HyNet North West

ARCHAEOLOGICAL EVALUATION REPORT

HyNet Carbon Dioxide Pipeline DCO

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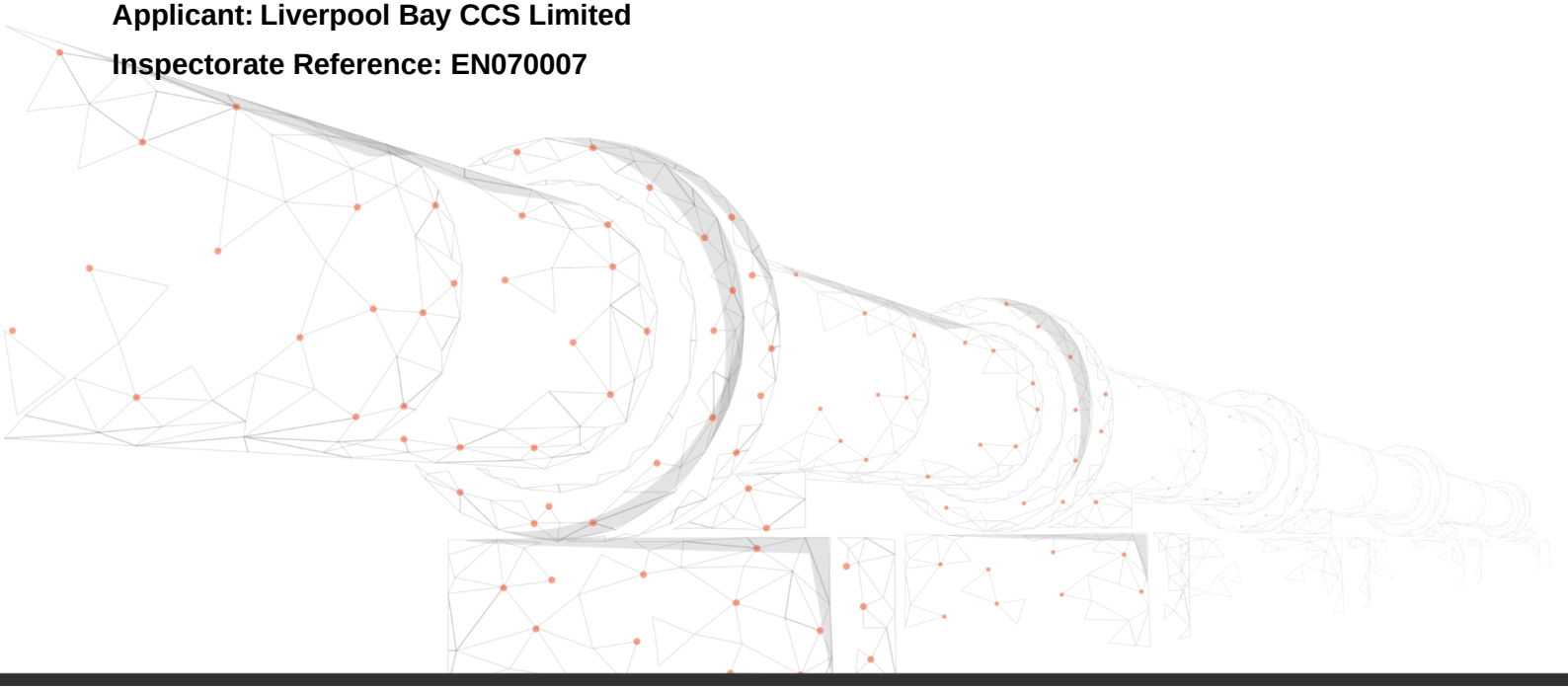

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HyNet Carbon Dioxide Pipeline DCO, Elton to Oakenholt, Cheshire West and Flintshire

Archaeological Evaluation Report

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HyNet Carbon Dioxide Pipeline DCO, Elton to Oakenholt, Cheshire West and Flintshire

Archaeological Evaluation Report

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Summary

Oxford Archaeology (OA) North was commissioned by WSP UK Limited (WSP) to undertake a targeted trial-trench evaluation along the route of a new 36km underground pipeline for the transport of Carbon Dioxide (CO2). The Project lies between Elton, in Cheshire West, England (NGR 346900, 376156) to land south of Oakenholt, Flintshire, in Wales (NGR 325108, 370798). The work preceded the submission of the Development Consent Order (DCO) for the proposed development (PINS ref EN070007) and was undertaken in February and March 2023 in accordance with a Written Scheme of Investigation (WSI) produced by WSP. The WSI, which was informed by a Geophysical survey and Geoarchaeological Deposit Model, was compiled in consultation with both Clwyd-Powys Archaeological Trust (CPAT) and Cheshire Archaeology Planning Advisory Service (CAPAS), the respective statutory advisors to Flintshire and Cheshire West and Chester County Councils.

In total, 45 trenches were excavated, 19 between Elton and Saughall in Cheshire West, and 26 between Deeside and Babell in Flintshire. Most of the trenches were focused on geophysical anomalies, albeit that two trenches in Cheshire West and four in Flintshire were excavated in areas not previously surveyed.

In Cheshire West, 17 of the trenches excavated targeted anomalies, but in seven of those it was not possible to attribute the anomalies to anything within the trenches, whilst in three other trenches the anomalies related to unmapped modern services. In fact, in only four trenches was it possible to correlate geophysical anomalies and archaeological remains, whilst in three others there were archaeological remains but these did not align with the anomalies targeted. Thus, eight trenches revealed a total of 13 archaeological features, alongside a small group of artefacts from just three trenches, whilst the primary potential of the palaeoenvironmental assemblage was for scientific dating.

Significant remains were revealed by Trench 28, just to the south of Saughall on rising land overlooking the River Dee. These comprised a cobble and sandstone surface (perhaps a footing for a building), which broadly related to a geophysical anomaly, and a step-profiled ditch which did not. Both were associated with Roman pottery, ironwork, and glass dating to the mid-second to mid-third century AD, accounting for most of the artefacts recovered by the Project in Cheshire West. The remaining features, of which six correlated with anomalies, were undated and largely comprised field boundaries. Some of those were likely to relate to elements of the field systems shown on nineteenth-century historic mapping, but others had clearly fallen out of use by that time. Discrete features comprised an isolated pit and a tree throw. Several natural features/deposits were also identified, including a palaeochannel and, within an area not previously surveyed, a deeply buried peat deposit, relating to the Ince Marshes that extend to the north of the Project.

Of the 22 trenches targeted on anomalies In Flintshire, there were seven where the archaeological features and geophysical anomalies correlated, five where they did not, five trenches where the anomalies could be attributed to variations in the alluvial geology, and five trenches that revealed nothing at all. It is also worth noting that two of the four trenches in Flintshire placed without prior geophysical survey encountered archaeological remains, including a feature that was clearly of higher significance.

In total, 24 archaeological features were present in 14 of the trenches excavated in Flintshire, of which seven correlated with geophysical anomalies. Artefactual evidence, from seven trenches, was sparse, but many of the soil samples had material for scientific dating, albeit that fewer had potential for palaeoenvrionmental analysis. The earliest datable feature comprised a single pit found on gently sloping ground at Pentre Halkyn (Trench 78). It contained probable Bronze Age pottery and charred remains. Also dated was a pair of pits containing seventeenth-to-eighteenth-century domestic refuse (Trench 58) near Ewloe Green. These lay some distance from any habitation shown on mid-nineteenth-century historic mapping, and may suggest nearby previously undocumented occupation, which would be of significance. Twelve boundary features were also identified and, although undated by artefacts, several contained scientifically datable organic matter. A few of these could be directly correlated with boundaries shown on mid-nineteenth-century historic mapping, and many of the others followed alignments that could reference documented roads and field boundaries. Nonetheless, the possibility remains that these, along with several non-aligned boundary features, could be elements of earlier field systems. Such features include a group of four ditches and a posthole identified in Trench 80 at Babell, at the western end of the Project.

More discrete features of particular note included a pair of gully termini/pits in Trench 38, between Mancot and Sandycroft overlooking the Broughton Brook and the Dee, and another pit and gully in Trench 56, to the west of Ewloe Green, between the Alltami Brook and the Nant Gwepra. A pit containing charred remains was found in Trench 67, to the east of Flint Mountain on raised ground between two brooks.

Natural features, including palaeochannels, were also identified, with the majority revealed in trenches (33-41) on the southern side of the River Dee. These revealed alluvial sequences, with a significant layer of peat encountered 1.8m below ground level (in Trench 37, but potentially more extensive).

Overall, the trenches revealed some archaeological and palaeoenvironmental deposits that are, or likely to be, of higher significance. It is important to note that the correlation of geophysical anomalies and archaeological remains was variable, and that several features, including those that are clearly of interest, were not detected by the geophysical survey, highlighting the importance of a combined approach and the use of trenching to test non-intrusive survey.

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The fieldwork was directed by Becky Wegiel, who was supported by Andrew Maguire, Karl MacRow, Harlie Mason, Ashleigh Neal, Catherine O'Doherty, Aidan Parker, and Alicia Senelle. Thanks are also extended to the team of OA staff that cleaned and packaged the finds, processed the environmental remains, and prepared the archive under the supervision of Megan Daniels and Karen Barker. The palaeoenvironmental remains were assessed by Denise Druce, and the artefacts by Christine Howard Davis. The project was managed for Oxford Archaeology by Stephen Rowland.

1 INTRODUCTION

1.1 Scope of work

1.1.1 In February 2023, Oxford Archaeology (OA) North was commissioned by WSP UK Limited (WSP) to undertake a targeted trial-trench evaluation along the route of a new 36km underground pipeline for the transport of Carbon Dioxide (CO2) from Cheshire, England to Flintshire, Wales (hereafter referred to as the Project; Fig 1). The work was undertaken following the submission of the Development Consent Order (DCO) for the Project (PINS ref EN070007), with the this report submitted during Examination. The archaeological works was undertaken in accordance with a Written Scheme of Investigation (WSI) produced by WSP (WSP 2022). The WSI, which was informed by a geophysical survey (Magnitude Surveys 2022) and geoarchaeological deposit model (OA North 2022), was compiled in consultation with both Clwyd-Powys Archaeological Trust (CPAT) and Cheshire Archaeology Planning Advisory Service (CAPAS), the respective statutory advisors to Flintshire and Cheshire West and Chester County Councils. The WSI presents a localised context and geophysical survey results for the Project and is included in full, with illustrations, in *Appendix A*. The WSI details both Local Authorities' requirements for the evaluation, and this document outlines how these were implemented by OA North.

1.2 Location, topography, and geology

1.2.1 The proposed development comprises an approximately 35km-long linear scheme which extends north-east to south-west from Elton, Cheshire in England (NGR 346900, 376156) to land south of Oakenholt, Flintshire, in Wales (NGR 325108, 370798; WSP 2022). Whilst mostly an underground pipeline, the Project includes four Above Ground Installations (AGIs) and three Block Valve Stations (BVSs) which occupy small parcels of land. From east to west these comprise Ince AGI, Stanlow AGI, Rock Bank BVS, Mollington BVS, Aston Hill BVS, Northop Hall AGI, and Flint AGI. Three further Block Valve Stations - Cornist Lane BVS, Pentre Halkyn BVS, and Babell BVS, are proposed along the route of the existing Flint Connection to Point of Ayr Terminal Pipeline in Flintshire. The Project lies within two local authorities: Flintshire County Council (in Wales), and, in England, Cheshire West and Chester County Council.

1.2.2 ***Cheshire***: the eastern terminus of the Project is located at Thornton-le-Moors, on the southern edge of Ellesmere Port. The Project travels south and east across low-lying ground comprising meadows and former marshland either side of the River Gowy, crossing at 7m above Ordnance Datum Newlyn (OD; WSP 2022). From the floodplain, the Project climbs a low ridge oriented north/south, passing to the north of Picton, reaching a maximum height of 25m OD, and south of Wervin where it crosses the Shropshire Union Canal. Between Backford and Mollington the Project crosses south-facing slopes incised by streams and characterised by open pasture, reaching its highest point in Cheshire (35m OD). From Mollington, the Project moves south-west, descending into the floodplain of the River Dee, some 500m south of Saughall and crossing the border with Flintshire at 10m OD (*ibid*).

1.2.3 Most of the Cheshire section of the Project is underlain by bedrock of Triassic and Permian sandstones and conglomerate (BGS 2023). This is overlain by extensive deposits of Pleistocene Till, which comprises unsorted and unstratified clay, sand, gravel, and boulders laid down by the retreating glaciers as the Ice Age ended (WSP 2022). Isolated pockets of glaciofluvial material are also recorded north of Chester. This material was deposited by glacial meltwater onto the floodplains of the Rivers Dee and Gowy, and is characterised by alluvium, with some concentrations of peat around the lower River Gowy, notably at Wimbolds Trafford (*ibid*).

1.2.4 ***Flintshire***: the Project rises gradually from the former Dee valley (5m OD) in Mancot and Sandycroft to 85m OD near Aston Hill Farm in Ewloe. From there the ground level gradually rises to 90m OD within the fields to the north of Magazine Lane. To the west of the Alltami Brook, the Project undulates from 75m OD to 95m OD, and finally to 90m OD at the junction of Brookside and the A55. The ground level between the A55 to the south and the B5125 to the north rises toward the B5125 from 90m OD to 120m OD. The ground level then falls to 100m OD between the B5125 and Connah's Quay Road and continues falling to the north to 90m OD at Starkey Lane. The land begins to fall to the north to 40m OD in the north end of the western end of the Project (WSP 2022).

1.2.5 The three Block Valve Stations (BVS) located on the Flint Connection to Point of Ayr Terminal Pipeline lie on otherwise isolated pockets of land, from east to west comprising:

- Cornist Lane BVS: located in a rural area between the settlements of Flint and Pentre Halkyn on the side of the Dee valley, with land sloping from south-east to north-west, 150m OD to 130m OD;
- Pentre Halkyn BVS: located approximately 700m south of the village of Brynford, the land slopes gradually down to the west from 220m OD to 205m OD;
- Babell BVS: located on the outskirts of the settlement of Babell on the edge of a valley with the land sloping towards the south-west, situated at approximately 170m OD.

1.2.6 West of the River Dee floodplain, bedrock geology comprises interbedded mudstones of the Pennine Middle Coal Measures Formation and pockets of the Etruria Formation. Superficial geology is characterised by Pleistocene till deposits, overlain by glaciofluvial material, alluvial fan deposits, head deposits of clay, silt, and sand deposited at the end of the last glacial maximum, and by Quaternary alluvial deposits.

1.3 Archaeological and historical background

1.3.1 A comprehensive archaeological and historical background of the site was compiled in the *Historic Environment Desk-based Assessment* with a synopsis presented in the WSI (WSP 2022) and it is not proposed to duplicate that information here in detail. Instead, information from those documents has been used to produce a period-based summary of the potential and known remains within and close to the Project boundary (Table 1.1).

1.3.2 Magnetic geophysical survey of land within a 60m-wide corridor around the indicative new pipeline route and AGI/BVS installation locations identified anomalies across the Project (Magnitude Surveys 2022). These included probable natural geological features, such as palaeochannels, and post-medieval to modern agricultural boundaries. Others were of potentially greater archaeological significance, including a possible pit alignment (perhaps dated to a point between the Bronze Age and medieval period) recorded immediately south of the M56 and Thornton Lane at Elton (NGR 0344596, 373363; *ibid*).

Period and Potential	Examples of sites inside or within close proximity to the Project
Mesolithic (10,000–4000 BC). Moderate potential	• Peat deposits on the Ince Marshes around Ellesmere Port (Ch)
Neolithic (4000–2000 BC). Moderate potential	• Organic deposits on the Gowy floodplain (Ch) indicate forest clearance. Potential for settlement • Possible long barrow where Project crosses Shropshire Union Canal between Caughall and Chorlton (Ch)
Bronze Age (2000–700 BC). High potential	• Palaeoenvironmental data and bronze artefacts from Ince Marshes (Ch) • Three (destroyed) round barrows at Northop Hall (PRN100049; PRN100051; PRN101848; (Fl) • Three round barrows (FL076; FL189; FL006) within 1km of Babell BVS (Fl) • Five or six round barrows (FL046; FL096; 100284), a standing stone (100285), and artefacts (100276) within 800m of the Pentre Halkyn BVS (Fl)
Iron Age (600 BC-AD 43/78). Moderate potential	• Brooch find (120311), Northop Hall (Fl)
Roman (AD 43/78-410). Moderate potential	• Chester fort built by AD 74 • Chester to Wirral Roman Road (MCH6164) crossed by Project (Ch) • Roman Camp on Fox Covert Lane (NHLE 1015130; Ch) • Artefact findspots at Backford (MCH229) and Saughall (MCH1668 2356; Ch), near Northop Hall (Fl), between the Cornist Lane BVS and the Pentre Halkyn BVS (120389-91; Fl); and at Pentre Halkyn BVS (100276; Fl) • Lead processing between Flint and Oakenholt (Fl) • Lead mining in vicinity of Pentre Halkyn BVS (Fl)
Early medieval (AD 410-1066). Variable potential	• Church of St John, Chester, founded AD 689 (Ch) • Anglian Cross shaft at St Mary's Church Thornton-le-Moors (NHLE 1330242; Ch) • Sixth-century church of St Eurgain and St Peter, Northop (100308; Fl) • Wat's Dyke (27061-27075) passes through Cornist Lane BVS (Fl) • Whitford Dyke (FL006, 28102– 28105, 106723, 106724) near Babell BVS (Fl)
Medieval (AD 1066-1540). Moderate to high potential	• Elton moated site, fishpond, and channel (NHLE 1012122), and agricultural earthworks (Ch) • Lea Old Hall moated manor of (2020/1/2, MCH957; 2020/1/1, MCH219; Ch) • Potential moated site (130012) within the previous Saltney Marshes along the south bank of the River Dee 460m south-east of boundary (Ch) • Thornton-le-Moors: Thornton Hall late medieval moat (1997/0/1, MCH962; NHLE 1130654), 130m from route (Ch) • Numerous findspots, with a concentration at Sealand Road (120245-6 and 120372; Fl) • Hen Blas Castle Site (FL062) 870m north of Cornist Lane BVS (Fl) • Ewloe Castle (FL064; Fl)

Period and Potential	Examples of sites inside or within close proximity to the Project
Post-medieval (AD 1540-1900)	• Pentre Halkyn windmill (17017) within Cornist Lane BVS (Fl) • Ewloe Green Farm Colliery (103806) located within Project boundary at Green Lane (Fl)
Modern 1901-2000. Moderate potential	• Various military, communications, industrial and agricultural sites, of which only the latter extend into the Project area

Notes: Fl=Flintshire; Ch=Cheshire with other references relating to HER and NHLE coding

Table 1.1: Examples by period of heritage assets within and immediately around the project boundary

2 AIMS AND METHODOLOGY

2.1 Research priorities

2.1.1 The WSI (WSP 2022) identified several research themes from The North West England Regional Research Framework (NWRRF 2023) and the Research Framework for the Archaeology of Wales (CIfA Wales 2017), which, for the sake of completeness, are repeated here:

Research Theme	Research Priority
Environmental sampling – an increased amount of environmental sampling was thought to be valuable for a greater understanding of past landscapes and how the landscape evolved.	GS39: How did people exploit coastal and marine resources and did this change through time (NWRRF 2023)?
	PH17: How can a programme of sampling and investigation help to characterise landscape use of the wetlands during the prehistoric period (NWRRF 2023)?
	Establish a chronological framework for Mesolithic human activity in Wales and understand its environmental context (CIfA Wales 2017).
	Is the potential of the coastal zone to provide information about the exploitation of landscapes in the Neolithic and EBA periods being realized ((CIfA Wales 2017)?
	What can palaeoenvironmental evidence reveal about Neolithic and Earlier Bronze Age settlement practices, particularly on sites where there is little or no material culture (CIfA Wales 2017)?
	Carbonised plant remains are a key source for dating Welsh sites (with particular reference to the Late Bronze Age and Iron Age (CIfA Wales 2022).
Settlement pattern – The importance of landscape and environmental context in appreciation of settlement patterns was highlighted. This was particularly apposite for the Roman period, for which the settlement pattern is poorly understood.	Undertake Landscape-wide studies for Roman period fieldscapes and investigate evidence for transhumance during the Roman occupation as a priority (CIfA Wales 2017).
	PH04: How can we enhance existing datasets for Prehistory in the region? Further field survey is required to provide a representative sample of material from all topographic and geological zones throughout the region. Target palaeo-channels and riverbanks for Mesolithic assemblages. Target palaeo-channels and wetlands for evidence of votive deposits (NWRRF 2023).
	R17: What was the extent of Roman rural and urban settlement interaction (NWRRF 2023)?

	Identify and confirm potential early medieval sites, particularly secular settlements (CIfA Wales 2017).
	Further work is required to develop a better understanding of the Dyke systems in Wales (CIfA Wales 2017)
Landscape change – The relationship between field systems and settlement, boundaries, land rights and the changing balance between clearance, pasture and arable is a recognised theme from the Neolithic to the medieval periods. The human impact on the 'wild' environment of plants and animals is also considered to be important	GS38: How did land-use and management change through time (NWRRF 2023)?
Industry and long-distance contacts – The development of new industries has been influenced by geography and geology. Long distance links can be investigated vis migration routes and trading links. Links across the Irish Sea are also important within the region.	GS40: What evidence is there for the impact of industrialisation on health, diet, and natural resources (NWRRF 2023)?
	GS45: How can the study of excavated artefact assemblages inform our understanding of trade exchange (NWRRF 2023)?
	GS46: How can archaeological investigations inform our understanding of the development of transport and infrastructure (NWRRF 2023)?

Table 2.1: Summary of regional and national research themes currently considered pertinent to the trial-trench evaluation

2.2 Aims

2.2.1 The objective of the evaluation trenching as stated in the WSI (WSP 2022) was to build upon the results of the previous desk-based and non-intrusive surveys to better understand the archaeological resource within the Project, with the following specific aims:

- to define the location of archaeological remains that will be impacted by the Project;
- to record (where possible) the nature, depth, extent, character, and date of archaeological deposits or features encountered in order to better understand the resource within the Project;
- to recover and record an adequate sample of the range, quality, and quantity of artefactual and environmental evidence present in order to better understand the date, character, and potential of archaeological deposits within the Project;
- to report the results of the investigations and use them to determine the requirements for, research objectives for, and the specification of, detailed archaeological mitigation, where required over and above that presented below.

2.3 Methodology

2.3.1 An 8-tonne rubber-tracked 360° mechanical excavator with a 1.8m-wide toothless ditching bucket, operating under direct archaeological supervision at all times, was used to open trenches. All topsoil and subsoil was removed down to the first significant archaeological horizon, in successive, level spits. Following mechanical excavation, the archaeological horizon was cleaned using appropriate hand tools. Spoil heaps were monitored in order to recover artefacts.

2.3.2 All investigation of archaeological features and deposits was by hand within the safe limits of investigation, with cleaning, examination, and recording both in plan and section. Deep ditches and large natural features, such as palaeochannels and alluvial deposits, were tested using the mechanical excavator. Where these deposits were over 1m deep, they were not accessed by OA staff, and were recorded from outside of the excavation.

2.3.3 Written descriptions, comprising factual data and interpretative elements, were recorded on *pro-forma* sheets. Plans were drawn at 1:20 and sections at 1:10. Trenches and features were accurately tied into the National Grid and located on the 1:1250 map of the area. A register of plans and sections was kept. A fully indexed photographic record, illustrating in both detail and general context the principal features and finds discovered was maintained in digital format. The photographic record also included working shots to illustrate more generally the nature of the archaeological work.

2.3.4 ***Palaeoenvironmental remains***: a targeted programme of palaeoenvironmental sampling from well-stratified sealed contexts and subsequent assessment was implemented in accordance with the WSI (WSP 2022), CIfA (2022), Historic England (2015b) and Oxford Archaeology Guidance (2017) to provide a basic understanding of the archaeobotanical and palaeoenvironmental potential of the deposits and features discovered during the evaluation. In total, 25 samples were assessed, comprising 18 from dryland features, and seven from wetland deposits. The samples from dryland features were dominated by shallow field ditches; however, two tree throws, two pits, and a posthole were also discovered. Alluvial layers and peat deposits encountered in lower-lying areas adjacent to the River Mersey and River Dee were also sampled for their palaeoecological potential.

2.3.5 Sample processing for the recovery of charred plant remains and charcoal from dryland features followed standard procedures whereby the flot was caught in a 250 µm mesh and air dried, the heavy residues being washed through 2mm and 500 µm meshes and air dried for the recovery of non-floated organic material and finds. At least 5 litres of a sample taken from waterlogged features/contexts, was wet sieved through a 250 µm mesh and kept wet for the recovery of waterlogged plant remains and insects.

2.3.6 The dried flots and a representative amount of the wet samples were scanned using a Leica stereo-microscope and any plant material, including fruits, seeds, charcoal, and wood fragments, was recorded. The presence of any other remains, such as bone, insects, small artefacts, ceramic building material (cbm), industrial/metal waste, and coal/heat-affected vesicular material (havm) were also noted. Any surviving

fruits/seeds were provisionally identified using the modern reference collection held at OA North, and with reference to the Digital Seed Atlas of the Netherlands (Cappers *et al* 2006). The presence of modern roots, earthworm eggs, and modern seeds was also noted to ascertain the likelihood of any contamination. The remains were quantified on a scale of 1–4 where 1 is rare (one to five items); 2 is frequent (6 to 50 items); 3 is common (51–100 items); and 4 is abundant (greater than 100 items). Plant nomenclature follows Stace (2010). The assessment results were recorded on a *pro-forma*, which will be kept with the site archive. The potential of each sample for any further work and for radiocarbon dating was also noted.

2.3.7 Wood and charcoal fragments over 2mm in size were quantified and scanned to assess preservation and wood diversity. Wood maturity was also noted to determine wood type (ie heart wood, sap wood, or round wood) and to identify suitable material for radiocarbon dating. Alder (*Alnus glutinosa*) and hazel (*Corylus avellana*), which are anatomically similar in transverse section, were not separated during assessment. Similarly, blackthorn-type (*Prunus* sp) was only taken to provisional identification, which includes blackthorn, wild plum, wild cherry, or bird cherry. Hawthorn-type (Maloideae) species cannot be distinguished anatomically, and may include hawthorn, apple, whitebeam, rowan, and wild service tree. Identification and classification of the charcoal was aided by Hather (2000).

3 RESULTS FROM TRENCHES 1–29, CHESHIRE WEST

3.1 Introduction and presentation of results

3.1.1 An overview of the evaluation trenches in Cheshire West is shown in Table 3.1, with stratigraphic description of the trenches that contained archaeological remains in *Section 3.4*. Full details of all trenches excavated with dimensions and depths of all deposits can be found in *Appendix B*. The results of the assessment of the artefacts and palaeoenvironmental remains from those trenches are presented in *Sections 3.4* and *3.5*, respectively, and in Tables 3.2-5.

3.1.2 In total, 19 of 30 trenches planned for Cheshire West were investigated, their locations shown on Figure 2a. Eleven trenches were not investigated, primarily for reasons of access; their locations are illustrated in the WSI (WSP 2022).

Trench	Dimensions	Target	Excavated	Archaeology?	Other Notes
1	30m x 2m	None	Yes	No	
2	50m x 2m	None	Yes	Palaeochannel and peat	
3	50m x 2m	Ditch	No		No access due to service provider delays
4	50m x 2m	Two ditches	No		
5	30m x 2m	Pit alignment	Yes	No	Excavation curtailed due to Asbestos water pipe
6	30m x 2m	Pit alignment	yes	No	
7	40m x 2m	Two linear features	Yes	Ditch and palaeochannel	
8	40m x 2m	Two linear features	Yes	Ditch	
9	30m x 2m	Two linear features	Yes	Two ditches and a pit	
10a	30m x 2m	Linear	No		Modern water pipes uncovered
10b	20m x 2m	Linear	No		
11	25m x 2m	Curvilinear feature	Yes	No	
12	30m x 2m	Linear spread	Yes	No	
13	20m x 2m	Big ditch and curvilinear feature	Yes	No	
14	50m x 2m	Two curvilinear features	Yes	No	
15	30m x 2m	Big ditch	Yes	Ditch/former headland	
16	40m x 2m	Three linear features	No		Abandoned due to risk of undocumented water pipes
17	50m x 2m	Large curvilinear feature	No		
18	20m x 2m	Small curvilinear feature	No		No access due to service provider delays
19	20m x 2m	Curvilinear and discrete features	Yes	No	
20	25m x 2m	Curvilinear and discrete features	Yes	No	
21	15m x 2m	Two linear features	yes	Undated steep-sided gully and clay band	
22	20m x 2m	Curvilinear feature	No		No Access
23	25m x 2m	Curvilinear feature	No		
24	25m x 2m		No		
25	35m x 2m		No		
26	25m x 2m	Curvilinear feature	Yes	No	
27	35m x 2m	Two linear features	Yes	No	
28	35m x 2m	Three linear features	Yes	Cobble and sandstone surface/footing	

Trench	Dimensions	Target	Excavated	Archaeology?	Other Notes
				associated with Roman pottery	
29	30m x 2m	Linear feature	Yes	Ditch and possible furrows	

Table 3.1: Summary of trenching in Cheshire West

3.2 General soils and ground conditions

3.2.1 The soil sequence across the eastern part of the Project was fairly uniform, with the natural geology in Trenches 3–29 mostly comprising silts and clays, with occasional gravels and sands, sealed by subsoil and covered by topsoil. In Trenches 1 and 2 however, alluvial deposits were observed to seal peat deposits which continued beyond the safe depth of investigation.

3.2.2 Ground conditions throughout the evaluation were generally wet, with inclement weather and active field drains occasionally hampering excavation. Archaeological features, where present, however, were easy to identify against the underlying natural geology in all cases.

3.3 General distribution of archaeological deposits

3.3.1 The geophysical survey (Magnitude Surveys Ltd 2022) identified numerous anomalies of potential archaeological origin. On the ground, it transpired that the majority of these anomalies were geological in nature, often relating to variations in the natural substrate. Archaeological features were present in eight of the 19 trenches, only half of which directly correlated with geophysical anomalies (in Trenches 7, 9, 15, and 21). In the other four trenches (2, 8, 28, and 29), the features revealed had not been identified in the geophysical survey.

3.4 Stratigraphy

3.4.1 Trenches 1 and 2 were at the far eastern end of the Project on the site of the proposed Ince AGI; they did not target any geophysical anomalies. The lowest strata encountered was peat deposit ***203***, observed at a depth of 2.2m below ground level (bgl; Plate 1) in Trench 2. This was excavated to a depth of 2.4m bgl where excavation ceased due to limitations of the mechanical excavator. A sample (33) recovered from this deposit identified the presence of charcoal and waterlogged plant and insect remains, with the potential for analysis and scientific dating (*Section 3.6*; Table 3.5). The peat was sealed by alluvial deposit ***202***, first observed at a depth of 1.65m bgl. Although this deposit contained organic material, assessment of corresponding sample 32 indicated no potential for analysis or dating. This was sealed by a further alluvial deposit, which was recorded in both Trenches 1 and 2 (as ***101*** and ***201***). This deposit was cut through by various palaeochannel deposits that were extant in the landscape and sealed immediately below the topsoil.

Plate 3.1: Peat deposit *203*, sealed by alluvium

3.4.2 Trenches 5 and 6 were excavated 600m to the south of Elton to investigate a single geophysical anomaly that appeared to represent a pit alignment (*Section 1.3*). The trenches were briefly opened to discover that that anomaly could be correlated with a previously undocumented service. No archaeological remains were identified.

3.4.3 Trenches 7, 8, and 9 were situated 650m to the north-west of Picton and revealed several features that broadly correlated with geophysical anomalies (Fig 3). Archaeological remains were identified at a depth of *c* 0.5m bgl in Trenches 7 and 9, and 0.58m bgl in Trench 8. At the north-west end of Trench 7, undated east/west-aligned ditch ***700*** (0.65m wide, 0.2m deep) had silted up naturally with firm silty clay ***701*** (Fig 4). North-east/south-west-aligned linear feature ***702*** (0.95m wide, 0.3m deep) was identified within the south-east end of the trench. It had a soft clay silt fill (***703***) from which Sample 2 contained some charcoal, as well as modern seeds, roots, and coal, and had no potential for analysis or dating (*Section 3.6*; Table 3.4). The anthropogenic origin of feature ***702*** was uncertain, and it may actually have been a shallow palaeochannel. It had much in common with north-west/south-east-aligned, rather flat-bottomed, undated linear feature ***803*** (1.5m wide, 0.25m deep; Figs 3 and 4) which lay within the south-eastern end of Trench 8 and had a soft silty clay fill (***804***). Feature ***803*** was identified on the northern edge of a deposit of soft, light blue/grey clay which may have been alluvial in origin. Thus, rather than a ditch, feature ***803*** may have been an element of a palaeochannel. The features in Trenches 7 and 8 were sealed by thin (*c* 0.2m-thick) sandy silt colluvial deposits ***705*** and ***801***, which in turn were overlain by topsoil.

3.4.4 Trench 9 straddled the two arms of a broadly east/west-aligned curvilinear geophysical anomaly, the western element of which clearly correlated with undated steep-sided, U-shaped ditch ***900*** (0.85m wide, 0.35m deep) with a fill of clay silt (Figs

3 and 4; Plate 2). The eastern end of the geophysical anomaly appeared to correlate with undated ditch terminus ***902*** (0.9m wide, 0.34m deep). Assessment of Sample 1 from its clay silt fill (***903***) identified some calcined undiagnostic mammal bone and frequent charcoal with the potential for scientific dating (*Section 3.6*; Table 3.4). To the immediate west, pit ***904*** (0.7m wide and 0.2m deep) had a dark grey clay silt fill (***905***). The features were sealed by 0.2m-thick clay silt subsoil, which was overlain by 0.3m-thick topsoil ***906***, which produced a single sherd of dark-glazed redware (OR 1002) probably dating to the late seventeenth or early eighteenth century (*Section 3.5*).

Plate 3.2: north-west-facing view of ditch *900*

3.4.5 Trenches 11–15 were located between Chorlton to the north-east, and Caughall to the south-west. The geophysical anomaly in Trench 11 was found to be an outcrop of sandstone bedrock. In Trenches 12–14, the geophysical anomalies were likely to relate to variations in the weathered sandstone of the thinly covered Chester Formation bedrock. Trench 15 (Fig 3) was placed to investigate a north-west/south-east-aligned linear anomaly which may be represented by ditch ***1503*** (1.6m wide, 0.2m deep) which traversed the trench on similar alignment and was identified at 0.53m bgl. Assessment of Sample 20, from the sole naturally accumulated fine sandy fill, ***1504***, identified a little charcoal with no potential for analysis or dating. Although the geophysical anomaly extended to the south-east, a continuation of ditch ***1503*** was not identified in Trench 14, which lay some 35m further to the south-east.

3.4.6 Trenches 19–21 were located to investigate geophysical anomalies to the north of Mollington. Trenches 19 and 20 were blank, with the anomalies being attributed to variations in the natural geology in wet ground conditions. The two roughly

north/south-aligned anomalies investigated by Trench 21 could be correlated with two undated archaeological features that lay *c* 0.54m bgl (Fig 5). The easternmost, aligned north-east/south-west, was a putative bank deposit of hard friable clay, ***2103***, and only identified in the section of the trench after excavation. Steep-sided cut ***2104*** (0.55m wide, 0.45m deep) was situated to the west of bank ***2103***, and was aligned a little more towards the north. Although it contained no pipe, its alignment matched that of the modern drainage system, and it was likely to be a field drain.

3.4.7 Trenches 26 and 27 were excavated to the south-west of Mollington and to the south-east of Saughall. The large curvilinear anomaly investigated by Trench 26 and the north-westernmost anomaly explored by Trench 27 were ascribed to variations in the silty clay natural geology. Within the south-eastern part of Trench 27, an east/west-aligned geophysical anomaly linear transpired to be a modern field drain (Fig 5). At a depth of 0.3m bgl at the eastern end of the trench was irregular feature ***2703***, probably a tree throw or area of bioturbational rooting, which was barely 0.05m deep and contained a single fill of naturally accumulated dark bluish-grey silty clay (***2704***). These features were sealed by 0.2m-thick subsoil ***2701*** from which was recovered a sherd from an early-to-mid-eighteenth-century tankard and four more sherds dating to the later nineteenth-century at the earliest (*Section 3.5*).

3.4.8 Trenches 28 and 29 were located to the south-west of Saughall, on either side of Hermitage Road. Trench 28 targeted three linear geophysical anomalies, none of which could be confidently correlated with several archaeological features that were identified at a depth of 0.3m bgl. Towards the centre of the trench, and perhaps corresponding with a nearby geophysical anomaly, was surface ***2807***, comprising cobbles and sandstone set into a charcoal-rich matrix ***2806*** (Fig 5). It was irregular in plan, and appeared to continue beyond the trench to the west (Plate 3). Several pieces of Roman pottery, glassware, and a tile fragment, collectively dated to the second and third centuries, were recovered from the surface (*Section 3.5*), while a sample (28) produced small amounts charred material with some potential for dating but none for analysis (*Section 3.6*; Table 3.4).

3.4.9 A large north-west/south-east-aligned ditch was observed within the southern half of Trench 28. Ditch ***2803*** (0.45m deep; Fig 6) had a stepped, symmetrical profile, with the lower part (0.6m wide by 0.3m deep) having a steep profile that rapidly broadened to 2m in width for the upper 'step'. The basal fill, ***2805***, within the lower and north-eastern parts of the ditch, comprised a slightly organic silt and produced part of a black-burnished ware jar dated to the mid-second to mid-third century, as well as hobnails and a fragment of blown glass. Sample 27 from that deposit yielded small amounts of charred material with some potential for dating but none for analysis (*Section 3.6*; Table 3.4). This was sealed by rather mixed upper fill ***2804***.

3.4.10 The southern part of the trench was occupied by a modern French drain, which may account for the geophysical anomaly at this location.

Plate 3.3: North-facing view of surface *2806/7*

3.4.11 Trench 29 targeted another linear geophysical anomaly, of which no archaeological trace was found. Undated Ditch ***2903*** (0.7m wide, 0.27m deep) was situated at the south-western end of the trench at a depth of 0.43m bgl (Figs 5 and 6). Assessment of sample 18 from its single fill, ***2904***, produced some charcoal with fair potential for scientific dating but none for analysis (*Section 3.6*; Table 3.4). Two shallow undated agricultural furrows were also identified on a north-west/south-east alignment. That at the north-east end of the trench was some 4.5m wide, whilst that towards the centre of the trench was 4.5m wide.

3.5 Artefacts

3.5.1 In all, 86 fragments of artefacts, were recovered from the trenches excavated in Cheshire. They probably represent significantly fewer items (*c* 40), together weighing 824g. The material was in generally fair condition, but eroded and on occasion highly fragmented, although joining sherds were noted in pottery from Trench 28.

3.5.2 The assemblage predominantly comprises ceramic vessels (54 fragments, *c* 63% by fragment count), but other materials are present in small amounts (Table 3.2). The objects recovered came from three separate trenches (Table 3.3). As the trench groups are consistently very small, the finds are discussed below on a trench-by-trench basis. This includes, in each case, an assessment of the potential of individual material groups to contribute to the understanding and interpretation of the archaeological record within the individual trenches.

Material	Trench(es)	No frags	Weight (g)
Ceramic vessel, Romano-British	28	48	288
Ceramic vessel, post-medieval or later	9, 27	6	39
Ceramic, building material	28	1	482
Glass, vessel	28	2	2
Glass, bead	28	1	1
Ironwork	28	28	12
Overall totals		**86**	**824**

Table 3.2 Finds from trenches in Cheshire quantified by material group

Trench	Context	OR no	Material	Category	No frags	Weight (g)
9	***906***	1002	Ceramic	vessel	1	10
27	***2701***	1007	Ceramic	vessel	5	29
28	***2805***	1010	Glass	vessel	2	2
28	***2805***	1011	Glass	bead	1	1
28	***2805***	1012	Iron	hobnail	28	12
28	***2805***	1016	Ceramic	vessel	46	256
28	***2807***	1001	Ceramic	building material	1	482
28	***2807***	1006	Ceramic	vessel	2	32
Overall totals					**86**	**824**

Table 3.3 Distribution of finds between trenches excavated in Cheshire

3.5.3 ***Trench 9***: material from this trench comprised a single fragment of dark-glazed redware (OR 1002) from context ***906***. This small body fragment is relatively hard-fired, with a slightly bubbly brown/black glaze, suggesting a post-medieval date, probably in the late seventeenth or early eighteenth century. It has no potential to contribute further to the dating, interpretation or understanding of the site, and no further analysis can be recommended.

3.5.4 ***Trench 27***: this trench produced five fragments of pottery from context ***2701*** (OR 1007), with an average sherd weight of 5.8g emphasising their small size. One small base fragment appears to be from a white salt-glazed stoneware tankard, which can be dated to the early-to-mid-eighteenth century, three are white earthenware teawares of later date, and one is a fragment of late yellow ware, suggesting a final deposition date in the later nineteenth century at the earliest. This group has no potential to contribute further to the dating, interpretation or understanding of the site, and no further analysis can be recommended.

3.5.5 ***Trench 28***: this trench produced a relatively large number of artefacts, from two contexts, ditch fill ***2805*** and surface ***2807***. A substantial amount of a single BB1 jar (OR 1016, 44 sherds, 225g, av sherd weight 5.1g) was recovered from ***2805***. The acute lattice decoration and slightly flaring offset rim is similar to jars current in the mid-second to mid-third centuries (see, for instance, Gillam 1970, nos 138 or 139). The rim is heavily encrusted in carbonised deposits. The same context also produced a small fragment from a thin-walled blown glass vessel with applied trails, in a bubbly natural blue-green glass (OR 1010), and likely to be of comparable date. Fragmentary hobnails (*c* 28; OR 1012)) probably deposited in one or more leather shoe soles, are also likely to be of Roman date, although this cannot be confirmed. Context ***2805*** also produced

a single very small globular bead in semi-opaque pink glass (OR 1011). The colour and form make it very unlikely to be Roman, and it must thus be regarded as intrusive in the context.

3.5.6 Context ***2807*** produced four fragments of ceramic vessel (OR 1006 and OR 1020; av sherd weight 15.75g). One is a badly eroded fragment of BB1 rim, likely to be from the same jar as OR 1016 (above). A rim fragment from a second BB1 vessel (OR 1020), a somewhat eroded dish, is of similar date. There is also a small chip from a colour-coated vessel which, although too small for complete confidence, has been tentatively identified as possibly from Trier, where colour-coated wares were in production from the late second century. The final sherd is part of the base of a relatively small vessel in a fine, slightly sandy fabric with orange oxidised outer surfaces. Its form is not obvious, but a small barrel-shaped flagon like those produced at the legionary works at Holt (Grimes 1930, fig 67 no 118), would seem a possible identification. Context ***2807*** also produced a single fragment of Roman tile (OR 1001), and a small chip of colourless glass (OR 1021). Evidence seems to suggest appreciable Roman activity in the vicinity of Trench 28 during the second and third centuries.

3.5.7 The glass and ceramic finds from the site, although small in number, are sufficient to indicate a Romano-British presence at some point during mid-second to mid-third centuries. The glass and ceramic vessels present seem to indicate access to Roman markets, and the presence of a distinctive flagon potentially from the legionary kilns at Holt, will be of significance to this.

3.6 Palaeoenvironmental remains

3.6.1 The results of the assessment of the charred remains and charcoal are presented in Table 3.4, whilst Table 3.5 shows the results of the assessment of the waterlogged plant remains. The tables also show the archaeobotanical and radiocarbon dating potential of each of the samples, which, in each case, is based on the quantity, diversity, and condition of the remains. Further recommendations are made, which consider the nature of the features or deposits, and whether any further work is warranted.

3.6.2 ***The charred remains and charcoal:*** very few charred plant remains were recovered from the dryland features encountered in the Cheshire trenches. Rare to frequent charcoal fragments were recorded in most of the features; however, larger assemblages, perhaps more characteristic of discreet episodes of deposition/dumping, were recovered from ditch ***902***. The assessment of the charcoal indicates a dominance of oak (*Quercus* sp) and/or alder/hazel (*Alnus glutinosa/Corylus avellana*); however, ash (*Fraxinus excelsior*), hawthorn-type (Maloideae), blackthorn-type (*Prunus* sp), and elm (*Ulmus* sp) were also noted. In Trench 28 ditch ***2803*** contained pine (*Pinus* sp) charcoal, and both this and surface ***2806***/***2807*** contained frequent heather/heath (*Calluna vulgaris/Erica* sp) round wood. Much of the charcoal, in particular fragments recovered from ditches, were poorly preserved due to significant mineral replacement.

3.6.3 Most of the ditches, and the tree-throws, contained high levels of modern roots, which indicates a potential for the presence of intrusive material. Similarly, the presence of comminuted coal fragments suggests many of the features contain recent soil debris.

Sample No	Context No	Feature No	Sample size l	Flot size ml	Charred plant remains (cpr)	Charcoal	Other remains	Cpr/charcoal potential	C14 potential
1	903	Ditch 902	26	40		<2mm (4), >2mm (4) dominated by *Quercus*, rare *Fraxinus excelsior*, Maloideae, and *Alnus/Corylus*	Coal (1). Modern roots (3). Residue contained burnt bone and bone	No	Good
2	703	Ditch 702	28	<5		<2mm (2), >2mm (2) indeterminate and *Quercus*	Coal (2). Modern roots (2), modern seeds (1)	No	None
18	2904	Ditch 2903	27	5		>2mm (2) charcoal heavily mineralised. Includes *Quercus, Alnus/Corylus, Fraxinus excelsior*, and cf Maloideae		No	Fair (small assemblage)
20	1504	Ditch 1503	26	<5		<2mm (1)	Coal (2), havm (1). Modern roots (3)	No	None
27	2805	Ditch 2803	25	30		<2mm (4), >2mm (4) poorly preserved, includes Pinaceae and *Quercus*. Rare round wood including *Calluna vulgaris/Erica*	Coal (3). Residue contained burnt bone and bone, pot, glass, and Fe objects	No	Good
28	2807	Other cut 2806	31	30		<2mm (4), >2mm (3) poorly preserved, includes *Prunus* and *Quercus*. Rare round wood including *Calluna vulgaris/Erica*	Bone (1). Coal (2). Modern roots (4). Residue contained pot and cbm	No	Good

Notes: Remains are quantified on a scale of 1–4 where (1) is rare (one to five items); 2 is frequent (6 to 50 items); 3 is common (51–100 items); and 4 is abundant (greater than 100 items), havm = heat affected vesicular material, owe = old wood effect, cbm = ceramic building material

Table 3.4: Results of the assessment of the charred plant remains and charcoal from trenches in Cheshire

3.6.4 ***The waterlogged remains:*** peat layer ***203***, encountered at 2.2m bgl on the reclaimed floodplain of the River Mersey near to Ince Marshes, was dominated by *Sphagnum* moss leaves and stems, which, along with the cotton grass (*Eriophorum*) spindles, suggests that it developed in a freshwater peat bog or fen environment. It also contained seeds/fruits of plants typical of damp/waterlogged conditions, such as rush (*Juncus*), sedge (*Carex*) and marsh cinquefoil (*Potentilla palustris*). It contained abundant insect remains but also frequent small charcoal fragments, perhaps from nearby human activity.

Sample No	Context No	Feature No	Description	Sample size l	Wet sample size ml	Matrix	Waterlogged seeds/fruits (wpr)	Other remains	Wpr potential	C14 potential
32	**202**	Alluvial layer, 1.65m depth	Mid brown clay	5	10	Roots (2). Amorphous organic (2). Wood fragments (1)		Insects (1)	No	None
33	**203**	Peat layer, 2.2m depth	Peat	5	300	*Sphagnum* leaves and stems (4)	*Ranunculus aquatilis* (1), *Carex* (1), Poaceae (1), *Juncus* (1), *Potentilla palustris* (1)	*Eriophorum* spindles (2), buds (1) small round wood (1), Insects (4). Charcoal (2)	Yes	Yes (*Sphagnum* leaves)

Notes: Remains are quantified on a scale of 1–4 where (1) is rare (one to five items); 2 is frequent (6 to 50 items); 3 is common (51–100 items); and 4 is abundant (greater than 100 items)

Table 3.5: Results of the assessment of the waterlogged plant remains from trenches in Cheshire

4 RESULTS FROM TRENCHES 30 – 81, FLINTSHIRE

4.1 Introduction and presentation of results

4.1.1 An overview of the evaluation trenches in Flintshire is presented in Table 4.1 and a stratigraphic description of the trenches that contained archaeological remains can be found in *Section 4.4*. Full details of all trenches excavated with dimensions and depths of all deposits can be found in *Appendix C*. The results of the assessment of the artefacts and palaeoenvironmental remains from those trenches are presented in *Sections 4.4* and *4.5*, respectively, and in Tables 4.2-5.

4.1.2 In total, 26 of 51 trenches planned for Flintshire were investigated, their locations shown on Figure 2b. In all, 25 trenches were not investigated, primarily for reasons of access; their locations are illustrated in the WSI (WSP 2022).

Trench	Dimensions	Target	Excavated	Archaeology	Other Notes
30	50m x 2m	Two linear features	Yes	Alluvial deposits	
31	20m x 2m	Discrete and curvilinear features	Yes	Alluvial deposits	
32	15m x 2m	Linear feature	Yes	Alluvial deposits	
33	30m x 2m	Two curvilinear features	Yes	No	Shortened due to services
34	50m x 2m	Large curvilinear feature	Yes	Palaeochannels	
35					Trench number not used
36	50m x 2m	Four curvilinear features	No	NA	Livestock in field
37	50m x 2m	Four linear features	Yes	Palaeochannel and large ditch	
38	15m x 2m	Two curvilinear features	Yes	Two gullies	
39	20m x 2m	Curvilinear and discrete features	Yes	Gully	
40	30m x 2m	Four discrete features	Yes	Alluvium	Shortened due to unmapped service
41	30m x 2m	Linear feature	Yes	Ditch	
42	50m x 2m	None	No	NA	No Access
43	30m x 2m	None	No	NA	No Access
44	20m x 2m	Linear and discrete features	No	NA	No Access
45	30m x 2m	Two linear features and a discrete feature	No	NA	No Access
46	15m x 2m	Curvilinear feature and a discrete feature	No	NA	No Access
47					Trench number not used
48	15m x 2m	Curvilinear feature	No	NA	No Access
49	45m x 2m	Three linear features	Yes	None	
50	50m x 2m	Two linear features	Yes	None	
51	40m x 2m	Two linear features	No	NA	No access due to service provider delays
52	30m x 2m	Linear feature	Yes	Pit	
53	30m x 2m	Two linear features	Yes	Ditch	
54	40m x 2m	Magnetometry disturbance	Yes	Modern dump and pit	
55	50m x 2m	Linear and curvilinear features	Yes	Two ditches	
56	30m x 2m	Curvilinear feature	Yes	Gully and pit	

Trench	Dimensions	Target	Excavated	Archaeology	Other Notes
57	30m x 2m	1 ?linear, 1 ?curvilinear	No	NA	No access due to service provider delays
58	30m x 2m	Large discrete anomaly	Yes	Two pits	
59	20m x 2m	Two curvilinear features	No	NA	No Access
60	30m x 2m	Two linear features	No	NA	No Access
61	50m x 2m	Linear feature	No	NA	No Access
62	40m x 2m	None	No	NA	No Access
63	30m x 2m	Two linear features	No	NA	No Access
64	50m x 2m	Possible palaeochannels	No	NA	Access not safe for unloading without formal traffic management
65a	50m x 2m	Linear feature	No	NA	No Access
65b	N/A	Linear feature	No	NA	No Access
66	30m x 2m	None	No	NA	No access due to service provider delays
67	30m x 2m	Two curvilinear features	Yes	Pit and ditch	
68	50m x 2m	Three linear features	Yes	None	
69	50m x 2m	Five linear features	Yes	None	
70	40m x 2m	Two curvilinear features	Yes	Ditch	
71	30m x 2m	None	No	NA	No Access
72	30m x 2m	None	No	NA	No Access
73	50m x 2m	None	No	NA	No Access
74	50m x 2m	None	No	NA	No Access
75	30m x 2m	None	No	NA	No Access
76	30m x 2m	None	No	NA	No Access
77	50m x 2m	None	No	NA	No Access
78	50m x 2m	None	Yes	Pit	
79	30m x 2m	None	Yes	None	
80	50m x 2m	None	Yes	Posthole, four ditches, hedgeline	
81	30m x 2m	None	Yes	none	

Table 4.1: Results of trenching in Flintshire

4.2 General soils and ground conditions

4.2.1 The geology across the Flintshire side of the Project was variable. To the east, sandy geology (Trenches 30–32, 49, and 50) gave way to alluvial deposits around the floodplains and the reclaimed land around the River Dee (Trenches 33, 34, 37, 39, 40). In these trenches sondages revealed alluvial deposits that continued beyond the safe depth of investigation. These trenches were sealed by the topsoil, with no evidence of a subsoil. Trenches within the western part of Project encountered natural drift geology dominated by till deposits (Trenches 52–81). In these trenches, subsoil was present, sealed by topsoil.

4.2.2 Ground conditions throughout the evaluation were generally wet, with inclement weather and active field drains occasionally hampering excavation, particularly around the trenches on alluvial geology. Archaeological features, where present, however, were easy to identify against the underlying natural geology in all cases.

4.3 General distribution of archaeological deposits

4.3.1 The geophysical survey (Magnitude Surveys Ltd 2022) only covered the pipeline corridor, with the three Block Valve Stations (Cornist Lane BVS, Pentre Halkyn BVS, and Babell BVS), to the west not surveyed. A great many linear anomalies and discrete features were identified. The anomalies and the features recorded in the trenches only broadly corresponded in Trenches 34, 37, 38, 41, 54 and 67. In the remainder of the trenches, the anomalies were observed to be variations in the natural geology. A number of other features were excavated, yet not identified in the geophysical survey. Archaeological features were present in 14 trenches.

4.4 Stratigraphy

4.4.1 Trenches 30–32 were located to the south of Saughall, immediately to the south-west of the English/Welsh border. They all targeted linear geophysical anomalies, all of which were shown to be variations in the drift geology, and no archaeological deposits or features were identified. Two sherds of nineteenth-century or later pottery were recovered from topsoil ***3000*** in Trench 30 (*Section 4.5*).

4.4.2 Trenches 33, 34, 37, 39, and 40 were situated on the River Dee flood plain and reclaimed land. Although they all targeted geophysical anomalies, only Trench 37 revealed a feature that roughly corresponded to an anomaly, with the other trenches revealing rivulets and variations in the underlying alluvium. Sondages within Trench 34 indicated the typical variability of the alluvial deposits (Plate 4.1). Both revealed deposits of greyish-brown clay silt (***3401***) sealing laminated sand ***3402*** between 0.75m and 1.4m bgl, overlying dark bluish-grey silty clay ***3403***, which continued beyond 1.9m bgl. In the eastern sondage, the deposit boundaries were rather diffuse, but in the west the laminated sand lay within a clearly defined and moderately steep-sided north/south-aligned palaeochannel. Palaeoenvironmental assessment of Samples 5 and 6 from layers ***3401*** and ***3403*** respectively found them to have no potential for analysis or scientific dating (*Section 4.6*; Table 4.4).

Plate 4.1: Alluvial deposits within a possible palaeochannel in Trench 34

4.4.3 A similar alluvial sequence was observed in sondages within Trenches 33, 39, and 40, and again, assessment of Sample 15 from mid-blue/grey sandy silty alluvial layer ***3905*** at 1.8m bgl in Trench 39 was found to have no palaeoenvironmental or dating potential (*Section 4.6*; Table 4.4). Trench 39 also revealed a distinct palaeochannel, ***3903***, that was 2m wide and cut the alluvium across the centre of the trench on a north/south alignment (Fig 8). Its fill, ***3904***, produced a single fragmented animal bone (*Section 4.5*).

4.4.4 Sondages in Trench 37 revealed that the blue/grey clay alluvium (deposit ***3706*** in this instance) sealed peat (***3707***) at depths of 1.8-2.2m bgl, continuing beyond a depth of 2.6m bgl (Fig 7; Plate 4.1). Sample 4 from peat ***3707*** contained waterlogged plant remains (WPR) with potential for analysis and humic and humin acid from the deposit could be radiocarbon dated. Sample 3 from alluvial deposit ***3706*** also contained WPR, but this had no potential for dating or analysis (*Section 4.6*; Table 4.5).

Plate 4.2: Peat deposit *3707* at the base of the alluvial sequence within Trench 37

4.4.5 A large north/south-aligned undated channel (***3702***) was recorded at the eastern end of Trench 37 at a depth of 0.4m bgl, where it broadly correlated with a geophysical anomaly (Fig 7; Plate 4.3). It had a gently sloping symmetrical profile, measuring 7.5m wide, and was excavated by machine to a depth of 1.4m bgl. The base of the channel was not observed at this depth. It had a single fill of silty clay, but it was unclear whether the feature was a palaeochannel or a ditch.

Plate 4.3: Large channel *3702* in Trench 37

4.4.6 Trench 38 was located approximately 240m south-west of Trenches 39 and 40, and targeted two curvilinear geophysical anomalies (Figs 6 and 8; Plate 4.4). These broadly correlated with undated gullies ***3805*** and ***3803***, which both terminated within the trench confines and were identified at a depth of 0.28m bgl. To the north, north/south-aligned gully ***3805*** was 0.75m wide and 0.25m deep, the southern edge sloping steeply, the northern edge more gently. Silty clay basal fill ***3810*** may represent redeposited natural material, but upper fills ***3809*** and ***3806*** were rather more pebbly, with the latter containing charcoal. Palaeoenvironmental assessment of Sample 7 from the latter deposit identified coal and modern roots, and no potential for analysis or scientific dating (*Section 4.6*; Table 4.4). It is possible that these deposits had been dumped into the feature, possibly after something, such as a post, had been removed, but there was also the suspicion that the feature may have been a tree throw.

Plate 4.4: north-facing view of gully/tree throw *3805*

4.4.7 To the south, the second gully, ***3803*** (1.1m wide, 0.5m deep), entered the eastern edge of the trench on an east/west alignment before terminating. Apart from possible redeposited natural clay ***3808*** on the northern edge, the sterile silty clay fills (***3804*** and ***3807***) were grey in colour, suggesting that they had accumulated in wet anaerobic conditions (Plate 4.5).

Plate 4.5: east-facing section through gully *3803*

4.4.8 Trench 41 was approximately 575m to the north-west of Trenches 39 and 40 (Fig 8). Undated east/west-aligned ditch ***4103*** was observed at a depth of 0.4m bgl and could represent the geophysical anomaly targeted by the trench. It was 1.43m wide and just 0.11m deep, with a single fill of silty clay with frequent inclusions of stones (***4104***).

4.4.9 Trenches 49 and 50 were located to the east of Ewloe. The geophysical anomalies targeted by these trenches were again found to relate to variations in the natural geology.

4.4.10 Trenches 52-58 were excavated between Ewloe Green and Northop. Trenches 52 and 53 revealed archaeological remains, albeit that they did not correlate with the geophysical anomalies targeted. Shallow feature ***5203*** was identified mid-way along the eastern edge of Trench 52 (Fig 8). It was irregular in plan and profile, and thus may have been a tree throw rather than a pit. It measured 1.42m north/south by 0.96m wide and 0.21m deep with a single fill of soft silty sand with charcoal inclusions (***5204***). Palaeoenvironmental assessment of Sample 9 from that deposit identified a fair amount datable charcoal along with modern roots (*Section 4.6*; Table 4.4).

4.4.11 To the west, undated linear feature ***5303*** was observed at a depth of 0.4m bgl, extending for some 4.4m on a rough east/west alignment within the eastern part of Trench 53. It was 0.58m wide and just 0.21m deep, with somewhat diffuse edges in places. It was primarily filled with soft grey sandy silt ***5306***, occasional clods of redeposited natural clay (***5305***) and an upper deposit of sandy clay with frequent charcoal inclusions (***5304***; 0.08m thick). Assessment of sample 10 from the latter deposit identified coal and modern roots, with no potential for analysis or scientific dating. Rather than a ditch, it is possible that feature ***5303*** represents a former hedgeline that has been grubbed out and backfilled. A possible pit, ***5307***, 0.23m wide

and 0.13m deep, was not easy to discern cutting deposit ***5304***, and may have been a variation within that deposit.

4.4.12 Trench 54 targeted a large area of geophysical disturbance on the north side of Green Lane to the west of Ewloe Green Farm (Fig 9). Investigation revealed a 0.8m-thick modern deposit of dumped clinker, slate, and industrial-looking waste (***5403***) at a depth of 0.2m bgl within the southern part of the trench, whilst its northern part was occupied by a large modern pit (***5404***) filled with the same material (***5405***). A possible relict soil horizon, ***5406***, was sealed by deposit ***5403*** at a depth of 1-1.2m bgl.

4.4.13 To the north-west, Trench 58 (Fig 9) revealed two pits at a depth of 0.45m bgl, which probably did not relate to the much more extensive geophysical anomalies that had been targeted. Pits ***5802*** (0.7m across) and ***5804*** (0.9m by 0.7m) were both 0.2m deep, sub-circular in plan and steep-sided with flat bases. Further, they each had a single, similar, dark humic fill (***5803*** and ***5805***; Plate 4.6), both of which contained several ceramic items of a domestic character that can be dated to the mid-to-late seventeenth and to the early-to-mid-eighteenth century (*Section 4.5*).

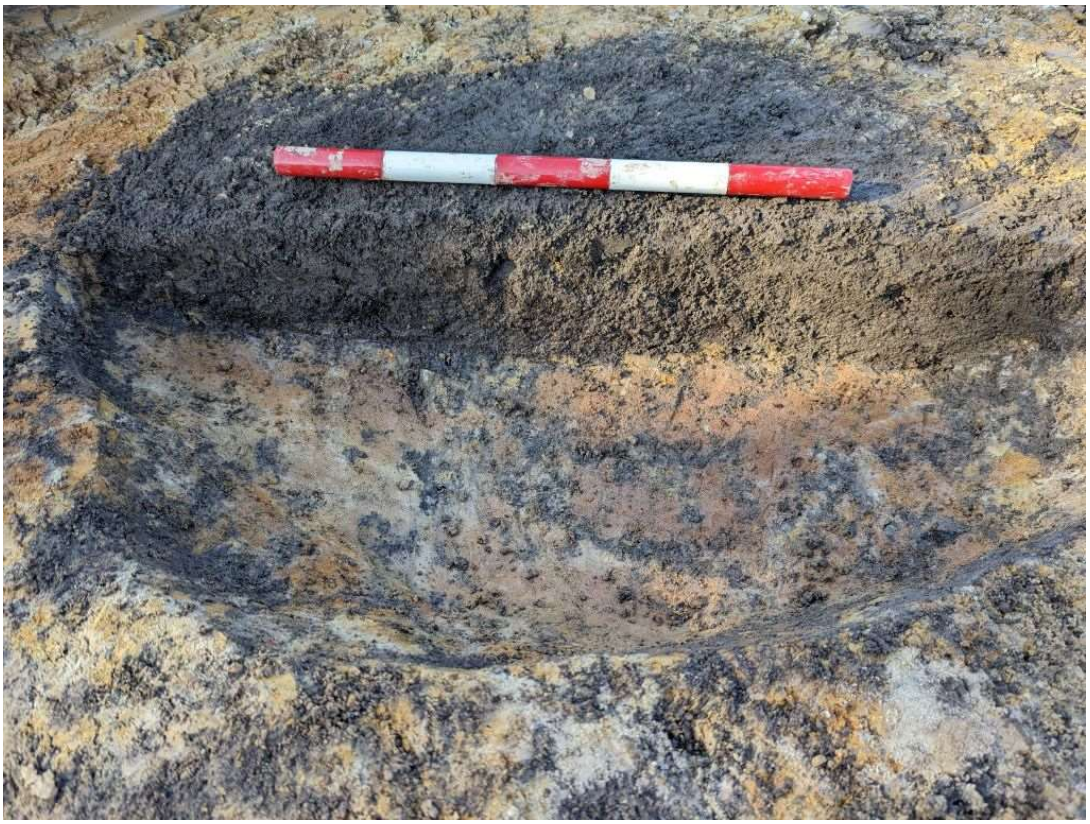

Plate 4.6: north-west-facing view of pit *5804*

4.4.14 Trenches 55 and 56 were situated 300m to the north-west of Trench 58. Towards the southern end of Trench 55, undated north-east/south-west-aligned ditch ***5502*** (1m wide, 0.3m deep with a gently sloping U-shaped profile) was identified at a depth of 0.3m bgl and, although it crossed the position of the targeted geophysical anomaly, it did not share an alignment (Fig 9). It contained a single fill (***5503***) of dark grey humic clay with inclusions of stones (Plate 4.7). Palaeoenvironmental assessment of Sample

13 from that deposit identified charred hazelnut shell and a fair amount oak charcoal, including sapwood with good potential for scientific dating.

4.4.15 Towards the centre of the trench, was undated ditch ***5504*** (1.54m wide, 0.36m deep). It had steep sides and a flat base and contained a single fill of naturally accumulated soft silty clay (Figs 6 and 9).

Plate 4.7: north-east-facing section through ditch *5502*

4.4.16 The geophysical anomaly targeted by the central part of Trench 56 was identified as a 0.4m-deep spread of very pale-coloured silty sand alluvium, ***5606***, perhaps within a poorly defined north/south-aligned palaeochannel up to 5m wide (Fig 9). At the west end of the trench, undated gully ***5602*** (0.6m wide, 0.12m deep, with a gentle bowl-shaped profile) entered the southern limit of investigation and terminated within the trench. Assessment of sample 16 from its single, dark-coloured loose fill, ***5603***, identified a small amount of charcoal, modern roots and heat-affected vesicular material (havm) but no potential for analysis or dating. At the eastern end of the trench, undated pit ***5604*** (0.7m wide, 0.1m deep, with a very gentle bowl-shaped profile) contained a single rather sterile-looking fill of pale grey soft sandy silt (***5605***).

4.4.17 Trenches 67–70 were located 1km to the south of Flint and 1.6km to the north of Northop. Trench 67 targeted a large curvilinear feature with a diameter of 28m. Two features were observed in the trench at a depth of 0.6m bgl in the approximate location indicated by the anomaly. North-west/south-east-aligned ditch ***6703*** (0.6m wide, 0.08m deep with a gently sloping profile) was found at the western end of the trench (Figs 11 and 12). It contained a single fairly sterile naturally accumulated fill (***6704***). At the opposite end of the trench, feature ***6705*** was identified partially within the southern limit of excavation (Figs 11 and 12; Plate 4.8). As such, it could either be a pit or a ditch terminus. It measured 1.3m wide and 0.75m deep, and contained two sandy silt fills (***6707*** sealed by ***6706***). Basal fill ***6707*** was observed to contain charcoal and palaeoenvironmental assessment of Sample 31 from that deposit identified some hazelnut shell and a fair bit of charcoal with good potential for analysis and

radiocarbon dating. It also produced a few tiny fragments of unburnt mammal bone. The deposit also contained a single very small chip of modern colourless glass, which may be intrusive.

Plate 4.8: south-east-facing view of feature *6705*

4.4.18 Trenches 68–70 were clustered together over several geophysical anomalies, none of which could be correlated with archaeological remains. The northern parts of Trenches 68 and 69 did reveal a 0.5m-thick deposit of colluvium, ***6801***/***6901***, which may relate to the geophysical anomaly targeted, as might the drains at the southern end of Trench 69 and the two examples within Trench 70.

4.4.19 Archaeological remains were limited to Trench 70 (Fig 9). Undated north-east/south-west-aligned ditch ***7002*** (0.9m wide, 0.24m deep with a very shallow bowl-shaped profile) was found at a depth of 0.5m bgl. It contained two naturally accumulated deposits of grey silty clay (***7004*** sealed by ***7003***, which was observed to contain charcoal). Palaeoenvironmental assessment of Sample 26 from fill ***7003*** confirmed the presence of charcoal and, although it has no potential for analysis, the oak charcoal could be used for range-finder scientific dating (*Section 4.6*; Table 4.4).

4.4.20 Right at the western end of the Project, Trenches 78 – 81 were placed to evaluate the Pentre Halkyn and Babell BVSs, positions which had not been part of the geophysical survey. At the Pentre Halkyn BVS, Trenches 78 and 79 were to the south of Brynford, placed on gently sloping ground. A single pit was observed at a depth of 0.27m bgl at the eastern end of Trench 78 (Fig 11). Pit ***7803*** (0.81m by 0.64m and 0.23m deep, with a fairly steep bowl-shaped profile) contained a single sandy fill with inclusions of charcoal and stones (***7804***; Plate 4.9). Palaeoenvironmental assessment of Sample 21 from that deposit identified abundant charred remains and charcoal, including hazelnut shells, with good potential for analysis and dating (*Section 4.6*; Table 4.4). Fill ***7804*** also contained a small assemblage of highly fragmented and poorly fired prehistoric pottery, of probable Bronze Age date (*Section 4.5*). Pit ***7803*** was cut into

slightly stony sandy silt deposit ***7802***. This may represent colluvium, or perhaps a variation in the not dissimilar underlying natural till, ***7805***. The same material, recorded as deposit ***7902***, was identified in Trench 79, which was devoid of archaeological remains but for several sherds of mid-to-late nineteenth-century pottery recovered from topsoil ***7900*** (*Section 4.5*).

Plate 4.9: West-facing view of prehistoric pit *7803* in Trench 78

4.4.21 Trenches 80 and 81 were excavated to the north-west of Babell. Trench 81 was blank, however four ditches (***8005***, ***8007***, ***8009*** and ***8011***), a posthole (***8003***), and a putative hedgeline (***8013***), all undated, were recorded in Trench 80 at a depth of 0.45m bgl (Fig 11). The ditches were all on the same north-east/south-west alignment and each was filled with a similar single brown silty fill with charcoal inclusions (fills ***8006***, ***8008***, ***8010*** and ***8012***, respectively). All had similar bowl-shaped profiles and widths (0.54-0.58m) with depths ranging from 0.12m (ditch ***8005***) to 0.33m (***8011***). Ditches ***8005*** and ***8007*** were intercutting; however, their stratigraphic relationship could not be ascertained as the fills were so similar (Plate 4.10). Three samples from these ditches (Samples 22-24; Table 4.4) underwent palaeoenvironmental assessment and, although none had potential for analysis, charcoal from fill ***8010*** of ditch ***8009*** and fill ***8006*** of ditch ***8005*** could be radiocarbon dated.

4.4.22 Posthole ***8003*** (0.28m wide by 0.12m deep) at the northern end of the trench had a flat base and steep sides. It contained a single sandy silt fill, ***8004***, that seemed to have accumulated naturally after the post had been removed. Again, assessment of Sample 25 from this fill identified datable charcoal and charred plant remains, but nothing with potential for analysis. Hedgeline ***8013*** (0.95m wide, 0.22m deep) differed in being aligned north/south. It had a rather irregular profile and contained a single sterile fill of friable clay silt (***8014***).

Plate 4.10: south-facing sections of ditches *8005* (left) and *8007* in Trench 80

4.5 Artefacts

4.5.1 In all, 63 fragments of artefacts, together weighing 983g, were recovered from trenches excavated in Flintshire. The material was in generally fair condition, but eroded and on occasion highly fragmented. The assemblage predominantly comprises ceramic vessels (47 fragments, *c* 75% by fragment count), but other materials are present in small amounts (Table 4.2). The objects recovered came from six separate trenches, and their distribution is shown in Table 4.3. As the trench groups are consistently very small, the finds are discussed below on a trench-by-trench basis.

Material	Trench(es)	No frags	Weight (g)
Bone, animal	39	6	7
Ceramic vessel, prehistoric	78	26	27
Ceramic vessel, post-medieval or later	30, 58, 79	21	238
Ceramic, tobacco pipe	58	1	4
Glass, vessel	67	1	1
Stone	78	8	706
Overall totals		**63**	**983**

Table 4.2 Finds quantified by material group from Trenches excavated in Flintshire

Trench	Context	OR no	Material	Category	No frags	Weight (g)
30	3000	1008	Ceramic	vessel	2	31
39	3904	1000	Bone	animal	6	7
58	5803	1005	Ceramic	vessel	6	68
58	5805	1003	Ceramic	tobacco pipe	1	4
58	5805	1004	Ceramic	vessel	10	124
67	6707	1014	Glass	chip	1	1
78	7804	1015	Stone	fossil	3	1
78	7804	1017	Stone	natural	5	705
78	7804	1013	Ceramic	vessel	26	27
79	7900	1009	Ceramic	vessel	3	15
Overall totals					**63**	**983**

Table 4.3 Distribution of finds between trenches excavated in Flintshire

4.5.2 ***Trench 30***: topsoil ***3000*** produced two fragments of late refined white earthenwares (av weight 15.5g), one a Pearlware base, the other a spalled fragment for which the fabric cannot be discerned with confidence. Both are probably nineteenth-century or later in date. They have no potential to contribute further to the dating, interpretation or understanding of the site and no further analysis can be recommended.

4.5.3 ***Trench 39***: six small fragments (7g) of what was probably a single unmodified, but now shattered, animal bone (OR 1000) came from context ***3904***. They have no potential to contribute further to the dating, interpretation or understanding of the site and no further analysis can be recommended.

4.5.4 ***Trench 58***: pottery was recovered from contexts ***5803*** and ***5805***, with six fragments from the former (OR 1005, av sherd weight 11.3g) and 10 from the latter (OR 1004, av sherd weight 12.4g) Context ***5805*** also produced a single otherwise undiagnostic fragment of clay tobacco pipe stem (OR 1003), of broadly the same date. The material from ***5803*** (OR 1005) comprises four fragments of dark-glazed redware, including part of the base of a relatively small globular cup, and a thin very hard-fired fragment suggesting an early date, perhaps the mid-to-late seventeenth century. A single fragment of slip-trailed ware, and a dark-glazed rim fragment in a very coarse whitish fabric, both suggest a slightly later date, perhaps in the early-to-mid-eighteenth century. The laminated fabric seen in the redwares suggests them to be, not unsurprisingly, Buckley products (Watson 2019, 45). The pottery from context ***5805*** (OR 1004) is very similar, with eight plain and one slip-decorated small fragments of Buckley-type wares, and one small fragment of mottled ware with a hard coarse light grey reduced fabric with a possible internal white slip, which is not further identified.

4.5.5 Beyond the dating supplied by this small group of probably eighteenth-century pottery from Buckley, a relatively local producer, the assemblage is too small and too fragmentary to sustain worthwhile further analysis. No further analysis can be recommended.

4.5.6 ***Trench 67***: a single very small chip of modern colourless glass (OR 1014) was recovered from context ***6707***. It has no potential to contribute further to the dating,

interpretation or understanding of the site and no further analysis can be recommended.

4.5.7 ***Trench 78***: this is the only trench to have produced finds of probable prehistoric date. A small group of 26 tiny (av sherd weight *c* 1g) fragments of coarse and poorly fired pottery was recovered from pit fill ***7804*** (OR 1013). It is assumed that they derive from a single vessel, but original surface survives on only two of the fragments, and this gives no indication of the original appearance or form of the original vessel. It is possible to identify it as prehistoric, and a Bronze Age origin seems most likely. Small fragments of fossilised crinoid (OR 1015) come from the same context. These items often have a natural cylindrical perforation, and have been known, on occasion to be used as beads, but as two of the three fragments lack this perforation, their identification as beads does not seem likely and should not be pursued unless the local geology can be shown to be devoid of such fossils. Finally, there are five fragments of shattered water-worn stone from the same context. Lacking any heat discolouration, it is possible that these are simply of natural origin, but heat-cracking cannot be entirely ruled out, especially if the original stones had been used as pot-boilers.

4.5.8 Whilst the recovery of potentially Bronze Age pottery is of interest, its poor condition and lack of chronologically diagnostic features makes further research effectively impossible. It is likely that other objects recovered from the site are of natural rather than anthropogenic origin and are thus irrelevant to any interpretation of the site. Beyond a brief comment, noting the presence of the prehistoric pottery, no further analysis can be recommended.

4.5.9 ***Trench 79:*** three fragments of pottery (av sherd weight 5g) were recovered from topsoil ***7900.*** Two are base sherds from plain tablewares, one in Creamware, the other China; neither are likely to be earlier than the mid-to late nineteenth century, and could be more recent. The third sherd is a small and abraded fragment of dark-glazed redware, and most likely to be of similar date. They have no potential to contribute further to the dating, interpretation or understanding of the site and no further analysis can be recommended.

4.6 Palaeoenvironmental remains

4.6.1 The results of the assessment of the charred remains and charcoal are presented in Table 4.4, whilst Table 4.5 shows the results of the assessment of the waterlogged plant remains. The tables also show the archaeobotanical and radiocarbon dating potential of each of the samples, which, in both cases, is based on the quantity, diversity, and condition of the remains. Further recommendations are made, which consider the nature of the features or deposits, and whether any further work is warranted.

4.6.2 ***The charred remains and charcoal:*** very few charred plant remains were recovered from the dryland features; however, fragments of charred hazel (*Corylus avellana*) nutshell were recovered from ditch ***5502***, and pits ***6705*** and ***7803***, and a single charred pale persicaria (*Persicaria lapathifolia*) seed, a plant typical of waste/cultivated, especially damp, ground was recovered from posthole ***8003***. Charred hazelnut shell fragments were particularly abundant in pit ***7803***.

4.6.3 Rare to frequent charcoal fragments were recorded in most of the features, but larger assemblages, possibly more characteristic of discrete episodes of deposition/dumping, were recovered from ditch ***7002*** and from pits ***7803*** and ***6705.*** The assessment of the charcoal indicates a dominance of oak (*Quercus* sp) and/or alder/hazel (*Alnus glutinosa/Corylus avellana*); however, ash (*Fraxinus excelsior*), hawthorn-type (Maloideae), blackthorn-type (*Prunus* sp), and elm (*Ulmus* sp) were also noted. Much of the charcoal, in particular fragments recovered from ditches, were poorly preserved due to significant mineral replacement.

4.6.4 Other remains included fungal sclerotia, which were particularly prevalent in tree throw ***5203*** and ditch ***5502***. Fungal sclerotia are the resting spores of fungi, which develop in woodland soils during periods of environmental stress, such as burning or disturbance (Shay and Kapinga 1997). Most of ditches, and the tree-throws, contained high levels of modern roots, which indicates a potential for the presence of intrusive material. Similarly, the presence of comminuted coal fragments suggests many of the features contain recent soil debris.

Sample No	Context No	Feature No	Sample size l	Flot size ml	Charred plant remains (cpr)	Charcoal	Other remains	Cpr/ charcoal potential	C14 potential
7	***3806***	Gully/Tree throw ***3805***	24	<5			Coal (1), Modern roots (3)	No	None
9	***5204***	Tree throw ***5203***	23	10		<2mm (2), >2mm (3) includes *Alnus/Corylus*. Abundant indeterminate fragments	Fungal sclerotia (4). Modern roots (4), insect eggs (4)	No	Good
10	***5304***	Hedgerow ***5303***	32	20			Coal (3). Modern roots (4), modern seeds (1)	No	None
13	***5503***	Ditch ***5502***	21	10	*Corylus avellana* nutshell (1)	<2mm (3), >2mm (3) dominated by *Quercus*, includes rare sapwood fragments	Fungal sclerotia (3)	No	Good
16	***5603***	Ditch ***5602***	22	<5		<2mm (1)	Fungal sclerotia (2). Havm (1). Modern roots (3)	No	None
21	***7804***	Pit ***7803***	23	100	*Corylus avellana* nutshell (3)	<2mm (4), >2mm (4) dominated by *Alnus/Corylus,* rare *Quercus*	Residue contained possible bone beads, and possible prehistoric pot	Yes	Good
22	***8010***	Ditch ***8009***	28	<5		>2mm (2) Heavily mineralised. Includes *Alnus/Corylus* and *Quercus*	Coal (2). Modern roots and grass (2), modern seeds (1)	No	Fair (small assemblage)
23	***8012***	Ditch ***8011***	26	<5			Coal (1). Modern roots and grass (2)	No	None
24	***8006***	Ditch ***8005***	29	5		<2mm (2) >2mm (1) Heavily mineralised. Includes *Alnus/Corylus* and *Prunus*	Coal (1). Modern roots and grass (3), modern seeds (1)	No	Fair (small assemblage)
25	***8004***	Posthole ***8003***	6	<5	*Persicaria lapathifolia* (1)	<2mm (2), >2mm (1) includes *Alnus/Corylus* and rare round wood fragments		No	Fair (small assemblage)
26	***7003***	Ditch ***7002***	27	350		<2mm (4), >2mm (4) dominated by *Quercus*	Modern roots (2)	No	Ok for range finder date
31	***6707***	Pit ***6705***	21	50	*Corylus avellana* nutshell (1)	<2mm (4), >2mm (4) mixed preservation, includes *Alnus/Corylus, Quercus,*	Bone (1). Coal (2)	Yes	Good

Sample No	Context No	Feature No	Sample size l	Flot size ml	Charred plant remains (cpr)	Charcoal	Other remains	Cpr/ charcoal potential	C14 potential
						Fraxinus excelsior, and *Ulmus*. Rare round wood			

Notes: Remains are quantified on a scale of 1–4 where (1) is rare (one to five items); 2 is frequent (6 to 50 items); 3 is common (51–100 items); and 4 is abundant (greater than 100 items), havm = heat affected vesicular material, owe = old wood effect, cbm = ceramic building material

Table 4.3: Results of the assessment of the charred plant remains and charcoal from trenches excavated in Flintshire

4.6.5 ***The waterlogged remains:*** as might be expected from floodplain and palaeochannel deposits, several of the alluvial layers, and peat layer ***3707*** contained seeds/fruits of plants typical of damp/waterlogged conditions, such as rush (*Juncus*) and sedge (*Carex*). Rare seeds of water crowfoots (*Ranunculus aquatilis* agg.), an obligate aquatic/semi-aquatic plant, which grows at the margins of ponds, lakes, and slow rivers, were also recovered from alluvial layer ***3706***, which also contained frequent resting eggs (eppiphium) of water flea (*Daphnia*).

4.6.6 Peat layer ***3707***, encountered at 2.2m depth on an area of reclaimed industrial land adjacent to the River Dee contained abundant wood fragments and herbaceous remains, which, together with rare blackberry (*Rubus*) seeds, and common fungal sclerotia, suggests it developed in or near woodland. Other plants indicative of damp/wet conditions included hemp-agrimony (*Eupatorium cannabinum*) in peat layer ***3707***.

Sample No	Context No	Feature No	Description	Sample size l	Wet sample size ml	Matrix	Waterlogged seeds/fruits (wpr)	Other remains	Wpr potential	C14 potential
3	***3706***	Alluvial layer, 0.5m depth	Light grey clay	6	200	Roots/stems (4), amorphous organic (2)	*Ranunculus aquatilis* (2), *Juncus* (2), *Carex* (1)	*Daphnia* eppiphium (2)	No	None
4	***3707***	Peat layer, 0.4m thick, 2.2m depth	Peat	6	1000	Wood fragments (4), roots/stems (4), amorphous organic (4)	*Eupatorium cannabinum* (2), *Juncus* (1), *Rubus* (1), unknown (1)	Fungal sclerotia (3), <2mm charcoal (2)	Yes	Humic/ humin
5	***3401***	Palaeochannel fill, 0.75m depth	Orangey brown clay	5	<5	Roots (1), amorphous organic (2)		Molluscs (1)	No	None
6	***3403***	Alluvial layer, 1.9m depth	Grey/brown clay	5	10	Roots (2)		Insects (1). Coal (3). Cbm (1)	No	None
15	***3905***	Alluvial layer, 1.81m depth	Grey sandy clay	6	<5	Roots (2)		Modern straw (2), modern seeds (1). Coal (2)	No	None

Notes: Remains are quantified on a scale of 1–4 where (1) is rare (one to five items); 2 is frequent (6 to 50 items); 3 is common (51–100 items); and 4 is abundant (greater than 100 items)

Table 4.5: Results of the assessment of the waterlogged plant remains from trenches excavated in Flintshire

5 DISCUSSION

5.1 Reliability of field investigation

5.1.1 Overall, the results of the investigation can be considered reliable: numerous features were identified across a range of geologies, and all were investigated and recorded. As such, the findings would appear to be representative of the archaeological resource in the specific areas that were trenched. Indeed, given that the Project traverses a range of topographies with a diversity of historic and cultural landscapes, it is important to consider the resource within the Project not as a single entity, but rather as a series of interconnecting components. Nonetheless, it is true that a fuller understanding would have been gained of the archaeological resource across the Project had it been possible to investigate 80, rather than 45 trenches in February and March 2023.

5.1.2 More specifically, the geology in the trenches on the River Dee flood plain (Trenches 33, 34, 37, 39 and 40) was challenging. Sondages were excavated through the deposits to gauge depth and the presence of peat; however, in the main, the trenches were excavated to the top of the first alluvial deposit to ensure safe working conditions within agreed land take, and reduce the risk of flooding. Although there were few features associated with these deposits, it is possible that features or horizons were masked by the alluvium.

5.2 Evaluation objectives and results

5.2.1 The aims and objectives of the evaluation trenching as set out in *Section 2.2* and the WSI (WSP 2022; *Appendix A*) have been successfully addressed, as far as is possible, by the fieldwork and post-excavation work. In particular, the evaluation permitted the geophysical survey results to be tested. Whilst less than half of the geophysical anomalies could be correlated with archaeological remains, many of the anomalies could be found to relate to something, even if it was variations in the natural geology. In Cheshire, for example, 17 of the trenches excavated targeted anomalies, but in seven of those it was not possible to attribute the anomalies to anything within the trenches, whilst in three other trenches the anomalies related to unmapped modern services. In fact, in only four trenches was it possible to correlate geophysical anomalies and archaeological remains, whilst in three others there were archaeological remains but these did not align with the anomalies targeted. In Flintshire, of the 22 trenches targeted on anomalies, there were seven where the archaeological features and geophysical anomalies correlated, five where they did not, five trenches where the anomalies could be attributed to variations in the alluvial geology, and five trenches that revealed nothing at all. It is also worth noting that two of the four trenches in Flintshire placed without prior geophysical survey encountered archaeological remains, including a feature that was clearly of higher significance. Inevitably, there were several archaeological features in a range of geologies that were not detected by geophysical survey, and, although some of these were relatively small and discrete, that was not the case for all of them, Roman ditch ***2803*** in Trench 28 being a major (but not isolated) case in point. As such, the work indicates the importance of a multi-disciplinary approach to field investigation, with some trenches

placed beyond geophysical anomalies, and justifying the placement of trenches in predicted areas of impact, such as the AGIs and BVSs.

5.2.2 Whilst the nature and (limited) complexity of the features encountered within the trenches has been characterised, firm dating for many has proved more difficult. The small finds assemblage is well stratified and, whilst it is dominated by Roman and post-medieval artefacts, this is not unexpected in the region, where material culture from other periods can be quite sparse. Moreover, large quantities of finds would not be expected in a largely rural landscape. It is thus important that assessment of soil samples from the evaluation has demonstrated that there is often the possibility for scientific dating, even if the potential for palaeoenvironmental analysis is generally a bit more variable. The assessment has shown that although there is a general paucity of charred plant remains from features discovered along the Project, many contain abundant charcoal, likely to represent casually dispersed or dumped fuel waste, perhaps from nearby activity burning activity. Much of the charcoal recovered from the ditches was poorly preserved or comprised a single taxon such as oak, subsequently further work on these would not contribute much to the data generated during this assessment. Several of the samples contained short-lived charcoal, which would provide suitable material for radiocarbon dating if warranted.

5.3 Cheshire: interpretation and significance

5.3.1 Both the earliest datable and, at present the most significant remains on the Cheshire part of the Project were revealed by Trench 28, just to the south of Saughall on rising land overlooking the River Dee. These comprised a cobble and sandstone surface (perhaps a footing for a building), which broadly related to a geophysical anomaly, and a step-profiled ditch which did not. Both were associated with Roman pottery, ironwork, and glass dating to the second-to-third centuries AD and the finds, together with the heather/heath and pine charcoal, are likely to represent the waste from nearby settlement.

5.3.2 The presence of some Roman remains on the scheme is not surprising given the proximity of the highly influential Roman fort and settlement further up the Dee at Chester, whilst the Chester to Wirral Roman Road is crossed by the Project. Indeed, a Roman coin was previously found in Saughall (WSP 2022). Also in the vicinity is the Roman Camp on Fox Covert Lane, Picton, and, further up the Dee Valley, a villa at Saighton, to the south-east of Chester. Whilst it is premature to ascribe the Trench 28 features to the military or a villa, it could be argued that a stone building footing and the character of some of the finds suggests a more Romanised, rather than native Iron-Age, mode of living.

5.3.3 The remaining features, of which six correlated with anomalies, were undated and largely comprised field boundaries. Some of those were likely to relate to elements of the field systems shown on nineteenth-century historic mapping. For example, ditch ***702*** in Trench 7 seems to lie along the route of a boundary skirting a tributary of the Mill Brook, and shown on the Wervin Tithe Map of *c* 1850 (Cheshire Archives and Local Studies 2023). That feature is no longer extant, with the modern boundary defined by the stream. Within the northern part of the same trench, ditch ***700*** lies parallel to a boundary shown on the tithe and subsequent Ordnance Survey (OS) mapping. In the

same area, ditch/palaeochannel ***803*** (Trench 8) and ditches ***900*** and ***902*** (Trench 9, the latter of which could be scientifically dated) seem to feed into the water courses that have been incorporated into mapped boundaries. As such they may represent removed elements of the field system. Other boundary features, such as ditches ***1503*** and ***2803*** (Trenches 15 and 28), and bank ***2103*** (Trench 21), do not relate to anything on historic mapping in terms of their position or alignment, and may represent elements of earlier field systems. Discrete features comprised isolated pit ***904*** (Trench 9), which, being undated, is of uncertain significance, and tree throw ***2703*** (Trench 27), likely to be of very low significance.

5.3.4 Several natural features/deposits were also identified, including a palaeochannel and deeply buried peat deposit ***203***, discovered at 2.2m depth in Trench 2. This may represent the upper of two peat layers discovered during development-led investigations to the north of the Project at Ince Marches by RSK Ltd in 2010 (RSK 2012), which identified two layers of peat across the site at depths of between 3-6m and 10-11m bgl. Palaeoenvironmental evidence from the upper peat layer at Ince, dated to 4840 to 4690 cal BC, indicated the local development of alder (*Alnus*) fen carr and later heathland, with mixed deciduous woodland of oak (*Quercus*), hazel (*Corylus*), elm (*Ulmus*), lime (*Tilia*), ash (*Fraxinus*), and birch (*Betula*) on the surrounding drier slopes (*ibid*). Significantly, this peat layer also contained frequent evidence of localised burning. Evidence for cultivation, including cereal pollen, was recorded at 1.42m depth and, although the date from this level was spurious, the evidence suggested arable farming was likely to have been taking place in the area, possibly during the Late Neolithic Period/Early Bronze Age (*ibid*). Evidence for possible livestock grazing of wet meadows or open woodland was indicated towards the top of the sequence, which is dated to 1000 to 840 cal BC (Beta-297295).

5.4 Flintshire: interpretation and significance

5.4.1 On the Flintshire section of the Project, the earliest datable feature comprised single pit ***7803***, found on gently sloping ground at Pentre Halkyn (Trench 78). It contained probable Bronze Age pottery and charred remains that could be analysed and scientifically dated. The recovery of charred hazelnut shell and abundant charcoal from pits is common (but not exclusive) from early prehistoric pits in Britain (Huntley and Stallibrass 1995, Evans *et al* 2021). Given the documented barrows in the vicinity (*Section 1.3*; WSP 2022), finding evidence within the Project for Bronze Age activity is perhaps not unexpected. It is still highly significant, for it might be inferred that further such remains of a more domestic character lie in the vicinity and might be hard to identify without intrusive investigation. Moreover, the possibility that the pit was cut into a colluvial deposit might suggest that there is potential to reveal sealed buried land surfaces at this location.

5.4.2 Also dated were pits ***5802*** and ***5804*** containing seventeenth-to-eighteenth-century domestic refuse (Trench 58) near Ewloe Green. These lay some distance from the road network and any habitation shown on nineteenth-century historic mapping (OS 1871). Whilst it is hard to say what they may have related to, they may suggest nearby, previously undocumented occupation which would be of significance.

5.4.3 Twelve boundary features were also identified and, although undated by artefacts, several contained scientifically datable organic matter. A few of these could be directly correlated with boundaries shown on nineteenth-century historic mapping. Grubbed-out hedgeline ***5303*** (Trench 53) lay on a course that would connect north-east/south-west-aligned field boundaries shown by the 1871 OS map in fields to the north-east and south-west. The same map shows the main road through Ewloe Green cutting straight across the old field system, and ***5303*** may have been among several boundaries to have been removed following the construction of the road. A little to the north-west, ditch ***5502*** (Trench 55) follows the alignment and lies in a very similar position to a north-east/south-west-aligned ditch shown on the 1871 OS map, since removed. Similarly, the position of ditch ***6703*** (Trench 67, between Flint and Northop) closely aligns with a north-west/south-east-aligned boundary on the 1871 OS map that, although since removed, can be traced as a cropmark on satellite imagery.

5.4.4 Several other boundary features found during the evaluation seemed to reference broader aspects of field and road systems shown on historic mapping, if not to actual elements. For example, ditch ***4103*** (Trench 41; Deeside) shared the alignment of several field boundaries shown on the 1871 map, as did hedgeline ***8013*** (Trench 80; Babell), whilst ditch ***7002*** (Trench 70; Flint) followed the alignment of Allt Goch Lane, to the west. It might be inferred that these were elements of the post-medieval (and possibly older) field system that had been removed by 1871.

5.4.5 Others seemed not to relate to any features shown on historic mapping, either in terms of their position or alignment. Those include large channel ***3702*** (Trench 37 on the Dee floodplain, albeit that it could be a palaeochannel), and ditch ***5504*** (Trench 55), and the four roughly parallel ditches in Trench 80 (Babell). It is possible that these could be elements of earlier field systems and enclosures. More discrete features of particular note included a pair of gully termini/pits (***3803*** and ***3805***) in Trench 38, between Mancot and Sandycroft overlooking the Broughton Brook and the Dee, and pit ***5604*** and gully ***5602*** (Trench 56, to the west of Ewloe Green), between the Alltami Brook and the Nant Gwepra. Although undated, these features occupied positions that may well have been attractive locations to earlier communities, including in periods that are not artefactually rich. Similarly, pit/ditch terminus ***6705*** was found in Trench 67, to the east of Flint Mountain on raised ground between two brooks. It contained charred remains, and the tiny piece of modern glass recovered from the sample could very easily be intrusive.

5.4.6 Natural features, including palaeochannels, were also identified, with the majority revealed in trenches (33-41) on the southern side of the River Dee. This revealed alluvial sequences, with a significant layer of peat (***3707***) encountered 1.8m below ground level (in Trench 37). This was potentially more extensive, and could be correlated with deposits encountered during GI works undertaken at an earlier stage of the Project (OA North 2022).

5.5 Research themes

5.5.1 Whilst the current understanding of the date and significance of many of the features identified during the evaluation is somewhat limited, it is, nonetheless, apparent that there is potential to contribute to research themes for the Project (*Section 2.1*). There

is scope to consider aspects of settlement patterns, especially for the Bronze Age, Roman period, and early post-medieval period. Further, it would be possible to examine natural and human-influenced landscape evolution, as well as changes in the interaction with, and organisation of the landscape across a broad swathe of periods, both from palaeoenvironmental data preserved within features and peat deposits, but also in terms of the features themselves where those represent natural and manmade divisions within the landscape.

5.6 Recommendations

5.6.1 ***Current archive:*** a better understanding of the trenching results would be gained if it was possible to undertake a limited programme of radiocarbon dating, especially in the case of ditches ***902***, ***2903***, ***8005***, and ***8009***, gully ***3805***, and pits ***6705*** and ***7804*** (Trenches 9, 29, 80, 38, 67, and 78, respectively). Given the paucity of archaeobotanical material from prehistoric contexts like pit ***7804***, such material remains a very high priority for further study (Myers 2017; Adams *et al* 2021, 26). Consequently, further analysis is recommended for pit ***7804*** and other similar features, should dating confirm an early date.

5.6.1 Given the depths at which peat layers develop and become preserved can vary quite considerably, it is unclear whether peat layers ***203*** (Trench 2, Ince Marshes), and ***3707*** (Trench 37, Dee floodplain) reflect the same regressive sea level event. Radiocarbon dating of both these peat layers is recommended to inform past movements in relative sea level. Radiocarbon dating should, ideally, target single entity macrofossils, however, failing this, humin and humic dating would be possible. Although the assessment showed both peat layers contained a low diversity of fruits/seeds, further rapid analysis should be considered alongside palynological investigations and, in the case of peat layer ***203***, further assessment of the insects. Although previous palynological investigations have been carried out on deposits from Ince Marshes, the uncertainties of the date of key events, such as early cereal cultivation, means that further work may be warranted.

5.6.2 ***Future fieldwork***: several trenches identified archaeological remains that are either demonstrably significant at this stage, or have the potential to be of some significance once they can be better understood. At those locations further fieldwork should be considered, with specific details established in consultation with CAPAS and CPAT. In principle, areas of Strip, Map and Record (SMR) investigation should include archaeologically led stripping across an agreed area and full survey of remains, with intrusive interventions and soil sampling strategies targeted to address site-specific research questions, again, agreed with the curatorial bodies. All fieldwork should be followed by an appropriate programme of archive processing, assessment and reporting and, where appropriate, analysis and publication. Palaeoenvironmental/geoarchaeological investigation would comprise stratigraphic recording and the collection of several samples using an appropriate machine/rig to recover stratified sediments for various forms of palaeoenvironmental and geoarchaeological assessment and, if appropriate, analysis and publication. Areas for such investigation are set out in Table 5.1.

County	Trench	Remains	Proposed Mitigation
Cheshire	28	Roman ditch and putative structures	SMR to extent of archaeological remains within Project footprint
	15, 21, 28	Potential early enclosure systems, currently undated	SMR to extent of archaeological remains within Project footprint. Highly targeted investigation/sampling of enclosure features where these only represent field systems without other activity forms
	9	Undated pit and ditch	Localised SMR to identify associated features, expanding as appropriate
	2	Ince Marshes peat	Palaeoenvironmental/geoarchaeological investigation where this would augment (rather than duplicate) existing specialist work on the Marshes
Flintshire	78	Bronze Age pit	SMR to extent of archaeological remains within Project footprint
	58	Early post-medieval pits with domestic waste	SMR to extent of archaeological remains within Project footprint
	80	Potential early enclosure systems, currently undated	SMR to extent of archaeological remains within Project footprint. Highly targeted investigation/sampling of enclosure features where these only represent field systems without other activity forms
	38, 56, 67	Undated features, potentially of a domestic nature	Localised SMR to identify associated features, expanding as appropriate
	37	Dee floodplain peat	Palaeoenvironmental/geoarchaeological investigation

Table 5.1: Suggested targeted intrusive investigation areas based on trenching results to date

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APPENDIX A WRITTEN SCHEME OF INVESTIGATION

HyNet North West

Archaeological Written Scheme of Investigation – Stage 1 Trial Trenching

HyNet Carbon Dioxide Pipeline DCO

Planning Act 2008

Document Reference Number D.7.4.1

Applicant: Liverpool Bay CCS Limited

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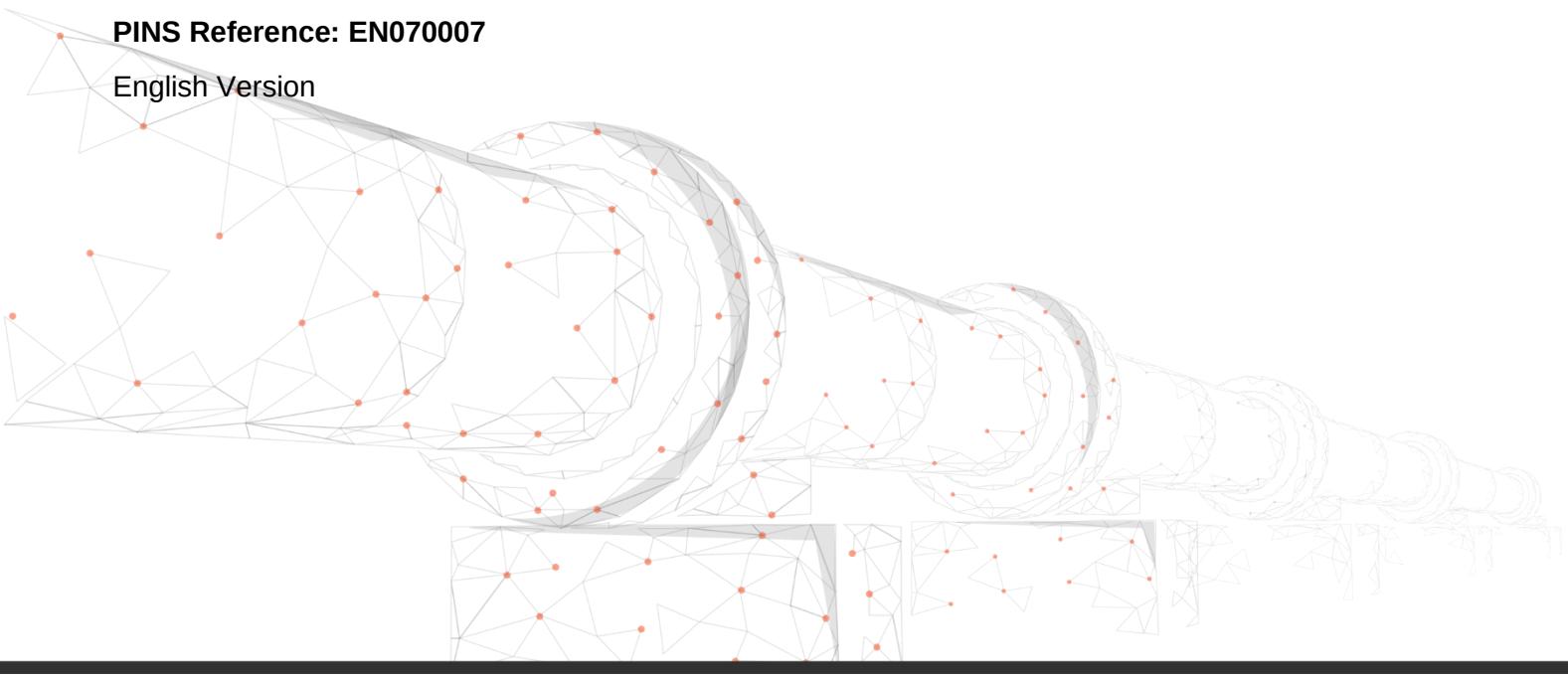

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1. INTRODUCTION

1.1. PROJECT BACKGROUND

1.1.1. WSP has been commissioned by Liverpool Bay CCS Limited (hereinafter referred to as 'The Applicant') to prepare a Written Scheme of Investigation (WSI) for a programme of archaeological evaluation in advance of the construction of the Development Consent Order (DCO) Proposed Development.

1.1.2. HyNet (the Project) is an innovative low carbon and hydrogen energy project that will unlock a low carbon economy for the North West of England and North Wales and put the region at the forefront of the UK's drive to Net-Zero.

1.1.3. The DCO Proposed Development is a critical component of the Project which, by facilitating the transportation of carbon, enables the rest of Project to be low carbon. The hydrogen production and CO_2 capture, and storage elements of the Project do not form part of the DCO Proposed Development and will be delivered under separate consenting processes.

1.1.4. The DCO Application seeks consent for the construction, operation, maintenance and where applicable, decommissioning of the DCO Proposed Development, comprising:

- **Ince Above Ground Installation (AGI) to Stanlow AGI Pipeline** – an approximate 4km section of new underground onshore pipeline (20" in diameter with capacity of up to 2.5 $MtCO_2$/yr at a pressure of approximately 38 barg) to transport CO_2;

- **Stanlow AGI to Flint AGI Pipeline** – an approximate 32km section of new underground onshore pipeline (36" in diameter with a capacity of up to 10 $MtCO_2$/yr at a pressure of approximately 35 barg) to transport CO_2;

- **Flint AGI to Flint Connection Pipeline** – an approximate 400m section of new underground onshore pipeline (24" in diameter with a capacity of up to 4.5 $MtCO_2$/yr at a pressure of approximately 33 barg) to transport CO_2;

- **Flint Connection to Point of Ayr (PoA) Terminal Pipeline** – an approximate 24 km section of existing Connah's Quay to PoA underground onshore pipeline (24" in diameter) which currently transports natural gas but will be repurposed and reused to transport CO_2. Construction along the Flint Connection to PoA Terminal Pipeline will be limited to works associated with connecting it to:
  - the Flint AGI to Flint Connection Pipeline (included in the scope of the DCO Proposed Development application);

- the three Block Valve Stations (BVSs) via installation of small sections of Tie-In pipeline (included in the scope of the DCO Proposed Development application); and
- the PoA Terminal (subject to approval of the TCPA Proposed Development so are not included within the scope of the DCO Proposed Development application but is assessed in Chapter 19 of the Environmental Statement (ES) (**document reference D.6.2.19**).

- **Four AGIs** - Ince AGI, Stanlow AGI, Northop Hall AGI, and Flint AGI.

- **Six BVSs** - located along:
  - the new Stanlow AGI to Flint AGI Pipeline (three in total);
  - the existing Flint Connection to PoA Terminal Pipeline (three in total).
- **Use of the existing Flint Connection to PoA Terminal pipeline** for the conveyance of CO_2;

- **Other above ground infrastructure**, including Cathodic Protection (CP) transformer rectifier cabinets and pipeline marker posts;

- **Utility Connection infrastructure**, including power utilities and Fibre Optic Cable (FOC); and

- **Temporary works** integral to the construction of the CO_2 Pipeline, including Construction Compounds and temporary access tracks.

1.1.5. The Order Limits of the DCO Application encompass the land required to construct, operate and maintain the DCO Proposed Development, including working areas for pipeline laydown, construction compounds and above ground infrastructure. The Order Limits are shown on the Works Plans (**document reference D.2.4**).

1.1.6. A full description of the DCO Proposed Development is detailed in Chapter 3 of the ES (document reference D.6.2.3).

1.2. SCOPE OF WORK

1.2.1. This WSI has been informed by a **Historic Environment Desk-Based Assessment (HEDBA) (Appendix 8.1, Volume III of the Environmental Statement) (Document reference D.6.3.8.1)**. This sets out the legislative and planning background and provides a detailed baseline and an assessment of the impacts of the DCO Proposed Development. The WSI has also been informed by a Stage 1 **Geophysical Survey (Appendix 8.4,**

Volume III of the **ES) (Document reference D.6.3.8.4)**, carried out between February and March 2022 during the ES assessment stage, and a **Geoarchaeological Deposit Model** (**Appendix 8.5, Volume III of the ES**) (**Document reference D.6.3.8.5**). The assessment has been undertaken in line with the National Policy Statement for Energy EN1(**Ref. 1.1**).

1.2.2. Following completion of the Geophysical Survey, the results were shared with both Clwyd-Powys Archaeological Trust (CPAT) (advisors to Flintshire County Council) and Cheshire Archaeology Planning Advisory Service (APAS) on 22 June 2022. The results of the survey were discussed with both CPAT and APAS (see **Section 2.4**), along with a strategy for targeted evaluation of features of interest. The results of which are incorporated into this WSI.

1.2.3. A total of 80 trial trenches have been located to test anomalies identified by the geophysical survey and to investigate the proposed AGI and BVS locations. Table A-1 (**Appendix A**) summarises the size and rationale of the evaluation trenches which are shown on Figure 2 (**Appendix B**).

1.3. PROJECT ROLES, RESPONSIBILITIES AND DEFINITIONS

1.3.1. The following terminology is used throughout this document:

- The Applicant – Liverpool Bay CCS Limited. The Applicant is the developer, not the current landowner;
- The Archaeological Consultant is the WSP Cultural Heritage and Archaeology team who are responsible for managing the scope and for monitoring and assuring the work on behalf of the Applicant. The Archaeological Consultant will liaise directly with the LPA Archaeological Advisor(s).
- Archaeological Contractor (as appointed by the Archaeological Consultant on behalf of the Applicant). Responsible for carrying out the fieldwork, post-excavation reporting, deposition of the archive and dissemination. The Archaeological Contractor will be in control of the site and responsible for all Health and Safety and site security.
- The LPA Archaeological Advisor(s) provide the development control and planning advice to the LPA(s) and have the final decision on the scope of work and signs off the archaeological fieldwork when it is complete, in consultation with the Archaeological Consultant. The LPA Archaeological Advisors comprise CPAT and APAS.

1.3.2. The ‘archaeological project archive’ comprises all resources created and accumulated during the lifespan of an archaeological project. This includes paper and digital records such as context sheets, photographs, drawings, survey data, reports, artefacts and ecofacts. The aim of the archive is to ensure long term preservation of the resource which will allow for further

research or reinterpretation of the original findings. The archive will be ordered and accessible.

1.3.3. The ‘archaeological project archive repository’ is the organisation, for example the county or local museum, responsible for the long-term curation of the DCO Proposed Development archive, including the field notes, plans, photographs, and archived finds (see section 5.3). For works undertaken in England, the receiving organisation will be Cheshire West Museums. For works undertaken in Wales the receiving organisation will be the National Monuments Record, Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW). The Archaeological Contractor will liaise with the archaeological project archive repository prior to starting the work and will be assigned a unique reference number (‘site code’).

2. HISTORIC ENVIRONMENT BASELINE SUMMARY

2.1. SITE LOCATION

2.1.1. The Newbuild Infrastructure Boundary comprises an approximately 35 km linear scheme which extends north-east to south-west from Elton, Cheshire in England (NGR 346900, 376156) to land south of Oakenholt, Flintshire, in Wales (NGR 325108, 370798). The Newbuild Infrastructure Boundary includes the proposed locations of four Above Ground Installations (AGI) and three Block Valve Stations (BVS): Ince AGI, Stanlow AGI, Rock Bank BVS, Mollington BVS, Aston Hill BVS, Northop Hall AGI, and Flint AGI. The locations of three Block Valve Stations sited along the route of the existing Flint Connection to Point of Ayr Terminal Pipeline in Flintshire, Wales are also proposed. The three proposed BVSs comprise the Cornist Lane BVS, the Pentre Halkyn BVS and the Babell BVS. The Newbuild Infrastructure Boundary lies within the jurisdiction of England and Wales, and three local authorities: Flintshire County Council, Cheshire West, and Cheshire County Council.

2.2. TOPOGRAPHY

2.2.1. Topography can provide an indication of suitability for settlement, and contours recorded on Ordnance Survey 1:50,000 and 1:25,000 mapping can indicate whether ground levels have been artificially raised or lowered and, by extension, whether archaeological sites or material are likely to be preserved.

CHESHIRE NEWBUILD INFRASTRUCTURE BOUNDARY

2.2.2. The eastern terminus of the Newbuild Infrastructure Boundary is located at Thornton-le-Moors, on the southern edge of Ellesmere Port. The Newbuild Infrastructure Boundary travels south and east across low-lying ground comprising meadows and former marshland either side of the River Gowy, crossing at 7 m above Ordnance Datum Newlyn (OD). From the floodplain, the Newbuild Infrastructure Boundary climbs a low ridge oriented north-south, passing to the north of Picton, reaching a maximum height of 25 m OD, and south of Wervin where it crosses the Shropshire Union Canal. Between Backford and Mollington the Newbuild Infrastructure Boundary crosses south facing slopes incised by streams and characterised by open pasture, reaching its highest point in Cheshire (35 m OD). From Mollington, the Newbuild Infrastructure Boundary moves south-west, descending into the floodplain of the River Dee, some 500 m south of Saughall and crossing the border with Flintshire at 10 m OD.

2.2.3. There are three Block Valve Stations (BVS) located (from east to west) on the Stanlow AGI to Flint AGI Pipeline:

- Rock Bank BVS: located between the settlements of Chorlton and Caughall, 22 m OD.
- Mollington BVS: located approximately 300m west of the village of Mollington, 31 m OD
- Aston Hill BVS: located in an urban area between the settlements of Mancot, Pentre, Hawarden, Ewloe and Shotton, 41 m OD,

FLINTSHIRE NEWBUILD INFRASTRUCTURE BOUNDARY

2.2.4. The Newbuild Infrastructure Boundary rises gradually from the former Dee valley (5 m OD) in Mancot and Sandycroft to 85 m OD near Aston Hill Farm in Ewloe. From here the ground level gradually rises to 90 m OD within the fields to the north of Magazine Lane. To the west of the Alltami Brook, the Newbuild Infrastructure Boundary undulates from 75m OD to 95 m OD, and finally to 90 m OD at the junction of Brookside and the A55. The ground level between the A55 to the south and the B5125 to the north rises toward the B5125 from 90 m OD to 120 m OD. The ground level then falls to 100 m OD between the B5125 and Connah's Quay Road and continues falling to the north to 90 m OD at Starkey Lane. The land begins to fall to the north to 40 m OD in the north end of the western end of the Newbuild Infrastructure Boundary.

2.2.5. There are three Block Valve Stations (BVS) located (from east to west) Weston the Flint Connection to Point of Ayr Terminal Pipeline:

- Cornist Lane BVS: located in a rural area between the settlements of Flint and Pentre Halkyn on the side of the Dee valley, with land sloping from south-east to north-west, 150 m OD to 130 m OD.
- Pentre Halkyn BVS: located approximately 700m south of the village of Brynford, the land slopes gradually down to the west from 220 m OD to 205 m OD.
- Babell BVS: located on the outskirts of the settlement of Babell on the edge of a valley with the land sloping towards the south-west, situated at approximately 170 m OD.

2.3. GEOLOGY

2.3.1. Geology is central to understanding formation processes and geoarchaeological potential. It can also provide an indication of suitability for early settlement as well as potential depth of archaeological remains.

CHESHIRE NEWBUILD INFRASTRUCTURE BOUNDARY

2.3.2. British Geological Survey mapping (**Ref. 2.1**) shows most of this section of the Newbuild Infrastructure Boundary is underlain by Triassic and Permian sandstones and conglomerate. This is overlain by extensive deposits of Pleistocene Till: this material comprises unsorted and unstratified clay, sand, gravel and boulders laid down during successive periods of

glaciation. Isolated pockets of glaciofluvial material are also recorded north of Chester. This material was deposited by glacial meltwater Floodplains of the Rivers Dee and Gowy which are characterised by deposits of alluvium, with some concentrations of peat around the lower River Gowy, notably at Wimbolds Trafford.

FLINTSHIRE NEWBUILD INFRASTRUCTURE BOUNDARY

2.3.3. West of the River Dee floodplain, bedrock geology is comprised of interbedded mudstones, Pennine Middle Coal Measures Formation and pockets of Etruria Formation. Superficial geology is characterised by Pleistocene till deposits, overlain by glaciofluvial material, alluvial fan deposits, Head deposits of clay, silt and sand deposited at the end of the last glacial maximum, and by Quaternary alluvial deposits.

2.4. PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

2.4.1. The previous archaeological investigations are detailed in the **HEDBA** (**Appendix 8-1, Volume III**) (**Document reference D.6.3.8.1**). A summary of the DCO Proposed Development geophysical survey is provided below.

GEOPHYSICAL (MAGNETOMETER) SURVEY, MAGNITUDE SURVEYS LTD (2022)

2.4.2. The Applicant commissioned Magnitude Surveys Ltd. to produce a magnetic geophysical survey of land within a 60 m corridor around the indicative new pipeline route and AGI/BVS installation locations outlined in the DCO Proposed Development. The geophysical survey complied with national and international guidance, including the Standard and guidance for archaeological geophysical survey (**Ref. 2.2**).

2.4.3. Evidence for a possible pit alignment was recorded immediately south of the M56 and Thornton Lane (NGR 0344596, 373363). Pit alignments can date between the late Bronze Age and medieval periods and are usually associated with periods where access to land is controlled and demarcated.

2.4.4. Other anomalies recorded during the geophysical survey were characterised as natural geological features, such as infilled oxbow lakes, and post-medieval to modern agricultural boundaries, as well as features of uncertain origin. Further investigation, in the form of trial trenching, of these features is required.

2.5. ARCHAEOLOGICAL AND HISTORICAL SUMMARY

2.5.1. The **HEDBA** (**Appendix 8-1, Volume III**) (**Document reference D.6.3.8.1**) provides a detailed archaeological and historical background, which is summarised here by period. The study area was a 1 km buffer around the Newbuild Infrastructure Boundary for designated heritage assets and 500 m

for non-designated heritage assets. Numbers in brackets relate to the reference number recorded on the Historic Environment Record or relevant national lists.

MESOLITHIC (10,000 BC – 4000 BC)

2.5.2. There is no known evidence for human habitation within the site boundary during the Late Upper Palaeolithic and Mesolithic periods. Palaeolithic activity is restricted to cave sites and flint scatters, temporary or seasonal occupation sites, located between 6 and 15 kilometres from the Newbuild Infrastructure Boundary. Radiocarbon dating of peat deposits during archaeological works at the Ince Resource Recovery Park returned Mesolithic dates, east of Ellesmere Port and 750 m north-west of the Newbuild Infrastructure Boundary's eastern terminus. Further evidence along the Flintshire coast, comprising middens of cockle and mussel shells, have been located and recorded between Prestatyn and Rhyl, and up the estuary of the Clywyd inland to Rhuddlan.

NEOLITHIC (4000BC – 2000BC)

2.5.3. Evidence for Neolithic activity has been recovered during works along the floodplain of the River Gowy, some 500 m from the Newbuild Infrastructure Boundary (ECH6456). Environmental sampling provided evidence of three specific ancient woodland clearance phases, with the first phase dated to the Neolithic, as newly settled communities cleared land for agriculture. The charcoal content in these samples suggested that fire was used as a means of clearing primary woodland. Deforestation was widespread during the Neolithic, and it is possible that similar pollen and charcoal evidence is present, as well as evidence for Neolithic settlement, within the Newbuild Infrastructure Boundary.

2.5.4. Burial monuments, a common feature of the Neolithic landscape, are also present on high ground along the DCO Proposed Development. A possible long barrow is recorded 500 m north of the Newbuild Infrastructure Boundary where it crosses the Shropshire Union Canal.

BRONZE AGE (2000 BC – 700BC)

2.5.5. Evidence for Bronze Age activity in the Cheshire section of the Newbuild Infrastructure Boundary comprise chance finds, including a looped spearhead recovered from the Ince Marshes east of Ellesmere Port, possibly part of a ritual deposit. Further environmental evidence from the Ince Resource Recovery Park suggested that the low-lying coastal areas around the Gowy estuary continued to be partially inundated marshy ground during the Bronze Age.

2.5.6. Along the Flintshire section of the Newbuild Infrastructure Boundary, the Historic Environment Record (HER) records the location of three round barrows, destroyed during modern development, within close proximity to the Newbuild Infrastructure Boundary at Northop Hall (PRN 100049, PRN 100051 & PRN 101848). It has been suggested that the Northop Hall Tumulus (PRN 100049) was a later feature and was formed from upcast material from post-medieval mining.

2.5.7. Eight intact round barrows monuments, designated as scheduled monuments by Cadw, have been identified within the study area of the proposed BVSs along the existing Flint Connection to PoA Terminal Pipeline. The round barrow 225 m south-east of Plas Newydd (FL076), Llyn Du round barrow (FL189) and a round barrow incorporated into the early medieval Whitford Dyke earthwork located to the north and south of Holywell Racecourse (FL006) is located within 1 km of the Babell BVS Newbuild Infrastructure Boundary. Within 800 m of the Pentre Halkyn BVS are Bryn y Cosyn Round Barrows (FL096) and two round barrows 90 m north-east of Eosfan (FL046).

2.5.8. Additional evidence of Bronze Age activity within the Flintshire section of the study area includes a possible round barrow mound damaged by subsidence identified 210 m north of the Pentre Halkyn BVS (100284). The reported location of a Bronze Age standing stone with a find spot of two spindle whorls, a perforated stone disc, an unspecified number of flints, four stone beads and a Roman coin is located 410 m north-west of the Pentre Halkyn BVS (100285 and 100276). Further evidence recorded on the HER includes a chance find of a human skull within glacial deposits in Coetia'r Orsedd field (102534), 130 m south-west of the Babell BVS, along with the 'Gelli Fowler Barrow', a possible cairn or mound recorded 140 m north of the Pentre Halkyn BVS (100280).

2.5.9. During the Bronze Age, the site would have lain within a landscape suitable for agricultural activity. The parts of the Newbuild Infrastructure Boundary around Northop Hall and the proposed BVS sites lie within the vicinity of a known Bronze Age funerary landscape. There is also a possibility that further discrete caches or deposits of Bronze Age objects may be preserved where the Newbuild Infrastructure Boundary crosses low-lying marshy land. The CPAT HER notes that remains of further round barrows have been identified near Babell BVS, Pentre Halkyn BVS, and Northop Hall AGI. Further funerary remains dated to the prehistoric period are possible in areas not impacted by mining activities or later development.

IRON AGE (600BC – 43/78AD)

2.5.10. The only evidence dated to the Iron Age recorded in the study area is a find spot at Northop Hall of a brooch in corroded but recognisable condition

(120311), along with a coin from the Roman period (120374), 425 m north of the Northop Hall section of the Newbuild Infrastructure Boundary in Flintshire.

2.5.11. The Newbuild Infrastructure Boundary has the potential to contain prehistoric remains. The potential for prehistoric remains is considered lower east of Northop Hall and likely higher west of Northop Hall. Isolated finds are possible throughout the Newbuild Infrastructure Boundary, of likely low heritage significance.

ROMAN (AD43/78 – 410)

2.5.12. Roman military control of the area was complete by the AD 74, and centred on *Caster Deva*, modern Chester. Control over the local population was achieved through the construction of temporary camps and permanent fortifications, with interconnecting roads. Well-preserved examples of Roman camps have been identified and designated as scheduled monuments to the north of Upton, the closest example of which is on Fox Covert Lane (NHLE 1015130) 980 m south of the Newbuild Infrastructure Boundary where it passes the M53. The temporary nature of these camps means that remains are often ephemeral and fragmentary making well-preserved examples rare.

2.5.13. The earliest evidence of industrial activity in the immediate area dates from approximately the mid-6th century BC in the form of known industrial sites including the processing and smelting of lead ores on Halkyn Mountain within the Holywell Common and Halkyn Mountain Historic Landscape (HLW (C) 2), which partially lies within the Newbuild Infrastructure Boundary of Pentre Halkyn BVS. The landscape contains what was possibly the earliest and most extensive of the Roman mining operations in Wales. There is also evidence of the sites on the banks of the River Dee between the modern towns of Flint and Oakenholt where the lead ore brought down from Halkyn Mountain was processed before shipment of the refined minerals throughout the Roman territories.

2.5.14. Roman presence throughout the study area is evidenced through several chance finds of Roman coins and jewellery which include an early 3rd century coin found on the site of the old Methodist Church at Whitby Road, Backford (MCH229) less than 150 m away from the Mollington section of the Newbuild Infrastructure Boundary; a Bronze coin of Titus under Vespasian found in Saughall parish (MCH1668 2356); three coins, a silver denarius of Hadrian (AD 117–138) minted in Rome 132 AD (120389), a broken silver denarius of Antoninus Pius minted in Rome AD 161 by Marcus Aurelius (120390), and a silver denarius of Domitian (AD 81–96) minted in Rome AD 90 (120391) were found by chance somewhere between Bagillt and Halkyn, between the Cornist Lane BVS and the Pentre Halkyn BVS; a

Roman coin was found by chance 410 m north-west of the Pentre Halkyn BVS (100276); and a very worn Roman coin of Hadrian was found in Northop Hall 420 m north of the Newbuild Infrastructure Boundary.

2.5.15. Further evidence of Roman activity is possible throughout the Newbuild Infrastructure Boundary but is likely to be concentrated along the River Dee and its associated floodplain, as well as within proximity to the former Roman fort at Chester. It is likely that this evidence will be limited to road remains and associated features. Undocumented sites of military camps are possible within the study area and may have been obscured by later agricultural activity.

2.5.16. The line of the Chester to Wirral Roman Road (**Ref. 2.4**) (MCH6164) runs through the footprint of the Proposed DCO Development and the Newbuild Infrastructure Boundary and it is possible that remains of this Roman road survive below ground although the extent is unclear.

EARLY MEDIEVAL (AD410 – 1066)

2.5.17. Evidence for early medieval settlement in the study area is elusive, but occupation is attested by place-names, church dedications and occasional discoveries of metalwork. In the 9th and 10th centuries, the Saxon Minster system began to be replaced by local parochial organisations, with formal areas of land centred on nucleated settlements served by a parish church. In 689 AD, the Minster Church of West Mercia was founded 1.5 km north of the Flint section of the site (now St John's Church) which later became the first cathedral in Chester. Other churches with early medieval origins are the Northop Church (100308), which was once occupied by the early Celtic Church of St Eurgain and St Peter dated to the late 6th century AD, located 1 km to the west of the Northop section of the Newbuild Infrastructure Boundary. Other possible evidence includes an Anglo-Saxon cross shaft (1997/1/2, MCH1162) which was found during an excavation in the foundations of the Grade I listed St Mary's Church (NHLE 1330242) in Thornton-le-Moors in 1982, 270 m west of the Newbuild Infrastructure Boundary. The shaft may indicate that an earlier church was present within the vicinity of the existing 14th century church, but this has not yet been confirmed through investigation. The later medieval Grade II* listed Church of St Lawrence (NHLE 1139029), located 710 m north-west of the Newbuild Infrastructure Boundary in Stoak, is reportedly constructed on the site of an Anglo-Saxon chapel though again this has not been confirmed through investigation.

2.5.18. The assumed line of Wat's Dyke (27061– 27075) runs through the north-west corner of Cornist Lane BVS Newbuild Infrastructure Boundary at its closest point and continues along the north-east bank of the Afon Nant-y-

Fflint. The presence of the dyke in this location has not been confirmed through archaeological investigation.

2.5.19. Offa's Dyke was named after Offa, the king of Mercia from AD 757 until 796. The northern line of Offa's Dyke is unclear as previously sections of what is now known to be a separate dyke, Whitford Dyke, was classified as part of it. Sections of Whitford Dyke located near the Babell BVS Newbuild Infrastructure Boundary have been scheduled as part of Offa's Dyke and the assumed line (FL006, 28102– 28105, 106723, 106724) runs roughly north north-west to south south-east, 350 m north-east to 690 m north of the BVS.

2.5.20. The Newbuild Infrastructure Boundary has a potential for the discovery of previously unrecorded early medieval remains.

MEDIEVAL (AD 1066 – 1540)

2.5.21. The relatively large size of the parishes, the low density of population, and the dispersed nature of the settlements ensured that parishes crossed by the Newbuild Infrastructure Boundary were served by a scattering of churches.

2.5.22. Much of the land within the Flintshire area of the study area was first conquered by Robert, the cousin of Hugh d'Avranches the Earl of Chester, between 1066 and 1073. A Welsh revolt in 1094 against Norman rule resulted in the reclamation of territory in Tegeingl, including Hawarden, which was maintained in 1136 following a victory and continued under Welsh control until 1170.

2.5.23. The Normans built many castles in North Wales during this period, soon copied by the Welsh Princes as they fought the invaders and each other. Examples within the study area include the Hen Blas Castle Site (FL062) 870 m north of the proposed Cornist Lane BVS and Ewloe Castle (FL064) 360 m north-west of the Newbuild Infrastructure Boundary. Ewloe Castle was constructed around 1257 by Llywelyn ap Gruffudd as part of his campaign to retain control over parts of Tegeingl cantref. Welsh resistance to English conquest continued until 1283 when Wales became England's first colony.

2.5.24. Defensive residential settlements called moated sites became prevalent during this period and examples within the study area include the scheduled moated site at Elton (NHLE 1012122) 35 m north-east of the Newbuild Infrastructure Boundary. This moated site, fishpond and connecting channel (NHLE 1012122) lies 35 m north-east of the Newbuild Infrastructure Boundary. It is likely that further buried remains of associated late medieval activities are located within the vicinity of the moat, potentially within the Newbuild Infrastructure Boundary given its close proximity. Nearby fields

contained evidence of plough scarring suggesting intensive cultivation which may have obscured older more ephemeral evidence.

2.5.25. The moated manor of Lea Old Hall (2020/1/2, MCH957; 2020/1/1, MCH219), 355 m north of the Newbuild Infrastructure Boundary, continued in use through the late medieval period. A potential moated site (130012) within the previous Saltney Marshes along the south bank of the River Dee was noted on later historic Ordnance Survey maps 460 m south-east of the Newbuild Infrastructure Boundary. A late medieval moat (1997/0/1, MCH962) is also noted near the post-medieval Grade II listed barn to the north of Thornton Hall (NHLE 1130654), 130 m west of the Newbuild Infrastructure Boundary at Thornton-le-Moors.

2.5.26. A large number of medieval find spots are recorded within the study area, including a cast copper alloy seal matrix (7059, MCH15785); a silver pin from an annular brooch probably dating from *c.* 1200–1400 (120334); small fragment of a cast copper alloy buckle (120335); a silver gilt ring (119022); a copper alloy signet ring inscribed with an 'I', a palm and a crown (120329), found within the Newbuild Infrastructure boundary; and a number of coins, including a silver long cross penny of Henry III (1216–1272) (120386), a silver short cross penny of Richard I or John minted in Rhuddlan (120378), a silver half-groat of Edward IV (120406) and three silver short cross pennies (44426).

2.5.27. Several finds were also identified within a known dumping area near Sealand which was within the regularly inundated River Dee valley during the late medieval period (prior to the canalisation of the Dee in the post-medieval period). The dumping area is near Sealand Road, 290m east of the Newbuild Infrastructure Boundary, and the finds include a signet ring with an abstract design (120245), a damaged long cross penny (120372), and a flat lozenge shaped copper alloy object (120246).

2.5.28. There is a high potential for medieval remains to be located within Newbuild Infrastructure Boundary. The Newbuild Infrastructure Boundary lies 35m to the south of the scheduled late medieval moated site (NHLE 1012122) and observations from the walkover survey, as well as the results of the **Aerial Photograph and LiDAR analysis (Appendix 8-3 - Aerial Photo and LiDAR review (Volume III of the ES)) (Document reference D.6.3.8.3)**, suggest that additional features relating to the scheduled monument may extend into the Newbuild Infrastructure Boundary. Further remains of medieval agricultural activity are possible throughout the Newbuild Infrastructure Boundary and have been noted on the HER records.

POST-MEDIEVAL (1540-1900)

2.5.29. The settlement pattern within the study area in Cheshire during the late 16th century consisted of isolated settlements, set in areas of open unmodified or utilised land (North-West Regional Framework, **Ref. 2.3**). The wetlands of the region located around the River Mersey, River Gowy and River Dee floodplains continued to be marshy and uninhabited. Chester remained the only city within the region and was the centre of activity and governance for the towns surrounding it during this period.

2.5.30. Agricultural activity was common across the area during the post-medieval period. To support this, a number of mills are recorded, including the Pentre Halkyn windmill (17017) within the Newbuild Infrastructure Boundary of the Cornist Lane BVS, the Northop Hall Windmill (97828) located 345 m north of the Newbuild Infrastructure Boundary, Windmill Field (103800) located 435 m south of the Newbuild Infrastructure Boundary at Lower Aston Hall Lane, and the Bryn Awel Mill (104015), located 40 m to the north-east of the proposed Cornist Lane BVS.

2.5.31. As well as evidence for agriculture, industrial activity was also prevalent. Documentary evidence suggests that pottery was a common secondary industry undertaken by farmers within the Merseyside region which would include the easternmost sections of the Newbuild Infrastructure Boundary. The industry was fuelled by the import of suitable clays and fuels from the coalfields of south Lancashire and north Wales. Cottage potters built domestic kilns to serve the local markets around Chester during the early post-medieval period. With the opening of canal systems and the railways, the Welsh coal mining industry saw a sharp rise in demand. The coal measures within Flintshire are extensive and productive. The collieries that have been recorded within the study area, closest to the Newbuild Infrastructure Boundary include: Ewloe Green Farm Colliery (103806) located within the Newbuild Infrastructure Boundary at Green Lane; Plas Ifan Coal Mine (103089) 65 m north of the Newbuild Infrastructure Boundary at Northop Hall; Willow Park Colliery(103786) 45 m north of the Newbuild Infrastructure Boundary at Colliery Lane; and Stockholm Colliery (103783) 60 m south of the Newbuild Infrastructure Boundary close to Ewloe.

2.5.32. Lead was another key industry, with evidence of mine shafts on Holywell Comm, Ewloe and Pentre Halkyn, with the closest the Bellsfield shafts (99010) located 60 m north-west of the Newbuild Infrastructure Boundary at Holywell Road and smelting works along the River Dee.

2.5.33. Overall, there is a potential for post-medieval remains to survive within the Newbuild Infrastructure Boundary. The post-medieval landscape would have comprised agricultural farmland. As such, the main potential is for

features such as field boundaries and drainage ditches. These are most likely in the rural areas of the Newbuild Infrastructure Boundary, as suggested by the identification of field systems, visible as cropmarks on aerial photographs and LIDAR, along with evidence of ridge and furrow cultivation recorded by the Geophysical Survey.

2.5.34. Within the Deeside and Ewloe parts of the Newbuild Infrastructure Boundary, the potential for previously unrecorded post-medieval industrial remains, in the form of colliery remains and brickwork extraction pits, cannot be discounted.

MODERN (1901-2000)

2.5.35. The landscape and focus of industrial activity within the study area began to change in response to external pressures with the mining industry facing decline by the end of the 19th century in the face of cheaper imported lead. As such only small-scale, intermittent activity continued following the First World War until the remaining mines were closed in the 1960s.

2.5.36. The mid-20th century saw a greater intensification of heavy industrial activity, as seen at the former Stanlow and Ince Marshes along the Mersey Estuary (in the north-east of the Newbuild Infrastructure Boundary). The primary industries were oil refineries and chemical works (as salt was readily available), located on marshland that had been reclaimed. The areas around Northop Hall, Ewloe, Mancot, Aston, and Sandycroft became increasingly developed through the mid- to late 20th century.

2.5.37. RAF Hawarden was developed in the late 1930s as relief landing ground for RAF Sealand, and shadow factory Vickers-Armstrong Ltd (**Ref. 2.5**). During the Second World War it also served as an RAF base for flight training. The sites of four military aircraft wrecks are noted within the study area around RAF Hawarden: Airspeed Oxford II N4731 which crashed on 26/4/1940 (130274) 55 m west of the Newbuild Infrastructure Boundary; Supermarine Spitfire I R7117 which crashed at Mancot on 30/3/1942 (130408) 340 m south-east of the Newbuild Infrastructure Boundary; the Armstrong Whitworth Siskin IIIDC J9207 which crashed on 14/7/1939 (130305) 450 m north-west of the Newbuild Infrastructure Boundary; and the Supermarine Spitfire I R6829 which crashed on 20/2/1942 (130407) 450 m north-west of the Newbuild Infrastructure Boundary. The aircraft factory was taken over by de Havilland in 1948 and the other elements of the RAF base were divested gradually until the airfield was wholly left in de Havilland control in 1959 (**Ref. 2.5**). The airfield and factory are now operated by Airbus UK as the Chester Hawarden Airport.

3. AIMS AND OBJECTIVES

3.1. INTRODUCTION

3.1.1. The aim of the trial trench evaluation is to clarify the presence, nature, date, extent and significance of any archaeological remains that may be present within the location of the DCO Proposed Development.

3.1.2. The Newbuild Infrastructure Boundary has a high potential for palaeoenvironmental evidence, moderate to high potential for prehistoric remains, a moderate potential for Roman remains, a variable potential for early medieval remains (dependant on location), a high potential for late medieval remains, a moderate to high potential for post-medieval remains and a moderate potential for modern remains to be located within the footprint.

3.1.3. The evaluation results will inform development of an appropriate mitigation strategy for any significant archaeological remains. If the evaluation reveals little of archaeological significance, then no further work may be necessary.

3.2. OBJECTIVES

3.2.1. The objective of trial trench evaluation as defined by the CIfA is to 'determine and report on, as far as is reasonably possible, the nature of the archaeological resource within a specified area using appropriate methods and practices' (**Ref. 3.1**). The results of the evaluation will inform an appropriate mitigation strategy for any archaeological remains, if required.

3.2.2. This is further explained as 'a limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts, and their research potential, within a specified area or site…. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate.'

3.2.3. The aim of the archaeological evaluation is to identify any archaeological remains in the areas identified and agreed with the LPA Archaeological Advisor(s).

3.2.4. The archaeological research objectives specific to the DCO Proposed Development, based on the archaeological potential as identified in the **HEDBA**, are:

- to evaluate and define the archaeological resource that will be impacted as a result of the DCO Proposed Development;
- to record (where possible) the nature, depth, extent, character and date of archaeological deposits or features encountered in order to define research aims of the DCO Proposed Development;

- to record and recover an adequate sample of the range, quality and quantity of artefactual and environmental evidence present in order to successfully fulfil the research aims of the DCO Proposed Development; and
- to report the results of the investigations and use them to determine the requirements for, and the specification of, detailed archaeological mitigation, where required over and above that presented below.

REGIONAL RESEARCH PRIORITIES

3.2.5. All archaeological work will be undertaken in line with research questions, to ensure that fieldwork is focussed on addressing the key research priorities of the region.

3.2.6. The North West England Regional Research Framework (**Ref. 3.2**) assesses the current state of archaeological knowledge in the North West, including Cheshire West and Chester, while the Research Framework for the Archaeology of Wales (**Ref. 3.3**) assesses the current state of archaeological knowledge in Wales, including Flintshire. Both frameworks have compiled a series of research aims and priorities both for specific periods and for wider cross-period themes.

3.2.7. The Frameworks comprise an assessment and a research agenda for each archaeological period from the Palaeolithic to the post-medieval / modern periods. Despite the period specific nature of the research questions a number of common research themes were identified.

- **Environmental sampling** – an increased amount of environmental sampling was thought to be valuable for a greater understanding of past landscapes and how the landscape evolved.
- **Settlement pattern** – The importance of landscape and environmental context in appreciation of settlement patterns was highlighted. This was particularly apposite for the Roman period, for which the settlement pattern is poorly understood.
- **Landscape change** – The relationship between field systems and settlement, boundaries, land rights and the changing balance between clearance, pasture and arable is a recognised theme from the Neolithic to the medieval periods. The human impact on the ‘wild’ environment of plants and animals is also considered to be important.
- **Industry and long-distance contacts** – The development of new industries has been influenced by geography and geology. Long distance links can be investigated vis migration routes and trading links. Links across the Irish Sea are also important within the region.

3.2.8. As these themes are fairly broad, the following specific research areas of each framework have been identified in response to the potential of the Newbuild Infrastructure Boundary, as identified in **Appendix 8.1 – HEDBA (Volume III) (Document reference D.6.3.8.1)**.

North-West England Regional Research Framework (Ref. 3.2)

- GS38: How did land-use and management change through time?
- GS39: How did people exploit coastal and marine resources and did this change through time?
- GS40: What evidence is there for the impact of industrialisation on health, diet, and natural resources?
- GS45: How can the study of excavated artefact assemblages inform our understanding of trade exchange?
- GS46: How can archaeological investigations inform our understanding of the development of transport and infrastructure?

Research Framework for the Archaeology of Wales (Ref. 3.3)

- Establish a chronological framework for Mesolithic human activity in Wales and understand its environmental context.
- What can palaeoenvironmental evidence reveal about Neolithic settlement practices, particularly on sites where there is little or no material culture?
- Undertake Landscape-wide studies for Roman period fieldscapes and investigate evidence for transhumance during the Roman occupation as a priority.
- Identify and confirm potential early medieval sites, particularly secular settlements.
- Further work is required to develop a better understanding of the Dyke systems in Wales

3.2.9. These broad research areas will be revised and refined in consultation with the LPA Archaeological Advisor(s) as the work proceeds and more information on the nature and significance of any archaeological remains is revealed. It should be noted that it may not be possible to answer every research question, as it will depend on the type of archaeological evidence recovered.

4. METHODOLOGY

4.1. TRIAL TRENCHING

4.1.1. A total of 80 trial trenches have been located to test anomalies identified by the geophysical survey and to investigate the proposed AGI and BVS locations. Table A-1 (**Appendix A**) summarises the size and rationale of the evaluation trenches which are shown on Figure 2 (**Appendix B**).

4.1.2. The aim of the archaeological evaluation is to identify any archaeological remains in the areas identified and agreed with the LPA Archaeological Advisor(s).

4.1.3. A pre-condition survey will be carried out at the trench locations by the Archaeological Contractor prior to the excavation of any trenches, along with photographs pre-excavation and following backfilling.

4.1.4. All trenches will be opened initially by a mechanical excavator equipped with a toothless grading bucket, under supervision of the Archaeological Contractor. All trenches shall be excavated to the dimensions indicated in Table A-1 (**Appendix A**). These dimensions are for the base of the trench. Where necessary to achieve this the trenches will be stepped to ensure stability and safety of the excavation and that safe access/egress and working conditions are maintained. The Archaeological Contractor will identify remains of archaeological significance and ensure that these are subject to proportionate investigation and recording.

4.1.5. The excavation will proceed under direct archaeological supervision, in broadly level spits of no more than 200mm, until either the top of the first archaeological horizon or undisturbed natural deposits are encountered. Particular attention should be paid to achieving a clean and well-defined horizon with the machine. It is not anticipated that entire trenches will require hand cleaning. Under no circumstances should the machine be used to cut arbitrary trenches down to natural deposits. The surface achieved through machine excavation will be inspected for archaeological remains. The mechanical excavator will not traverse any stripped areas.

4.1.6. Following initial exposure of archaeological horizons, investigation by the Archaeological Contractor will be by hand, including cleaning, examination, sampling, and recording (see below) in the appropriate manner. Following cleaning, all archaeological remains will be planned, to enable the selection of features and deposits for sample excavation by the Archaeological Contractor. Archaeological hand dug investigation and recording will proceed only until significant archaeological levels have been reached and will be sufficient to allow the nature, extent, survival, and significance of archaeological remains to be identified.

4.1.7. Further use of mechanical excavation to better define, or fully expose an archaeological feature, or to remove part of an exposed archaeological horizon, shall only be undertaken upon approval by the Archaeological Consultant, and where the works are required to fulfil the objectives of the trial trenching programme.

4.1.8. In the unlikely event that remains of very high significance warranting preservation *in situ* are identified, the Archaeological Contractor will inform the Archaeological Consultant immediately, who will then consult with the LPA Archaeological Advisor(s). Appropriate measures will be taken to protect such remains from any damage or deterioration.

4.1.9. Before reinstatement, any standing water shall be removed from excavated areas using appropriate means, and in accordance with any environmental requirements. The soils removed shall be replaced in reverse order of removal and suitably compacted prior to placement of the next layer, in order to restore the ground surface to as close as possible to the original landform. Topsoil and stored turves shall be replaced in the area from which they were removed. The soil shall be graded to a smooth, even profile, free from local mounds and depressions. All equipment and materials shall be removed from each area immediately following completion of the investigations, and a post-condition survey conducted. This will include photographs of the area following reinstatement.

4.1.10. The Archaeological Contractor will attempt to minimise the number of vehicle and plant movements on soft surfaces, particularly in wet conditions, and shall make every effort to minimise damage and disturbance. Where significant damage does occur, the mechanical excavator will be required to reinstate the damaged areas and grade them to a smooth, even profile free from local mounds and depressions.

4.2. SAMPLING STRATEGY

4.2.1. In order to obtain sufficient information on the likely nature, date, extent, survival and significance of any potential archaeological features and deposits identified, these will be sample excavated by hand. The sampling strategy is the same regardless of the stage of archaeological work (evaluation and mitigation).

4.2.2. The following sampling strategy will be carried out in line with **Table 3-1.**

Table 3-1 Sampling Strategy

Feature Type	Minimum percentage of each example
Stake-hole, post-hole	100%
Discrete cut feature (less than 2m^2 plan area)	100%
Linear feature	Excavation by hand of 1 metre to 2-metre-wide sections through linear cut datable and ancient features, and linear features manifestly rich in ancient palaeoenvironmental remains, at 10-metre intervals or up to a total of 25% of the length of the linear cut feature (whichever is the greater) with sampling of termini of linear features.
	Excavation by hand of sections across all junctions or intersections of cut features
Deposits relating to funerary activity (e.g., burials, cremation deposits)	100%
Ditches of small mortuary enclosures of less than 25m^2 enclosed area	100%, with a sliding scale of reduced sampling of larger enclosures
Deposits relating to domestic/industrial activity (postholes, hearths, floor surfaces/floor makeup deposits)	100%

4.2.3. Throughout the duration of the archaeological fieldwork, the Archaeological Contractor will provide the Archaeological Consultant with a weekly progress report. The Archaeological Consultant will pass this onto the LPA Archaeological Advisor(s) with a weekly progress report as described in paragraphs 4.2.30.-4.2.32.

ENVIRONMENTAL SAMPLING

4.2.4. Where palaeoenvironmental potential has been identified a sampling strategy will be agreed with the LPA Archaeological Advisor(s). As a guide, bulk samples, 20L (litres) for wet and 40L–60L for dry contexts of will be taken from appropriate contexts for the recovery and assessment of palaeoenvironmental data. Provision will be made for column and other appropriate samples to be taken. Sampling methods will follow Historic England (HE) guidelines (**Ref. 4.1** and **4.2**).

4.2.5. Where necessary, a supplementary strategy for sampling of environmental deposits may be developed by the Archaeological Consultant in accordance with HE (**Ref. 4.2**), Cadw, and CIfA (**Ref. 4.3**) guidelines. Advice will be

sought from the LPA Archaeological Advisor(s) as well as Cadw and the Historic England Regional Archaeological Science Advisor, as appropriate. Subsequent off-site work and analysis of the processed samples and remains will be undertaken by archaeological specialists.

ARCHAEOLOGICAL RECORDING

4.2.6. Standard archaeological recording methods comprise a written record (both description and interpretation with annotated sketches where appropriate), scaled drawings both in plan and in section, photographic record, and retrieval and annotation of archaeological finds and samples.

4.2.7. Written records will be produced using *pro forma* context record sheets and by the single context planning method. Each discrete archaeological layer, fill, cut, etc., that is sampled will be individually numbered and described in terms of soil composition, stratigraphic position, dimensions, artefact content, samples, with professional interpretation as to the likely nature and date of the feature. The context system will be able to be cross-referenced to all records and will be compatible with digitisation.

4.2.8. A record of the full sequence of all archaeological remains as revealed during the evaluation will be made. Plans and sections of features will be drawn at an appropriate scale of 1:10 or 1:20, with sections drawn at 1:10 and tied to the Ordnance Survey National Grid. All plans and sections will include the Ordnance Datum (OD) height of strata and all principal features.

4.2.9. A full photographic record will be made using Digital Single Lens Reflex (SLR) cameras equipped with an image sensor of not less than 10 megapixels in high resolution TIFF (uncompressed) format. This will record both the detail and the general context of the principal features and the site as a whole. Digital images will be subject to managed quality control and curation processes which will embed appropriate metadata within the image and ensure long term accessibility of the image set. Registers will be kept of all photographs, levels, plans, sections, finds and samples taken in the field.

ARCHAEOLOGICAL FINDS

4.2.10. All recovery, retention, and treatment of finds and samples will be carried out mindful of the overall purpose of the exercise, i.e. to evaluate for further decision making, as expressed in CIfA (**Ref. 4.4**) para 3.2.12. and 3.3.8. To this end, all artefactual and ecofactual material will be reviewed on site for its capability to inform the trenching report.

4.2.11. Identified archaeological finds and artefacts will be carefully recovered by hand and bagged or boxed according to the type of artefact (i.e. pottery, ceramic building material/CBM, bone, worked flint, metal) archaeological context from which they came, with a label indicating the site code, find type

and context reference number). Particularly notable artefacts will be recorded as a ‘registered’ find and recorded three dimensionally with Ordnance Datum levels. This will include *in situ* prehistoric worked flint.

4.2.12. Initial conservation and storage will be in a proper manner and to standards set out follow First Aid for Finds (**Ref. 4.5**) and the CIfA 'Standard and Guidance for the collection, documentation, conservation and research of archaeological materials' (**Ref. 4.4**). If necessary, an appropriately qualified and experienced archaeological conservator will be appointed to advise and assist in the lifting of fragile finds of significance and or value and to arrange for the X-raying and investigative conservation of objects as may be necessary.

4.2.13. Certain classes of bulk material, i.e. modern pottery and building material, may be discarded if there is a considerable quantity (more than a single standard archive box of c. 0.016m²), after recording with a representative sample.

4.2.14. All pottery, bone and worked flint will be washed and then marked in accordance with the archaeological project archive repository guidelines. Most building material and burnt flint (not including significant diagnostic material) will be identified, counted, weighed, and discarded. Samples will be retained as appropriate. The finds identification and specialist work will be undertaken by the relevant finds specialists agreed with the LPA Archaeological Advisor(s) to assess the date range of the assemblage with particular reference to pottery use relevant county or region-specific type series for identification and dating, where available. This evidence will be used to characterise the site, and to establish the potential for all categories of finds, should further archaeological work be necessary. Records of artefact assemblages will clearly state how they were recovered, sub-sampled and processed. Consideration will be given for donation of appropriate artefacts to type series reference collections.

FINDS AND OWNERSHIP

4.2.15. All finds relating to the archaeological record of the site will be collected with reference to context and location. All archaeological finds from excavated contexts will be retained, although those from features of 19th century or later may be recorded on-site and not retained. Any finds requiring conservation or specific storage conditions will be dealt with immediately in line with First Aid for Finds (**Ref. 4.5**).

4.2.16. Whereas ownership of any finds on the site lies with the landowner, it will be necessary that the landowner gives necessary legal approvals, licences, and permissions to donate the finds to an appropriate local museum, to

enable that body to carry out its obligations to curate the finds after discovery, in perpetuity, as part of the archaeological archive from this site.

4.2.17. These approvals, licences and permissions shall be either confirmed in the Agreement and Contract regulating the archaeological works and/or confirmed by the completion of the relevant Deed of Transfer form.

4.2.18. In such case, the Applicant (or their agent) will make arrangements for the signing of the Deed of Transfer Form by the Applicant or, if the landowner is different to the Applicant, by the landowner.

4.2.19. Notwithstanding the above, subsequent arrangements may be made if required between the landowner and/or the Applicant and an appropriate local museum for the conservation, display, provision of access to or loan of selected finds in or near their original location.

TREASURE

4.2.20. All finds of gold and silver, or other objects definable as 'treasure' under the Treasure Act 1996, will be removed to a safe place and reported to the local Coroner according to the procedures of the Treasure Act 1996 and the Treasure (Designation) Order 2002 (**Ref. 4.6** and **4.7**). Where removal cannot be affected on the same working day as the discovery suitable security measures will be taken to protect the finds from theft. The Archaeological Consultant, the Applicant and the LPA Archaeological Advisor(s) will be notified immediately on discovery of any material covered, or potentially covered, by the Treasure Act 1996 (as amended by The Coroners and Justice Act 2009; **Ref. 4.8**). All information required by the Treasure Act (i.e. finder, location, material, date, associated items etc.) will be reported to the coroner within 14 days along with the relevant Finds Liaison Officer.

HUMAN REMAINS

4.2.21. If human remains are discovered during the course of the fieldwork the remains shall provisionally, in accordance with current best practice, be covered and protected and left *in situ*. The removal of human remains will only take place in accordance with the procedure set out in article 22 of the **DCO Proposed Development Draft Development Consent Order (Document reference D.3.1)**, with a Ministry of Justice licence, and under the appropriate Environmental Health regulations and the Burial Act 1857 (**Ref. 4.9**). In the event of the discovery of human remains the Archaeological Contractor will contact the Archaeological Consultant and the H.M. Coroner.

4.2.22. The Archaeological Consultant will consult with the LPA Archaeological Advisor(s) if human remains are found, and, if required, Historic England,

Cadw and other stakeholders for input to the exhumation and sampling strategy.

4.2.23. Human remains, once recognised, will be metal detected immediately to determine whether any metallic grave goods are present. If possible grave goods and other obvious artefact shall be recorded and lifted on the day of discovery to avoid the risk of vandalism and theft.

4.2.24. Where appropriate, the Archaeological Contractor shall ensure that adequate site security is provided. As a minimum, this will require a 24-hour comprehensive security regime until sensitive remains have been recorded and lifted.

4.2.25. If human remains are uncovered, which require excavation, they will be excavated with due reverence and in accordance with recognised professional guidelines (**Ref. 4.10** and **4.11**) and in accordance with the appropriate Environmental Health regulations. The site will be adequately screened from public view. Once excavated, human remains must not be exposed to public view. If human remains are not to be removed their physical security will be ensured, by backfilling as soon as possible after recording.

UNFORESEEN SIGNIFICANT REMAINS OF NATIONAL IMPORTANCE

4.2.26. On the discovery of unforeseen nationally or internationally significant archaeological remains a site meeting will be called immediately by the Archaeological Consultant, with attendance from the LPA Archaeological Advisor(s), the Applicant, the Archaeological Contractor and, where appropriate, the Historic England or Cadw Inspectors of Ancient Monuments, where a forward strategy for preservation *in situ* or full archaeological excavation will be discussed and agreed. If required, the WSI will be updated, and funding negotiations will be commenced to achieve the agreed strategy.

4.2.27. Where appropriate, the Archaeological Contractor shall ensure that adequate site security is provided.

INTERIM STORAGE AND PROCESSING FACILITIES

4.2.28. Prior to final deposition of the archive, the storage and processing facilities shall be the responsibility of the Archaeological Contractor.

4.2.29. All samples will be taken to address a specific question. The purpose of the sample, and the question it has been taken to address will be recorded on the Archaeological Contractor sample record sheet.

PROGRESS REPORTS

4.2.30. Weekly written progress reports will be provided by the Archaeological Contractor and submitted to the Archaeological Consultant during each stage of fieldwork, to be issued via e-mail each Friday, and to be received no later than 14.30 hrs. This will include details of each area where archaeological work has taken place in the previous week, along with details of any archaeological features located, highlighting significant finds and discoveries and progress against the programme.

4.2.31. In addition, the Archaeological Contractor will inform the Archaeological Consultant on the progress of the fieldwork verbally upon request. The Archaeological Consultant will e-mail the weekly reports to the relevant LPA Archaeological Advisor(s).

4.2.32. It is anticipated that regular progress meetings will be held on site with the LPA Archaeological Advisor(s) during the course of the fieldwork. These meetings will be arranged by the Archaeological Consultant. A programme of monitoring visits/meetings will be agreed prior to the commencement of fieldwork.

5. REPORTING, DISSEMINATION AND ARCHIVING

5.1. REPORTING

5.1.1. A fully illustrated archaeological evaluation report will be made available to the Applicant and the LPA's Archaeological Advisor(s) within eight weeks of the completion of fieldwork. Any variance to this programme must be discussed with the Archaeological Consultant before the reporting phase commences. In accordance with the CIfA standards and guidance (**Ref. 5.1**). This will include as a minimum, the following:

- Non-technical summary: One-page summary outlining project background and circumstance, the principal reason for the work and when it was undertaken and by whom, its objectives, main results, and where appropriate, recommendations.
- Introduction: This will set out the circumstances of the project such as planning background and the reason for the work and will include the aims and specific research objectives reflected or reiterated in this WSI.
- Archaeological and historical background: A brief summary with the site description (including size, geology and topography, location) and background. In most cases this will be derived from the desk-based assessment.
- Fieldwork methodology: The methods used. This will include the detail of any variation to the agreed WSI and the reasons for such.
- Results: This will present a series of summary objective statements, organised clearly in relation to the methods used, and describing both structural data and associated finds and/or environmental data recovered. Descriptive material will be clearly separated from interpretative statements. Technical terminology (including dating or period references) will be explained.
- Conclusions: Summary and interpretation the results and their likely significance. Other elements might include a confidence rating on the results and limitations (e.g. weather or problems of access). Recommendations on further work may also be included.
- References and bibliography: A list of all sources used. The final destination of the archive (records and finds) will be noted in the report along with the site code assigned by the relevant archaeological project archive repository.
- Appendices: Essential technical and supporting detail, including for example lists of artefacts and contexts or details of measurements, gazetteers etc. Pottery reports will be expected to refer to the appropriate type series for Roman, medieval and post-medieval pottery.
- Illustrations: Location plan, plans and sections at appropriate scales showing location and position of trenches dug and features located and

selective photography. Section drawing will include heights Ordnance Datum (OD); plans should include OD spot heights for all principal strata and features.

5.1.2. Should any features that require archaeological mitigation over and above that presented in Section 5, site specific Written Scheme of Investigation shall be prepared and agreed with the LPA Archaeological Advisor(s).

5.2. PUBLICATION AND DISSEMINATION

5.2.1. The results of the investigation will be published and disseminated at a level that is appropriate to the significance of the remains recorded.

5.2.2. Copies of the report should be deposited with the Historic Environment Record(s) (HER) of the respective local authorities, on the understanding that it will be made available as a public document after an appropriate period (not exceeding 6 months from the completion of fieldwork). This is likely to be as an electronic copy only, but a hard copy may be required. Electronic (PDF) copies of the report will also be provided alongside the hard copies.

5.2.3. If required, a summary account of the work should be submitted to a relevant local archaeological journal(s).

5.2.4. Further publication is unlikely to be required for an evaluation, as it will be the first phase of archaeological work. The level of dissemination would be determined in consultation with the LPA Archaeological Advisor(s) and the Archaeological Consultant.

5.2.5. In all cases a short summary of the results of the work will be submitted to the respective HER: CPAT for Flintshire and APAS for Cheshire, as well as the National Record for the Historic Environment (NHRE) via a standard OASIS archaeological report form for work undertaken in England.

5.3. ARCHIVING

5.3.1. The archaeological project archive will contain all the data collected during the fieldwork, including records and finds, and all reports. Cheshire West Museums will designate a unique site code for the archaeological works in England, while CPAT will designate a unique site code for the archaeological works in Wales. These codes will be used as the site identifier for all records produced.

5.3.2. The Archaeological Contractor will ensure that the archive is quantified, ordered, indexed and internally consistent, and adequate resources will be provided to ensure that all records are checked. Archive consolidation will be undertaken immediately following the conclusion of fieldwork. The archive will then be transferred to an appropriate receiving organisation.

5.3.3. For works undertaken in England, the receiving organisation will be Cheshire West Museums. In Wales, the receiving organisation will be the Flintshire Museums Collection (https://aura.wales/heritage/).

5.3.4. The paper and digital archive produced during works in Wales will be deposited with the National Monuments Record, Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), including a copy of the final report, upon completion of the archaeological works.

5.3.5. The digital archive will also be lodged with the Archaeological Data Service (ADS). Both the physical and digital archive will be available for public consultation in an archaeological project archive repository compatible with other archaeological archives in the county, and adhering to guidelines and standards set out in the following:

- RCAHMW Guidelines for Digital Archives (2015, **Ref. 5.2**)
- Archaeological Archive Forum (**Ref. 5.3**) Archaeological Archives: a guide to best practice in creation, compilation transfer and curation;
- Chartered Institute for Archaeologists (**Ref. 5.4**), Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives;
- Museums and Galleries Commission (**Ref. 5.5**) Standards in the Museum Care of Archaeological Collections;
- Society of Museum Archaeologists (**Ref. 5.6**) Towards an Accessible Archive. The Transfer of Archaeological Archives to Museums: Guidelines for Use in England, Northern Ireland, Scotland, and Wales;
- United Kingdom Institute for Conservation (**Ref. 5.7**) Guidelines for the preparation of excavation archives for long term storage;
- Welsh Museums Federation (**Ref. 5.8**) *National Standard and Guidance or Collecting and Depositing Archaeological Archives in Wales 2019*

5.3.6. Copyright of the written archive will be vested in the archaeological project archive repositories, which will be clearly identified in the evaluation report. Physical and digital site archives will be deposited within 6 months of issuing the final report.

6. HEALTH AND SAFETY

6.1. INTRODUCTION

6.1.1. The evaluation will be carried out before construction and is not, therefore, subject to Construction (Design and Management) regulations (**Ref 6.1**).

6.1.2. The following sections outline the Health and Safety aspects of the site work along with known constraints and may be subject to change.

RISK ASSESSMENT AND METHODOLOGY STATEMENT (RAMS)

6.1.3. The Archaeological Contractor will produce a site-specific RAMS to cover the onsite fieldwork and will supply a copy of their company's Health and Safety Policy. The RAMS will be:

- clear, concise, and site-specific. Bespoke to the site, and without generic text for hazards that do not apply or mitigation that is not applicable;
- include tabulation of site specific hazards, risk grading and mitigation measures;
- outline detailed COVID measures within the main document, this will include travel;
- arrangement details and other measures to reduce risk, with an action plan if staff fall ill;
- include site manager contact details, along with a deputy;
- include and emergency action plan, with an address and route map to the closest Accident and Emergency facilities.

6.1.4. The Archaeological Contractor RAMS will be reviewed by an appropriately qualified and experienced member of their own staff (e.g. Project Manager) before issue. These will be checked by the Archaeological Consultant to ensure that the policy and measures are appropriate and will be passed to the Applicant for review and approval.

6.1.5. The Archaeological Contractor will undertake any necessary health and safety training and/ or inductions.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

6.1.6. Staff present on site will be required to wear the appropriate Personal Protective Equipment (PPE), as identified in the RAMS. As a minimum this will be boots (with ankle support and toe and mid-sole protection), high-visibility long sleeve shirt, high-visibility trousers, gloves, protective glasses, and safety helmet. The requirement for any additional PPE will be identified in the RAMS.

WELFARE

6.1.7. The Archaeological Contractor will be responsible for providing and positioning suitable welfare facilities on site, including toilet and water for washing. Due to the nature of the project, it is anticipated that mobile welfare should be used.

SITE SECURITY

6.1.8. The Archaeological Contractor will be responsible for site security and for ensuring that the site is secure with the use of Heras fencing or such required to secure any areas under archaeological investigation, as required. Consultation shall be undertaken with the WSP Land Access team.

ACCESS

6.1.9. Site access will be arranged by the WSP Land Access team before site works commence, including all licence requirements. The WSP Land Access team will notify the Archaeological Consultant and Archaeological Contractor of access arrangements at least two weeks before the start of work and will inform them if access arrangements change prior to or during the work programme.

6.1.10. A site meeting will be held between the Archaeological Consultant, the Archaeological Contractor and the WSP Land Access team prior to works taking place. This will include agreement of access points along the Site and, where deemed necessary, requirements for suitable ground protection such as bog mats/track matting. These specified routes and ground protection requirements will be presented within the Archaeological Contractor's RAMS. Any variation to the agreed access routes must be agreed with the Archaeological Consultant and the WSP Land Access team before changes are made. The Archaeological Contractor will be liable for any compensation claims caused by use of unagreed access routes.

6.1.11. A weekly meeting (virtual) will take place discussing access arrangements for the upcoming weeks once the programme is underway.

OTHER CONSTRAINTS

6.1.12. If unforeseen engineering or health and safety issues should arise, or if extensive, significant deposits are found to survive in the area which cannot be satisfactorily excavated and recorded in the period defined by the Archaeological Contractor and the agreed programme, there should be sufficient flexibility within the programme and resources to enable the deposits in question to be excavated and recorded to the satisfaction of the Archaeological Consultant in consultation with the LPA Archaeological Advisor(s).

SERVICES (ABOVE GROUND AND BURIED)

6.1.13. The Archaeological Contractor is responsible for procuring up-to-date information on services and utilities (including high pressure pipelines) before work begins on site. The current trench design has sought to avoid all known services/utilities, but it is the Archaeological Contractor's responsibility to ensure no services/utilities are impacted by the work. Where a trench design is expected to impact a service or utility, this shall be immediately notified to the Archaeological Consultant for resolution. The Archaeological Consultant shall in turn notify the Applicant if this is not a service/utility known prior.

6.1.14. The Archaeological Contractor will also be responsible for contacting the service provider(s) to discuss mitigation measures (e.g. goalposts, bog matting) and secure permit(s) to dig as required. The Archaeological Contractor will carry out scanning using a Cable Avoidance Tool (CAT) and Genny at each trench location prior to the start of the works and during the excavation of the trenches. The operator of the CAT and Genny device is expected to be in receipt of a CAT4+ qualification.

6.1.15. A distance of 15 m from overhead services and 10 m from buried services will be maintained at all times.

6.1.16. If applicable for crossing over buried services, the Archaeological Contractor will be responsible for gaining permission from the utility owner and adhering to the relevant protection requirements of the service.

NON-ARCHAEOLOGICAL CONSTRAINTS

6.1.17. The Archaeological Contractor will be responsible for replacing any agricultural land drains damaged during the works. The RAMS must contain the methodology for reinstating or replacing any damaged drains. The Archaeological Contractor will be responsible for this element of work to the satisfaction of the landowner. This will be discussed with the WSP Land Access team.

UNEXPLODED ORDNANCE (UXO)

6.1.18. The responsibility for all aspects of Health and Safety in respect of UXO will be the responsibility of the Archaeological Contractor during the trial trenching phase. An Unexploded Ordnance Desk Study and Risk Assessment (**Ref. 6.2**) was undertaken by ZeticaUXO. The report determined that no significant sources of UXO hazards were identified as only one high explosive bomb fell within the area of the DCO Proposed Development during World War II. As a result, the hazard level for UXO within the DCO Proposed Development is low.

6.1.19. To ensure that the UXO risk is reduced to As Low as Reasonably Practicable, industry good practice is simply to raise the awareness of those involved in excavations so that in the unlikely event that suspect item is

discovered, appropriate action is taken, typically achieved through UXO awareness briefings to site staff. The Archaeological Consultant will communicate the findings of the UXO Risk Assessment and Risk Mitigation Plan as outlined in the Unexploded Ordnance Desk Study and Risk Assessment (**Ref. 6.2**) to the Archaeological Contractor.

GROUND CONTAMINATION / ASBESTOS

6.1.20. The responsibility for all aspects of Health and Safety in respect of ground contamination will be the responsibility of the Archaeological Contractor.

6.1.21. The works outlined in the WSI will take place in open fields away from areas of made ground, consequently provision for the attendance of a ground risk and remediation contractor should not be required.

6.1.22. Should any contaminated land be encountered, the works will be stopped immediately, and a ground risk and remediation contractor will assess the area. An element of flexibility will be allowed in the works for relocating trenches (in consultation with the relevant LPA Archaeological Advisor(s)) should areas of ground contamination be uncovered. Health and safety will take precedence over archaeological requirements.

ECOLOGICAL CONSTRAINTS

6.1.23. The responsibility for dealing with ecology constraints will be the responsibility of the Archaeological Consultant. An Ecological Clerk of Works (EcCoW) will be supplied by the Archaeological Consultant.

6.1.24. Each trench location will be assessed by an ecology specialist to identify site specific constraints which will be communicated to the Archaeological Contractor through a detailed RAG (Red/Amber/Green) Matrix and toolbox talk. A Precautionary Working Method Statement for relevant species will be prepared by the EcCoW where necessary. Precautionary working measures include, but are not limited to:

- Habitats and Designated Sites: Works should avoid known Designated Sites and Priority Habitats where possible. Works in the vicinity of trees and hedges should be undertaken in accordance with BS 5837 (2012) – Trees in Relation to Design, Demolition and Construction.
- Nesting Birds: Vegetation clearance should be undertaken outside the nesting bird season. The nesting bird season is weather dependent but generally extends between March and September inclusive (peak period March-August). If this is not possible then any vegetation to be removed or disturbed should be checked by the EcCoW for nesting birds immediately prior to works commencing. If nests are discovered, a suitable buffer zone (at the discretion of the EcCoW) will be established to ensure the nest/nesting activity is not disturbed until the young birds have fully fledged or the nest naturally fails. Only once the nest attempt

has come to completion (as identified by the EcCoW) can works resume.

- Great Crested Newts: Works should be sited as far as possible away from any waterbodies. If works are undertaken in habitat suitable to support great crested newts, the EcCoW will check these areas by hand for individual amphibians prior to construction works commencing.
- Reptiles: Habitat clearance should be timed to avoid the sensitive hibernation season (indicatively October-February inclusive, but weather dependent). If works are undertaken in habitat suitable to support reptiles, the EcCoW will check these areas by hand for individual reptiles prior to construction works commencing
- Terrestrial Mammals including Badgers: If a badger sett is found within 30m of a trench location, the sett should be checked by the EcCoW and assessed if the works can proceed without reasonable likelihood of the sett being damaged or disturbed. If it is perceived that such a risk is possible, an alternative location should be used. Any trenches that need to be left open overnight should be sloped at one end to ensure that any animals that enter the trench can safely escape.
- Riparian Mammals: Works in proximity to watercourses should be sited at least 16 metres from watercourse banks. Pollution prevention measures will be implemented to ensure no pollution events to watercourses.
- Bats: A minimum of a 10m exclusion buffer will be maintained from known bat roost locations. Works will avoid the removal or affecting habitat connected to known roosts, including the removal of hedgerows or sections of hedgerow.
- Barn Owl: A minimum of a 60m exclusion buffer will be maintained from known barn owl nesting locations.
- Invasive Non-Native Species should also be considered. An exclusion buffer of a minimum of 7m should be enforced around any stands of invasive non-native species.

Roadside working

6.1.25. The responsibility for all aspects of Health and Safety in respect of roadside working during all stages will be the responsibility of the Archaeological Contractor including any roadside closures and roadside working permits.

7. MANAGEMENT AND ASSURANCE

7.1. PROJECT TIMETABLE

7.1.1. The Archaeological Consultant will inform the LPA Archaeological Advisor(s) of the appointment of the Archaeological Contractor and will be given two weeks notification of the start date of the project, in writing. The fieldwork will be undertaken within a maximum of four weeks on site (subject to land access), which will be agreed by the Archaeological Contractor, the Archaeological Consultant, the Applicant and the LPA Archaeological Advisor(s).

7.2. SITE WORKS

7.2.1. The Archaeological Consultant will monitor and assure all elements of the archaeological fieldwork and will ensure that the work is carried out in accordance with this WSI, to professional standards, and to the requirements of the LPA Archaeological Advisor(s). Any variance in the scope of work shall be made by the Archaeological Consultant, acting on behalf of the Applicant, in consultation with the LPA Archaeological Advisor(s). The Archaeological Consultant will attend site at least weekly to undertake monitoring visits.

7.2.2. Any non-compliance will be raised immediately with the Archaeological Contractor and reported, verbally and in writing, to the Applicant. The results of all site inspections will be reported by the Archaeological Consultant to the Applicant, by email, in a short report.

7.2.3. Serious breaches of Health and Safety, environmental or ecological regulations may result in an immediate site stand-down, which will remain in place while any necessary corrective work is carried out.

7.3. TECHNICAL MONITORING

7.3.1. The Archaeological Consultant will monitor and assure all elements of the archaeological investigations and will ensure that the work is carried out in accordance with this WSI. The LPA Archaeological Advisor(s) will be afforded access to the site at any reasonable time.

7.3.2. Regular monitoring visits by the LPA Archaeological Advisor(s) will be arranged by the Archaeological Consultant so that they are satisfied that the works are being conducted to proper professional standards. The LPA Archaeological Advisor(s) will be provided with a site tour and an overview of the site by a senior archaeologist and should be afforded the opportunity to view all trenches, any finds made that are still on site, and any records not in immediate use. In order to ensure meaningful monitoring visits can be made, and on-site strategy decisions can be taken, the Archaeological

Contractor will ensure that up to date site plans and weekly site progress reports are provided to the Archaeological Consultant.

7.3.3. A programme of staged sign off will be requested with the LPA Archaeological Advisor(s). This may include remote sign-off, which will entail the use of suitable photographs. Such records must be maintained for all trenches. The Archaeological Contractor will ensure that their programme enables individual areas to be completed in such a way as to facilitate this.

7.3.4. Any observed deficiencies during the site visit are to be made good to the satisfaction of the LPA Archaeological Advisor(s) by the next agreed site meeting. Access is also to be afforded at any reasonable time to Historic England's Archaeological Science Advisor.

7.3.5. Any variations to this WSI will be agreed with the Archaeological Consultant and the LPA Archaeological Advisor(s) as an addendum to this WSI. If significant archaeological remains are discovered, all works must cease, and a meeting convened with the Archaeological Consultant and the LPA Archaeological Advisor(s) to discuss the most appropriate way forward. Any key decisions (such as excavation strategy or work scope changes) that are made on site shall be documented by the Archaeological Consultant during monitoring visits and communication with all relevant parties.

7.4. POST-EXCAVATION DELIVERABLES

7.4.1. The Archaeological Consultant will technically assure that deliverables produced by the Archaeological Contractor conform to the format and scope agreed in this WSI, that the reporting is accurate and clear and with sound conclusions, and that it has been produced to professional standards. The Archaeological Contractor will ensure that the work is carried out to the agreed delivery programme.

8. REFERENCES

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Appendices

Appendix A

TRENCH LOCATION TABLE

PROSPECTIVE TARGETED EVALUATION TRENCHES

Table A-1 Location, rational and size for proposed trial trenches

Trench Ref	Proposed size OSWSI (DCO Application)	Description	WSI Trench Plan	Figure Ref
1	30m x 2m	Sited to investigate the proposed Ince AGI location.	No change (Scaled to correct size)	Fig 2. Sheet 1
2	50m x 2m	Sited to investigate the proposed Ince AGI location.	No change (Scaled to correct size)	Fig 2. Sheet 1
3	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 2
4	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 2
5	30m x 2m	Sited to investigate a potential pit alignment identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 3
6	30m x 2m	Sited to investigate a potential pit alignment identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 3
7	40m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 4
8	40m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 4
9	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 5
10a	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Previous Trench 10 split out into two trenches (10a 10m x 2m) to avoid hedge/field boundary	Fig 2. Sheet 6

Trench Ref	Proposed size OSWSI (DCO Application)	Description	WSI Trench Plan	Figure Ref
10b	N/A	Sited to investigate an anomaly identified during the geophysical survey.	Previous Trench 10 split out into two trenches (10b 20mx2m) to avoid hedge/field boundary	Fig 2. Sheet 6
11	25m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 7
12	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 7
13	20m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench connected to trench 14	Fig 2. Sheet 7
14	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 7
15	30m x 2m	Sited to investigate the proposed Rock Bank BVS location.	No change (Scaled to correct size)	Fig 2. Sheet 7
16	40m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 8
17	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 8
18	20m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 9
19	20m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench resized to 25m x 2m	Fig 2. Sheet 10
20	25m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench resized to 20m x 2m	Fig 2. Sheet 10

Trench Ref	Proposed size OSWSI (DCO Application)	Description	WSI Trench Plan	Figure Ref
21	15m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 10
22	20m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 11
23	25m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 11
24	25m x 2m	Sited to investigate the proposed Mollington BVS location.	No change (Scaled to correct size)	Fig 2. Sheet 11
25	35m x 2m	Sited to investigate the proposed Mollington BVS location.	No change (Scaled to correct size)	Fig 2. Sheet 11
26	25m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 12
27	35m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 12
28	35m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 13
29	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 13
30	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 14
31	20m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 14
32	15m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 14

Trench Ref	Proposed size OSWSI (DCO Application)	Description	WSI Trench Plan	Figure Ref
33	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench resized to 25m x 2m	Fig 2. Sheet 15
34	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 15
35	Trench number not used		**TRENCH REMOVED** Feature targeted was an unidentified service	N/A
36	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 16
37	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 16
38	15m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 17
39	20m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 17
40	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 17
41	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Realigned to run N-S. (Scaled to correct size)	Fig 2. Sheet 18
42	50m x 2m	Sited to investigate the proposed Aston Hill BVS location.	No change (Scaled to correct size)	Fig 2. Sheet 19
43	30m x 2m	Sited to investigate the proposed Aston Hill BVS location.	Trench resized to 35m x 2m	Fig 2. Sheet 19
44	20m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 19

Trench Ref	Proposed size OSWSI (DCO Application)	Description	WSI Trench Plan	Figure Ref
45	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 19
46	15m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 19
47	Trench number not used		**TRENCH REMOVED** Sited to investigate an anomaly identified during the geophysical survey. Removed due to proximity to overhead line.	Fig 2. Sheet 20
48	15m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Realigned to run N-S. (Scaled to correct size)	Fig 2. Sheet 20
49	45m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Shortened by 5m to extend distance between trench and buried service. (Scaled to correct size)	Fig 2. Sheet 20
50	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Extended to 50m x 2m to cross both anomalies. Realigned to run N-S.	Fig 2. Sheet 20
51	40m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 21
52	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench shortened by 10m to avoid fence (20m x 2m). Realigned to run N-S.	Fig 2. Sheet 22
53	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench shortened by 10m to avoid fence (20m x 2m)	Fig 2. Sheet 22

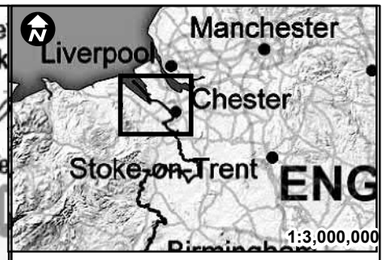
Trench Ref	Proposed size OSWSI (DCO Application)	Description	WSI Trench Plan	Figure Ref
54	40m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench resized to 30m x 2m	Fig 2. Sheet 22
55	20m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Extended to 50m x 2m to cross both anomalies.	Fig 2. Sheet 23
56	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Realigned to run roughly NE-SW.	Fig 2. Sheet 23
57	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 24
58	30m x 2m	Sited to investigate an potential medieval/post-medieval house.	Trench removed and moved to field north of Green Lane and east of Magazine Lane as a result of the unsafe proximity to overhead lines of the original trench.	Fig 2. Sheet 22
59	20m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Realigned to run E-W.	Fig 2. Sheet 25
60	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench resized to 20m x 2m	Fig 2. Sheet 25
61	50m x 2m	Sited to investigate the proposed Northop Hall AGI location.	Realigned to run N-S. Trench is targeting geophysical anomaly and is 30m x 2m.	Fig 2. Sheet 25
62	40m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench sited to investigate the proposed Northop Hall AGI location. 50m x 2m	Fig 2. Sheet 25
63	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Moved to north by 1m to maintain safe working distance from	Fig 2. Sheet 25

Trench Ref	Proposed size OSWSI (DCO Application)	Description	WSI Trench Plan	Figure Ref
			services. Trench resized to 40m x 2m	
64	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Realigned to run roughly NE-SW. Trench resized to 30m x 2m	Fig 2. Sheet 26
65a	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench 65 split in 2. Trench 65a is 30m x 2m	Fig 2. Sheet 26
65b	N/A	Sited to investigate an anomaly identified during the geophysical survey.	Trench 65 split in 2. Trench 65b is 15m x 2m	Fig 2. Sheet 26
66	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench resized to 50m x 2m	Fig 2. Sheet 27
67	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench resized to 40m x 2m	Fig 2. Sheet 28
68	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 29
69	50m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 29
70	40m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	No change (Scaled to correct size)	Fig 2. Sheet 29
71	30m x 2m	Sited to investigate the proposed Construction Compound for the proposed Flint AGI location.	No change (Scaled to correct size)	Fig 2. Sheet 29
72	30m x 2m	Sited to investigate the proposed Construction Compound for the proposed Flint AGI location.	No change (Scaled to correct size)	Fig 2. Sheet 29
73	50m x 2m	Sited to investigate the proposed Flint AGI location.	No change (Scaled to correct size)	Fig 2. Sheet 29

Trench Ref	Proposed size OSWSI (DCO Application)	Description	WSI Trench Plan	Figure Ref
74	50m x 2m	Sited to investigate the proposed Flint AGI location.	No change (Scaled to correct size)	Fig 2. Sheet 29
75	30m x 2m	Sited to investigate an anomaly identified during the geophysical survey.	Trench relocated c.5m north to avoid hedge. Targeting Natural	Fig 2. Sheet 29
76	30m x 2m	Sited to investigate the proposed Construction Compound for the proposed Cornist Lane BVS location.	No change (Scaled to correct size). Location subject to change as location of Cornish Lane BVS not confirmed	Fig 2. Sheet 30
77	50m x 2m	Sited to investigate the proposed Cornist Lane BVS location.	No change (Scaled to correct size). Location subject to change as location of Cornish Lane BVS not confirmed	Fig 2. Sheet 30
78	50m x 2m	Sited to investigate the proposed Pentre Halkyn BVS location.	No change (Scaled to correct size)	Fig 2. Sheet 31
79	30m x 2m	Sited to investigate the proposed Construction Compound for the proposed Pentre Halkyn BVS location.	No change (Scaled to correct size)	Fig 2. Sheet 31
80	50m x 2m	Sited to investigate the proposed Babell BVS location.	Trench relocated 10m southeast to avoid hedge	Fig 2. Sheet 32
81	30m x 2m	Sited to investigate the proposed Construction Compound for the proposed Babell BVS location.	No change (Scaled to correct size)	Fig 2. Sheet 32

Appendix B

FIGURES



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- Figure 2 Sheets

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HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 1
Location

DRAWING STATUS

FOR INFO

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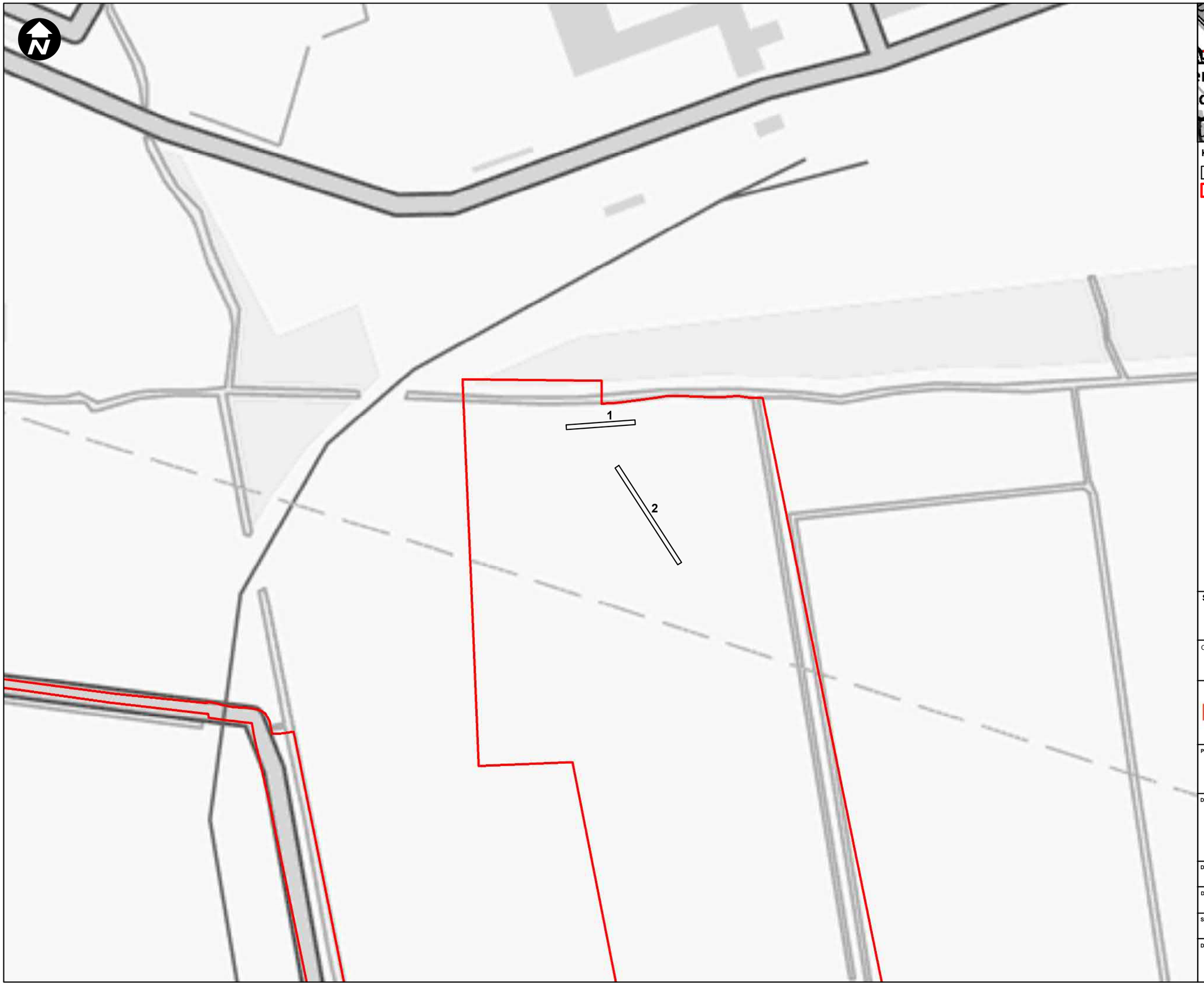

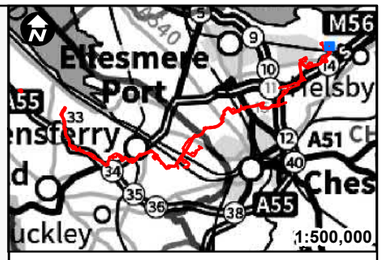

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HyNet Carbon Dioxide Pipeline DCO

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Figure 2
Evaluation Trenches
Sheet Number 1 of 32

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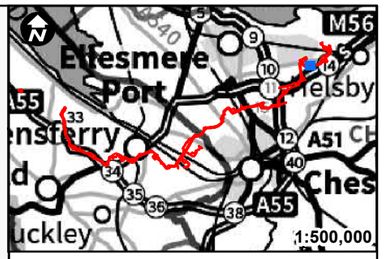

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HyNet Carbon Dioxide Pipeline DCO

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Figure 2
Evaluation Trenches
Sheet Number 2 of 32

DRAWING STATUS

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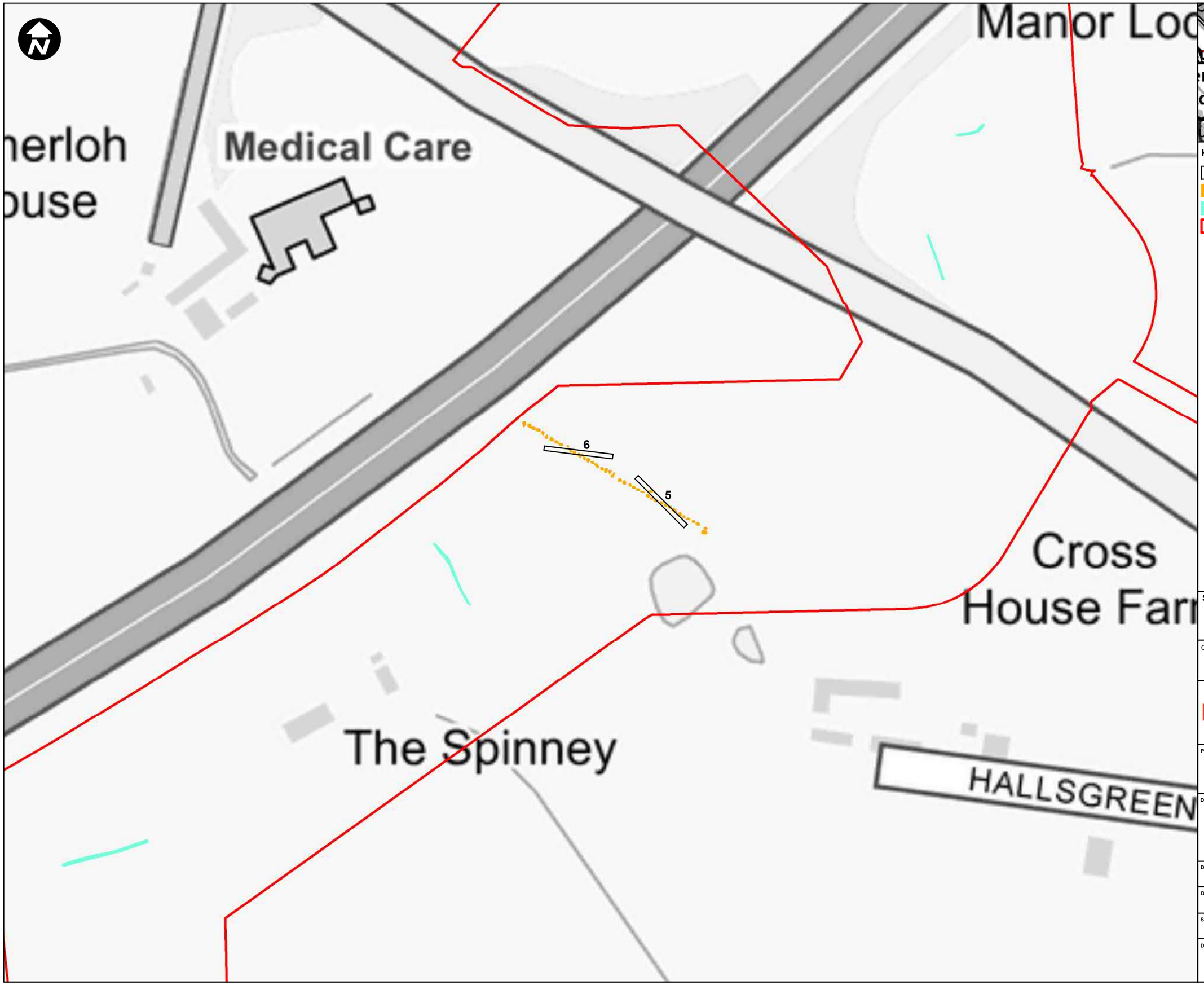

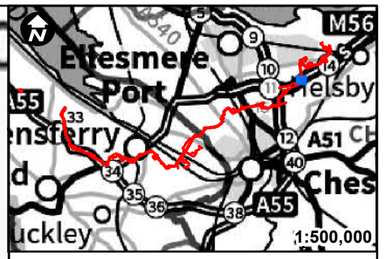

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HyNet Carbon Dioxide Pipeline DCO

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Figure 2
Evaluation Trenches
Sheet Number 3 of 32

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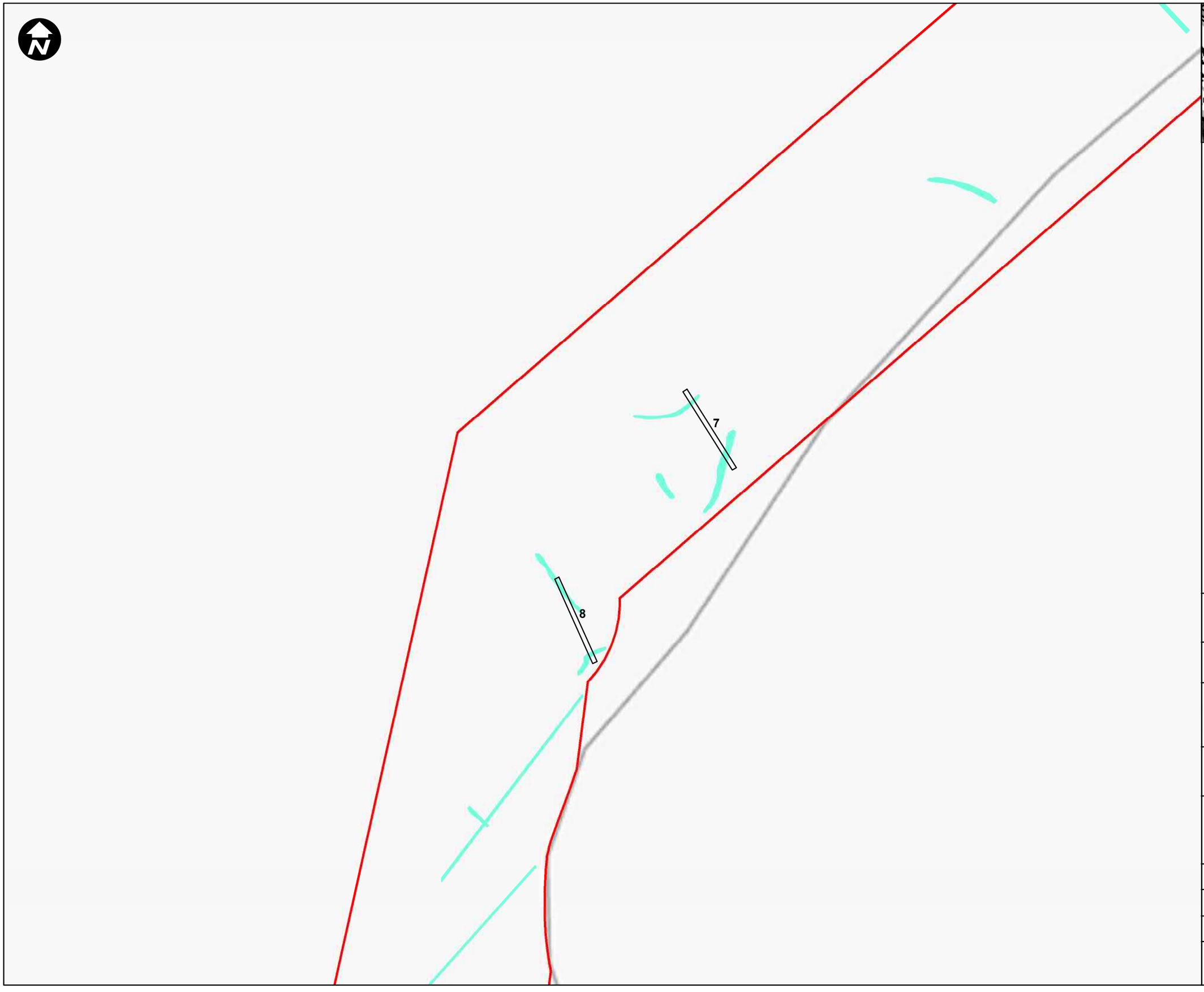

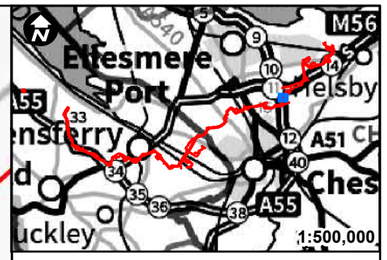

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HyNet North West

PROJECT TITLE

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Evaluation Trenches
Sheet Number 4 of 32

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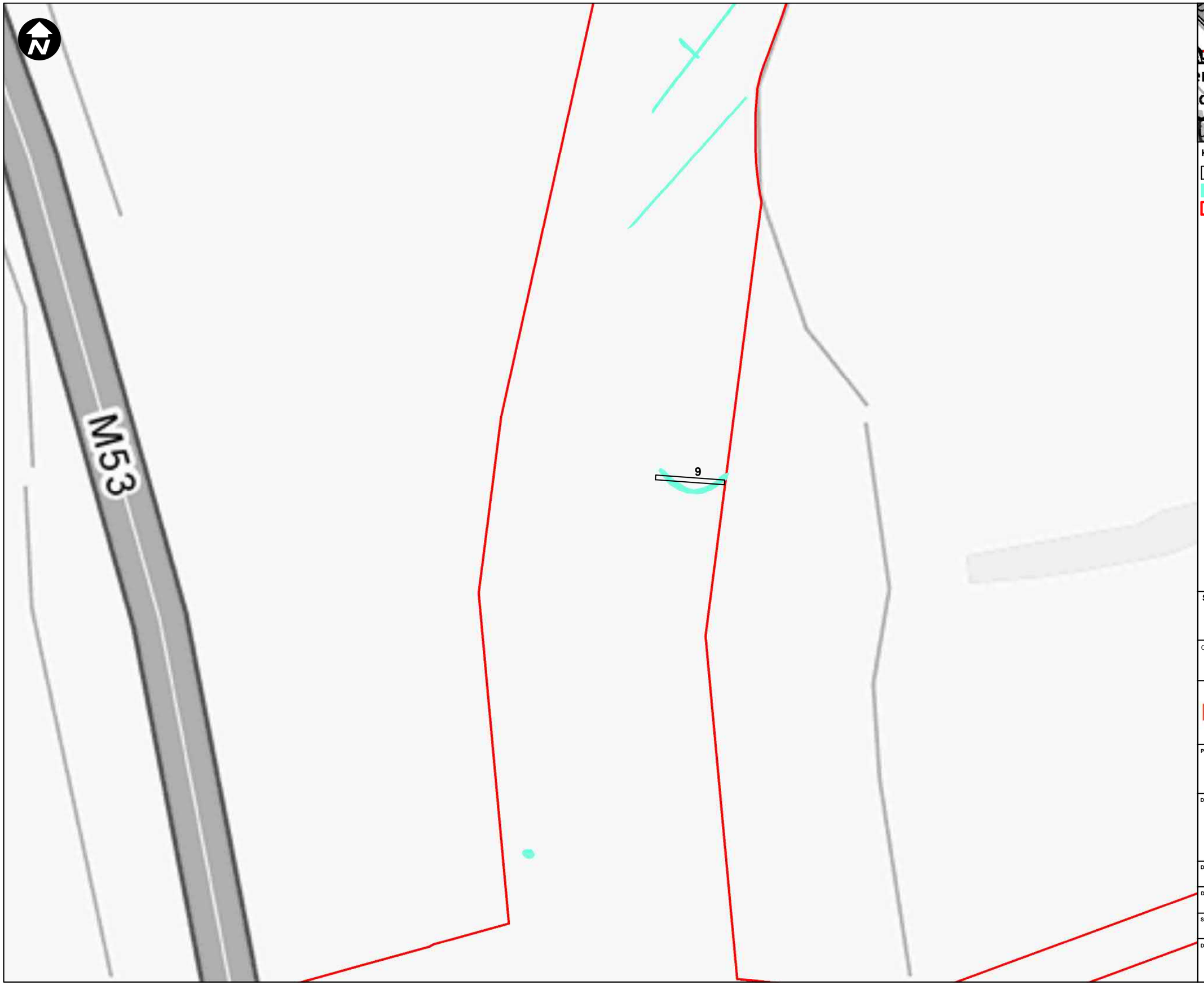

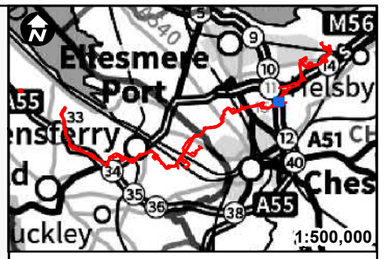

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HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches

Sheet Number 5 of 32

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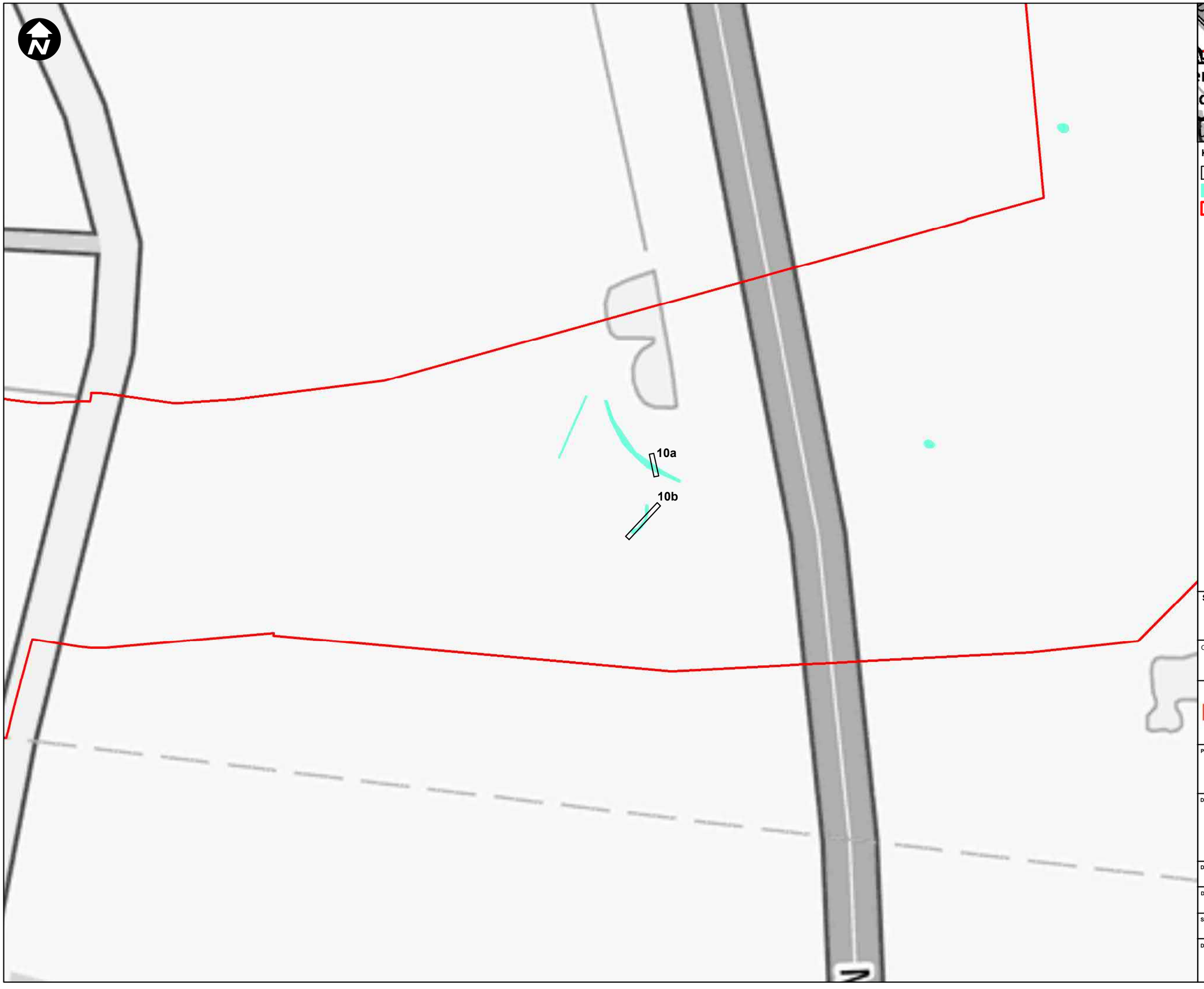

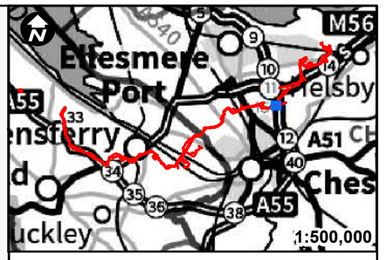

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PROJECT TITLE

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Figure 2
Evaluation Trenches
Sheet Number 6 of 32

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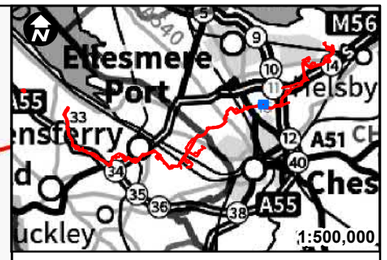

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- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches

Sheet Number 7 of 32

DRAWING STATUS

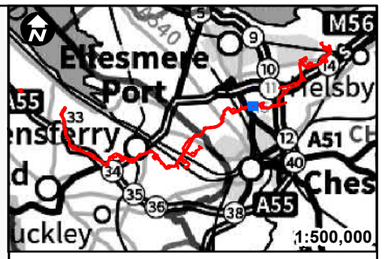
FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

Collinge Farm

16

17

Collinge Wood

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 8 of 32

DRAWING STATUS

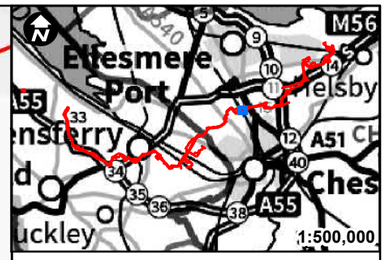
FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 9 of 32

DRAWING STATUS

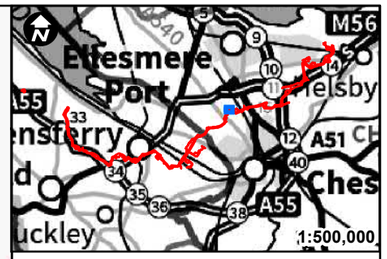
FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 10 of 32

DRAWING STATUS

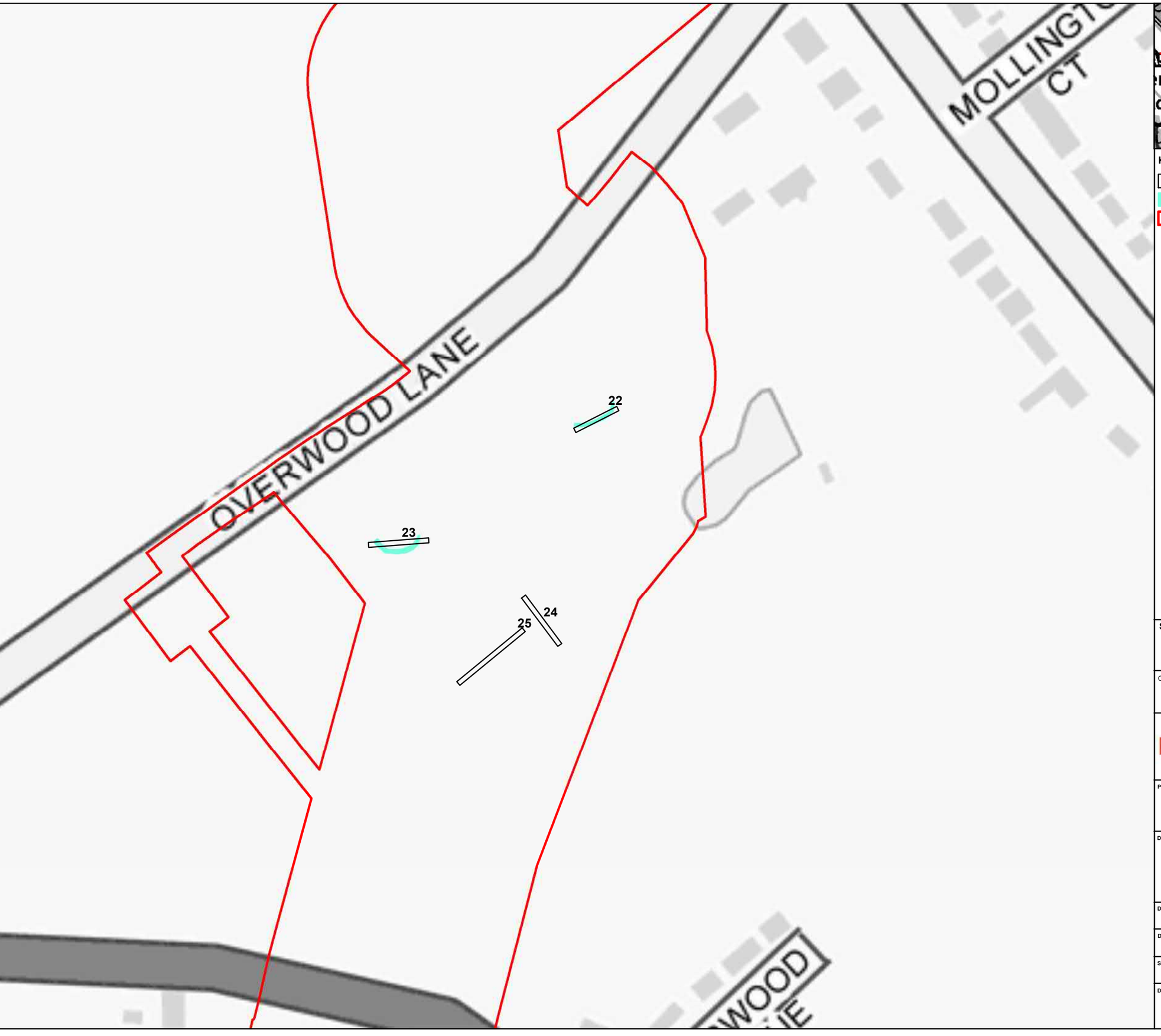
FOR INFO

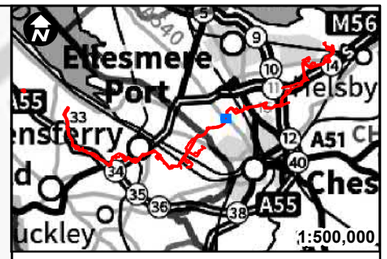
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 11 of 32

DRAWING STATUS

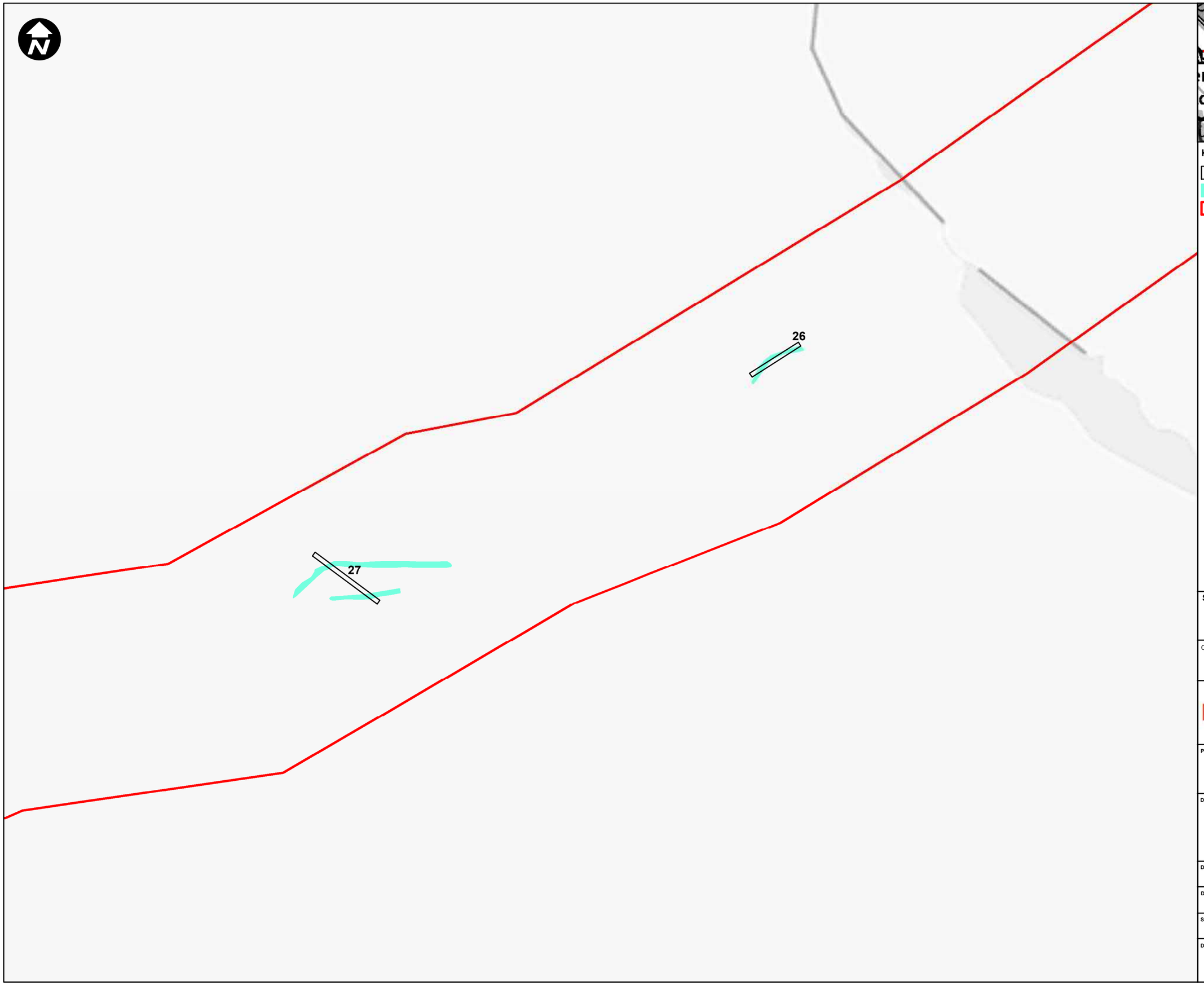
FOR INFO

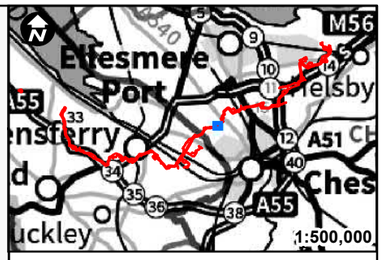
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 12 of 32

DRAWING STATUS

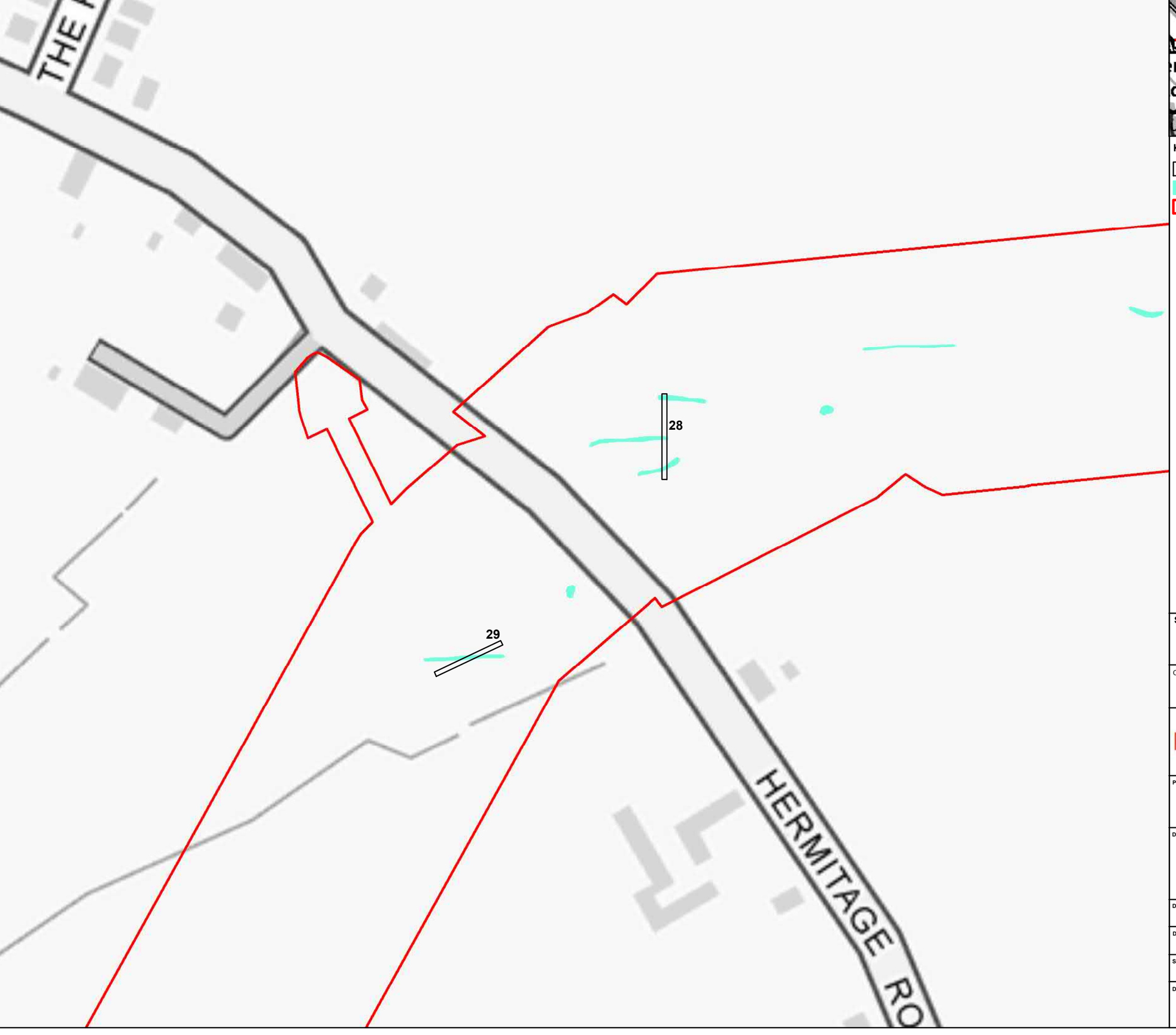
FOR INFO

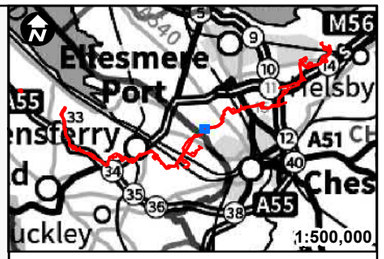
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 13 of 32

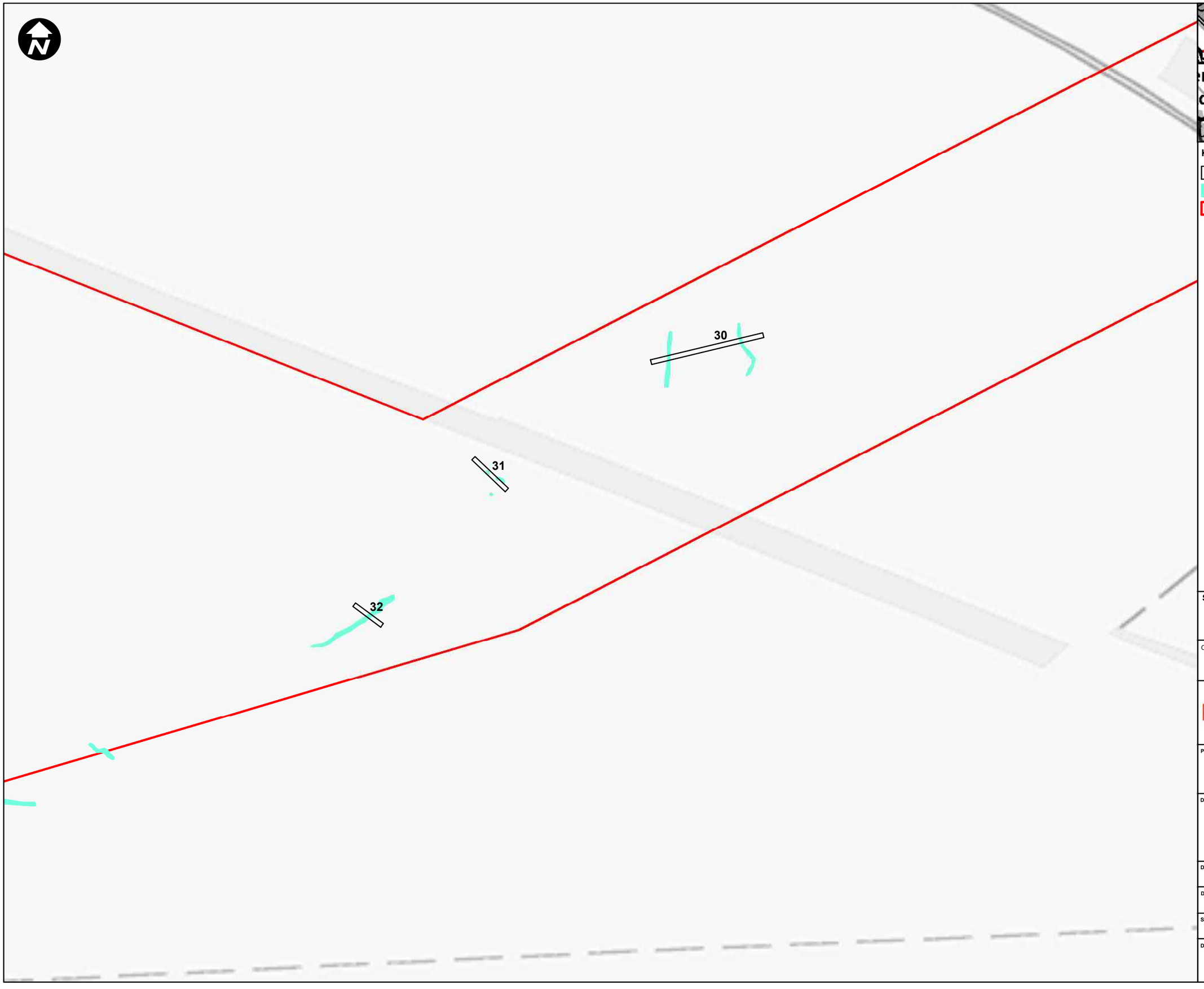
DRAWING STATUS: FOR INFO

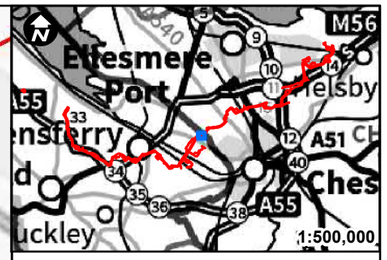
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 14 of 32

DRAWING STATUS

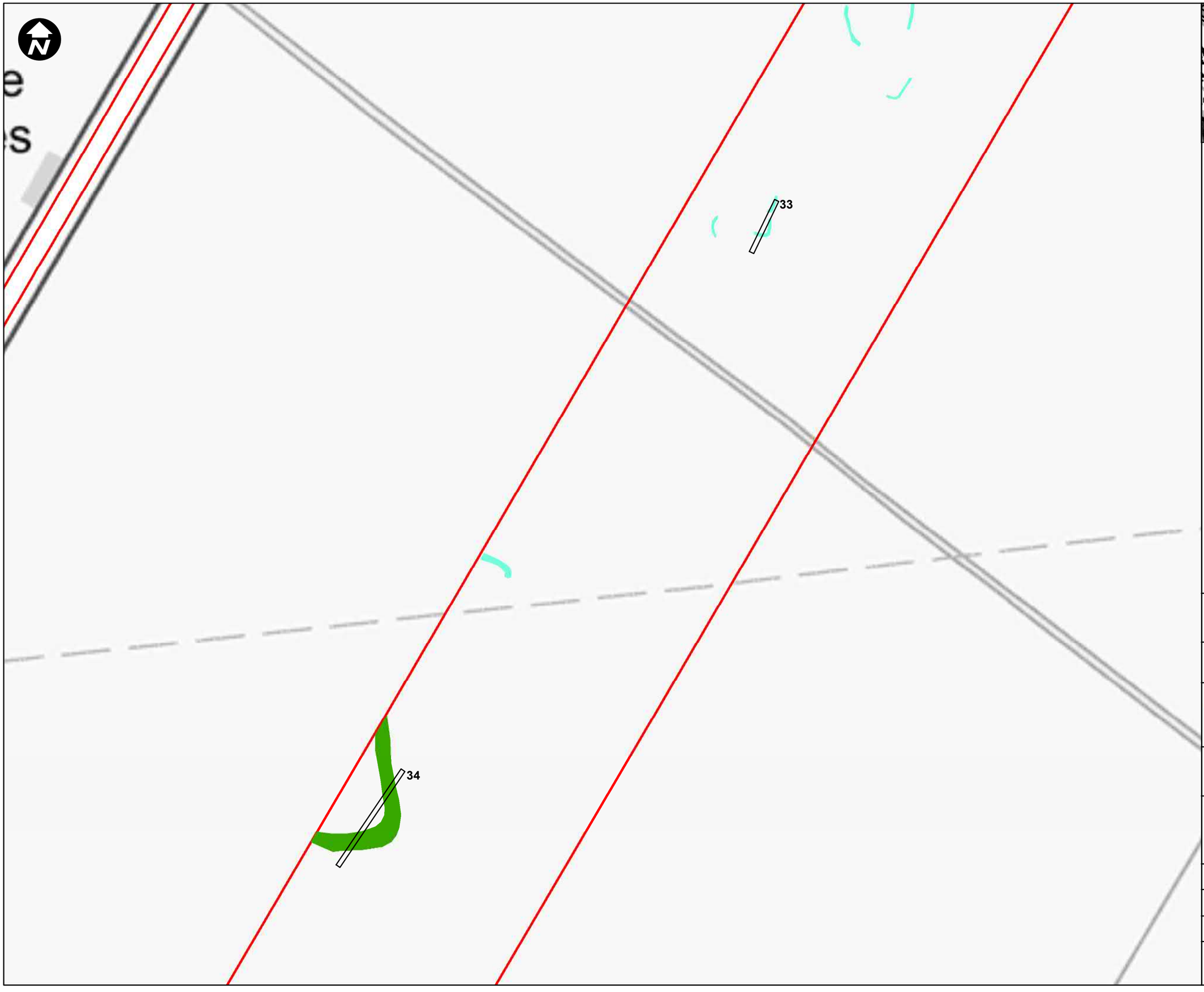
FOR INFO

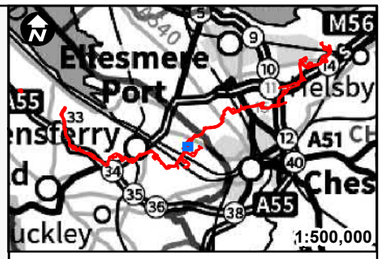
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches

Sheet Number 15 of 32

DRAWING STATUS

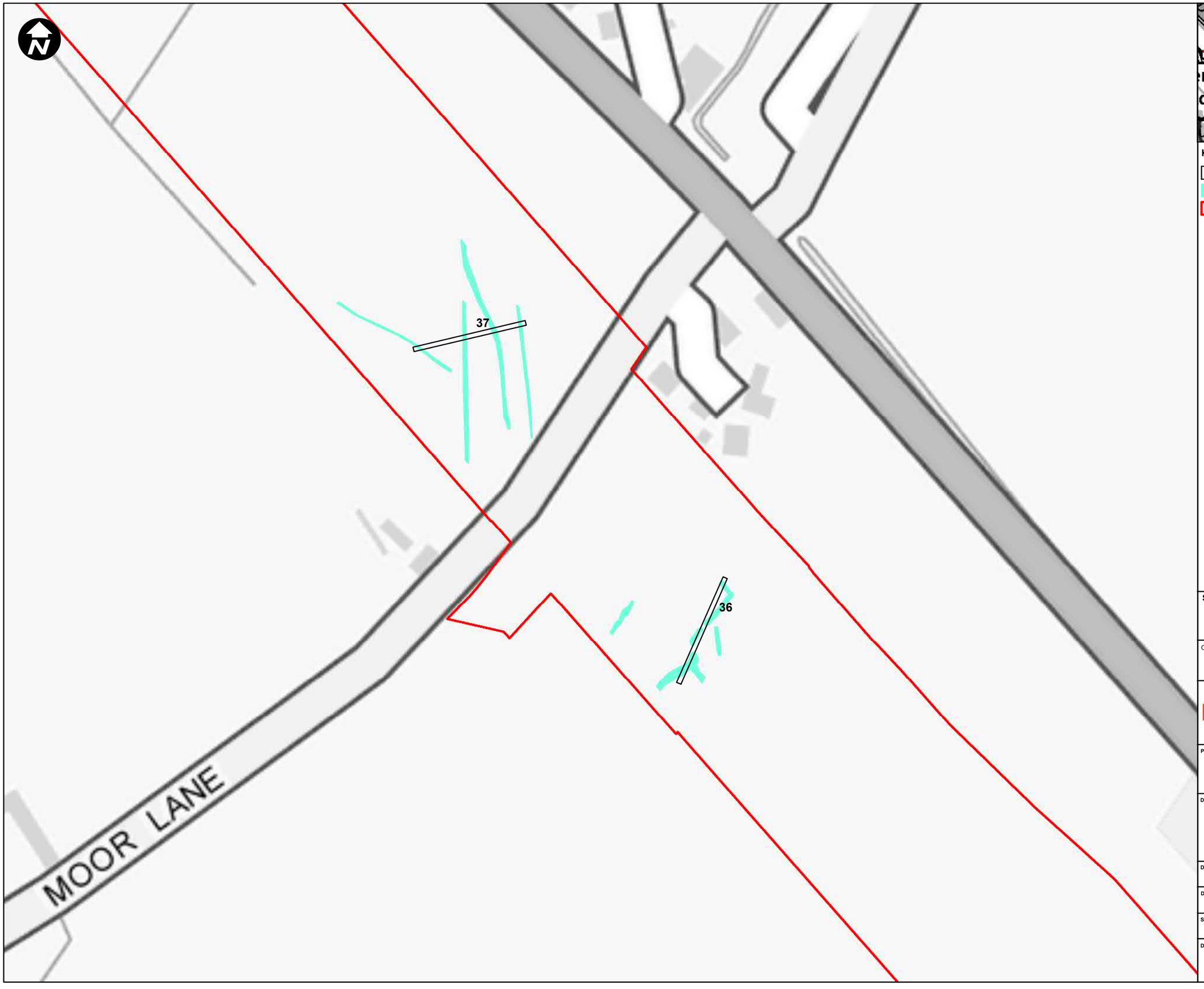
FOR INFO

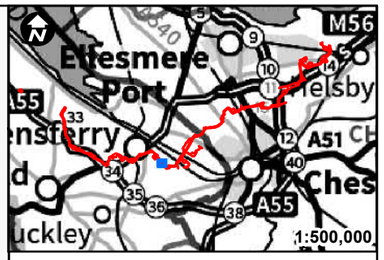
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 16 of 32

DRAWING STATUS

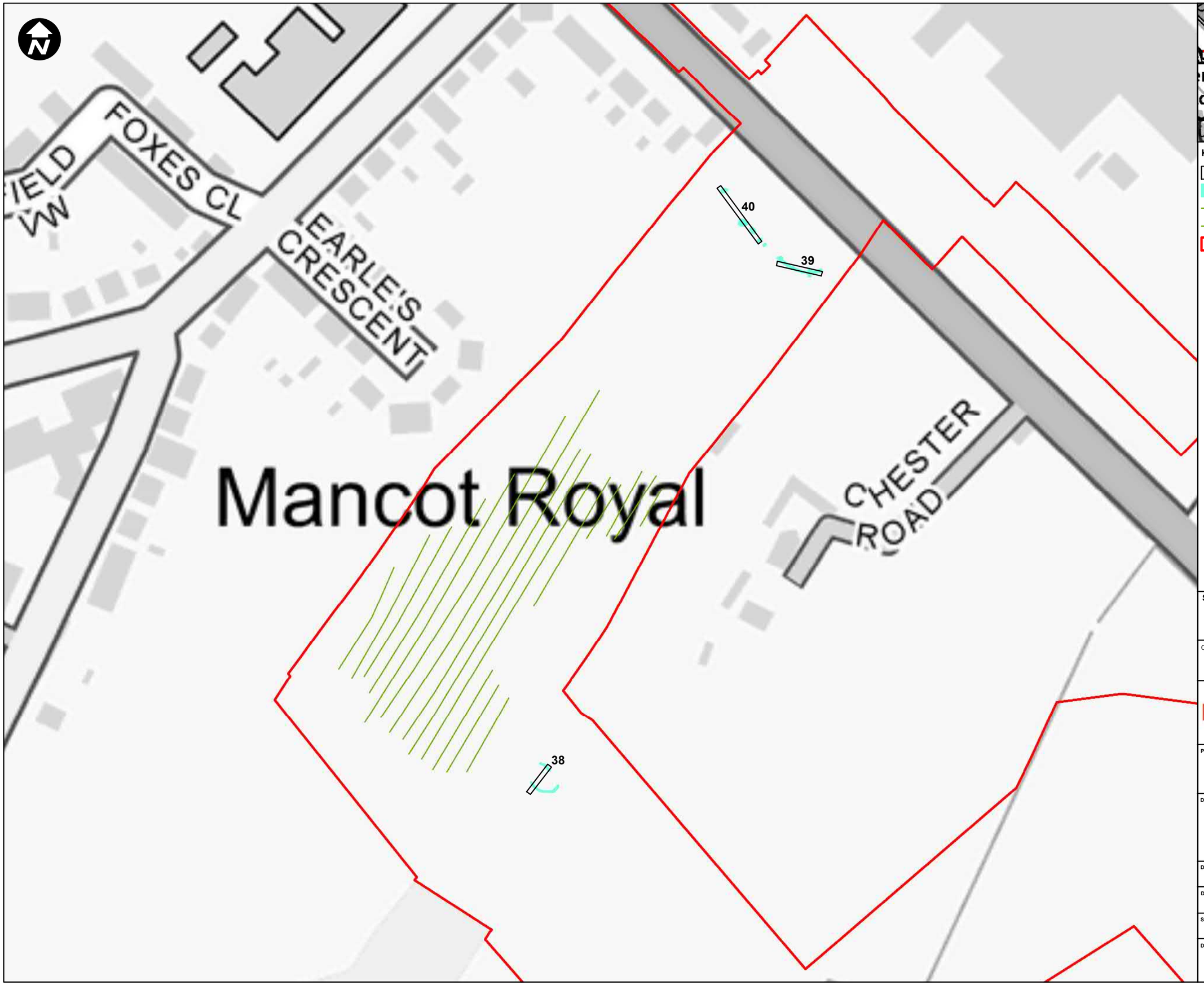
FOR INFO

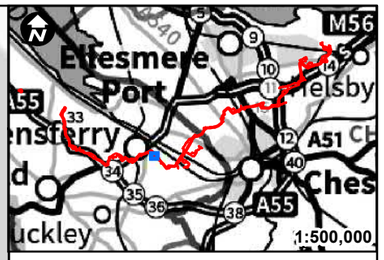
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Geophysics Possible Ridge & Furrow
- Geophysics Possible Ridge & Furrow
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 17 of 32

DRAWING STATUS

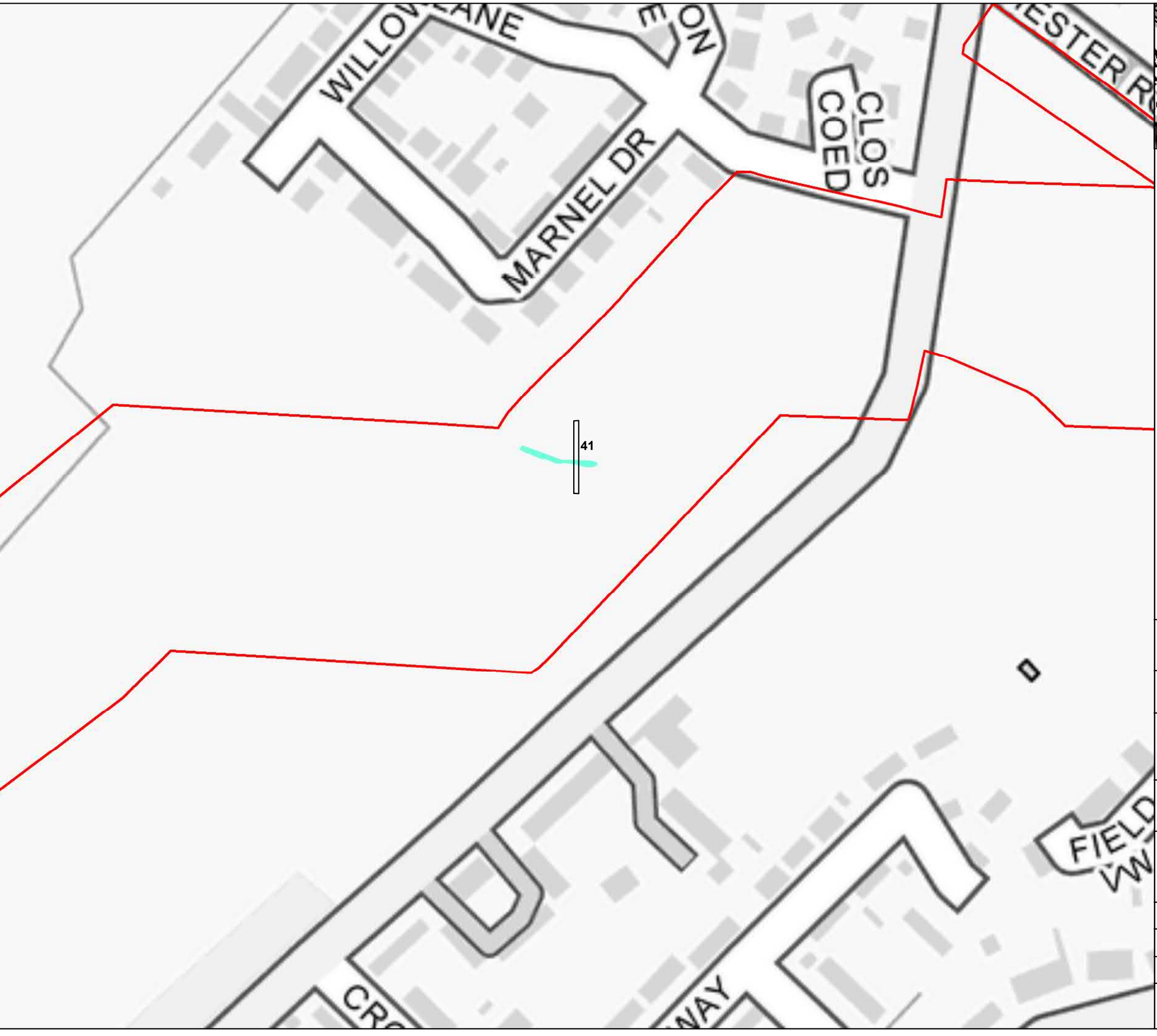
FOR INFO

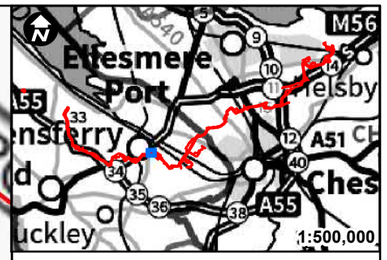
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 18 of 32

DRAWING STATUS

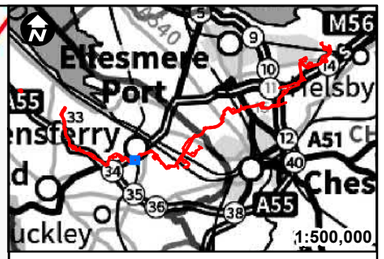
FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 19 of 32

DRAWING STATUS

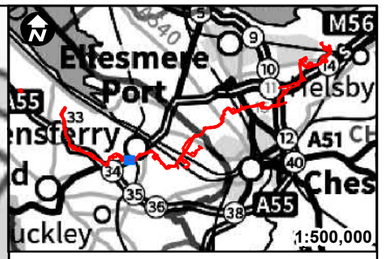
FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 20 of 32

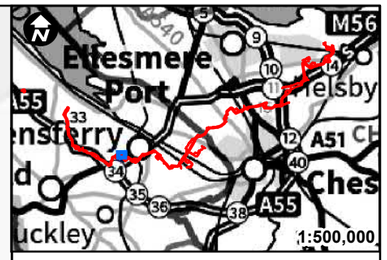
DRAWING STATUS: FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 21 of 32

DRAWING STATUS

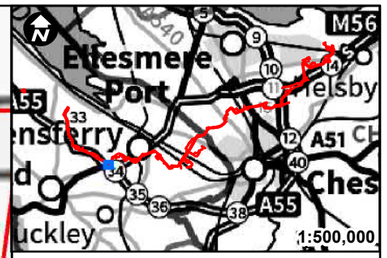
FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 22 of 32

DRAWING STATUS

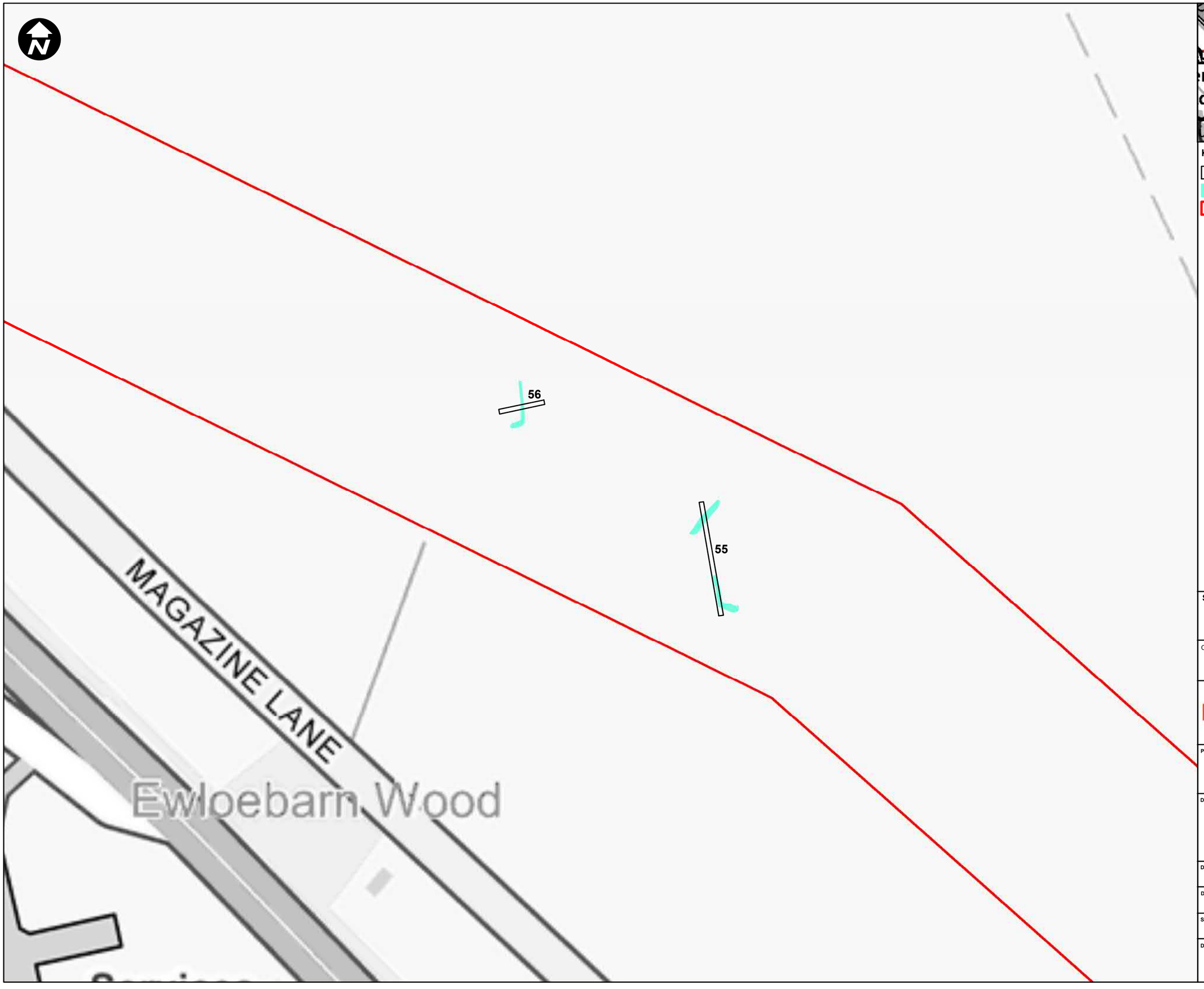
FOR INFO

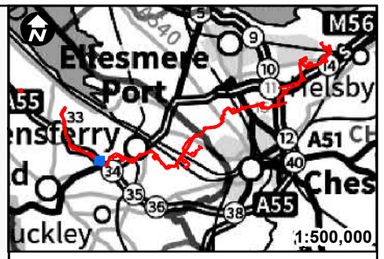
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 23 of 32

DRAWING STATUS

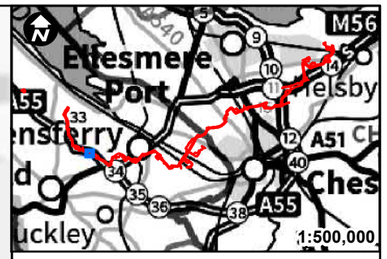
FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 24 of 32

DRAWING STATUS

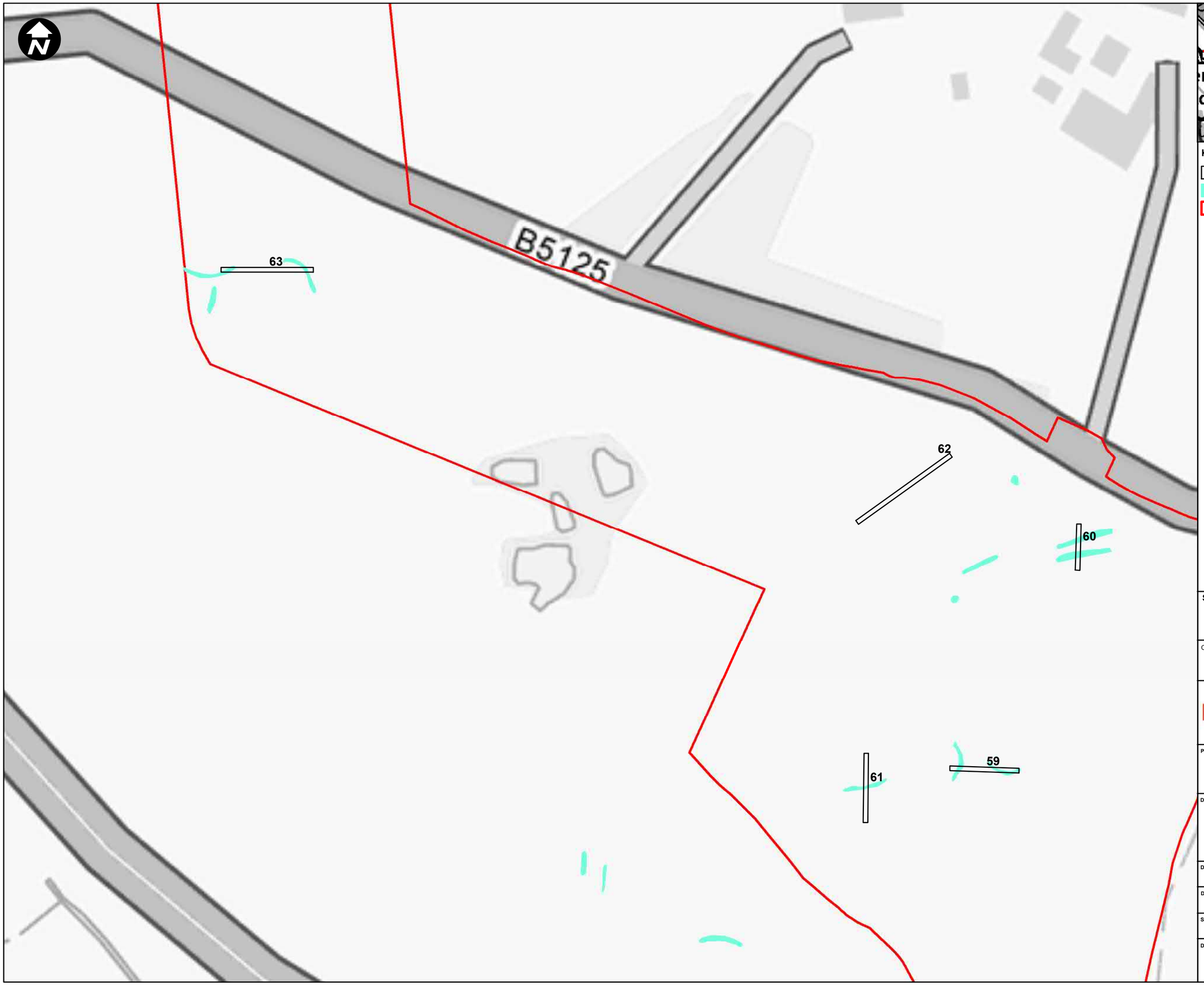
FOR INFO

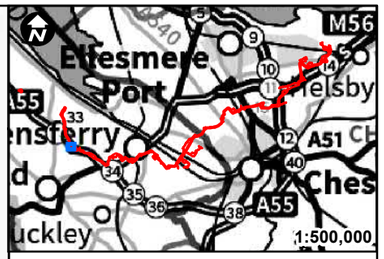
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 25 of 32

DRAWING STATUS

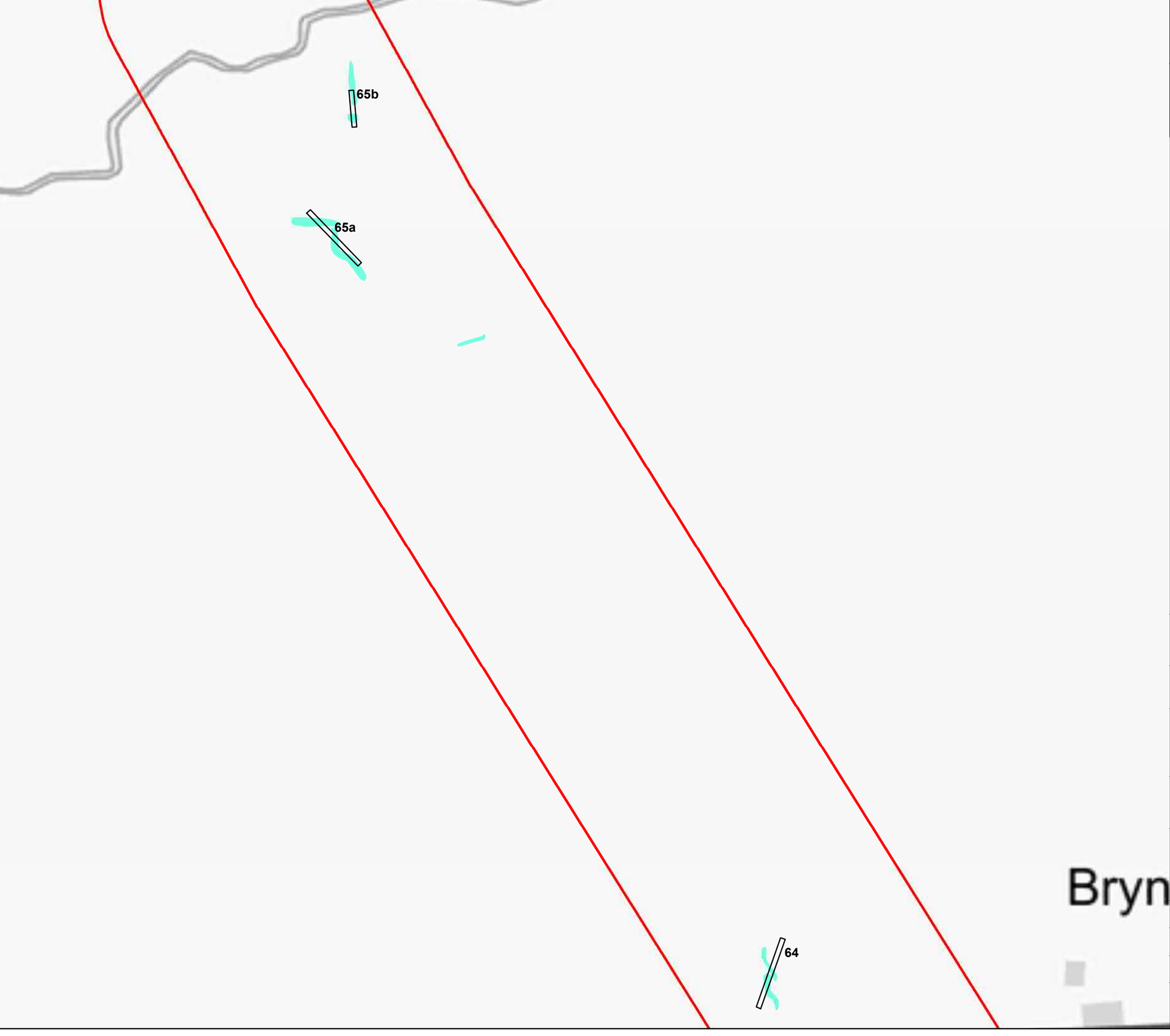
FOR INFO

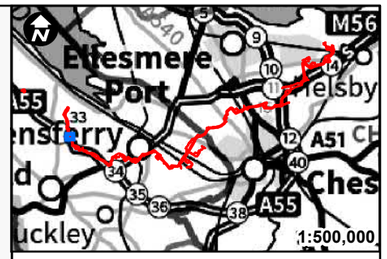
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 26 of 32

DRAWING STATUS

FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

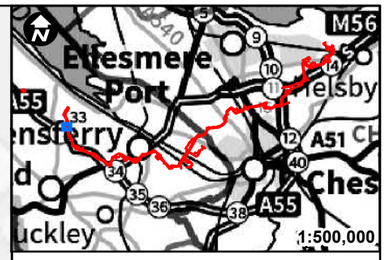
D.7.4.1

House

STARKEY LANE

Wern Hall Lodge

66



Key:

- Proposed evaluation trenches
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 27 of 32

DRAWING STATUS

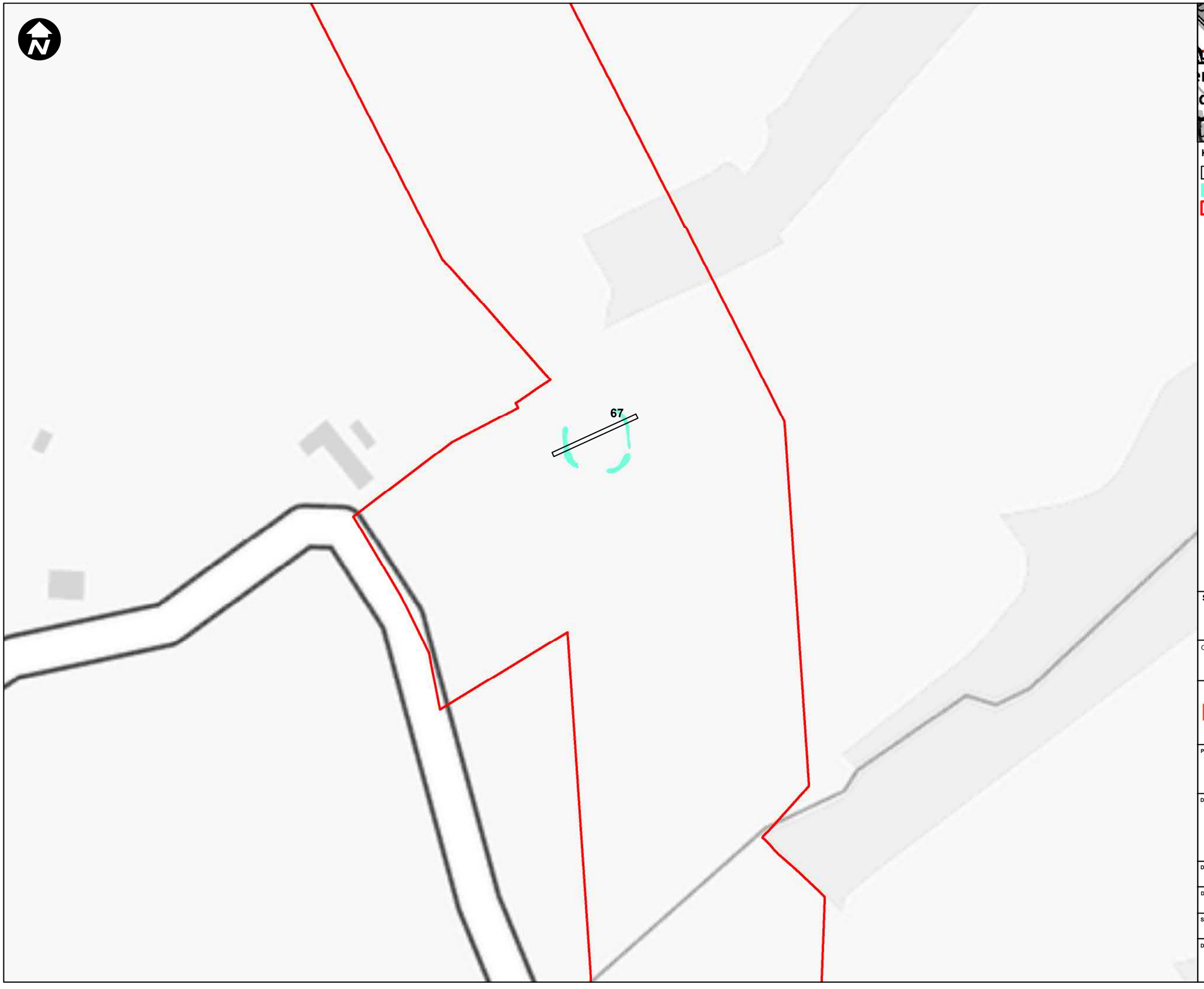
FOR INFO

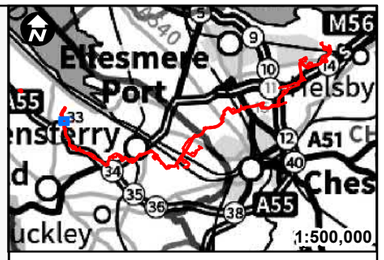
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 28 of 32

DRAWING STATUS

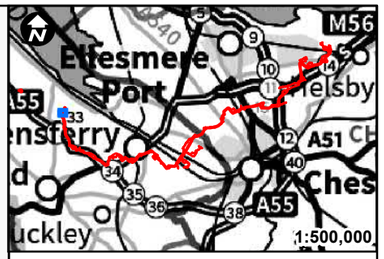
FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Geophysics Undetermined
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 29 of 32

DRAWING STATUS

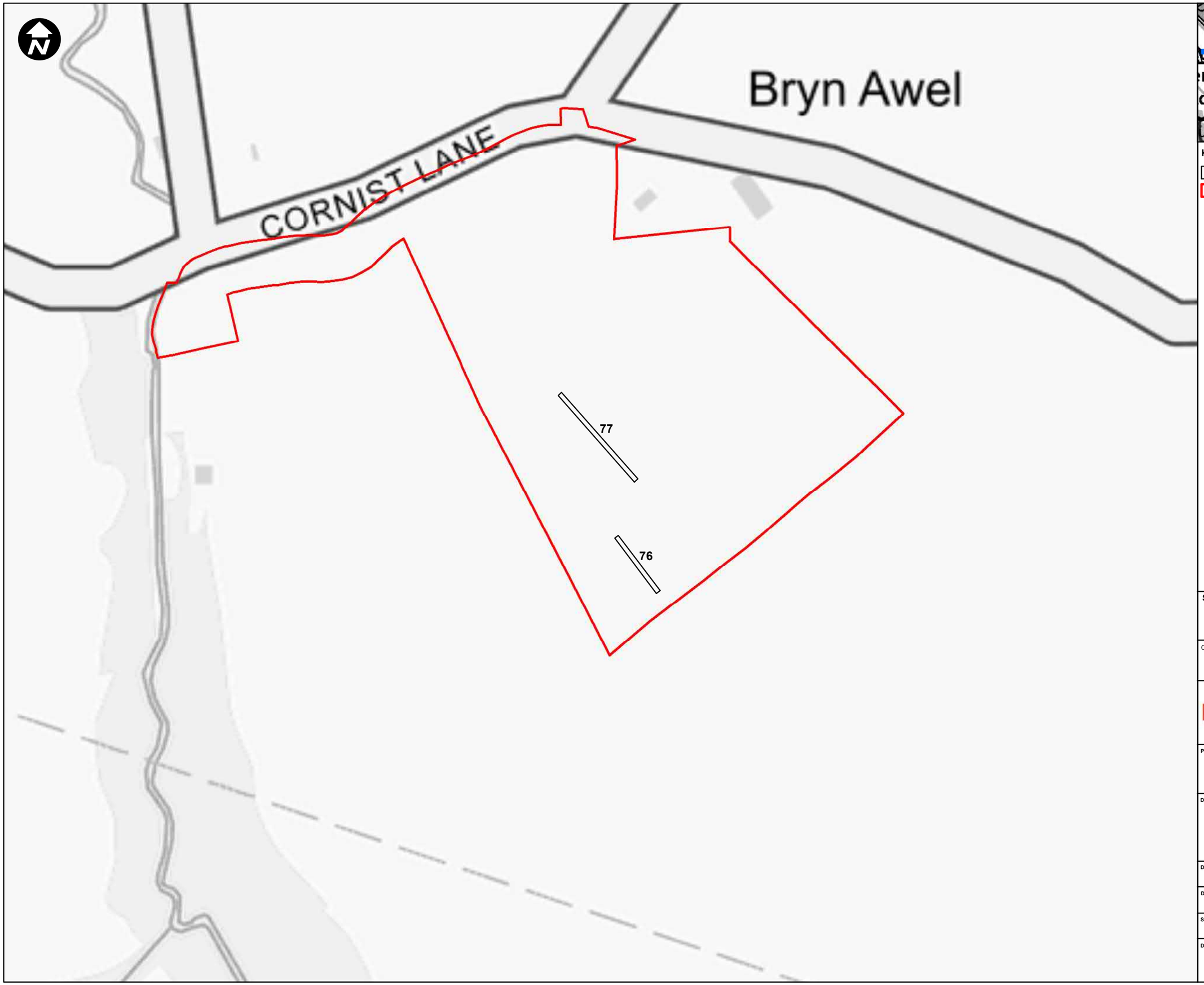
FOR INFO

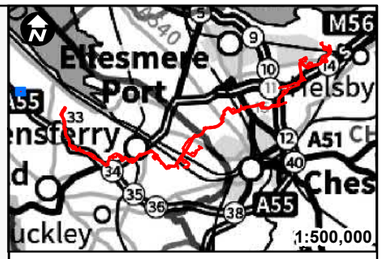
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 30 of 32

DRAWING STATUS

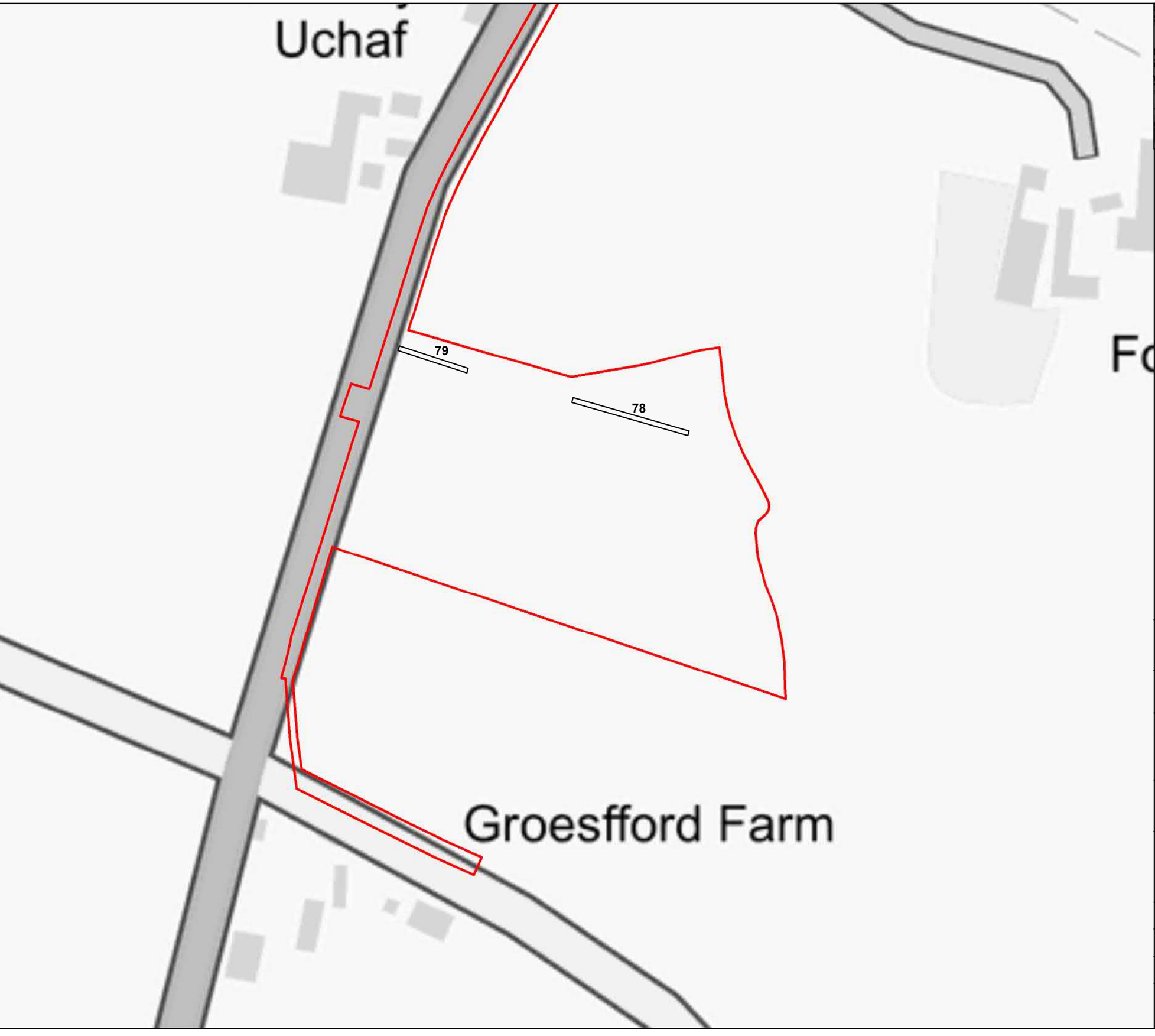
FOR INFO

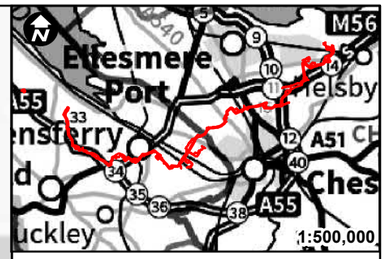
DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1





Key:

- Proposed evaluation trenches
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches
Sheet Number 31 of 32

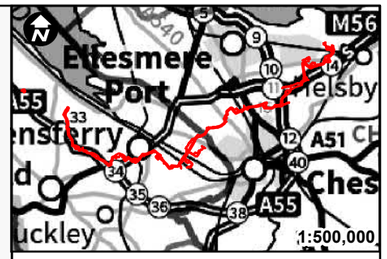
DRAWING STATUS: FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1



Key:

- Proposed evaluation trenches
- Newbuild Infrastructure Boundary

SCALE: 1:1,500

HyNet North West

PROJECT TITLE

HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE

Figure 2
Evaluation Trenches

Sheet Number 32 of 32

DRAWING STATUS

FOR INFO

DRAWN	CHECKED	APPROVED	AUTHORISED
MJ	AB	HM	HM

SCALE @ A3 SIZE	DATE	REVISION
1:1,500	14/12/2022	B

DRAWING NUMBER

D.7.4.1

APPENDIX B TRENCH DESCRIPTIONS AND CONTEXT INVENTORY (CHESHIRE WEST)

Trench 1							
General description						Orientation	E/W
Topsoil overlaid palaeochannel deposits which cut into alluvial deposits.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.15
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
100	Layer			0	Topsoil	None	Modern
101	Layer			0.1	Alluvial layer	None	Natural
102	Layer			0.1	Alluvial layer	None	Natural

Trench 2							
General description						Orientation	NNW/SSE
Topsoil sealed palaeochannel deposits which cut alluvial deposits. These deposits sealed peat at a depth of 2m bgl.						Length (m)	44
						Width (m)	2
						Avg. depth (m)	0.25
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
200	Layer			0	Topsoil	None	Modern
201	Layer			0.15	Alluvial layer	None	Natural
202	Layer			1.65	Alluvial layer	None	Natural
203	Layer			2.2	Peat	None	Natural
204	Layer			0.2	Alluvial layer	None	Natural

Trench 5							
General description						Orientation	NW/SE
Trench abandoned due to asbestos pipe in topsoil which corresponded to the geophysical anomaly.						Length (m)	
						Width (m)	
						Avg. depth (m)	
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date

Trench 6							
General description						Orientation	E/W
Topsoil overlaid wind-blown sand which sealed natural geology. Trench abandoned due to asbestos pipe in topsoil which corresponded to the geophysical anomaly.						Length (m)	10
						Width (m)	2
						Avg. depth (m)	0.85
Context No.	Type	fill Of	Width (m)	Depth (m)	Description	Finds	Date
600	Layer			0.4	Topsoil	None	Modern
601	Layer			0.4	Wind-blown sand	None	Natural
602	Layer			0.8	Natural	None	Natural

Trench 7							
General description						Orientation	NW/SE
Topsoil overlaid a colluvial deposit, which sealed a ditch and a natural feature. These cut the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.5
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
700	Cut		0.65	0.2	Ditch	None	Unknown
701	Fill	*700*		0.2	Secondary fill	None	Unknown
702	Cut		0.95	0.3	Ditch	None	Unknown
703	Fill	*702*		0.3	Secondary fill	None	Unknown
704	Layer			0	Topsoil	None	Modern
705	Layer			0.3	Colluvial layer	None	Unknown
706	Layer			0.5	Natural	None	Natural

Trench 8							
General description						Orientation	NW/SE
Topsoil overlaid a colluvial deposit which was only observed towards the southern end of the trench. This sealed a linear ditch, which cut a paleochannel. The channel cut through the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.5
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
800	Layer			0	Topsoil	None	Modern
801	Layer			0.32	Colluvial layer	None	
802	Layer			0.58	Natural	None	Natural
803	Cut		2.2	0.84	Ditch/palaeochannel	None	Unknown
804	Fill	*803*	2.2	0.84	Secondary fill	None	Unknown
805	Layer			0.5	Paleochannel	None	Natural

Trench 9							
General description						Orientation	E/W
Topsoil overlaid subsoil which sealed a ditch, a ditch terminus and a pit. These features cut the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.6
Context No.	Type	fill Of	Width (m)	Depth (m)	Description	Finds	Date
900	Cut		0.89	0.35	Ditch	None	Unknown
901	Fill	*900*		0.35	Secondary fill	None	Unknown
902	Cut		0.9	0.4	Ditch terminus	None	Unknown
903	Fill	*902*		0.4	Secondary fill	None	Unknown
904	Cut		0.7	0.2	Pit	None	Unknown
905	Fill	*904*		0.2	Secondary fill	None	Unknown

906	Layer			0	Topsoil	Pottery (17th-18th C)	Modern
907	Layer			0.3	Subsoil	None	Modern
908	Layer			0.5	Natural	None	Natural

Trench 10a							
General description						Orientation	10a NNW/SSE
Topsoil overlaid subsoil, which sealed natural geology. Modern water pipes were observed along the length of the southern portion of the trench (10b), so excavation was abandoned.						Length (m)	40
						Width (m)	2
						Avg. depth (m)	0.48
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
1000	Layer			0	Topsoil	None	Modern
1001	Layer			0.21	Subsoil	None	Modern
1002	Layer			0.37	Natural	None	Natural

Trench 11							
General description						Orientation	NW/SE
Topsoil overlaid an alluvial deposit, which sealed the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.5
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
1100	Layer			0	Topsoil	None	Modern
1101	Layer			0.45	Alluvial layer	None	Natural
1102	Layer			0.9	Natural	None	Natural

Trench 12							
General description						Orientation	ENE/WSW
Topsoil overlaid the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.94
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
1200	Layer			0	Topsoil	None	Modern
1201	Layer			0.62	Natural	None	Natural

Trench 13							
General description						Orientation	WSW/ENE
Topsoil overlaid subsoil which sealed the natural geology.						Length (m)	15
						Width (m)	2
						Avg. depth (m)	0.6
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date

1300	Layer			0	Topsoil	None	Modern
1301	Layer			0.3	Subsoil	None	Modern
1302	Layer			0.5	Natural	None	Natural

Trench 14							
General description						Orientation	NW/SE
Topsoil overlaid subsoil which sealed the natural geology.						Length (m)	50
						Width (m)	3
						Avg. depth (m)	0.5
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
1400	Layer			0	Topsoil	None	Modern
1401	Layer			0.3	Subsoil	None	Modern
1402	Layer			0.4	Natural	None	Natural

Trench 15							
General description						Orientation	NE/SW
Topsoil overlaid subsoil which sealed a ditch. The ditch cut the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.7
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
1500	Layer			0	Topsoil	None	Modern
1501	Layer			0.33	Subsoil	None	Modern
1502	Layer			0.53	Natural	None	Natural
1503	Cut		1.6	0.2	Ditch	None	Unknown
1504	Fill	*1503*		0.2	Secondary fill	None	Unknown

Trench 19							
General description						Orientation	ENE/WSW
Topsoil overlaid subsoil, which sealed the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.48
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
1900	Layer			0	Topsoil	None	Modern
1901	Layer			0.25	Subsoil	None	Modern
1902	Layer			0.35	Natural	None	Natural

Trench 20		
General description	Orientation	ENE/WSW
Topsoil overlaid subsoil. A black sediment was observed at the southern end of the trench. This sealed the natural geology.	Length (m)	30
	Width (m)	2
	Avg. depth (m)	0.6

Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
2000	Layer			0	Topsoil	None	Modern
2001	Layer			0.28	Subsoil	None	Modern
2002	Layer			0.32	Natural	None	Natural
2003	Layer			0.5	Natural lens of mineralized material	None	Natural

Trench 21							
General description						Orientation	E/W
Topsoil overlaid subsoil, which sealed a palaeochannel deposit and a ditch. The ditch was cut into the natural geology.						Length (m)	15
						Width (m)	2
						Avg. depth (m)	0.54
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
2100	Layer			0	Topsoil	None	Modern
2101	Layer			0.34	Subsoil	None	Modern
2102	Layer			0.54	Natural	None	Natural
2103	Layer			0.34	Possible bank	None	Unknown
2104	Cut			0.45	Ditch	None	Unknown
2105	Fill	*2104*	0.48	0.45	Primary fill	None	Unknown

Trench 26							
General description						Orientation	E/W
Topsoil overlaid subsoil which sealed natural geology						Length (m)	25
						Width (m)	2
						Avg. depth (m)	0.45
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
2600	Layer			0	Topsoil	None	Modern
2601	Layer			0.3	Subsoil	None	Modern
2602	Layer			0.45	Natural	None	Natural

Trench 27							
General description						Orientation	NW/SE
Topsoil overlaid subsoil which sealed a tree throw. This cut the natural geology.						Length (m)	35
						Width (m)	2
						Avg. depth (m)	0.4
Context No.	Type	fill Of	Width (m)	Depth (m)	Description	Finds	Date
2700	Layer			0	Topsoil	None	Modern
2701	Layer			0.3	Subsoil	18th C pottery	Modern
2702	Layer			0.4	Natural	None	Natural
2703	Cut			0.15	Tree throw	None	Unknown
2704	Fill	*2703*	0.3	0.15	Secondary fill	None	Unknown

Trench 28							
General description						Orientation	N/S
Topsoil overlaid the subsoil which sealed a ditch and a cobbled surface. Both features were above the natural geology.						Length (m)	35
						Width (m)	2
						Avg. depth (m)	0.45
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
2800	Layer			0	Topsoil. 0.15m thick	None	Modern
2801	Layer			0.15	Subsoil. 0.15m thick	None	Modern
2802	Layer			0.3	Natural	None	Natural
2803	Cut		2	0.45	Ditch	None	Roman
2804	Fill	*2803*	2	0.2	Secondary fill	None	Roman
2805	Fill	*2803*	2	0.45	Secondary fill	Pottery, glass, ironwork	Roman
2806	Cut		2.05	0.15	Cut for surface	None	Roman
2807	Fill	*2806*		0.15	Stone surface	Pottery, CBM	Roman

Trench 29							
General description						Orientation	NE/SW
Topsoil overlaid subsoil which sealed a ditch and two plough furrows. These in turn cut the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.5
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
2900	Layer			0	Topsoil	None	Modern
2901	Layer			0.23	Subsoil	None	Modern
2902	Layer			0.43	Natural	None	Natural
2903	Cut		0.7	0.27	Ditch	None	Unknown
2904	Fill	*2903*		0.27	Secondary fill	None	Unknown

APPENDIX C TRENCH DESCRIPTIONS AND CONTEXT INVENTORY (FLINTSHIRE)

Trench 30							
General description						Orientation	ENE/WSW
Topsoil overlaid an alluvial deposit.						Length (m)	50
						Width (m)	2
						Avg. depth (m)	0.4
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
3000	Layer			0	Topsoil	19th C pottery	Modern
3001	Layer			0.3	Alluvial layer	None	Natural

Trench 31							
General description						Orientation	NW/SE
Topsoil overlaid a sandy alluvial deposit.						Length (m)	15
						Width (m)	2
						Avg. depth (m)	0.6
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
3100	Layer			0	Topsoil	None	Modern
3101	Layer			0.35	Alluvial layer	None	Natural

Trench 32							
General description						Orientation	NW/SE
Topsoil overlaid an alluvial deposit						Length (m)	15
						Width (m)	2
						Avg. depth (m)	0.4
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
3200	Layer			0	Topsoil	None	Modern
3201	Layer			0.4	Alluvial layer	None	Natural

Trench 33							
General description						Orientation	NNE/SSW
Topsoil overlaid subsoil, which sealed a sandy alluvial deposit and a palaeochannel.						Length (m)	15
						Width (m)	2
						Avg. depth (m)	0.9
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
3300	Layer			0.4	Topsoil	None	Modern
3301	Layer			0.6	Alluvial layer	None	Natural
3302	Fill			0.9	Alluvial layer within palaeochannel	None	Natural
3303	Layer			1.2	Alluvial layer	None	Natural

Trench 34							
General description						Orientation	E/W
Topsoil overlaid two palaeochannels which were above natural geology.						Length (m)	45
						Width (m)	2
						Avg. depth (m)	0.6
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
3400	Layer			0	Topsoil	None	Modern
3401	Layer			0.75	Alluvial layer	None	Natural
3402	Layer			1.4	Laminated sand	None	Natural
3403	Layer			1.9	Alluvial layer	None	Natural
3404	Layer			0.6	Natural	None	Natural

Trench 37							
General description						Orientation	ENE/WSW
Topsoil overlaid subsoil which sealed a large ditch on a northwest/southeast alignment. The ditch cut an alluvial sand deposit which overlaid further alluvial clay deposits. Below this, peat was observed at 1.8m depth below ground level.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.4
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
3700	Layer			0	Topsoil	None	Modern
3701	Layer			0.26	Subsoil	None	Modern
3702	Cut		7.5	1	Ditch	None	Unknown
3703	Fill	*3702*		1	Secondary fill	None	Unknown
3704	Layer			0.4	Alluvial layer	None	Natural
3705	Layer			0.64	Alluvial layer	None	Natural
3706	Layer			0.5	Alluvial layer	None	Natural
3707	Layer			1.8	Peat	None	Natural

Trench 38							
General description						Orientation	NE/SW
Topsoil overlaid subsoil which sealed two ditches. These ditches cut the natural geology.						Length (m)	15
						Width (m)	2
						Avg. depth (m)	0.39
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
3800	Layer			0	Topsoil	None	Modern
3801	Layer			0.2	Subsoil	None	Modern
3802	Layer			0.28	Natural	None	Natural
3803	Cut		1.1	0.54	Ditch	None	Unknown
3804	Fill	*3803*		0.28	Secondary fill	None	Unknown
3805	Cut		0.82	0.25	Tree throw	None	Unknown

3806	Fill	*3805*		0.12	Secondary fill	None	Unknown
3807	Fill	*3803*		0.27	Secondary fill	None	Unknown
3808	Fill	*3803*		0.27	Secondary fill	None	Unknown
3809	Fill	*3805*		0.12	Secondary fill	None	Unknown
3810	Fill	*3805*		0.25	Secondary fill	None	Unknown

Trench 39							
General description						Orientation	ESE/WNW
Topsoil overlaid subsoil, which sealed a ditch. This was cut into alluvial deposits.						Length (m)	20
						Width (m)	2
						Avg. depth (m)	0.5
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
3900	Layer			0	Topsoil	None	Modern
3901	Layer			0.4	Subsoil	None	Modern
3902	Layer			1.5	Alluvial layer	None	Natural
3903	Cut		2.3	0.54	Ditch	None	Unknown
3904	Fill	*3903*		0.54	Primary fill	Mammal bone	Unknown
3905	Layer			1.81	Alluvial layer	None	Natural

Trench 40							
General description						Orientation	NW/SE
Topsoil overlaid subsoil, which sealed alluvial deposits.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.4
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
4000	Layer			0	Topsoil	None	Modern
4001	Layer			0.4	Alluvial layer	None	Natural
4002	Layer			1.1	Alluvial layer	None	Natural
4003	Layer			1.7	Alluvial layer	None	Natural

Trench 41							
General description						Orientation	N/S
Topsoil overlaid subsoil, which sealed a ditch. The ditch cut the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.63
Context No.	Type	fill Of	Width (m)	Depth (m)	Description	Finds	Date
4100	Layer			0	Topsoil	None	Modern
4101	Layer			0.24	Subsoil	None	Modern
4102	Layer			0.41	Natural	None	Natural
4103	Cut		1.43	0.11	Ditch	None	Unknown
4104	Fill	*4103*		0.11	Primary fill	None	Unknown

Trench 49							
General description						Orientation	N/S
Topsoil overlaid subsoil, which overlaid a disturbed natural sandy layer. This sealed the natural geology.						Length (m)	50
						Width (m)	2
						Avg. depth (m)	0.6
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
4900	Layer				Topsoil	None	Modern
4901	Layer			0.3	Subsoil	None	Modern
4902	Layer			0.6	Disturbed natural	None	Modern
4903	Layer			1.1	Natural	None	Natural

Trench 50							
General description						Orientation	N/S
Topsoil overlaid subsoil, which sealed natural geology.						Length (m)	50
						Width (m)	2
						Avg. depth (m)	0.8
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
5000	Layer			0.3	Topsoil	None	Modern
5001	Layer			0.5	Subsoil	None	Modern
5002	Layer			0.9	Natural	None	Natural
5003	Layer			1.5	Natural	None	Natural

Trench 52							
General description						Orientation	NNE/SSW
Topsoil overlaid subsoil, which sealed a pit. The pit cut the natural geology.						Length (m)	20
						Width (m)	2
						Avg. depth (m)	0.71
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
5200	Layer			0	Topsoil	None	Modern
5201	Layer			0.51	Subsoil	None	Modern
5202	Layer			0.64	Natural	None	Natural
5203	Cut		0.96	0.18	Tree throw	None	Unknown
5204	Fill	*5203*		0.18	Primary fill	None	Unknown

Trench 53			
General description		Orientation	NE/SW
Topsoil overlaid subsoil, which sealed a ditch and a pit. These cut the natural geology.		Length (m)	20
		Width (m)	2
		Avg. depth (m)	0.4

Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
5300	Layer			0	Topsoil	None	Modern
5301	Layer			0.25	Subsoil	None	Modern
5302	Layer			0.4	Natural	None	Natural
5303	Cut		0.58	0.21	Hedgerow	None	Unknown
5304	Fill	*5303*		0.08	Secondary fill	None	Unknown
5305	Fill	*5303*		0.06	Secondary fill	None	Unknown
5306	Fill	*5303*		0.07	Primary fill	None	Unknown
5307	Cut		0.23	0.13	?Pit	None	Unknown
5308	Fill	*5307*		0.13	Secondary fill	None	Unknown

Trench 54		
General description	Orientation	NW/SE
Topsoil sealed a modern spoil heap at the southeastern end of the trench, and a modern pit which cut the natural geology.	Length (m)	30
	Width (m)	2
	Avg. depth (m)	0.6

Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
5400	Layer			0	Topsoil	None	Modern
5401	Layer			0.3	Subsoil	None	Modern
5402	Layer			0.5	Natural	None	Natural
5403	Layer			0.2	Modern dump	None	Modern
5404	Cut		1.8	0.4	Pit	None	Unknown
5405	Fill	*5404*		0.4	Deliberate Backfill	None	Unknown
5406	Layer			1	Buried soil?	None	Unknown

Trench 55		
General description	Orientation	NNW/SSE
Topsoil sealed two ditches which cut the natural geology.	Length (m)	50
	Width (m)	2
	Avg. depth (m)	0.45

Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
5500	Layer			0	Topsoil	None	Modern
5501	Layer			0.3	Natural	None	Natural
5502	Cut		1	0.25	Ditch	None	Unknown
5503	Fill	*5502*		0.25	Secondary fill	None	Unknown
5504	Cut		1.54	0.36	Ditch	None	Unknown
5505	Fill	*5504*		0.36	Secondary fill	None	Unknown

Trench 56		
General description	Orientation	ENE/WSW
	Length (m)	15

Topsoil overlaid subsoil which sealed a pit and a ditch. These were cut into a colluvial layer. This in turn sealed a paleochannel which cut the natural geology.						Width (m)	2
						Avg. depth (m)	0.5
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
5600	Layer			0	Topsoil	None	Modern
5601	Layer			0.3	Colluvial layer	None	Unknown
5602	Cut		0.6	0.12	Ditch	None	Unknown
5603	Fill	*5602*		0.12	Secondary fill	None	Unknown
5604	Cut		0.7	0.1	Pit	None	Unknown
5605	Fill	*5604*		0.1	Secondary fill	None	Unknown
5606	Layer			0.4	Palaeochannel layer	None	Natural
5607	Layer			0.33	Subsoil	None	Modern
5608	Layer			1.25	Natural	None	Natural

Trench 58							
General description						Orientation	NW/SE
Topsoil sealed two pits which cut the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.5
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
5800	Layer			0	Topsoil	None	Modern
5801	Layer			0.4	Natural	None	Natural
5802	Cut		0.7	0.2	Pit	None	C17th-18th
5803	Fill	*5802*		0.2	Secondary fill	Pottery	C17th-18th
5804	Cut		0.9	0.2	Pit	None	C17th-18th
5805	Fill	*5804*		0.2	Secondary fill	Buckley ware and pipe stem	C17th-18th

Trench 67							
General description						Orientation	ENE/WSW
Topsoil overlaid subsoil which sealed a pit and a ditch. Both cut the natural geology.						Length (m)	40
						Width (m)	2
						Avg. depth (m)	0.6
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
6700	Layer				Topsoil	None	Modern
6701	Layer			0.2	Subsoil	None	Modern
6702	Layer			0.6	Natural	None	Natural
6703	Cut		0.7	0.1	Ditch	None	Unknown
6704	Fill	*6703*		0.1	Secondary fill	None	Unknown
6705	Cut			0.75	Pit	None	Unknown
6706	Fill	*6705*		0.35	Secondary fill	None	Unknown

6707	Fill	*6705*		0.4	Secondary fill	Modern glass	Unknown

Trench 68							
General description						Orientation	N/S
Topsoil overlaid colluvium which sealed natural geology.						Length (m)	50
						Width (m)	2
						Avg. depth (m)	0.4
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
6800	Layer				Topsoil	None	Modern
6801	Layer			0.3	Colluvial layer	None	Unknown
6802	Layer			0.3	Natural	None	Natural

Trench 69							
General description						Orientation	NNE/SSW
Topsoil overlaid colluvium which sealed natural geology.						Length (m)	50
						Width (m)	2
						Avg. depth (m)	0.4
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
6900	Layer			0	Topsoil	None	Modern
6901	Layer			0.3	Colluvial layer	None	Unknown
6902	Layer			0.3	Natural	None	Natural

Trench 70							
General description						Orientation	NW/SE
Topsoil overlaid subsoil which sealed a ditch. The ditch cut the natural geology.						Length (m)	50
						Width (m)	2
						Avg. depth (m)	0.6
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
7000	Layer			0	Topsoil	None	Modern
7001	Layer			0.15	Subsoil	None	Modern
7002	Cut		0.9	0.24	Ditch	None	Unknown
7003	Fill	*7002*		0.1	Secondary fill	None	Unknown
7004	Fill	*7002*		0.14	Secondary fill	None	Unknown
7005	Layer			0.5	Natural	None	Natural

Trench 78		
General description	Orientation	ENE/WSW
Topsoil overlaid subsoil which sealed a small pit. The pit cut a colluvial deposit which overlaid natural geology.	Length (m)	50
	Width (m)	2
	Avg. depth (m)	0.7

Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
7800	Layer			0	Topsoil	None	Modern
7801	Layer			0.11	Subsoil	None	Modern
7802	Layer			0.27	Colluvial layer	None	Unknown
7803	Cut		0.64	0.23	Pit		?Bronze Age
7804	Fill	*7803*		0.23	Secondary fill	Pottery, stone, fossils	?Bronze Age
7805	Layer			0.48	Natural	None	Natural

Trench 79							
General description						Orientation	ENE/WSW
Topsoil overlaid subsoil which sealed a colluvial deposit. This overlaid natural geology.						Length (m)	25
						Width (m)	2
						Avg. depth (m)	0.6
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
7900	Layer			0	Topsoil	C19th pottery	Modern
7901	Layer			0.2	Subsoil	None	Modern
7902	Layer			0.3	Colluvial layer	None	Unknown
7903	Layer			0.55	Natural	None	Unknown

Trench 80							
General description						Orientation	NW/SE
Topsoil overlaid subsoil which sealed four ditches, a posthole and the remains of a hedgerow. These features cut the natural geology.						Length (m)	50
						Width (m)	2
						Avg. depth (m)	0.6
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
8000	Layer			0	Topsoil	None	Modern
8001	Layer			0.2	Subsoil	None	Modern
8002	Layer			0.45	Natural	None	Natural
8003	Cut		0.28	0.12	Posthole	None	Unknown
8004	Fill	*8003*		0.12	Secondary fill	None	Unknown
8005	Cut		0.58	0.12	Ditch	None	Unknown
8006	Fill	*8005*		0.12	Secondary fill	None	Unknown
8007	Cut		0.55	0.17	Ditch	None	Unknown
8008	Fill	*8007*		0.17	Secondary fill	None	Unknown
8009	Cut		0.54	0.18	Ditch	None	Unknown
8010	Fill	*8009*		0.18	Secondary fill	None	Unknown
8011	Cut		0.55	0.33	Ditch	None	Unknown
8012	Fill	*8011*		0.33	Secondary fill	None	Unknown
8013	Cut		0.95	0.22	Hedgerow	None	Unknown
8014	Fill	*8013*		0.22	Secondary fill	None	Unknown

Trench 81							
General description						Orientation	NE/SW
Topsoil overlaid subsoil which sealed the natural geology.						Length (m)	30
						Width (m)	2
						Avg. depth (m)	0.8
Context No.	Type	Fill Of	Width (m)	Depth (m)	Description	Finds	Date
8100	Layer			0	Topsoil	None	Modern
8101	Layer			0.3	Subsoil	None	Modern
8102	Layer			0.55	Natural	None	Natural

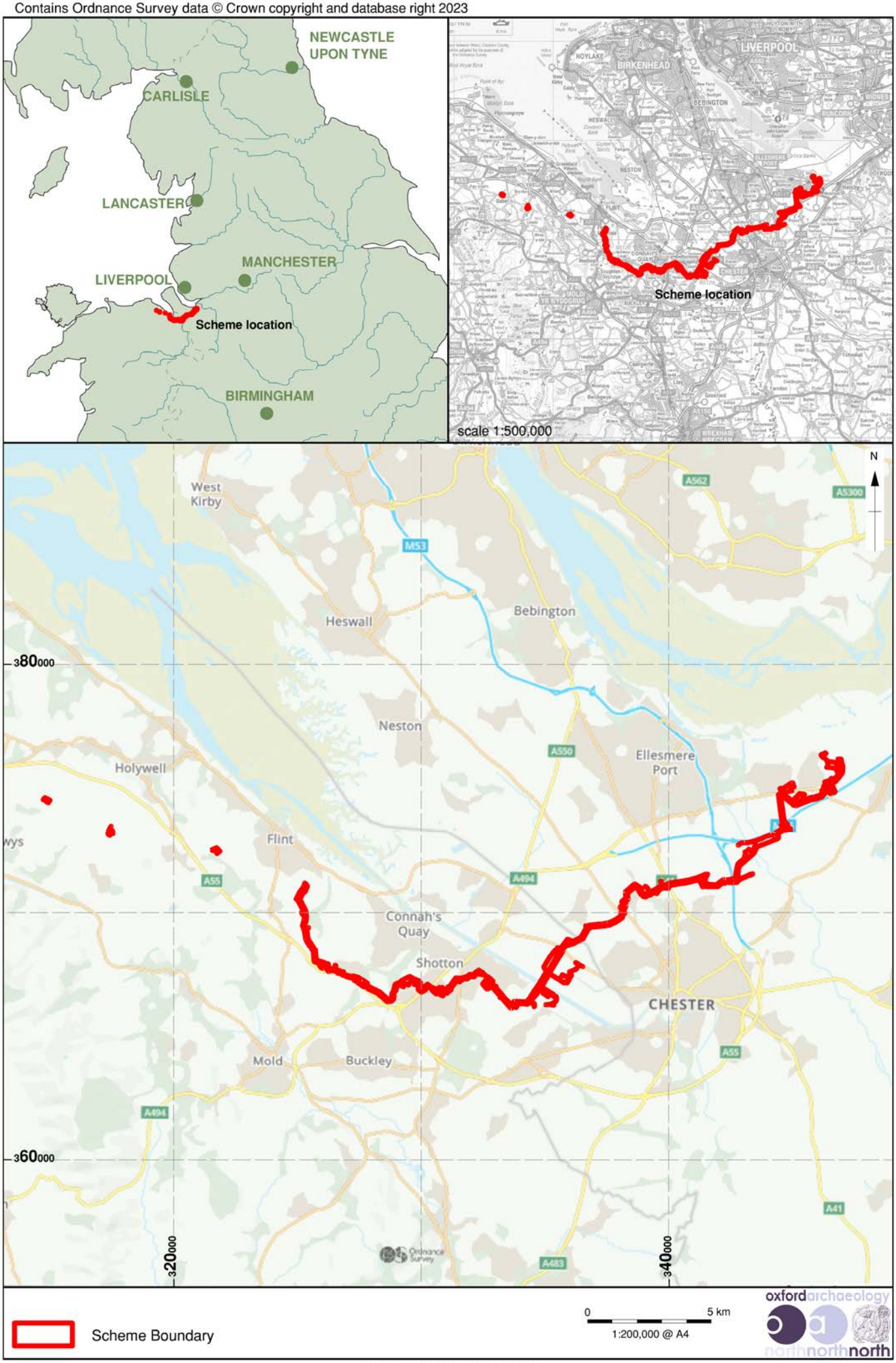


Figure 1: Site location

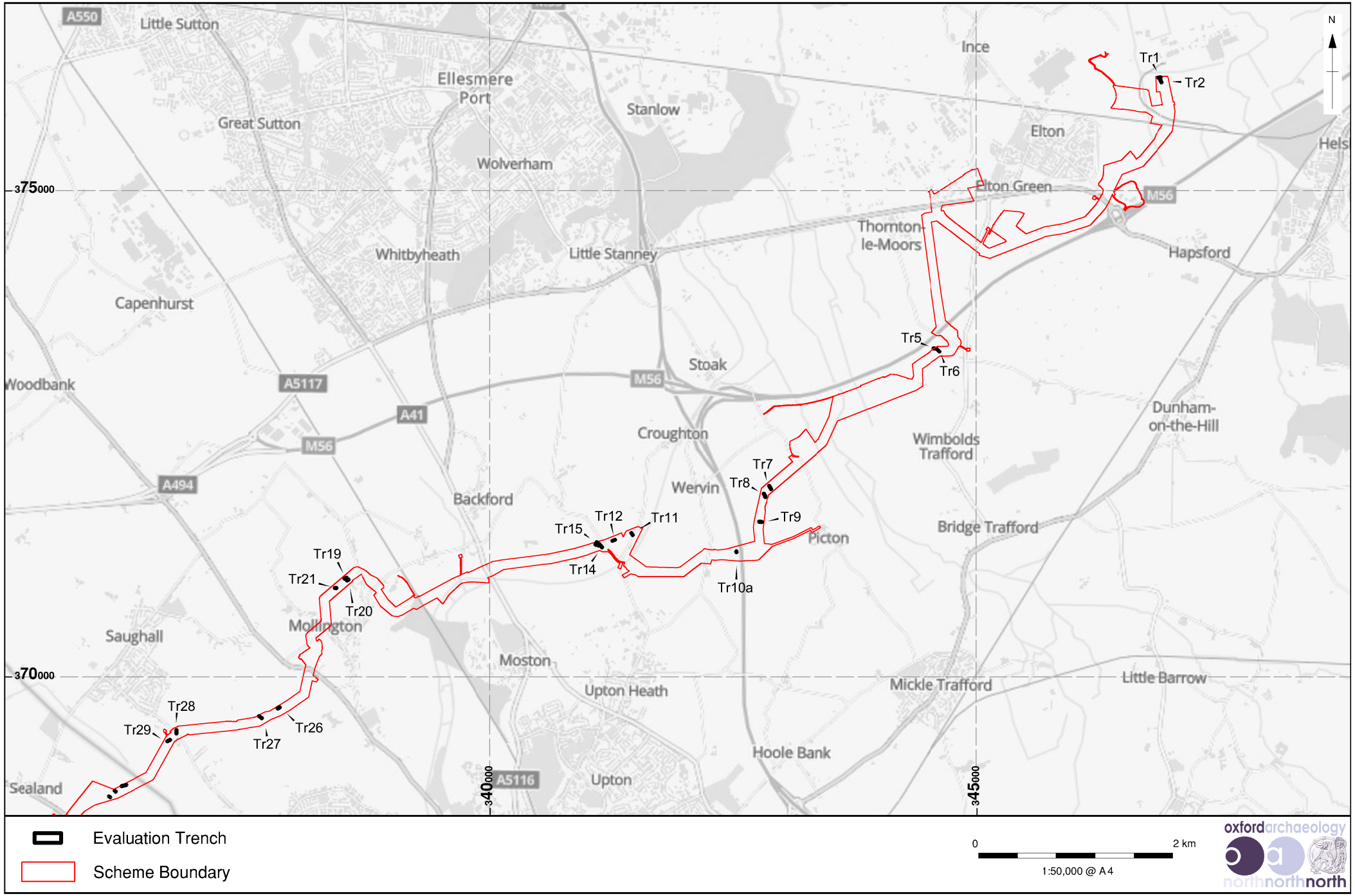


Figure 2a: Trenches excavated in Cheshire West

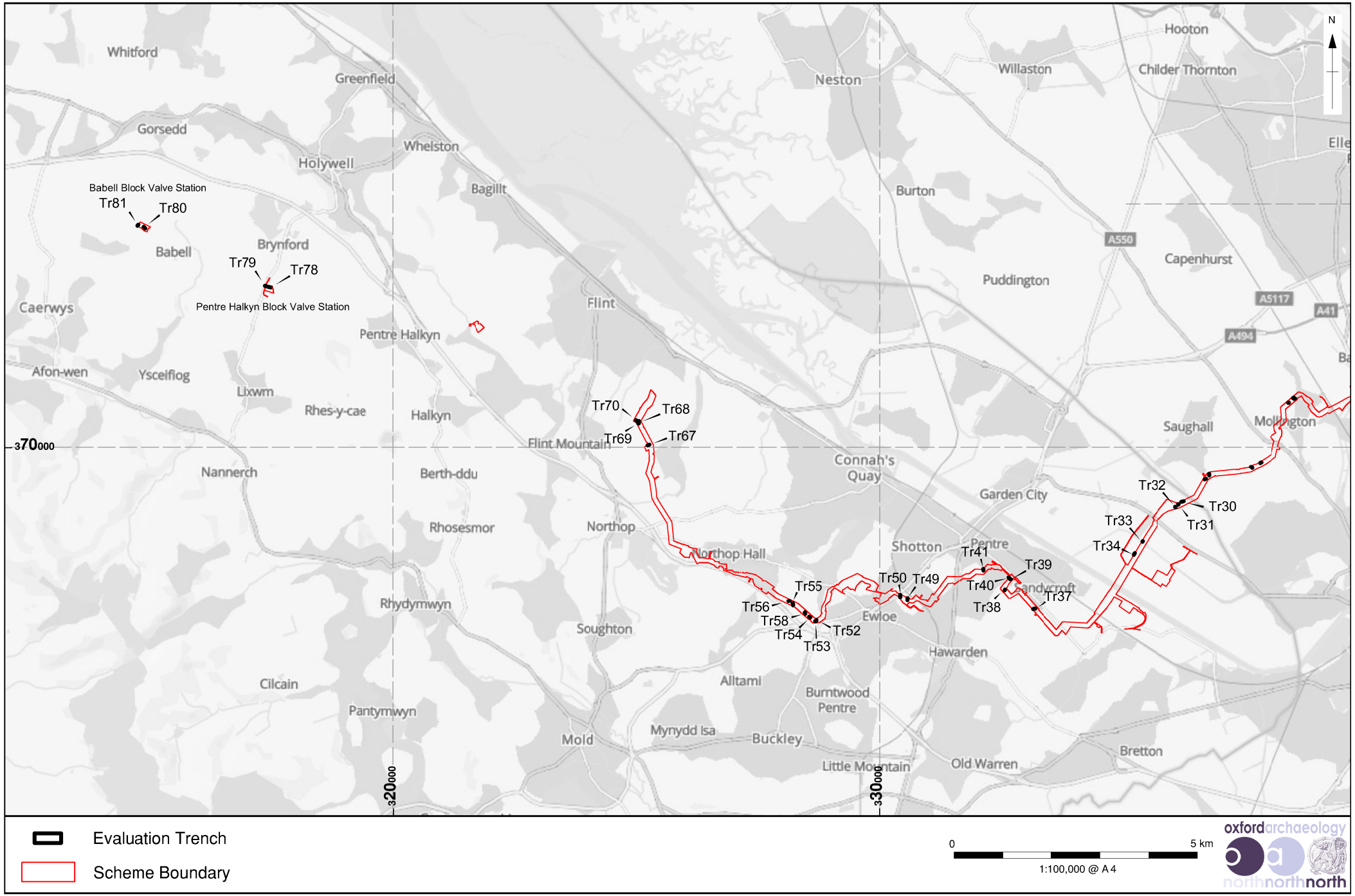


Figure 2b: Trenches excavated in Flintshire

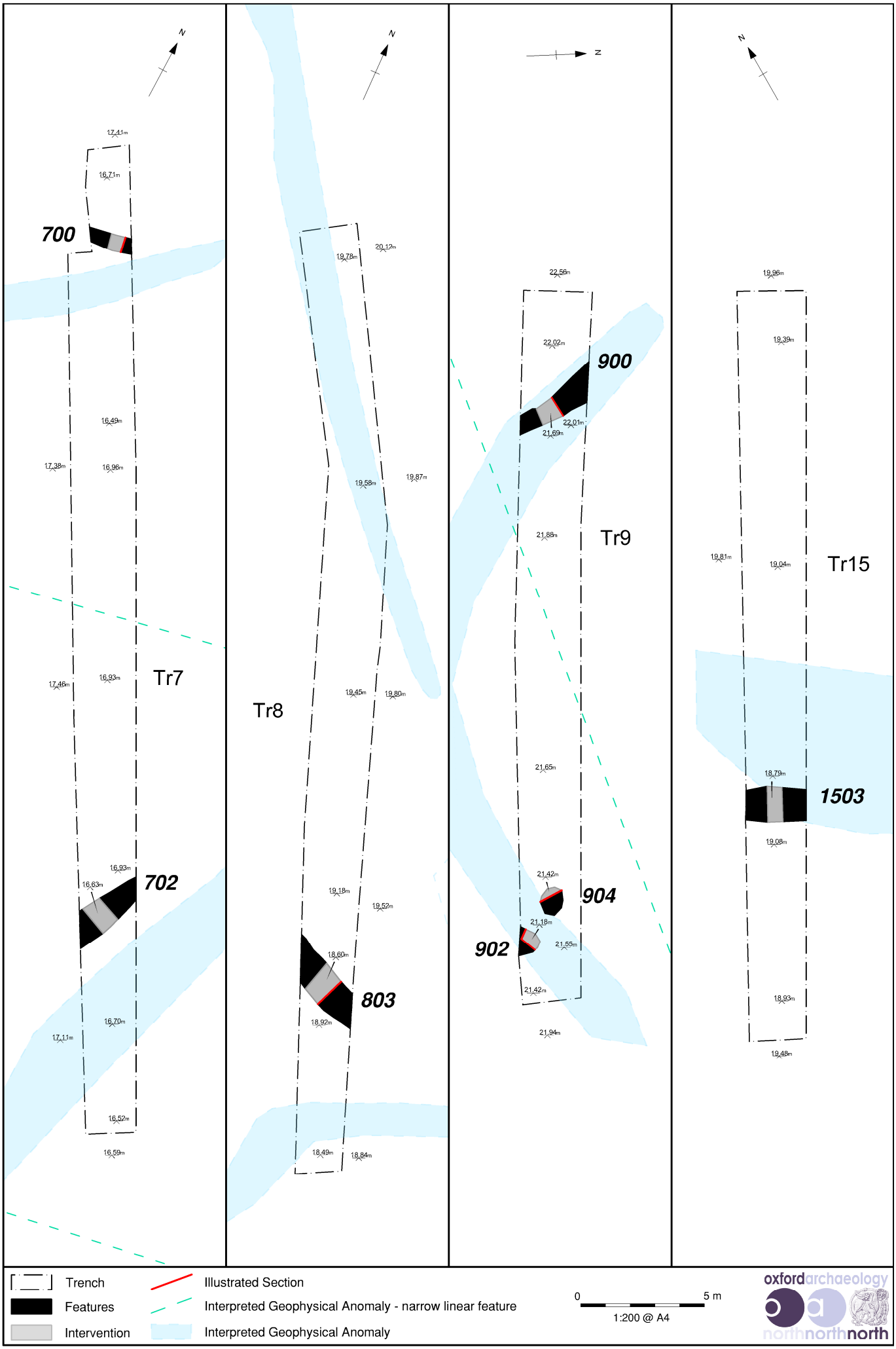
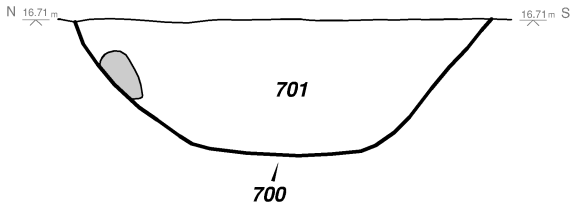
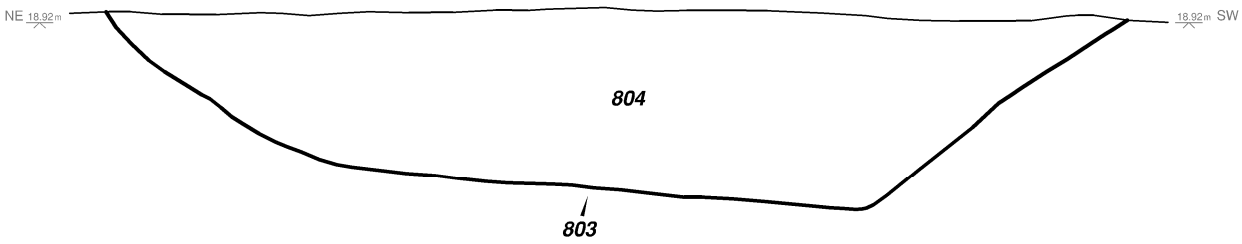


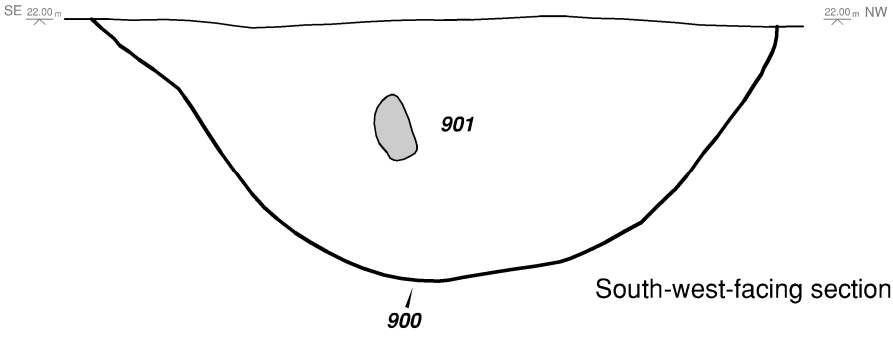
Figure 3: Trenches 7-9 and 15



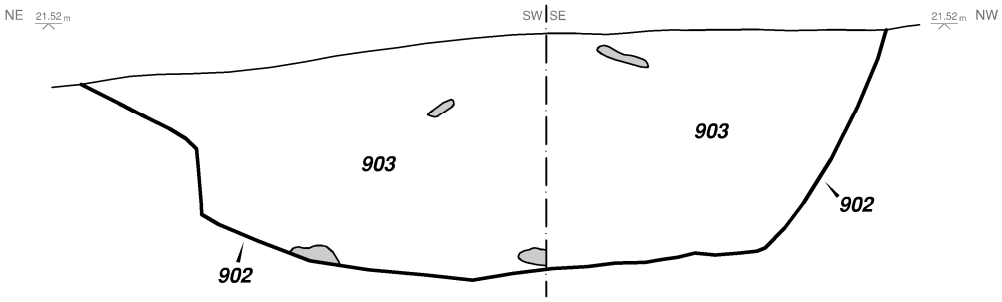
West-facing section of ***700***, in trench 7



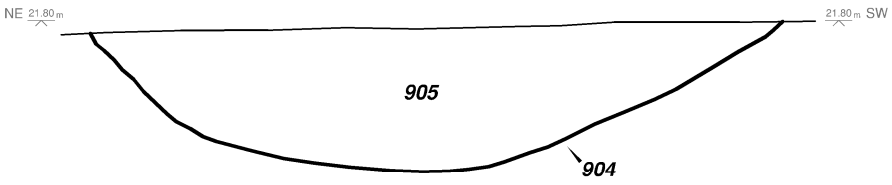
North-west-facing section of ***803***, in trench 8



South-west-facing section of ***900***, in trench 9



Dog-leg section of ***902***, in trench 9



North-west-facing section of ***904***, in trench 9

Cut Stone

Layer/Deposit

0 0.25 m

1:10 @ A4

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Figure 4: Sections of features in Trenches 7-9

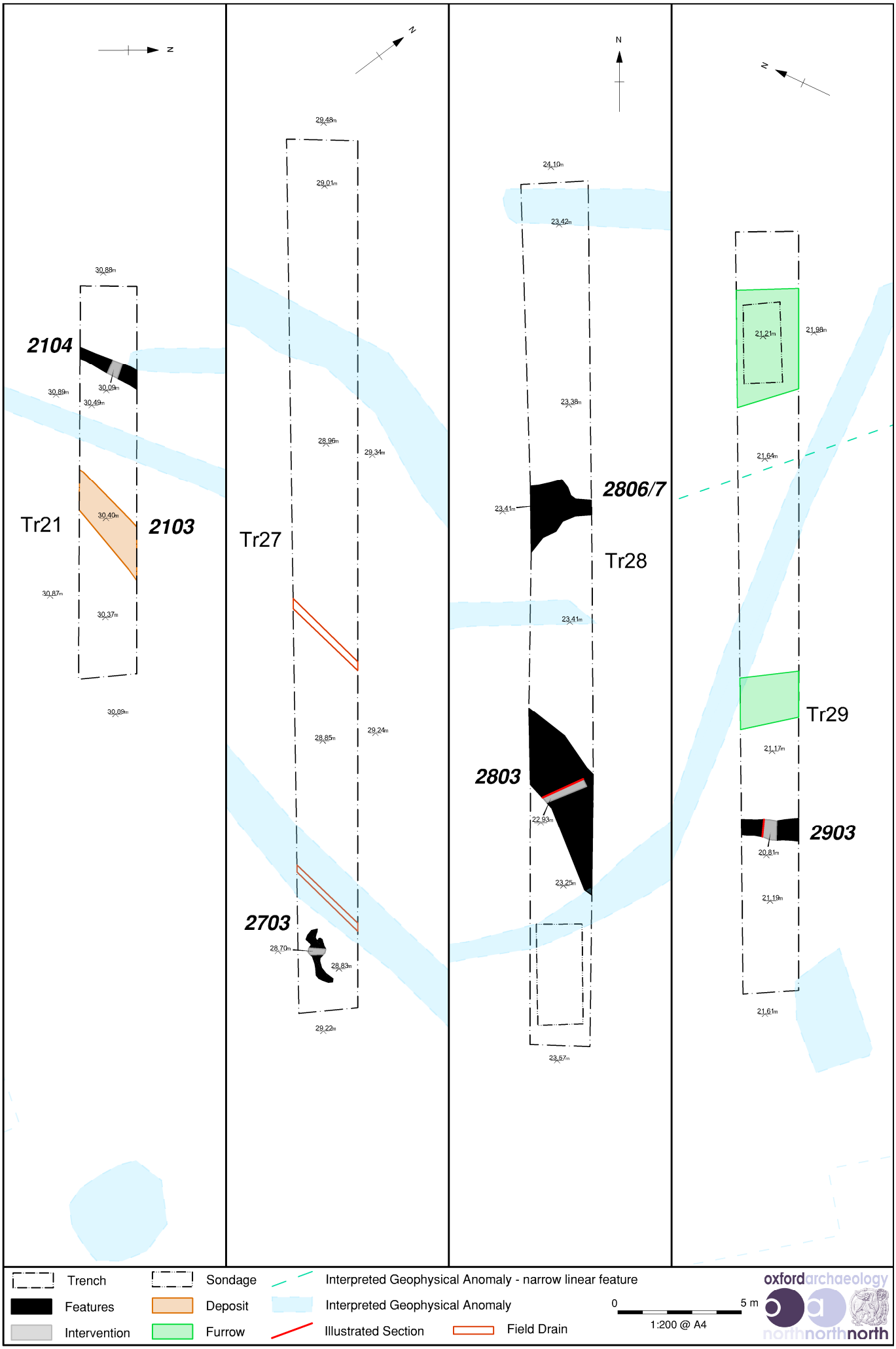

Figure 5: Trenches 21,27,28 and 29

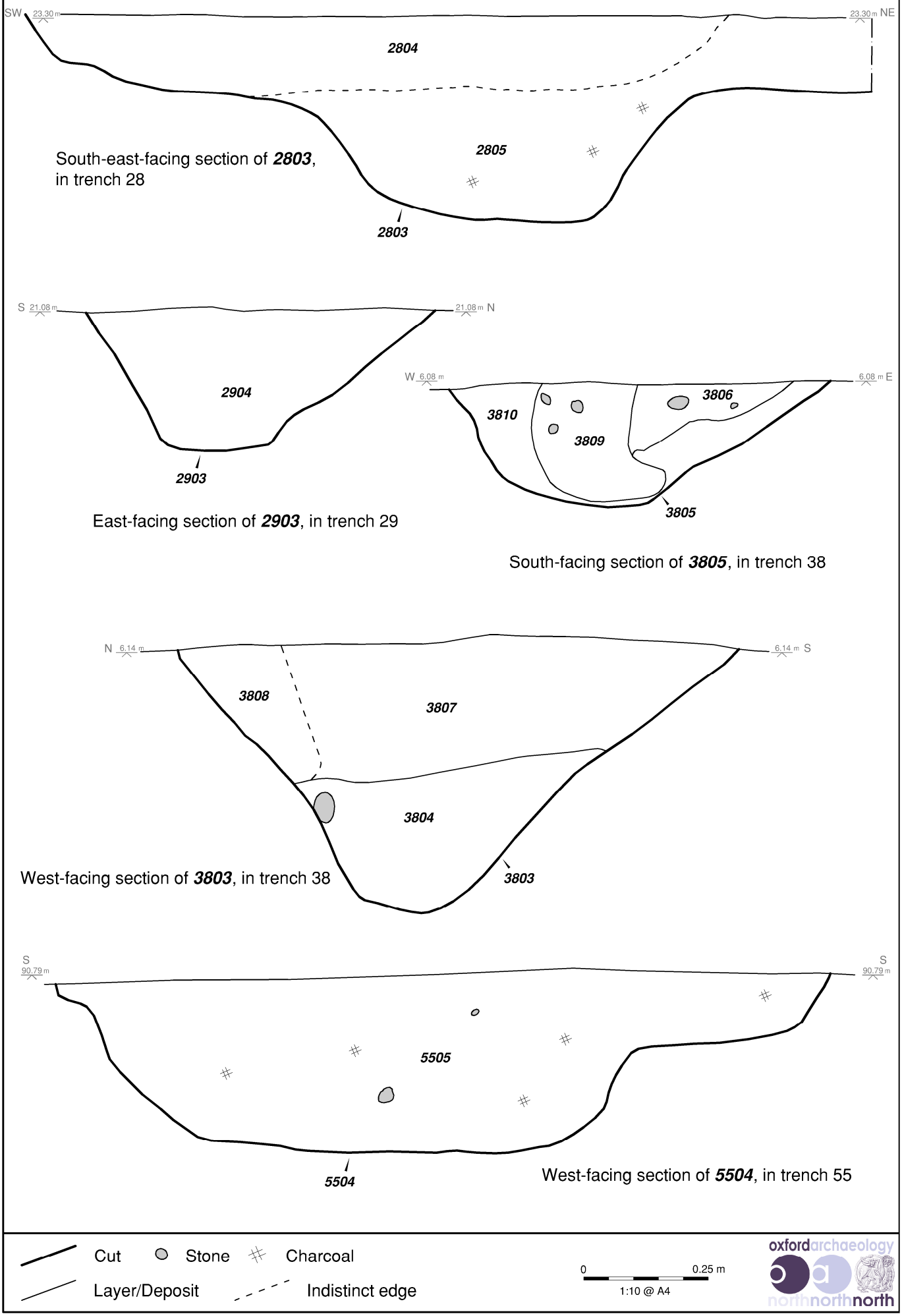

Figure 6: Sections of features in Trenches 28, 29, 38 and 55

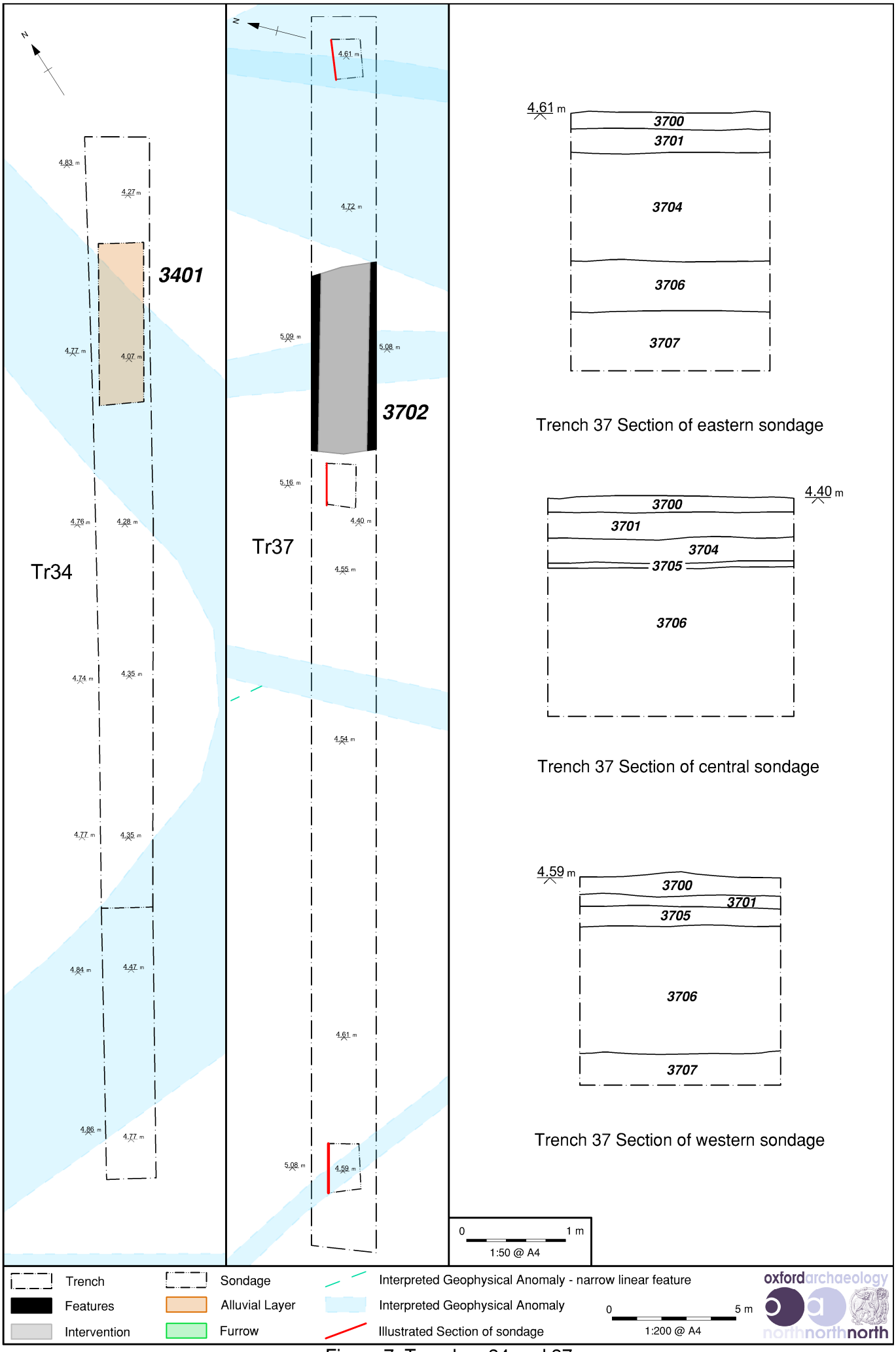

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Figure 7: Trenches 34 and 37

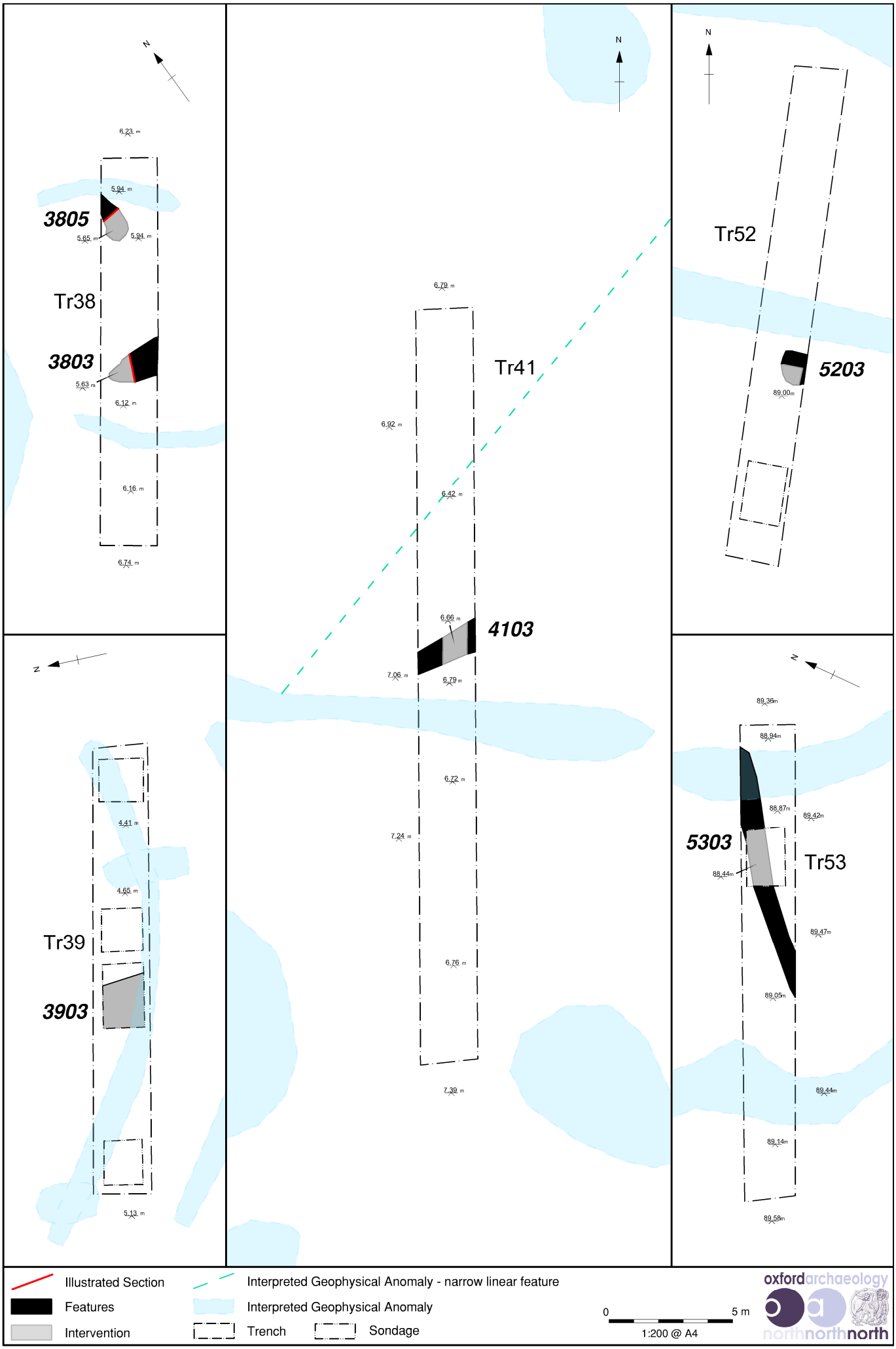


Figure 8: Trenches 38, 39, 41, 52 and 53

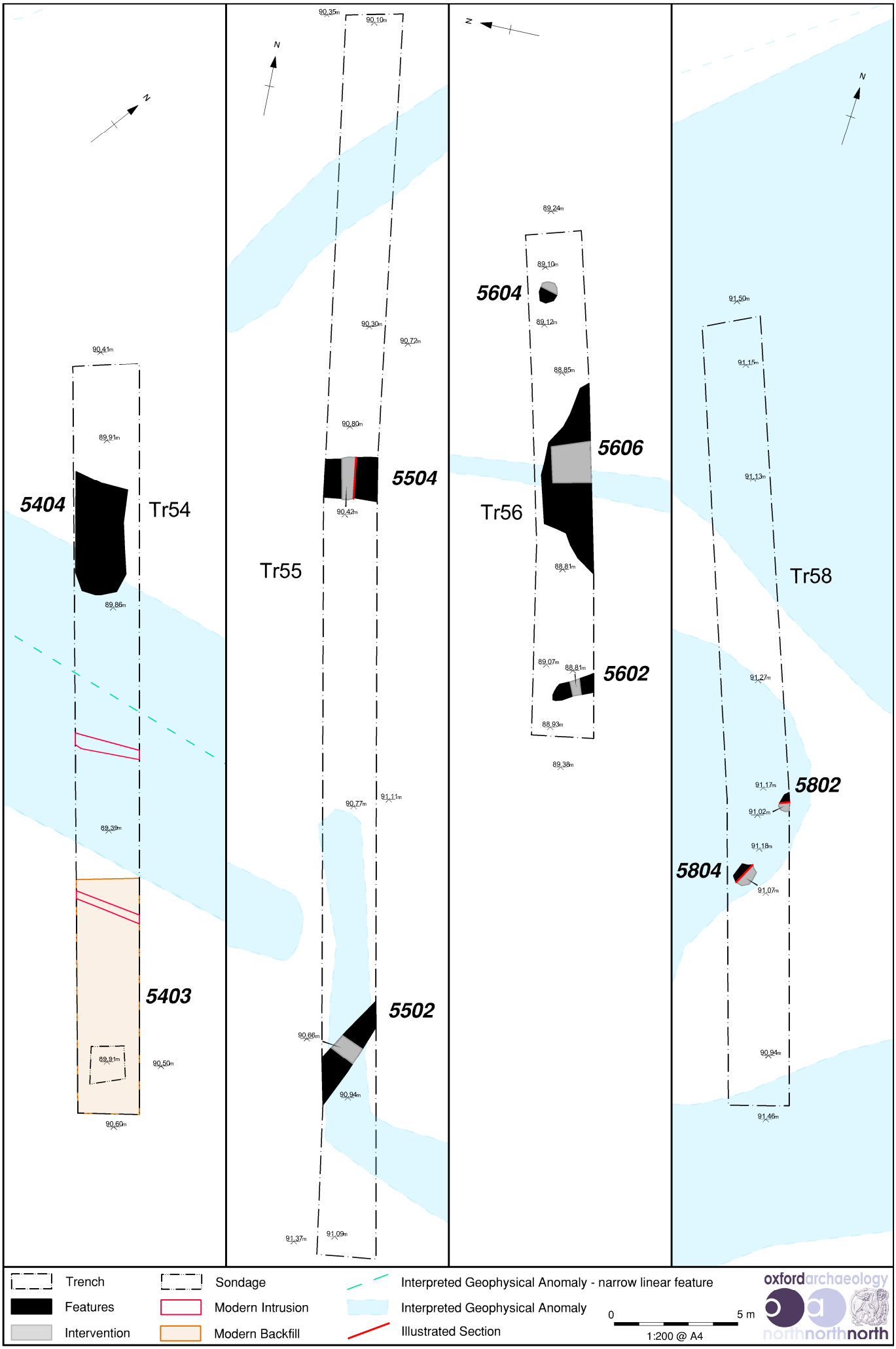
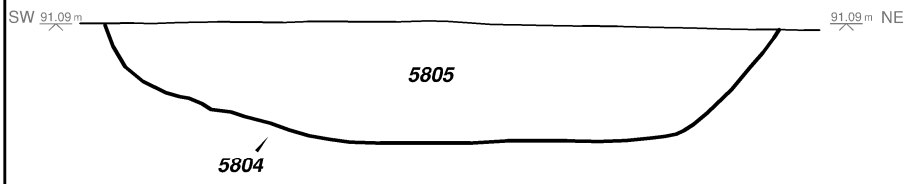
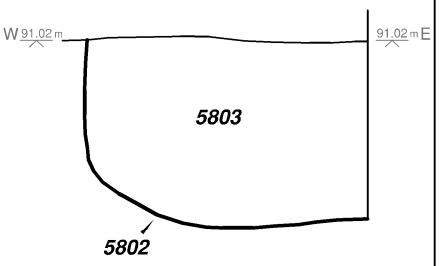


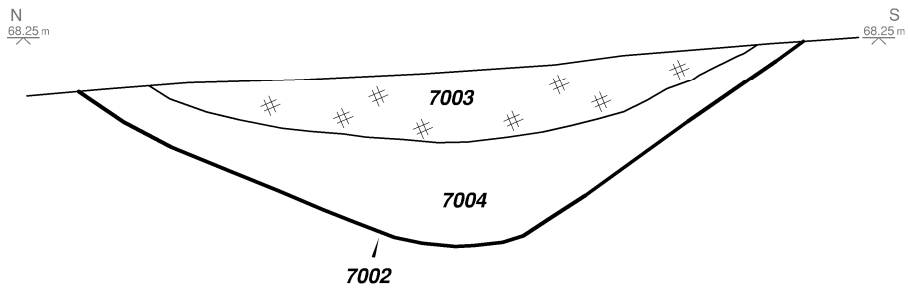
Figure 9: Trenches 54-56 and 58



South-east-facing section of ***5804***, in trench 58



South-facing section of ***5802***, in trench 58



West-facing section of ***7002***, in trench 70

Cut Stone Charcoal

Layer/Deposit

0 0.25 m

1:10 @ A4

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Figure 10: Sections of features in Trenches 58 and 70

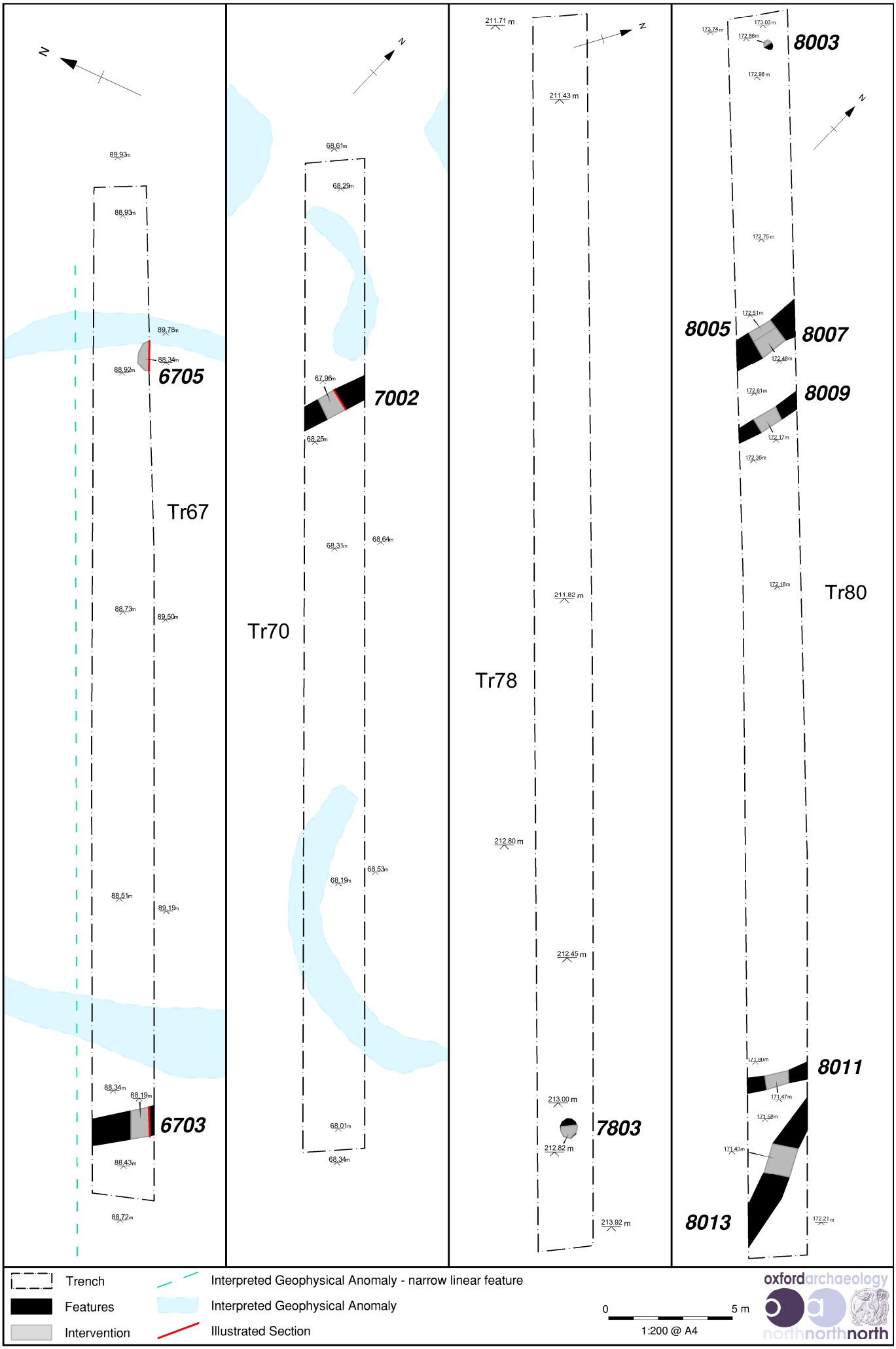

Figure 11: Trenches 67, 70, 78 and 80

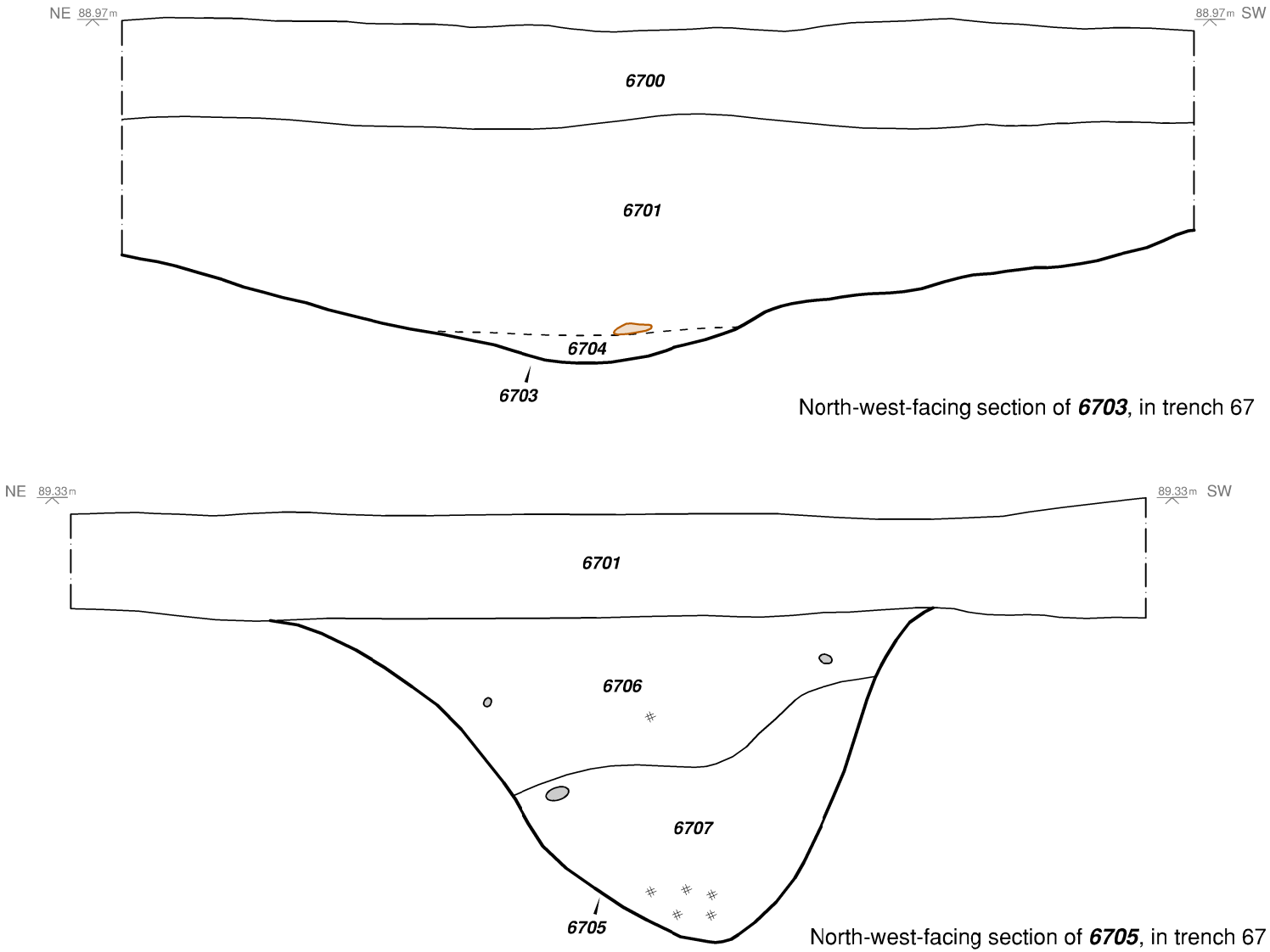

Figure 12: Sections of features in Trench 67

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