol. Mae'r effaith hon wedi'i lliniaru'n rhannol eisoes yn sgil coetir lled-aeddfed yn y canol ar gyfer Safle â ffos Croes Foel. Gallai gwaith lliniaru pellach addas gynnwys cadw a gwella'r coed a'r gwrychoedd o gwmpas y safle System Storio Ynni a ddewisir, yn enwedig ar ochr ddeheuol y safle dewisol. Gallai mesurau o'r fath sicrhau y bydd unrhyw effaith weledol anuniongyrchol ar yr henebion cofrestredig yn fach. Mae'n bosibl y bydd effeithiau gwledol anuniongyrchol bach hefyd ar dair heneb gofrestredig sydd wedi'u lleoli ymhellach i ffwrdd: Twmpath Neuadd Cadwgan (DE131); Clawdd Offa: Rhan i'r de o Fferm Bryn yr Owen (DE174); a Chrug Crwn Hafod-y-Bwlch (DE047). Unwaith eto, gallai'r seilwaith gwyrdd ar hyd ffin ddeheuol y safle sicrhau y byddai unrhyw effaith o'r fath yn fach.

Mae tri adeilad rhestredig yn agos at y safle y gallai'r datblygiad arfaethedig gael effaith weledol anuniongyrchol gymedrol arnynt: adeilad â ffrâm bren yn iard Fferm Croesfoel (LB16573); Ffermdy Croesfoel (LB16571); Colofnau Giât Neuadd Hafod-y-Bwlch (LB16572). Byddai seilwaith gwyrdd uwch ar ochr ddeheuol y safle a ddewiswyd yn helpu i liniaru'r effaith hon.

Mae potensial cymedrol bod gwaddodion archeolegol islaw'r wyneb nad ydynt wedi'u eu dynodi wedi goroesi ar hyd y llwybrau cebl posibl sy'n gysylltiedig â gweddillion y gwaith trin tir cefnen a rhych (PRN 128267), a'r man canfod troellen gwerthid blwm ger Neuadd Cadwgan (PRN 97000). Byddai'r ffos cebl yn cael effaith uniongyrchol ar unrhyw waddodion o'r fath. Fodd bynnag, mae eu harwyddocâd o ran treftadaeth yn isel a gellir ei liniaru drwy amod archeolegol addas sy'n gysylltiedig ag unrhyw ganiatâd cynllunio sydd i ddod. Bydd yr effaith ar leoliadau'r holl henebion dynodedig o fewn cylch o 3km i'r safle yn cael ei hystyried yn fanylach mewn Asesiad Lleoliadau Cyfnod I ac Asesiad o'r Effaith ar Dreftadaeth sydd ar y gweill.

1 Introduction

- 1.1.1 In December 2022, Archaeology Wales (AW) was commissioned by Innova Renewables Developments Limited to carry out an Archaeological Desk-Based Assessment and site visit to determine the archaeological potential of land associated with the proposed energy storage system, substation and a buried 400kV cable, Land North of Bronwylfa Road, Rhostyllen, Wrexham and centred on NGR SJ 30544 48610, Lat Long 53.030237 / -3.0371404 (Figures 1-2).
- 1.1.2 This assessment (AW Project Number 3056) has been prepared in support of an upcoming planning application. The local planning authority is Wrexham County Borough Council (WCBC). The purpose of the Desk-Based Assessment is to provide the local planning authority, Wrexham County Borough Council (WCBC), with the information they are likely to request in respect of the proposed development, the requirements for which are set out in Planning Policy Wales (Edition 11), section 6.1 (2021) and Technical Advice Note (TAN) 24: The Historic Environment (2017). The work is to highlight and assess the impact upon standing and buried remains of potential archaeological interest and to ensure that they are fully investigated and recorded if they are disturbed or revealed as a result of subsequent activities associated with the development.
- 1.1.3 Whilst the current development proposal is in the pre application consultation stage, consultation with Clwyd-Powys Archaeological Trust Archaeological Planning Management (CPAT-APM) dated 13th December 2022 confirmed the requirement for an archaeological DBA to be submitted in support of the application. CPAT-APM also indicated that a geophysical survey is also likely to be required at the pre-determination stage in the energy storage system areas to test for unrecorded sub-surface archaeology of prehistoric and medieval date due to the proximity of the proposals to scheduled monuments. If significant geophysical anomalies are found, they will also need to be investigated by targeted trenching at the pre-determination stage. Separate WSIs to cover these required mitigation stages will be produced and submitted to CPAT-APM for approval in advance of commencement of each stage. Pre-application consultation with Cadw produced the following response (dated 15th December 2022):

We recommend that additional information is required to enable a balanced decision to be taken against Planning Policy Wales, Technical Advice Note 24 Historic Environment and associated guidance. Full details of the additional information that is required are explained in the below assessment.

Assessment:

This advice is given in response to an enquiry in regard to the contents of a historic environment desk-based assessment for a proposed new battery storage facility at Rhostyllen, Wrexham.

The cable connecting the storage facility to the electrical sub-station will need to cross the line of Offa's Dyke, which for most of its course in this area is a scheduled monument. All possible routes for this cable avoiding entering a designated area should be considered before any proposal to cross a scheduled monument is made. If no feasible route avoiding the designated historic assets is possible then scheduled monument consent will be required and this should be applied for before any planning application is submitted.

It has been suggested that an application for this development will require a heritage impact assessment as well as a historic environment desk-based assessment to be submitted with it. However, unless the proposals have a direct impact on any designated historic asset, a heritage impact assessment will not be required.

In regard to the historic environment desk-based assessment, the impact of the proposed development on the setting of the above designated heritage assets (which are located inside 3km of the proposed development should be carried out in accordance with the Welsh Government guidance given in the document "The Setting of Historic Assets in Wales". It is expected that a stage 1 assessment to be carried out for all of the above designated heritage assets, which will determine the need, if necessary, for stages 2 to 4 to be carried out for specific heritage assets.

1.1.4 A separate stage 1 settings assessment has been carried out in order to satisfy that part of the pre-application requirements from Cadw (Davey 2023). This was carried out in accordance with the Welsh Government guidance given in the document 'The Setting of Historic Assets in Wales' and submitted to Cadw in advance of the submission of any planning proposal. The separate stage 1 settings assessment will consider all designated heritage assets within a 3km radius of the site. A separate Heritage Impact Assessment on the impact of the proposed development on three listed buildings to the south of the site has also been carried out at the request of the WCBC Conservation Officer (Stratton 2023).

1.1.5 In addition, CPAT-APM requested the following in their consultation response of 13th December 2022:

The DBA should also take into account any impacts to historic hedgerows under the heritage criteria of the Hedgerow Removal Regulations 1997 and should clearly identify any hedgerows which are considered "important" under those criteria.

I would anticipate that Battery Option 2 will not be acceptable due to its likely significant visual and setting impact on the scheduled moated site and the scheduled burial mound to the east of it. A geophysical survey is also likely to be required at the pre-determination stage ... to test for unrecorded sub-surface archaeology of prehistoric and medieval date due to the proximity of the proposals to the moated site and the prehistoric burial mound. If significant anomalies are found they will need to be investigated by targeted trenching at the pre-determination stage.

1.1.6 The site lies within 200m of the Bersham Conservation Area and five Scheduled Monuments lie within 500m: Offa's Dyke: Section extending 120m from Railway to Bronwylfa Road, Legacy (DE194); Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the

Railway (DE132); Offa's Dyke: Pentre-Bychan Hall Section, extending 540m S from Bron-Wylfa (DE137); Moated Site near Groesfoel Farm, Rhostyllen (DE193); and Croes-Foel Round Barrow (DE048).

- 1.1.7 All work will conform to the Standard and Guidance for Archaeological Desk Based Assessment (ClfA 2020) and be undertaken by suitably qualified staff to the highest professional standards. AW is a Registered Organisation with the ClfA.

2 Site Description

2.1 Description of Proposals

- 2.1.1 The proposed ESS will be based upon the latest energy storage technology. It will import and export large amounts of electricity with no time lag, storing surplus electricity from the grid and then providing a means of additional electricity supply at times of peak demand.
- 2.1.2 The UK has a legally binding target to achieve Net Zero by 2050 and has committed to fully decarbonising the electricity network by 2035. As a result, many low carbon and renewable energy generation is needed across the UK. Renewable energy generation is however intermittent, and Energy Storage Systems are therefore required to provide a balancing service to the National Grid, facilitating the transition to renewable energy sources. These projects are therefore a crucial component of achieving Net Zero.
- 2.1.3 The Energy Storage units will be laid out in rows with intervening access areas. The units will sit on concrete slabs or supporting feet. Internal access tracks will comprise crushed stone and the access road for the abnormal load will be asphalt. The Energy Storage units will use LFP (Lithium Iron Phosphate) technology and measure approximately 2.9m in height. The GIS building in the substation area will measure approximately 14m in height and is therefore the tallest piece of equipment.
- 2.1.4 The associated MV skids are sited alongside the Energy Storage units and connect in groups to 33kV transformer bays distributed evenly throughout the site. The substation compound is proposed to be located on the north-western corner of the site.
- 2.1.5 Remaining areas within the site, outside of the fence line will be landscaped to create and enhance ecological habitat and enhance the visual quality of the area. Hedgerow enhancement and a 10m wide woodland structure will be implemented along the southern and western boundaries of the site to help screen the proposals from the surroundings, as well as bunding along western/southern/eastern boundaries. An attenuation basin is included on the eastern part of the site for sustainable drainage.
- 2.1.6 Access for construction and operation will be from the existing B5097 access and the new access established from the unnamed lane on the sites western boundary. A temporary construction compound is proposed in the field to the north of the new access road.

2.1.7 In summary, the proposed ESS development comprises:

- 400kV Substation with Gas Insulated Switchgear (GIS) building & Transformers;
- Energy storage containers;
- 33kV transformer bays;
- Medium Voltage (MV) Skid – Inverters & Transformers;
- Control buildings;
- Access from the adopted highway;
- Internal access road and crushed stone tracks;
- Drainage infrastructure, landscape, and ecological planting; and
- Security fencing and CCTV.

2.1.8 In order to transmit power to and from the site it will be necessary to construct a subsurface cable linking the site to the neighbouring Legacy Substation to the west. The route of this cable is yet to be determined, although it may be necessary for it to pass through the line of Offa's Dyke Scheduled Monument (Figure 2). Schedule Monument Consent will be obtained prior to any works within the scheduled area.

2.2 Site Description

2.2.1 The main development site (Field 1) is broadly triangular in shape, comprising a single agricultural field parcel and extends to approximately 5.5 ha in area. The site's boundaries feature a broad tree belt to the north and east, with hedgerows to the south and west. A former railway line runs along the northern boundary (set at a higher level and bounded by the mature vegetation) whilst the A483 lies to the east which is also elevated and bounded by mature established vegetation. The B5097 / Bronwylfa Road forms the southern boundary and Cadwgan Lane, a single-track road, forms the western boundary.

2.2.2 An existing vehicular access is located at the main development site's southern boundary from the B5097.

2.2.3 The land to the west of Cadwgan Lane comprises an L-shaped agricultural field and extends to approximately 3.4ha (Field 2). It is bounded a tree belt to the north, Bersham Cricket Club to the southwest, and the B5097 / Bronwylfa Road to the south. An access track for abnormal loads extending to approximately 0.2ha is proposed on the southern part of this field.

2.2.4 Agricultural land and uses form the site's predominant surroundings to the north, south and west with pockets of residential properties dispersed throughout. To the east of the site

(approx. 500m), on the opposite side of the A483, is the village of Rhostyllen. The Legacy National Grid Substation, which the proposals will connect to, is located approximately 750m west of the site.

- 2.2.5 Wrexham City Centre is located approximately 3km north-east (Figure 1).
- 2.2.6 The underlying bedrock geology of the proposed energy storage system site is classified as Pennine Lower Coal Measures Formation, which comprises of Mudstone, siltstone and sandstone, and Pennine Middle Coal Measures Formation which comprises of Sedimentary bedrock formed between 319 and 309.5 million years ago during the Carboniferous period (BGS, Geology Viewer – accessed 11/10/2023).
- 2.2.7 The bedrock is overlain by superficial deposits which, over the majority of the site, comprises Devensian Till – Diamicton, a sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period. However, the site is subdivided by a 400m wide band of Devensian Glaciofluvial Deposits - sand and gravel, formed between 116 and 11.8 thousand years ago during the Quaternary period. This band runs approximately northwest to southeast along the line of Cadwgan Lane (BGS 2022).

3 Methodology

- 3.1.1 The primary objective of this desk-based assessment is to assess the impact of the development proposals on the historic environment. This will help inform future decision making, design solutions and potential mitigation strategies. The aim is to make full and effective use of existing information in establishing the archaeological significance of the site, to elucidate the presence or absence of archaeological material, its character, distribution, extent, condition and relative significance.
- 3.1.2 The work includes a comprehensive assessment of regional context within which the archaeological evidence rests and aims to highlight any relevant research issues within national and regional research frameworks.
- 3.1.3 This report provides information of sufficient detail to allow informed planning decisions to be made which can safeguard the archaeological resource. Preservation in situ has been advocated where at all possible, but where engineering or other factors could result in the loss of archaeological deposits, preservation by record has been recommended.
- 3.1.4 This assessment considers the following:
 - a) The nature, extent and degree of survival of archaeological sites, structures, deposits and landscapes within the study area through assessment of various readily available primary sources as listed below.

- Collation and assessment of all relevant information held by CPAT-HER within a 500m radius of the development site.
- Collation and assessment of all Designated archaeological sites within a 3km radius of the development site.
- Assessment of all available excavation reports and archives including unpublished and unprocessed material affecting the site and its setting.
- Assessment of aerial photographic (AP) and satellite imagery evidence.
- Assessment of archive records held at the County Archive, the National Library of Wales (NLW) and the Royal Commission on Ancient and Historical Monuments in Wales (RCAHMS);
- Records held by the developer e.g., bore-hole logs, geological/geomorphological information, aerial photographs, maps, plans, ztv data.
- Map regression analysis using all relevant cartographic sources e.g., all editions of the Ordnance Survey County Series, Tithe and early estate maps (as available);
- Place-name evidence.
- Historic documents (e.g., charters, registers, estate papers).

Section 10 below provides a representative list of documentary sources available in regional and national archives. The most relevant archive materials to this report, such as antiquarian maps, have been sourced and viewed online and the information contained within them, incorporated into this assessment. Other archival materials, not available online, do not relate directly to the proposed development site itself, but more generally to Abergavenny and their relevance to the current report is generally limited.

b) The significance of any remains in their context both regionally and nationally and in light of the findings of the desk-based study.

c) The history of the site.

d) The potential visual impact of any proposed development on the setting of known sites of archaeological importance.

e) The potential for further archaeological remains to be present, which have not been identified in pre-existing archaeological records.

f) The potential for further work, with recommendations where appropriate for a suitable investigative and/or mitigation methodology.

3.1.5 In assessing the value of archaeological assets, and the potential impacts upon them by the proposed development, the terms and guidance used in the Design Manual for Roads and Bridges, Volume 11, Section 3 (Highways England 2007) has been utilised. Values are given as:

- Very High (World Heritage Sites and other sites of international importance);

- High (Scheduled Monuments, undesignated assets of schedulable quality, assets of National importance that can contribute significantly to acknowledged national research objectives);
- Medium (Designated or undesignated assets of regional importance that contribute to regional research objectives);
- Low (assets of local importance, assets compromised by poor preservation or poor survival of contextual associations);
- Negligible (assets with little or no surviving archaeological interest);
- Unknown (the importance of the resource has not been ascertained)

3.1.6 The magnitude of the potential impact on the archaeological assets, which can be either positive or negative, is given as:

- Major (change to most or all key archaeological materials, such that the resource is totally altered; comprehensive changes to setting);
- Moderate (changes to many key archaeological materials, such that the resource is clearly modified; considerable changes to setting that affect the character of the asset);
- Minor (changes to key archaeological materials, such that the asset is slightly altered; slight changes to setting);
- Negligible (very minor changes to archaeological materials or setting);
- No Change

3.1.7 This work conforms to the Standard and Guidance for Archaeological Desk-Based Assessment, as produced by the Chartered Institute for Archaeologists (CIfA 2020).

4 Archaeological and Historical Background

4.1 Previous Archaeological Studies (Figure 3; Appendix I)

4.1.1 There are 75 archaeological investigations recorded on the regional Historic Environment Record within a search area of 500m around the proposed development site. The majority of these represent regional and landscape studies or assessments. Those of most relevance to the development site are described below.

4.1.2 In December 2001, a watching brief was undertaken by Clwyd Powys Archaeological Trust (PRN106595) during the replacement of an existing water main that affected a section of Offa's Dyke (Offa's Dyke - Esclusham DE132, DE137, DE194). Three trenches were dug, all on the west side of the dyke within the footprint of its ditch. Two of the trenches, which revealed undisturbed layers, contained evidence of ditch silts, but no artefacts were found. (Owen 2002).

4.1.3 In 2017, Cadw granted Scheduled Monument Consent to Dave Smith, Rights of Way Department, Wrexham County Borough Council, for two minor improvements to the existing public right of way on the line of listed sections of Offa's Dyke (DE132: Offa's Dyke: Cadwgan

Hall Section, extending from River Clywedog to the Railway DE137: Offa's Dyke: Pentre-Bychan Hall Section, extending 540m S from BronWylfa), and a programme of dense scrub clearance on the line of the path running through the ditch of Offa's Dyke: Pentre-Bychan Hall Section, extending 540m south from Bron-Wylfa DE137 (PRN125014). No archaeological work was required (Cadw 2017).

- 4.1.4 Within the 500m search area, two studies were carried out in relation to Cadwgan Hall. In 1998, an archaeological watching brief was carried out by CPAT during the building of an extension to the Hall (PRN72180). No archaeological deposits were encountered (CPAT 1998).
- 4.1.5 In 2016, a heritage impact assessment was conducted by CPAT in response to a proposed development comprising the erection of a new implement store at Cadwgan Hall (PRN140135). The development plot was adjacent to the scheduled area of Cadwgan Hall Mound (DE131), though on top of the site of a previous building thought to have been constructed in the early 19th century, which had since been demolished. The report concluded that there would be no significant impact upon the monument or on Offa's Dyke (DE132), immediately west of the site, as any remains of the mound were likely to have been removed when the previous building was constructed. A number of additional undesignated heritage assets were identified within 500m of the proposed development, but it is not thought that any of these would be adversely affected (Hankinson 2016).
- 4.1.6 Further to the east within the 500m study area, a photographic survey was undertaken in 2010 ahead of development at Rhostyllen, Plas Grono Road, Bersham Bank Colliery Tip (PRN129367) (Evans 2014).
- 4.1.7 During 1992, CPAT conducted an archaeological assessment of the potential impact of the Wrexham Water Company Conjunctive Use Scheme (PRN 38543; 105077). The proposed pipeline route passed through both Offa's Dyke and Wat's Dyke. It also passed close to the Llyntro Moated site (DE193; PRN101237) and an archaeological watching brief was recommended during groundworks in that area (Owen 1992).
- 4.1.8 There is a significant amount of borehole data available from the British Geological Survey. However, the majority are confidential records and not readily available to view on the BGS website; others are for coal deposit surveys and do not start logging cores until 3.5m or more below the ground level.

4.2 The Historic Landscape (Figures 4-6)

- 4.2.1 The proposed development site does not lie within any Registered Historic Landscape. The nearest Registered Landscape of Special Historic Interest: Vale of Llangollen and Eglwyseg (HLW(C) 6), lies almost 6km to the southwest of the site (Figure 4). Approximately 7.5km to the southeast lies another Registered Landscape of Special Historic Interest: Maelor Saesneg (HLW(C) 7). The proposed development site will not directly or indirectly impact upon either of these landscapes.

- 4.2.2 The site lies within the Landmap historic landscape area of Talwyrn (ID: WRXHMHL021). Landmap areas are not designated landscapes but contain objective and subjective information designed to enable landscape quality to be considered in decision making (Figure 4). The Talwyrn area comprises a rural environment of irregular fieldscapes and dispersed farms of medieval and later origin. It also includes former industries and associated workings including collieries, limekilns, brickworks, water-powered corn mills, and stone quarries and associated infrastructure, some of which remain within wooded areas. Significant sites of archaeological interest include early prehistoric funerary monuments, a medieval moated site, medieval motte, and the early medieval Offa's Dyke (NRW 2017).
- 4.2.3 The proposed development site does not lie within any Conservation Areas (Figure 5), but the Bersham Conservation Area (WAL/WREX/) is located 200m north of the eastern end of the proposed development site. Any indirect visual impact on this Area is expected to be minimal due to the screening by the intervening embankment of the former Rhos Railway Branch running along the northern boundary of the development site.
- 4.2.4 The site does not lie within any registered Historic Parks and Gardens (Figure 6). One registered Park lies within the 3km search area. Approximately 1.6km to the east is Erddig Historic Park and Garden, which is Grade I registered (PGW(C)62(WRE). Erddig is registered for being an outstanding example of an early 18th century grand formal garden in the Dutch style set within an 18th century park, designed by the landscape designer William Emes for Philip Yorke. The park includes an unusual water feature: the cup and saucer, which was designed by Emes in 1774. The park also has cumulative value with the listed house (LB1533) and the eighteen further listed estate buildings, parkland features and garden structures on the Erddig estate. It has a designated significant view west from the main house towards the proposed development site. However, this view does not extend to the site due to intervening topography, urban development, modern landforms and industrial estates.

4.3 Scheduled Monuments (Figure 7)

- 4.3.1 Scheduled Monuments are sites considered to be of national importance and have statutory protection under the Ancient Monuments and Archaeological Areas Act 1979.
- 4.3.2 No Scheduled Monuments lie within the proposed energy storage system site itself, although There are five Scheduled Monuments that lie within 500m of the boundary of the proposed development area. Offa's Dyke, an 8th century AD defensive bank and ditch believed to be a boundary marker for the border between the early historic kingdoms of Wales and the kingdom of Mercia, runs north-south through the site. It consists of the remains of a bank with a ditch on its west side. Three separate sections here are Scheduled: Section extending 120m from Railway to Bronwylfa Road, Legacy (DE194; PRN106761); Offa's Dyke: Pentre-Bychan Hall Section, extending 540m S from Bron-Wylfa (DE137; PRN104800); and Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the Railway (DE132; PRN106761). Approximately 200m the south-east of the site is the Moated Site near Groesfoel Farm Rhostyllen (DE193; also known as 'Llyntro moated site' PRN101237), which

is a well preserved medieval moated homestead. The Bronze Age Croes-Foel Round Barrow (DE048; PRN101236), lies approximately 450m south southeast of the site. It is an earthen barrow 23m in diameter and between 0.8 and 1.1m high, but at risk from modern ploughing.

- 4.3.3 There are a further twenty-one Scheduled Monuments within the wider, 3km search area.
- 4.3.4 Just outside the northern boundary of the proposed development, immediately east of Offa's Dyke, is Cadwgan Hall Mound (DE131; PRN101151), a medieval (c.1066-1540 AD) motte and ditch that is about 42m in diameter and 2.5m high. The remains of an air-raid shelter are cut into its north-west slope.
- 4.3.5 About 850m southeast of the development area, is another Bronze Age round barrow, Hafod-y-Bwlch Round Barrow (DE047; PRN101238). It lies approximately 400m southeast of the Croes-Foel Round Barrow (DE048; PRN101236). About 530m north of the site is the Bersham Ironworks (DE189; PRN101243). Bersham Ironworks was founded in c. 1718 and almost immediately became the first Welsh works to improve production by using coke rather than charcoal as fuel. The ironworks closed in 1812 and is now owned and managed by Wrexham County Borough as part of the Bersham Heritage Centre.
- 4.3.6 Within the 3km search area, there are several more sections of Offa's Dyke that are Scheduled to the north: Offa's Dyke: Vron Farm Section (DE113; also called Offa's Dyke: Brymbo, PRN106748, PRN106747); Offa's Dyke: Section South of Bryn yr Owen Farm (DE174; PRN106764); Offa's Dyke Section South of River Gwenfro (DE183; also called Offa's Dyke: Bersham, PRN106749, and Offa's Dyke: Coed Poeth DE183, PRN106750); Offa's Dyke: North Section at Coedpoeth (DE182; also called Offa's Dyke: Coed Poeth, PRN106752); Offa's Dyke: South Section at Coedpoeth (DE181; also called Offa's Dyke: Coed Poeth DE181, PRN106754); Offa's Dyke: Section in Plas Power Park (DE180; also called Offa's Dyke: Coed Poeth DE180, PRN106757, and PRN106756); and Offa's Dyke: Plas Power Section (DE139; PRN106758 and PRN106759). To the south, there is Offa's Dyke: Sections North and South of Bryn yr Owen Colliery (DE179; PRN106766) and Offa's Dyke: Section South of Aberderfyn Road (DE179; NPRN303547).
- 4.3.7 Approximately 1.7km to the east of the proposed site boundary is Wat's Dyke, running north-south and roughly parallel with Offa's Dyke to the west. Wat's Dyke is also dated to the 8th century AD and is thought to be another boundary marker associated with the kingdom of Mercia. The two different dykes are believed to be different attempts at formalising the boundary between the early historic kingdoms of Wales and Mercia. Like Offa's Dyke, Wat's Dyke is an earthen bank with a ditch to the west. The sections within the 3km search area include: Wat's Dyke: Section South-Southwest of Wrexham Station, 130m Long (DE191; also called Wrexham DE191, PRN 106675); Wat's Dyke: Section South of Ruthin Road (DE165; PRN106678); Wat's Dyke: Sections North and South of the Court (DE173; PRN106679, CPAT106679; PRN106681; PRN 106682); Wat's Dyke: Section extending from Erddig Park to Middle Sontley (DE152; also called Wat's Dyke: Marchwiell DE152, PRN106685; also called Erddig DE152, PRN106687; also called Ruabon DE152, PRN106688); Wat's Dyke: Section

extending from Middle Sontley to Black Brook Bridge (DE153; PRN106690); Wat's Dyke: Section extending from Black Brook Bridge to Pentre-Clawdd (DE154; Also called Ruabon, PRN106691; PRN106692; PRN106693). Located on the line of Wat's Dyke is Erddig Mound and Bailey Castle (DE017, PRN101235, thought to be constructed by Hugh Avranches in the late 11th century AD.

- 4.3.8 Lying around the periphery just inside the 3km search area are three round barrows, all thought to date from the Bronze Age. Approximately 2.9km north-northeast of the proposed site is Gatewen Hall round barrow (DE290; PRN102940). The monument measures approximately 21m in diameter and up to 1.5m in height. Fairy Oak Round Barrow (DE163; PRN101239) is located just under 2.5km to the north-east of the site. Hillbury Round Barrow (DE164; PRN101240), 2.6km east-northeast of the proposed site, is 1.2m high. It was partially excavated in 1862 and, contained both primary and secondary human burials which were left in place. Approximately half the barrow survives 19th and 20th century landscaping and building, with a modern building occupying the southwest side with an entrance ramp built across the barrow.
- 4.3.9 Clustered together between 2.1km and 2.8km to the northwest of the proposed site are three Scheduled Monuments related to historic mining: Nant Mill Wood Shaft Mounds (DE237; PRN19283) consists of a shaft mound, a circular spoil heap surrounding a central depression, which was the entrance to the mine shaft. It dates from the 18th or 19th century. The monument is part of a group of well preserved relict shaft mound features from early coal mining. The New Minera Lead Mine (DE241; PRN106071) and Meadow Shaft, Minera (DE244; PRN104275) are part of a group of monuments related to a 19th century lead mine, including its water management and transport systems, extraction and dressing processes with their power systems. The remains of the mine are extensive and many are well preserved.
- 4.3.10 The proposed energy storage system site is expected to have a direct (visual impact) on the setting of the two closest Scheduled Monuments to the south: the Moated Site near Groesfoel Farm Rhostyllen (DE193) and the Croes Foel Round Barrow (DE048).

4.4 Listed Buildings (Figures 8-9)

- 4.4.1 No listed buildings lie within the boundary of the proposed development area.
- 4.4.2 There are 147 listed buildings within a 3km radius of the proposed site. Of these, one is Grade I listed, 15 are Grade II* listed, and the remaining 131 are Grade II listed. A total of 8 of the listed buildings lie within a 500m radius of the proposed development site, all Grade II. Most within the 500m radius are associated domestic buildings. The closest to the site include two buildings on Croesfoel Farm: Timber framed building in yard at Croesfoel Farm (LB16573) and Croesfoel Farmhouse (LB16571), both listed as part of a group, and for the special historical interest of the site's association with the Davies brothers, who were gatesmiths in

the late 17th – early 18th century. Just outside of the 500m radius, southwest of the southernmost area of the development site is Pentrebychan Hall Dovecote (LB1715), which was built in 1721 as part of the estate for Pentrebychan Hall and demolished in 1962. It remains a fine example of an 18th century dovecote.

- 4.4.3 A group of six Grade II listed buildings are located approximately 500m northeast of the eastern end of the proposed site, mostly adjacent to the River Clywedog in Bersham Conservation Area. None of these listed buildings will be impacted visually by the proposed development. Three cottages (4-6 Mill Terrace; LB16547, LB16550, LB16549) were built in 1859 to the designs of John Gibson, architect to the Plas Power Estate. The cottages are of particular interest for their association with the Plas Power Estate. Just south of the cottages is The White House (LB16561), which has been listed for its historical associations with Bersham ironworks (DE189; PRN101243), and as a substantial, 18th century house with alterations in c.1890 that are also of definite character. Just northeast of The White House is the East Weir on River Clywedog (LB16552). It was constructed in c.1779 by John Wilkinson, as part of the water-power system serving the Eastern Ironworks, which were probably newly established as part of the rapid expansion of Wilkinson's works from the 1770's.
- 4.4.4 Just outside the 500m radius to the southeast of Croesfoel Farm are the listed Gate Piers at Hafod-y-Bwch Hall (LB16572), which are of special interest for their association with Hafod-y-Bwch Hall. Hafod-y-Bwch Hall (LB1587) is a Grade II* listed building for its exceptionally fine example of an early house; retaining evidence of its origins as an open-hall house of considerable quality, and with 17th century alterations, which are also of exceptional interest. The Timber framed Barn in Yard at Hafod-y-Bwch Hall (LB16569) is listed as a well preserved example of a timber framed barn retaining a high degree of structural integrity. ZTV analysis undertaken for the forthcoming settings assessment indicates that Croesfel Farm, Pentrebychan Hall Dovecote and Hafod-y-Bwch may be impacted (visually) by the proposed development.
- 4.4.5 Two buildings south west of the site include an exceptionally well preserved early hall house: Esclusham Hall (LB1534), which is a Grade II* listed, timber framed hall house probably dating from the 15th or early 16th century. It exhibits much of its original detail, and a clear pattern of alteration in the late 17th century. Next to it is Barn Range at Esclusham Hall (LB16574); a later build which is an exceptionally well preserved early 19th century barn that has been little altered since. ZTV analysis indicates that these buildings will not be impacted visually by the proposed development.
- 4.4.6 Two of the Bersham Grade II listed buildings lie to the east of the A483: Bridge Cottages (LB16560) and Squires Cottage (LB1560). Bridge Cottages dates to the early 17th century. It comprised five cottages in 1826, probably originally associated with the ironworks, but then serving as estate cottages for Plas Power. It is listed as a good example of a timber framed vernacular building, which is of additional historical interest for its associations with the ironworks at Bersham and the Plas Power Estate. Squires Cottage dates to the late 16th or

early 17th century, and is listed for its remarkable survival as a small hall house, retaining its early layout with considerable early internal detail.

- 4.4.7 There is one Grade I listed building within the 3km search area. Situated 1.7km to the east of the proposed site is Erddig (LB1533), a house originally built in 1683 for Joshua Edisbury by Thomas Webb, freemason of Middlewich, Cheshire. It has been listed for its phases of early and late 18th century expansion, including its well preserved interior schemes. The listing also relates to an unusually well preserved early 18th century formal garden and a late 18th century landscaped park. In total, there are nineteen listed buildings on the estate. Besides the house, three are Grade II* listed and 15 are Grade II listed buildings. ZTV analysis indicates that both Options 1 and 2 for the proposed energy storage system area will have a minor impact (visually) on the estate, primarily from the west side.
- 4.4.8 ZTV analysis indicates that a small number of Grade II listed buildings between 3km and 500m distance from the site may experience a low visual impact due to the proposed development. Most of these are to the west and northwest of the site. Directly west of the proposed development site by 970m is Tan-y-Llan (LB1585), a possibly late 17th – early 18th century house, which has been listed as an excellent and well preserved example of a small vernacular cottage, and of cruck construction. Just over 2km northwest of the site is the Church of St Andrew (LB19725) and Wren Farm (LB19728). Slightly further to the northwest (2.7km) are buildings associated with the Minera lead mines: Jones Cottages (LB19721), a pair of 19th century workers cottages, and Gwylfa (LB19720), a well preserved example of a later 19th century house.

4.5 Known Archaeological Remains and Historical Development (Figure 10; Appendix II)

- 4.5.1 Archaeology Wales commissioned a search of records held on the Clwyd-Powys Archaeological Trust Historic Environment Record (HER) within the 500m search area of the site under enquiry reference number 6796. The search was completed on 19th December 2022.
- 4.5.2 There are 49 archaeological sites listed on the Historic Environment Record (HER) within 500m of the proposed development site. The most significant of these sites are the four Scheduled Monuments referred to above. These include Offa's Dyke: Section extending 120m from Railway to Bronwylfa Road, Legacy (DE194; PRN106761); Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the Railway (DE132; PRN106761); Moated Site near Groesfoel Farm Rhostyllen (DE193; also known as 'Llyntro moated site' PRN101237); and Croes-Foel Round Barrow (DE048; PRN101236).
- 4.5.3 The closest records of non-designated sites are mostly associated with the early medieval Offa's Dyke, as well as post-medieval houses and farm buildings.
- 4.5.4 There are no records of findspots recorded on the Portable Antiquities Scheme (PAS) database (www.finds.org.uk) within 1km of postcode LL14 4LH.
- 4.5.5 The recorded archaeological sites are briefly described below, according to period, where

they are incorporated into a summary of the historical development of the area.

Prehistoric: Palaeolithic (c.450,000 – 10,000 BC), Mesolithic (c.10,000 – 4400 BC), Neolithic (4400 BC – 2300 BC), Bronze Age (2300 BC – 700 BC) and Iron Age (700 BC – AD 43)

4.5.6 There is little evidence of prehistoric activity within the proposed development site. Two late prehistoric sites are recorded within the site boundary, and another within the 500m search area.

4.5.7 The earliest datable evidence for prehistoric activity in the study area dates from the Bronze Age, represented by two monuments to the southeast of the site. The first is the Scheduled monument Croes Foel Round Barrow (DE048; PRN 101236) which is a well preserved earthen burial mound or barrow 23m in diameter and between 0.8 and 1.1m high. The Cadw Scheduled Monument description states that:

The monument is of national importance for its potential to enhance our knowledge of prehistoric burial and ritual practices. The features are an important relic of a prehistoric funerary and ritual landscape and retain significant archaeological potential. There is a strong probability of the presence of both intact ritual and burial deposits, together with environmental and structural evidence. Barrows may be part of a larger cluster of monuments and their importance can further enhanced by their group value.

4.5.8 Potentially associated with the Croes Foel Round Barrow is the Croes Foel Ring Ditch (PRN 101824) located approximately 80m to the east. This monument comprises a light roughly circular area visible on aerial photos held by CPAT-HER and may represent the ploughed out remains of a second round barrow. A third site (PRN 105077) nearby has been dismissed as a duplicate entry for the Croes Foel Ring Ditch (Owen 1992). Nevertheless, the conjunction of two possible barrow sites suggests the possibility that there may have been a barrow cemetery in this location. The two sites are located topographically above the Glanyrafon brook with a south-easterly aspect. Furthermore, a third barrow: Hafod-y-Bwlch Round Barrow (DE047; PRN 101238) is located approximately 450m to the south on a low hill overlooking the Glanyrafon brook to the south. The two Croes Foel monuments lie within an area earmarked for potential use as access for plant and machinery associated with the construction phase of the proposed development. There would be a potential indirect visual impact on these sites and their setting from the development (Davey 2023).

4.5.9 Three further round barrows are recorded approximately 3km to the north and east of the site. Approximately 2.9km to north-northeast is Gatewen Hall Round barrow (DE290; PRN102940). Fairy Oak Round Barrow (DE163; PRN101239) is located just under 2.5km to the northeast of the site; and Hillbury Round Barrow (DE164; PRN101240), 2.6km to the east. ZTV analysis undertaken for the forthcoming settings assessment indicates that none of these monuments are visible from the site and will not be impacted by the proposed development (Davey 2023).

4.5.10 No further prehistoric sites are recorded within the 3km search radius.

- 4.5.11 There is a high potential for surviving subsurface archaeological deposits associated with the Croes Foel Round Barrow and Ring Ditch to the south of the proposed development site and the significance of these potential deposits is assessed to be High. The potential for archaeological remains, dating from the Prehistoric period in the remainder of the site is low.

Roman (AD 43 – c. AD 410)

- 4.5.12 There are no archaeological sites dating from the Romano-British period recorded within the proposed development site. However, there are two Romano-British sites recorded within the 500m search area, although they both relate to the same find spot and may represent a duplicate entry. Their location is only accurate to the nearest 1000m, so it is difficult to assess their significance in relation to the proposed development. The first is the find spot of two Roman coins, probably found at Bersham c. 1955. Both are denarii: one of Antoninus Pius AD138-161; the other of Faustina I his wife (PRN 102980). The second relates to the find spot of a Cu alloy coin from Bersham recorded by the National Museum and Galleries of Wales catalogue and located within the same 1km grid square (PRN 44826).
- 4.5.13 Given the low density and uncertainty of location of finds dating from the Romano-British period within the proposed development site, the potential for archaeological remains, dating from the Romano-British period is low.

Early Medieval (c. AD 410 – AD 1086)

- 4.5.14 There are 10 early medieval archaeological sites recorded on the CPAT-HER within a 500m search radius of the proposed development site, 9 of which relate to records pertaining to different sections of the Offa's Dyke linear earthwork. Four of these sections lie within the bounds of that part of the proposed development site that may be impacted by the proposed cable route (PRN 28233-5; 106761). Furthermore, there are 18 Scheduled Monuments recorded within 3km of the site dating from the early medieval period; 11 of which relate to different sections of Offa's Dyke and six which relate to different sections of Wat's Dyke. Two of the scheduled sections of Offa's Dyke (DE132 and DE194) lie within that part of the proposed development site that may be impacted by the cable route. The Cadw Scheduled Monument description for individual sections of Offa's Dyke states that:

The monument consists of the remains of a length of Offa's Dyke, a presumed 8th century AD defensive bank and ditch. It consists of a stretch of bank, with a ditch on the western side. A counterscarp (raised bank) may be visible on the west side of the ditch in places.

The monument is of national importance for its potential to enhance our knowledge of early medieval defensive organisation and settlement. It retains significant archaeological potential, with a strong probability of the presence of associated archaeological features and deposits. A dyke may be part of a larger cluster of monuments and their importance can be further enhanced by their group value.

- 4.5.15 With specific reference to the section of the dyke that passes across the potential line of the proposed cable route: an archaeological watching brief was conducted by Clwyd Powys

Archaeological Trust in 2001 during excavations associated with the replacement of a water main by Dee Valley Water plc (PRN106595). The excavation of four trenches was observed on the west side of the dyke, adjacent to the railway embankment. Three of the trenches revealed deposits that could be interpreted as ditch fill. The report described this section of the dyke as an *“imposing stretch of bank and ditch destroyed and damaged in places but generally in good condition. Height of bank varies but averages 2.2m”* (Owen 2002).

- 4.5.16 There is one further early medieval site recorded on the CPAT-HER within the 500m search radius. To the north of the proposed development area, and adjacent to Offa's Dyke, is Plas Cadwgan Mound (PRN101151) which comprises a large earthen mound measuring 5.5m high and 50m in diameter. It is located 8m to the east of Offa's Dyke and to the northwest of Cadwgan Hall. Its function remains uncertain, although Current thinking tends towards a preference for this being a Norman motte. However, there is no trace of an associated bailey, which due to the topography of the site would most likely be located under the modern Cadwgan Hall and Farm. It is significant that Cadwgan Hall is known to have been the site of a medieval dwelling. It's location, on the Welsh Marches, close to the defensible linear earthwork of Offa's Dyke, also lends support to this interpretation.
- 4.5.17 A little further afield, another early medieval site recorded on the HER is the find spot of coins at Pentre Bychan (PRN101153), approximately 600m southwest of the site. On levelling part of Offa's Dyke in 1824 several Saxon coins were found. No information concerning the coins has come to light since (Lewis 1849). Their number and location might indicate the deposition of a small hoard of coins at a time of stress.
- 4.5.18 Further afield, six scheduled sections of a second early medieval linear earthwork, Wat's Dyke, lie within the 3km search radius, approximately 1.7km east of the proposed development site (DE191/PRN106675; DE165/PRN106678; DE173/PRN106679; DE152/PRN106685; DE153/PRN106690; DE154/PRN106691). Offa's Dyke and Wat's Dyke both run approximately north-south, parallel to each other, and set between 2 – 3km apart. They are considered to represent separate episodes of formalisation of the boundary between the early medieval kingdoms of Wales and Mercia. Like Offa's Dyke, Wat's Dyke comprises an earthen bank with a counterscarp ditch to the west.
- 4.5.19 ZTV analysis undertaken for the forthcoming settings assessment indicates that there is no intervisibility between the site and Wat's Dyke to the east, but that there may be a minor impact of the setting of two scheduled sections of Offa's Dyke (DE174 and DE179). Development proposals have not yet been finalised and the exact route of the proposed cable has not been determined. However, if it should pass through a scheduled section of Offa's Dyke then mitigation will be required. If cut and cover techniques are to be employed, then scheduled monument consent will also be required. If boring techniques are to be used, then the reception and exit pits will need to be located outside of the area of the scheduled monument and their excavation will require suitable archaeological mitigation. The potential for intact sub surface archaeological remains, in the vicinity of Offa's Dyke, dating from the

early medieval period is considered to be High. The archaeological significance of any such remains would also be High.

Medieval (1086 – 1536)

- 4.5.20 There are seven medieval archaeological sites recorded on the CPAT-HER within the 500m search radius of the proposed development site. These include two possible sites of medieval crosses from placename evidence (PRN101513 and 102645), the findspot of a lead spindlewhorl (PRN 97000) and earthwork remains of ridge and furrow cultivation (PRN 128267). Of the two instances of croes field names: Caer Groes (PRN101513) lies to the southwest of the site to the south of the existing electricity substation near to the village of Esclusham and at a road junction. The Croes Foel placename (PRN102645) occurs south of the site, close to the Croes Foel Round Barrow. Again, this location is adjacent to a road junction and Croes place names are likely to relate to crossroads rather than the former sites of medieval crosses. As such, the proposed development would not impact on their archaeological potential. The earthwork remains of ridge and furrow cultivation (PRN 128267) comprises an area of medieval cultivation remains captured by LiDAR (Hankinson 2016). The earthworks cover an area of approximately 0.7 hectares, located 170m east of Offa's Dyke in a part of the proposed development site where ecological mitigation enhancement is proposed (Figure 3). Any groundworks associated with this mitigation would have a direct impact upon these remains, although their archaeological value is low. The findspot of the Cadwgan Hall Lead Spindlewhorl (PRN 97000) may also lie close to the potential northern cable route.
- 4.5.21 Two further medieval records represent the sites, or possible sites of medieval buildings to the northwest of the proposed development. Cadwgan Hall (PRN101152) is the site of a fine 14th century interior hall, timber framed with rendered stone walls, that was demolished in 1967. The site has largely been destroyed and superseded by the modern farmhouse and yard with buildings. What remains consists of a sandstone wall, measuring 16m long and 3.5m high, into which are set two fireplaces. The northern end is incorporated into the side of a modern garage. The northern fireplace is within the garage. Once an aisle-truss house. The central hall cruck, aisle-truss and gallery were removed and re-erected at Avoncroft Museum of Buildings, Bromsgrove, Worcestershire (Smith 2001). The final site is the find spot of a 12th century metal seal, found in about 1882 in the garden of a cottage at Little Fawnog approximately 300m northeast of the site.
- 4.5.22 Furthermore, there is one medieval scheduled monument located within 500m of the proposed development site: Moated Site near Groesfoel Farm, Rhostyllen (DE193). There are a further two Scheduled Monuments recorded within 3km of the site dating from the medieval period: Erddig Mound and Bailey Castle (DE017); and Cadwgan Hall Mound (DE131). The Moated Site near Groesfoel Farm, Rhostyllen (DE193) lies approximately 200m southwest the closest part of the energy storage system site, separated by the B5097 Bronwylfa Road.

4.5.23 ZTV analysis undertaken for the forthcoming settings assessment (Davey 2023) indicates that there is no intervisibility between the site and any of the medieval scheduled monuments other than the moated site near Groesfoel Farm, Rhostyllen (DE193). This site lies within 200m of the southwest corner of the main energy storage system site. The archaeological significance of this monument is High. Proposed ecological mitigation and enhancement on the site of the Cadwgan Ridge and Furrow would have a direct impact upon it, although the archaeological value of this monument is low.

Post-medieval (1536 – 1899) and Modern (1900 – present day)

4.5.24 There are five sites listed on the HER, dating from the post-medieval period, that are recorded within, or partially within, the proposed development site. Four of these are in the southwest corner of the site, on the south side of the current electrical substation close to the historic settlement of Esclusham. Two of this group relate to former coal mine shafts recorded on 19th century historic maps (PRN 169953 and 104370). These two sites lie close to the southern option for the proposed cable trench and may be impacted by excavations associated with it. However, the heritage value of these former mine shafts is low. The other two sites relate to a mill race (PRN 169951) and pond (PRN 169952), running along the southern border of the site, and recorded on late 19th century historic mapping. Again, there is the potential that any intact subsurface archaeological deposits associated with these monuments could be impacted by groundworks associated with the installation of the southern option for the cable route, although the heritage significance of any such deposits is low.

4.5.25 A further post-medieval site, Cadwgan Hall Limekiln (PRN 104360) is recorded in the northwest corner of the proposed development area, approximately 130m west of Offa's Dyke. All that remains of the kiln is a semi-circle of brickwork and a slight mound. The lower portion of the limekiln survives along the southern side of the minor road that passes Cadwgan Hall but the only part that would have been originally visible when it was in operation has been levelled and forms part of the adjoining field (Hankinson 2016). This monument lies close to the northern route option for the cable trench. Due to the presence of upstanding remains, there is the potential for a low-moderate impact on this heritage asset from groundworks associated with the cable trench.

4.5.26 There are a total of 24 sites dating from the post-medieval period listed on the HER within the 500m search area. The vast majority of these relate to 19th century farm buildings; associated structures such as barns, gates, wells and field systems; as well as industrial buildings and infrastructure including collieries, Blacksmiths, mills, railways and associated structures, and a limekiln. The find spot of a Silver Half Groat of James I, dating from 1605 – 21, is recorded on the PAS Database as being located to the east of Cadwgan Hall (PRN 88799).

4.5.27 In general, ZTV analysis undertaken for the forthcoming settings assessment (Davey 2023) indicates that there will only be a minor or negligible indirect visual impact on those post-

medieval sites that lie outside of the proposed development area. This indirect impact will be limited to a few historic farmsteads to the south of the site including Croes Foel Farm (PRN 36698), Hafod y Bwch Hall (PRN 101242), and Bryn Yr Owen Farm (PRN 146007 and 146009), Esclusham Corn Mill (PRN 104357) and Esclusham Farm (PRN 101156).

- 4.5.28 All other post medieval sites outside of the proposed development site will not be impacted by the proposed development.

5 Map Regression (Figures 11-14)

5.1 Ordnance Survey, 1st Series, Sheet 74. Published: 1838 (Figure 11)

- 5.1.1 This is the earliest available map that shows the site, though its scale does not allow for study of the area in any detail. Historic settlements that still exist today are shown on this map, including Cadwgan, Bersham, Bryn Tirion, Rhostyllen, Croes Foel, Pentre Bychan, Hofd y Bwch and Talwyrn. Offa's Dyke is shown as a near continuous linear earthwork, with a small break at Pentre Bychan where it appears to have been slighted by a building.
- 5.1.2 All roads shown on the map are still in existence today, albeit with some alteration at the eastern end of the site due to the modern construction of the A483 Wrexham By-Pass.

5.2 Tithe Maps: Map of the township of Esclusham Below in the parish of Wrexham and County of Denbigh, 1845; Map of the township of Esclusham Above in the parish of Wrexham and County of Denbigh, 1844 (Figure 12)

- 5.2.1 The proposed energy storage system site extended across the township of Esclusham Below in the parish of Wrexham during the mid-19th century and encompassed parts of 3 individual plots. The proposed southern route of the pipeline also extended into the township of Esclusham Above (to the west) where a number of the fields are recorded as being owned by Thomas Fitzhugh Esq. (Fields 94, 105, 106 and 110) and occupied by John Jackson. The majority were used for both pasture and hay. Two different houses and gardens are recorded as owned by Fitzhugh and occupied by Jackson in this area. One of the houses is the Scheduled Monument: Moated Site near Groesfoel Farm, Rhostyllen (DE193; field 109) which still appears to have been extant as a habitable, if simple, rectangular building, occupying a sub-rectangular enclosure at that time.
- 5.2.2 Peter Elams owned three fields used for pasture that were occupied by James Griffith along the proposed southern route of the proposed pipeline (Fields 41, 44, and 45). His farm lay outside of the site boundary to their south. The far western end of proposed southern pipeline route comprised fields mostly owned by Ellames Pattison Esq. (Fields 176, 179, 180, 180a, 181, 182 and 183) and occupied by James Griffiths. These were a mixture of arable and

pasture. The Honourable Frederick West owned several fields at the northwest end of the site and one at the eastern end (Fields 177, 178, 273, 274, 276 and 278). His fields were occupied by George Dicken or Dickens, and were a mix of '*Pasture, Rough Ground*' and Arable.

Table 1. Extract from the Esclusham Tithe Apportionment, 1844-5

Field No.	Owner	Occupier	Farm Name	Field name	Use
41	Peter Elams	James Griffith	Rhos Dullen	Tyn twll	Pasture
44					Pasture
45				Little meadow	Pasture
93	Thomas Fitzhugh Esq.	John Jackson		Cae Hir	Arable
94				Cae Garreg Evan	Pasture
96				Cow pasture	Pasture
97				Maes English	Pasture
98				Cae Llwyn r Lorel	Pasture
99				Meadow	Pasture
100				Flash	Hay
101				Cae pen y ty	Hay
102				Hen berllan	Hay
103				Berth yr halen	Pasture
104				Maes pen llwyn	Hay
105				Pant	Hay
106				Cae eithin uchaf	Arable
109				House and Garden	Arable
110				House and Garden	Arable
176	Ellames Pattison Esq.	James Griffiths		Middle field	Arable
179				Little copy	Arable
180				Railroad field	Arable
180a		On Hand		Plantation	Pasture
181		James Griffiths		Pool field and Coal banks	Pasture
182				Lower horse pasture	Arable
183				Large horse pasture	Arable
177	The Honorable	George Dicken		Llwyn onn issa and rough	Pasture, Rough Ground

Field No.	Owner	Occupier	Farm Name	Field name	Use
178	Frederick West			Llwyn onn ucha and rough	Pasture, Rough Ground
273				Cae Clawydol	Arable
274				Cae Clemendy	Arable
276				Cae yr gol	Bog
278				Maes lland llwyn	Arable

5.2.3 Several of the place names recorded in the tithe apportionment may indicate the location of possible historic sites. For example: Field 41 Tyn twll could potentially refer to the presence of a well or spring. A well is marked at this location on the subsequent OS County Series maps. Field 94: Cae Garreg Evan may refer to a mile post or benchmark recorded on the adjoining road on subsequent OS maps. Field 101: Cae pen y ty may have been the top field associated with the Moated Site near Groesfoel Farm. Field 102: Hen berllan appears to have been the site of a former orchard associated with the Moated Site near Groesfoel Farm.

5.2.4 It is interesting to note the mixture of English and Welsh language elements recorded in the field names in the apportionment, sometimes within a single field name. One English name: Field 180: Railroad field is curious in that the Legacy Branch Railway was not constructed until 1876, more than 20 years after the tithe apportionment, and this branch did not reach this part of the site. When the Rhos branch was constructed c. 1900, the railway still did not pass through this field, but rather through the neighbouring field to the south. It is possible that some of the English field names date from a later revision of the apportionment.

5.3 Ordnance Survey, Denbighshire Sheet XXVIII. Surveyed: 1872, Published: 1879. Scale: 1:10,560.

5.3.1 This detailed Ordnance Survey map of the later 19th century shows that most of the field boundaries had not changed within the site since the time of the tithe maps. The exception being to the southeast of the site where several fields used for pasture and two fields used for hay had been incorporated, creating larger fields. These fields were owned by Thomas Fitzhugh Esq. At the western end of the site, two arable fields owned by Ellames Pattison Esq. had also been combined.

5.3.2 Some topographical features are shown in greater detail on this map. There is a tumulus listed at Cadwgan immediately next to Offa's Dyke, which is itself shown to have a ditch on its east side and a raised area on its west side. The moated site near Groesfoel Farm (DE193) is also shown in greater detail. The moat is shown to encompass three sides to the east, south and west. The gardens and orchards of Cadwgan and Bryn Tirion are also shown in greater detail.

5.3.3 A 'Mill Race', associated with the Esclusham corn mill immediately to the south, outside of the development site, is shown on this map.

5.3.4 Outside of the development area to the east, Rhostyllen is shown as a rural settlement surrounded by agricultural enclosures.

5.4 Ordnance Survey, Denbighshire Sheet XXVIII.SE. Revised: 1898, Published: 1900, originally printed at 1:10,560

5.4.1 From this point on, the development area is split between two different County Series maps. This particular map covers the eastern side of the site. There are no visible changes to the site from the 1879 map.

5.4.2 East of the site, Rhostyllen has grown, with a new vicarage and Sunday school buildings to the west, and a new Baptist Chapel, Holy Trinity Church and other buildings to the southwest.

5.5 Ordnance Survey Denbighshire Sheet XXVIII.SW. Revised: 1898, Published: 1900, originally printed at 1:10,560

5.5.1 This map sheet covers the western part of the development area, including the proposed pipeline. There is one major area of change visible on this map from the 1879 edition: to the south-west of the site there are 'Old Shafts' recorded on the site of the Legacy Colliery. This may indicate that the mine was created after the 1879 map but had already closed by 1898. However, the Legacy Colliery is recorded on the HER as being a short-lived colliery, closed in 1875 (PRN 169954). The Great Western Railway (GWR) extended the railway north to serve the colliery around 1876 (marked on this map as the Legacy Colliery Branch).

5.6 Ordnance Denbighshire Sheet XXVIII.SE. Revised: 1909 to 1910, Published: 1915, originally printed at 1:10,560 (Figure 14)

5.6.1 This map covers the eastern part of the area. The most significant change is that the Rhos Branch of the GWR is now shown to run along the northern border of the development site in a roughly northeast to southwest direction. This is the GWR Rhos Branch which connected Rhos (full name Rhosllanerchrugog) to the Shrewsbury and Chester main line at Rhos Junction (near Rhostyllen). Passenger services were introduced between Rhos and Wrexham General on 1st October 1901.

5.6.2 This map also shows a footpath running northwest to southeast, linking the moated house to the road.

5.6.3 Outside of the development site, Rhostyllen continued to expand, with housing built in the southeast area of the village.

5.7 Ordnance Survey Denbighshire Sheet XXVIII.SW. Revised: 1909 to 1910, Published: 1914, originally printed at 1:10,560 (Figure 13)

5.7.1 There are a few changes in this map of the western area. The Legacy Colliery Branch line has been connected to the Rhos Branch railway line, which now runs through the site in a northeast to southwest direction, and a station has been added called Legacy Station at the

southern border of the west end of the site. The station closed to passengers on 1st January 1931, but it remained open to goods, as did the goods siding.

- 5.7.2 The map also shows an old limekiln at the northern boundary, just west of Offa's Dyke within the site boundary.

5.8 Ordnance Survey Denbighshire Sheet XXVIII.SE. Revised: 1938, Published: ca. 1944, originally printed at 1:10,560

- 5.8.1 There are no discernible changes from the 1915 map of the eastern end of the area.
- 5.8.2 Rhostyllen continued to grow, this time to the east where a number of large buildings had been added.

5.9 Ordnance Survey Denbighshire Sheet XXVIII.SW. Revised: 1938, Published: ca. 1948, originally printed at 1:10,560

- 5.9.1 The only discernible change in the western end of the area is that three buildings had been added just to the west of Legacy Station within the site boundary.

5.10 Ordnance Survey Denbighshire Sheet XXVIII.SE. Revised: 1949, Published: 1954, originally printed at 1:10,560

- 5.10.1 There are no discernible changes within the site. To the southwest of the moated house (DE193), outside of the site boundary, reservoirs had been added.
- 5.10.2 In Rhostyllen, further new houses were constructed as well as a new industrial estate to the east.

5.11 Ordnance Survey Denbighshire Sheet XXVIII.SW. Revised: 1949, Published: 1954, originally printed at 1:10,560

- 5.11.1 There is no discernible change other than a boundary has been created around the three buildings west of Legacy Station, and a water tower has been added immediately southeast of the station. The goods siding saw additional traffic in 1934 with the building of the water tower and service depot of the Wrexham and East Denbighshire Water Company, which remains to this day. The signal box closed in 1952, the station closed to goods on 14th October 1963 and the track was lifted in the summer of 1964. The embankment for the Rhos branch still traverses the site from west to east.

5.12 Ordnance Survey National Grid Map, SJ34NW – A Surveyed/Revised: 1957 to 1962, Published: 1964, originally printed at 1:10,000

- 5.12.1 In the mid-western part of the development area a cricket ground and pavilion have been added (immediately north of Bronwylfa Road). In the southeast end of the site, a tumulus is now recorded. This is the Bronze Age Croes-Foel Round Barrow (DE048), classified as a Scheduled Monument.

5.13 Ordnance Survey National Grid Map, SJ24NE – A Surveyed/Revised: Pre-1930 to 1962, Published: 1963, originally printed at 1:10,000

- 5.13.1 No discernible change other than power lines running over the northwest corner of the development site.

6 Aerial Photographs and Lidar (Figure 15)

6.1 Aerial Photos

- 6.1.1 The Central Register for Air Photography for Wales (CRAPW) was consulted. The earliest photograph available of the site was a vertical image from 1969, with the only difference from the modern day being to the southeast of the proposed development site, which was still subdivided into smaller fields.
- 6.1.2 An assessment of photographs held by the RCAHMW indicates that they provide views of specific monuments but only partial views of the development site. Due to tree cover over most of the monuments are not clearly visible in detail in any of the photographs.
- 6.1.3 A search for aerial photographs held at The Cambridge University Collection of Aerial Photography (CUCAP) was undertaken, but unfortunately there were only photographs of Pentre Bychan Hall, which is outside of the site boundary. The Britain from Above Project also contained no photographs of the area.
- 6.1.4 Historic imagery is available on Google Earth starting from 1985. However, any image before 2006 is of poor resolution. The Croes-Foel Round Barrow (DE048, PRN101236) is apparent, mostly as a dry area within the field, on images from 2012, 2018 and 2021. One image from 2007 shows a straight linear running towards the Rhos Railway embankment from Bersham Cricket Pavilion, also visible on LiDAR imagery (para 6.2.3 below), supporting the interpretation of this as a modern feature. It is also just visible in the image from 2021. The Legacy Living History Site (NPRN402313), which was once located on and next to the former colliery tip and included two reconstructed round houses, is shown clearly in the image from 2006. By 2009, all signs of it have gone, and by 2021 the entire site is overgrown.

6.2 Lidar (Figure 15)

- 6.2.1 Lidar data of the potential development area is available at a 1m resolution for both DTM and DSM (Figure 15). A hillshade model and multi-hillshade model were created for examination. The Scheduled Monument Offa's Dyke (DE194; DE132), though not always visible on the ground, is clearly present as a continuous feature of a bank with a ditch on its west side running through the site. The Rhos Branch railway line, now disused and covered by trees, is clearly still visible as an embankment, winding its way northeast to southwest through the site. The Scheduled Monuments, moated site near Groesfoel Farm Rhostyllen (DE193) and Croes-Foel Round Barrow (DE048), are both clearly visible as extant features in the south-east field. Some of the relict field boundaries visible on the tithe and 1879 OS maps

are visible as earthworks throughout the site.

- 6.2.2 The former colliery tip sits at the south-eastern edge of the electrical substation. The tip was the location of the Legacy Living History Site (NPRN402313), which reused the mound as a living history and interpretation centre for children. A pair of Iron Age round houses were constructed there in 2003, although no longer active.
- 6.2.3 There are two features visible on the lidar hillshade models that don't appear in any current or historic maps, or on aerial imagery. One is a sinuous curvilinear feature running northeast to southwest, to the east of Cadwgan Hall. Available satellite imagery indicates that this could represent a modern cattle path, although that interpretation is not certain, although short branches from it appear to lead to ring features likely to have formed at cattle feeding stations. The second is a linear feature running west-northwest from the Bersham Cricket Club, towards the former Rhos railway embankment. This former field boundary does not appear on any historic map but is visible on google earth imagery as a possible post and wire boundary or footpath. However, it runs approximately parallel to the headland which marks the northern limit of the Cadwgan Ridge and Furrow earthworks (PRN 128267). Nevertheless, its relationship with earlier earthworks could be coincidental and a modern origin remains likely. Analysis of the LiDAR data suggests that it takes the form of a bank with a slight ditch on its west and southwest side.
- 6.2.4 A depression in the field to the north of Croes-Foel Round Barrow (DE048) may represent the site of a dew pond.

7 Site Visit (Figure 16; Plates 1 – 26)

- 7.1.1 A site visit was undertaken on the 26th and 27th of January 2023 by Dan Moore (MA) of Archaeology Wales. Conditions were dry with light cloud and good visibility.

The site comprises several distinct areas that may be subject to varying levels of impact because of different elements of the proposed development. Figure 16 shows these different parts of the site with allocated field numbers as a key to the site description below. The part of the site subject to the greatest impact is likely to be that of the proposed energy storage system area. This comprises Field 1. The development will also require a cable linking the new energy storage system site to the pre-existing electrical substation to the west. Again, the final route of the cable has not been determined and there is currently a northern option and a southern option. The northern option will largely be along existing roads and the southern option may pass through Fields 2 – 7.

- 7.1.2 The site is irregular in plan and covers an area comprising 7 fields and partial fields. It lies east of the A483 Wrexham By-pass and west of the Legacy electrical substation; between the Wrexham Road and the Pentre Bychan Road in the southeast, and the Bronwylfa Road and the Cadwgan Lane to the west. The site generally slopes from west to east between the

150m and 100m contours. It is undulating and occupies the higher ground between the Glanyrafon brook to the south and the Cadwgan Stream to the north. For the purposes of this report the fields have been numbered F1-F7 and shown on the photo Location Plan (Figure 16). All fields are currently used as pasture or arable except for the disused Railway which is woodland regenerated since the 1960s.

7.1.3 Field 1 is in the northeast quadrant of the site and is approximately triangular in plan with maximum dimensions of approximately 500m by 200m. It comprises a recently drilled improved pasture field gently sloping from west to east (Plate 1). It is bounded by the large, wooded embankment of the disused railway to the north (Plate 2), the A483 Wrexham Bypass to the east (Plate 3), the B5097 Bronwylfa Road to the south and a minor road to the west. No archaeological features other than the current field boundaries were observed. Historic maps indicate that a former field boundary existed at the east end of the field but no sign of it was discernible, either on LiDAR, or on the ground, apparently removed by modern ploughing. The current field boundaries to the northeast and southeast are modern, arising after the construction of the railway in c. 1900 and the Wrexham Bypass in the late 20th century. The railway embankment, topped by mature trees, provides an effective screen for this field when viewed from the north. The current field boundaries along the southwest and west sides follow the line of field boundaries shown on the Tithe map of 1844 but appear to currently comprise relatively modern clipped hedges of holly and hazel with modern wooden fences. A single section at the north end of the western boundary hedge has been allowed to grow to full height and comprises largely grown out hazel (Plate 4). None of these hedges meet the historic criteria for an 'important' hedgerow as outlined in Schedule II of the Hedgerow Removal Act 1997.

7.1.4 Field 2 is located north and east of the Bersham Cricket Ground on the north side of the B5097 Bronwylfa Road. The northern part of this field is on the potential southern cable trench route linking proposed energy storage system site to the Legacy Electrical substation. As such there may be a direct impact on subsurface archaeological deposits and hedgerows along the proposed route. Field 2 is approximately 'L' shaped in plan with maximum dimensions of 220m by 150m. It comprises an improved pasture field gently sloping from west to east (Plate 5). The tithe map indicates that this field was subdivided into two fields in 1844 but also extended further north prior to the construction of the Rhos branch railway c. 1900. The railway embankment now forms the northern boundary of this field (plate 6). The Cricket field was not established until c.1954 – 1964. It is interesting to note that the tithe field to the south east was called Pant or hollow. This may refer to the lane running along the east side of the field which is in a slight Holloway. The proposed cable route may pass through the eastern hedge at the northern end, run across the northern end of the field (Plate 5) and pass across a pronounced lynchet which forms the western field boundary. The scale of this lynchet indicates that it may pre-date modern ploughing (Plate 7). Neither of these hedges meet the historic criteria for an 'important' hedgerow as outlined in Schedule II of the Hedgerow Removal Act 1997. One other archaeological feature was observed,

corroborated by LiDAR imagery which suggests that there may be very faint earthwork remains of the northern boundary of the field known as Pant in the tithe apportionment of 1844 (Plate 8). This earthwork would also be close to the proposed cable route.

- 7.1.5 Field 3 is located to the west of Field 2 and is approximately rectangular in plan with maximum dimensions of 325m by 220m. It comprises an undulating improved pasture field with occasional standard trees marking the positions of former field boundaries visible on the tithe map but lost in the latter part of the 20th century (Plate 9). Several archaeological features are suggested in this field from HER records and LiDAR imagery. These include Cadwgan Ridge and furrow earthworks in the southern part of the field and potentially associated headland and former field boundary earthworks. It was only possible to see these earthworks faintly on the ground (Plate 10). The disused Rhos Railway embankment forms the northern boundary of this field. The proposed southern cable route is projected to enter Field 3 from the east across the lynchet forming the boundary with Field 2 (Plate 11), passing west, parallel to the railway embankment (Plate 12), leading to the western boundary with Field 11 (Plate 13). This western boundary comprises a hedge bank and ditch with many mature standard trees. It is visible on the 1844 tithe map. Neither of these hedges meet the historic criteria for an 'important' hedgerow as outlined in Schedule II of the Hedgerow Removal Act 1997.
- 7.1.6 Field 4 is located to the west of Field 10 and is approximately triangular in plan with maximum dimensions of 110m by 90m. It comprises a pasture field sloping from northwest to southeast (Plate 14). The scheduled monument of Offa's Dyke (Pentre Bychan Hall Section – DE137) forms the western boundary (Plate 15) and the Rhos railway embankment forms the northern boundary (Plate 16). Cartographic evidence suggests that the boundaries of this field have been largely unaltered since 1844, other than being partially truncated to the north by the construction of the railway. At the time of the tithe map, it was known as Little Meadow and was associated with the cottage at Tyn twll. The proposed southern cable route is projected to enter Field 4 from the east, close to the electricity pylon and across the hedge bank forming the boundary with Field 3, running along the northern side of the field, parallel to the railway embankment. (Plate 16). The hedge running on top of Offa's Dyke in this field may meet the historic criteria for an 'important' hedgerow as outlined in Schedule II of the Hedgerow Removal Act 1997, forming part of the scheduled monument.
- 7.1.7 Field 5 is located to the west of Field 4 and west of Offa's Dyke (DE137). It is an elongated trapezoid in plan with maximum dimensions of 240m by 110m. It comprises a pasture field generally sloping from northwest to southeast (Plate 17). The large linear earthworks of the Rhos Railway embankment (Plate 18) and Offa's Dyke, which has a modern ditch re-cut alongside it at this point (Plate 19), form the eastern and northern borders respectively. The B5097 Bronwylfa Road forms the southern boundary and the eastern end of the field butts against the former Legacy Colliery and Railway Station Site (Plate 20). The proposed southern cable route is projected to enter Field 5 from the east, approximately in the location of the

current field gate from Field 4 (Plate 21). The cable route may then cross the Rhos railway embankment (Plate 19) and track around the north boundary of Legacy substation. The hedge running on top of Offa's Dyke in this field may meet the historic criteria for an 'important' hedgerow as outlined in Schedule II of the Hedgerow Removal Act 1997, forming part of the scheduled monument.

- 7.1.8 Field 6 is located to the north of Field 5 and north of the Rhos Railway embankment, which forms the southern border of the field (Plate 22). It is approximately triangular in plan with maximum dimensions of 240m by 180m. It comprises an improved pasture field sloping from southwest to northeast with views west towards the Legacy Electrical Substation (Plate 23). Offa's Dyke forms the eastern border of this field, and LiDAR imagery indicates that there is also a relict field boundary running north to south through it. Nevertheless, the northern cable route option is projected to pass to the north of this field and archaeological deposits are unlikely to be impacted.
- 7.1.9 Field 7 is located north of Field 6 and is approximately rectangular in plan with maximum dimensions of 350m by 230m. Offa's Dyke: Cadwgan Hall Section (DE132) forms the eastern boundary of this field (Plate 24). The hedge running on top of Offa's Dyke in this field may meet the historic criteria for an 'important' hedgerow as outlined in Schedule II of the Hedgerow Removal Act 1997. The Legacy Electrical Substation lies to the west of this field, and the minor road and watercourse of Cadwgan Lane and stream forming the northern boundary. The field is unimproved pasture, undulating with a general slope from north to south (Plate 25). Historic mapping and LiDAR imagery indicates that a curvilinear former field boundary runs approximately north to south through this field, potentially across the proposed line of the northern cable route option. However, it is very difficult to see this feature on the ground. The middle option for the cable route may pass cross Offa's Dyke (DE132) through this field at a field gate adjacent to Cadwgan Hall (Plate 26) the scheduled monument has already been slighted by the creation of the gate and is at risk from the movement of farm machinery.

8 Impact Assessment

8.1 Assessment of Archaeological Potential and Importance

- 8.1.1 There is high potential for surviving subsurface archaeological deposits associated with The Croes Foel Round Barrow and Ring Ditch within the southeast corner of the proposed development site. Furthermore, the significance of these potential deposits is assessed to be High. The potential for archaeological remains, dating from the Prehistoric period in the remainder of the site is considered to be low. Archaeology Wales have recently conducted a geophysical survey and trenched evaluation in Field 1 (Muller 2023, AW Forthcoming) which corroborates this assessment of potential.
- 8.1.2 Given the low density and uncertainty of location of finds dating from the Romano-British

period within the proposed development site, the potential for archaeological remains, dating from the Romano-British period is considered to be low.

- 8.1.3 For the early medieval period, the potential for intact sub surface archaeological remains, in the vicinity of Offa's Dyke, dating from the early medieval period is High. The archaeological significance of any such remains would also be High. The potential for further archaeological remains dating from the early medieval period from the remainder of the proposed development site is low.
- 8.1.4 For the medieval period there is a high potential for archaeological remains associated with the scheduled moated site near Groesfoel Farm, Rhostyllen (DE193). There is also a medium potential for remains associated with the earthwork remains of ridge and furrow cultivation (PRN 128267) close to the southern cable route and in the area of proposed ecological mitigation. There is also a medium potential for remains associated with Plas Cadwgan Mound (PRN101151), which is located outside of the site. Nevertheless, the findspot of a lead spindlewhorl near Cadwygan Hall (PRN 97000) might indicate a potential for medieval finds and deposits associated with this Norman site within the curtilage of the middle and northern cable routes. The potential for medieval remains elsewhere on site is low.
- 8.1.5 For the post-medieval period there is a medium potential for archaeological deposits relating to former coal mine shafts associated with the short-lived Legacy Colliery (PRN 169953 and 104370). These two sites lie close to the southern option for the proposed cable trench and may be impacted by excavations associated with it. However, the heritage value of these former mine shafts is low. There is also a low potential for archaeological deposits relating to a former mill race (PRN 169951) and pond (PRN 169952), running along the southern border of the site, and recorded on late 19th century historic mapping. Again, there is the potential that any intact subsurface archaeological deposits associated with these monuments could be impacted by groundworks associated with the installation of the southern option for the cable route, although the heritage significance of any such deposits is low. There is also a medium potential for post-medieval deposits associated with Cadwgan Hall to survive within the curtilage of the northern and middle cable routes. Elsewhere on site there is a medium potential for low value archaeological deposits associated with former historic field boundaries visible on LiDAR as linear banks and ditches.
- 8.1.6 For the modern period there is a high potential for deposits and structures associated with the Legacy Railway station and Rhos Railway embankment to survive within the curtilage of the southern cable route, although the heritage significance of these deposits is low.

8.2 Previous Impacts

- 8.2.1 It is clear from the site visit that archaeological deposits associated with most scheduled monuments on the site have been impacted from agricultural activities over several centuries. The Croes Foel Round Barrow (DE048) has been greatly spread and reduced in height by the action of ploughing. This process continues to this day. The two sections of Offa's Dyke that fall within the study area (DE132: Offa's Dyke: Cadwgan Hall Section,

extending from River Clywedog to the Railway DE137: Offa's Dyke: Pentre-Bychan Hall Section, extending 540m south from Bron Wylfa), have also both suffered impacts from the cutting of agricultural tracks and access gates. Furthermore, in 2017, two minor improvements to the existing public right of way on the line of these sections of Offa's Dyke and a programme of dense scrub clearance on the line of the path running through the ditch of Offa's Dyke, impacted on archaeological deposits and the profile of the monument, without archaeological recording. In 2001 Dee Valley Water plc excavated a trench for the replacement of a water main on the west side of Offa's dyke, adjacent to the railway embankment. This revealed deposits that could be interpreted as ditch fill associated with the counterscarp ditch (Owen 2022). Satellite imagery indicates that excavations associated with a further service trench were undertaken close to the moated site at Croes Foel between 2016 and 2018.

- 8.2.2 It is likely that the construction of the Rhos Railway embankment c. 1900 caused significant disturbance to archaeological deposits within its curtilage. Likewise, the construction of the A483 Wrexham by-pass and associated side roads during the late 20th century caused significant disturbance to archaeological deposits along the eastern border of the site.
- 8.2.3 In general, ploughing across large parts of the site has caused damage to archaeological deposits associated with both former field boundaries, but also current hedge banks. However, other than those that fall within the scheduled area of Offa's Dyke, none of the hedge rows on the site meet the historic criteria for an 'important' hedgerow as outlined in Schedule II of the Hedgerow Removal Act 1997 (Hedgerows Regulations 1997).

8.3 Potential Impacts of the Proposed Development

- 8.3.1 The proposed energy storage system will be based upon the latest energy storage technology. It will import and export large amounts of electricity with no time lag, storing surplus electricity from the grid and then providing a means of additional electricity supply at times of peak demand.
- 8.3.2 The UK has a legally binding target to achieve Net Zero by 2050 and has committed to fully decarbonising the electricity network by 2035. As a result, many low carbon and renewable energy generation is needed across the UK. Renewable energy generation is however intermittent, and Energy Storage Systems are therefore required to provide a balancing service to the National Grid, facilitating the transition to renewable energy sources. These projects are therefore a crucial component of achieving Net Zero.
- 8.3.3 The Energy Storage units will be laid out in rows with intervening access areas within Field 1. The units will sit on concrete slabs or supporting feet. Internal access tracks will comprise

crushed stone and the access road for the abnormal load will be asphalt. The Energy Storage units will use LFP (Lithium Iron Phosphate) technology and measure approximately 2.9m in height. The GIS building in the substation area will measure approximately 14m in height and is therefore the tallest piece of equipment.

- 8.3.4 The associated MV skids (Field 1) are sited alongside the Energy Storage units and connect in groups to 33kV transformer bays distributed evenly throughout the site. The substation compound is proposed to be located on the north-western corner of the site.
- 8.3.5 Remaining areas within the site (Field 1), outside of the fence line will be landscaped to create and enhance ecological habitat and enhance the visual quality of the area. Hedgerow enhancement and a 10m wide woodland structure will be implemented along the southern and western boundaries of the site to help screen the proposals from the surroundings, as well as bunding along western/southern/eastern boundaries. An attenuation basin is included on the eastern part of the site for sustainable drainage.
- 8.3.6 Access for construction and operation will be from the existing B5097 access and the new access established from the unnamed lane on the sites western boundary. A temporary construction compound is proposed in the field to the north of the new access road (Field 2).
- 8.3.7 In summary, the proposed ESS development comprises:
- 400kV Substation with Gas Insulated Switchgear (GIS) building & Transformers;
 - Energy storage containers;
 - 33kV transformer bays;
 - Medium Voltage (MV) Skid – Inverters & Transformers;
 - Control buildings;
 - Access from the adopted highway;
 - Internal access road and crushed stone tracks;
 - Drainage infrastructure, landscape, and ecological planting; and
 - Security fencing and CCTV.

It is possible that construction may also involve any of the following activities:

- Enabling works, such as the installation of the contractor's compound, construction of access roads, parking areas, storage areas, borrow pits and associated services.
- Landscaping and terracing works.
- Surface stripping and levelling.
- Construction of roads, parking and infrastructure.
- Foundation excavations.
- Service installation.
- excavation of berms/ditches as vehicle mitigation.
- Any other ground disturbing work.

8.4 Historic Landscapes

- 8.4.1 The proposed development site does not lie within any Registered Historic Landscape. The nearest Registered Landscape of Outstanding Historic Interest, Vale of Llangollen and Eglwyseg, lies almost 6km to the southwest of the site (Figure 4). Almost 7.5km to the southeast lies another Registered Historic Landscape, Maelor Saesneg. The proposed development site will not directly or indirectly impact upon either of these landscapes.
- 8.4.2 No Conservation Area will be directly or indirectly affected by the proposed development. One Conservation Area lies within 500m of the proposed development site: Bersham Conservation Area (WAL/WREX/). At its closest point, the boundary of the Conservation Area lies just 200m north of the eastern end of the proposed development site. Nevertheless, any indirect visual impact on this Conservation Area is expected to be minimal due to the intervening Rhos Railway Embankment, topped with mature trees. running along the northern boundary of the development site. It is possible that elements of the substation, at an estimated 14m, may extend above the tree line on top of the railway embankment but any minimal impact could be mitigated through additional Green Infrastructure measures (Davey 2023).
- 8.4.3 No registered Historic Park and Garden will be directly or indirectly affected by the proposed development. One registered park lies within the 3km search area, the Grade I registered Erddig Historic Park and Garden (PGW(C)62(WRE), which lies approximately 1.6km to the east. It has a designated significant view west from the main house towards the proposed development site. However, this view does not extend to the site due to intervening topography, urban development, modern landforms and industrial estates.

8.5 Scheduled Monuments

- 8.5.1 There are five Scheduled Monuments that lie within 500m of the proposed development area. Offa's Dyke runs north to south through the site. Three separate sections here are

Scheduled: Offa's Dyke: Section extending 120m from Railway to Bronwylfa Road, Legacy (DE194); Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the Railway (DE132); Offa's Dyke: Pentre-Bychan Hall Section, extending 540m S from Bron-Wylfa (DE137). At the southeast end of the site are both the moated site near Groesfoel Farm Rhostyllen (DE193), and the Bronze Age Croes-Foel Round Barrow (DE048). All these monuments have the potential to be directly impacted from groundworks associated with the site installation. Offa's Dyke may be impacted by groundworks associated with the installation of a cable linking the proposed energy storage system facility with the existing Legacy Electrical substation. Any excavations through the monument itself will require scheduled monument consent. Alternative mitigation might include boring techniques with the receptor pits located outside of the scheduled area of the monument. The exact route has not yet been decided, however, both the middle and southern options have the potential to pass through field entrances where the monument has already been badly damaged. Even in these locations, it is likely that deposits relating to the counterscarp ditch will be present. Options to route the cable along roads are also being considered if necessary.

- 8.5.2 The Croes Foel Moated Site and the Croes Foel Round Barrow both lie to the south of the proposed energy storage system site. It is not expected that there will be a direct impact on these monuments. Nevertheless, both are likely to suffer an indirect visual impact on their setting because of the proposed development. This impact is already partially mitigated by intervening trees for the Croes Foel Moated Site. Suitable mitigation might include retaining and enhancing all trees and hedgerows around the chosen energy storage system site.
- 8.5.3 There are a further 21 Scheduled Monuments within the wider 3km search area. Cadw have requested a Stage I Settings Assessment to be undertaken on all designated heritage assets within a 3km radius of the site (Davey 2023).
- 8.5.4 Just outside the northern option for the proposed cable trench, immediately east of Offa's Dyke, is Cadwgan Hall Mound (DE131). There is a possibility that archaeological deposits associated with this monument might extend into the area of the northern and middle cable routes as they pass Cadwgan Hall. Any impact could be mitigated through suitable archaeological condition.
- 8.5.5 Offa's Dyke is scheduled in two further sections within the 500m study area, both to the south of the development area: Offa's Dyke: Pentre-Bychan Hall Section, extending 540m south from Bron-Wylfa (DE137) and Offa's Dyke: Section south of Bryn yr Owen Farm (DE174). There is the potential that both sections may experience a minor indirect visual impact from the proposed development.
- 8.5.6 A further scheduled Bronze Age round barrow, Hafod-y-Bwlch Round Barrow (DE047) lies approximately 400m southeast of the Croes-Foel Round Barrow (DE048). There is the potential that this monument may also experience a minor indirect visual impact from the proposed development. These minor visual impacts could be further reduced through the implementation of enhance green infrastructure screening measures.

8.6 Listed Buildings

- 8.6.1 No listed buildings will be directly affected by the proposed development.
- 8.6.2 There are 147 listed buildings within a 3km radius of the proposed development site. Of those, 8 lie within a 500m radius, all of which are Grade II listed. The closest to the site include two buildings on Croesfoel Farm: Timber framed building in yard at Croesfoel Farm (LB16573) and Croesfoel Farmhouse (LB16571). Just south-east of Croesfoel Farm are the listed Gate Piers at Hafod-y-Bwch Hall (LB16572), which are of special interest for their association with the Grade II* Hafod-y-Bwch Hall (LB1587) and the Grade II Timber framed Barn in Yard at Hafod-y-Bwch Hall (LB16569). Some of these buildings may have an indirect visual impact as a result of the proposed energy storage system site. This impact will be minor at ground level due to intervening hedges. Enhanced green infrastructure on the south side of the site would help to mitigate against this impact. The Conservation Officer at WCBC has requested a Heritage Impact Assessment on the three listed buildings closest to the site which has been completed by AW (Stratton 2023).
- 8.6.3 A small number Grade II listed buildings between 3km and 500m distant from the site that may have a low visual impact due to the proposed development. Most of these are to the west and northwest of the site. The impact on the settings of all designated monuments within a 3km radius of the site has been considered in more detail in the Stage I Settings Assessment (Davey 2023).

8.7 Non-designated Archaeological Sites

- 8.7.1 There are 49 archaeological sites listed on the Historic Environment Record (HER) within 500m of the proposed development site. The most significant of these sites are the four Scheduled Monuments referred to above. These include Offa's Dyke: Section extending 120m from Railway to Bronwylfa Road, Legacy (DE194; PRN106761); Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the Railway (DE132; PRN106761); Moated Site near Groesfoel Farm Rhostyllen (DE193; also known as 'Llyntro moated site' PRN101237); and Croes-Foel Round Barrow (DE048; PRN101236). The potential impact on these monuments is discussed in Section 8.5 above.
- 8.7.2 There is medium potential for remains associated with the earthwork remains of ridge and furrow cultivation (PRN 128267), and the findspot of a lead spindlewhorl near Cadwygan Hall (PRN 97000), which might indicate a medium potential for medieval finds and deposits within the curtilage of the cable routes and proposed ecological mitigation area.
- 8.7.3 There is also medium potential for archaeological deposits relating to former coal mine shafts associated with the short-lived Legacy Colliery (PRN 169953 and 104370), Legacy Railway station and Rhos Railway embankment. There is low potential for archaeological deposits relating to a former mill race (PRN 169951) and pond (PRN 169952), running along the southern border of the site. There is a low potential that any intact sub-surface archaeological deposits associated with these monuments could be impacted by

groundworks associated with the installation of the southern option for the cable route, although the heritage significance of any such deposits is also low. Elsewhere on site there is medium potential for further low value archaeological deposits associated with previously unrecorded former historic field boundaries visible on LiDAR as linear banks and ditches.

- 8.7.4 There are two ‘important’ hedgerows within the site as outlined in Schedule II of the Hedgerow Removal Act 1997, although they are not considered to be at risk from either the proposed northern or southern cable routes. These are the hedgerows that are located on the two scheduled sections of Offa’s Dyke that run through the site (DE132 and DE194; Plates 54 and 57). Any impact on these hedgerows will be avoided by routing the cable trenches away from the scheduled sections of the monument.

9 Conclusions

9.1 Impacts on Designated Assets

Table 2. Sites of archaeological interest affected by the proposed development

<i>Reference</i>	<i>Site Name</i>	<i>Site Type</i>	<i>Value</i>	<i>Magnitude of Impact</i>
(DE194).	<i>Offa's Dyke: Section extending 120m from Railway to Bronwylfa Road, Legacy</i>	<i>Scheduled Monument</i>	<i>High</i>	<i>Potential Moderate Direct</i>
(DE132)	<i>Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the Railway</i>	<i>Scheduled Monument</i>	<i>High</i>	<i>Potential Moderate Direct</i>
(DE193)	<i>Moated Site near Groesfoel Farm Rhostyllen</i>	<i>Scheduled Monument</i>	<i>High</i>	<i>Moderate Indirect</i>
(DE048)	<i>Bronze Age Croes-Foel Round Barrow</i>	<i>Scheduled Monument</i>	<i>High</i>	<i>Moderate Indirect</i>
(DE131)	<i>Cadwgan Hall Mound</i>	<i>Scheduled Monument</i>	<i>High</i>	<i>Potential Minor Indirect</i>
(DE137)	<i>Offa's Dyke: Pentre-Bychan</i>	<i>Scheduled Monument</i>	<i>High</i>	<i>Minor Indirect</i>

Reference	Site Name	Site Type	Value	Magnitude of Impact
	<i>Hall Section, extending 540m S from Bron-Wylfa</i>			
<i>(DE174).</i>	<i>Offa's Dyke: Section S of Bryn yr Owen Farm</i>	<i>Scheduled Monument</i>	<i>High</i>	<i>Minor Indirect</i>
<i>(DE047)</i>	<i>Hafod-y-Bwlch Round Barrow</i>	<i>Scheduled Monument</i>	<i>High</i>	<i>Minor Indirect</i>
<i>(LB16573)</i>	<i>Timber framed building in yard at Croesfoel Farm</i>	<i>Grade II Listed Building</i>	<i>Medium</i>	<i>Moderate Indirect</i>
<i>(LB16571)</i>	<i>Croesfoel Farmhouse</i>	<i>Grade II Listed Building</i>	<i>Medium</i>	<i>Moderate Indirect</i>
<i>(LB16572)</i>	<i>Gate Piers at Hafod-y-Bwch Hall</i>	<i>Grade II Listed Building</i>	<i>Medium</i>	<i>Moderate Indirect t</i>
<i>(LB1587)</i>	<i>Hafod-y-Bwch Hall</i>	<i>Grade II* Listed Building</i>	<i>High to Medium</i>	<i>Minor Indirect</i>
<i>(LB16569)</i>	<i>Timber framed Barn in Yard at Hafod-y-Bwch Hall</i>	<i>Grade II Listed Building</i>	<i>Medium</i>	<i>Minor Indirect</i>
<i>(PRN 128267)</i>	<i>earthwork remains of ridge and furrow cultivation</i>	<i>Slight earthwork medieval cultivation remains</i>	<i>Low</i>	<i>Potential Moderate Direct</i>
<i>(PRN 97000)</i>	<i>findspot of a lead spindlewhorl near Cadwygan Hall</i>	<i>Findspot</i>	<i>Low</i>	<i>Potential Minor Direct</i>
<i>(PRN 169953)</i>	<i>Mine Shaft</i>	<i>Subsurface deposits</i>	<i>Low</i>	<i>Potential Minor Direct</i>
<i>(PRN104370)</i>	<i>Mine Shaft</i>	<i>Subsurface deposits</i>	<i>Low</i>	<i>Potential Minor Direct</i>
<i>(PRN169954)</i>	<i>Legacy Railway station</i>	<i>Subsurface deposits</i>	<i>Low</i>	<i>Potential Minor Direct</i>
<i>(PRN142401)</i>	<i>GWR Rhos Branch near Cadwgan Hall</i>	<i>Large earthwork embankment</i>	<i>Low</i>	<i>Potential Minor Direct</i>

Reference	Site Name	Site Type	Value	Magnitude of Impact
<i>(PRN 169951)</i>	<i>Legacy Mill, mill race</i>	<i>Subsurface deposits</i>	<i>Low</i>	<i>Potential Minor Direct</i>
<i>(PRN 169952)</i>	<i>Esclusham Corn Mill, mill pond</i>	<i>Subsurface deposits</i>	<i>Low</i>	<i>Potential Minor Direct</i>
<i>(PRN 169950)</i>	<i>Legacy Tower</i>	<i>Water Tower</i>	<i>Low</i>	<i>Potential Minor Direct</i>
	<i>Important Hedgerow</i>	<i>Hedgerow on Offa's Dyke Section (DE132)</i>	<i>Low</i>	<i>Potential Minor Direct</i>
	<i>Important Hedgerow</i>	<i>Hedgerow on Offa's Dyke Section (DE194)</i>	<i>Low</i>	<i>Potential Minor Direct</i>

9.1.1 No Conservation Area, Registered Historic Park and Garden, or Historic Landscape of Outstanding Historic Interest will be directly or indirectly affected by the proposed development.

9.1.2 There are five Scheduled Monuments that lie within 500m of the proposed development area. Offa's Dyke: Section extending 120m from Railway to Bronwylfa Road, Legacy (DE194); Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the Railway (DE132); Offa's Dyke: Pentre-Bychan Hall Section, extending 540m S from Bron-Wylfa (DE137); Moated Site near Groesfoel Farm Rhostyllen (DE193), and the Croes-Foel Round Barrow (DE048). Two of these monuments has the potential to be directly impacted from groundworks associated with the site installation. Offa's Dyke may be impacted by groundworks associated with the installation of a cable linking the proposed energy storage system facility with the existing Legacy Electrical substation. Any excavations through the monument itself will require Scheduled Monument Consent. Alternative mitigation might include boring techniques with the receptor pits located outside of the scheduled area of the monument. The exact route has not yet been decided, however, the northern route option lies outside of the scheduled area and the southern and middle options have the potential to pass through the monument at points where there are existing gated field entrances. At these points the bank has already been reduced and counterscarp ditch filled in (Plates 21 and 26). Nevertheless, even in these locations, it is likely that subsurface deposits relating to the counterscarp ditch will be present and Scheduled Monument Consent required. Options to route the cable along roads are also being considered if necessary.

9.1.3 The Croes Foel Moated Site (DE193) and the Croes Foel Round Barrow (DE048) both lie to the south of the proposed energy storage system site (Field 1). However, it is not expected that there will be a need to directly impact on these monuments. Nevertheless, both are

likely to suffer an indirect visual impact on their setting because of the proposed development. This impact is already partially mitigated by the presence of intervening semi-mature woodland for the Croes Foel Moated Site. Suitable enhanced mitigation might include retaining and enhancing all trees and hedgerows around the chosen energy storage system site, particularly on the south side of the chosen site. Such measures could ensure that any indirect visual impact on scheduled monuments will be minor. There may also be minor indirect visual impacts on three Scheduled monuments lying further afield: Cadwgan Hall Mound (DE131); Offa's Dyke: Section S of Bryn yr Owen Farm (DE174); and Hafod-y-Bwlch Round Barrow (DE047). Again, enhancement of the green infrastructure along the southern boundary of the site could ensure that any such impact will be minor. A Stage I Settings Assessment has been requested by Cadw and will be carried out to confirm any impacts on the settings of designated heritage assets within 3km of the site.

- 9.1.4 There are three listed buildings within close proximity to the site that may have a moderate indirect visual impact from the proposed development: Timber framed building in yard at Croesfoel Farm (LB16573); Croesfoel Farmhouse (LB16571); and Gate Piers at Hafod-y-Bwlch Hall (LB16572). They may suffer a visual impact due to the proposed energy storage system site. This impact will be minor at ground level. Enhanced green infrastructure on the south side of the chosen site would help to mitigate against this impact. The Conservation Officer for WCBC has requested that a Heritage Impact Assessment be conducted on the impact of the proposed development on these buildings which has been undertaken by AW (Stratton 2023).
- 9.1.5 There are also a small number of Grade II listed buildings between 3km and 500m distance from the site that may have a minor visual impact due to the proposed development. Most of these are to the west and northwest of the site. The impact on the settings of all designated monuments within a 3km radius of the site will be considered in more detail in a forthcoming Stage I Settings Assessment.

9.2 Impacts on Non-designated Assets

- 9.2.1 There is medium potential for non-designated archaeological sub surface deposits surviving along the possible cable routes associated with the earthwork remains of ridge and furrow cultivation (PRN 128267), and the findspot of a lead spindlewhorl near Cadwygan Hall (PRN 97000). The cable trench would have a direct impact on any such deposits. Nevertheless, their heritage significance is low and can be mitigated through suitable archaeological condition attached to any forthcoming planning consent.
- 9.2.2 There is also medium potential for archaeological deposits existing along the possible southern cable route relating to the Legacy Colliery (PRN 169953 and 104370), Legacy Railway station and Rhos Railway embankment. There is low potential for archaeological deposits relating to a former mill race (PRN 169951) and pond (PRN 169952), running along the southern border of the site. The cable trench would have a direct impact on any such deposits. Nevertheless, their heritage significance is low and can be mitigated through

suitable archaeological condition attached to any forthcoming planning consent.

- 9.2.3 Elsewhere on site there is medium potential for archaeological deposits associated with previously unrecorded former historic field boundaries visible on LiDAR as linear banks and ditches. Any ground-breaking activity within any part of the site could have a direct impact on any such deposits. Nevertheless, their heritage significance is low and can be mitigated through suitable archaeological condition attached to any forthcoming planning consent.
- 9.2.4 There are two ‘important’ historic hedgerows within the site, as outlined in Schedule II of the Hedgerow Removal Act 1997, that may potentially be at risk from the proposed middle and southern cable routes. These are the hedgerows that are located on the two scheduled sections of Offa’s Dyke running through the site (DE132 and DE194; Plates 21 and 26). Any impact on these hedgerows could be avoided by routing the cable trenches through existing field gates that occupy cuttings through the scheduled monument and are not hedged.

9.3 Recommendations

- 9.3.1 Clywd Powys Archaeological Trust Archaeological Planning Management (CPAT-APM) are the archaeological advisors to Wrexham County Borough Council (WCBC). They have been consulted in advance of preparation of this Desk Based Assessment. As a result a geophysical survey of the proposed energy storage system site was undertaken by AW as part of pre-determination mitigation (Muller 2023). Following on from this survey and on further consultation with CPAT-APM a 7-trench evaluation was undertaken in October 2023 by AW on the proposed energy storage system site (Griffiths and Templeton 2023). Potential evidence for Coal mining ‘bell’ pits on the site was recorded.
- 9.3.2 The conservation Officer at Wrexham CBC has requested that a Heritage Impact Assessment be undertaken on three listed buildings to the south of the proposed development (Stratton 2023). This assessment concluded that there will be a minor to negligible impact on the heritage value of these assets arising from the proposals.
- 9.3.3 Equally, Cadw have requested that a Settings Assessment be undertaken to determine the settings of designated heritage assets within 3km of the site that may be impacted by the proposals. This assessment was undertaken by Archaeology Wales in two stages between September 2023 and February 2024 (Davey 2023; Stratton 2024). This revealed that there is the potential for a minor impact on the settings of the closest heritage assets to the south of the site: Croes Foel Moated Site, Croes Foel Round Barrow, Hadford Y Bwlch Round Barrow and a single section of Offa’s Dyke.
- 9.3.4 The final cable route has not been determined, however, if the southern or middle options are preferred, scheduled monument consent will be required prior to any groundworks within the curtilage of Offa’s Dyke Scheduled Monument. Cadw have requested that an initial Geophysical Survey and topographic survey be undertaken in order to better understand the current state of preservation of the sections of the monument at potential risk from the development and a written Scheme of Investigation is in prep for this work

(Davey 2024).

- 9.3.5 Despite the above caveats, overall, the potential impact of the development on the above heritage assets is considered to be minor to moderate, assuming suitable mitigation is undertaken, such as enhanced green infrastructure, careful and considered planning of the cable routes, the cordoning off and protection of the scheduled Monuments within the site during the construction phase, and suitable archaeological monitoring by condition during ground breaking activities.

10 Sources

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Maps

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Tithe Maps: Map of the township of Esclusham Below in the parish of Wrexham and County of Denbigh, 1845; Map of the township of Esclusham Above in the parish of Wrexham and County of Denbigh, 1844

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Ordnance Survey, Denbighshire Sheet XXVIII.SE. Revised: 1898, Published: 1900, originally printed at 1:10,560

Ordnance Survey Denbighshire Sheet XXVIII.SW. Revised: 1898, Published: 1900, originally printed at 1:10,560

Ordnance Denbighshire Sheet XXVIII.SE. Revised: 1909 to 1910, Published: 1915, originally printed at 1:10,560 (Figure 14)

Ordnance Survey Denbighshire Sheet XXVIII.SW. Revised: 1909 to 1910, Published: 1914, originally printed at 1:10,560 (Figure 13)

Ordnance Survey Denbighshire Sheet XXVIII.SE. Revised: 1938, Published: ca. 1944, originally printed at 1:10,560

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Ordnance Survey Denbighshire Sheet XXVIII.SW. Revised: 1949, Published: 1954, originally printed at 1:10,560

Ordnance Survey National Grid Map, SJ34NW – A Surveyed/Revised: 1957 to 1962, Published: 1964, originally printed at 1:10,000

Ordnance Survey National Grid Map, SJ24NE – A Surveyed/Revised: Pre-1930 to 1962, Published: 1963, originally printed at 1:10,000

Aerial Photographs

Cambridge University Collection of Aerial Photography

<i>Catalogue ID</i>	<i>type</i>	<i>Date</i>	<i>subject</i>	<i>Copyright owner</i>
YY65	<i>Oblique</i>	<i>24/06/1959</i>	<i>Vegetation, Pentre Bychan Hall, 2.5 miles SW of Wrexham</i>	<i>CUCAP</i>
YY66				
YY67				
YY68				
YY69				
YY70				
YY71				
YY72				
YY73				
YY74				

Google Earth Imagery

2007 – image: Maxar Technologies 3/2/2007; 53°01'39.65" N 3°02'28.99" W

2009 – image: Getmapping plc 20/4/2009; 53°01'39.65" N 3°02'28.99" W

2012 – image: Maxar Technologies 22/7/2012; 53°01'39.65" N 3°02'28.99" W

2018 – image: Maxar Technologies 6276/2018; 53°01'39.65" N 3°02'28.99" W

2021 – image: Maxar Technologies 7/9/2021; 53°01'39.65" N 3°02'28.99" W

RCAHMMW Imagery

<i>Archive Number</i>	<i>Description</i>	<i>Item ref</i>
6354426	<i>RCAHMMW colour oblique aerial photograph of Llyntro Moat, Rhostyllen. Taken on 24 July 2007 by Toby Driver</i>	<i>65279 AP_2007_1407</i>
6459025	<i>RCAHMMW colour oblique photograph of Llyntro Moat, Rhostyllen. Taken by Toby Driver on 01/07/2008.</i>	<i>60613 AP_2008_1490</i>
6359888	<i>RCAHMMW colour oblique aerial photograph of Croes-Foel Barrow. Taken on 24 July 2007 by Toby Driver</i>	<i>63734 AP_2007_1408</i>
6357787	<i>RCAHMMW colour oblique aerial photograph of a section of Offa's Dyke extending 120m From the railway to Bronwylfa Road, Legacy. Taken on 08 July 2009 by Toby Driver</i>	<i>70632 AP_2009_2359</i>
6358945	<i>RCAHMMW colour oblique aerial photograph of a section of Offa's Dyke at Cadwgwn Hall. Taken on 08 July 2009 by Toby Driver</i>	<i>73728 AP_2009_2358</i>
6358946	<i>RCAHMMW colour oblique aerial photograph of a section of Offa's Dyke at Cadwgwn Hall. Taken on 24 July 2007 by Toby Driver</i>	<i>64213 AP_2007_1410</i>
6357766	<i>RCAHMMW colour oblique aerial photograph of Cadwgan Hall Mound from the east. Taken on 08 July 2009 by Toby Driver</i>	<i>73562 AP_2009_2360</i>

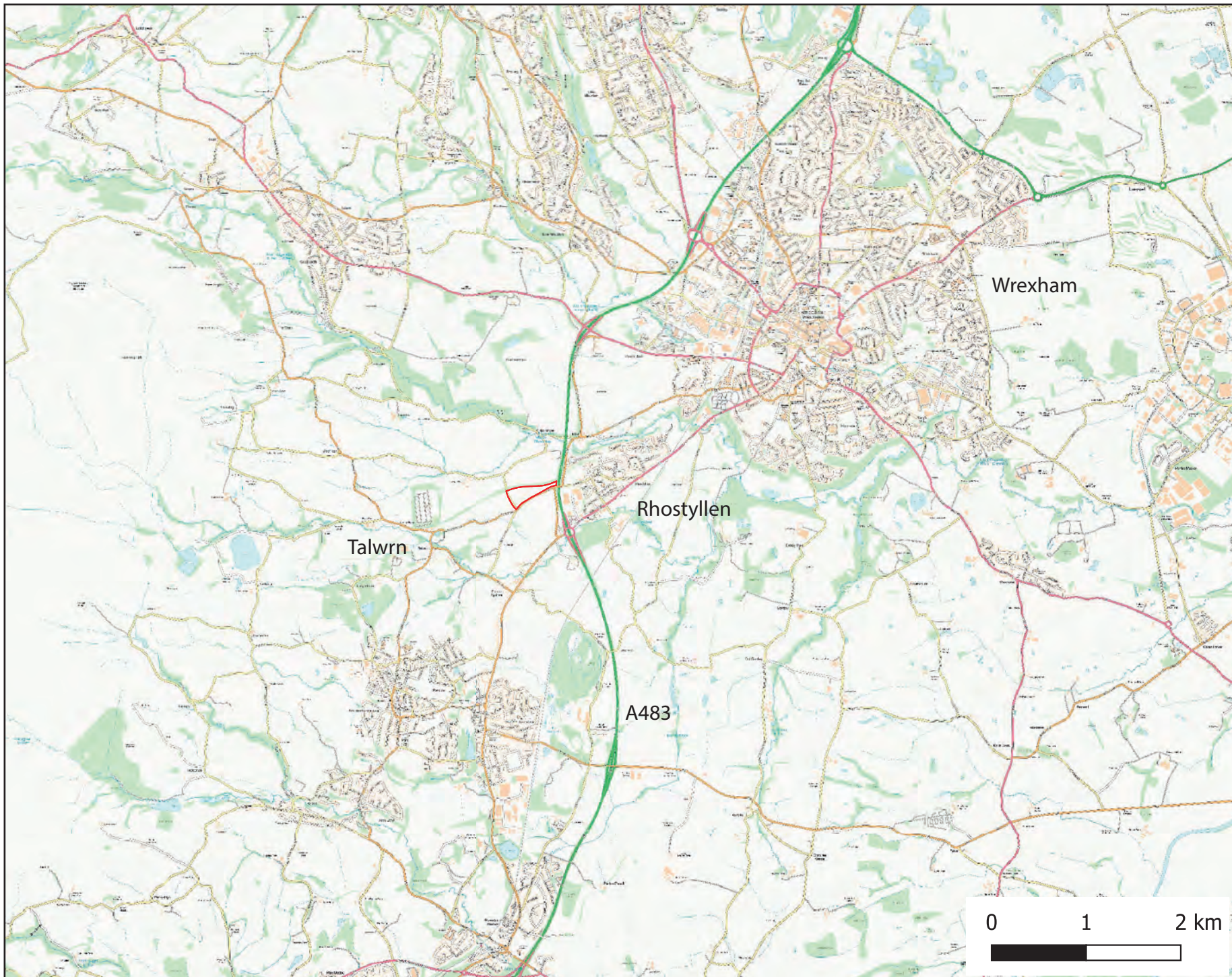
List of Acronyms used in the text

AW Archaeology Wales

AP Aerial Photograph/ Aerial photography

<i>BGS</i>	<i>British Geological Survey</i>
<i>CA</i>	<i>Conservation Area</i>
<i>CPAT-APM</i>	<i>Clwyd-Powys Archaeological Trust Archaeological Planning Management</i>
<i>CPAT-HER</i>	<i>Clwyd-Powys Archaeological Trust Historic Environment Record</i>
<i>CUCAP</i>	<i>Cambridge University Collection of Aerial Photography</i>
<i>DBA</i>	<i>Desk Based Assessment</i>
<i>DTM</i>	<i>Digital Terrain Model</i>
<i>HER</i>	<i>Historic Environment Record</i>
<i>HLCA</i>	<i>Historic Landscape Character Area</i>
<i>HUCA</i>	<i>Historic Urban Character Area</i>
<i>LB</i>	<i>Listed Building</i>
<i>LiDAR</i>	<i>Light Detection and Ranging</i>
<i>NGR</i>	<i>National Grid Reference</i>
<i>MCC</i>	<i>Monmouthshire County Council</i>
<i>OS</i>	<i>Ordnance Survey</i>
<i>SM</i>	<i>Scheduled Monument</i>

Other acronyms including MSF, TNG, ESF, DAR, HCLA, RAF CPEUK, form part of unique identifying numbers and have no specific meaning relevant to this text.



 Site location

Figure 1: Location Plan

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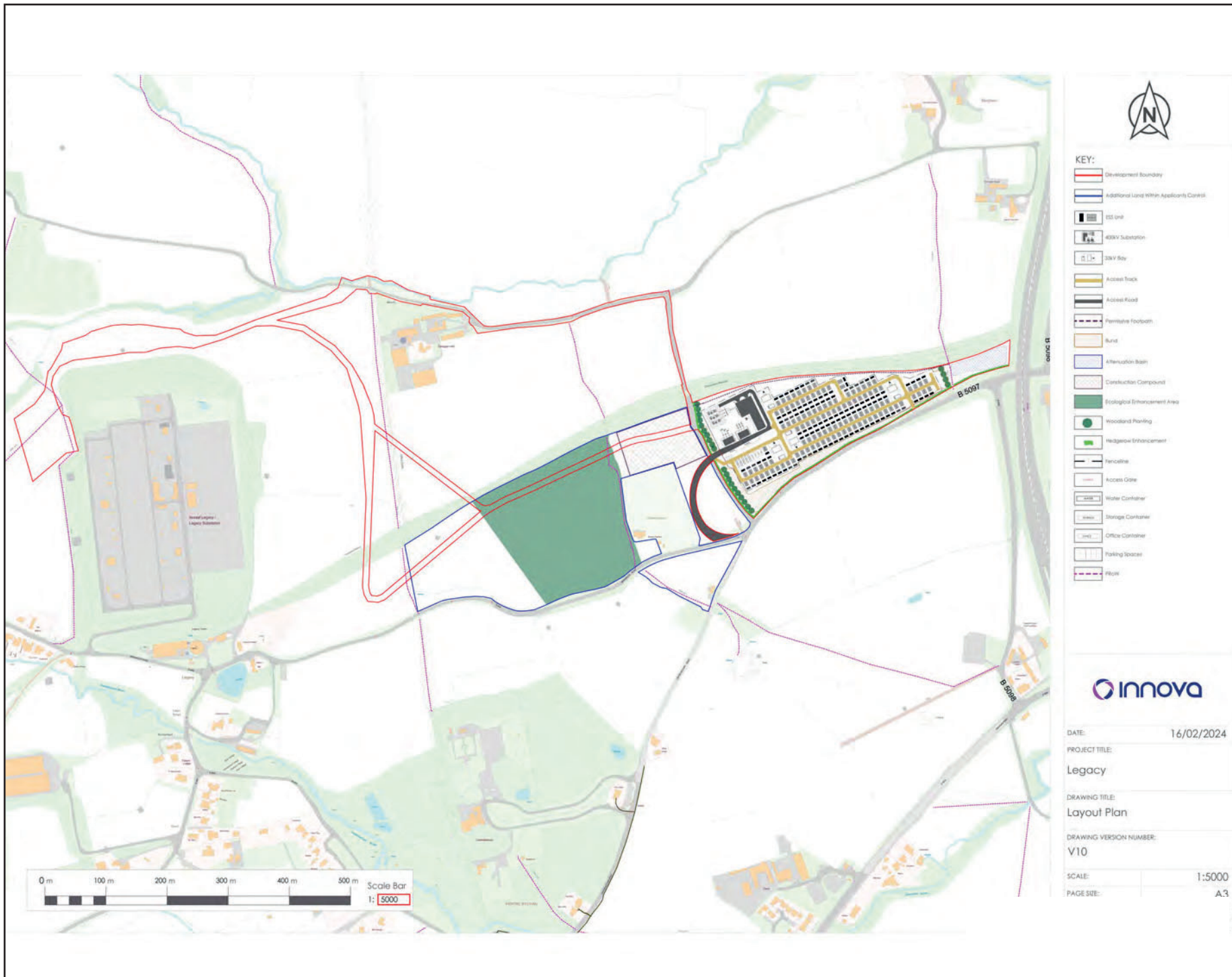
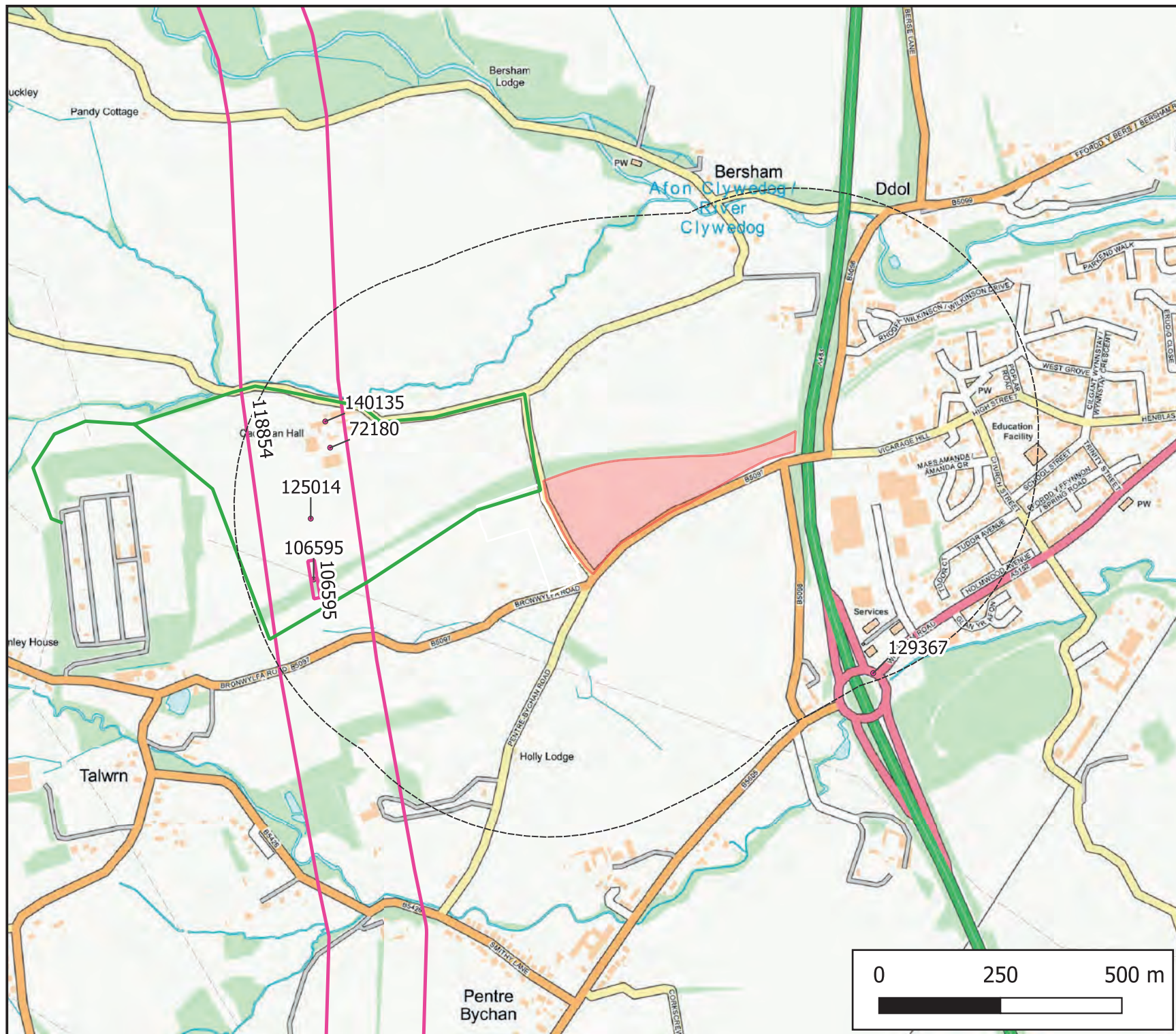


Figure 2: Proposed Development Layout Plan

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KEY

- Red line boundary
- Battery storage area
- Potential Cable Route
- 500m buffer
- HER Event polygon
- HER Event point

Figure 3. Archaeological Events recorded on the HER within 500m of the proposed development area.

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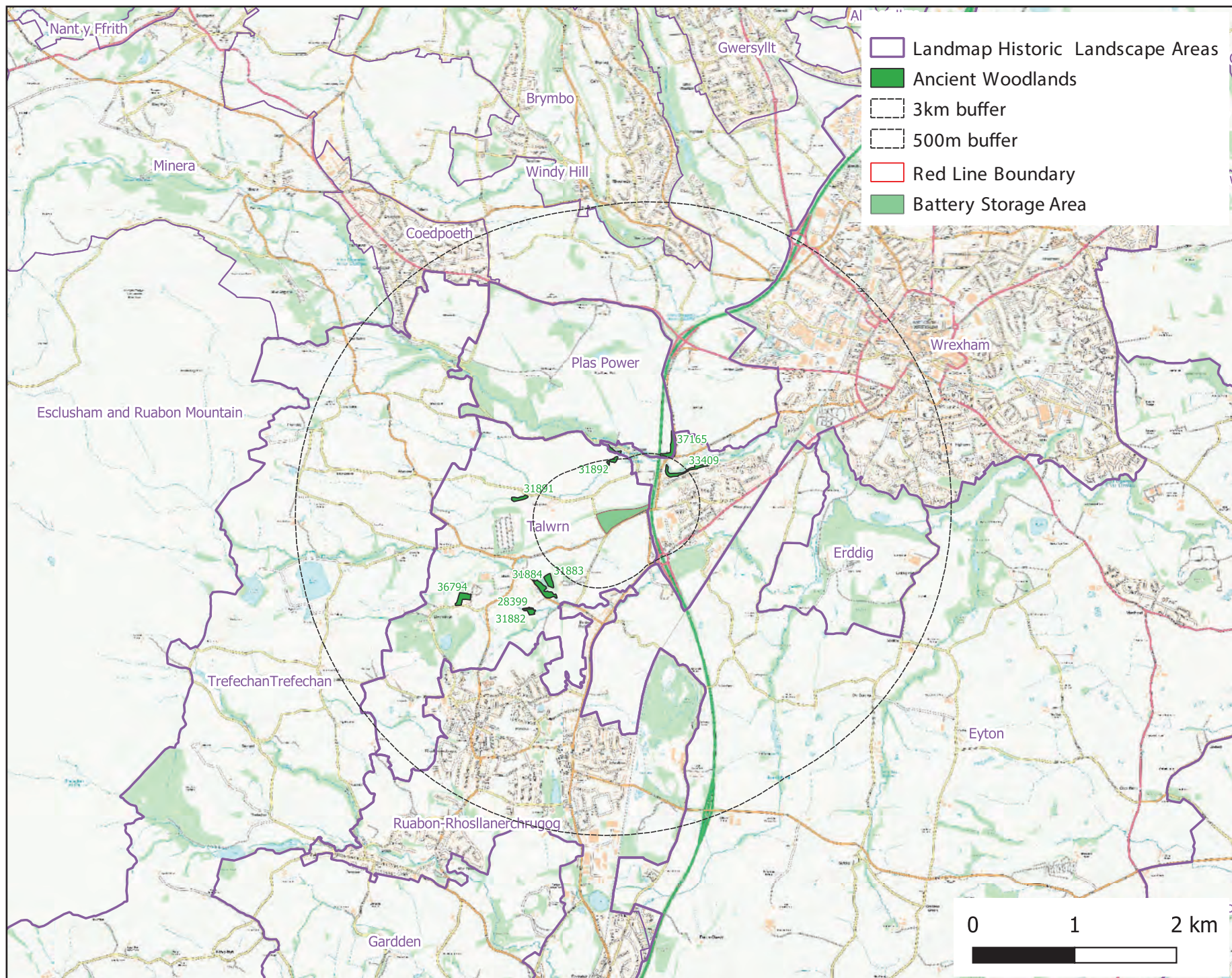


Figure 4: Historic Landscapes Within 3km

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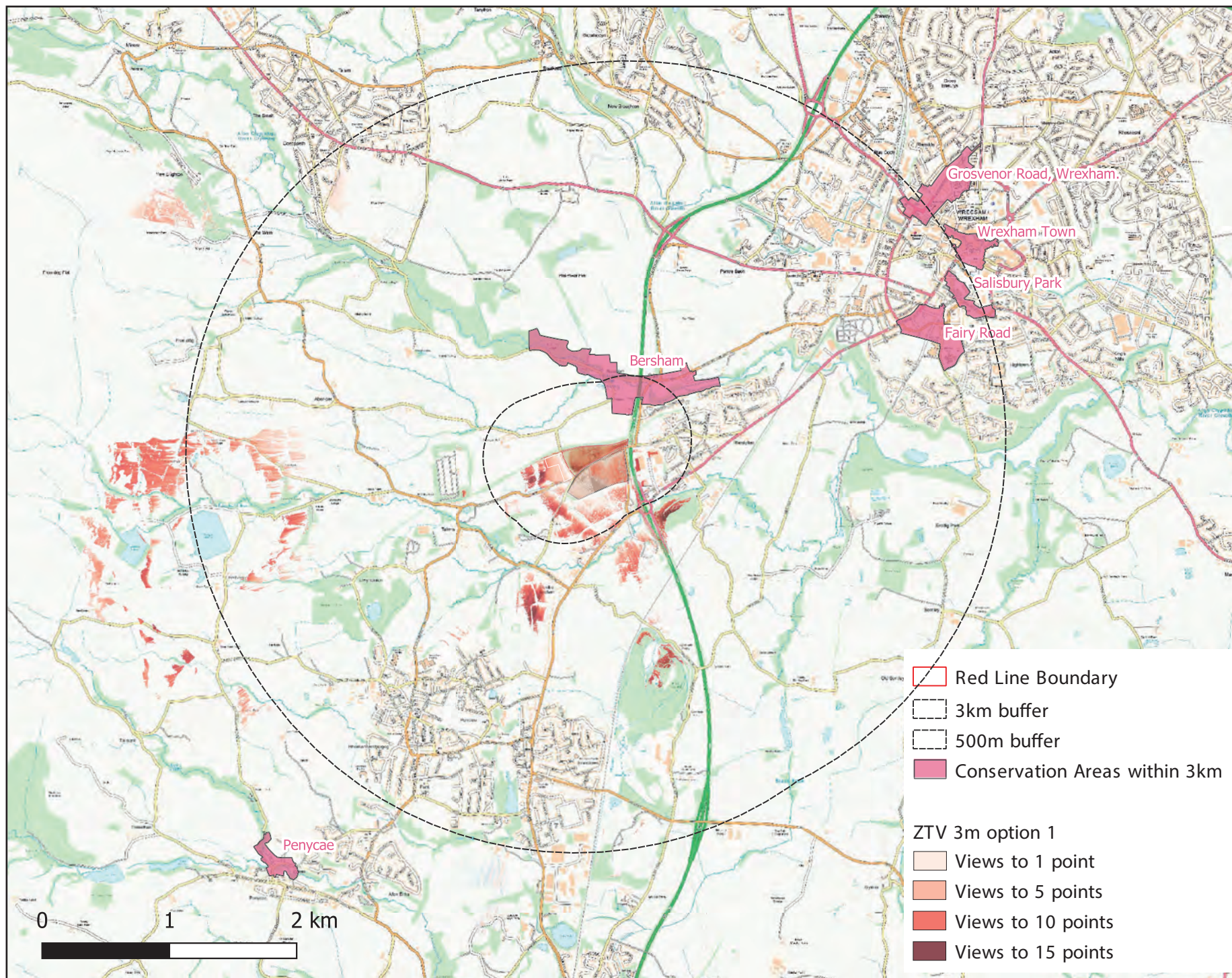


Figure 5: Conservation Areas Within 3km Plotted with ZTV analysis

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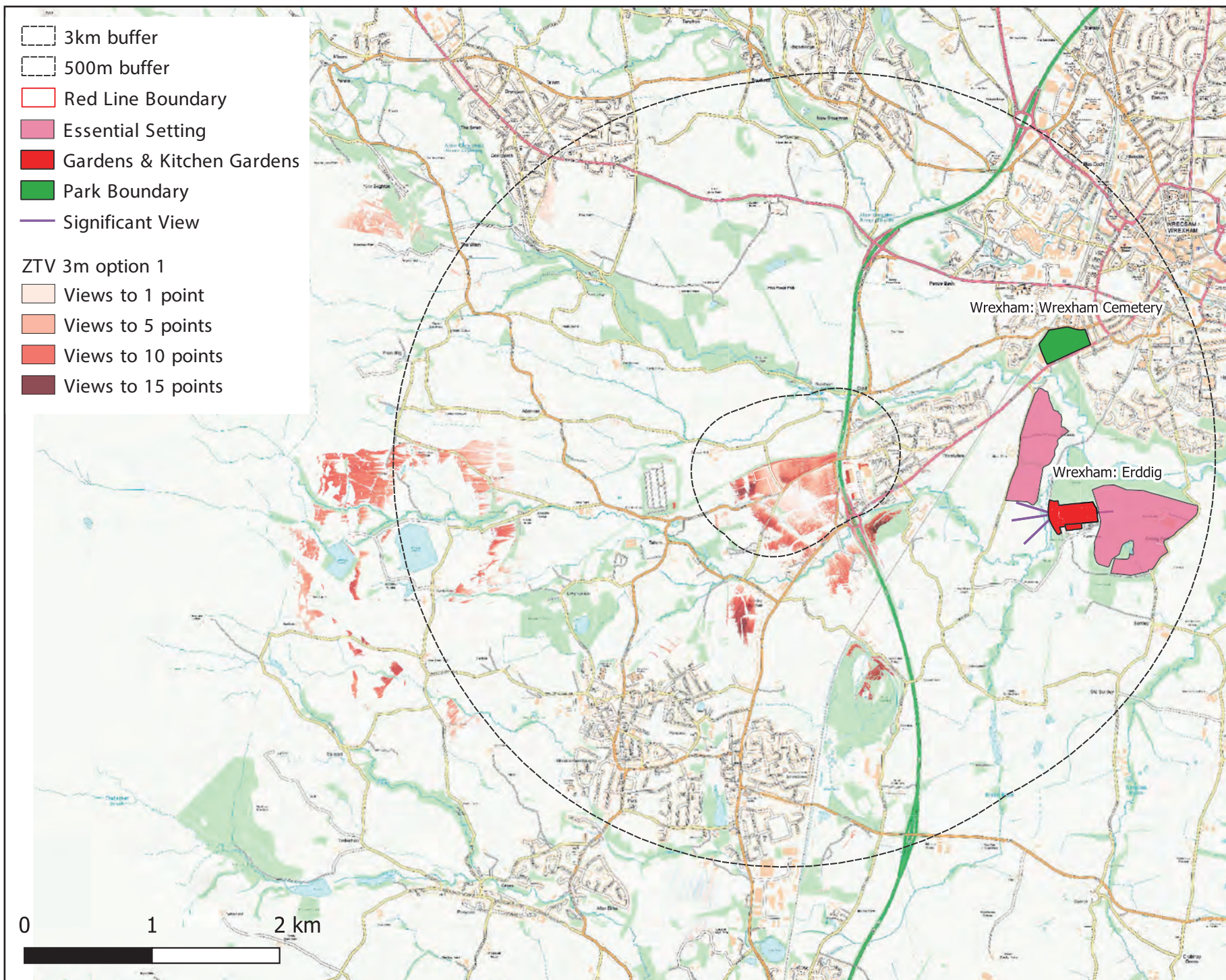


Figure 6: Registered Historic Parks and Gardens Within 3km Plotted with ZTV analysis

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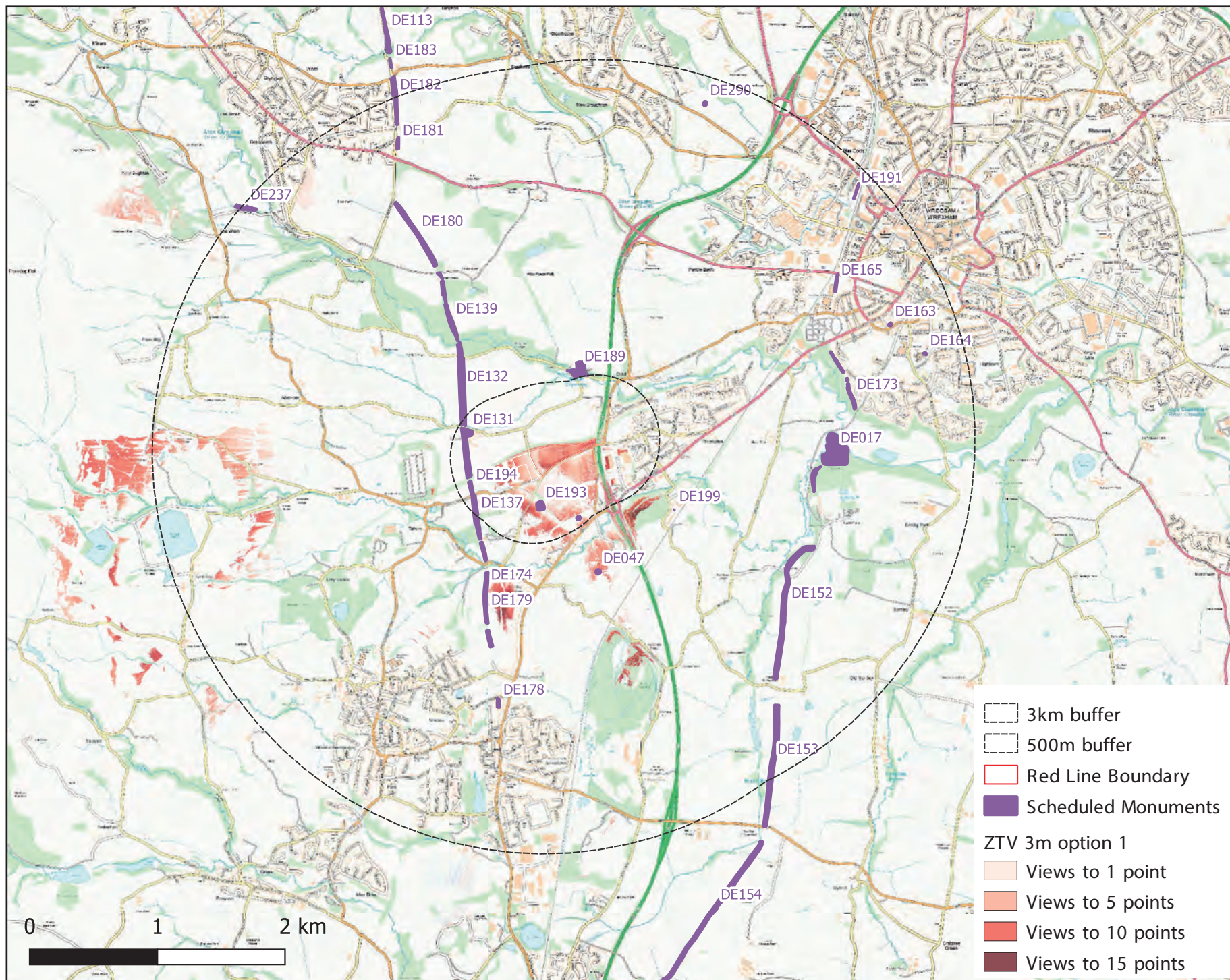


Figure 7: Scheduled Monuments Within 3km Plotted with ZTV analysis

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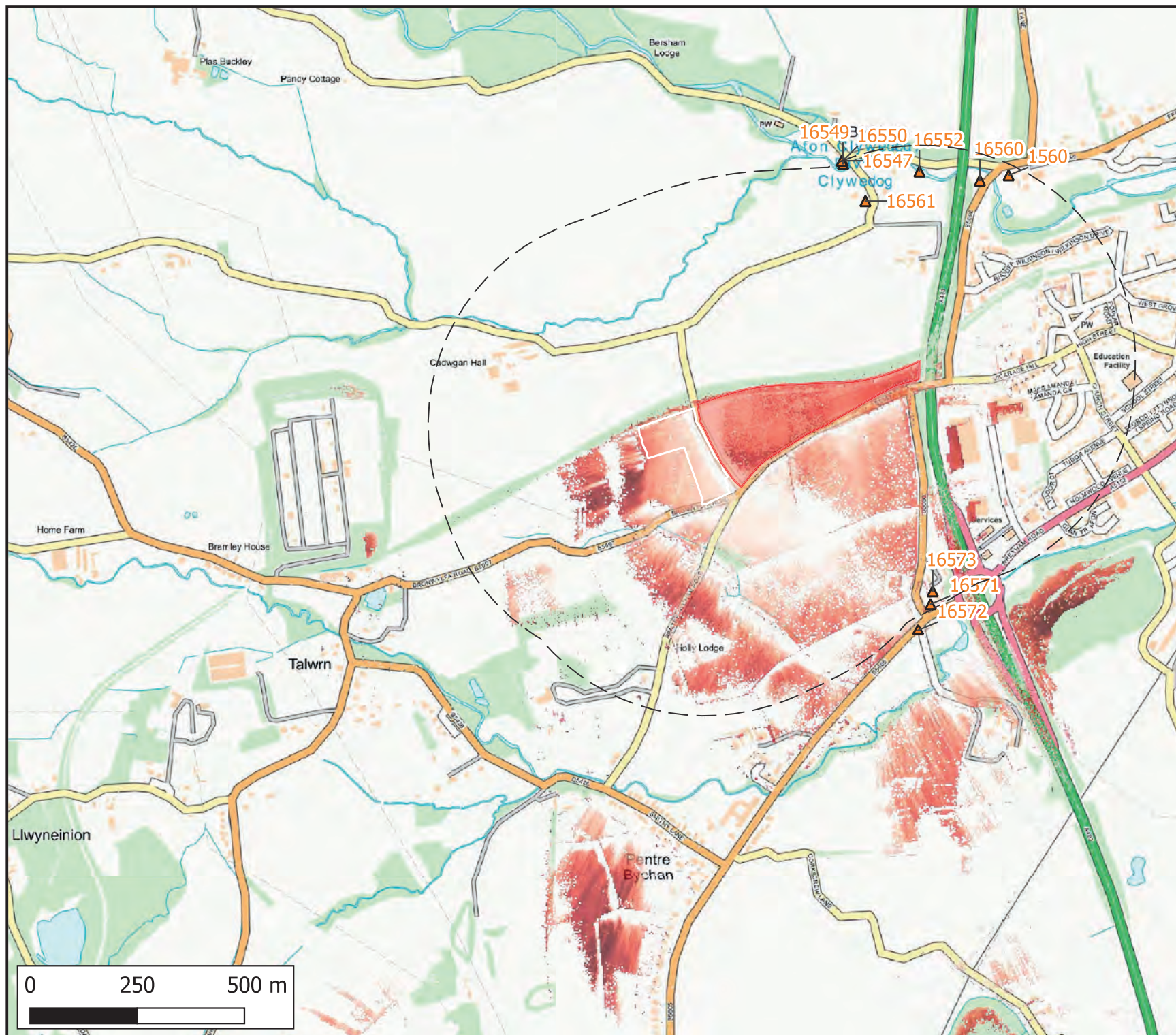
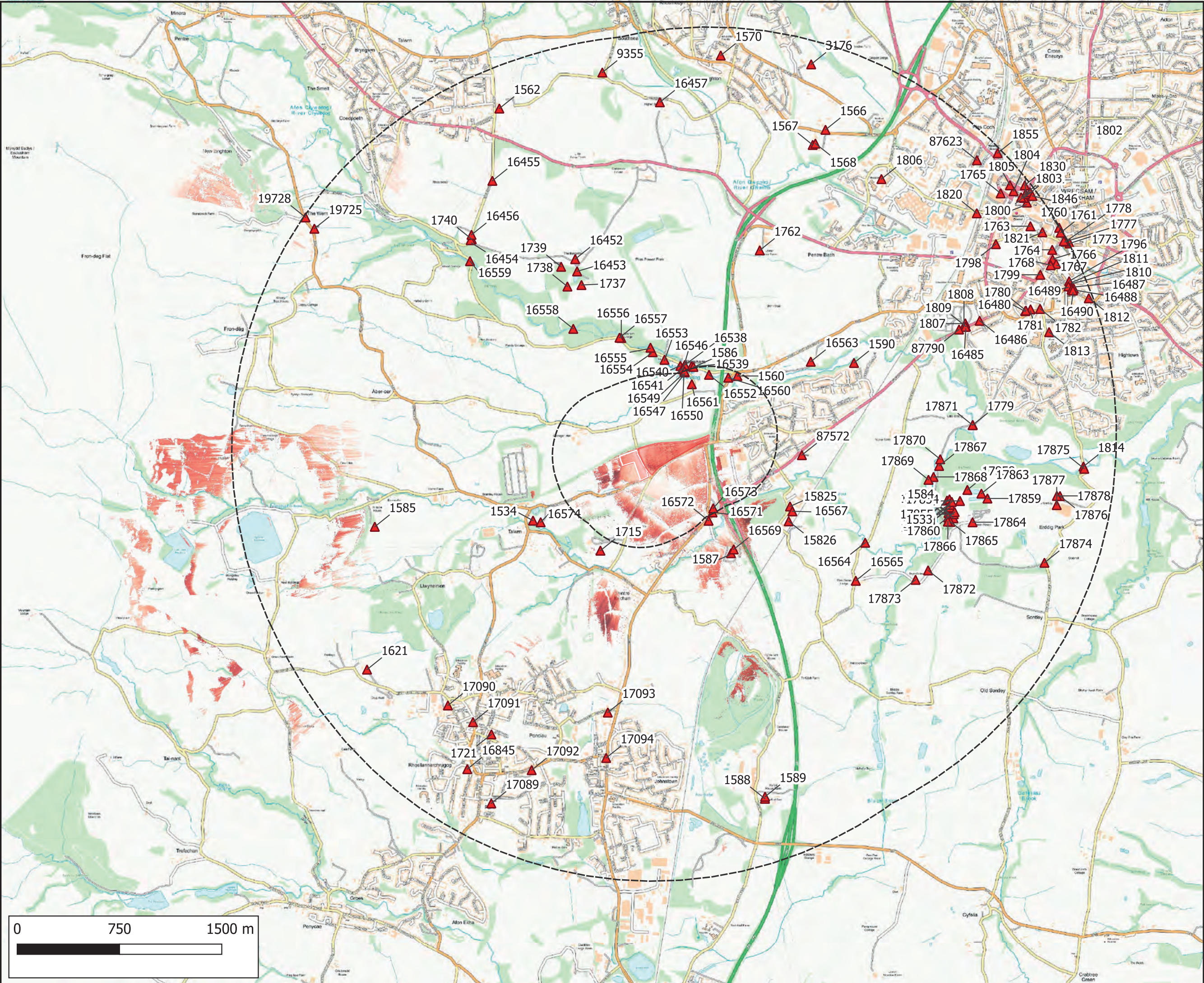


Figure 8. Listed buildings within 500m overlaid with ZTV output.

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- Red Line Boundary
- Potential Cable Route
- Battery Storage Area
- Listed buildings

Figure 9. Listed buildings within 3km overlaid with ZTV output.

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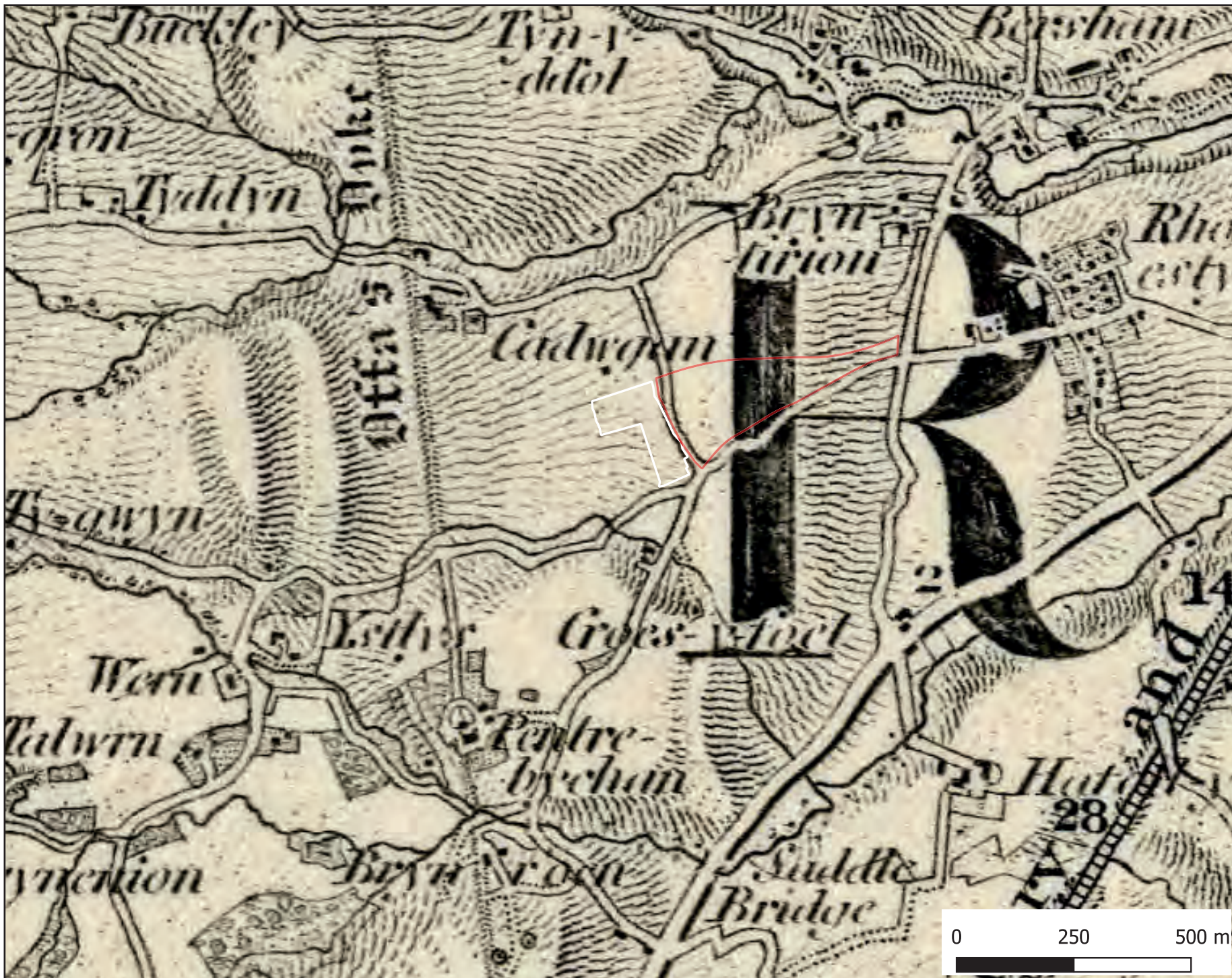


Figure 11: Extract From
The OS 1st Series Map,
Sheet 74, 1838

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Figure 12: Extract From
The Eclusham Above (West)
1845 and Eclusham Below
(East) 1844 Tithe Maps

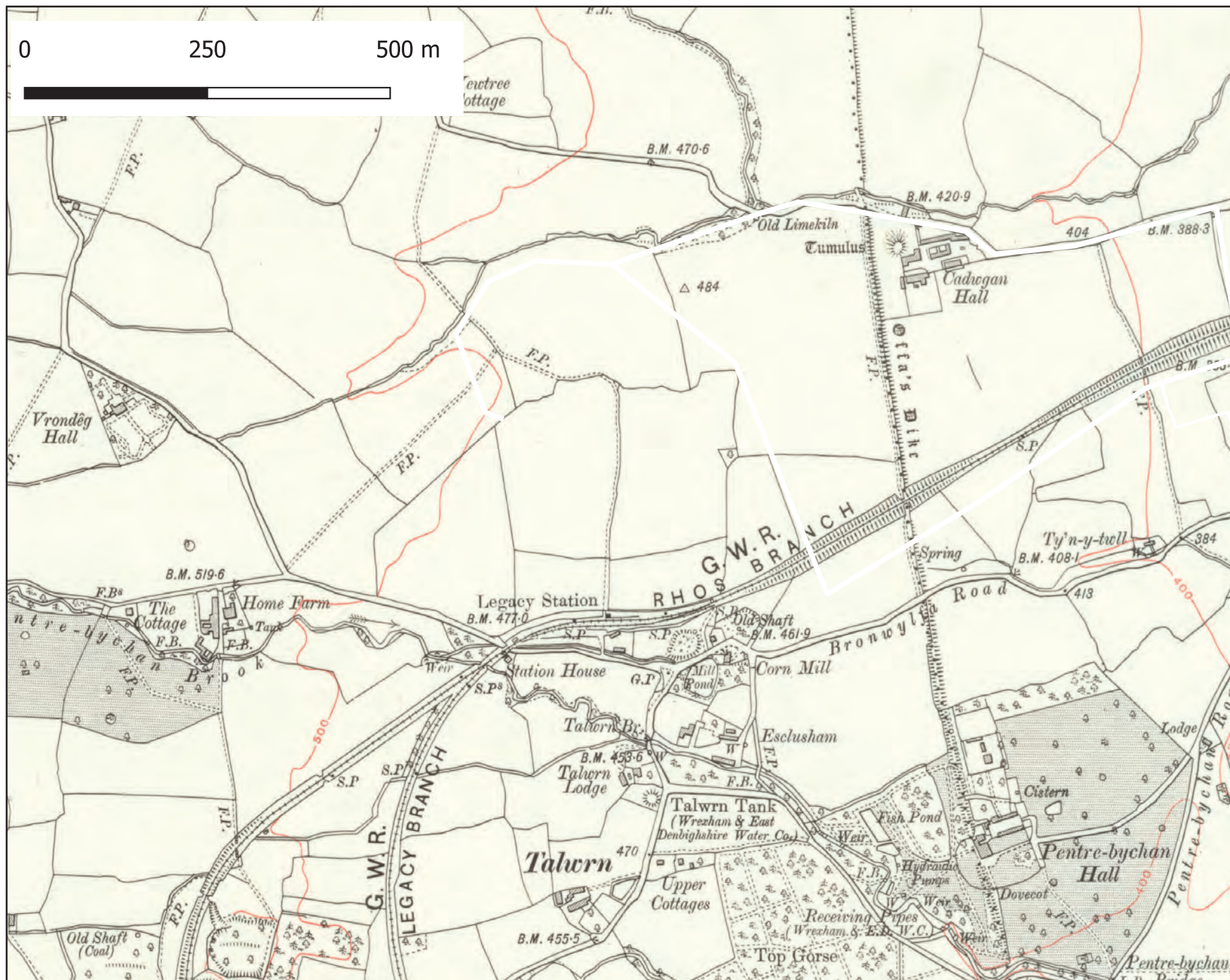


Figure 13: Extract From
The Ordnance Survey
County Series, Denbighshire
Sheet XXVIII SW, 1914 edition
Originally Printed at 6 inches
to the mile.

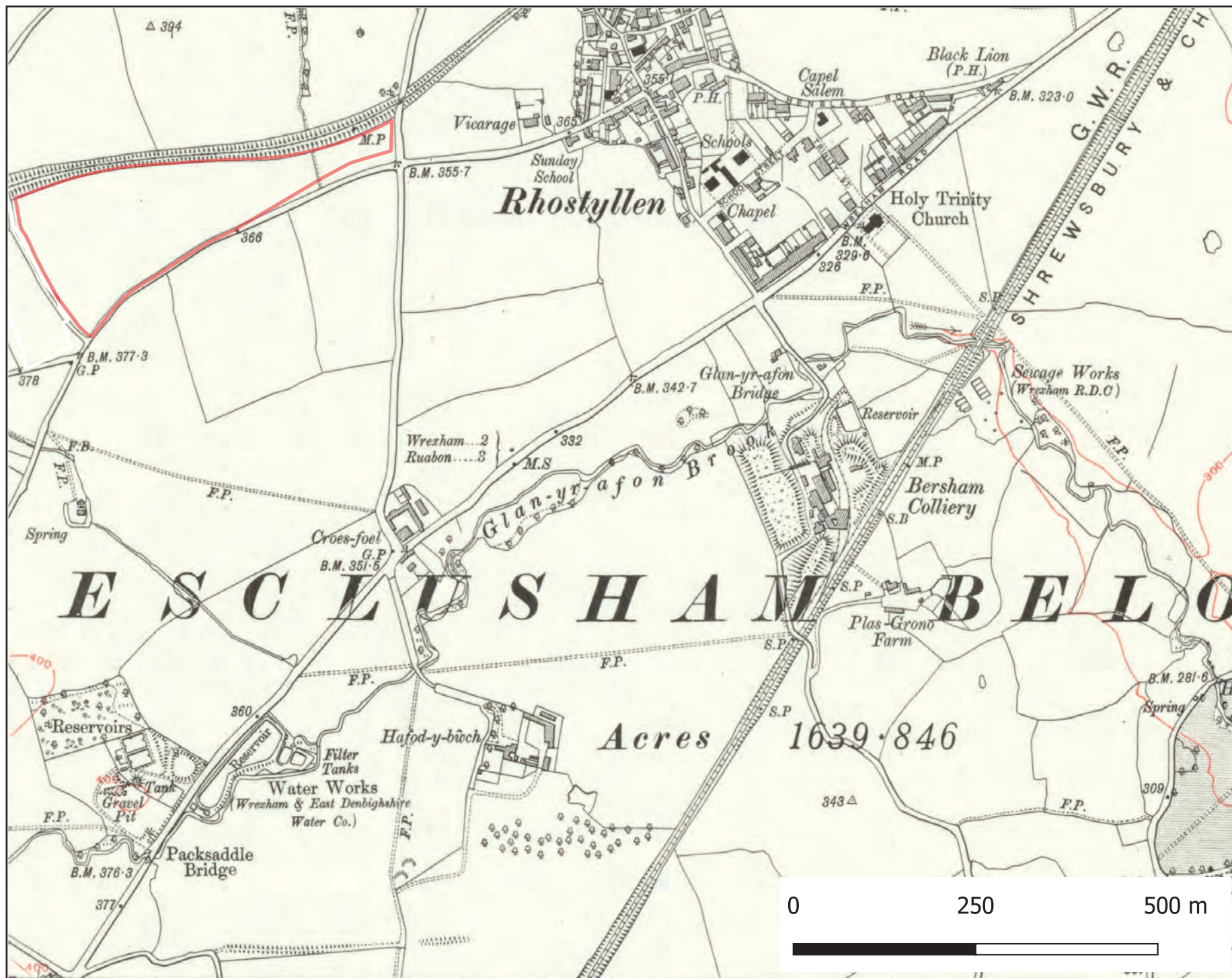


Figure 14: Extract From The Ordnance Survey County Series, Denbighshire Sheet XXVIII SE, 1915 edition Originally Printed at 6 inches to the mile.

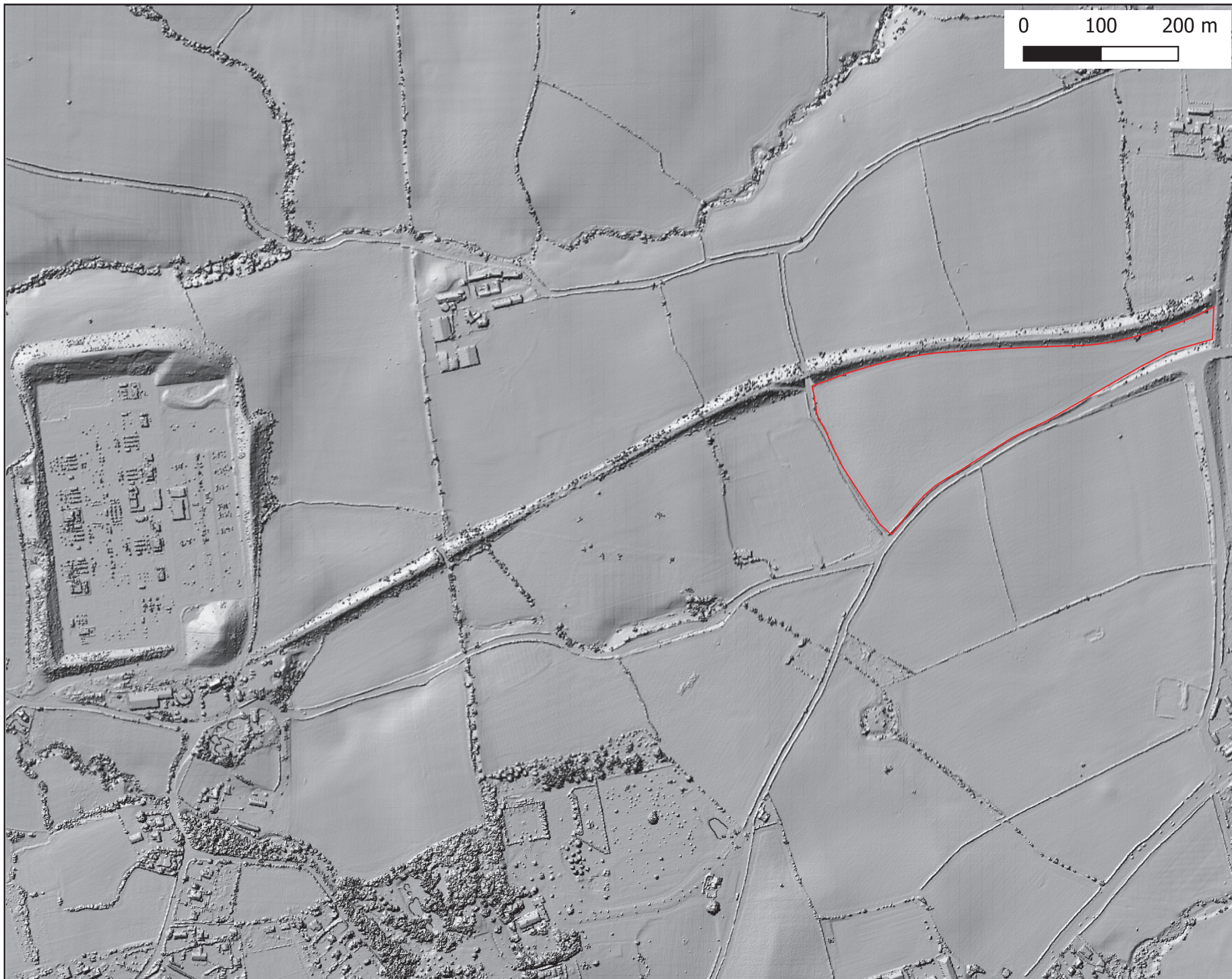


Figure 15: NEA Lidar Data (2021) at 1m DSM. Hillshade Plot.

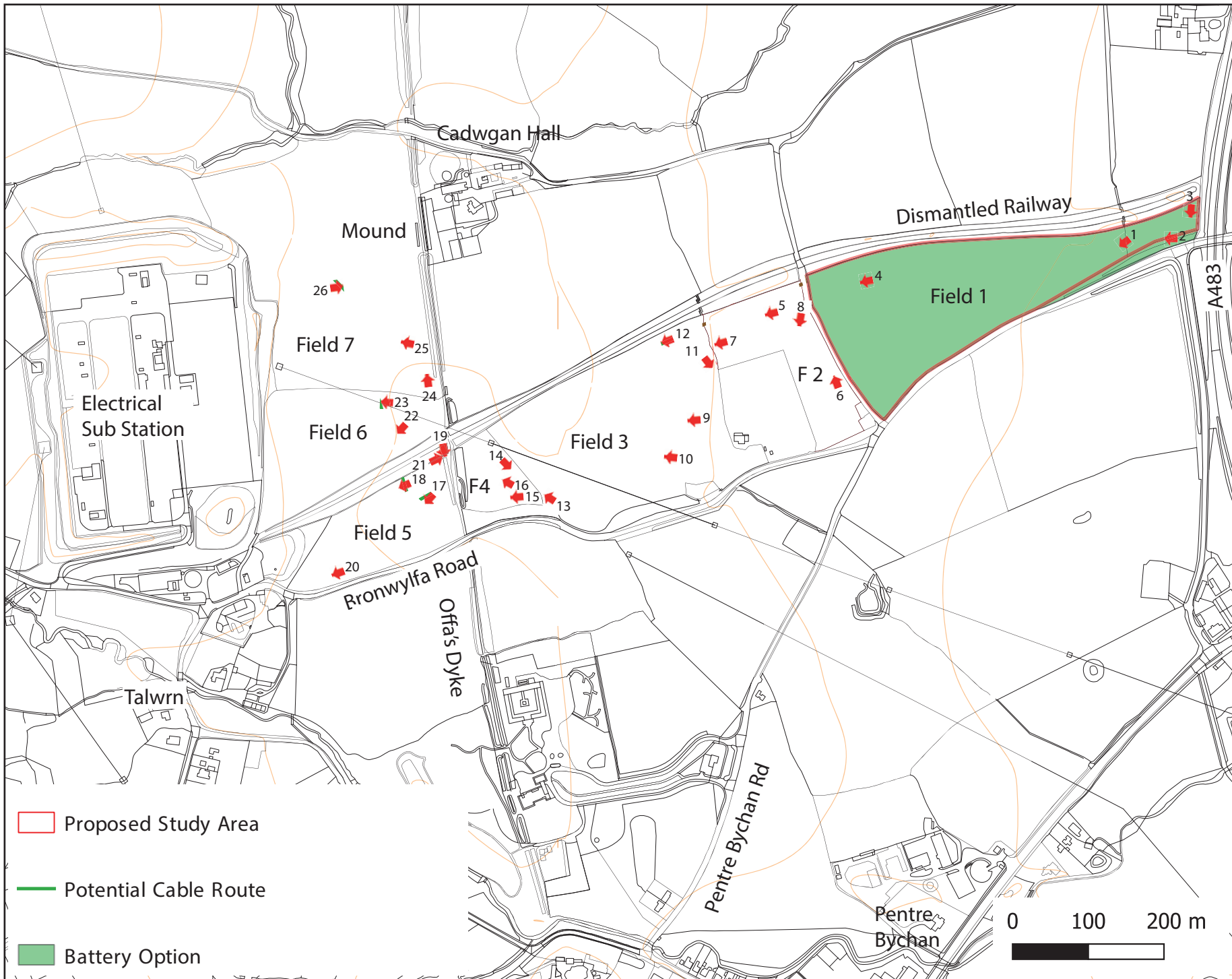


Figure 16: Photo Location Plan

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Plate 1: Field 1, view to west-southwest.



Plate 2: Field 1, east end, view to the west.



Plate 3: Field 1, east end view to south.



Plate 4: Field 1, west end, view to west.



Plate 5: Field 2, view west southwest along northern field boundary (Rhos Railway Embankment).



Plate 6: Field 2, view north northwest along the eastern field boundary.



Plate 7: Field 2, view west across the large lynchet forming the western field boundary with Field 3.



Plate 8: Field 2, view southwest towards earthwork remains of the northern boundary of the tithe field 'Pant'.



Plate 9: Field 3, view southwest.



Plate 10: Field 3, view west northwest across faint earthwork remains of Cadwygan Ridge and Furrow. The trees to the right mark the approximate line of the possible linear earthwork visible on LiDAR imagery.



Plate 11: Field 3, view southeast towards Field 2.



Plate 12: Field 3, view west along northern field boundary (Rhos Railway embankment).



Plate 13: Field 3, view northwest along western field boundary with Field 4.



Plate 14: Field 4, view southeast along eastern field boundary with Field 3.



Plate 15: Field 4, view west along southern field boundary towards Offa's Dyke (DE137).



Plate 16: Field 4, view northeast towards northern field boundary (Rhos Railway Embankment, Offa's Dyke visible on the left).



Plate 17: Field 5, view southwest towards the former Legacy Colliery and Station.



Plate 18: Field 5, view west southwest along the Rhos Railway Embankment



Plate 19: Field 5, view south along recently re-cut ditch parallel to Offa's Dyke (DE137)



Plate 20: Field 5, view west towards the former Legacy Colliery and Station.



Plate 21: Field 5, view east along possible southern Cable route from Field 11 across Offa's dyke (DE137) .



Plate 22: Field 6, view southwest towards the Rhos Railway Embankment.



Plate 23: Field 6, view west towards the Legacy Electrical Substation.



Plate 24: Field 7, view north along Offa's Dyke: Cadwgan Hall Section (DE132).



Plate 25: Field 7, view west from Offa's Dyke along the possible northern cable route towards Legacy Substation.



Plate 26: Field 7, view east along the possible northern cable route towards Offa's Dyke: Cadwgan Hall Section (DE132).

Archaeology Wales

APPENDIX I: Inventory of Archaeological Events Listed on the Regional HER Within 500m of the Site

prn	project Title	event name	event type	event org	project year	url
106595	Oofa's Dyke, Legacy, Wrexham. Archaeological Watching Brief	Offa's Dyke, Legacy, watching brief 2002	Watching brief	CPAT	2002	106595-0-CPAT 453
141832		WWI firing ranges				
141794		WWI Prisoner of War Camps				
141540		Llys and Maerdref				
132142	Roman Military Vici Assessment	Roman Military Vici Assessment	Project	CPAT		
129725	Mills and Milling Scheduling Enhancement Programme	Mills and Milling Scheduling Enhancement Programme, field survey 2012-13	Field survey	CPAT	2012-13	
129724	Mills and Milling Scheduling Enhancement Programme	Mills and Milling Scheduling Enhancement Programme, desk-based assessment 2011-12	Desk-based assessment	CPAT	2011-12	
129655	Medieval and Early Post-Medieval Farms and Farming Scheduling Enhancement Programme	Farms and Farming. Scheduling Enhancement Programme, desk-based assessment 2012-13	Desk-based assessment	CPAT	2012-13	
129654	Medieval and Early Post-Medieval Farms and Farming Scheduling Enhancement Programme	Farms and Farming. Scheduling Enhancement Programme 2012-13	Assessment project	CPAT	2012-13	
113549	Welsh Battlefields Project Pilot Study Historical Research	Welsh Battlefields, assessment project 2009	Assessment project	Border Archaeology	2009	
130754	Historic Settlement Archaeology Reassessment 2012-13	Historic Settlements Survey, Wrexham County Borough, desk-based assessment 2012-13	Desk-based assessment	CPAT	2012-13	http://www.cpat.org.uk/ycom/wrexham/wrexham.htm
130753	Historic Settlement Archaeology Reassessment 2012-13	Historic Settlements Survey, Wrexham County Borough, assessment project 2012-13	Assessment project	CPAT	2012-13	http://www.cpat.org.uk/ycom/wrexham/wrexham.htm
129723	Mills and Milling Scheduling Enhancement Programme	Mills and Milling Scheduling Enhancement Programme 2011-12	Assessment project	CPAT	2011-12	
129656	Medieval and Early Post-Medieval Farms and Farming Scheduling Enhancement Programme	Farms and Farming. Scheduling Enhancement Programme, field survey 2012-13	Field survey	CPAT	2012-13	

123707	Medieval and Early Post-Medieval Monastic and Ecclesiastical Sites in East and North-East Wales	Medieval and Early Post-Medieval Monastic and Ecclesiastical Sites in East and North-East Wales, desk-based assessment 2010-11	Desk-based assessment	CPAT	2010-11	
123175	Medieval and Early Post-Medieval Monastic and Ecclesiastical Sites in East and North-East Wales	Medieval and Early Post-Medieval Monastic and Ecclesiastical Sites in East and North-East Wales, Scheduling Enhancement Programme, 2010-11	Assessment project	CPAT	2010-11	
120907	Twentieth Century Military Sites	Twentieth Century Military Airfields. Scheduling Enhancement Programme, field survey 2012	Field Survey	CPAT	2012	
120906	Twentieth Century Military Sites	Twentieth Century Military Airfields. Scheduling Enhancement Programme, desk based assessment 2012	Desk based assessment	CPAT	2012	
120905	Twentieth Century Military Sites	Twentieth Century Military Airfields. Scheduling Enhancement Programme, 2012	Assessment project	CPAT	2012	
115411	Further Work on the Short Dykes of Mid and North-east Wales	The Short Dykes of Mid and North East Wales, evaluation project 2005-6	Evaluation project	CPAT	2005-06	
49993	Deserted Rural Settlements in North-east	Deserted Rural Settlements in North-east	Assessment project	CPAT		
170065	2021-22 Rivers Project	2021-22 Rivers Project			2021-22	
142322		Monastic Granges				
132148	First World War Commemoration	First World War Commemoration, Camps and Training Areas, desk-based assessment 2014-15	Desk-based assessment	CPAT	2015	
132472	Warrens and Parks: Medieval and Post-Medieval SEP	Parks Scheduling Enhancement Programme, field survey 2014	Field survey	CPAT	2013-14	
132471	Warrens and Parks: Medieval and Post-Medieval SEP	Parks Scheduling Enhancement Programme, desk based assessment 2014	Desk based assessment	CPAT	2013-14	

132470	Warrens and Parks: Medieval and Post-Medieval SEP	Parks Scheduling Enhancement Programme, 2014	Project	CPAT	2013-14	
132423	Warrens and Parks: Medieval and Post-Medieval SEP	Rabbit Warrens. Scheduling Enhancement Programme, field survey 2014	Field Survey	CPAT	2013-14	
132422	Warrens and Parks: Medieval and Post-Medieval SEP	Rabbit Warrens. Scheduling Enhancement Programme, desk based assessment 2013-14	Desk Based Assessment	CPAT	2013-14	
132421	Warrens and Parks: Medieval and Post-Medieval SEP	Rabbit Warrens. Scheduling Enhancement Programme 2013-14	Project	CPAT	2013-14	
132132	Twentieth Century Military Sites	Military Aircraft Crash Sites. Scheduling Enhancement Programme 2013-14, field survey 2013-14	Field survey	CPAT	2013-14	
132131	Twentieth Century Military Sites	Military Aircraft Crash Sites. Scheduling Enhancement Programme 2013-14, desk based assessment 2013-14	Desk based assessment	CPAT	2013-14	
132130	Twentieth Century Military Sites	Military Aircraft Crash Sites. Scheduling Enhancement Programme 2013-14	Project	CPAT	2013-14	
130972	Twentieth-Century Military Project	First World War Commemoration project, Scoping Study 2013	Desk-based assessment	CPAT	2013	
130971	Twentieth-Century Military Project	First World War Commemoration project 2013ff	Assessment project	CPAT	2013ff	
123561	Historic Settlement Archaeology Reassessment 2010-2014	Historic Settlement Archaeology Reassessment, assessment project 2010-2014	Assessment project	CPAT	2010-2014	
115432	Early Medieval and Ecclesiastical Sites in Mid and North-East Wales: The Second Report	Early Medieval and Ecclesiastical Sites in Mid and North-East Wales: The Second Report, assessment project 2002	Assessment project	CPAT	2002	
115432	Early Medieval and Ecclesiastical Sites in Mid and North-East Wales: The Second Report	Early Medieval and Ecclesiastical Sites in Mid and North-East Wales: The Second Report, assessment project 2002	Assessment project	CPAT	2002	

113485	Caves: The Scheduling Enhancement Programme	Caves, assessment project 2009	Assessment project	CPAT	2009	
112376	Roman Funerary and Religious Sites: The Scheduling Enhancement Programme	Roman Funerary and Religious Sites: The Scheduling Enhancement Programme, assessment project 2008	Assessment project	CPAT	2008	
112375	Roman Settlements: The Scheduling Enhancement Programme	Roman Settlements: The Scheduling Enhancement Programme, assessment project 2008	Assessment project	CPAT	2008	
115452	Roman Military Sites in Mid and North-East Wales	Roman Military Sites in Mid and North-East Wales, scoping study 2004	Scoping study	CPAT	2004	
115447	Medieval Crosses and Crossheads	Medieval Crosses and Crossheads, assessment project 2010	Assessment project	CPAT	2010	
115445	Roman Fort Environs	Roman Military Sites, assessment project 2006	Assessment project	CPAT	2006	
118854	Offa's Dyke	Offa's Dyke	Management project	CPAT		
115440	Ports and Harbours in North-east Wales	Ports and Harbours in North-east Wales, assessment project 2007	Assessment project	CPAT	2007	
115435	Roman Fort Environs in Powys I. The Geophysics	Roman Fort Environs, geophysical survey 2004	Geophysical survey	CPAT	2004	
115434	Archaeological Research Agenda for Wales. Clwyd-Powys Resource Audit	Archaeological Research Agenda for Wales. Clwyd-Powys resource audit 2002	Resource audit	CPAT	2002	
115432	Early Medieval and Ecclesiastical Sites in Mid and North-East Wales: The Second Report	Early Medieval and Ecclesiastical Sites in Mid and North-East Wales: The Second Report, assessment project 2002	Assessment project	CPAT	2002	
115430	Early Medieval Ecclesiastical Sites: Scheduling Recommendations 2003-04	Early Medieval Ecclesiastical Sites: Scheduling Recommendations 2003-04	Scheduling recommendations	CPAT	2003	
115409	Roman Military Sites in north-east and east Wales	Roman Military Sites in north-east and east Wales, geophysical survey 2007	Geophysical survey	CPAT	2007	

115397	Defended Enclosures in North-east Wales 2007-8	Defended Enclosures in North-east Wales, scheduling recommendations 2008	Scheduling recommendations	CPAT	2008	
115396	Burnt Mounds: Scheduling Enhancement Project	Burnt Mounds, assessment project 2010	Assessment project	CPAT	2010	
115395	Mines and Quarries: Scheduling Enhancement Project	Mines and Quarries: Scheduling Enhancement Project, assessment project 2010	Assessment project	CPAT	2010	
113250	Early Medieval Cemeteries in Mid and North-east Wales: Project Report	Early Medieval Cemeteries in Mid and North-east Wales, assessment project 2011	Assessment project	CPAT	2010	
113249	Early Medieval Cemeteries in Mid and North-east Wales: Scheduling Recommendations	Early Medieval Cemeteries in Mid and North-east Wales: Scheduling Recommendations	Scheduling recommendations	CPAT	2011	
113243	Round Huts in North-East Wales Scheduling Recommendations 2003-04	Round Huts in North-East Wales Scheduling Recommendations 2003-04	Scheduling recommendations	CPAT	2004	
113242	Round Huts in North-East Wales 2003-04	Round Huts in North-East Wales, assessment project 2004	Assessment project	CPAT	2004	
113236	The Short Dykes of Mid and North East Wales	The Short Dykes of Mid and North East Wales, assessment project 2001-06	Assessment project	CPAT	2001-06	
123690	The Short Dykes of Mid and North East Wales	The Short Dykes of Mid and North East Wales, evaluation project 2004-05	Evaluation project	CPAT	2004-05	
123689	The Short Dykes of Mid and North East Wales	The Short Dykes of Mid and North East Wales, assessment project 2003-04	Evaluation project	CPAT	2003-04	
115422	Defended Enclosures in North-east Wales, 2007-08.	Defended Enclosures in North-east Wales, assessment project 2008	Assessment project	CPAT	2008	
113237	Early Prehistoric Settlement in Mid and North East Wales: The Lithic Evidence	Early Prehistoric Settlement in Mid and North East Wales: The Lithic Evidence, desk-based assessment 2002	Desk-based assessment	CPAT	2002	
58872	The Short Dykes of Mid and North East Wales	The Short Dykes of Mid and North East Wales, assessment project 2001-02	Assessment project	CPAT	2001-02	

113149	Deserted Medieval and Later Rural Settlements in Powys and Clwyd: The Final Report	Deserted Medieval and Later Rural Settlements in Powys and Clwyd: The Final Report	Assessment project	CPAT	2001	
113148	An Uplands Initiative Monograph: Feasibility Study	An Uplands Initiative Monograph: Feasibility Study	Feasibility study	CPAT	2001	

Archaeology Wales

APPENDIX II: Inventory of Archaeological Sites Recorded on the Regional HER

PRN	Site Name	Description	Period	Type	NGR
104374	Aberoer Colliery	NO TRACE OF ANY COAL MINING ACTIVITY IN THE AREA. N0785	POST MEDIEVAL	COLLIERY	SJ290490
44826	Bersham finds	Finds recorded by National Museum & Galleries of Wales catalogue.	ROMAN	FINDSPOT	SJ3049
120659	Bersham Grange (Valle Crucis)	Possible site of grange of Valle Crucis abbey. Exact location, name and bounds unknown (Pratt, Derrick, 2011).	MEDIEVAL	GRANGE	SJ3049
17018	Bersham Ironworks, mill (Top Mill)	EXACT GRID REFERENCE UNKNOWN. ALSO KNOWN AS TOP MILL (LATER ROLLING MILL WORKS) AT PENTRE DEBENA. USED SAME WATERWHEEL AS WILKINSON'S IRON WORKS. BUILT BETWEEN 1818 AND 1823. FIRST RECORDED AS EXCISE No.524 IN 1823. PARTIALLY EXCAVATED 1976 (POWELL 1985, 23-6).	POST MEDIEVAL	PAPER MILL	SJ307492
42329	Bersham Mill Terrace 5	Grade II listed house	POST MEDIEVAL	HOUSE	SJ3066949 194
42328	Bersham Mill Terrace 6	Grade II listed house	POST MEDIEVAL	HOUSE	SJ3067249 191
102980	Bersham Roman Coins	2 ROMAN COINS FOUND PROBABLY AT BERSHAM BOTH DENARI ONE OF ANTONINUS PIUS AD138-161.THE OTHER OF FAUSTINA I HIS WIFE.ACCN NOS 241-2 C 1955.	ROMAN	FINDSPOT	SJ3049
104483	Bersham Smithy	SMITHY HAS BEEN DRASTICALLY ALTERED AND MODERNISED TO FORM A MODERN RESIDENCE. N0785	POST MEDIEVAL	BLACKSMITHS WORKSHOP	SJ3079491 7
144650	Bersham, Bersham Statue, war memorial	War memorial commemorating the First World War (1914-1918), Second World War (1939-1945) of Serviceman / Servicewoman type	MODERN	WAR MEMORIAL	SJ3000149 001
36688	Bersham, Bridge Cottages	Grade II listed house	POST MEDIEVAL	HOUSE	SJ3098549 150
144704	Bersham, Capt G Fitzhugh And Men Of Plas Power Estate, war memorial	War memorial commemorating the First World War (1914-1918) of Bells or bell tower type	MODERN	WAR MEMORIAL	SJ3050149 201
36680	Bersham, East Weir on River Clywedog	Grade II listed weir	POST MEDIEVAL	WEIR	SJ3084549 173
36689	Bersham, The White House	Grade II listed house	POST MEDIEVAL	HOUSE	SJ3072049 100
102956	Big Wood fish pond	1845 TITHE MAP REFERS TO FISHPOND IN THIS AREA.AN IRREGULAR BUT SIZEABLE DEPRESSION PROBABLY REPRESENTSTHE REMAINS OF THIS FISHPOND.	POST MEDIEVAL	FISHPOND	SJ2960477 0
145955	Bryn Gryffydd	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2888548 224
145956	Bryn Gryffydd	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2888748 246
145957	Bryn Gryffydd	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2890248 244
145958	Bryn Gryffydd	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2890148 270
145959	Bryn Gryffydd	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2892448 280
145960	Bryn Gryffydd	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2891648 273

145961	Bryn Gryffydd	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2891948257
145962	Bryn Gryffydd	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2891348272
146007	Bryn-yr-Owen	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2999647699
146008	Bryn-yr-Owen	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ3002647722
146009	Bryn-yr-Owen	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ3002947687
101152	Cadwgan Hall	Fine 14th cent interior hall with two spear-trusses with a 16th or 17th-century addition to the east end. Timber framed with stone walls rendered the hall was demolished in 1967. The site has largely been destroyed and superseded by a modern farmhouse and yard with buildings. What remains consists of a sandstone wall 16.0m long and 3.5m high into which are set two fireplaces.	MEDIEVAL	HALL HOUSE	SJ29874871
128267	Cadwgan Hall ridge and furrow	Area of R&F captured from LiDAR (Silvester, R, 2013).	MEDIEVAL	RIDGE AND FURROW	SJ3009548364
97000	Cadwgan Hall spindlewhorl	Plain biconical lead spindle whorl, (PAS Database, 2011).	MEDIEVAL; ROMAN	FINDSPOT	SJ29704860
146035	Cadwgan Hall, building	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2991048753
146036	Cadwgan Hall, building	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2989548767
146037	Cadwgan Hall, building	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2991148770
146038	Cadwgan Hall, building	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2992148772
146039	Cadwgan Hall, building	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2993348770
146040	Cadwgan Hall, building	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2994448771
146041	Cadwgan Hall, building	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2995148771
88799	Cadwgan Hall, coin	Silver Half Groat of James I, second or third coinage. Mintmark is a Rose giving dates of 1605-6 (2nd coinage) or 1620-21 (3rd), (PAS Database, 2011).	POST MEDIEVAL	COIN	SJ30054880
142402	Cadwgan Hall, farm buildings	Series of buildings associated with Cadwgan Hall, depicted on maps from the mid-1830s.	POST MEDIEVAL	FARM BUILDING	SJ29904874
104360	Cadwgan Hall, limekiln	Remains of a limekiln consisting of a semi-circle of brickwork and a slight mound.	POST MEDIEVAL	LIME KILN	SJ29674878
68163	Caeau Bridge trackway	A trackway shown on the OS 6" 1891 map running north/west.	POST MEDIEVAL	TRACKWAY	SJ3031649164
101513	Caer Groes Fieldname	FIELDNAME SUGGESTING CROSS LLUYD IN PAROCHIALIA ALSO NOTES A CROSS NEAR ESLEY HALL.RCAHM BELIEVES THIS MAY BE THE SITE OF IT NOW COVERED BY ELECTRICITY SUB-STATION.	MEDIEVAL	CROSS	SJ29404823
102645	Croes Foel placename	HOUSE CALLED CROES FOEL PROBABLY TAKES ITS NAME FROM A CALVARY CROSS WHICH IS KNOWN TO HAVE STOOD NEARBY IN 1545.	MEDIEVAL	CROSS	SJ308481

101824	Croes Foel ring ditch	A LIGHT ROUGHLY CIRCULAR AREA VISIBLE ON CPAT AIR PHOTO TO EAST OF PRN 101236. POSSIBLE BARROW SITE. N0585;	BRONZE AGE	RING DITCH	SJ30804813
105077	Croes Foel ring ditch	No trace of the site. Pasture field. Duplicate of PRN 101824 (CPAT site visit 29/7/99).	BRONZE AGE	RING DITCH	SJ30794815
101236	Croes Foel round barrow	Well-preserved earthen barrow, turf covered. Diameter 25m, height 1.2m. No obvious damage, although spread by ploughing in the past. Site does not appear to have been ploughed recently (CPAT 1999).	BRONZE AGE	ROUND BARROW	SJ30704810
146358	Croes-foel	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ3087648194
146359	Croes-foel	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ3085048172
36698	Croesfoel Farm, house	Grade II listed farmhouse	POST MEDIEVAL	FARMHOUSE	SJ3087048160
36699	Croesfoel Farm, timber-framed building in yard	Grade II listed farm building	POST MEDIEVAL	FARM BUILDING	SJ3088648179
146527	Esclusham	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2958548063
146528	Esclusham	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2959148061
146529	Esclusham	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2959848059
146530	Esclusham	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2960548057
146531	Esclusham	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2961148055
104357	Esclusham Corn Mill	MILL IS A 3 STOREY BUILDING USED FOR STORAGE OF TOOLS BY THE WATER BOARD. N0785	POST MEDIEVAL	CORN MILL	SJ2960848202
169952	Esclusham Corn Mill, mill pond	Mill pond associated with Esclusham Mill PRN 104357 depicted on early OS.	POST MEDIEVAL	MILL POND	SJ2955848168
101156	Esclusham Farm	HOUSE BUILT IN 1677 WHICH HAS BEEN CONSIDERABLY RESTORED. LOW HOUSE BUILT OF BRICK AND STONE NOT OUTSTANDING (CAS 4/12/93)	POST MEDIEVAL	FARMHOUSE	SJ2955348100
36701	Esclusham Farm, barn range	Grade II listed barn	POST MEDIEVAL	BARN	SJ2961048090
17016	Esclusham Mill	EXACT GRID REFERENCE NOT KNOWN. ESCLUSHAM MILL AT BERSHAM ESTABLISHED 1799 AFTER THE DESIGN OF WILLIAM HAZELDINE OF SHREWSBURY (DESIGNER OF THE SUPERSTRUCTURE OF MENAI AND CONWAY BRIDGES AND PONTCYSYLLTE AQUEDUCT). ALSO KNOWN AS TURKEY MILL. DESTROYED BY ACCIDENTAL FIRE 06/12/1810 (POWELL 1985, 15-20).	POST MEDIEVAL	PAPER MILL	SJ3049
126377	Esclusham, filtering tanks	Filtering tanks noted on early Ordnance Survey mapping during Glastir private woodland project	POST MEDIEVAL	FILTERING TANKS	SJ3071447845
214508	Esclusham, weir	Weir identified by the Amber Barrier Atlas project 2020	UNKNOWN	WEIR	SJ2922448206
214509	Esclusham, weir	Weir identified by the Amber Barrier Atlas project 2020	UNKNOWN	WEIR	SJ2972947959
214510	Esclusham, weir	Weir identified by the Amber Barrier Atlas project 2020	UNKNOWN	WEIR	SJ2973447954

214511	Esclusham, weir	Weir identified by the Amber Barrier Atlas project 2020	UNKNOWN	WEIR	SJ2973947951
214512	Esclusham, weir	Weir identified by the Amber Barrier Atlas project 2020	UNKNOWN	WEIR	SJ2974347948
214514	Esclusham, weir	Weir identified by the Amber Barrier Atlas project 2020	UNKNOWN	WEIR	SJ2980847914
214521	Esclusham, weir	Weir identified by the Amber Barrier Atlas project 2020	UNKNOWN	WEIR	SJ3053047719
214596	Esclusham, weir	Weir identified by the Amber Barrier Atlas project 2020	UNKNOWN	WEIR	SJ2981947880
214597	Esclusham, weir	Weir identified by the Amber Barrier Atlas project 2020	UNKNOWN	WEIR	SJ3013947731
142401	GWR Rhos Branch near Cadwgan Hall	Section of railway branch line built between 1899 and 1912, to judge from OS maps.	MODERN	RAILWAY	SJ29924844
101242	Hafod Y Bwch House	A 1612 GABLED TIMBER FRAMED FARMHOUSE THE RCAHM SAYS 1590 THE NW WING IS MODERN.THE RESIDENCE OF THE ROBERTS FAMILY.; (CAS 4/12/93)	POST MEDIEVAL	FARMHOUSE	SJ3101147863
101238	Hafod y bwch round barrow	SHARPLY POINTED BARROW 40M IN DIAMETER 2.8M HIGH CROSSED BY A FENCE AND FARM TRACK ON ITS S SIDE. SCARPING AROUND N PERIMETER AND THE NARROW DITCH JOINING IT ARE PROBABLY MODERN. (OS 1959)	BRONZE AGE	ROUND BARROW (LARGE)	SJ30864768
146852	Hafod-y-bwch	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ3106547897
146853	Hafod-y-bwch	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ3104947902
146854	Hafod-y-bwch	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ3106647886
26237	Hafod-y-Bwch Hall, gate piers	Listed gate piers to Hafod-y-bwch house.	POST MEDIEVAL	GATEWAY	SJ3085048100
26236	Hafod-y-Bwch Hall, house and gate piers	Listed house and gate piers.	POST MEDIEVAL	HOUSE	SJ30854810
36697	Hafod-y-Bwch Hall, timber-framed Barn in Yard	Grade II listed barn	POST MEDIEVAL	BARN	SJ3104947903
169951	Legacy Mill, mill race	Mill Race depicted on early OS.	POST MEDIEVAL	MILL RACE	SJ2937448222
104370	Legacy Station Coal Shaft	COAL SHAFT IS FILLED AND SURROUNDED BY A FENCE. N0785	POST MEDIEVAL	COAL MINE	SJ2962248240
169953	Legacy Station, coal shaft II	Old shaft depicted on 1899 Ed2 OS Map	POST MEDIEVAL	MINE SHAFT	SJ2954948206
169954	Legacy Station, railway station	Dis-used railway on the Rhos Branch of the GWR. Depicted on Ed3 OS 1912 Denb.	MODERN	RAILWAY STATION	SJ2938048260
169955	Legacy Station, Station House	Station House depicted on Ed2 OS Denb.			SJ2930848202
169950	Legacy Tower, Wrexham	The water tower at Legacy was constructed and brought into use in 1934 and is one of 8 water treatment plants providing water to homes, factories, offices and schools in the Wrexham area.	MODERN	WATER TOWER	SJ2951848227
102636	Little Fawnog Seal	A MIXED METAL SEAL WAS FOUND IN ABOUT 1882 IN THE GARDEN OF A COTTAGE AT LITTLE FAWNOG.THE BRITISH MUSEUM SAID IT WAS A KNIGHTLY SEAL OF EARLY 12TH CENTURY.SINCE LOST.	MEDIEVAL	FINDSPOT	SJ3149

101237	Llyntro moated site	Low lying moated site, roughly rectangular in shape, approximately 35m by 27m surrounded by wet moat. There is a causeway on the north side which may be original. The moat is fed by a stream from the north-wet. The site is known to have been occupied in 1688.	MEDIEVAL	MOATED SITE	SJ30424819
104800	Offa's Dyke	IMPOSING STRETCH OF BANK AND DITCH DESTROYED AND DAMAGED IN PLACES BUT GENERALLY IN GOOD CONDITION. HEIGHT OF BANK VARIES BUT AVERAGES 2.2M. S D132	EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29904813
28226	Offa's Dyke - DC entry	Offa's Dyke is a massive 1200 year old earthwork boundary which runs on or close to the modern border between England and Wales. The dyke consists of a rampart, which can be up to 8m high, and a deep ditch, usually on the western side of the rampart.	EARLY MEDIEVAL	LINEAR EARTHWORK	SJ2977349299
28227	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29814920
28228	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29814910
28229	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29814900
28230	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29814890
28231	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29824880
28232	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29834870
28233	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29844860
28234	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29864850
28235	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29894840
28236	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29894830
28237	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29904820
28238	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29914810
28239	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29934800
28240	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29984790
28241	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29994780
28242	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ30004770
28243	Offa's Dyke - DC entry		EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29994760
106762	Offa's Dyke - Esclusham	DYKE DESTROYED ADJACENT TO PENTRE BYCHAN HALL.	EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29964791
106764	Offa's Dyke - Esclusham	NO TRACE OF DYKE CROSSING SMALL RAVINE AND DAMAGED BY FARM TO SOUTH.	EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29994769
106761	Offa's Dyke - Esclusham De132, De137, De194	IMPOSING STRETCH OF BANK AND DITCH DESTROYED AND DAMAGED IN PLACES BUT GENERALLY IN GOOD CONDITION. HEIGHT OF BANK VARIES BUT AVERAGES 2.2M.	EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29854855
106763	Offa's Dyke - Esclusham De137	STRETCH OF DYKE FROM CREMATORIUM TO RIVER. CONSISTS OF BANK SOME 1.9M HIGH WITH SLIGHT HOLLOW TO W MARKING DITCH. DYKE ENDS AT RIVER SCARP TO S.	EARLY MEDIEVAL	LINEAR EARTHWORK	SJ29984778
101153	Pentre Bychan Coins	ON LEVELLING PART OF OFFAS DYKE IN 1824 SEVERAL SAXON COINS WERE FOUND. NO INFORMATION CONCERNING THE COINS HAS COME TO LIGHT SINCE.	EARLY MEDIEVAL	FINDSPOT	SJ29944793

26108	Pentre Bychan Hall, dovecote	Exact location unknown.	POST MEDIEVAL	DOVECOTE	SJ3005147885
126378	Pentre-bychan, fish pond	Fish pond noted on early Ordnance Survey mapping during Glastir private woodland project	POST MEDIEVAL	FISHPOND	SJ2981647951
126379	Pentre-bychan, hydraulic pump I	Hydraulic pump noted on early Ordnance Survey mapping during Glastir private woodland project	POST MEDIEVAL	HYDRAULIC PUMP	SJ2983847933
126380	Pentre-bychan, hydraulic pump II	Hydraulic pump noted on early Ordnance Survey mapping during Glastir private woodland project	POST MEDIEVAL	HYDRAULIC PUMP	SJ2984347907
101151	Plas Cadwgan mound	A large earthen mound (5. 5m high, 50m dia), apparently the result of excavating material between its west side and the bank of Offa's Dyke, creating a hollow between them.	EARLY MEDIEVAL; MEDIEVAL	MOTTE;ROUND BARROW	SJ29844876
142403	Plas Cadwgan mound, air raid shelter	WW2 air raid shelter, cut into the Plas Cadwgan mound.	MODERN	AIR RAID SHELTER	SJ2983748767
15693	Rhostyllen	The early history of Rhostyllen is obscure. There is no substantive evidence of medieval occupation here, and it seems probable that it grew as a result of the local coal mining industry, Bersham colliery lying just to the south. In the 1870s the village is pictured as a chapel, a couple of public houses and a spread of dwellings grouped around a crossroads. Only later did it emerge as a community of any size.	MULTIPERIOD	SETTLEMENT	SJ3148
164953	Rhostyllen, milestone, DEN_WROW02	Post medieval milestone	POST MEDIEVAL	MILESTONE	SJ312483
132621	Rhostyllen, Plas Grono Road, Bersham Bank Colliery Tip	Colliery tip, subject of photographic survey in 2011. (Andy Evans, 2014)	POST MEDIEVAL	COLLIERY	SJ3100848233
26216	Squire Cottage	Location uncertain.	POST MEDIEVAL	HOUSE	SJ3109449131
148352	Talwrn Farm	Potential Traditional Farm Building noted on Ordnance Survey 2nd Edition 25 inch map as part of Glastir Traditional Farm Buildings project	POST MEDIEVAL	FARM BUILDING	SJ2940147867
79540	Talwrn Farm	Farmstead possibly containing traditional farm buildings.	POST MEDIEVAL	FARMSTEAD	SJ2938347861
79541	Talwrn Farm, field boundaries	Fields possibly surrounded by traditional field boundaries.	POST MEDIEVAL	FIELD SYSTEM	SJ2931347945
142404	Ty'n-y-twl well	Well depicted on 1873 and 1899 OS maps.	POST MEDIEVAL	WELL	SJ2993348317

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APPENDIX III: Written Scheme of Investigation

WRITTEN SCHEME OF INVESTIGATION

FOR AN ARCHAEOLOGICAL

DESK-BASED ASSESSMENT

ON LAND AT RHOSTYLLEN, WREXHAM.

Prepared for:

Novus Renewable Services Ltd

Project No: 3056

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Figure 1. Site location

Figure 2. Detailed proposed plan of the site

Appendix 1: Data Management Plan

Summary

This Written Scheme of Investigation (WSI) details the proposal for an archaeological Desk Based Assessment and Site Visit associated with the proposed battery storage facility and substation and a buried 400kV cable on land at Rhostyllen, to the west of Wrexham centred on SJ 29470 48398. It has been prepared by Archaeology Wales Ltd for Novus Renewable Services Ltd, in support of a forthcoming planning application. The local planning authority is Wrexham County Borough Council.

The purpose of the proposed Desk Based Assessment and Site Visit is to highlight and assess the impact of the proposed development on the archaeological resource.

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

Introduction and planning background

This WSI details the proposal for an archaeological Desk Based Assessment (DBA) and Site Visit to be undertaken in association with the proposed battery storage facility and substation and a buried 400kV cable on land at Rhostyllen, to the west of Wrexham centred on SJ 29470 48398 (Figure 1 and 2). The site is currently in the pre-planning application stage, the local planning authority is Wrexham County Borough Council (WCBC).

Whilst the current development proposal is in the pre-planning Application stages, Consultation with Clwyd-Powys Archaeological Trust Archaeological Planning Management (CPAT-APM) dated 13/12/2022 confirmed the requirement for an archaeological DBA to be submitted in support of the application. CPAT also indicated that a geophysical survey is also likely to be required at the pre-determination stage in the battery storage facility areas to test for unrecorded sub-surface archaeology of prehistoric and medieval date due to the proximity of the proposals to scheduled monuments. If significant geophysical anomalies are found they will also need to be investigated by targeted trenching at the pre-determination stage. Separate WSIs to cover these required mitigation stages will be produced and submitted to CPAT for approval in advance of commencement of each stage.

Pre-application consultation with Cadw produced the following response (dated 15 December 2022):

We recommend that additional information is required to enable a balanced decision to be taken against Planning Policy Wales, Technical Advice Note 24 Historic Environment and associated guidance. Full details of the additional information that is required are explained in the below assessment.

Assessment

This advice is given in response to an enquiry in regard to the contents of a historic environment desk-based assessment for a proposed new battery storage facility at Rhostyllen, Wrexham.

The cable connecting the storage facility to the electrical sub-station will need to cross the line of Offa's Dyke, which for most of its' course in this area is a scheduled monument. All possible routes for this cable avoiding entering a designated area should be considered before any proposal to cross a scheduled monument is made. If no feasible route avoiding the designated historic assets is possible then scheduled monument consent will be required and this should be applied for before any planning application is submitted.

It has been suggested that an application for this development will require a heritage impact assessment as well as a historic environment desk-based assessment to be submitted with it. However, unless the proposals have a direct impact on any designated historic asset, a heritage impact assessment will not be required.

In regard to the historic environment desk-based assessment, the impact of the proposed development on the setting of the above designated heritage assets (which are located inside 3km of the proposed development should be carried out in accordance with the Welsh Government guidance given in the document "The Setting of Historic Assets in Wales". It is expected that a stage 1 assessment to be carried out for all of the above designated heritage assets, which will determine the need, if necessary, for stages 2 to 4 to be carried out for specific heritage assets.

A separate stage 1 settings assessment will be carried out in order to satisfy that part of the pre-application requirements from Cadw. This will be carried out in accordance with the Welsh Government guidance given in the document "The Setting of Historic Assets in Wales" and submitted to Cadw in advance of the submission of any planning proposal. The separate stage 1 settings assessment will consider all designated heritage assets within a 3km radius of the site.

The site lies within 200m of the Bersham Conservation Area and contains four Scheduled Monuments: Offa's Dyke: Section extending 120m from Railway to Bronwylfa Road, Legacy (DE194); Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the Railway (DE132); Moated Site near Groesfoel Farm, Rhostyllen (DE193); and Croes-Foel Round Barrow (DE048).

This WSI for an archaeological desk-based assessment has been prepared by Dr John Davey, Archaeology Wales Ltd (henceforth - AW) at the request of Novus Renewable Services Ltd.

The methodology set out in this WSI has been agreed with Clwyd-Powys Archaeological Trust Archaeological Planning Management (CPAT-APM) in its capacity as archaeological advisors to the local planning authority (WCBC). The purpose of the proposed Desk Based Assessment and Site Visit is to provide the local planning authority with the information they are likely to request in respect of the proposed development, the requirements for which are set out in Planning Policy Wales Revised Edition.11, Section 6.1 (2021) and Technical Advice Note (TAN) 24: The Historic Environment (2017). The work is to highlight and assess the impact of the proposed development on the archaeological resource.

All work will conform to the Standard and Guidance for Archaeological Desk Based Assessment (ClfA 2020) and be undertaken by suitably qualified staff to the highest professional standards. AW is a Registered Organisation with the ClfA.

2. Development Details & Site Description

The proposed development is still in the pre-planning application stage. However, it is understood that it will comprise a battery storage project near Bersham on land at Rhostyllen, to the west of Wrexham centred on SJ 29470 48398 (Figure 1 and 2). The proposal will include a battery storage facility and substation that is likely to be contained to the fields marked Green (Option 1) and Brown (Option 2). The brown line denotes a land ownership boundary and may be required for access but no other development. A cable route to the substation is yet to be fully understood but will comprise a buried 400kV cable potentially on one of the two approximate routes shown in Green. However, Cadw has recommended that if either of these routes are proposed in any planning application, then Scheduled Monument Consent will be required. Alternative routes for the cable, avoiding the scheduled sections of Offa's Dyke would include along the disused railway, or along the route of Bronwylfa Road. Ground disturbance for the cable is likely to comprise a trench approximately 1m wide (Figure 2).

The proposed development area currently comprises an existing electrical substation to the west, and mixed-use, irregular, hedged agricultural fields (Figures 1 & 2).

The proposed development area covers a total of approximately 84.5ha, although this includes several fields in which the impact of the proposed development will be limited at most to a 1m wide cable trench that will be re-covered and invisible on completion of the project. It also includes four fields to the southeast which may be required for access but will remain otherwise undeveloped. The area of the two proposed battery storage sites is limited to approximately 5.7ha (Option 1) and 9.9ha (Option 2), and it is proposed that only one of these options will eventually be developed (Figure 2).

The proposed development area is undulating and bounded by the Afon Clywedog valley to the north and the valley of the Glanyrafon Brook to the south, both of which drain from west to east. In general, the ground slopes from approximately 160m above Ordnance Datum to the northwest down to 100m aOD to the southeast. The valley of a small tributary to the Glanyrafon Brook also bisects the site from northwest to southeast. The two proposed locations for the battery storage facility both lie towards the northeast part of the study area, at a point adjacent to the A483 Wrexham Bypass and opposite the Croesfoel Industrial Estate.

The underlying geology for the northern and western parts of the site comprises Mudstone, siltstone and sandstone of the Pennine Lower Coal Measures Formation and Pennine Middle Coal Measures Formation - Sedimentary bedrock formed between 319 and 309.5 million years ago during the Carboniferous period. The underlying geology for the southeastern part of the site (Option 2 and associated land south of the B5097) comprises Mudstone of the Etruria Formation -. Sedimentary bedrock formed between 319 and 308 million years ago during the Carboniferous period.

The bedrock is overlain by superficial deposits which, over the majority of the site, comprises Devensian Till - Diamicton. A sedimentary superficial deposit formed between 116 and 11.8 thousand years ago during the Quaternary period. However, the site is subdivided by a 400m wide band of Devensian Glaciofluvial Deposits - Sand and gravel, formed between 116 and

11.8 thousand years ago during the Quaternary period. This band runs approximately NNW-SSE along the line of Cadwgan Lane. (BGS, Geology Viewer – accessed 12/12/2022).

3. Historical background

The site lies within 200m of the Bersham Conservation Area and the wider proposed development area contains four Scheduled Monuments: Offa's Dyke: Section extending 120m from Railway to Bronwylfa Road, Legacy (DE194); Offa's Dyke: Cadwgan Hall Section, extending from River Clywedog to the Railway (DE132); Moated Site near Groesfoel Farm, Rhostyllen (DE193); and Croes-Foel Round Barrow (DE048).

The Croes-Foel Round Barrow (DE048) lies in the south-eastern part of the proposed development area, approximately 200m south of the proposed Option 2 battery storage site. This monument comprises the remains of an earthen built round barrow, which probably dates to the Bronze Age (c. 2300 - 800 BC). The barrow is circular in shape on plan and has a rounded profile. The monument is of national importance for its potential to enhance our knowledge of prehistoric burial and ritual practices.

Two scheduled sections of Offa's Dyke lie within the proposed study area (DE194 & DE132). It is currently proposed that the cable trench will pass across the line of this monument. The linear earthwork is believed to have been constructed in the 8th century AD to define the western border of the Anglo-Saxon kingdom of Mercia. The monument comprises a defensive bank and ditch consisting of a stretch of bank, with a ditch on the western side. A counterscarp (raised bank) may be visible on the west side of the ditch in places. The monument is of national importance for its potential to enhance our knowledge of early medieval defensive organisation and settlement.

Later medieval activity within the site is attested by the presence of the *Moated Site near Groesfoel Farm, Rhostyllen* (DE193); This monument lies less than 40m southwest of the proposed Option 2 Battery Storage facility, in a separate field. It comprises the remains of a well-preserved medieval moated homestead, lying on fairly low land. The moat is complete except for part of the eastern side and is of an average depth of 1.5m. It is waterfilled in the northwest corner and elsewhere it is marshy. There is a causeway on the north side with traces of masonry and within the enclosure are masonry foundations of a building measuring 5 x 6.5m with a small rectangular addition of 3m square. The monument is of national importance for its potential to enhance our knowledge of medieval settlement.

Further medieval activity is known from Cadwgan Hall immediately to the north of the site and an associated mound: *Cadwgan Hall Mound* (DE131) thought to be the site of a motte and Bailey adjacent to Offa's Dyke.

Historic maps indicate the presence of Industrial activity in the area by the early 19th century. A coal pit is recorded on the Ordnance Survey surveyors drawings of 1835 at Esclusham in the southwest corner of the proposed study area. A disused railway also runs through the site from west to east. This represents a section of the GWR Rhos Branch line built between 1899 and 1912. The associated Legacy Station appears to have been

constructed on the Rhos branch adjacent to the former coal pits (OS County Series 6 inch Denbighshire Sheet XXVIII.SW Revised: 1909 to 1910, Published: 1914).

The site lies within the landmap historic landscape area of *Talwrn* (WRXHMHL021) characterised as a rural environment of agricultural irregular fieldscapes.

4. Objectives

The primary objective will be to assess the impact of the development proposals on the historic environment by means of a Desk Based Assessment and Site Visit. This will help inform future decision making, design solutions and potential mitigation strategies. The aim will be to make full and effective use of existing information in establishing the archaeological significance of the site, to elucidate the presence or absence of archaeological material, its character, distribution, extent, condition and relative significance.

The work will include a comprehensive assessment of regional context within which the archaeological evidence rests and will aim to highlight any relevant research issues within national and regional research frameworks.

The work will result in a report that will provide information of sufficient detail to allow informed planning decisions to be made which can safeguard the archaeological resource. Preservation *in situ* will be advocated where at all possible, but where engineering or other factors result in loss of archaeological deposits, preservation by record will be recommended.

5. The proposed archaeological work

The aim of the work will be to establish and make available information about the archaeological resource existing on the site. The work will include the following elements:

- Desk Based Assessment (Stage 1)
- A site visit (Stage 2)
- The production of an illustrated report (Stage 3)

6. Method Statement for a Detailed Desk Based Assessment (Stage 1)

The assessment will consider the following:

- a) The nature, extent and degree of survival of archaeological sites, structures, deposits and landscapes within the study area through assessment of various readily available primary sources:

1. Collation and assessment of all relevant information held in the regional HER at CPAT, including listed building records, within a 500m radius of the assessment area boundary.
 2. Collation and consideration of the impact on Designated archaeological sites (Scheduled Ancient Monuments, Historic Parks & Gardens, registered historic landscapes, Conservation Areas) within a 3km radius of the assessment area boundary.
 3. Assessment of all available excavation report and archives including unpublished and unprocessed material affecting the site and its setting.
 4. Assessment of all relevant extant aerial photographic (AP) evidence. This will include those held by the regional HER and the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), in Aberystwyth.
 5. All sources indexed in the County Archive, and as appropriate, site files held by the RCAHMW.
 6. Records held by the developer e.g. bore hole logs, geological/geomorphological information, aerial photographs, maps, plans
 7. Map regression analysis using all relevant cartographic sources e.g. All editions of the Ordnance Survey County Series, Tithe and early estate maps (as available).
 8. Place name evidence
 9. Internet sourced satellite imagery and Lidar imagery as available.
 10. Assessment of records held at the Portable Antiquities Scheme.
 11. Historic documents (e.g. Charters, registers, estate papers).
- b) The significance of any remains in their context both regionally and nationally and in light of the findings of the desk-based study.
- c) The history of the site based on the areas of research outlined above.
- d) The potential impact of any proposed development on the setting of known sites of archaeological importance (this will constitute a brief assessment, rather than a formal assessment such as that detailed in the Cadw guidelines of 2017. A separate stage 1 settings assessment of all designated heritage assets within 3km of the site will be submitted to Cadw in advance of any planning application).
- e) The potential for any impacts to historic hedgerows under the heritage criteria of the Hedgerow Removal Regulations 1997 and will clearly identify any hedgerows which are considered "important" under those criteria.
- (<https://www.legislation.gov.uk/ukxi/1997/1160/contents/made>).
- f) The potential for further archaeological remains to be present, which have not been identified in pre-existing archaeological records.

g) The potential for further work, with recommendations if requested and where appropriate for a suitable investigative and/or mitigation methodology.

7. The Site Visit (Stage 2)

The site visit will be a visual walked search of the entire development area. The ground surface will be visually inspected for all earthworks, structures and finds. The location of any environmental archaeological deposits, or areas which may have a potential for such deposits, will also be taken into account along with the more traditional 'visible' archaeology.

All located sites or finds will be accurately fixed by means of GPS. Each individual find or site location will have an accurate NGR reference attached. Where a close cluster of related features is identified a single NGR for the centre of the cluster will be used, and each constituent feature separately described in the text.

The character, function, condition, vulnerability, potential dating and relationship to other features of each identified site or find will be described fully. The importance of the site or find will be assessed in terms of local, regional or national significance.

A sketch survey of each identified site layout will be made with accompanying metric measurements

Written, drawn and photographic records of an appropriate level of detail will be maintained throughout the course of the project. Digital photographs, including metric scales, will be taken using cameras with resolutions of 10 mega pixels or above. Photographs will be taken in RAW format.

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

8. The production of an illustrated report and the deposition of the site archive (Stage 3)

A report will be produced which synthesises the results of stages 1 and 2 and thereby assesses the total archaeological resource within the development area.

The results will be presented in such a way that data and supporting text are readily cross-referenced. The regional HER Officer will be contacted to ensure that any sites or monuments not previously recorded in the HER are given a Primary Record Number (PRN) and that data structure is compatible with the *Guidance for the Submission of Data to the Welsh Historic Environment Records (2022)*. The historical development of the site will be presented in phased maps and plans comprising clearly, the outline of the site.

Within the report an attempt will be made to indicate areas of greater or lesser archaeological significance and the sites will be ranked in level of overall archaeological importance (locally, regionally and nationally).

All relevant aerial photographs and historic maps will be included and be fully referenced. Any site photographs included in the report will be appropriately captioned and clearly located on a suitably scaled site plan.

The report will be used to inform future decision making regarding further stages of archaeological work (Field Evaluation, Watching Brief etc), the development construction and processes used.

The report will specifically include the following:

1. a copy of the design brief
2. a location plan
3. all identified sites plotted on an appropriately scaled plan of the proposal site
4. a gazetteer of all located sites and finds with full dimensional and descriptive detail including grid reference and period

Copies of the report will be sent to: The client, CPAT-APM, and for inclusion in the regional HER. The HER requires a high-resolution pdf report sent via <https://cpat.org.uk/heddos.html>.

Any further stages of archaeological work, after the submission of the report for stages one and two outlined above, will be the subject of an additional CPAT-APM curatorial brief against which a further AW specification will be drawn up.

The site archive

The final archive (site and research) will, whenever appropriate, be deposited with the National Monuments Record, RCAHMW. The archive will be prepared in accordance with the Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) (Welsh Archaeological Trusts, October 2022).

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

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

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

The archive will be deposited in accordance with the National Standard and Guidance to Best Practice for Collecting and Depositing Archaeological Archives in Wales (National Panel for Archaeological Archives in Wales, 2019) and the Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) (Welsh Archaeological Trusts, October 2022).

Staff

The project will be managed by Dr John Davey MCIfA (AW Project Manager) and the assessment undertaken by suitably trained and experienced AW staff. Any alteration to staffing before or during the work will be brought to the attention of CPAT-APM and the client.

Additional Considerations

10. Health and Safety

Risk assessment

Prior to the commencement of the site visit AW will carry out and produce a formal Health and Safety Risk Assessment in accordance with the Management of Health and safety Regulations 1992. A copy of the risk assessment will be kept on site and be available for inspection on request. A copy will be sent to the client (or their agent as necessary) for their information. All members of AW staff will adhere to the content of this document.

Other guidelines

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

10 Insurance

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

11 Quality Control

Professional standards

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

Project tracking

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

12 Arbitration

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

13 References

Chartered Institute for Archaeologists, 2014. *Standard and guidance for the archaeological investigation and recording of standing buildings or structures*.

Chartered Institute for Archaeologists, 2020. *Standard and guidance for historic environment desk-based assessment*

National Panel for Archaeological Archives in Wales, 2019. Archaeological Archives: Selection, Retention and Disposal Guidelines for Wales.

Welsh Archaeological Trusts, 2022. *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Welsh Archaeological Trusts, October 2022).

Websites Consulted:

British Geological Survey: <https://www.bgs.ac.uk/map-viewers/bgs-geology-viewer/>

Accessed 12/12/22

National Library of Scotland Maps: <https://maps.nls.uk/> Accessed 12/12/22

The Hedgerows Regulations 1997:

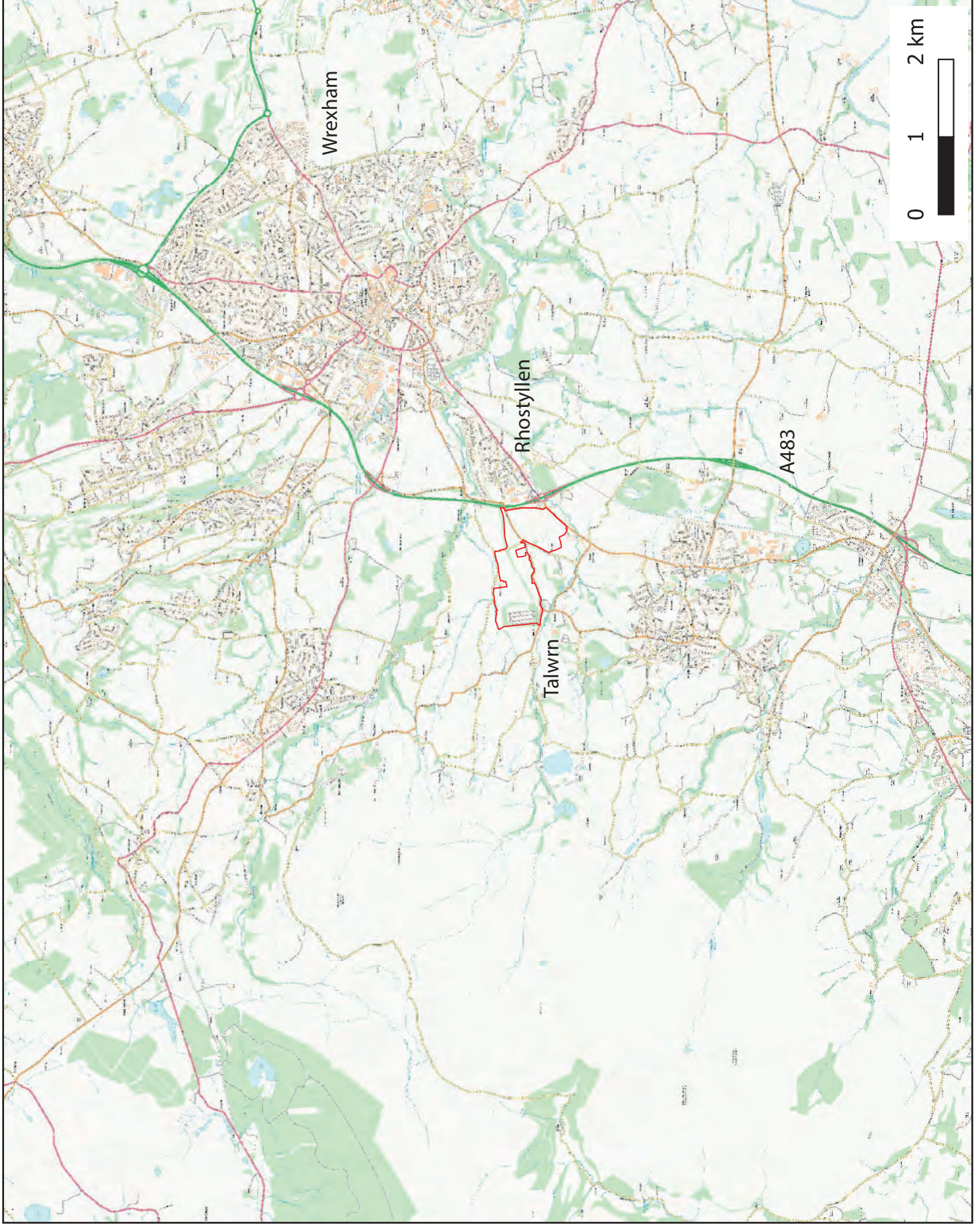
<https://www.legislation.gov.uk/ukxi/1997/1160/contents/made> Accessed 15/12/22

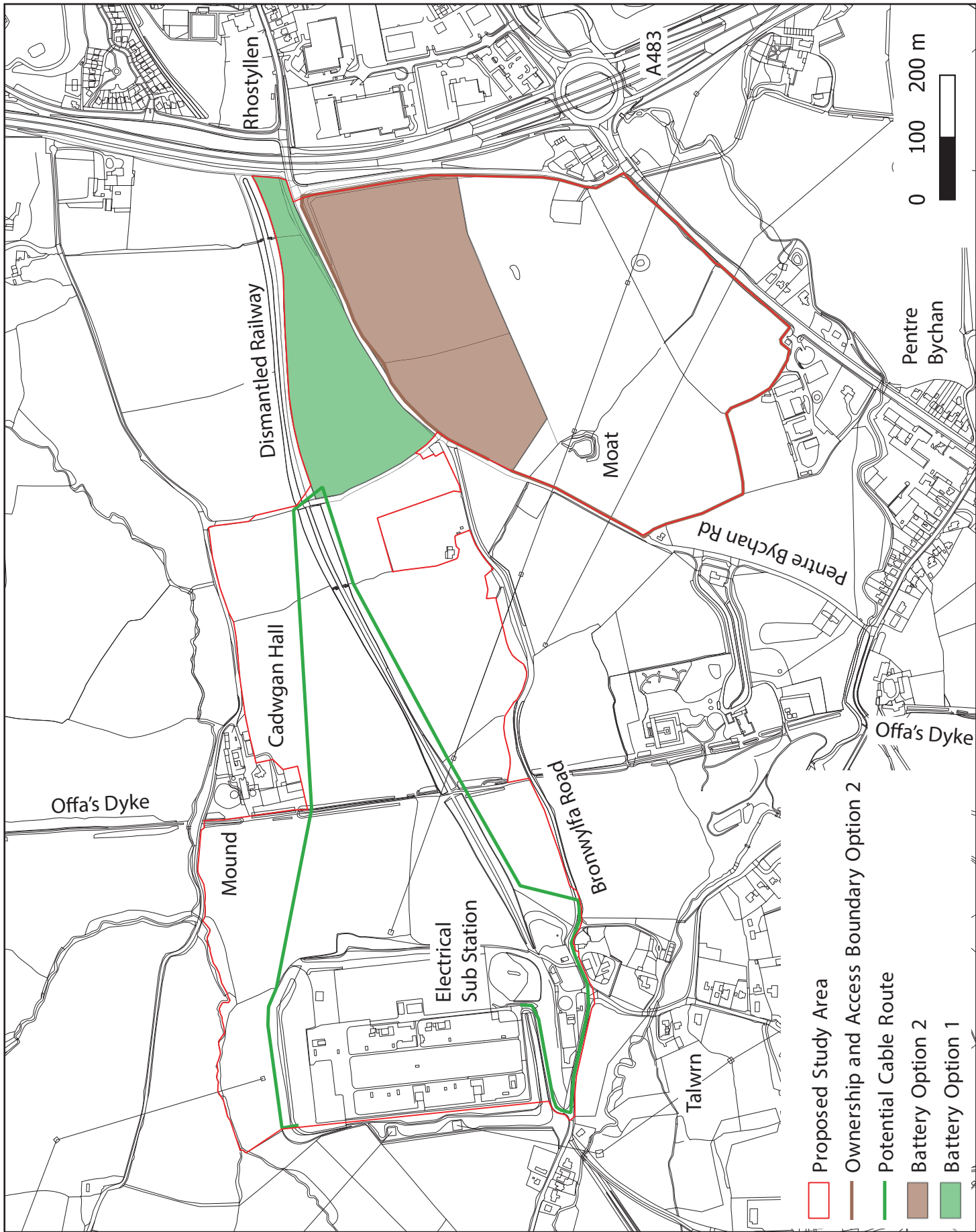


 Site location

Figure 1: Location Plan

The Ordnance Survey has granted
Archaeology Wales Ltd a Copyright
Licence (No. 100055111) to
reproduce map information;
Copyright remains otherwise with
the Ordnance Survey





Project Name and ID
3056 - Rhostyllen, Wrexham RBW/22/DBA
Project description
An archaeological Desk-Based Assessment (DBA) associated with the proposed battery storage facility and substation and a buried 400kV cable on land at Rhostyllen, to the west of Wrexham centred on SJ 29470 48398. The purpose of the archaeological mitigation is to assess the impact of the development proposals on the historic environment. This will help inform future decision making, design solutions and potential mitigation strategies. The aim is to make full and effective use of existing information in establishing the archaeological significance of the site, to elucidate the presence or absence of archaeological material, its character, distribution, extent, condition, and relative significance.
Funder of client
<i>Novus Renewable Services Ltd.</i>
Project Manager
John Davey – AW project manager john@arch-wales.co.uk
Principal investigator and contact
Same as above
Date DMP created and subsequent amendments
Created on 12.12.22
Related Data Management policies
Project Brief, ClifA Standards and guidance, the receiving museum's Archive Deposition Policy, the Trusted Digital Repository guidelines (such as ADS guidelines) or other best practice guidance (see brief for details)

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

Project Brief will determine the nature of data collection. The project brief has been produced taking into consideration guidance offered by CIfA, and by relevant repositories.

While the data selection strategy may change during the course of the project attending to the demands of the findings, an initial methodology is outlined in the brief which includes preliminary, excavation and recording methodologies.

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

Further documentation accompanying the resulting archive

Data collected will include standard formats which maximise opportunities for use and reuse in the future.

Metadata will be created for the archive, which outlines details of all data types, quantities and all archive components

Data documentation will meet the requirement of the Project Brief, Museum Deposition Guidelines, Digital Repository Guidelines and the methodology described in the Project Design methodology. These details are checked and taken into consideration prior the start of the project.

Data protection

We have a GDPR compliant Privacy Policy. Sensitive data is never retained in the project folder.

Copyright permission is sought from all specialists and other providers outside the organisation. Data sharing is also subjected to license agreements.

Storage

The project manager is responsible to the regular check up of the data produced and stored in the server. The data produced is uploaded regularly as a way of backing up the information. Time and resources are given to the site staff to be able to back up the data. Alternatively, laptops are issued to use during the time onsite.

Data retention

The DMP will be updated in light of the findings. This process will also inform any possible future project designs and further work associated with the project. The data selection

plan will take into consideration the Chartered Institute for Archaeologists, Standards and Guidance for the Collection, Compilation, Transfer and Deposition of Archaeological Archives, and any other local frameworks.

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

The project will be published as an online technical report

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

Long term preservation plan

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

Data repository and costs

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

Data sharing and accessibility

A summary of the project will be provided for the museum and digital archive repositories once the work begins. Regular updates will be carried out to fit the emerging needs of the project. The documents expected for this project include a WSI and Desk Based Assessment Report.

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

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

DMP responsibility

The Project Manager will be responsible for implementing the DMP

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

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

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

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

