

ENVIRONMENTAL STATEMENT (VOLUME III)

Appendix 9.2 Great Crested Newt Survey Report (Tracked) ~~(Clean)~~

HyNet Carbon Dioxide Pipeline DCO

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 –
Regulations 8(1)(c)

Document Reference Number D.6.3.9.2

Applicant: Liverpool Bay CCS Limited

Inspectorate Reference: EN070007

English Version

REVISION: ~~CB~~

DATE: ~~March-September 2023~~ ~~September 2023~~ ~~August 2023~~

DOCUMENT OWNER: WSP UK Limited

PUBLIC

QUALITY CONTROL

Document Reference		D.6.3.9.2			
Document Owner		WSP			
Revision	Date	Comments	Author	ApproverChecker	<u>Approver</u>
A	September 2022	Submitted with DCO application	JO'K	DC	<u>CL</u>
B	March 2023	Updated for ES Addendum design change request 1	JO'K	DC	<u>CL</u>
<u>C</u>	<u>September 2023</u>	<u>Final for DCO Examination – submitted at Deadline 7</u>	<u>JO'K</u>	<u>DC</u>	<u>CL</u>

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1. INTRODUCTION

1.1. PROJECT BACKGROUND

1.1.1. This technical appendix provides information on the presence of great crested newt (GCN) *Triturus cristatus*, and supports the assessment contained in **Chapter 9: Biodiversity (Volume II)**.

~~1.1.2. This **Revision B** of **Appendix 9.2 – Great Crested Newt Survey Report** replaces and supersedes **Revision A (APP-094 to APP-097)**. **Appendix 9.2 (Revision B)** provides updated baseline information in response to the proposed design changes as outlined in **Table i.i** of **Chapter I** of the **ES Addendum**.~~

~~4.1.3.~~1.1.2. The Applicant intends to build and operate a new underground carbon dioxide (CO₂) pipeline from Cheshire, England to Flintshire, Wales with necessary Above Ground Installations (AGIs) and Block Valve Stations (BVSs). It is classed as a Nationally Significant Infrastructure Project (NSIP) and will require a Development Consent Order (DCO) under the Planning Act 2008 ('PA2008') granted by the Secretary of State for the Department of Energy Security and Net Zero (DESNZ).

~~4.1.4.~~1.1.3. The DCO Proposed Development will form part of HyNet North West ('the Project'), which is a hydrogen supply and Carbon Capture and Storage ('CCS') project. The goal of the Project is to reduce CO₂ emissions from industry, homes and transport and support economic growth in the North West of England and North Wales. The wider Project is based on the production of low carbon hydrogen from natural gas. It includes the development of a new hydrogen production plant, hydrogen distribution pipelines, hydrogen storage and the creation of CCS infrastructure. CCS prevents CO₂ entering the atmosphere by capturing it, compressing it and transporting it for safe, permanent storage.

~~4.1.5.~~1.1.4. The DCO Proposed Development is a critical component of HyNet North West which, by facilitating the transportation of carbon, enables the rest of the Project to be low carbon. The hydrogen production, distribution and CO₂ capture and storage elements of the Project do not form part of the DCO Proposed Development and will be delivered under separate consenting processes.

~~4.1.6.~~1.1.5. The DCO Application will seek consent for the construction, operation and maintenance of the following components which are part of the DCO Proposed Development, namely:

- **Ince Above Ground Installation (AGI) to Stanlow AGI Pipeline** – a section of new underground onshore pipeline (20" in diameter) to transport CO₂;

- **Stanlow AGI to Flint AGI Pipeline** – a section of new underground onshore pipeline (36” in diameter) to transport CO₂;
- **Flint AGI to Flint Connection Pipeline** – a section of new underground onshore pipeline (24” in diameter) to transport CO₂;
- **Flint Connection to Point of Ayr (PoA) Terminal Pipeline** – a section of existing Connah’s Quay to Point of Ayr (PoA) underground onshore pipeline (24” in diameter) which currently transports natural gas but would be repurposed and reused to transport CO₂. The Flint Connection to PoA Terminal Pipeline is scoped out of the EIA, except for the areas adjacent to the three BVSs that are within the Newbuild Infrastructure Boundary;
- **Four AGIs** - Ince AGI, Stanlow AGI, Northop Hall AGI, and Flint AGI;
- Six Block Valve Stations (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);
- 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 ancillary works integral to the construction of the Carbon Dioxide Pipeline, including Construction Compounds and temporary access tracks.

[4.1.7.1.1.6.](#) Further details of each element of the DCO Proposed Development are set out in **Chapter 3 – Description of the DCO Proposed Development (Volume II)**, and subsequent addenda.

1.2. ECOLOGICAL BACKGROUND

- 1.2.1. Extended Phase 1 Habitat surveys were undertaken across the entire Newbuild Infrastructure Boundary, commencing in 2020 and continuing through 2021 and 2022 for the DCO Proposed Development and full results are included in the **Appendix 9.1 Habitats and Designated Sites Survey Report) (Volume III)**.
- 1.2.2. Waterbodies within a 250m radius of the Newbuild Infrastructure Boundary were also identified and assessed for their potential to support GCN *Triturus cristatus* and all waterbodies were subsequently targeted for GCN surveys. The Newbuild Infrastructure Boundary plus the 250m radius is hereafter referred to as the ‘Survey Area’.

1.3. SCOPE AND OBJECTIVES

- 1.3.1. GCN surveys were undertaken by The Applicant within the Survey Area. The GCN surveys were undertaken in accordance with good practice guidelines (**Ref. 1**) with the following objectives:

- Complete a review of existing desk study provided by freely available online information and through Local Record Centres (LRC);
- Complete a Habitat Suitability Index (HSI) assessment of waterbodies within the Survey Area to assess their suitability to support GCN and determine if further survey is required; and
- Complete GCN surveys (comprising of a minimum four presence / likely absence survey visits) to determine the presence or likely absence of this species from waterbodies identified within the Survey Area. Two additional survey visits were undertaken at waterbodies where GCN were confirmed as present during any of the original four surveys to determine the population class size.

1.3.2. The results of GCN surveys completed in 2021 and 2022 are presented within this report. The impact assessment and recommendations for mitigation and compensation are included within **Chapter 9: Biodiversity (Volume II)**.

1.4. RELEVANT LEGISLATION AND POLICY

LEGAL COMPLIANCE

1.4.1. GCN are afforded a high level of protection under The Conservation of Habitats and Species Regulations 2017 (**Ref. 2**). Following the UK's exit from the EU, the Habitats Regulations was amended by Conservation of Habitats and Species (Amendment) (EU Exit) 2019 (**Ref. 3**). The legislation means that it is an offence to:

“Deliberately capture, injure or kill a wild GCN;

Deliberately disturb wild GCN; ‘disturbance of animals includes in particular any disturbance which is likely:

(a) To impair their ability —

- i) To survive, to breed or reproduce, or to rear or nurture their young; or
- ii) In the case of animals of a hibernating or migratory species, to hibernate or migrate; or

(b) To affect significantly the local distribution or abundance of the species to which they belong.’

Damage or destroy a breeding site or resting place used by this species.”

1.4.2. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) (**Ref. 4**) with respect to disturbance of animals when using places of shelter, and obstruction of access to places of shelter.

1.4.3. GCN are also listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in England in accordance with Section 41 of the NERC Act 2006 (**Ref. 5**) and Section 7 of the Environment Act (Wales) (**Ref. 6**). Under Section 7 of the Environment Act (Wales) and Section 40 of the NERC Act, public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.

Other amphibians

1.4.4. Whilst the smooth newt *Lissotriton vulgaris* and palmate newt *Lissotriton helveticus* are protected from sale and trade, these species are not afforded the high level of protection given to the GCN.

1.4.5. The common toad *Bufo bufo* is also listed as a SPI in accordance with Section 7 of the Environment Act (Wales) (**Ref. 6**) and Section 41 of the NERC Act 2006 (**Ref. 5**); therefore, public bodies, including local planning authorities, have a duty to have regard for the conservation of this species when carrying out their functions.

PLANNING POLICY COMPLIANCE

1.4.6. At the national level in England, the National Planning Policy Framework (2021) (**Ref. 7**) forms the basis for planning system decisions with respect to conserving and enhancing the natural environment, including GCN.

1.4.7. The NPPF sets out, amongst other points, how at an overview level the ‘planning system should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures’.

1.4.8. A list of principles which local planning authorities should follow when determining planning applications is included in the NPPF which includes the following ‘if significant harm to biodiversity resulting from a development cannot be avoided...adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused’.

1.4.9. At the national level in Wales, the Planning Policy Wales (2021) (**Ref. 8**) Chapter 5 outlines that:

- ‘Proposals for which development works would contravene the protection afforded to European protected species require derogations from the provisions of the Habitats Directive.
- A derogation may only be authorised if:
 - i) There is no satisfactory alternative;

- ii) If the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in its natural range; and
- iii) The development works to be authorised must be for the purposes of preserving 'public health or safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment'.

2. BASELINE METHODOLOGY

2.1. OVERVIEW

2.1.1. To establish whether GCN were present or likely absent from the Newbuild Infrastructure Boundary, information was gathered from:

- A desk study undertaken in 2020; and
- Field surveys of waterbodies within the Survey Area.

2.2. DESK STUDY

2.2.1. A desk study was undertaken in 2020 to review existing ecological baseline information available in the public domain and to obtain information held by relevant third parties. Data relating to amphibians within 2km of the Newbuild Infrastructure Boundary (hereafter known as the 'Study Area') were requested from

- rECOrd (The Biodiversity Information System for Cheshire, Halton, Warrington and Wirral); and
- Cofnod (The Local Environmental Records Centre for North Wales).

2.2.2. The presence of statutory and non-statutory protected sites, with amphibians as qualifying features or a contributing reason for designation, was also considered as part of the desk study.

2.2.3. The MAGIC (Multi Agency Geographic Information for the Countryside) website (**Ref. 9**) was accessed during January 2022 and January 2023 to search for Natural England European Protected Species Licence (EPSL) applications relating to GCN within 2km of the Newbuild Infrastructure Boundary. Waterbodies were identified using 1:25,000 OS mapping and cross-referenced against aerial photography.

2.3. HABITAT SUITABILITY INDEX ASSESSMENT

2.3.1. All waterbodies within the Survey Area, to which access was possible, were assessed for their suitability to support GCN using the standard HSI assessment method (**Ref. 10, Ref. 11**) throughout 2021 and 2022.

2.3.2. Waterbodies were assessed and scored on ten key variables which are known to influence occupancy of waterbodies by GCN and breeding populations, in accordance with standard methods (**Ref. 11**). These variables comprise:

- Geographic location;
- Waterbody area¹;
- Waterbody permanence;
- Water quality;
- Waterbody shading;
- Waterfowl presence;
- Fish presence;
- Number of waterbodies within 1km;
- Terrestrial habitat; and
- Waterbody macrophyte cover.

2.3.3. Scores for each of the above variables were used to calculate an overall HSI value for each waterbody. This was then cross-referenced with the guidelines (**Ref. 1**) to assign the waterbody to one of five categories: 'poor, below average, average, good or excellent'. See **Table 1** below for categorisation of HSI scores.

Table 1 - Categorisation of HSI Scores

HSI Score	Waterbody Categorisation
<0.5	Poor
0.5-0.59	Below Average
0.6-0.69	Average
0.7-0.79	Good
>0.8	Excellent

2.4. ENVIRONMENTAL DNA (EDNA) SURVEYS

2.4.1. eDNA water sampling was undertaken to inform the presence or likely absence of GCN within waterbodies. In the absence of presence / likely absence surveys, eDNA surveys provided the best survey option to determine GCN presence/ likely absence. eDNA surveys were undertaken following survey techniques described in 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5' (**Ref. 12**) and can be completed up until late June, beyond the standard GCN presence/absence survey season (mid-March to mid-June inclusive).

¹ For waterbodies with an area greater than 2000m² this factor is omitted from HSI calculations.

- 2.4.2. The survey comprised a single visit to each waterbody. Sampling was undertaken based on the professional judgement of the lead surveyor, gained through experience of prior eDNA surveys and GCN ecology. Where deemed appropriate, the following protocol was used:
- The perimeter of the waterbody (where accessible) was walked to identify locations from where water samples could be collected;
 - Water was collected using sterile, standard water sampling kits for eDNA sampling supplied by Nature Metrics (Limited);
 - Twenty 30ml sub-samples of water were collected per waterbody from locations spread evenly around the waterbody margins (from both open water and vegetated areas if present). The sub-samples were taken from as deep as possible, taking care not to collect sediment;
 - The sub-samples were mixed together in a separate collection bag and six 15ml samples were then taken from the collection bag and each put into six sample tubes containing a preserving fluid comprising alcohol and a pH buffer solution; and
 - Samples were returned to Nature Metrics (Limited) for laboratory analysis for the presence/absence of GCN eDNA.
- 2.4.3. The water sample from each waterbody was assigned a positive, negative or inconclusive result. A positive result indicates that target DNA has been identified in the sample and a negative result indicates that no target DNA was identified in the sample. An inconclusive result indicates that no GCN DNA had been identified in the sample, but the internal controls failed to amplify as expected. This means that any GCN DNA that was present in the sample might also have failed to amplify properly, and so there cannot be confidence in the negative result.
- 2.4.4. Where eDNA surveys were undertaken, they were completed during the correct time of year and under suitable weather conditions. Samples were taken from at least 80% of the margin of accessible waterbodies and were stored at an ambient temperature prior to collection.

2.5. PRESENCE / LIKELY ABSENCE SURVEY

- 2.5.1. Presence / likely absence surveys were completed within the Survey Area across the 2021 and 2022 survey seasons on waterbodies which were deemed appropriate to survey based on desk study data, HSI and professional judgement.

2.5.2. Survey methodology comprised four visits as a minimum (increased to six where GCN are recorded during either of the four surveys) to each waterbody, spread across the recommended survey period (mid-March to mid-June, with at least two of the visits falling between mid-April and mid-May). Survey visits were completed under suitable weather conditions, when overnight temperatures were above 5°C and wind and rain were not sufficient to affect the torchlight survey results (through disturbance to the water surface).

2.5.3. At least three survey techniques were used during each survey visit to search for the presence of GCN in line with good practice (**Ref. 1**); these included:

- **Torchlight searching** – the waterbody was searched systematically for amphibians after dark using a bright torch; all amphibians observed were recorded, with the number of male, female and juvenile newts of each species noted. The duration of the torchlight survey was determined by the time taken to walk slowly around the waterbody perimeter;
- **Bottle-trapping** – traps were set at a ratio of one for every 2m of waterbody perimeter with a maximum of 50 traps per waterbody. The traps were set prior to dusk and checked and removed the following morning;
- **Egg searching** – suitable vegetation in each waterbody was searched for the presence of newt eggs, which are laid on submerged or floating leaves and folded around the egg. The duration of the egg search was either the amount of time required to search the vegetation along the edge or at the surface of the waterbody present, or a maximum of 15 minutes per survey visit²;
- **Netting** – a net was used to sample each waterbody at regular intervals (every 2m) around the waterbody perimeter; and
- **Refugia search** – refuges, such as logs, bark, rocks and debris were lifted and searched underneath to check for GCN presence.

2.6. POPULATION SIZE CLASS ASSESSMENT

2.6.1. A further two surveys were completed for waterbodies where GCN were found to be present during any of the initial four surveys, to enable an assessment of the population size class.

2.6.2. As undertaken for the initial survey, at least three survey techniques were used during each survey visit to search for and count the number of adult GCN present.

² Once a GCN egg had been recorded, no egg searching was conducted on subsequent visits to avoid unnecessary uncovering of eggs which could then be at an increased risk of predation.

2.6.3. The resultant peak adult counts³ of GCN were then cross-referenced with standard guidelines to establish the population size class (**Ref. 1**). The population size class categories include:

- Small – maximum peak adult counts of up to 10;
- Medium – maximum peak adult counts of between 11 and 100; and
- Large – maximum peak adult counts over 100.

2.7. NOTES AND LIMITATIONS

2.7.1. The HSI results are considered to be an accurate reflection of all waterbodies surveyed at the time of survey, given the condition and presence of a waterbody can change over time. HSI is not a failsafe method of identifying whether a waterbody is likely to support a GCN population; therefore, professional judgement and availability of records of GCN in the locality were used to inform recommendations for further survey.

2.7.2. Records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage.

2.7.3. eDNA surveys were undertaken on a small number of waterbodies in 2021 where waterbodies were identified later in the GCN survey season and so outside the peak of mid-April to mid-May. Further surveys, i.e., presence / likely absence surveys, were only completed on inconclusive and negative waterbodies where professional judgement deemed it was necessary. This was the case for waterbodies 12, 32, 153 in Wales which tested negative but were surveyed where possible, in addition to waterbodies CL1 and 30 in Wales which had inconclusive results but were scoped in for surveys.

2.7.4. At least half of the presence / likely absence survey visits to waterbodies where GCN were found to be present were undertaken between mid-April and mid-May where possible, i.e., 3 survey visits. This was not possible for 6 waterbodies (14, 15, 38, 49, 154, 155 in Wales). In these cases, surveys were carried out as close to the mid-April and mid-May recommended peak survey period as possible and all surveys were carried out in the acceptable GCN survey window (**Ref. 1**). Therefore, this is not considered to have impacted the overall findings.

³ Peak counts, as counted at a waterbody, on one night, through torch survey or bottle trapping.

- 2.7.5. Weather conditions during the presence / likely absence surveys were closely monitored and if the temperature was considered too low for bottle trapping, i.e., an overnight temperature of <5 °C, other survey methods were implemented. This is applicable for the survey weeks commencing 12 April 2021, 28 April 2021 and 14 March 2022. As alternative methods were used, e.g., torching, netting, refuge search, egg search, the surveys are considered valid and is not considered to have affected the overall results.
- 2.7.6. The DCO Proposed Development will proceed under a District Level Licence (DLL) for GCN in England. DLL differs from a traditional mitigation licence, which applied at a project level, provides a strategic landscape scale mitigation option, without the requirement for prior survey. The only requirement for GCN surveys in England is for those waterbodies which fall within the Red Risk Zone and so are therefore excluded from the DLL application. Red Risk Zones are omitted on the basis they contain key populations of GCN at the regional, national or international scale. Therefore, presence / likely absence surveys for GCN were only undertaken in England on waterbodies which fall within this Red Risk Zone for Cheshire. Waterbodies within the Red Risk Zone which have been surveyed include:
- Waterbody 42, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 112, 142, 114, 115, 166, 167, 168, 169, 170, 171, and 172.
- 2.7.7. Presence / likely absence surveys were not completed on a number of waterbodies within the Red Risk Zone, where the ponds were under Chester Zoo ownership. The waterbodies that this applies to are 42, 166, 167, 168, 169, 170, 171, 172 in England. These waterbodies fall under the management of the Chester Zoo Ponds Local Wildlife Site and surveys were therefore not completed to avoid over-trapping the waterbodies. Survey data was utilised from Chester Zoo's monitoring programme which informs this report. The location of each the waterbodies is shown on **Figure 9.2.3**.
- 2.7.8. In some instances, waterbodies were originally categorised as two distinct waterbodies, but were later merged due to their proximity and changing water levels, meaning that they were likely to connect and support the same GCN population. Using professional judgement, they were then classed as one waterbody. This is the case for 17/18, 23/24 and 41/42 in Wales. Waterbody 21a in Wales was originally classed as a distinct waterbody to waterbody 21 as it was separated by a small amount of terrestrial land. However, given its proximity to waterbody 21 and considering that in levels of higher water level the two waterbodies connect, it was not surveyed. Waterbody 21 was found to be likely absent of GCN, and it is assumed that GCN are also likely absent from waterbody 21a.

- 2.7.9. Waterbody 153 and 156 in Wales, although outside of the 250m Survey Area, have been scoped in due to the interconnected habitat they share with GCN waterbodies that lie within the Survey Area which may allow for movement of GCN into those waterbodies.
- 2.7.10. Seven waterbodies were inaccessible due to no land access being agreed and therefore a minimum of four visits were not able to be undertaken, this included the following waterbodies in Wales:
- Waterbody 6, 10, 11, 12, 50, 121 and 148.
- 2.7.11. Five waterbodies were inaccessible due to health and safety concerns, such as dense bramble / scrub or barbed wire fence surrounding the waterbody, or the concern of cattle near the waterbody, therefore a minimum of four visits were not able to be undertaken. This included the following waterbodies:
- England: 47, 48, 49, 52;
 - Wales: 26.
- 2.7.12. One of the waterbodies under Chester Zoo management, waterbody 42, was not surveyed due to limited access with overgrown vegetation.
- 2.7.13. Waterbodies 47, 48, 49 and 52 are located within the Red Risk Zone in England. Given that GCN were confirmed in two waterbodies located nearby to these (waterbody 43 and 46), they have been precautionarily assessed as having GCN presence. Waterbody 42 is also partially located within the Red Risk Zone in England. GCN were confirmed in four waterbodies located nearby to waterbody 42 (other waterbodies under the management of Chester Zoo), therefore waterbody 42 has been precautionarily assessed as having GCN presence. Waterbodies 10, 11, 12, 50, 121 and 148 in Wales are not in close proximity to any waterbodies that have presence / likely absence survey results and so in the absence of data, they are also precautionarily assessed as having GCN presence. These waterbodies will be subject to the same avoidance, mitigation, and compensation measures as confirmed GCN waterbodies as outlined in **Chapter 9: Biodiversity (Volume II)**.
- 2.7.14. Waterbody 6 in Wales is in close proximity to waterbodies (5 and 8) that had likely absent survey results and has a 'Below Average' HSI. Therefore, it has been assessed as having assumed likely absence. Waterbody 26 in Wales is in close proximity to waterbodies that have dried out and so do not support GCN (23/24, 25, 28, 29) and a waterbody was found to be likely absent of GCN (waterbody 27) and so is also assumed to not have GCN presence.

- 2.7.15. Twenty-three waterbodies were dry or found to be defunct upon commencement of surveys or had dried out before a minimum of 4 survey visits could be completed. In the case of waterbody 9 in Wales and waterbody 43 in England, the waterbodies dried out after GCN had been confirmed, but before the full 6 visits could be completed. These waterbodies were therefore not subject to any further eDNA survey, HSI assessment or presence/ likely absence surveys. This included the following waterbodies:
- England: waterbody 43, 44 and 54 and 112; and
 - Wales: waterbody 2, 7, 9, 12, 13, 14a, 23/24, 25, 28, 29, 39, 41/42, 108, 110, 111, 112, 116, 137 and 144.
- 2.7.16. Nine waterbodies, 3, 9, 16, 122, PH1, PH2, PH3, PH4 and PH5 in Wales were scoped out due to major barriers to GCN movements or more suitable habitat nearby meant GCN populations were unlikely to migrate from these waterbodies into the Survey Area. No further surveys were required for these waterbodies. Waterbody 115 in England was scoped out as it was found to be a small area of standing water too shallow to support amphibians or be surveyed. Presence / likely absence surveys were also not required for PH6 due to the 'poor' HSI score.
- 2.7.17. Waterbodies 146 and 147 in Wales were not surveyed due to restricted land access, however due to its proximity to waterbody 51, which was found to be likely absent of GCN in both 2021 and 2022, it is assumed that both waterbody 146 and waterbody 147 also do not support GCN and so does not negatively impact the survey results.
- 2.7.18. Not all waterbodies within the Survey Area accessible for presence / likely absence surveys were subject to three techniques as per good practice guidelines. **Table 8** [Table 8 - Presence / Likely Absence Survey Results](#) ~~Table 8 – Presence / Likely Absence Survey Results~~ in **Annex C** outlines the number of survey methods undertaken during each survey visit for each waterbody.
- 2.7.19. The relative limitations for each waterbody where less than three survey methods were undertaken is summarised below in **Table 2**.
- 2.7.20. Due to the proposed design changes and extension to the Newbuild Infrastructure Boundary, five additional waterbodies (173, 174, 175, 176 and 177) were incorporated within the Survey Area in England. These waterbodies have not been subjected to surveys at this time. However, this is not considered a significant limitation given the waterbodies are only located within 250m of access roads for the DCO Proposed Development. In addition, these five waterbodies will be covered within the DLL for the DCO Proposed Development.

Table 2 - Summary of Limitations where Less than Three Survey Techniques were Possible During at Least One Visit

Waterbody Reference	Limitation									
	Too Shallow to Bottle Trap	No Refugia to Search	Limited or no Vegetation / Unsuitable to Egg Search Due to Egg being Previously Found	Lined Waterbody – Unable to Bottle Trap	Unsuitable for Netting, e.g., Egg / Larvae / Fish Presence; or Too Shallow	Limited Access to Banks – no Trapping / Netting / Egg Search Possible	No Trapping Due to Water Shrew <i>Neomys fodiens</i> presence	H&S Limitation no Torching – Livestock in Field	Temperatures too Low for Bottle Trapping	Land Access was not Possible Once Dark Enough to Torch
Waterbodies in Wales										
CL1	x	x								
4			x		x				x	
9		x	x		x					
25	x	x	x		x					
27						x				
31		x	x		x					
37			x							
38			x							
92		x	x	x						
112		x	x	x						
116	x	x								
149	x		x		x			x		
150			x							x
154			x							
157		x	x		x				x	
160			x		x				x	
161			x		x		x			
England waterbodies within Red Risk Zone										
47		x				x		x		
51		x				x		x		
52								x		
112	x	x			x					
142	x	x	x							

3. RESULTS

3.1. DESK STUDY

3.1.1. The desk study identified three statutory sites of European and International importance within 10km of the Newbuild Infrastructure Boundary with amphibians as qualifying features or a contributing reason for designation. That included two Special Areas of Conservation (SAC) and one Special Protection Area (SPA) & Ramsar site. A description of these sites is detailed in **Table 3** below and the locations of each are presented on **Figure 9.1.1 (Appendix 9.1; Habitats and Designated Sites, Volume III)**.

Table 3 - Statutory Sites of European and International Importance

Site Name	Approximate size (ha)	Distance from New Build Infrastructure Boundary	Reason for Designation
Deeside and Buckley Newt Sites SAC	208	0m north	This site in north-east Flintshire is designated for the largest populations of GCN in Great Britain. The site also includes European bullhead <i>Cottus gobio</i> , and old sessile oak <i>Quercus petraea</i> woods with holly <i>Ilex sp.</i> and hard fern species <i>Blechnum sp.</i>
Halkyn Mountain (Mynydd Helygain) SAC	611	248m north	Halkyn Mountain includes an extensive Calaminarian grassland of <i>Violetalia calaminariae</i> . There is a large population of GCN, which breed in the abandoned quarry workings and across the site. Other Annex I qualifying habitats include European dry heaths, semi-natural dry grasslands and scrubland facies on calcareous substrates, and

Site Name	Approximate size (ha)	Distance from New Build Infrastructure Boundary	Reason for Designation
			<i>Molinion caeruleae</i> meadows are also present on the calcareous, peaty or clayey-silt-laden soils.
The Dee Estuary SPA & Ramsar	14,292	1.0km north	The Dee Estuary is a large, sheltered estuary which is internationally important due to the number of waterfowl and waders it supports. Qualifying interests includes a breeding colony of natterjack toad <i>Bufo calamita</i> and over 20,000 individual waterbirds each year such as redshank <i>Tringa totanus</i> and black-tailed godwit <i>Limosa limosa</i> .

3.1.2. The desk study identified five statutory sites of national importance within the Study Area with amphibians as a qualifying feature or a contributing reason for designation. This included four Sites of Special Scientific Interests (SSSI) and one Local Nature Reserve (LNR). A description of these sites is detailed in **Table 4** below and the locations of each are presented on **Figure 9.1.1 (Appendix 9.1; Habitats and Designated Sites, Volume III)**.

Table 4 - Statutory Designated Sites of National Importance

Site Name	Approximate Size (ha)	Distance from New Build Infrastructure Boundary	Reason for Designation
Connah's Quay Ponds	94	0m north - shares a boundary with the Newbuild	Part of 'The Deeside and Buckley Newts Site SAC'. This site includes

Site Name	Approximate Size (ha)	Distance from New Build Infrastructure Boundary	Reason for Designation
and Woodland SSSI		Infrastructure Boundary	Broadoak Wood, Wepre Country Park, Gathering Grounds Wood and Llwyni Pond Local Nature Reserve. The site is of special interest for its population of GCN its assemblage of widespread amphibian species, and for its semi-natural broadleaved woodland.
Halkyn Common and Holywell Grasslands/Co min Helygain a Glaswell Tiroedd Treffynnon SSSI	699.3	248m northeast	Halkyn Common and Holywell Grasslands is of special interest for the mineralisation associated with the Carboniferous Limestone and cherts which is found in spoil tips and in situ exposures; open vegetation on soils rich in heavy metals; calcareous grassland; dry heath; fen meadow; base-rich flush; and populations of spring sandwort <i>Minuartia verna</i> and stemless thistle <i>Cirsium acaule</i> . An assemblage of widespread amphibian species including GCN are also present.
Buckley Claypits and Commons SSSI	100	540m south	This site forms part of the Deeside and Buckley Newt Sites SAC and is notable due to its presence of GCN. Breeding reed bunting <i>Emberiza</i>

Site Name	Approximate Size (ha)	Distance from New Build Infrastructure Boundary	Reason for Designation
			<i>schoeniclus</i> and water vole <i>Arvicola amphibius</i> are also present.
Maes Y Grug SSSI	18	870m south	The site is of special interest for its population of GCN and forms part of the Deeside and Buckley Newts Site SAC. Habitats comprise a mosaic of grassland, scrub and woodland habitats surrounding waterbodies that have been managed or allowed to develop naturally.
Gathering Grounds Woods & Llwyni Pond Local Nature Reserve LNR	3	1.2km north	This site is within the Connah's Quay Ponds and Woodland SSSI and The Deeside and Buckley Newts Site SAC. The site is notable due to the presence of GCN. Other notable species include badger <i>Meles meles</i> , field vole <i>Microtus agrestis</i> , blue tit <i>Cyanistes caeruleus</i> , chaffinch <i>Fringilla coelebs</i> , tawny owl <i>Strix aluco</i> , redwing <i>Turdus iliacus</i> and dunnock <i>Prunella modularis</i> .

3.1.3. The desk study identified one non-statutory nature conservation site, a Local Wildlife Site (LWS) within 1km of the Newbuild Infrastructure Boundary with amphibians as qualifying features or a contributing reason for designation and therefore also considered as part of the desk study. A description of the site is detailed in **Table 5** below and the location of the site is presented on **Figure 9.1.2 (Appendix 9.1; Habitats and Designated Sites Survey Report, Volume III)**.

Table 5 - Non-Statutory Designated Site

Site Name	Approximate size (ha)	Distance from New Build Infrastructure Boundary	Reason for Designation
Soughton Hall & Gorse Wood Ponds LWS	72.9	680m west	Over mature lime, oak <i>Quercus</i> sp., sweet chestnut <i>Castanea sativa</i> , ash <i>Fraxinus excelsior</i> , sycamore <i>Acer pseudoplatanus</i> and horse chestnut <i>Aesculus hippocastanum</i> , with occasional dead fallen and hollow trees. Includes two small ponds on the edge of woodland. The ponds are of importance to amphibians, especially GCN. The site includes a fringe of woodland and grassland habitat as foraging area.

3.1.4. The following species have been recorded within the Study Area in the last ten years:

- Common frog *Rana temporaria*;
- Common toad;
- GCN;
- Palmate newt; and
- Smooth newt.

3.1.5. The desk study identified 174 records of GCN in England and 810 in Wales within the Study Area during the last 10 years. The closest record was located 84m southeast of the Newbuild Infrastructure Boundary.

3.1.6. The desk study showed several clusters of waterbodies, with recorded presence of GCN, across the Newbuild Infrastructure Boundary. These included at Deeside and Buckley Newt Sites (SAC), Halkyn Mountain/ Mynydd Helygain (SAC) and at Chester Zoo.

- 3.1.7. The closest granted European Protected Species (EPS) licence pertaining to GCN⁴, was located 100m north of the Newbuild Infrastructure Boundary (reference number: EPSM2009-978) and involved the destruction of a resting place.
- 3.1.8. In total, 222 waterbodies were identified within the Survey Area, including two additional waterbodies outside of the Survey Area that are included in these results as, although they are outside of the Survey Area, they are functionally linked to waterbodies in which GCN have been confirmed or have GCN confirmed presence (Waterbody 153 and 156 in Wales). This comprises waterbodies that were identified during Phase 1 surveys and waterbodies that were identified during the desk study via OS mapping and aerial imagery. All waterbodies and corresponding waterbody numbers are shown on **Figure 9.2.3** (in **Annex A**).
- 3.1.9. Suitable aquatic and terrestrial habitat is present within the Survey Area including waterbodies, hedgerows, grassland habitats and broad-leaved semi-natural woodland.

3.2. HABITAT SUITABILITY INDEX ASSESSMENT

- 3.2.1. A total of 147 waterbodies were subject to HSI assessments, this comprised 146 waterbodies within the Survey Area, and one of the two additional waterbodies that have been scoped in due to proximity to GCN waterbodies. A total of 75 waterbodies were not subject to HSI assessment due to being outside of the Red Risk Zone in England, or access was not possible due to health and safety constraints or land access agreements. The extension of the Newbuild Infrastructure Boundary has incorporated five additional waterbodies within England (Waterbodies 173 to 177). Further details are provided in **Section 2.7**.
- 3.2.2. A summary of the HSI results and location information for the waterbodies is included in **Table 6** below. The full HSI calculation is included in **Table 7** ~~Table 7~~ [Results of HSI Assessment](#) in **Annex B**. Waterbody numbers correspond to those in **Figure 9.2.1** (in **Annex A**).
- 3.2.3. Seven waterbodies were evaluated to provide suitable habitat for GCN, with a HSI score of 'excellent', this included waterbodies PH5 and 33 in Wales and 38, 58, 94, 167 and 168 in England. Thirty-six waterbodies were classified as 'good' and thirty-four as 'average'. The final seventy waterbodies were classified as likely unsuitable for GCN with thirty-five waterbodies having a HSI rating of 'below average' and thirty-five as 'poor'.

⁴ Search undertaken in England only.

3.3. ENVIRONMENTAL DNA (EDNA) SURVEYS

- 3.3.1. A total of eleven waterbodies within the Survey Area were subject to eDNA assessment in 2021, including a single waterbody, 153 in Wales, just outside of the Survey Area but part of an interconnected habitat of waterbodies within the Survey Area.
- 3.3.2. A summary of the eDNA results and location information for each waterbody is included in **Table 6** below. Waterbody numbers correspond to those in **Figure 2.2.2**.
- 3.3.3. Six waterbodies had a negative result for GCN eDNA, PH1, PH3, 13, 32 and 103 and 153 in Wales. Two waterbodies, 31 and 35 in Wales, received a positive result. Three waterbodies came back as inconclusive for GCN eDNA, PH4, CL1 and 30 in Wales.

3.4. PRESENCE / LIKELY ABSENCE SURVEYS

- 3.4.1. The lead surveyor for each survey was a member of CIEEM and held a Natural Resource Wales / Natural England GCN survey licence or was acting as an accredited agent. The 2021 presence / likely absence surveys commenced on 31 March 2021 and were completed on 29 June 2021. The 2022 surveys commenced on 14 March 2022 and were completed on 22 June 2022.
- 3.4.2. A total of 56 waterbodies, including those within the Survey Area and an additional waterbody scoped in (waterbody 153), were subject to presence / likely absence surveys in 2021 and 2022.
- 3.4.3. A total of 17 waterbodies within the Survey Area were found to have adult GCN, larvae or their eggs at the time of survey, this included the following waterbodies:
- Wales: 9, 14, 15, 31, 35, 38, 49, 154, 155, 157, 161; and
 - England: 43, 46, 166, 167, 169, 171.
- 3.4.4. Where access was not possible for a minimum of four survey visits on waterbodies in Wales and within the Red Risk Zone in England a precautionary assessment was completed to determine if GCN presence is likely within those waterbodies. GCN are assessed as being precautionarily present in the following waterbodies:
- Wales: 10, 11, 12, 50, 121, 148; and
 - England: 42, 47, 48, 49 and 52.
- 3.4.5. Sixteen waterbodies were subject to a population size class assessment. Of these waterbodies, fourteen were found to have a small population of GCN whilst the remaining two had a medium sized population.

- Small: Wales 9, 14, 15, 31, 35, 38, 49, 154, 155, England 43, 46, 167, 169 and 171; and
- Medium: Wales 157, 161.

3.4.6.

A summary of the results and location information for each waterbody, are included in **Table 6** below. A full breakdown of visit dates, survey methods and results are included in **Table 8**~~Table 8—Presence / Likely Absence Survey Results~~ in **Annex C**. Waterbody numbers correspond to those in **Figure 9.2.3** (in **Annex A**).

Table 6 - Summary of Survey Results

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Pentre Halkyn Block Valve Station (BVS)		PH1	SJ 17336 73510	88	0.76	Good	Negative	Not surveyed – scoped out
Pentre Halkyn BVS		PH2	SJ 17391 73504	50	0.58	Below average	Not surveyed	Not surveyed – scoped out
Pentre Halkyn BVS		PH3	SJ 17382 73485	49	0.58	Below average	Negative	Not surveyed – scoped out
Pentre Halkyn BVS		PH4	SJ 17385 73458	22	0.7	Good	Inconclusive	Not surveyed – scoped out
Pentre Halkyn BVS		PH5	SJ 17376 73443	18	0.84	Excellent	Not surveyed	Not surveyed – scoped out
Pentre Halkyn BVS		PH6	SJ 17328 73106	28	0.36	Poor	Not surveyed	Not surveyed
Cornist Lane BVS		CL1	SJ 21746 72689	85	0.72	Good	Inconclusive	Likely absent
Sandycroft, Wales		2	SJ 34075 66255	5	Not surveyed	Not surveyed	Not surveyed	Not surveyed - dry / defunct
Sandycroft, Wales		3	SJ 33844 66086	67	Not surveyed	Not surveyed	Not surveyed	Not surveyed – scoped out
Mancot, Wales		4	SJ 31669 67170	108	0.46	Poor	Not surveyed	Likely absent
Aston, Wales		5	SJ 31024 66984	28	0.55	Below Average	Not surveyed	Likely absent
Aston, Wales		6	SJ 30844 67052	81	0.54	Below Average	Not surveyed	Not accessible - no land access Assumed likely absence
Aston, Wales		7	SJ 30675 66733	11	0.56	Below Average	Not surveyed	Not surveyed - dry / defunct
Aston, Wales		8	SJ 30929 67155	176	0.24	Poor	Not surveyed	Likely absent
Aston, Wales		9	SJ 30037 66884	Within Newbuild Infrastructure Boundary	Dry in 2021 – No HSI undertaken	Not surveyed	Not surveyed	Present
Aston, Wales		10	SJ 29607 67161	782	0.44	Poor	Not surveyed	Not accessible - no land access Precautionary presence
Ewloe, Wales		11	SJ 29161 66923	101	Not surveyed	Not surveyed	Not surveyed	Not accessible - no land access Precautionary presence
Ewloe, Wales		12	SJ 29040 66846	65	Not surveyed	Not surveyed	Not surveyed	Not accessible - no land access Precautionary presence

⁵ The only requirement for GCN surveys in England are for those waterbodies which fall within the Red Risk Zone and so are therefore excluded from the DLL application. Red Risk Zones are omitted on the basis they contain key populations of GCN at the regional, national or international scale. Therefore, presence / likely absence surveys for GCN were only undertaken in England on waterbodies which fall within this Red Risk Zone for Cheshire.

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Ewloe, Wales		13	SJ 28332 66909	116	Not surveyed	Not surveyed	Negative result	Not surveyed - dry / on v2
Northop, Wales		14	SJ 27034 67537	94	0.63	Average	Not surveyed	Present
Northop, Wales		14a	SJ 27028 67541	95	0.69	Average	Not surveyed	Not surveyed - dry on visit 3 (v3)
Northop, Wales		15	SJ 27037 67550	108	0.64	Average	Not surveyed	Present
Northop, Wales		16	SJ 26378 67510	114	Not surveyed	Not surveyed	Not surveyed	Not surveyed – scoped out
Northop, Wales		17 / 18	SJ 25808 67928	20	0.75	Good	Not surveyed	Likely absent
Northop, Wales		19	SJ 25815 67957	Within Newbuild Infrastructure Boundary	0.54	Below average	Not surveyed	Likely absent
Northop, Wales		20	SJ 25842 67967	Within Newbuild Infrastructure Boundary	0.59	Below average	Not surveyed	Likely absent
Northop, Wales		21	SJ 25797 67963	Within Newbuild Infrastructure Boundary	0.62	Average	Not surveyed	Likely absent
Northop, Wales		21a	SJ 25812 67963	Within Newbuild Infrastructure Boundary	0.48	Poor	Not surveyed	Not surveyed – assumed likely absence
Northop, Wales		22	SJ 25613 68147	28	0.69	Average	Not surveyed	Likely absent
Northop, Wales		23 / 24	SJ 25739 68443	21	Not surveyed	Not surveyed	Not surveyed	Not surveyed - dry / defunct
Northop, Wales		25	SJ 25571 68501	6	0.53	Below Average	Not surveyed	Not surveyed - dry on v3
Northop, Wales		26	SJ 25456 68557	69	0.73	Good	Not surveyed	Not accessible - health and safety Assumed likely absence
Northop, Wales		27	SJ 25660 68655	52	0.62	Average	Not surveyed	Likely absent
Northop, Wales		28	SJ 25868 68635	209	Not surveyed	Not surveyed	Not surveyed	Not surveyed - dry / defunct
Northop, Wales		29	SJ 25667 68718	82	Not surveyed	Not surveyed	Not surveyed	Not surveyed - dry / defunct
Northop, Wales		30	SJ 25449 69270	62	Not surveyed	Not surveyed	Inconclusive result	Likely absent
Northop, Wales		31	SJ 25539 69355	112	0.74	Good	Positive result	Present
Northop, Wales		32	SJ 25575 69384	125	Not surveyed	Not surveyed	Negative result	Likely absent

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Northop, Wales		33	SJ 25409 69460	41	0.89	Excellent	Not surveyed	Likely absent
Northop, Wales		34	SJ 25273 69532	Within Newbuild Infrastructure Boundary	Not surveyed	Not surveyed	Not surveyed	Likely absent
Northop, Wales		35	SJ 25182 69646	32	Not surveyed	Not surveyed	Positive result	Present
Northop, Wales		36	SJ 25482 69683	143	0.7	Good	Not surveyed	Likely absent
Northop, Wales		37	SJ 25480 69731	124	0.63	Average	Not surveyed	Likely absent
Northop, Wales		38	SJ 25457 69754	109	0.65	Average	Not surveyed	Present
Flint, Wales		39	SJ 25096 70232	29	Dry – No HSI undertaken	Not surveyed	Not surveyed	Not surveyed - dry / on v2
Flint, Wales		40	SJ 24995 70218	127	0.58	Below average	Not surveyed	Likely absent
Flint, Wales		41/42	SJ 24861 70500	82	Dry – No HSI undertaken	Not surveyed	Not surveyed	Not surveyed - dry / defunct
Flint, Wales		43	SJ 25295 70705	72	0.49	Poor	Not surveyed	Likely absent
Flint, Wales		44	SJ 25438 70758	149	0.47	Poor	Not surveyed	Likely absent
Flint, Wales		49	SJ 25576 70969	209	0.67	Average	Not surveyed	Present
Northop, Wales		50	SJ 26215 67998	77	0.75	Good	Not surveyed	Not accessible - no land access Precautionary presence
Flint, Wales		51	SJ 25546 71213	194	0.65	Average	Not surveyed	Likely absent
Deeside, Wales		90	SJ 35251 68181	63	0.55	Below Average	Not surveyed	Likely absent
Deeside, Wales		91	SJ 35320 68305	36	0.72	Good	Not surveyed	Likely absent
Deeside, Wales		92	SJ 34990 67623	33	0.48	Poor	Not surveyed	Likely absent
Pentre, Wales		103	SJ 32302 67926	248	0.40	Poor	Negative result	Not surveyed
Mancot, Wales		108	SJ 32336 66912	207	Not surveyed	Not surveyed	Not surveyed	Not surveyed - dry / defunct
Ewloe, Wales		109	SJ 27414 66903	204	Not surveyed	Not surveyed	Not surveyed	Not surveyed – scoped out
Northop, Wales		110	SJ 25033 69116	237	Not surveyed	Not surveyed	Not surveyed	Not surveyed - dry / defunct
Mancot, Wales		111	SJ 31708 67107	167	Not surveyed	Not surveyed	Not surveyed	Not surveyed - dry / defunct
Mancot, Wales		112	SJ 31802 67069	234	0.42	Poor	Not surveyed	Not surveyed – dry on v4

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Northop, Wales		113	SJ 25436 68966	16	Not surveyed	Not surveyed	Not surveyed	Likely absent
Mancot, Wales		114	SJ 31806 67537	108	0.41	Poor	Not surveyed	Likely absent
Flint, Wales		116	SJ 25076 70581	Within Newbuild Infrastructure Boundary	0.37	Poor	Not surveyed	Not surveyed - dry on v2
Ewloe, Wales		121	SJ 29157 66981	56	0.44	Poor	Not surveyed	Not accessible - no land access Precautionary presence
Aston, Wales		122	SJ 30202 66770	102	0.56	Below Average	Not surveyed	Not surveyed - scoped out
Deeside, Wales		137	SJ 34720 66959	Within Newbuild Infrastructure Boundary	0.5	Below Average	Not surveyed	Not surveyed - dry / on v3
Mancot, Wales		144	SJ 32859 67196	15	0.56	Below Average	Not surveyed	Not surveyed – dry / defunct
Flint, Wales		146	SJ 25538 71245	207	Not surveyed	Not surveyed	Not surveyed	Not surveyed – assumed likely absence
Flint, Wales		147	SJ 25523 71245	194	Not surveyed	Not surveyed	Not surveyed	Not surveyed – assumed likely absence
Northop, Wales		148	SJ 26196 68017	94	0.69	Average	Not surveyed	Not accessible - no land access Precautionary presence
Mancot, Wales		149	SJ 31836 67466	30	Not surveyed	Not surveyed	Not surveyed	Likely absent
Aston, Wales		150	SJ 30783 66900	Within Newbuild Infrastructure Boundary	0.55	Below Average	Not surveyed	Likely absent
Northop, Wales		152	SJ 26682 67645	Within Newbuild Infrastructure Boundary	0.47	Poor	Not surveyed	Likely absent
Northop, Wales		153	SJ 25695 69222	302 – outside of Survey Area but scoped in	Not surveyed	Not surveyed	Negative	Likely absent - Scoped in due to GCN pond proximity
Northop, Wales		154	SJ 25605 69547	229	0.75	Good	Not surveyed	Present
Northop, Wales		155	SJ 25590 69573	231	0.7	Good	Not surveyed	Present
Northop, Wales		156	SJ 25739 69347	288 – outside of Survey Area but scoped in	0.79	Good	Not surveyed	Not surveyed – health and safety - scoped in due to GCN waterbody proximity

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Flint, Wales		157	SJ 24913 70963	204	0.66	Average	Not surveyed	Present
Mancot, Wales		160	SJ 31677 67273	Within Newbuild Infrastructure Boundary	0.31	Poor	Not surveyed	Likely absent
Wepre Wood, Wales		161	SJ 29023 67388	228	0.74	Good	Not surveyed	Present
Lea-by-Backford, England		1	SJ 39272 70861	13	0.48	Poor	Not surveyed	Not surveyed
Backford, England		2	SJ 39376 70666	110	0.44	Poor	Not surveyed	Not surveyed
Elton Green, England		3	SJ 44823 75393	202	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		4	SJ 44439 74289	28	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		5	SJ 44342 74335	121	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		6	SJ 44426 74092	54	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		7	SJ 30678 66726	Within Newbuild Infrastructure Boundary	0.72	Good	Not surveyed	Not surveyed
Thorton Green, England		11	SJ 44655 73910	24	0.55	Below average	Not surveyed	Not surveyed
Thorton Green, England		12	SJ 44678 73914	45	0.56	Below average	Not surveyed	Not surveyed
Thorton Green, England		13	SJ 44542 73855	Within Newbuild Infrastructure Boundary	0.53	Below average	Not surveyed	Not surveyed
Thorton Green, England		14	SJ 44662 73754	2	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thorton Green, England		15	SJ 44725 73775	72	0.55	Below average	Not surveyed	Not surveyed
Thornton-le-Moors, England		16	SJ 44907 73546	95	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		17	SJ 44888 73493	64	0.74	Good	Not surveyed	Not surveyed

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Thornton-le-Moors, England		18	SJ 44804 73496	Within Newbuild Infrastructure Boundary	0.49	Poor	Not surveyed	Not surveyed
Thornton-le-Moors, England		19	SJ 44652 73295	9	0.38	Poor	Not surveyed	Not surveyed
Thornton-le-Moors, England		20	SJ 44632 73313	Within Newbuild Infrastructure Boundary	0.73	Good	Not surveyed	Not surveyed
Thornton-le-Moors, England		22	SJ 44500 73420	20	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		23	SJ 44149 73369	199	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		24	SJ 44149 73369	196	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		25	SJ 44529 73010	99	0.63	Average	Not surveyed	Not surveyed
Croughton, England		26	SJ 42929 72405	120	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Croughton, England		27	SJ 43044 72207	17	0.41	Poor	Not surveyed	Not surveyed
Croughton, England		28	SJ 42752 71854	5	0.47	Poor	Not surveyed	Not surveyed
Croughton, England		29	SJ 42721 71616	Within Newbuild Infrastructure Boundary	0.43	Poor	Not surveyed	Not surveyed
Croughton, England		30	SJ 42779 71538	Within Newbuild Infrastructure Boundary	0.71	Good	Not surveyed	Not surveyed
Picton, England		31	SJ 43026 71565	120	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Picton, England		32	SJ 43038 71536	75	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Picton, England		33	SJ 43059 71491	46	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Picton, England		34	SJ 42767 71194	319	0.69	Average	Not surveyed	Not surveyed

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Picton, England		35	SJ 42709 71270	Within Newbuild Infrastructure Boundary	0.68	Average	Not surveyed	Not surveyed
Wervin, England		36	SJ 42527 71348	Within Newbuild Infrastructure Boundary	0.56	Below average	Not surveyed	Not surveyed
Wervin, England		37	SJ 42447 71111	108	0.75	Good	Not surveyed	Not surveyed
Wervin, England		38	SJ 42447 71006	203	0.85	Excellent	Not surveyed	Not surveyed
Wervin, England		39	SJ 42080 71384	104	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Wervin, England		40	SJ 42068 71406	120	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Wervin, England		41	SJ 41901 71245	101	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Lea-by-Backford, England		55	SJ 39442 70996	36	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Lea-by-Backford, England		56	SJ 39522 71172	119	0.55	Below average	Not surveyed	Not surveyed
Lea-by-Backford, England		57	SJ 39410 71174	176	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Lea-by-Backford, England		58	SJ 39241 71235	243	0.89	Excellent	Not surveyed	Not surveyed
Mollington, England		61	SJ 38467 71279	199	0.59	Below average	Not surveyed	Not surveyed
Mollington, England		62	SJ 38440 71185	159	0.63	Average	Not surveyed	Not surveyed
Mollington, England		63	SJ 38514 71042	Within Newbuild Infrastructure Boundary	0.75	Good	Not surveyed	Not surveyed
Mollington, England		64	SJ 38417 70809	38	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Mollington, England		65	SJ 38142 70490	Within Newbuild Infrastructure Boundary	0.55	Below average	Not surveyed	Not surveyed
Mollington, England		66	SJ 38051 70386	30	Not surveyed	Not surveyed	Not surveyed	Not surveyed

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Mollington, England		67	SJ 38265 70258	Within Newbuild Infrastructure Boundary	0.62	Average	Not surveyed	Not surveyed
Mollington, England		68	SJ 38374 70083	173	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Mollington, England		69	SJ 38321 70070	125	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Mollington, England		70	SJ 38168 69927	25	0.75	Good	Not surveyed	Not surveyed
Mollington, England		71	SJ 38056 69947	Within Newbuild Infrastructure Boundary	0.62	Average	Not surveyed	Not surveyed
Mollington, England		72	SJ 38040 69973	10	0.65	Average	Not surveyed	Not surveyed
Mollington, England		73	SJ 37905 70019	147	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Mollington, England		74	SJ 37900 70002	157	0.49	Poor	Not surveyed	Not surveyed
Mollington, England		75	SJ 38018 69868	8	0.42	Poor	Not surveyed	Not surveyed
Mollington, England		76	SJ 38028 69854	Within Newbuild Infrastructure Boundary	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		77	SJ 36943 69696	160	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		79	SJ 37536 69644	54	0.73	Good	Not surveyed	Not surveyed
Saughall, England		80	SJ 37376 69746	156	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		81	SJ 37468 69631	58	0.64	Average	Not surveyed	Not surveyed
Saughall, England		82	SJ 37578 69493	7	0.77	Good	Not surveyed	Not surveyed
Saughall, England		83	SJ 37610 69363	136	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		84	SJ 37306 69412	43	0.47	Poor	Not surveyed	Not surveyed
Saughall, England		85	SJ 37269 69591	28	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		86	SJ 37232 69593	22	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		87	SJ 37197 69667	105	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		88	SJ 37096 69737	183	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		89	SJ 37278 69784	210	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		90	SJ 36757 69519	15	0.52	Below average	Not surveyed	Not surveyed

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Saughall, England		91	SJ 36764 69501	9	0.6	Average	Not surveyed	Not surveyed
Saughall, England		93	SJ 36867 69399	7	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		94	SJ 36525 69359	84	0.83	Excellent	Not surveyed	Not surveyed
Saughall, England		95	SJ 36465 69324	130	0.75	Good	Not surveyed	Not surveyed
Saughall, England		96	SJ 36542 69187	Within Newbuild Infrastructure Boundary	0.72	Good	Not surveyed	Not surveyed
Saughall, England		97	SJ 36574 69037	4	0.79	Good	Not surveyed	Not surveyed
Saughall, England/Wales border		98	SJ 36354 68921	Within Newbuild Infrastructure Boundary	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Picton, England		99	SJ 43092 71368	537	0.59	Below average	Not surveyed	Not surveyed
Picton, England		100	SJ 43321 71451	6156	0.59	Below average	Not surveyed	Not surveyed
Saughall, England		103	SJ 37547 69633	40	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		106	SJ 44782 73096	216	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		107	SJ 44882 73118	237	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		108	SJ 37078 69498	Within Newbuild Infrastructure Boundary	0.74	Good	Not surveyed	Not surveyed
Mollington, England		109	SJ 38176 70150	Within Newbuild Infrastructure Boundary	0.41	Poor	Not surveyed	Not surveyed
Mollington, England		110	SJ 38218 70206	Within Newbuild Infrastructure Boundary	0.43	Poor	Not surveyed	Not surveyed
Mollington, England		111	SJ 38278 70808	Within Newbuild Infrastructure Boundary	0.27	Poor	Not surveyed	Not surveyed

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Thornton-le-Moors, England		113	SJ 44616 73813	Within Newbuild Infrastructure Boundary	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Wervin, England		116	SJ 42278 70942	235	0.48	Poor	Not surveyed	Not surveyed
Thornton-le-Moors, England		120	SJ 44589 73723	Within Newbuild Infrastructure Boundary	0.7	Good	Not surveyed	Not surveyed
Thornton-le-Moors, England		121	SJ 44519 73843	17	0.63	Average	Not surveyed	Not surveyed
Thornton-le-Moors, England		122	SJ 44826 74628	Within Newbuild Infrastructure Boundary	0.69	Average	Not surveyed	Not surveyed
Elton, England		123	SJ 45341 74669	Within Newbuild Infrastructure Boundary	0.42	Poor	Not surveyed	Not surveyed
Elton, England		124	SJ 45368 74649	Within Newbuild Infrastructure Boundary	0.42	Poor	Not surveyed	Not surveyed
Elton, England		125	SJ 45393 74415	3	0.5	Below average	Not surveyed	Not surveyed
Elton, England		127	SJ 45667 74385	112	0.73	Good	Not surveyed	Not surveyed
Elton, England		128	SJ 45579 74448	34	0.66	Average	Not surveyed	Not surveyed
Elton, England		129	SJ 45538 74871	113	0.69	Average	Not surveyed	Not surveyed
Elton, England		130	SJ 45736 74903	247	0.35	Poor	Not surveyed	Not surveyed
Elton, England		131	SJ 46571 75067	34	0.56	Below Average	Not surveyed	Not surveyed
Elton, England		132	SJ 46422 75303	1	0.62	Average	Not surveyed	Not surveyed
Elton, England		133	SJ 46471 75320	Within Newbuild Infrastructure Boundary	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Elton, England		134	SJ 46827 75764	Within Newbuild Infrastructure Boundary	0.58	Below average	Not surveyed	Not surveyed

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Saughall, England		135	SJ 37163 69262	174	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Saughall, England		136	SJ 37181 69344	103	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Thornton-le-Moors, England		138	SJ 44787 73971	168	0.52	Below average	Not surveyed	Not surveyed
Elton, England		139	SJ 47143 75891	120	0.42	Poor	Not surveyed	Not surveyed
Thornton-lee-Moors, England		140	SJ 44628 74633	20	0.38	Poor	Not surveyed	Not surveyed
Thornton-lee-Moors, England		141	SJ 44611 74765	Within Newbuild Infrastructure Boundary	0.73	Good	Not surveyed	Not surveyed
Croughton, England		162	SJ 42688 72203	246	0.54	Below average	Not surveyed	Not surveyed
Croughton, England		163	SJ 42794 72172	154	0.57	Below average	Not surveyed	Not surveyed
Croughton, England		164	SJ 42768 72038	73	0.51	Below average	Not surveyed	Not surveyed
Wervin, England		165	SJ 42605 71931	162	0.46	Poor	Not surveyed	Not surveyed
Wervin, England	✓	42	SJ 41867 71160	24	0.76	Good	Not surveyed	Not surveyed, inaccessible Precautionary presence
Backford, England		43	SJ 40863 71484	142	0.62	Average	Not surveyed	Present
Backford, England		44	SJ 40845 71455	110	Not surveyed - dry / defunct	Not surveyed - dry / defunct	Not surveyed	Not surveyed - dry / on v2
Backford, England	✓	45	SJ 40908 71148	91	0.65	Average	Not surveyed	Likely absent
Backford, England	✓	46	SJ 40881 71124	116	0.7	Good	Not surveyed	Present
Backford, England	✓	47	SJ 40687 71366	67	0.57	Below average	Not surveyed	Not accessible - health and safety Precautionary presence
Backford, England	✓	48	SJ 40552 71267	Within Newbuild Infrastructure Boundary	Not accessible - health and safety	Not surveyed	Not surveyed	Not accessible - health and safety Precautionary presence
Backford, England	✓	49	SJ 40550 71030	128	Not accessible - health and safety	Not surveyed	Not surveyed	Not accessible - health and safety Precautionary presence

Location	Within the Red Risk Zone (England)	Waterbody Reference	Grid Reference	Proximity to Newbuild Infrastructure Boundary (m)	HSI Score	HSI Category	eDNA Survey Results	Presence/ Absence Survey Result ⁵
Backford, England	✓	50	SJ 40340 71218	Within Newbuild Infrastructure Boundary	0.61	Average	Not surveyed	Likely absent
Backford, England	✓	51	SJ 40425 71415	164	0.56	Below average	Not surveyed	Likely absent
Backford, England	✓	52	SJ 40063 71390	184	0.59	Below average	Not surveyed	Not accessible - health and safety Precautionary presence
Backford, England	✓	53	SJ 40010 71181	Within Newbuild Infrastructure Boundary	0.67	Average	Not surveyed	Likely absent
Backford, England	✓	54	SJ 39809 71130	21	0.61	Average	Not surveyed	Not surveyed - dry on v3
Backford, England	✓	112	SJ 40011 71054	Within Newbuild Infrastructure Boundary	0.6	Average	Not surveyed	Not surveyed – dry on v2
Wervin, England	✓	114	SJ 41515 71304	69	0.73	Good	Not surveyed	Likely absent
Wervin, England	✓	115	SJ 41658 71376	166	Not surveyed	Not surveyed	Not surveyed	Not surveyed - scoped out
Backford, England	✓	142	SJ 40200 70986	139	0.68	Average	Not surveyed	Likely absent
Wervin, England	✓	166	SJ 41446 70924	136	0.77	Good	Not surveyed	Present
Wervin, England	✓	167	SJ 41664 70877	163	0.84	Excellent	Not surveyed	Present
Wervin, England	✓	168	SJ 41661 70815	226	0.84	Excellent	Not surveyed	Likely absent
Wervin, England	✓	169	SJ 41764 70829	211	0.79	Good	Not surveyed	Present
Wervin, England	✓	170	SJ 41878 70925	121	0.61	Average	Not surveyed	Likely absent
Wervin, England	✓	171	SJ 41989 70895	150	0.78	Good	Not surveyed	Present
Wervin, England	✓	172	SJ 41980 70834	204	0.78	Good	Not surveyed	Likely absent
Elton, England		173	SJ 46133 76298	14	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Elton, England		174	SJ 46157 76616	48	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Elton, England		175	SJ 45923 76717	59	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Elton, England		176	SJ 45774 76722	113	Not surveyed	Not surveyed	Not surveyed	Not surveyed
Elton, England		177	SJ 46166 76266	7	Not surveyed	Not surveyed	Not surveyed	Not surveyed

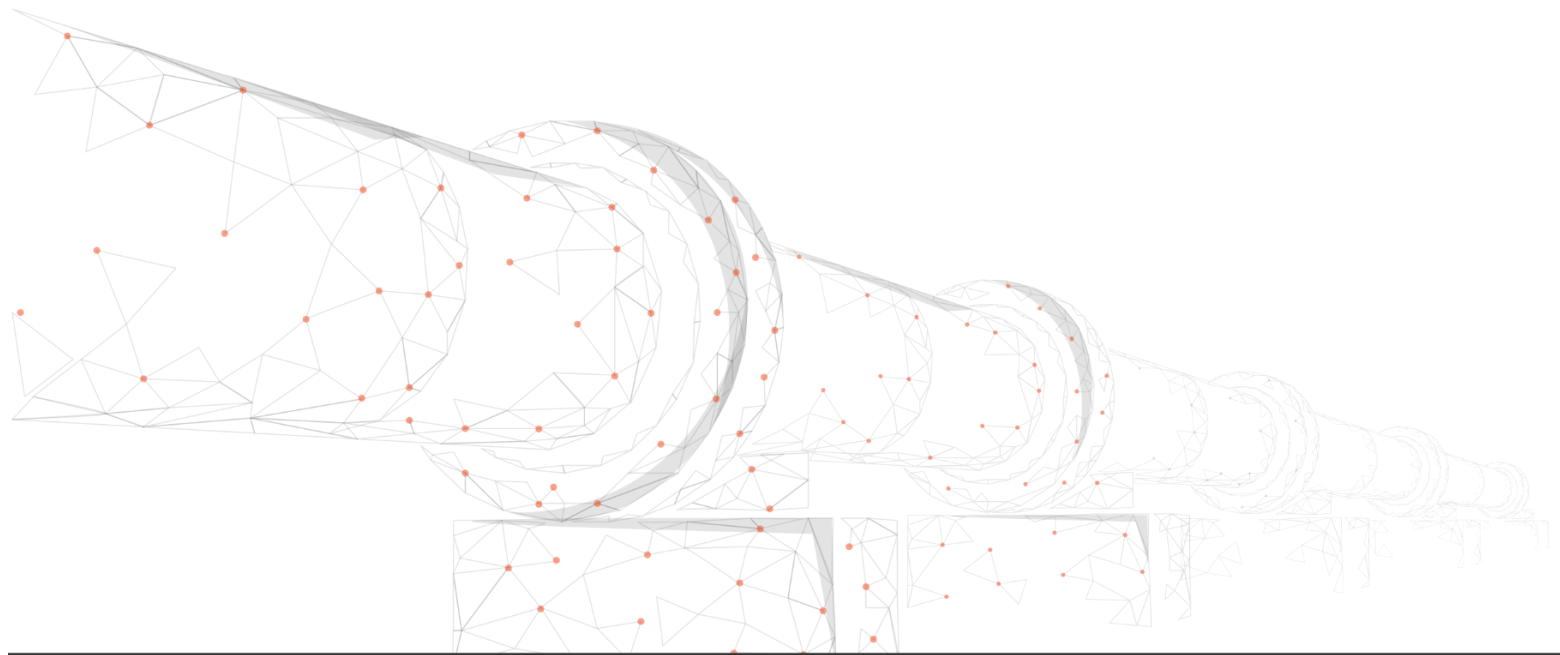
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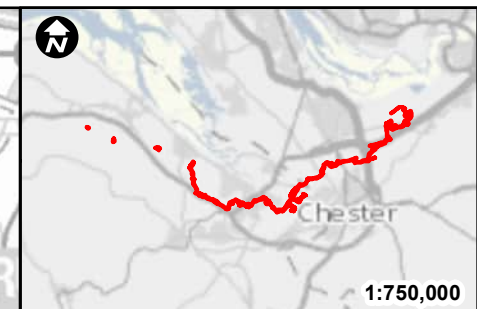
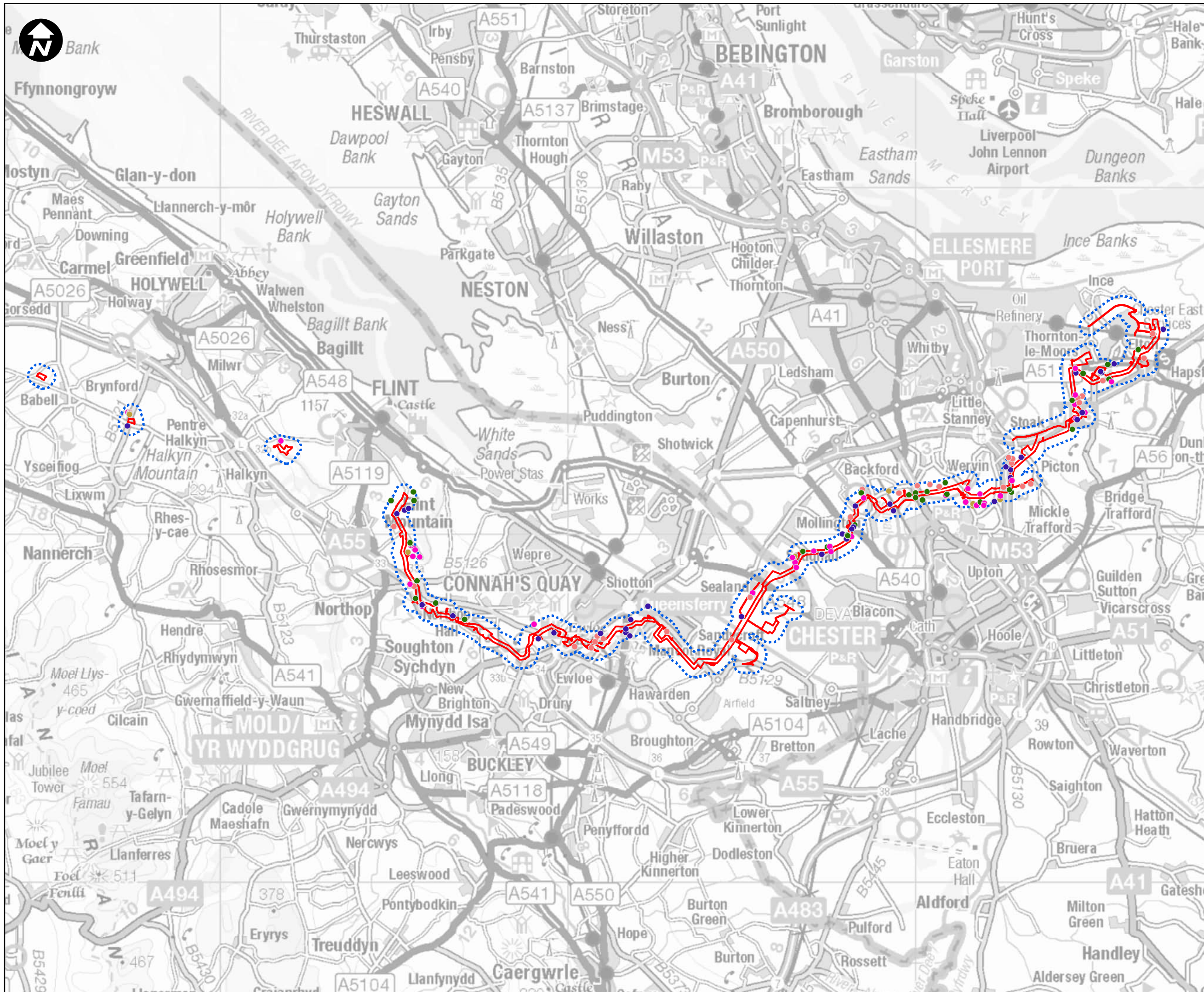
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- **Ref. 2** - HMSO (Her Majesty's Stationery Office) (2017). Conservation of Habitats and Species Regulation. HMSO, London;
- **Ref. 3** - HMSO (2019). The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. HMSO, London;
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- **Ref. 5** - HMSO (2006). Natural Environment and Rural Communities Act. HMSO, London;
- **Ref. 6** - HMSO (2016). Environment (Wales) Act 2016. Welsh Government;
- **Ref. 7** - The Ministry of Housing, Communities and Local Government. (2021). National Planning Policy Framework. MHCLG;
- **Ref. 8** - Gov.Wales, (2021). Planning Policy Wales – Edition 11, Adopted February 2021. Welsh Government;
- **Ref. 9** - MAGIC (2022). Multi-Agency Geographical Information for the Countryside. <<https://magic.defra.gov.uk/home.htm>> Accessed January 2022.
- **Ref. 10** - Amphibian and Reptile Groups of the United Kingdom (2010) ARG UK Advice Note 5: Great Crested Newt Habitat Suitability Index. ARG UK, UK;
- **Ref. 11** - Oldham, R.S., Keeble J., Swan M.J.S. and Jeffcote, M (2000) Evaluating the suitability of habitat for the great crested newt. Herpetological Journal 10, pp 143-155; and
- **Ref. 12** - Biggs, J., Ewald, N., Valentini, A., Gaboriaudm C., Griffiths, R.A., Foster, J., Wilkinson, J., Arnett, A., Williams, P. and Dunn, F (2014) Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5: Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Oxford: Freshwater Habitats Trust.

Annex A

FIGURES





Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Excellent
- Good
- Average
- Below Average
- Poor

0 0.5 1 2 3 Kilometres

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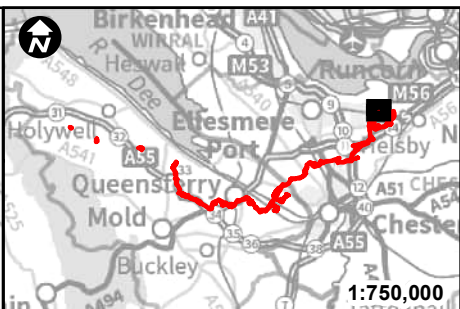
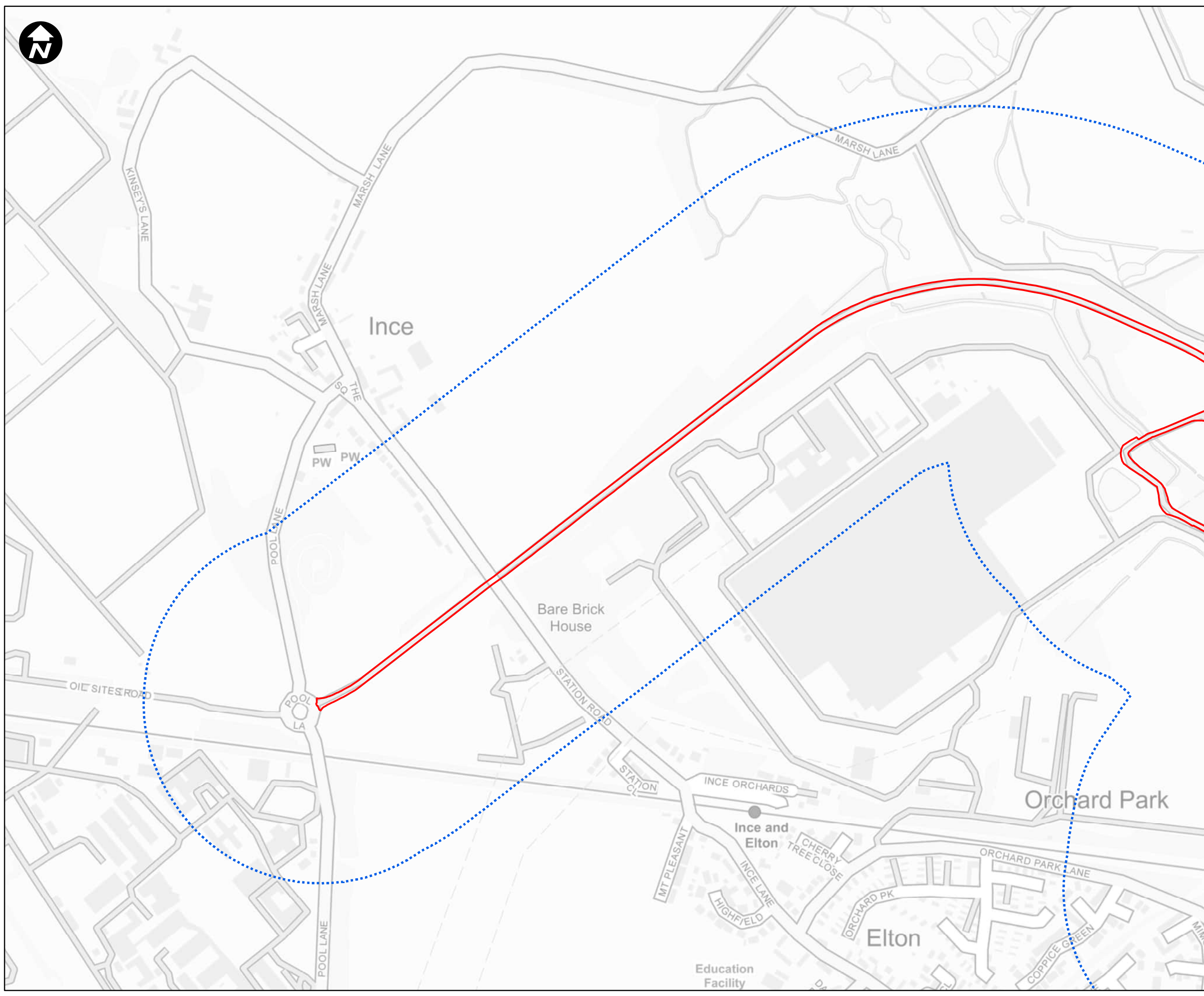
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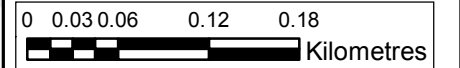
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Key:

- Newbuild Infrastructure Boundary
- Survey Area



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Figure 9.2.1 - HSI Results Sheet 1 of 25

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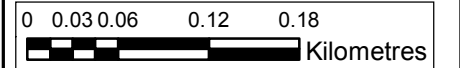


Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Average
- Below Average
- Poor



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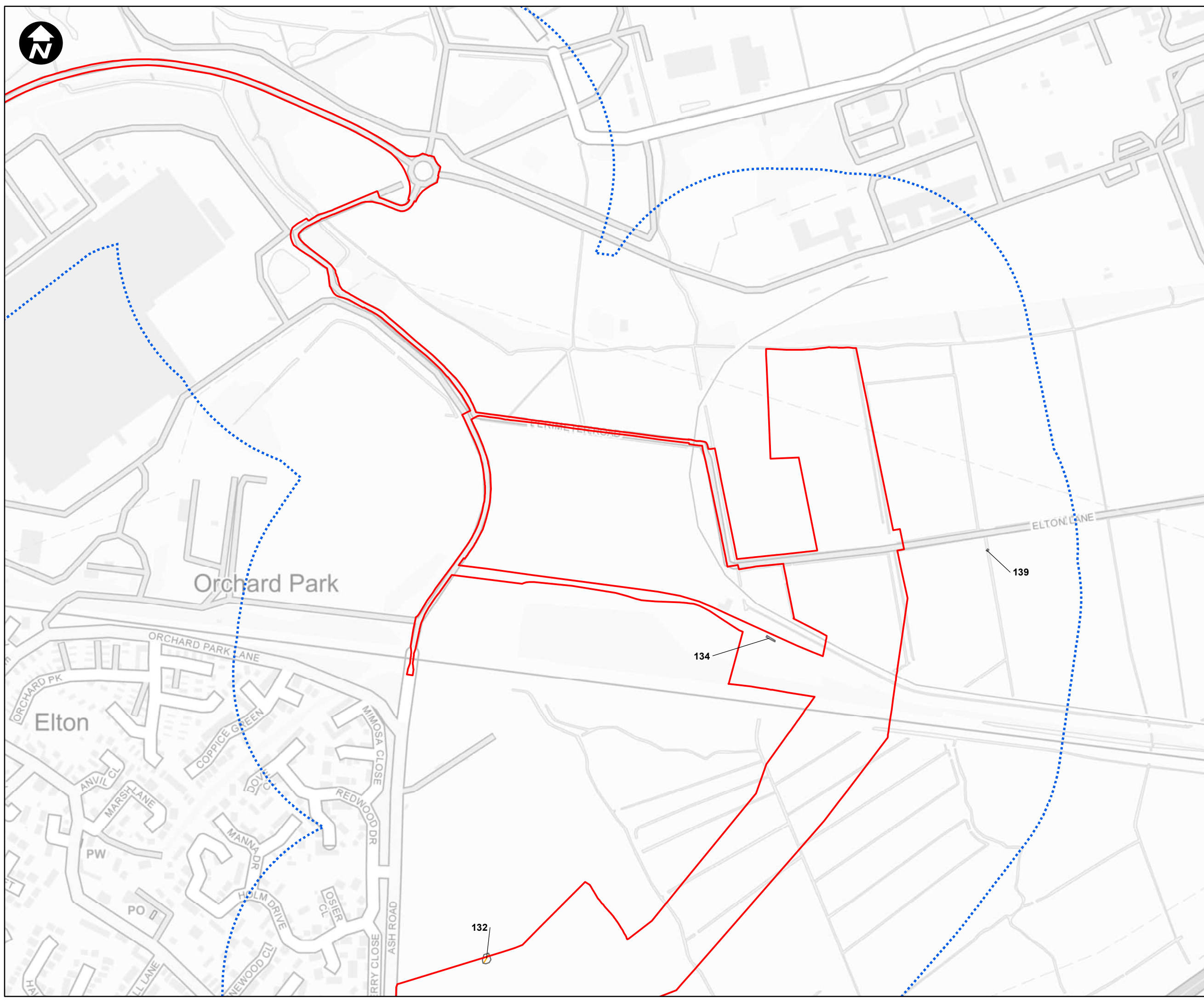
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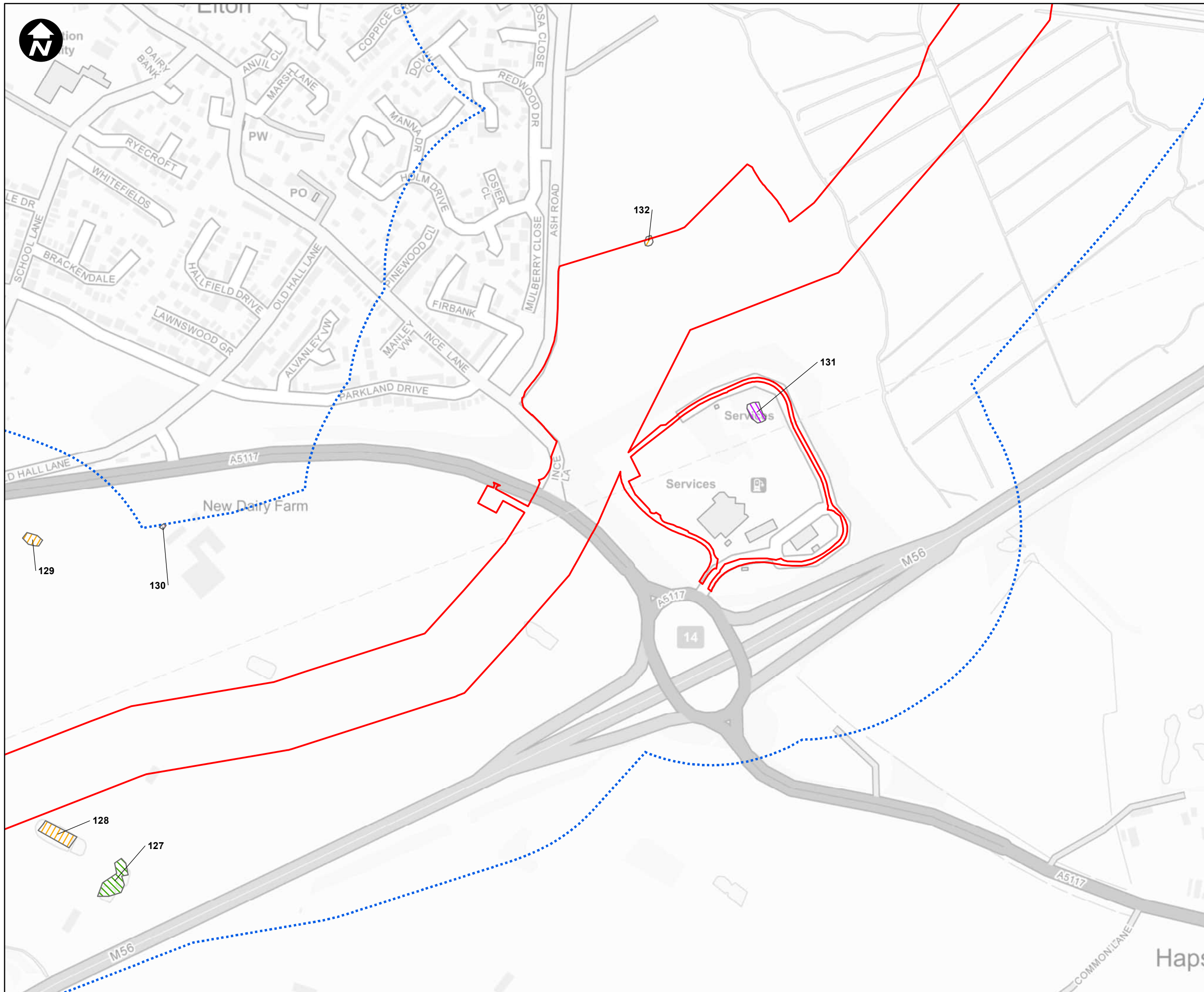
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Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Good
- Average
- Below Average
- Poor



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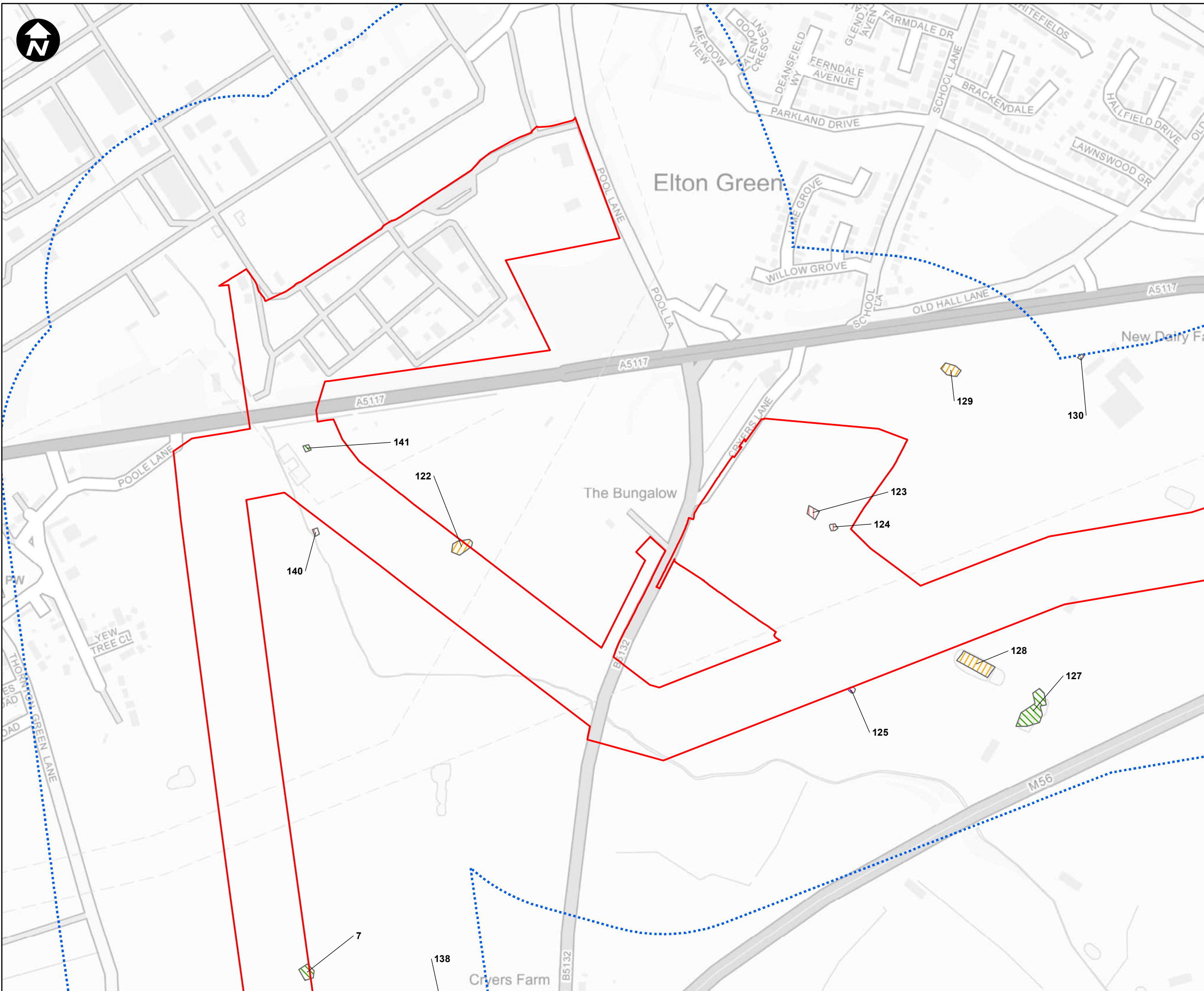
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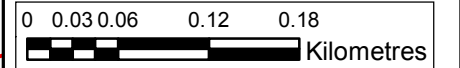


Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Good
- Average
- Below Average
- Poor



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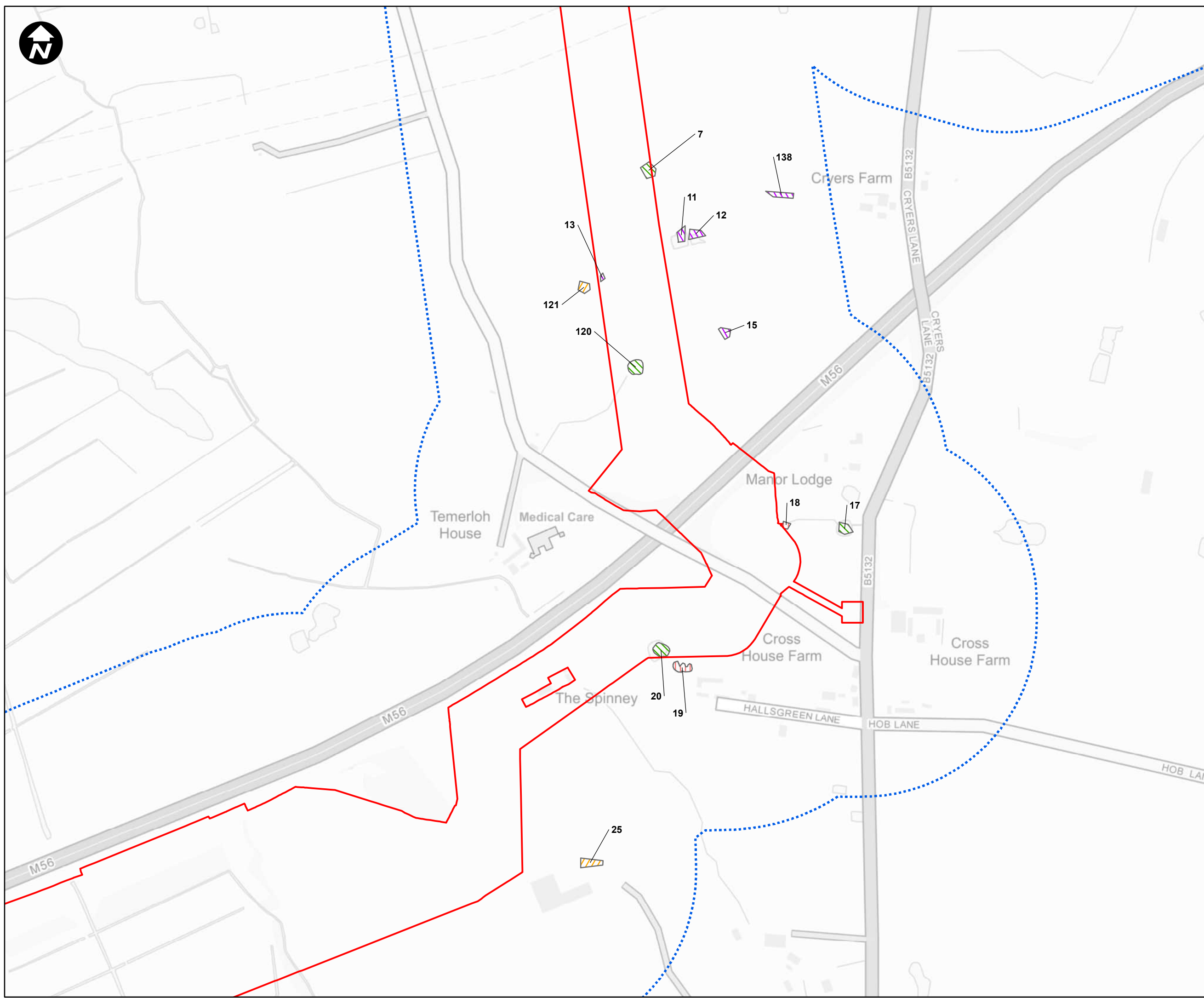
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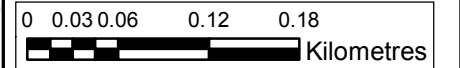


Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Good
- Average
- Below Average
- Poor



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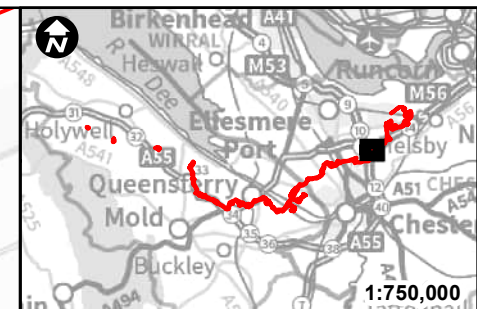
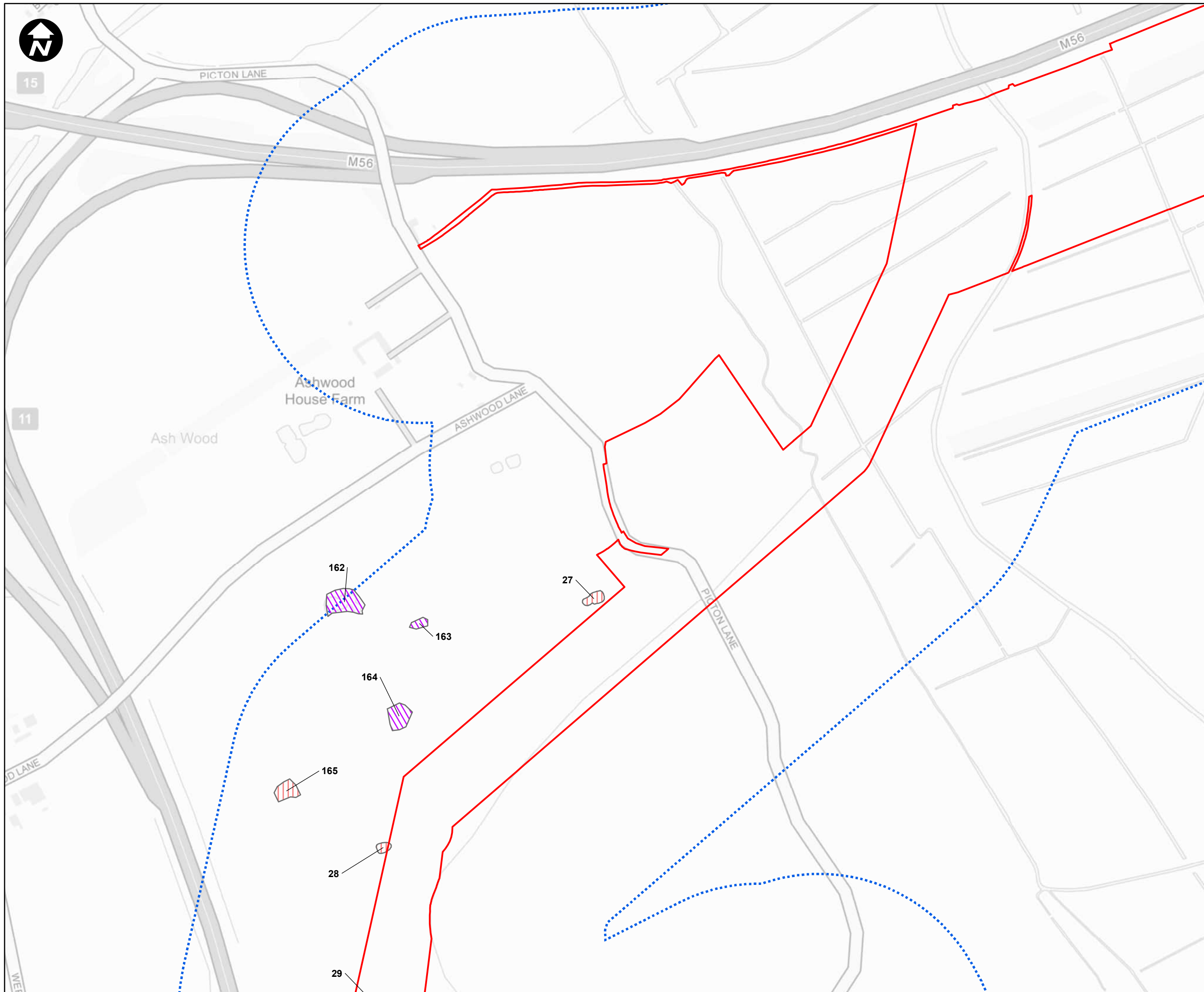
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Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Below Average
- Poor



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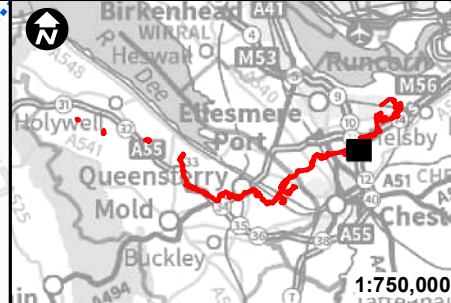
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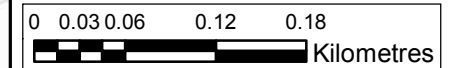
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Key:

- Newbuild Infrastructure Boundary
- Survey Area
- HSI Score**
- Excellent
- Good
- Average
- Below Average
- Poor



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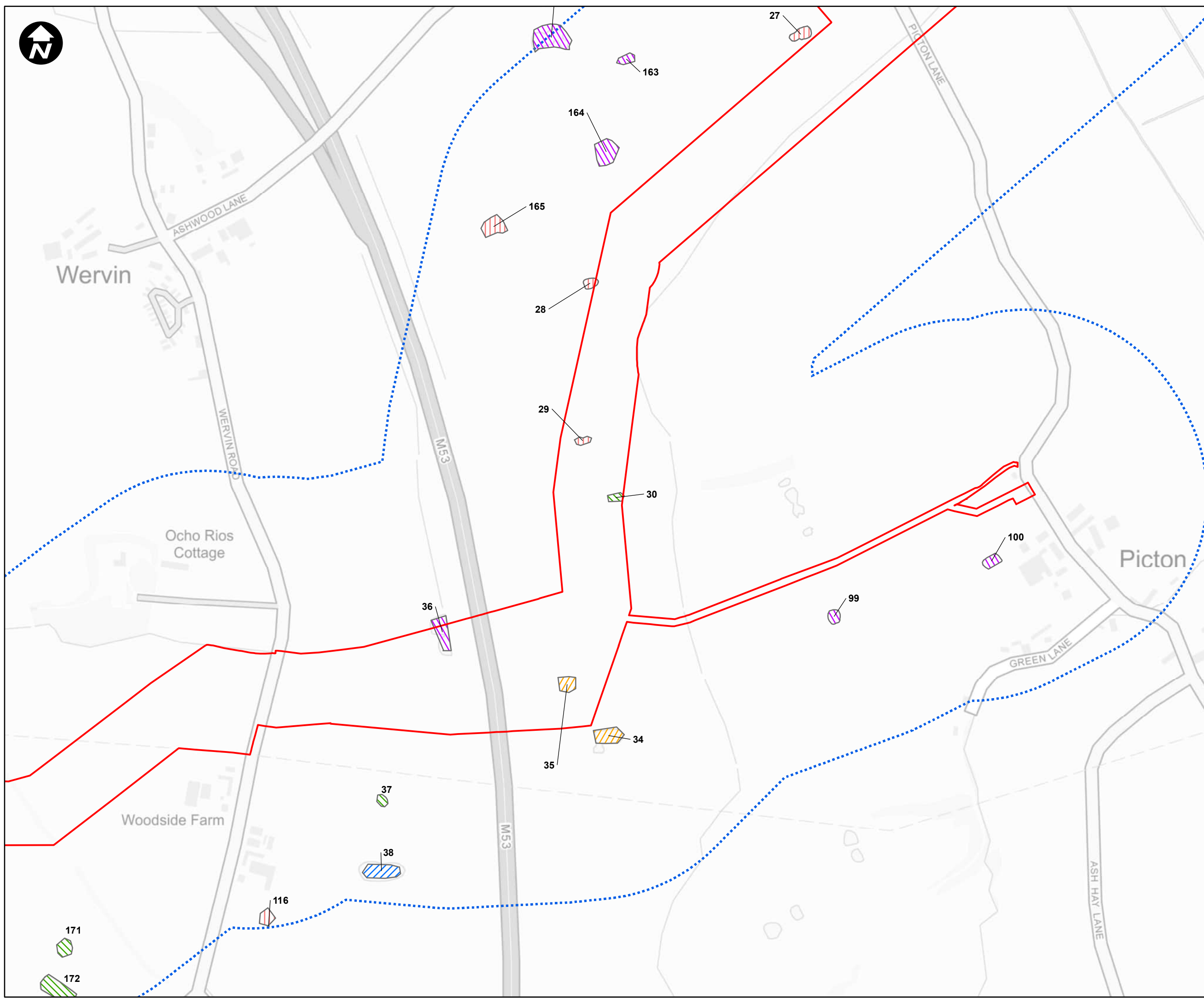
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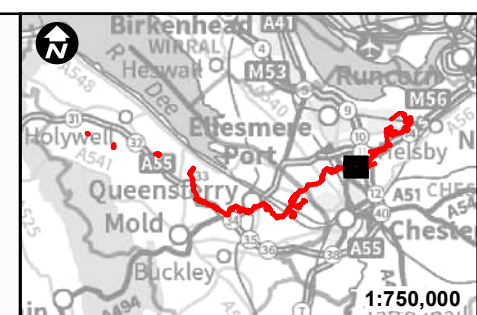
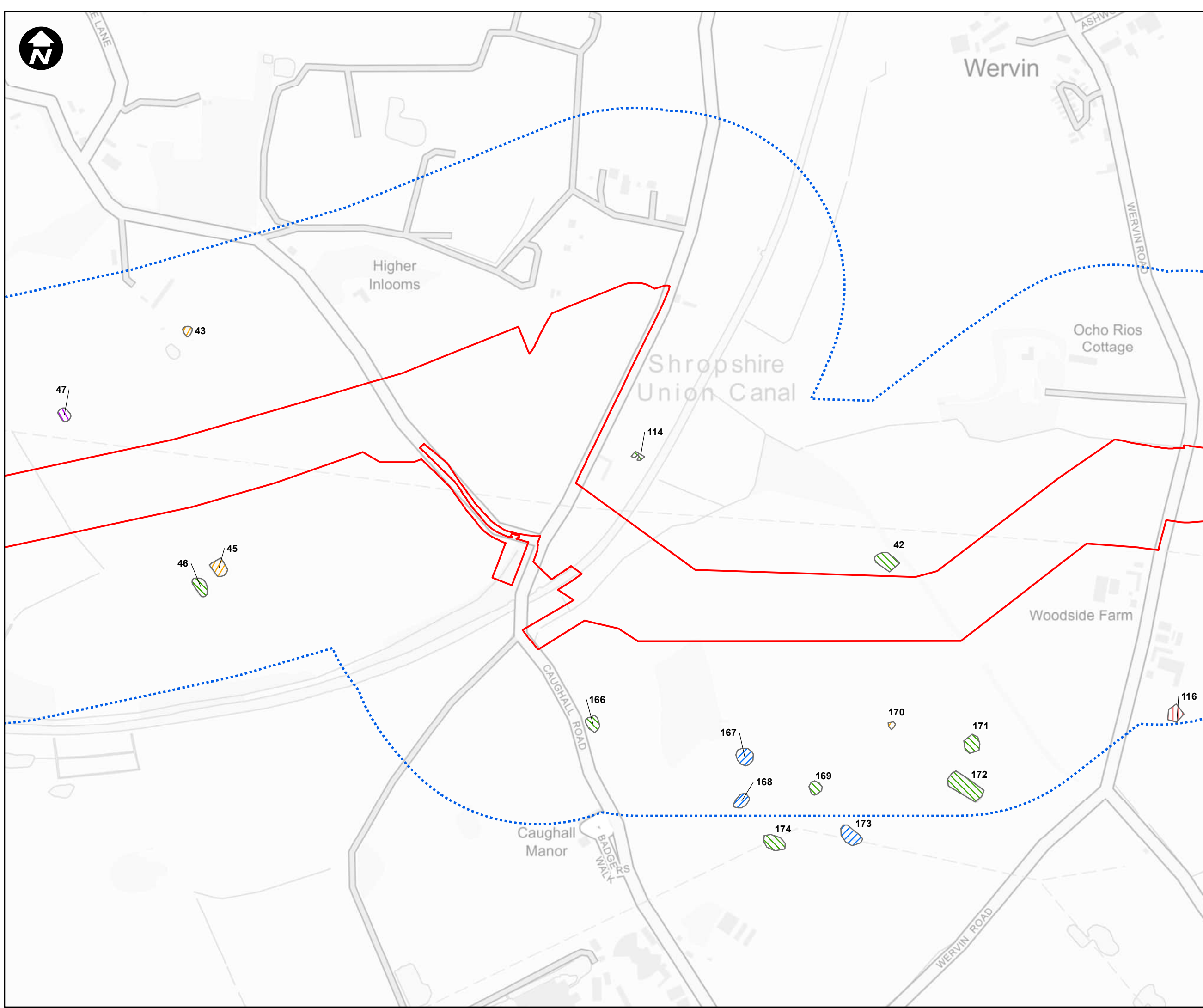
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Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Excellent
- Good
- Average
- Below Average
- Poor



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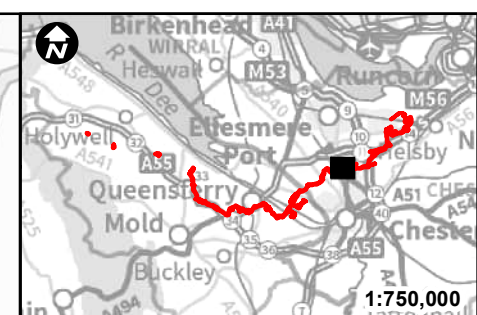
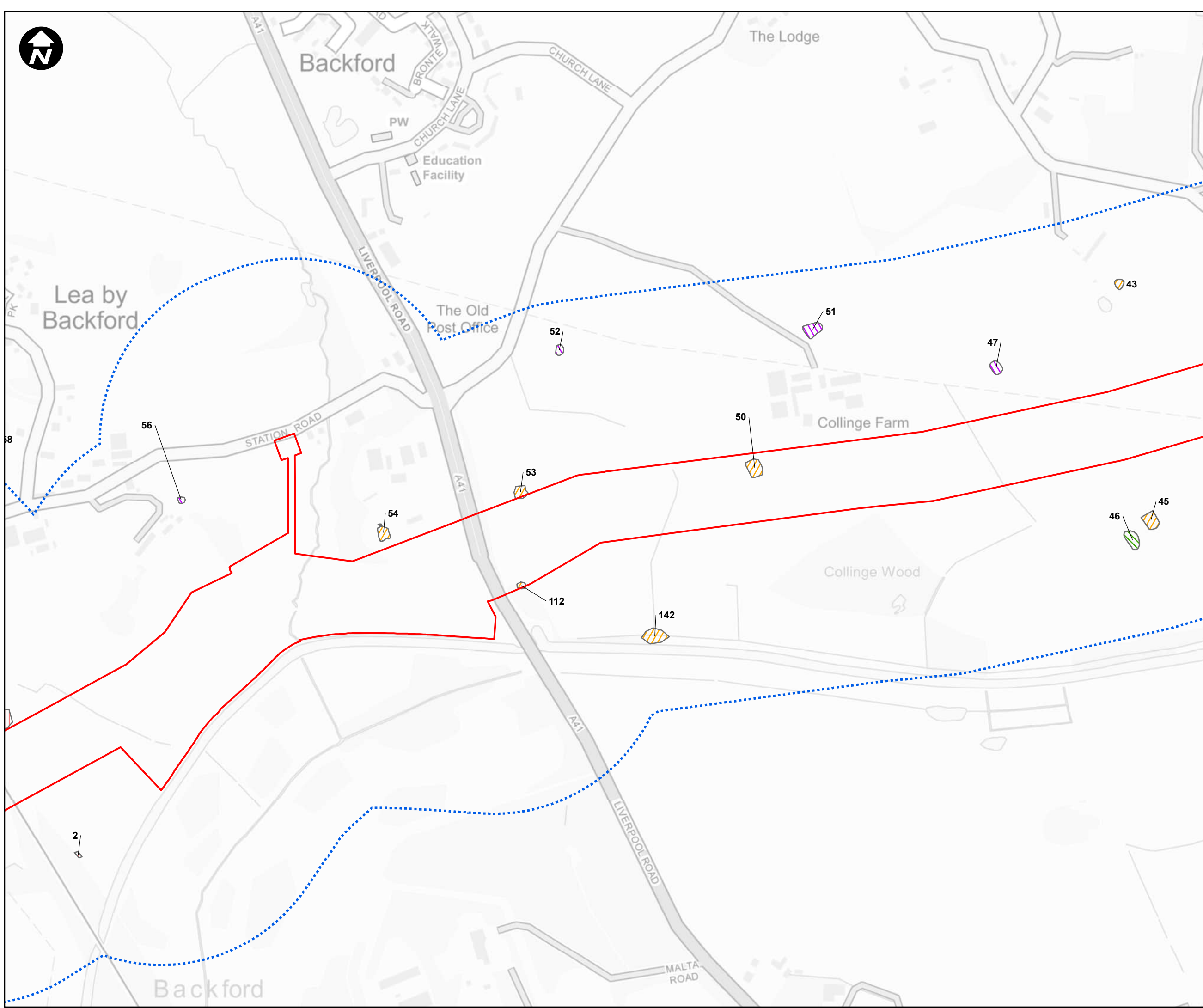
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Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Good
- Average
- Below Average
- Poor



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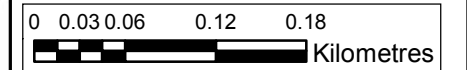


Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Excellent
- Good
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- Below Average
- Poor



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HyNet North West

HyNet Carbon Dioxide Pipeline DCO

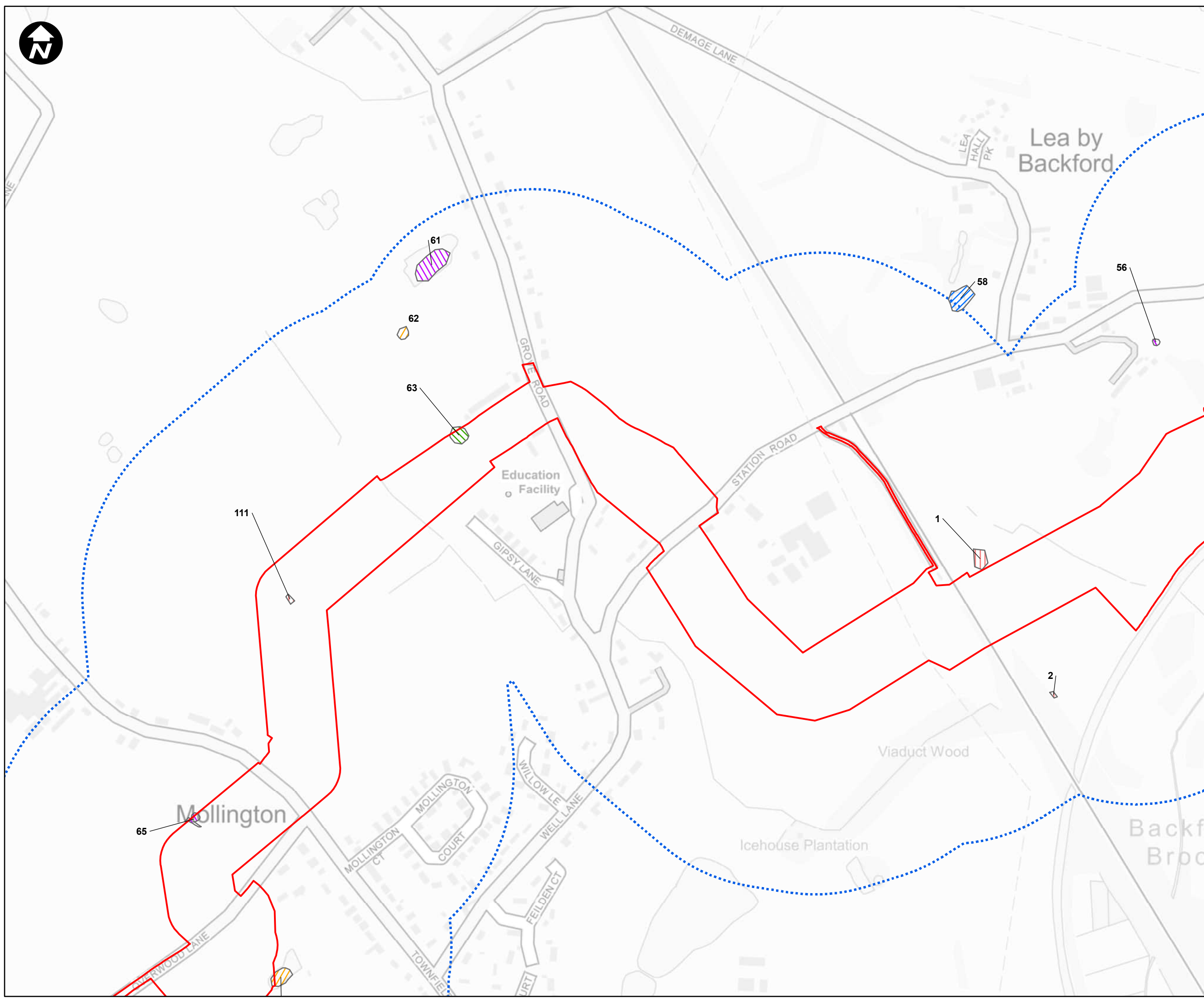
Figure 9.2.1 - HSI Results Sheet 10 of 25

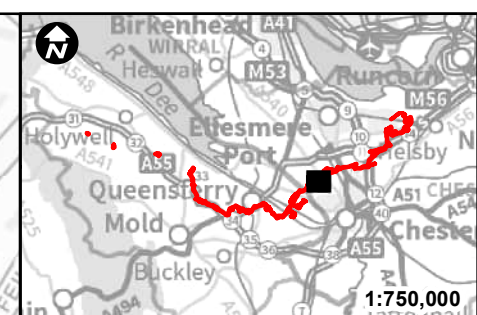
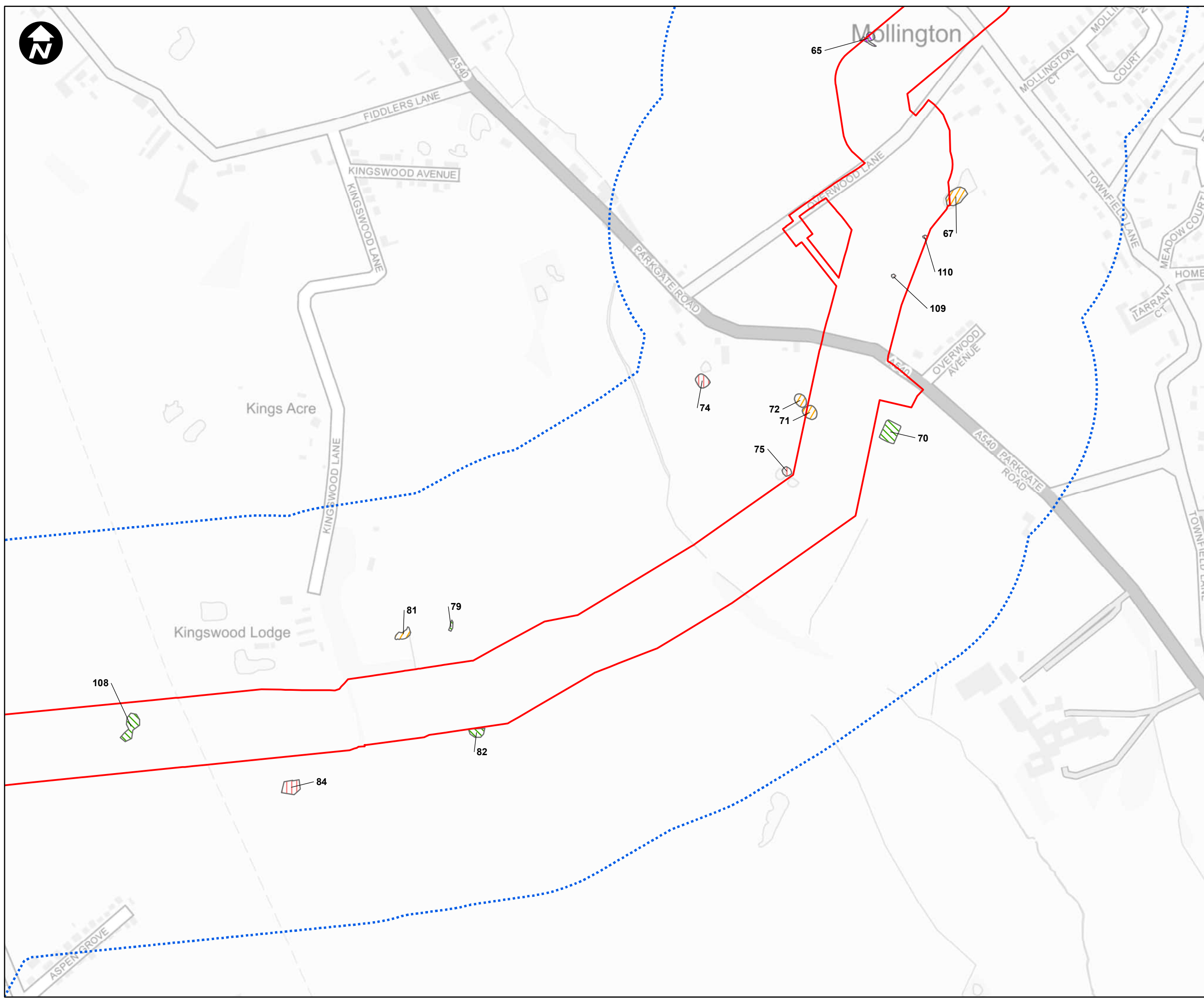
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Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.1-Sheet 10





Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Good
- Average
- Below Average
- Poor



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

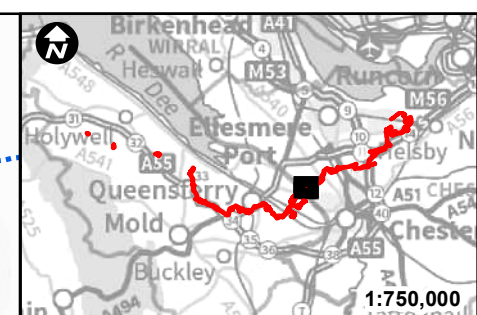
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Figure 9.2.1 - HSI Results Sheet 11 of 25

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.1-Sheet 11



Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Excellent
- Good
- Average
- Below Average
- Poor



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE
Figure 9.2.1 - HSI Results
Sheet 12 of 25

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Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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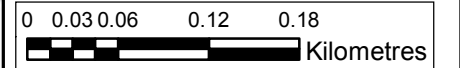
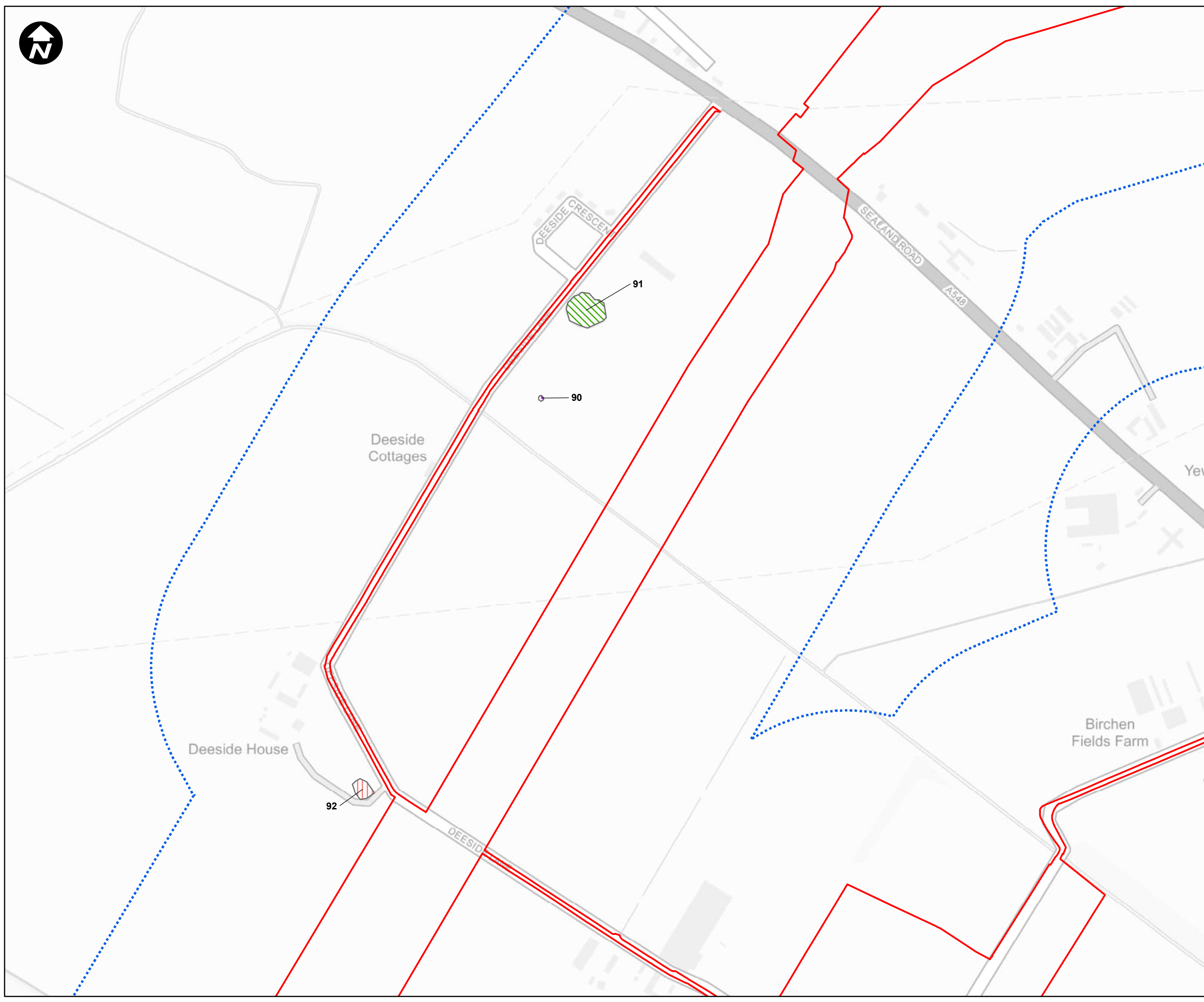


Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Good
- Below Average
- Poor



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HyNet North West

HyNet Carbon Dioxide Pipeline DCO

PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE
Figure 9.2.1 - HSI Results Sheet 13 of 25

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

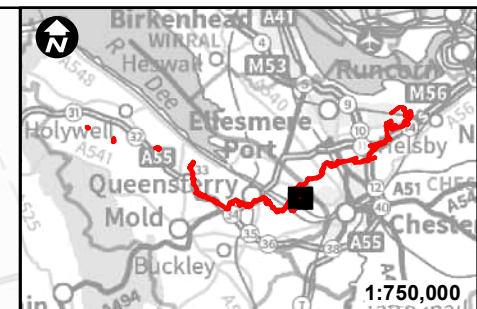
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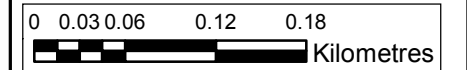
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1:750,000

Key:

- Newbuild Infrastructure Boundary
- Survey Area
- HSI Score**
- Good
- Below Average



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE
Figure 9.2.1 - HSI Results
Sheet 14 of 25

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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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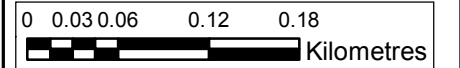
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EN070007-APP-ES-9.2.1-Sheet 14



Key:

-  Newbuild Infrastructure Boundary
-  Survey Area
- HSI Score**
-  Below Average

137



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HyNet Carbon Dioxide Pipeline DCO

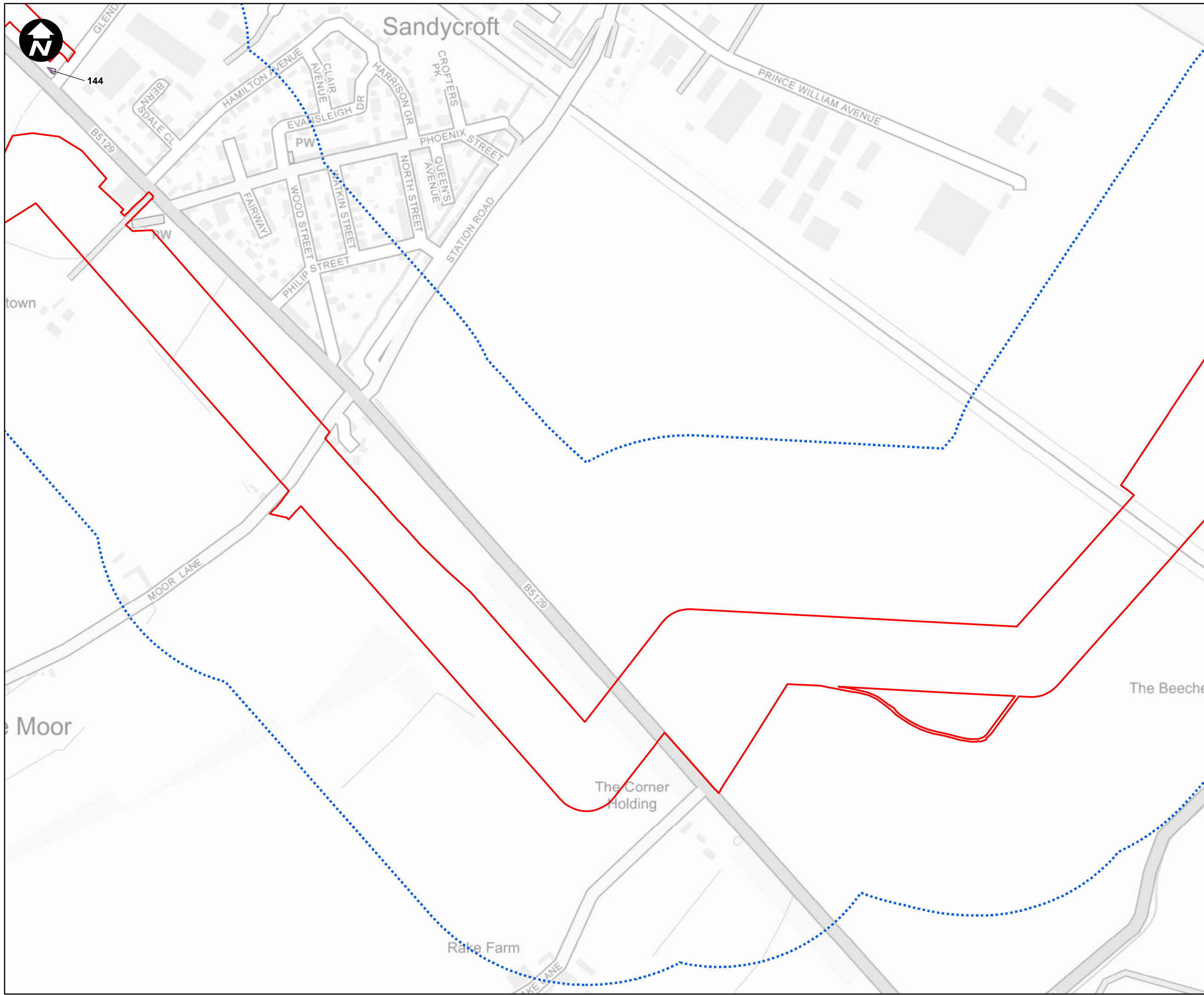
Figure 9.2.1 - HSI Results Sheet 15 of 25

Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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EN070007-APP-ES-9.2.1-Sheet 15



Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Below Average



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

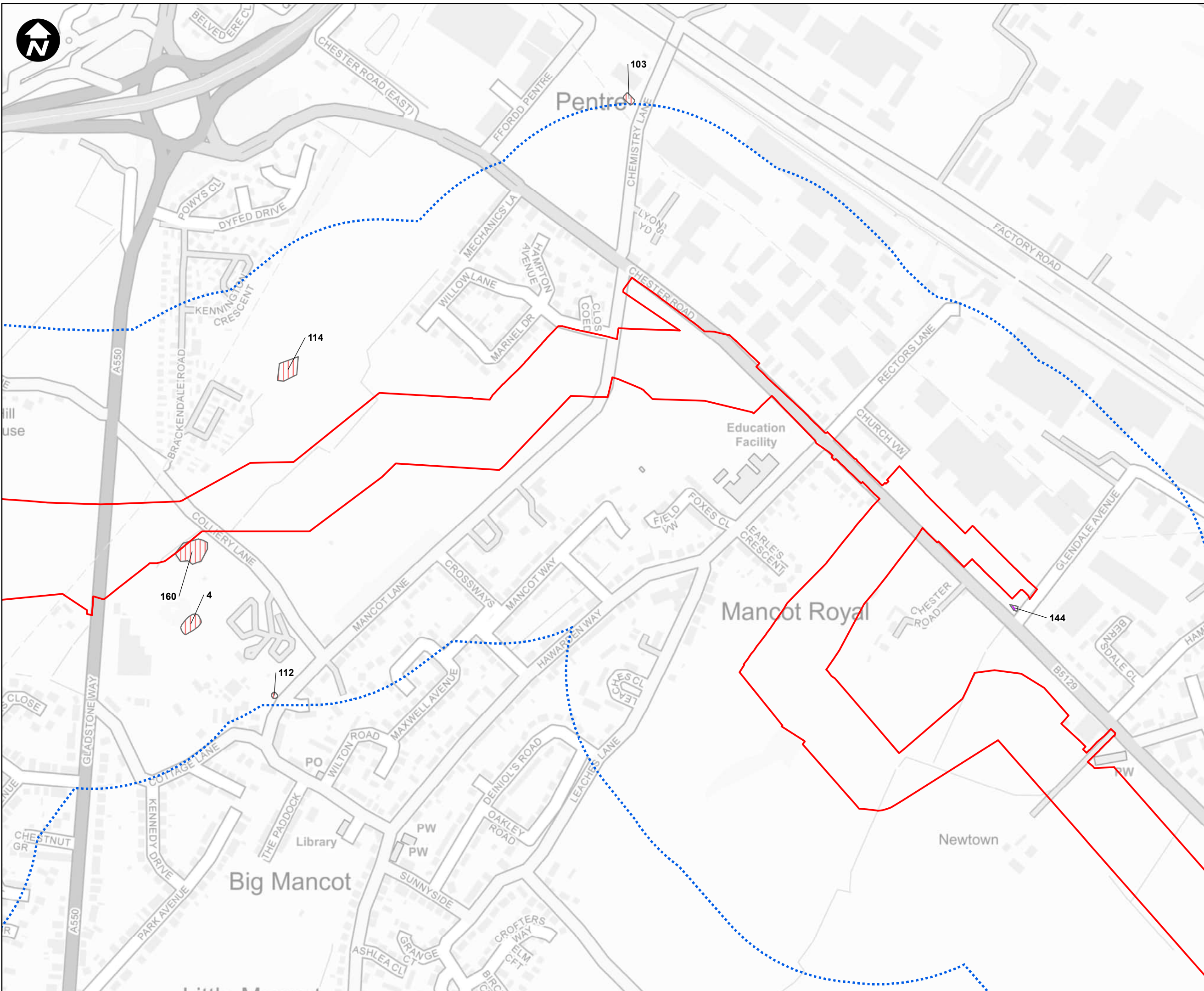
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 Figure 9.2.1 - HSI Results Sheet 16 of 25

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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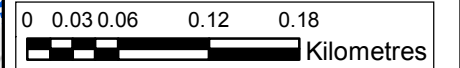


Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Below Average
- Poor



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

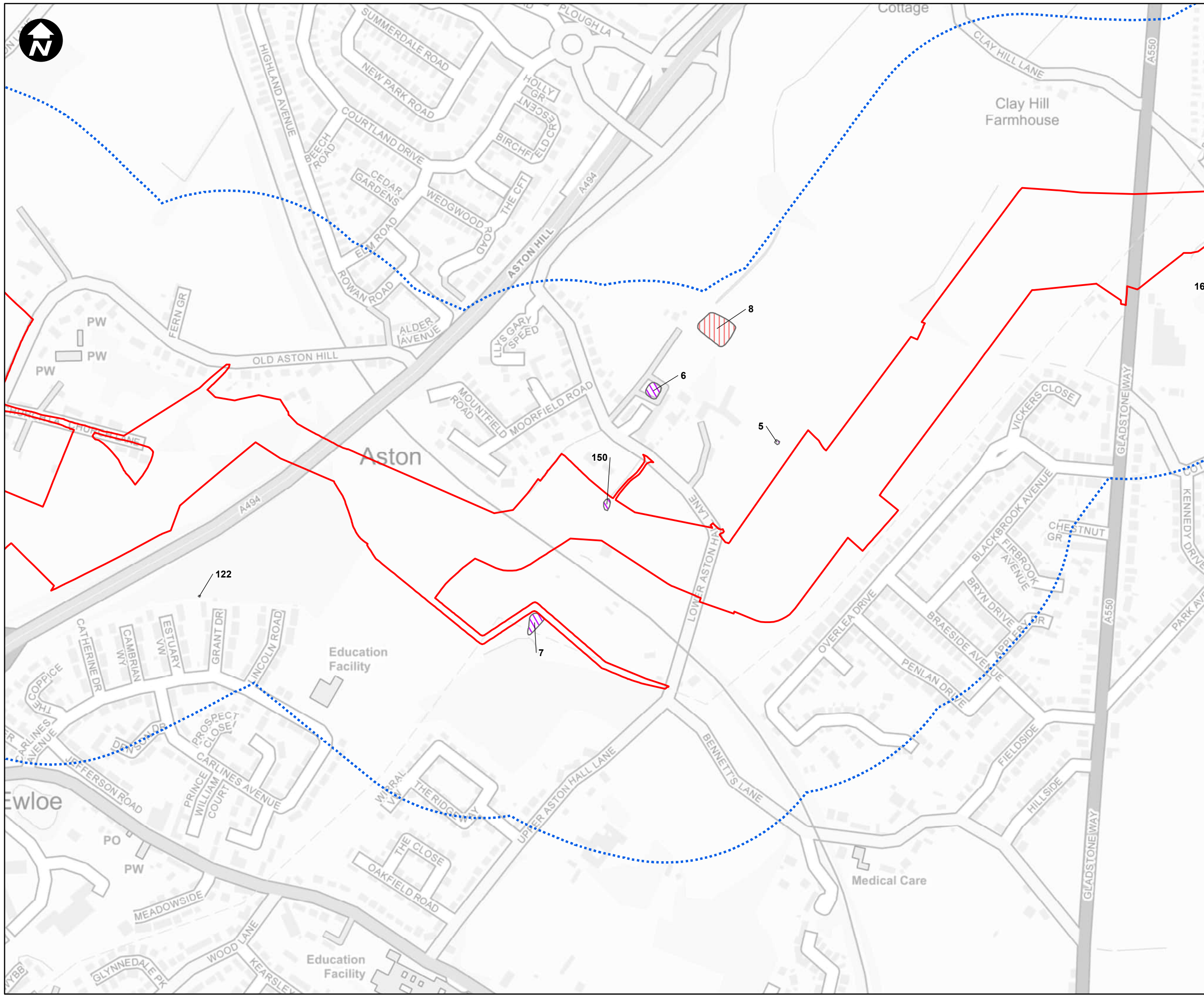
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Figure 9.2.1 - HSI Results Sheet 17 of 25

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.1-Sheet 17



Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Below Average
- Poor

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Kilometres

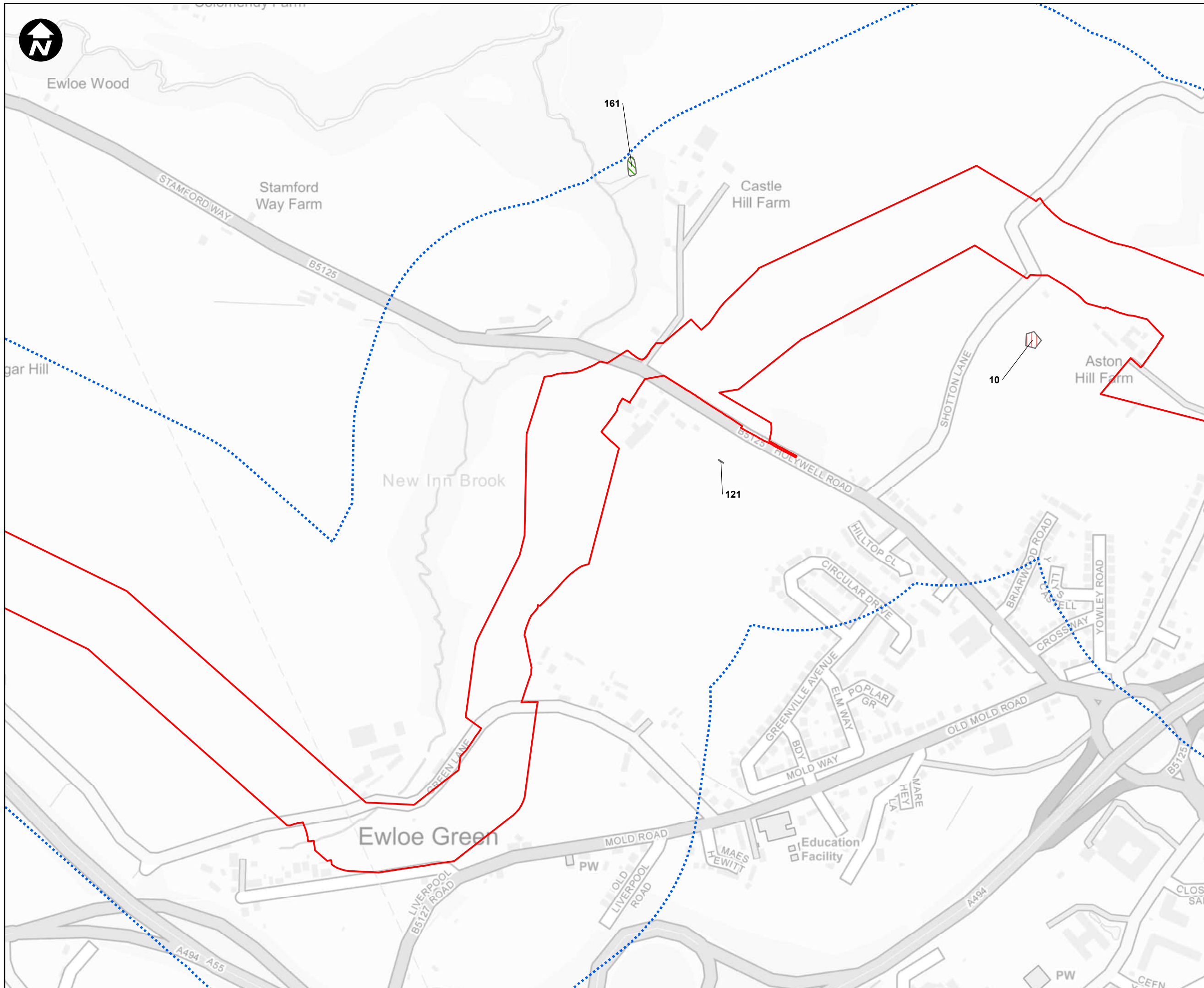
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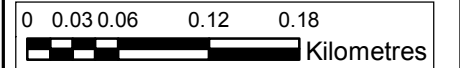
HyNet Carbon Dioxide Pipeline DCO

Figure 9.2.1 - HSI Results
Sheet 18 of 25

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- Key:**
- Newbuild Infrastructure Boundary
 - Survey Area
- HSI Score**
- Good
 - Poor



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PROJECT TITLE HyNet Carbon Dioxide Pipeline DCO

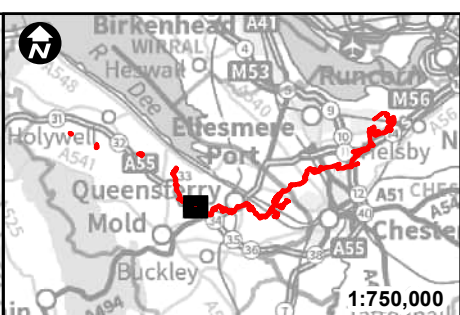
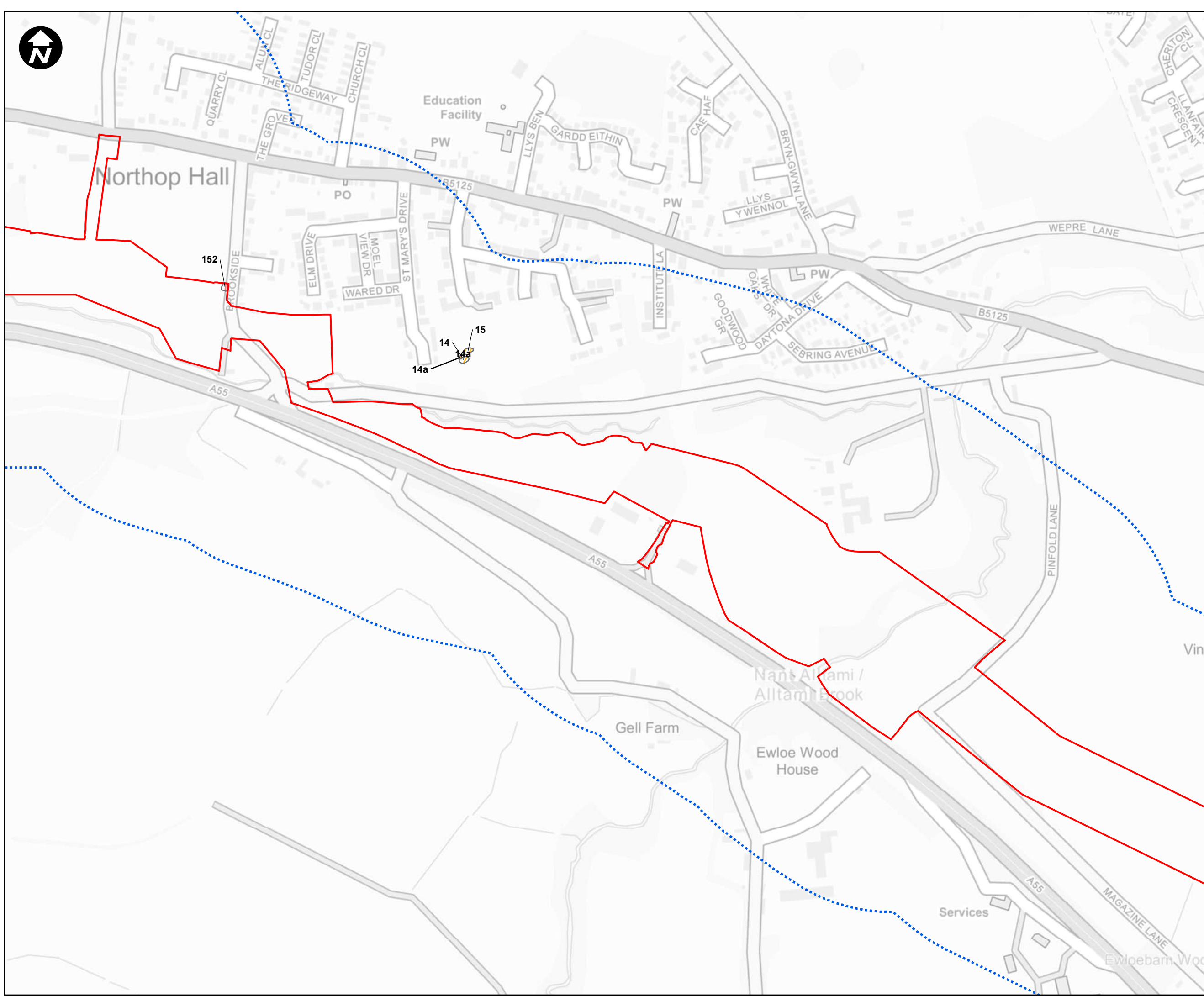
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Figure 9.2.1 - HSI Results Sheet 19 of 25

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Final for DCO Examination - submitted at Deadline 7

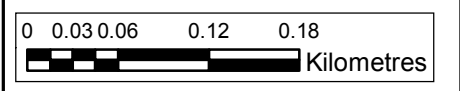
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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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EN070007-APP-ES-9.2.1-Sheet 19



- Key:**
- Newbuild Infrastructure Boundary
 - Survey Area
- HSI Score**
- Average
 - Poor



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

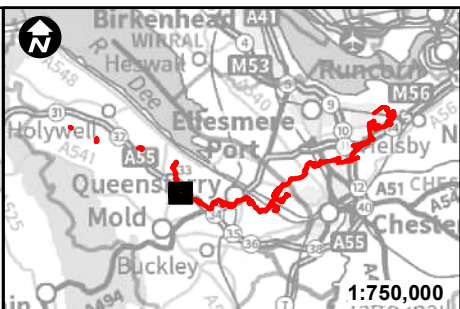
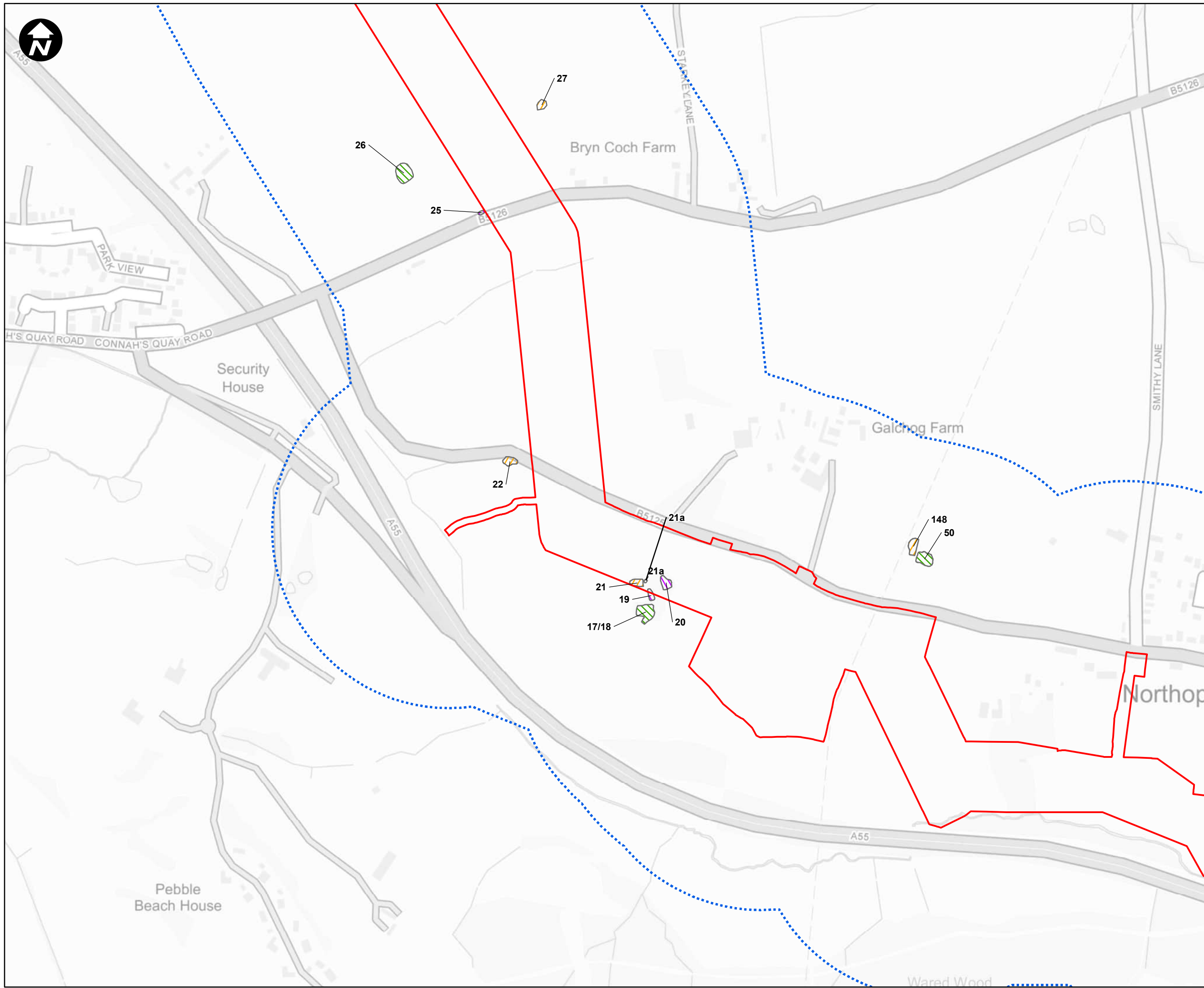
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Figure 9.2.1 - HSI Results Sheet 20 of 25

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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EN070007-APP-ES-9.2.1-Sheet 20



Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Good
- Average
- Below Average
- Poor



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PROJECT TITLE HyNet Carbon Dioxide Pipeline DCO

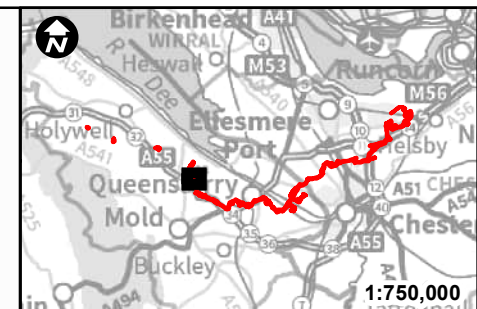
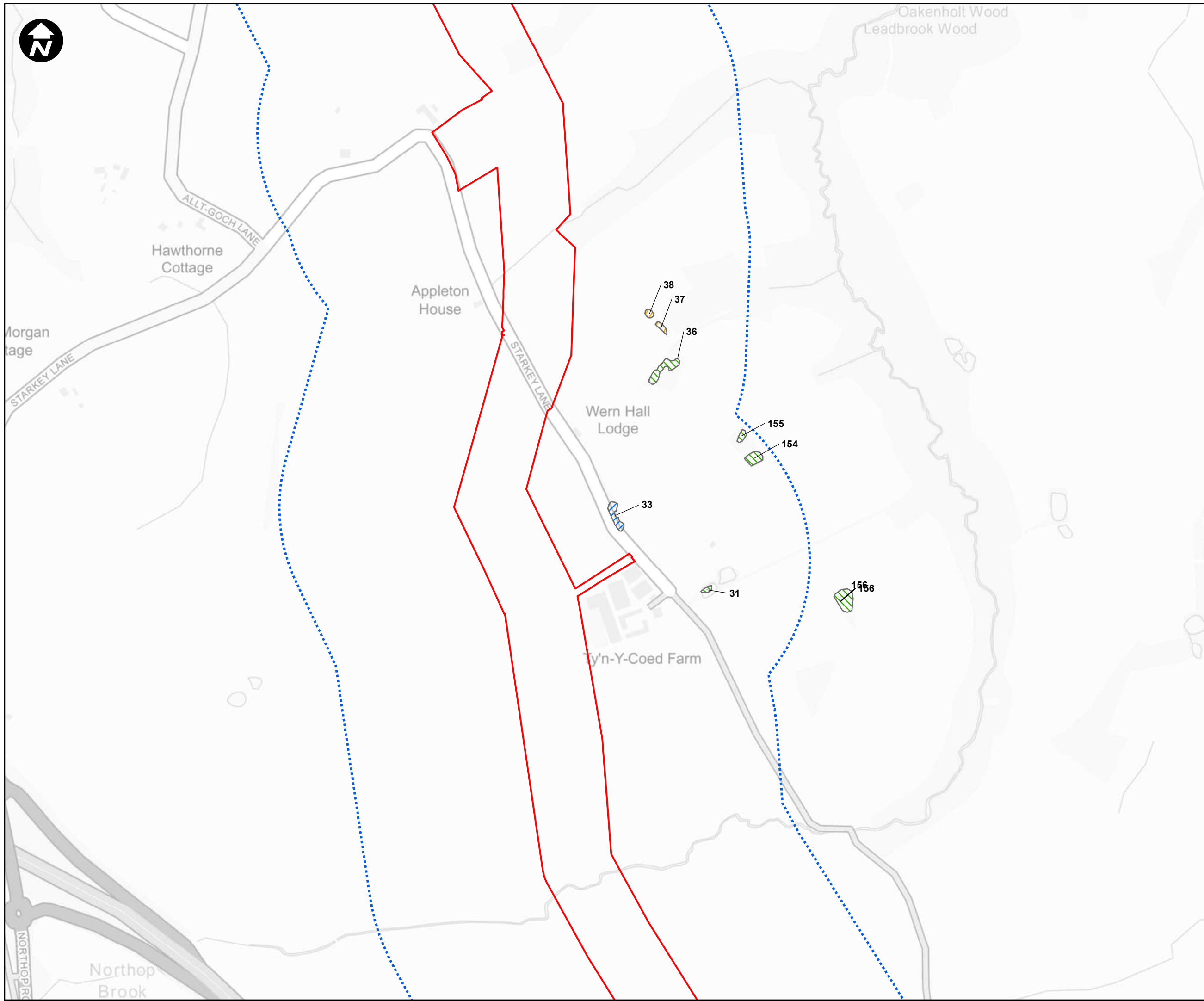
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DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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EN070007-APP-ES-9.2.1-Sheet 21



Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Excellent
- Good
- Average



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PROJECT TITLE
 HyNet Carbon Dioxide Pipeline DCO

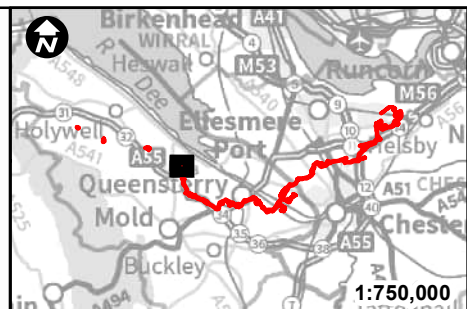
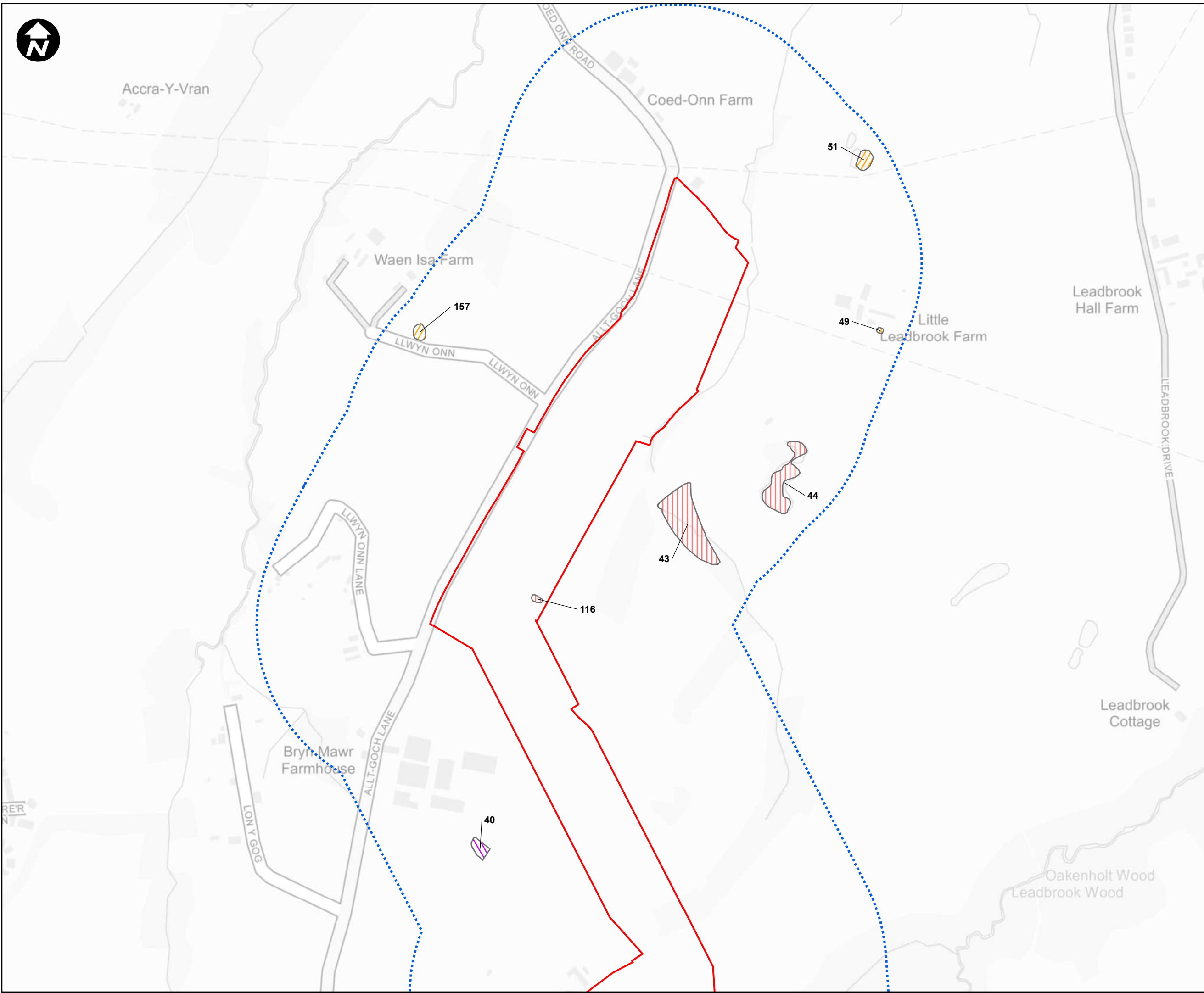
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 Figure 9.2.1 - HSI Results Sheet 22 of 25

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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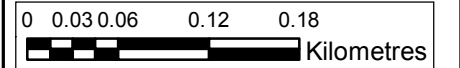


Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Average
- Below Average
- Poor



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

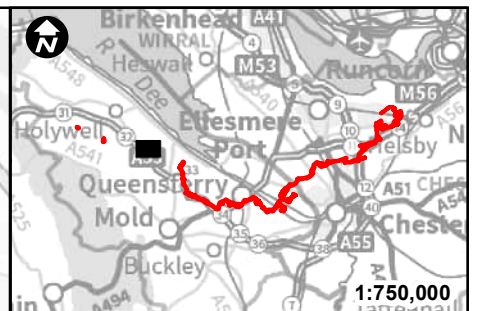
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Figure 9.2.1 - HSI Results Sheet 23 of 25

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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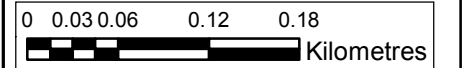


Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Good



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

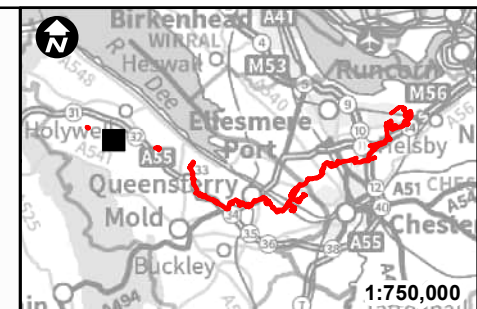
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Figure 9.2.1 - HSI Results Sheet 24 of 25

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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Key:

- Newbuild Infrastructure Boundary
- Survey Area

HSI Score

- Excellent
- Good
- Below Average
- Poor



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

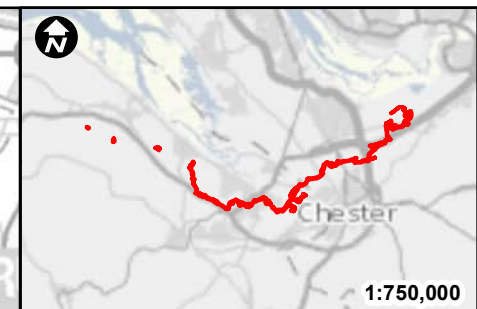
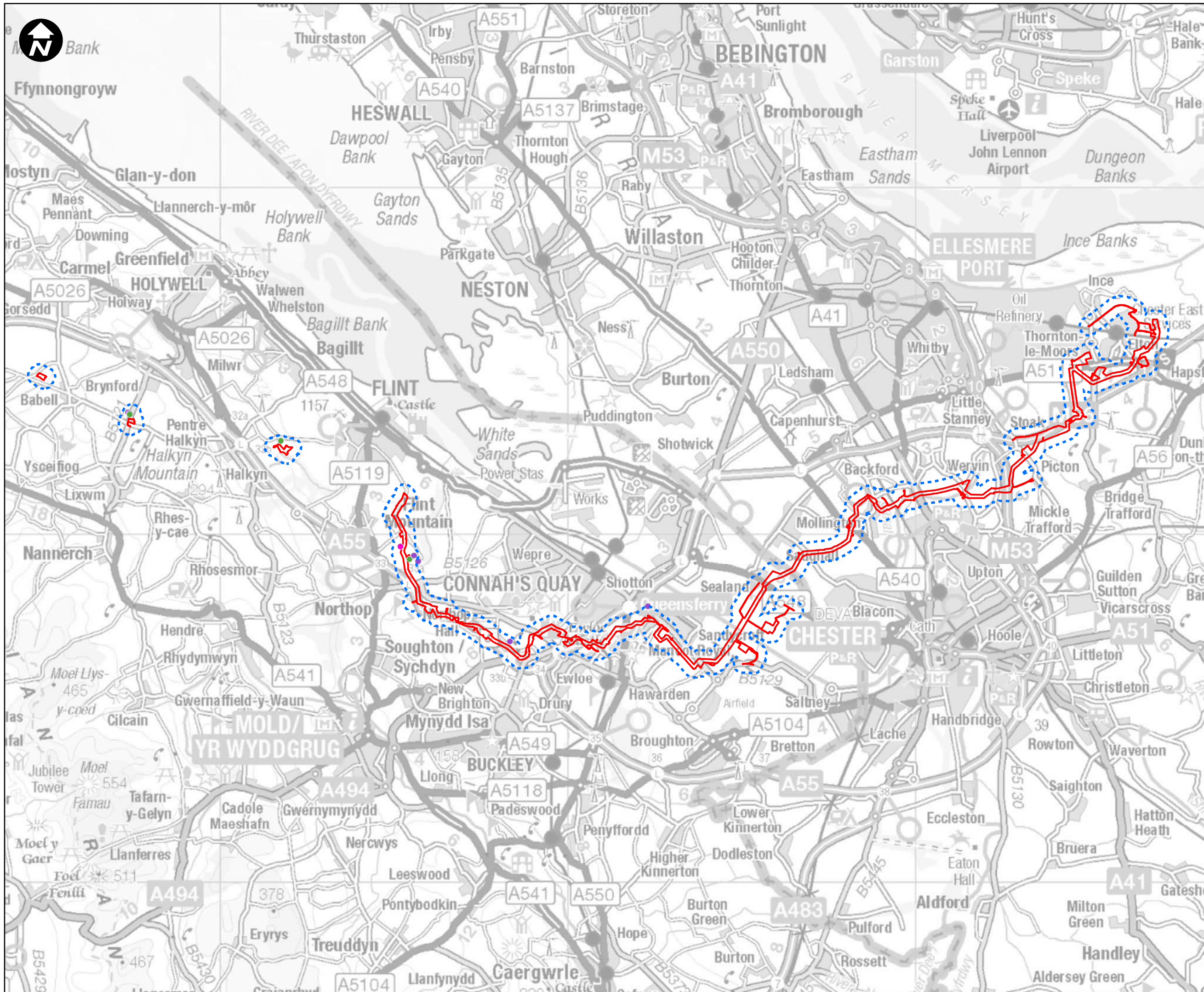
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Figure 9.2.1 - HSI Results Sheet 25 of 25

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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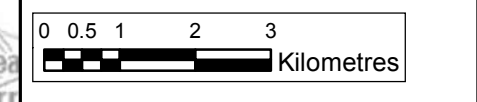


Key:

- Newbuild Infrastructure Boundary
- Survey Area

eDNA Results

- Inconclusive
- Negative
- Positive



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HyNet North West

PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

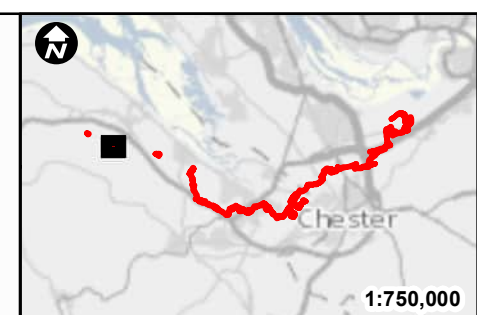
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Figure 9.2.2 - eDNA Results Overview

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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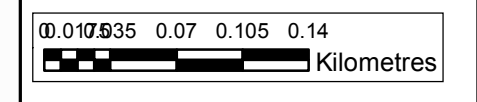


Key:

- Newbuild Infrastructure Boundary
- Survey Area

eDNA Results

- Inconclusive
- Negative



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HyNet North West

PROJECT TITLE
HyNet North West
CO2 Pipeline DCO

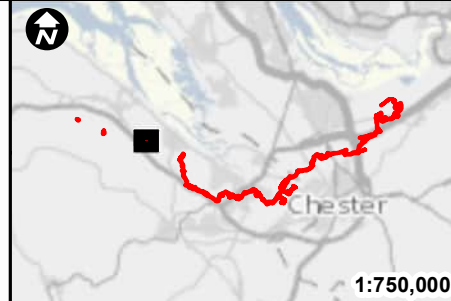
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Sheet 1 of 5

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Final for DCO Examination - Submitted at Deadline 7

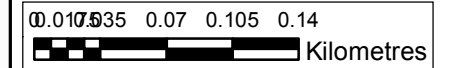
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- Newbuild Infrastructure Boundary
- Survey Area
- eDNA Results**
- Inconclusive



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PROJECT TITLE
**HyNet North West
 CO2 Pipeline DCO**

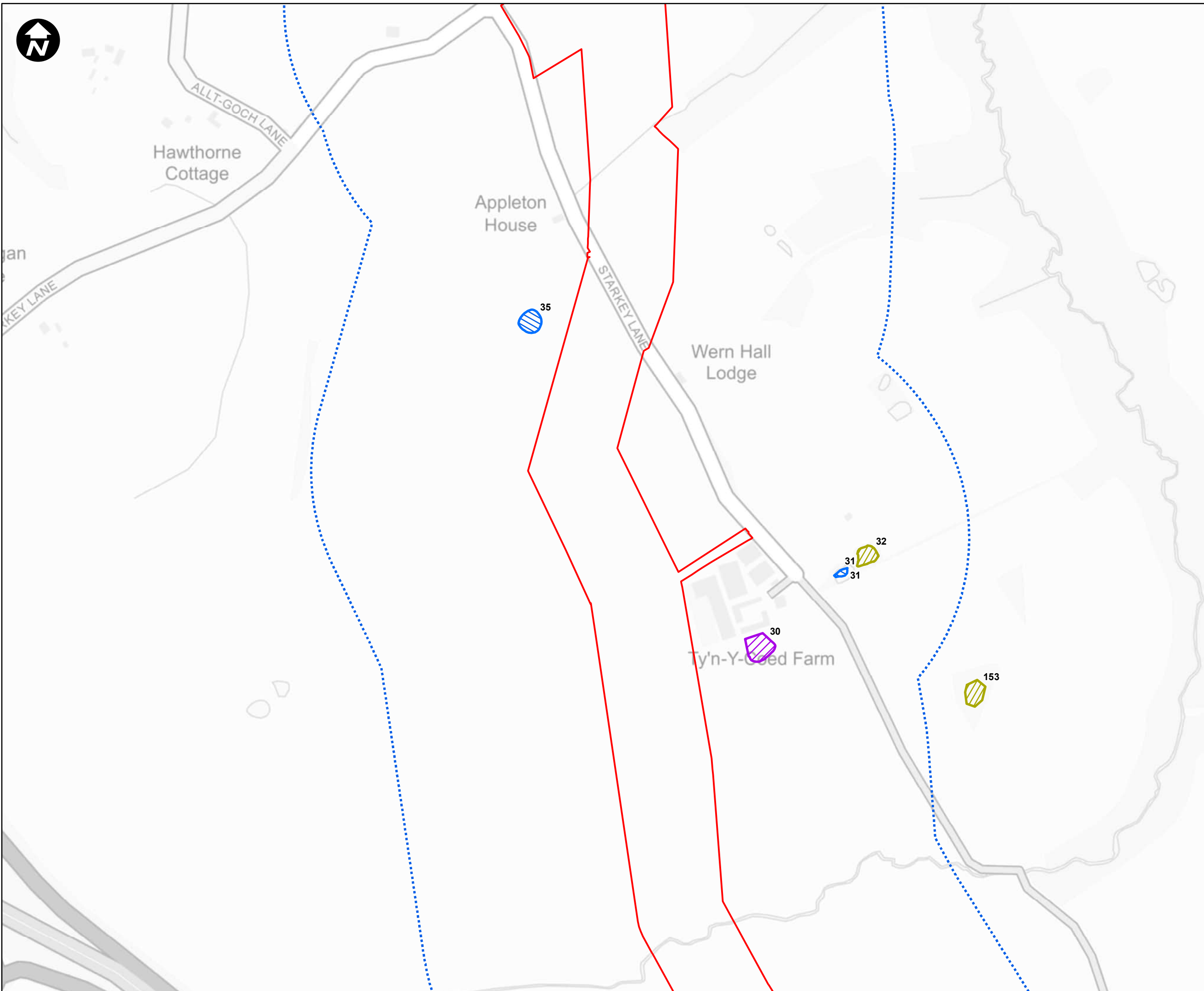
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 Sheet 2 of 5

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 Final for DCO Examination - submitted at Deadline 7

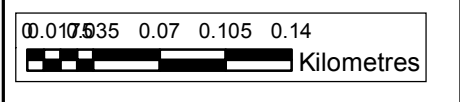
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 EN070007-APP-ES-9.2.2-Sheet 2



- Key:**
- Newbuild Infrastructure Boundary
 - Survey Area
- eDNA Results**
- Inconclusive
 - Negative
 - Positive



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HyNet North West

PROJECT TITLE
 HyNet North West
 CO2 Pipeline TCPA

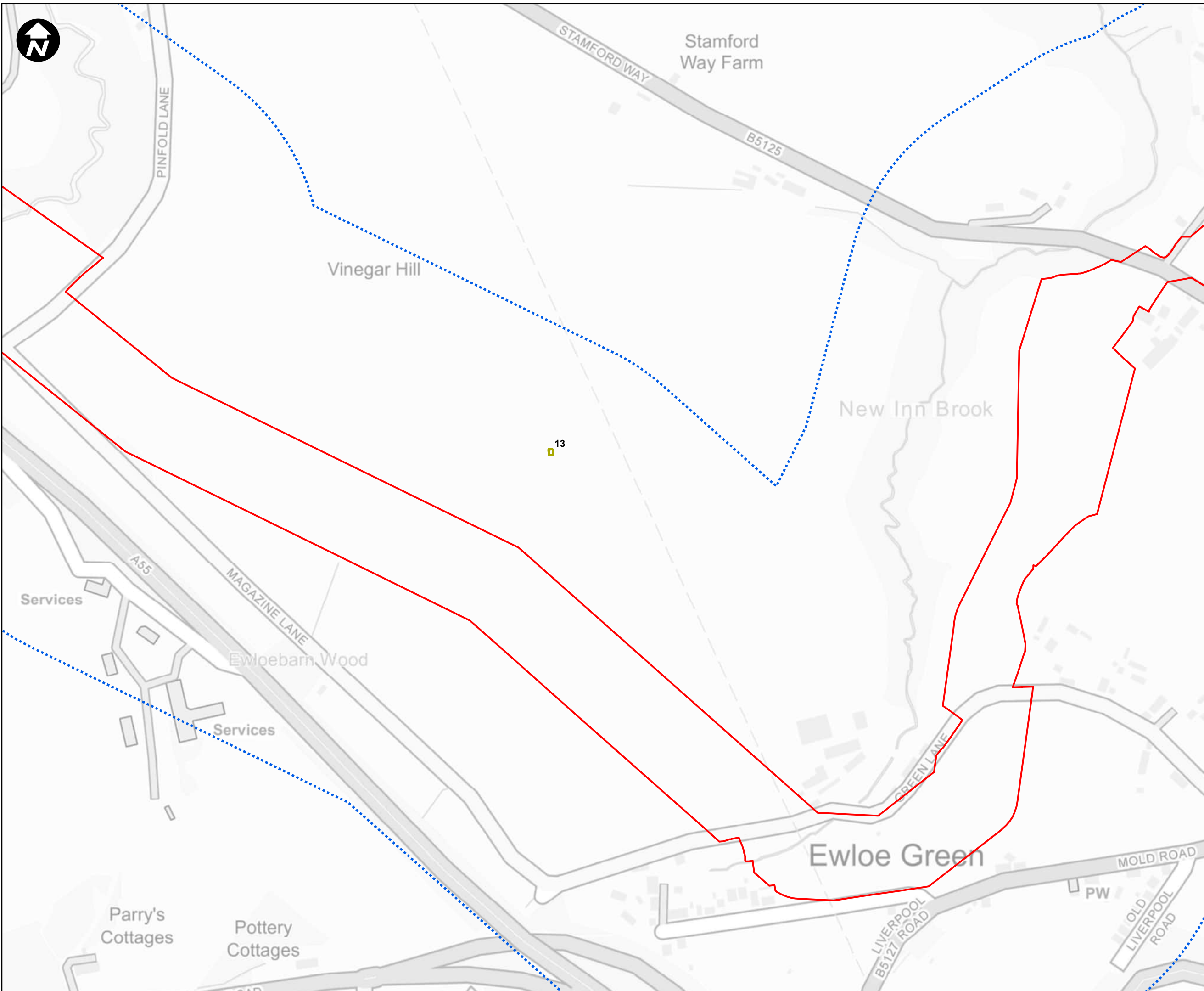
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 Figure 9.2.2 - eDNA Results
 Sheet 3 of 5

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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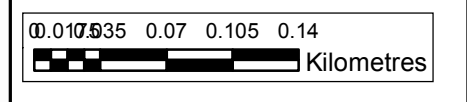


Key:

- Newbuild Infrastructure Boundary
- Survey Area

eDNA Results

- Negative



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PROJECT TITLE
HyNet North West
CO2 Pipeline TCPA

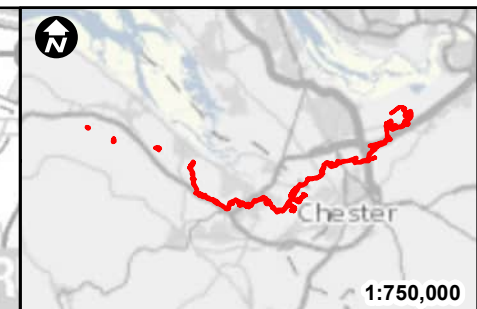
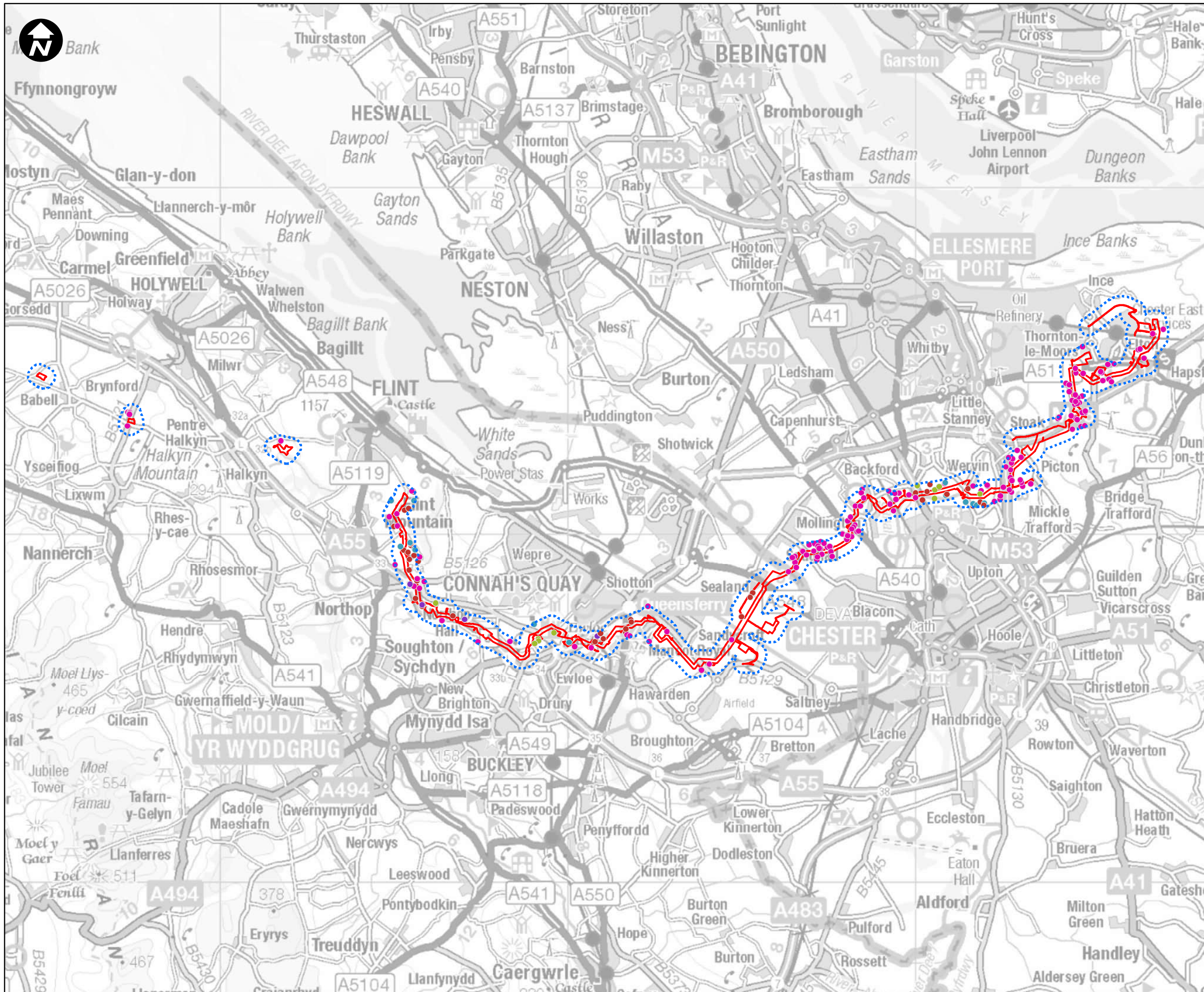
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Sheet 4 of 5

DRAWING STATUS
Final for DCO Examination - submission at Deadline 7

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SCALE @ A3 SIZE 1:4,000	DATE 21/08/2023	REVISION C
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EN070007-APP-ES-9.2.2-Sheet 4



Key:

- Survey Area
- Newbuild Infrastructure Boundary

Presence / Likely Absence Results

- Present
- Likely Absent
- Not Surveyed - Precautionary Presence
- Not Surveyed - Assumed Absence
- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE
Figure 9.2.3 - Presence / Likely Absence Results Overview

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SCALE @ A3 SIZE 1:100,000	DATE 21/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3 Overview



Holme Farm

Ince

Bare Brick House

Orchard Park

Ince and Elton



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

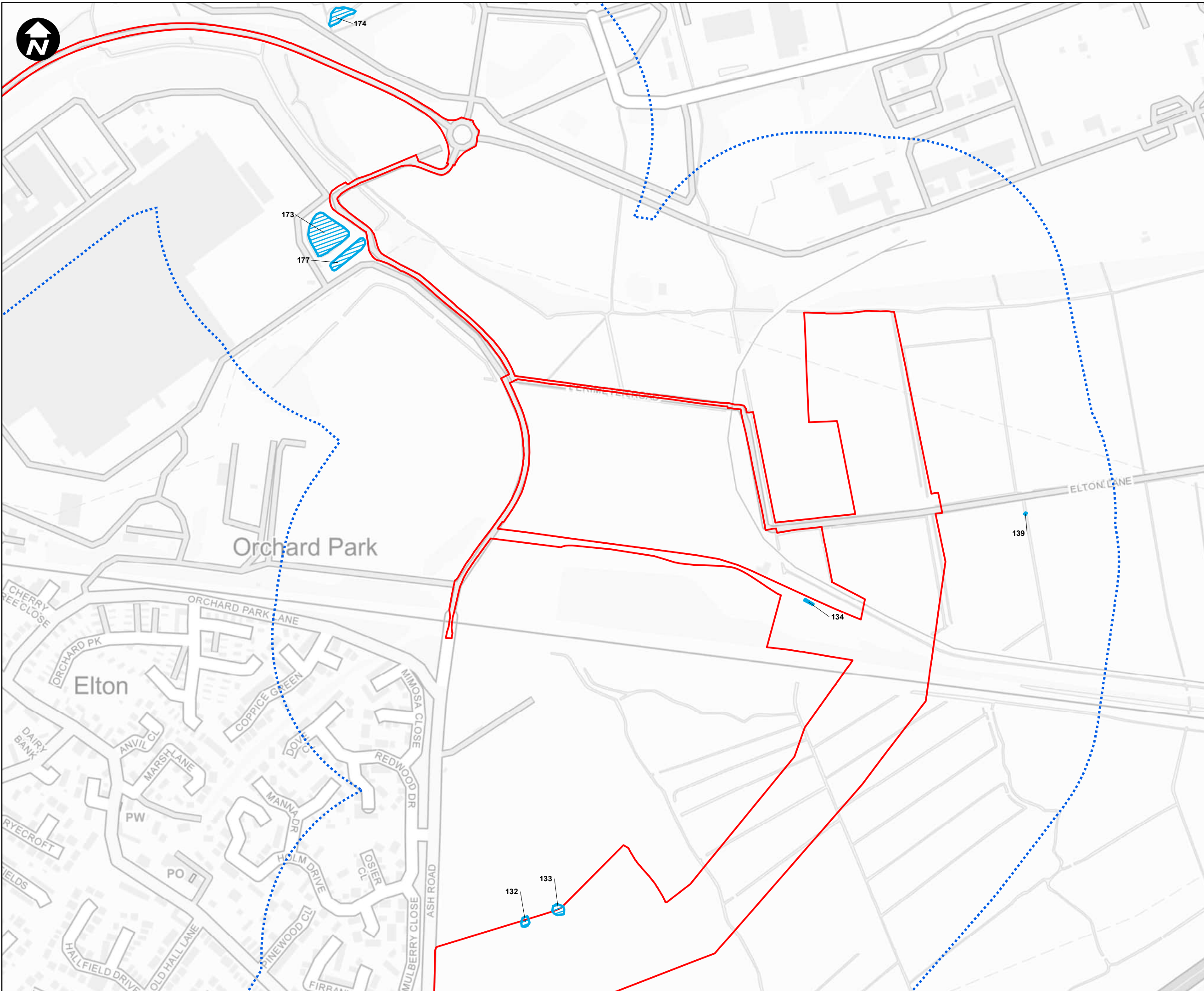
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Figure 9.2.3 - Presence / Likely Absence Results Sheet - 1 of 26

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 21/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3-Sheet 1



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Not Surveyed

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HyNet North West

PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

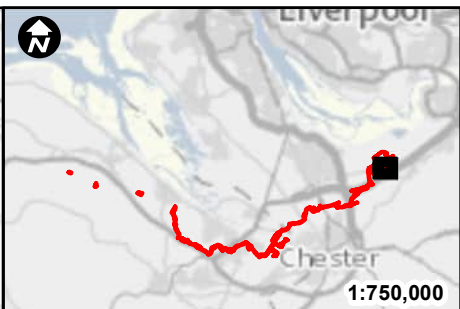
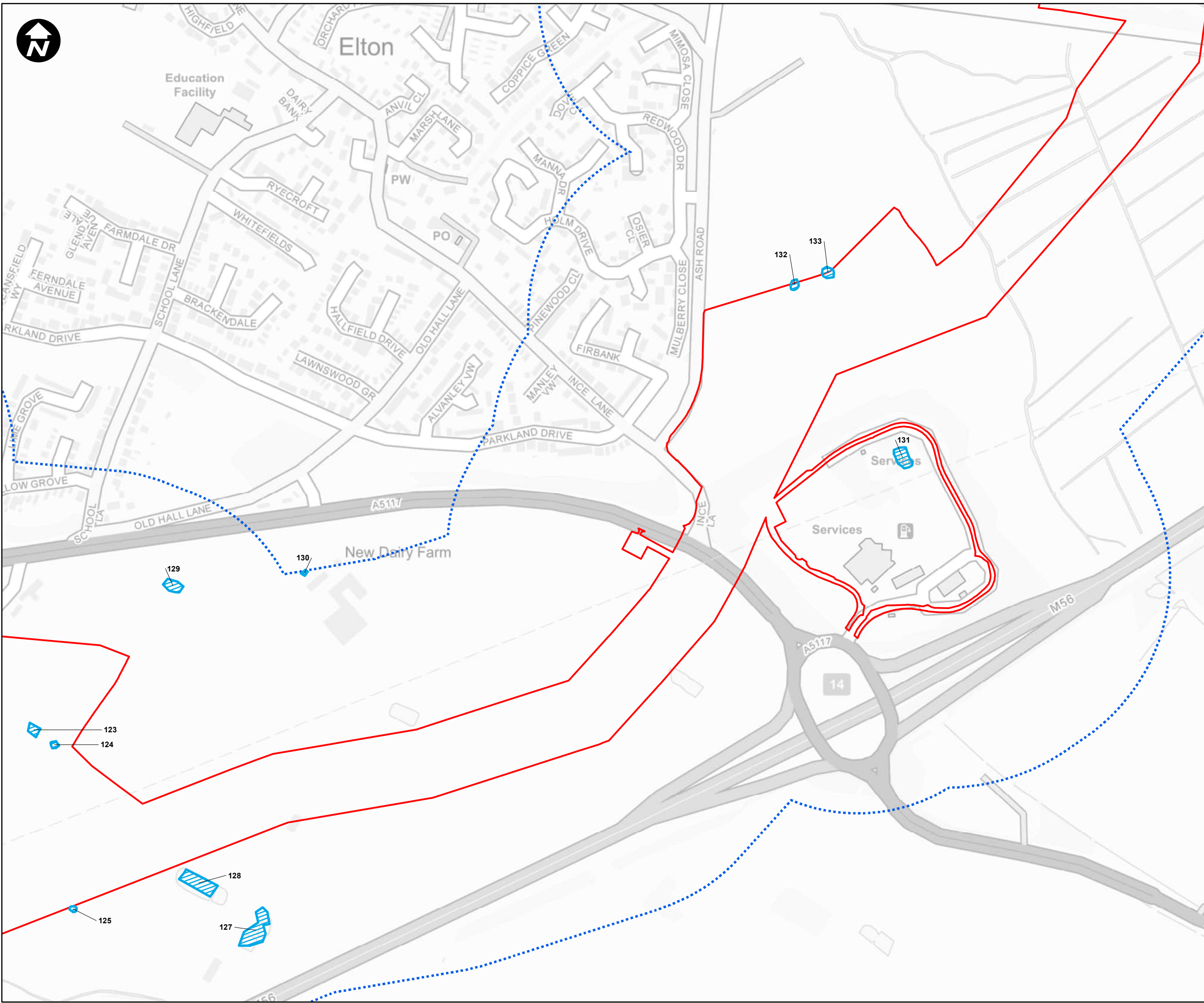
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 2 of 26

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 02/02/2023	REVISION C
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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet 2



- Key:**
- Newbuild Infrastructure Boundary
 - Survey Area
 - Presence / Likely Absence Result
 - Not Surveyed

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HyNet North West

PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

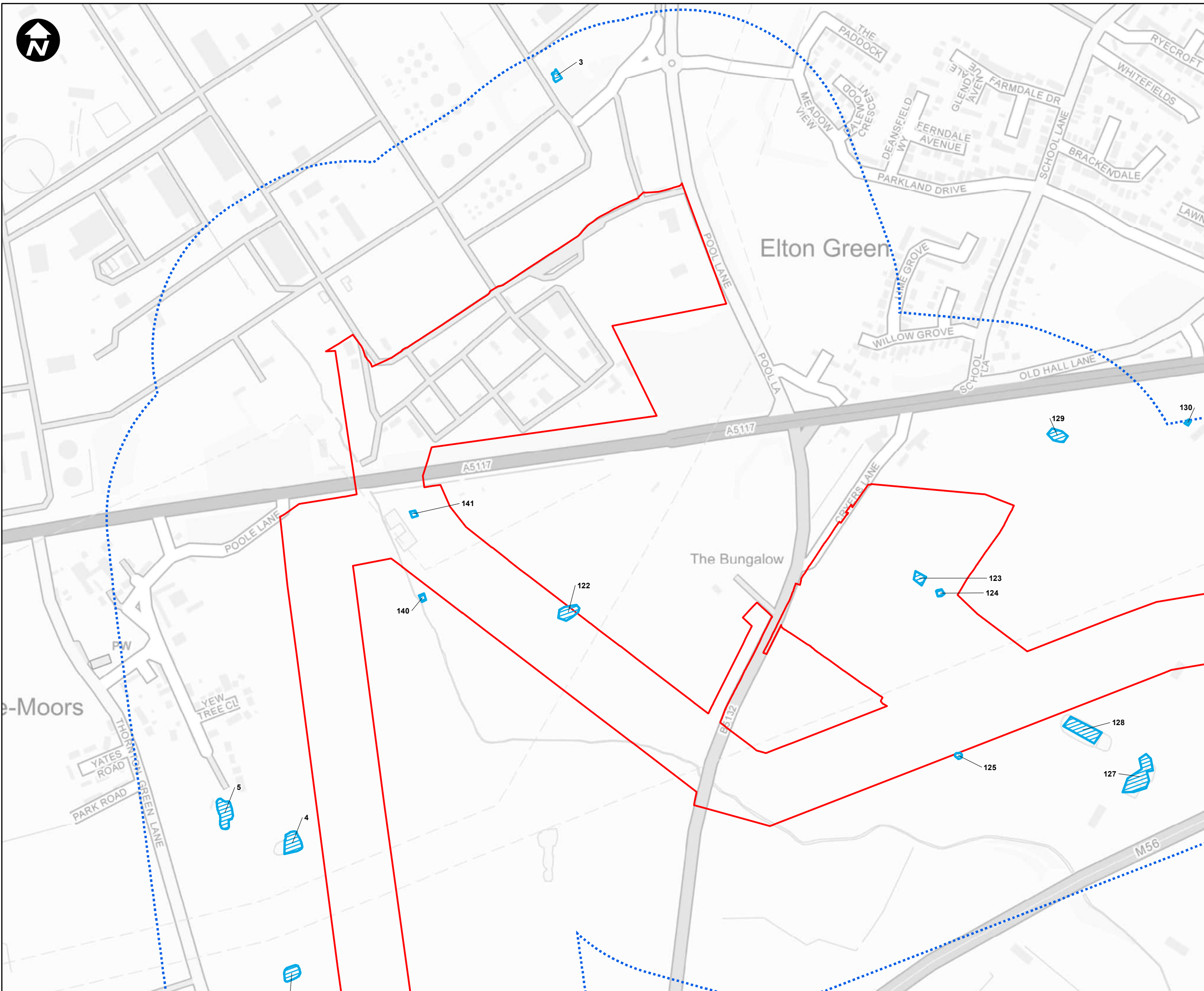
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Figure 9.2.3 - Presence / Likely Absence Results Sheet - 3 of 26

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3-Sheet 3



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Not Surveyed

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HyNet North West

PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

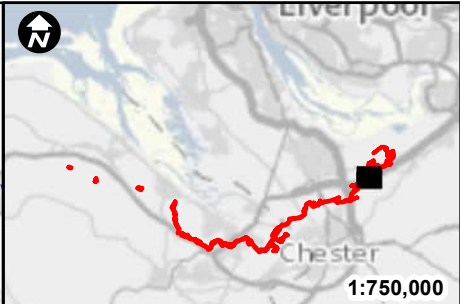
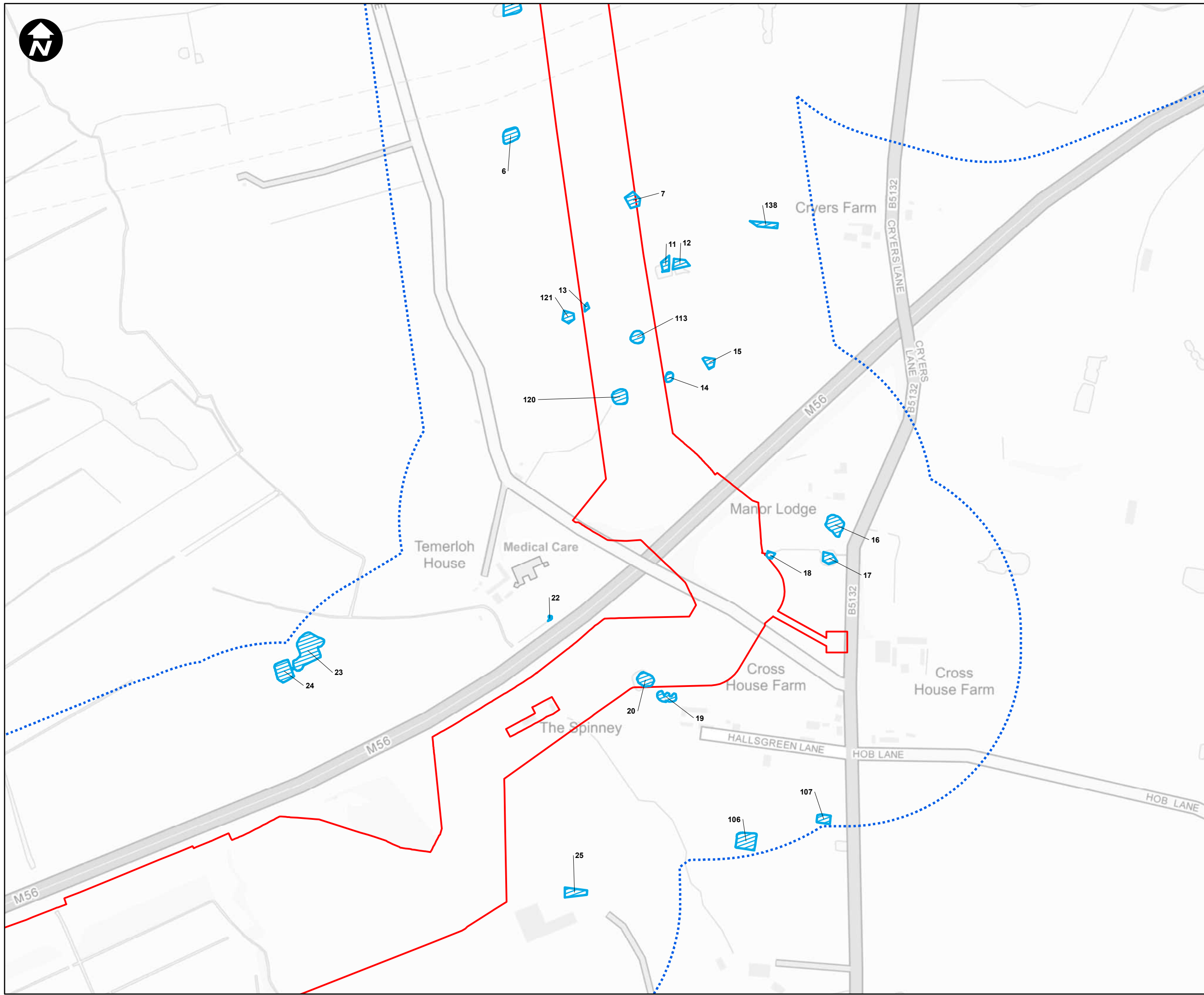
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Figure 9.2.3 - Presence / Likely Absence Results Sheet - 4 of 26

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3-Sheet 4



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Not Surveyed

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HyNet North West

PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

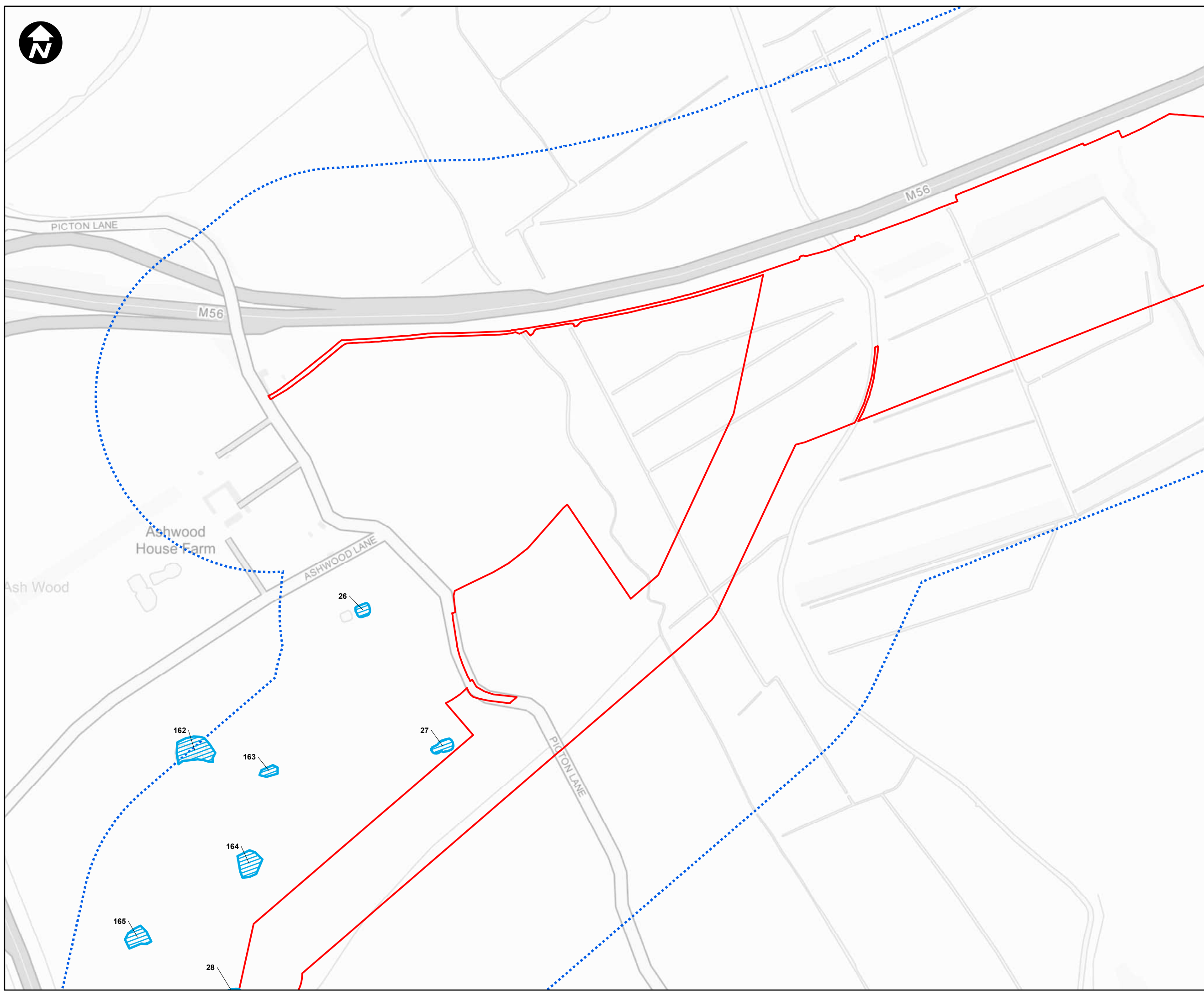
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Figure 9.2.3 - Presence / Likely Absence Results Sheet - 5 of 26

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3-Sheet 5



Key:

- Newbuild Infrastructure Boundary
- Survey Area
- Presence / Likely Absence Result
- Not Surveyed

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HyNet North West

PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

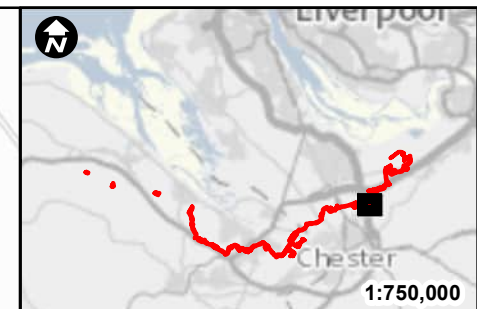
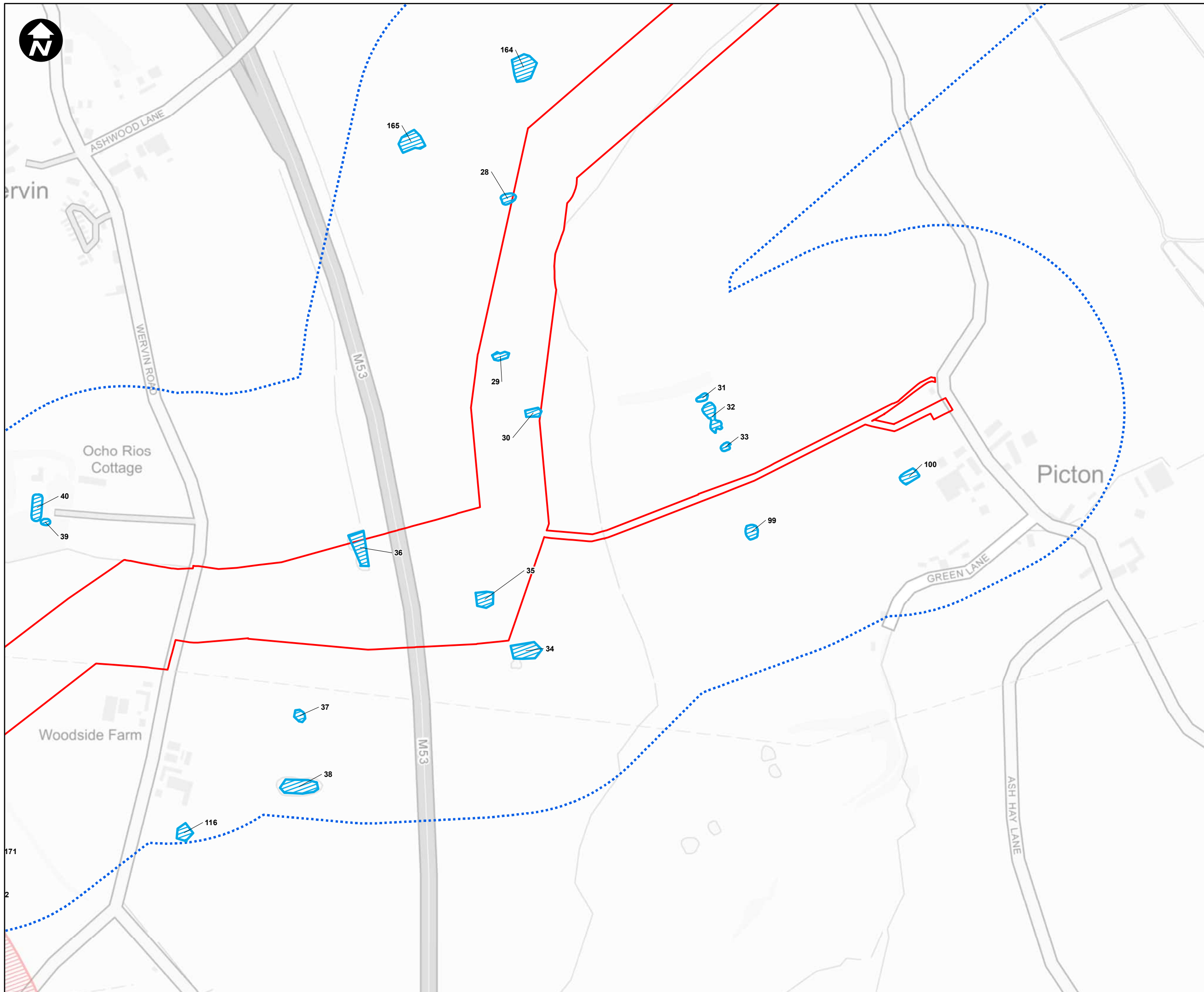
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 6 of 26

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet 6



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Not Surveyed
- Red Risk Zone

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

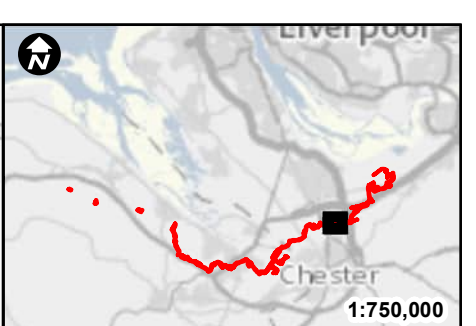
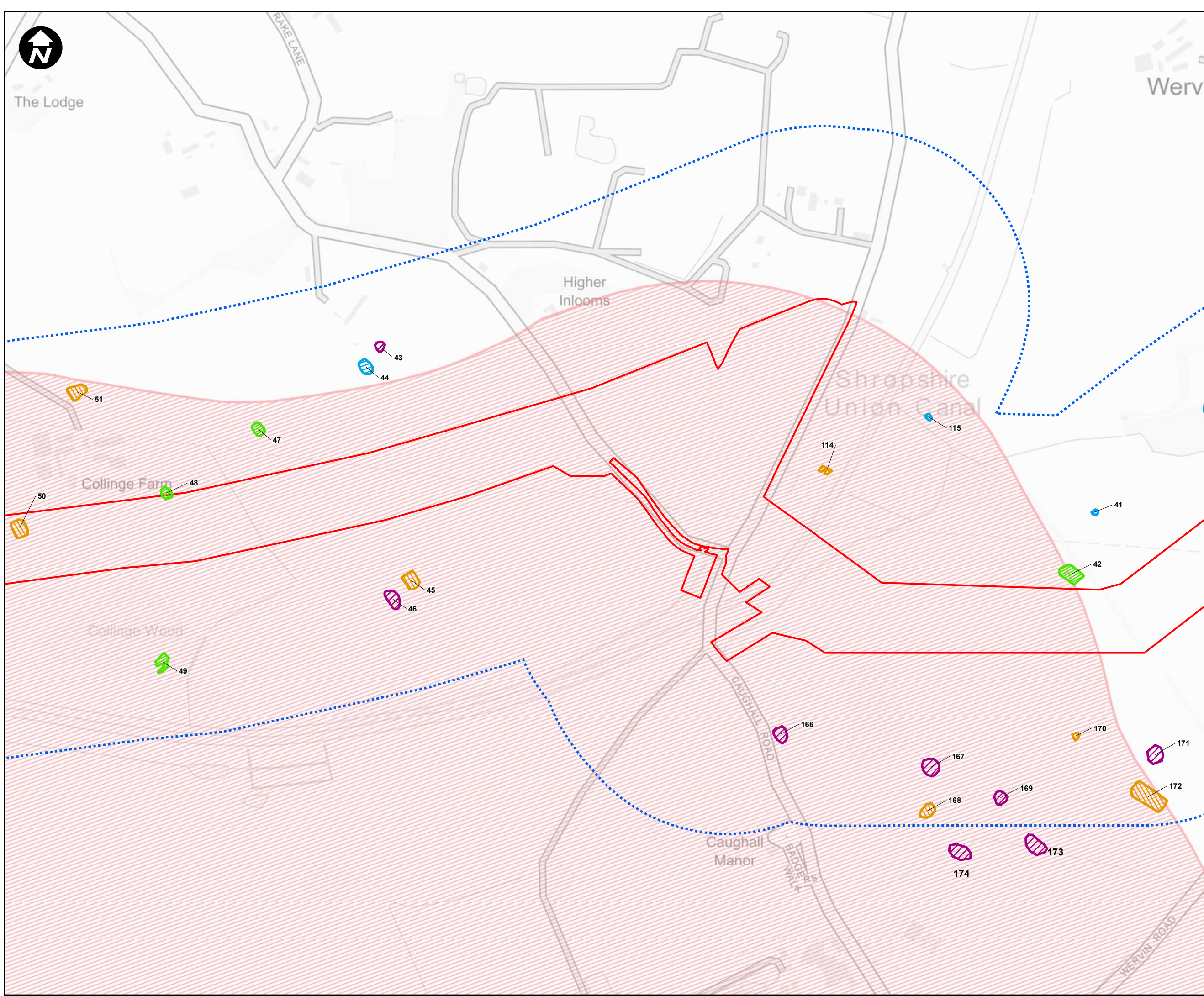
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 7 of 26

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet 7



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Present
- Likely Absent
- Not Surveyed - Precautionary Presence
- Not Surveyed
- Red Risk Zone

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HyNet North West

PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

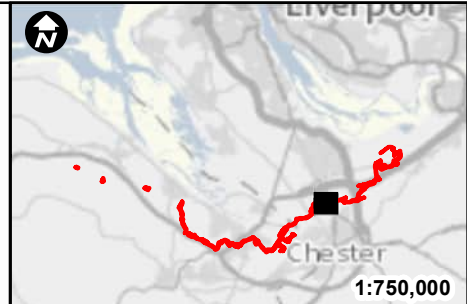
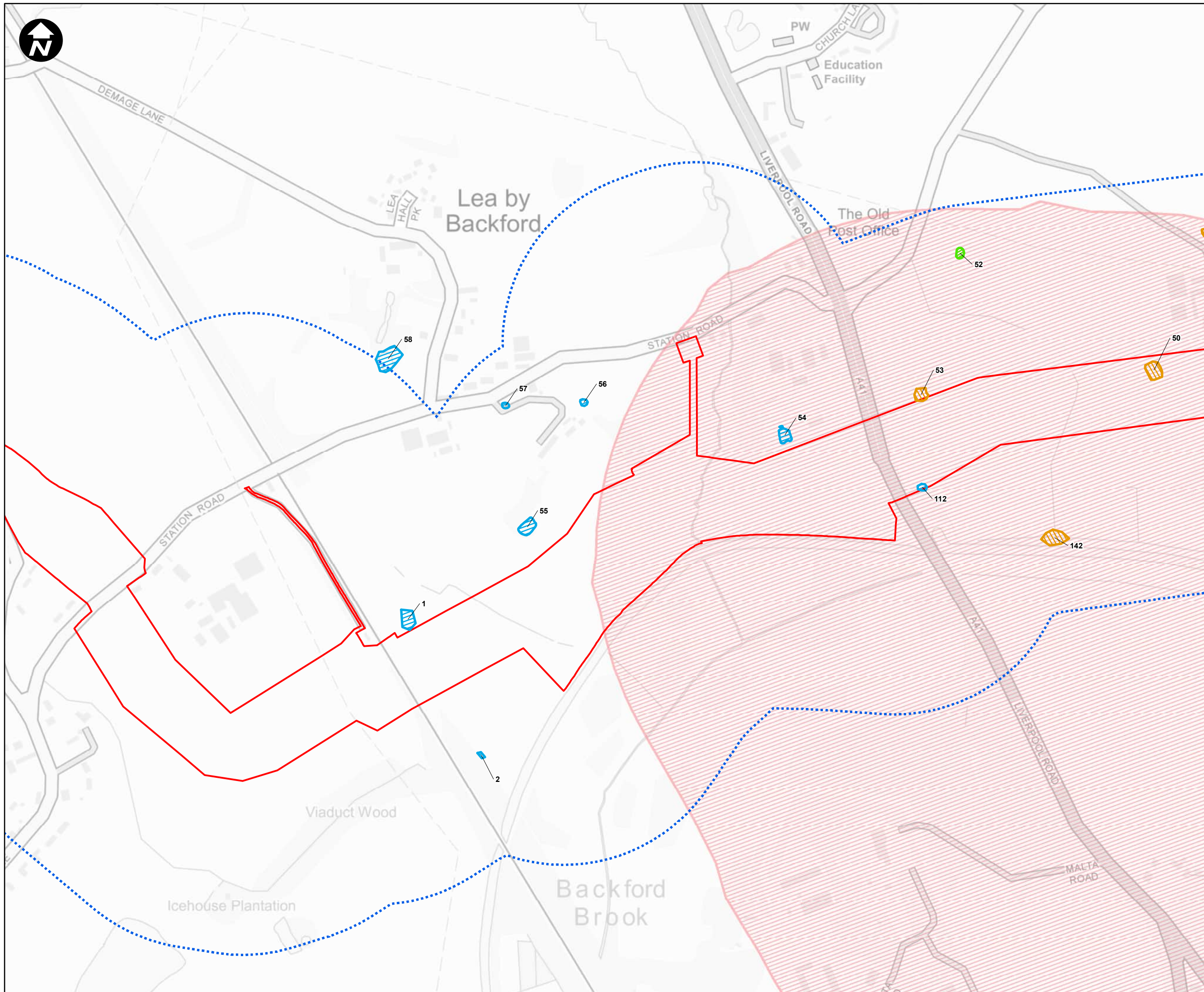
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Figure 9.2.3 - Presence / Likely Absence Results Sheet - 8 of 26

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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AB	NC	NM	SF

SCALE @ A3 SIZE	DATE	REVISION
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EN070007-APP-ES-9.2.3-Sheet 8



Key:

- Newbuild Infrastructure Boundary
- Survey Area
- Presence / Likely Absence Result
- Likely Absent
- Not Surveyed - Precautionary Presence
- Not Surveyed
- Red Risk Zone

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

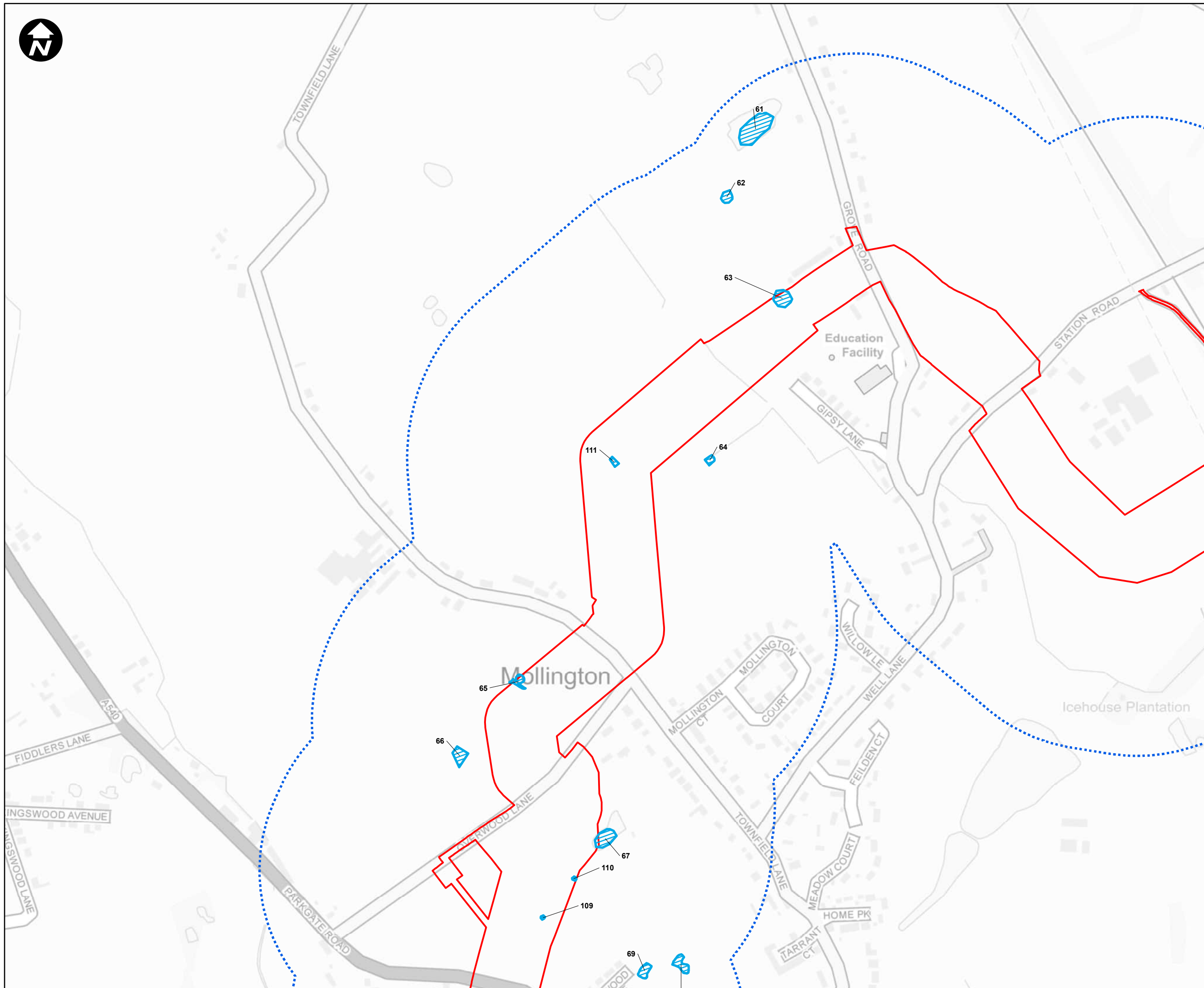
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 9 of 26

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet 9



Key:

- Newbuild Infrastructure Boundary
- Survey Area
- Presence / Likely Absence Result
- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

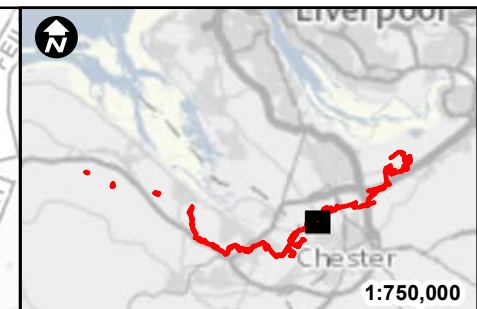
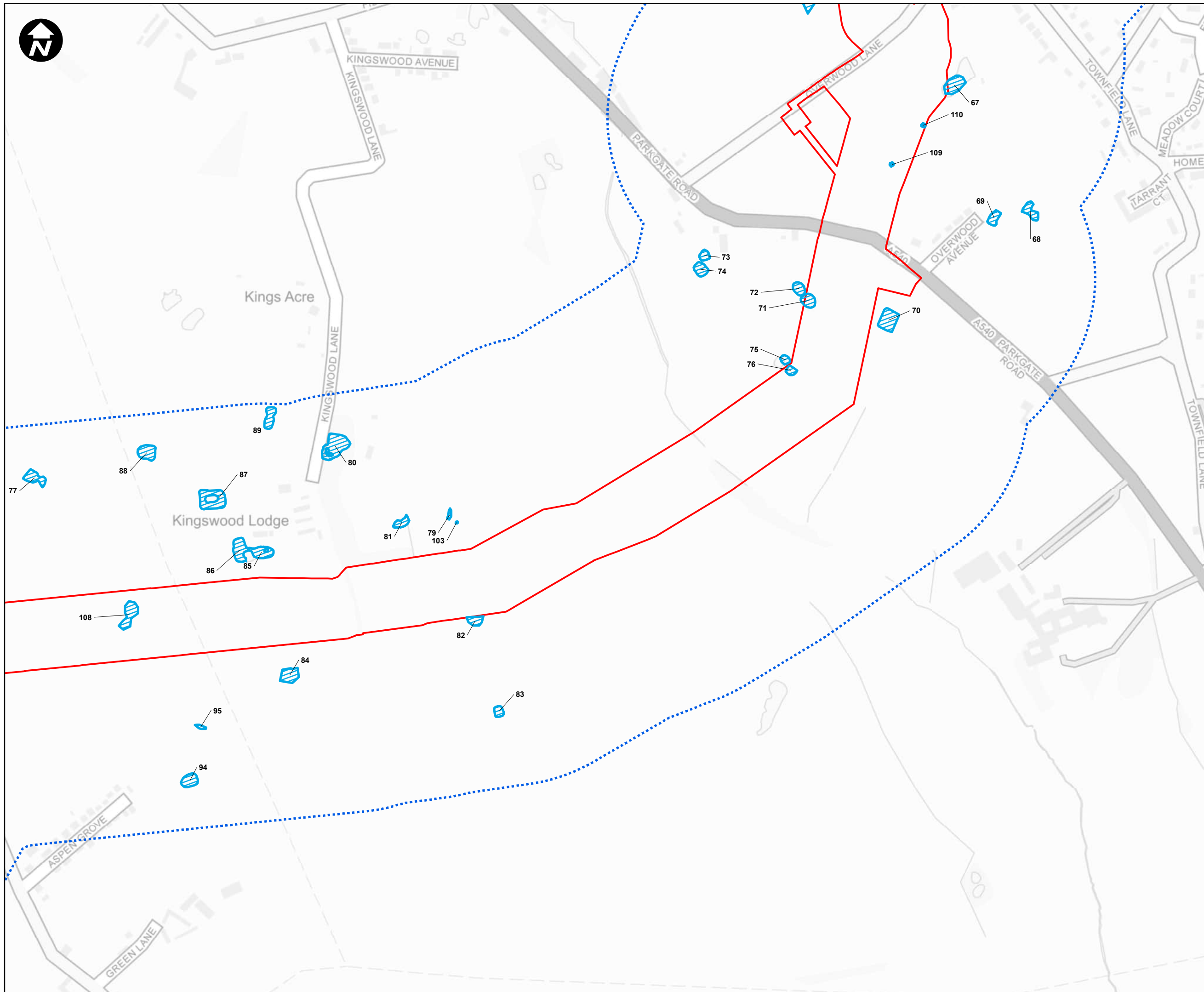
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 10 of 26

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet10



Key:

- Newbuild Infrastructure Boundary
- Survey Area
- Presence / Likely Absence Result
- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

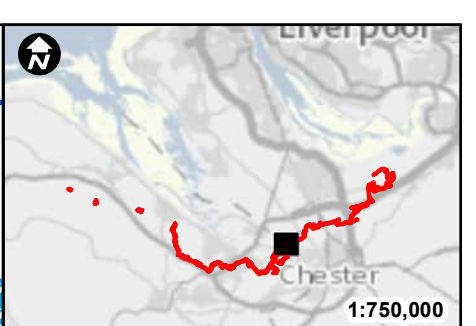
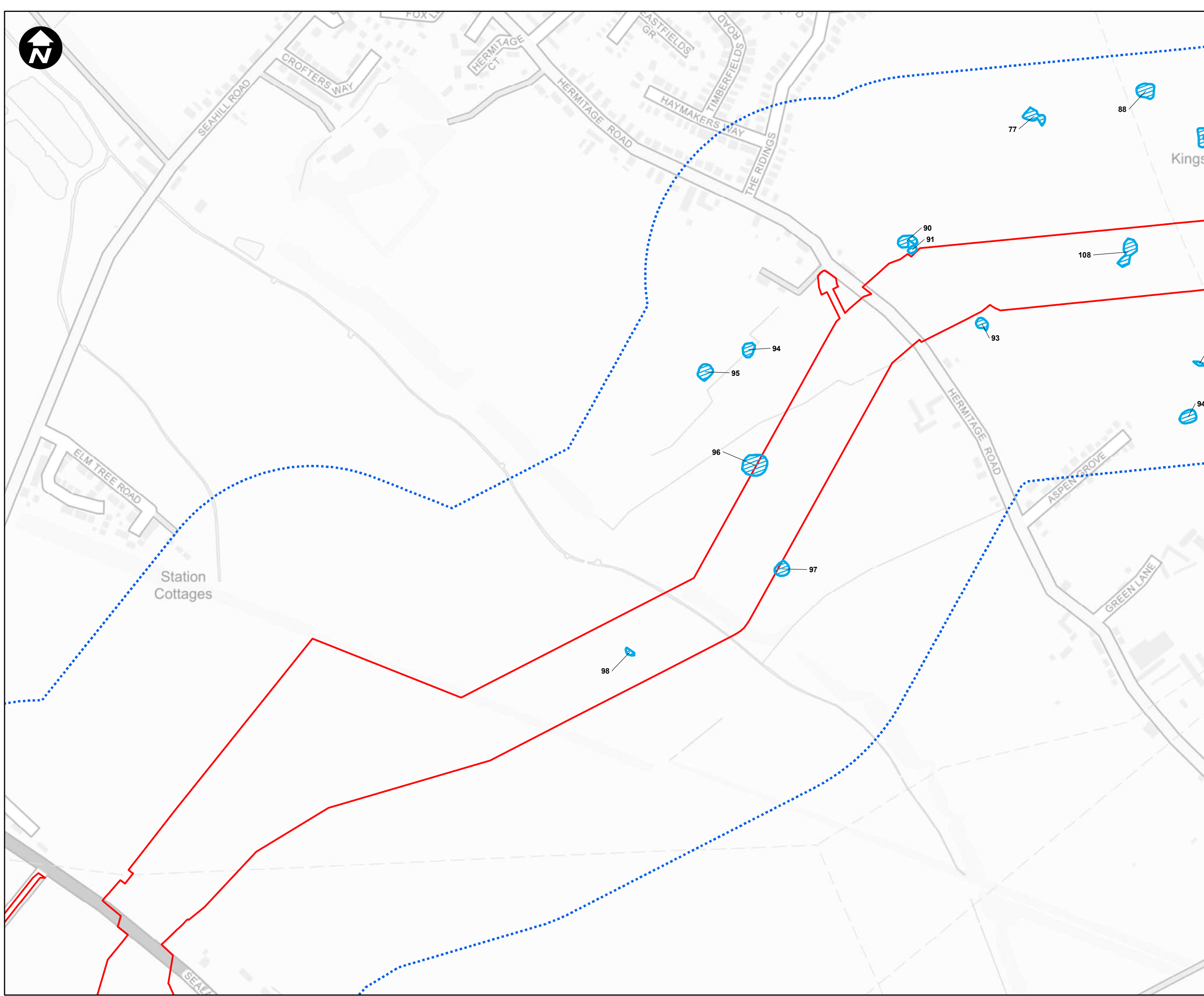
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 11 of 26

DRAWING STATUS
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 EN070007-APP-ES-9.2.3-Sheet 11



Key:

	Newbuild Infrastructure Boundary
	Survey Area
	Presence / Likely Absence Result
	Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE
Figure 9.2.3 - Presence / Likely Absence Results Sheet - 12 of 26

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

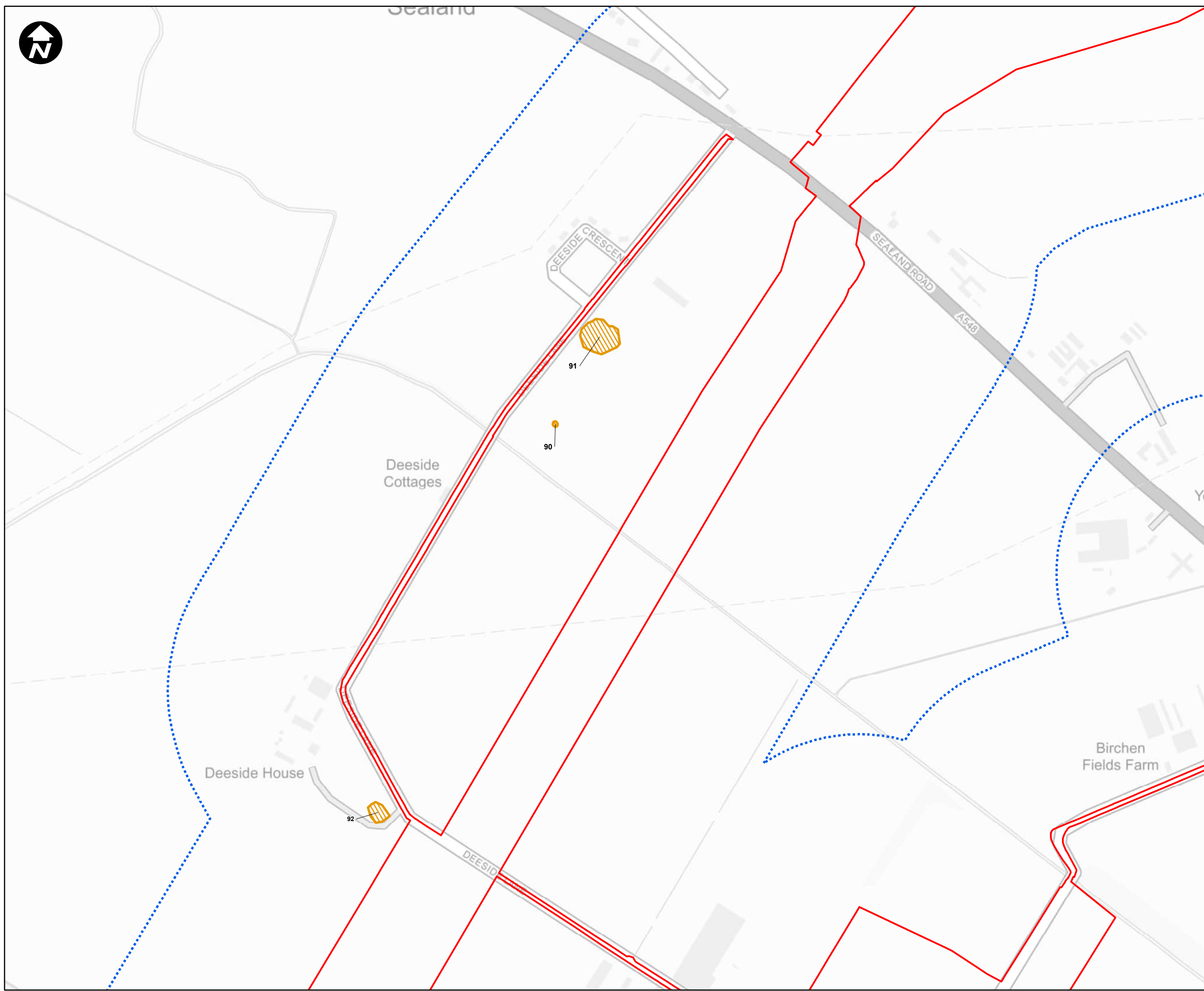
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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3-Sheet 12



- Key:**
- Newbuild Infrastructure Boundary
 - Survey Area
- Presence / Likely Absence Result
- Likely Absent



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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE
Figure 9.2.3 - Presence / Likely Absence Results Sheet - 13 of 26

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

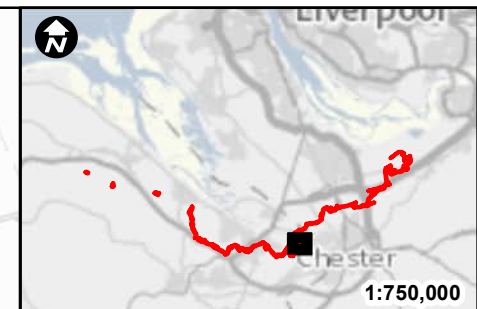
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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3-Sheet 13



90



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Likely Absent

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

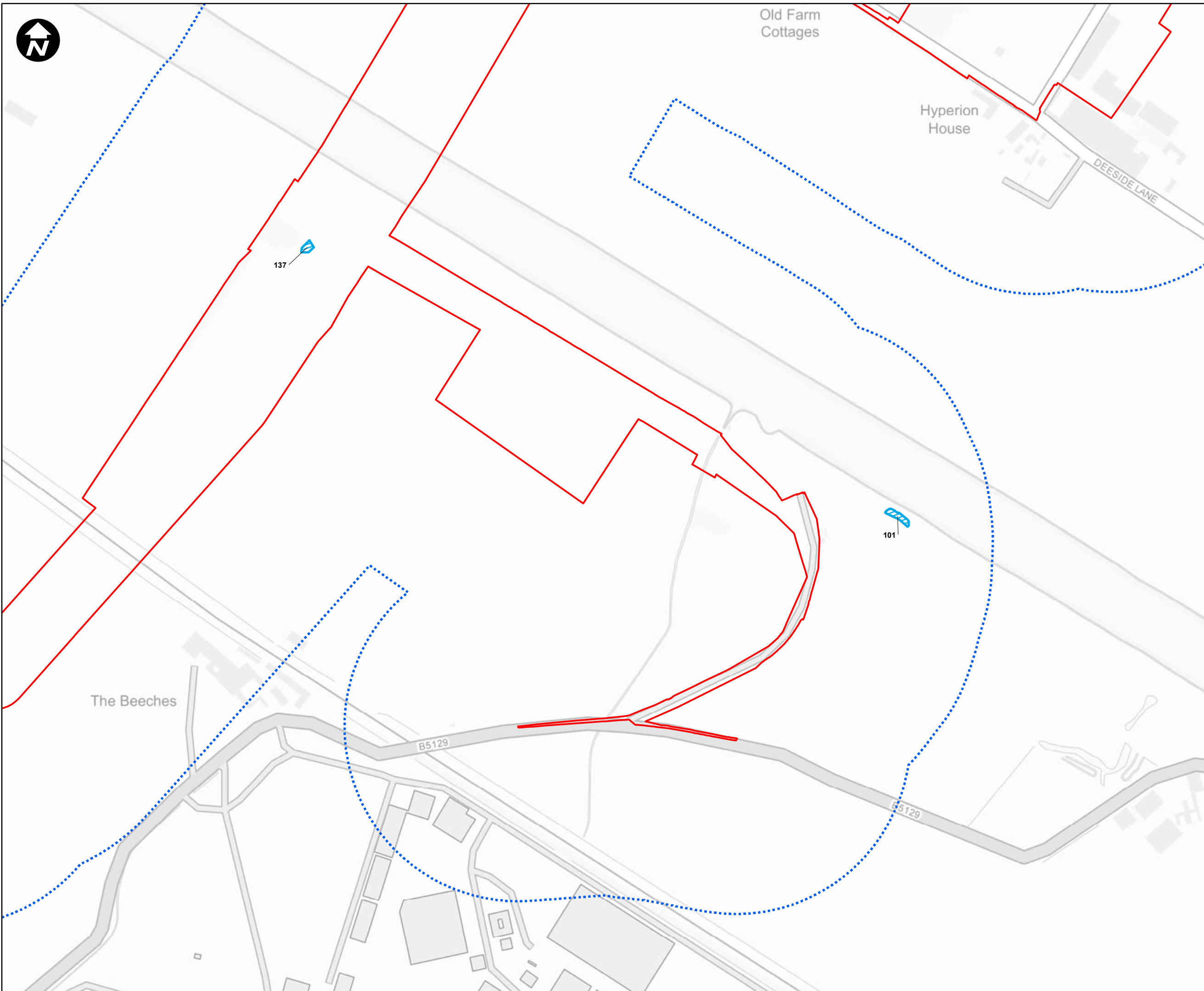
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 14 of 26

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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 EN070007-APP-ES-9.2.3-Sheet 14



Key:

	Newbuild Infrastructure Boundary
	Survey Area
Presence / Likely Absence Result	
	Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

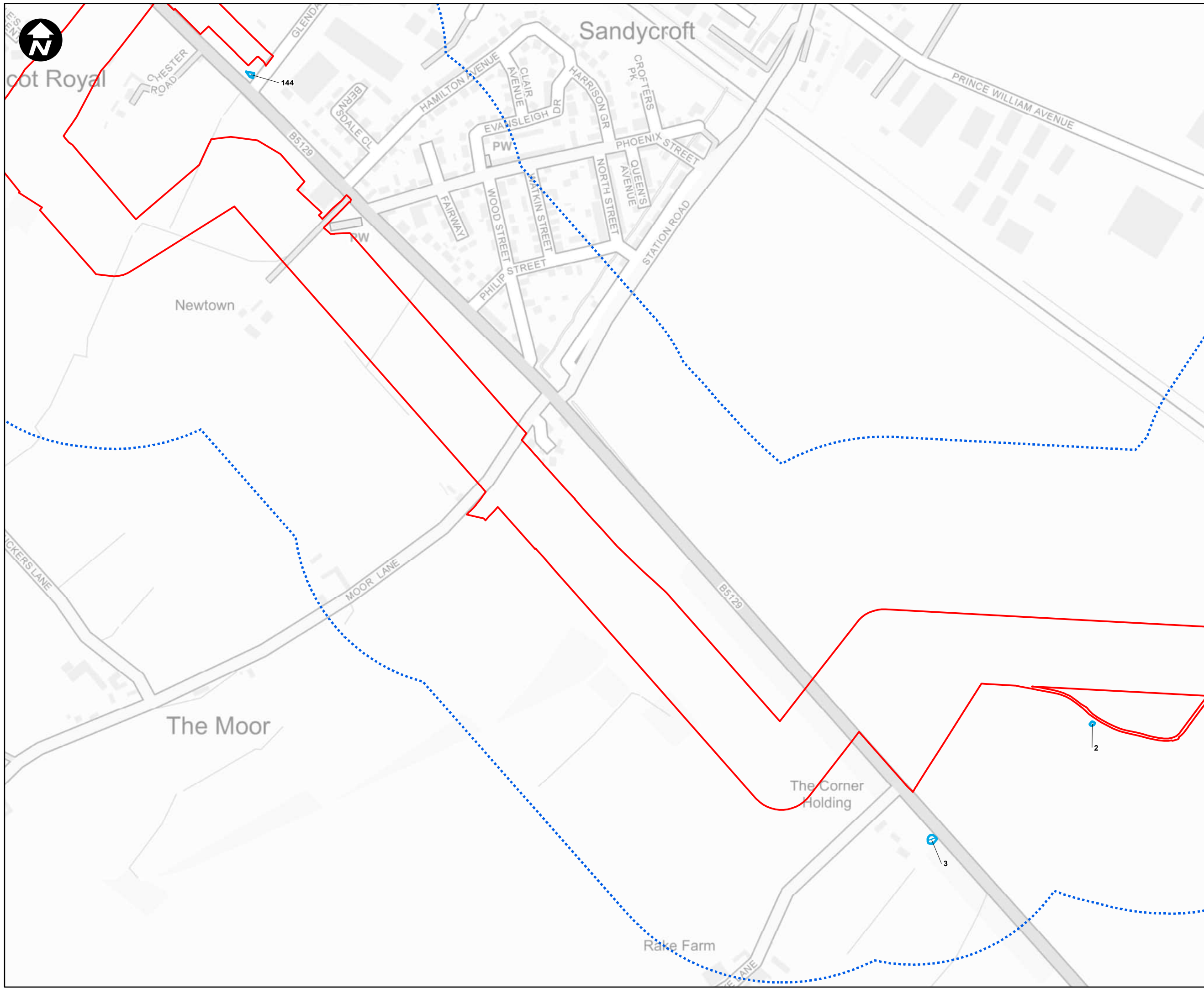
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 15 of 26

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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 EN070007-APP-ES-9.2.3-Sheet15



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

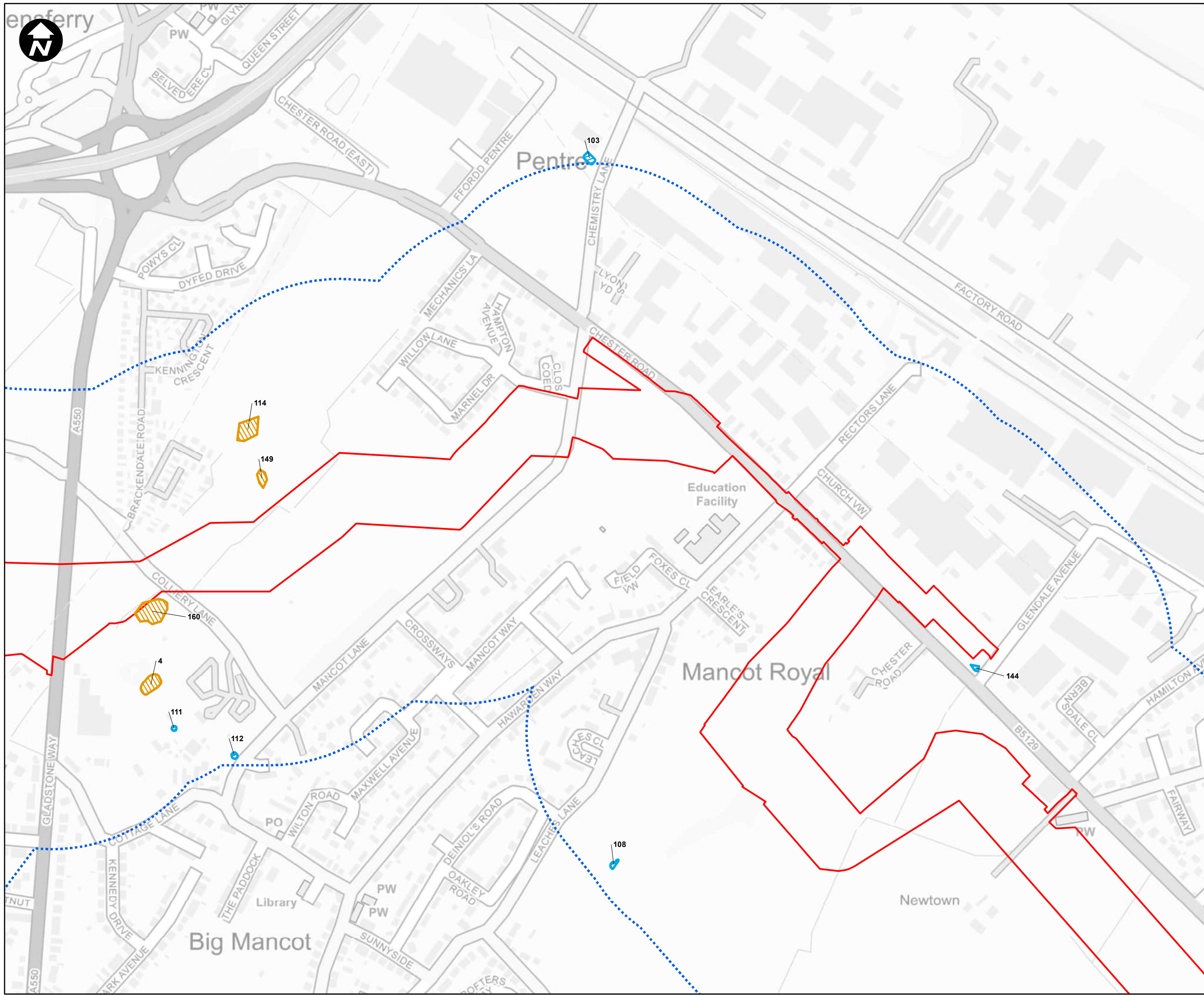
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 16 of 26

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet 16



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Likely Absent
- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

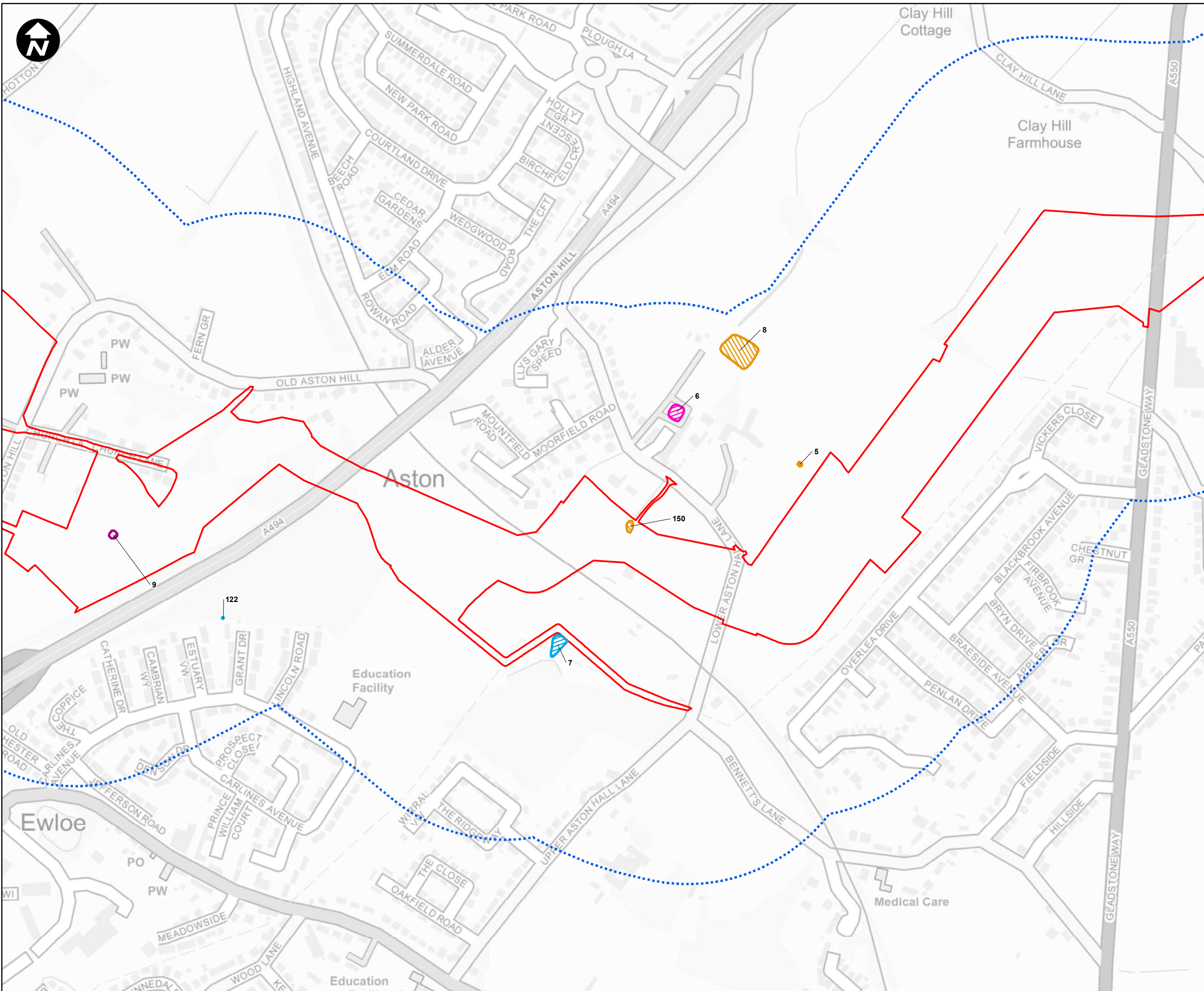
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Figure 9.2.3 - Presence / Likely Absence Results Sheet - 17 of 26

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3-Sheet 17



Key:

- Newbuild Infrastructure Boundary
- Survey Area
- Presence / Likely Absence Result**
- Present
- Likely Absent
- Not Surveyed - Assumed Likely Absence
- Not Surveyed

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PROJECT TITLE
 HyNet Carbon Dioxide Pipeline DCO

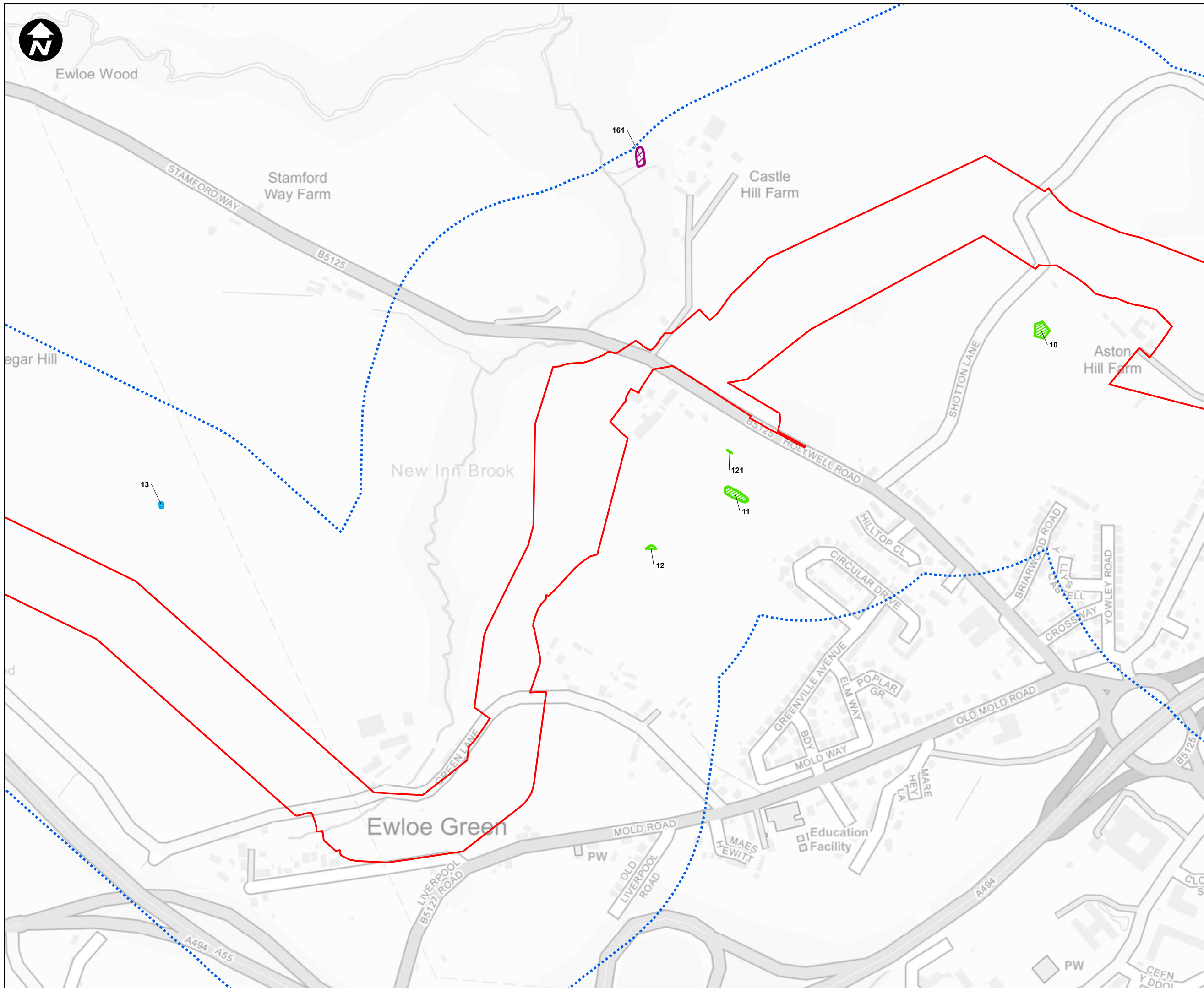
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 18 of 26

DRAWING STATUS
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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet 18



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Present
- Not Surveyed - Precautionary Presence
- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

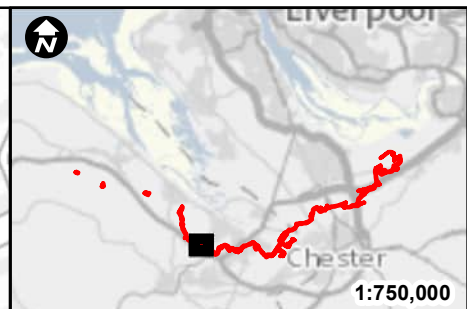
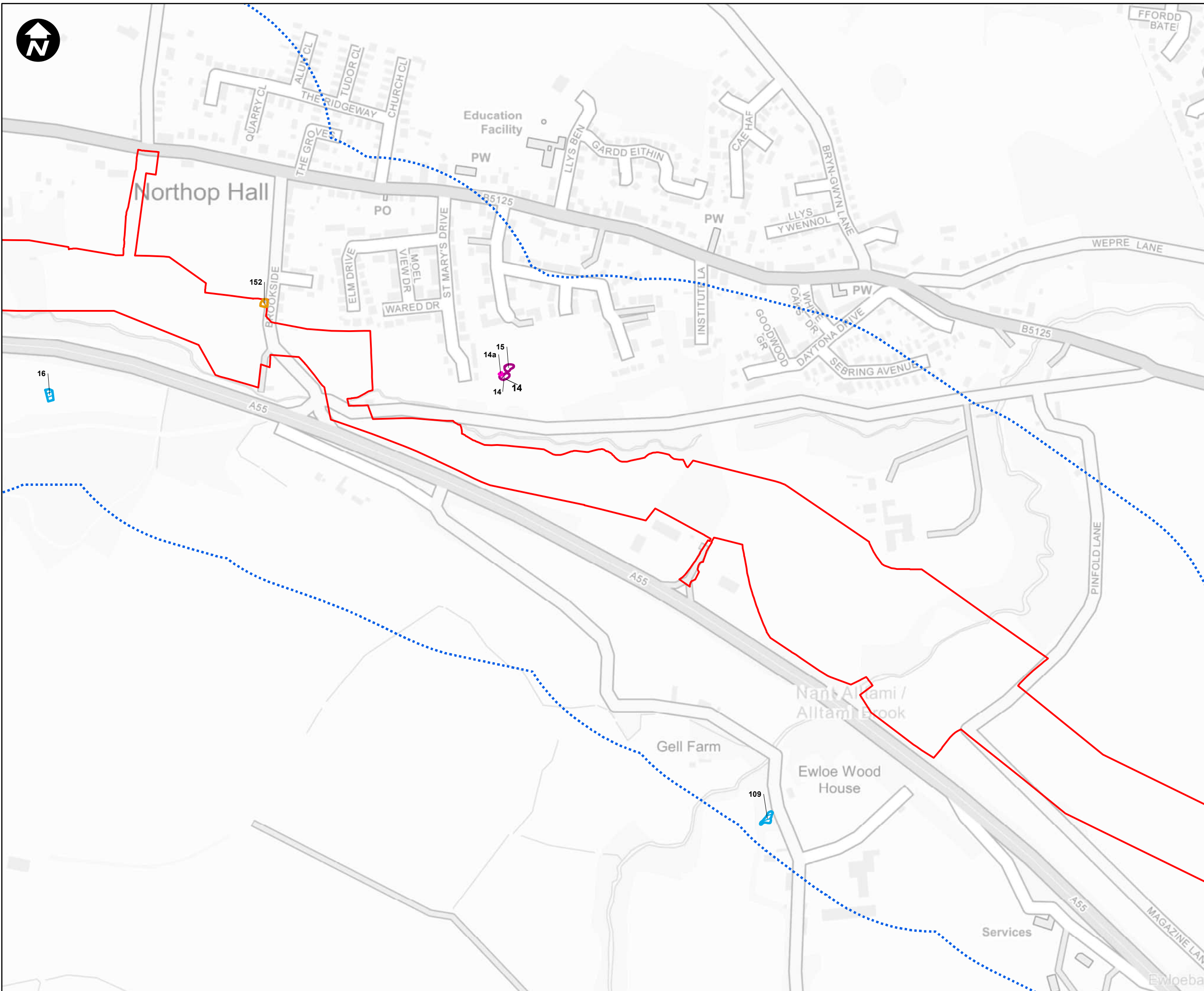
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Figure 9.2.3 - Presence / Likely Absence Results Sheet - 19 of 26

DRAWING STATUS
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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3-Sheet 19



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Present
- Likely Absent
- Not Surveyed - Assumed Likely Absence
- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

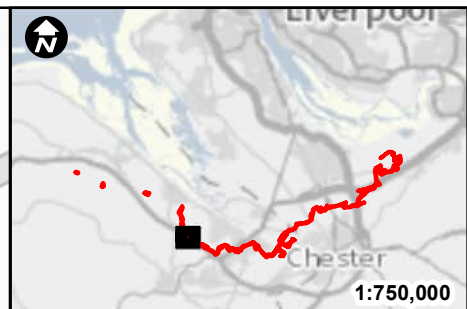
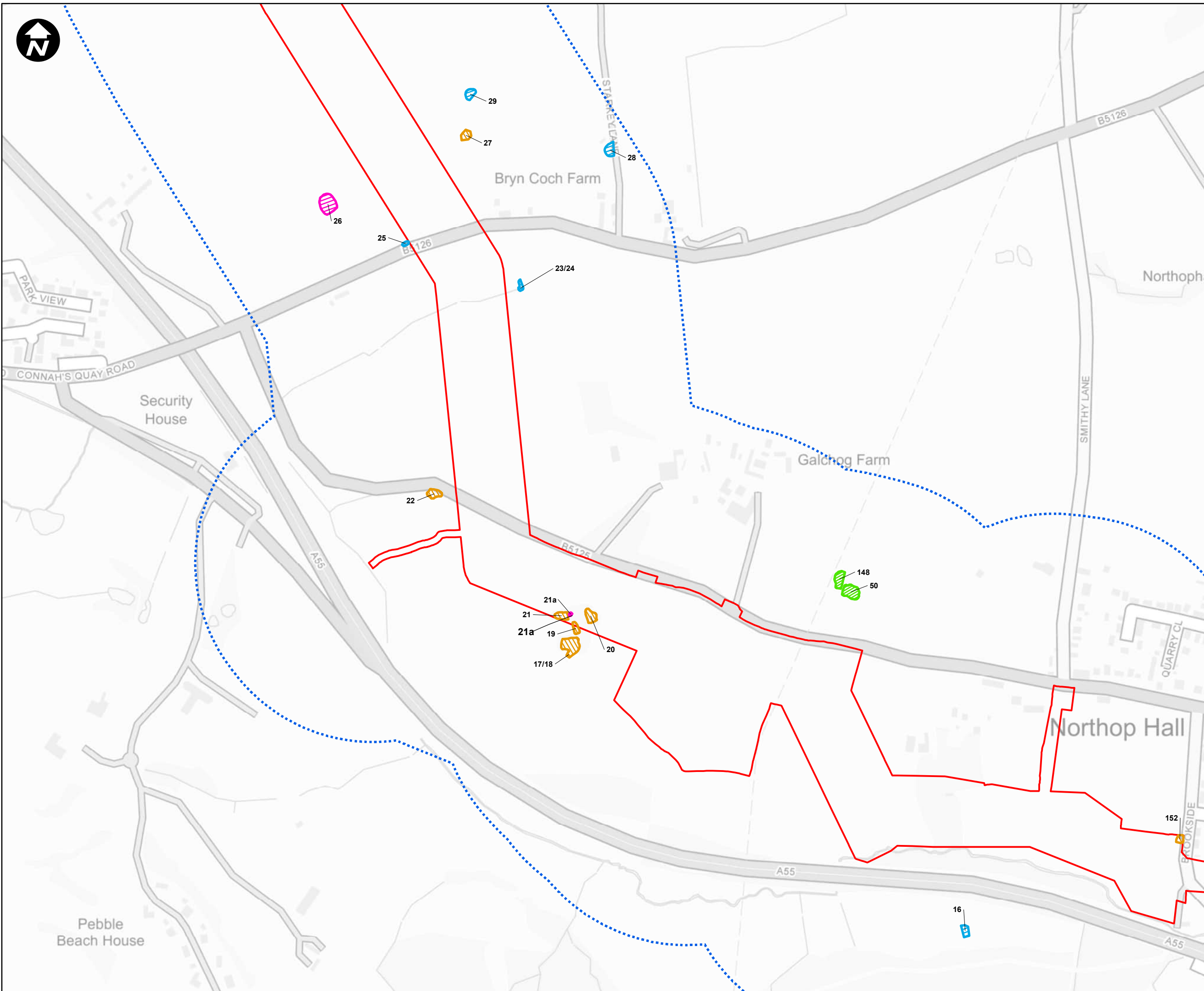
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Figure 9.2.3 - Presence / Likely Absence Results Sheet - 20 of 26

DRAWING STATUS
Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
EN070007-APP-ES-9.2.3-Sheet 20



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Likely Absent
- Not Surveyed - Precautionary Presence
- Not Surveyed - Assumed Likely Absence
- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

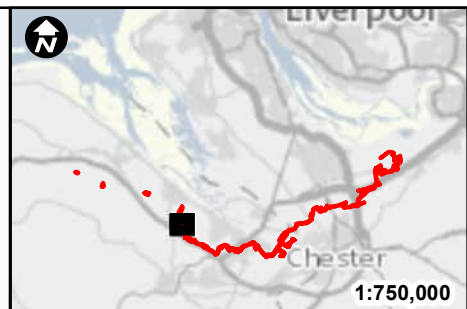
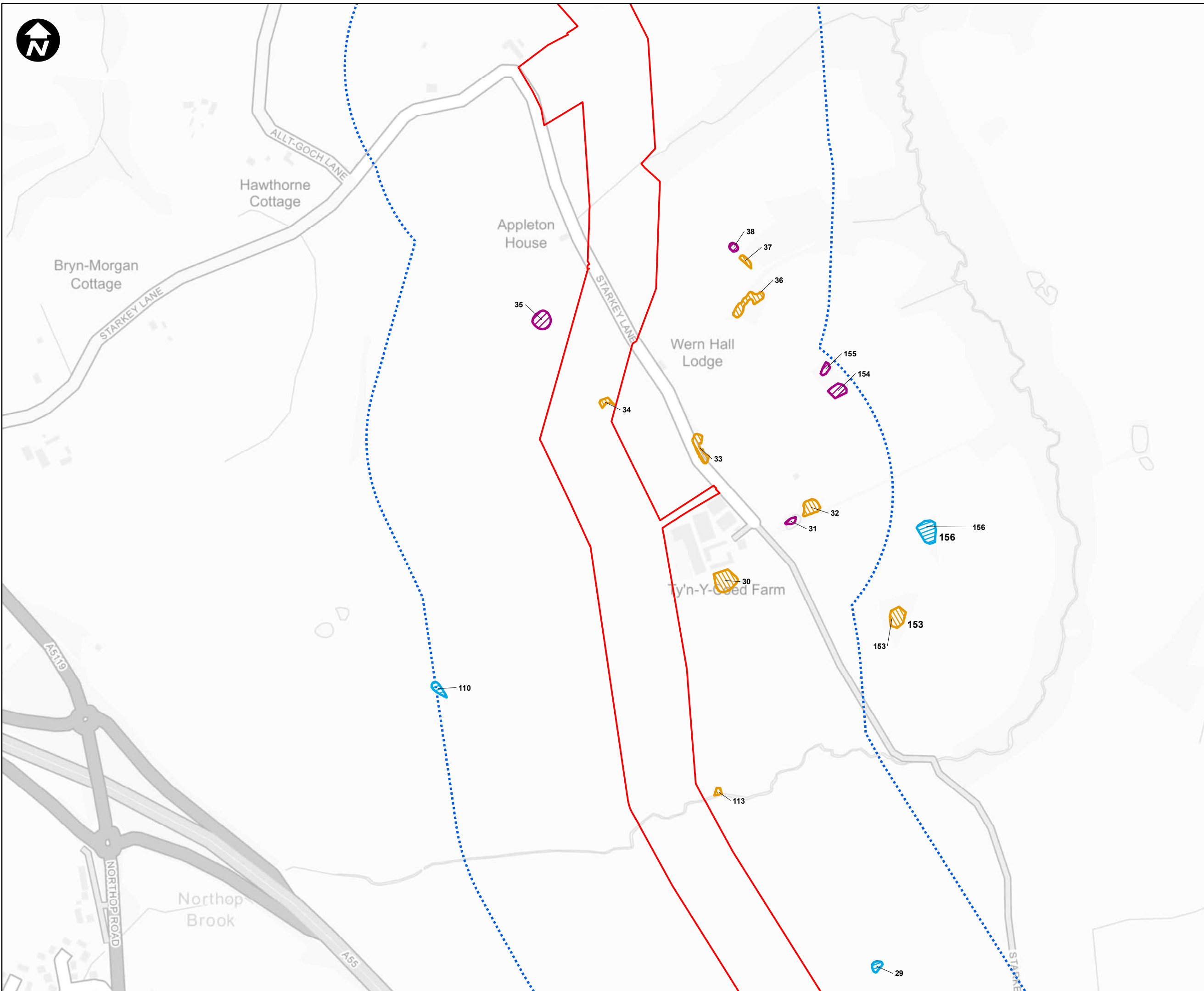
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DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet 21



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Present
- Likely Absent
- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

DRAWING TITLE
Figure 9.2.3 - Presence / Likely Absence Results Sheet - 22 of 26

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Final for DCO Examination - submitted at Deadline 7

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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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EN070007-APP-ES-9.2.3-Sheet22



Accra-Y-Vran

Coed-Onn Farm

Waen Isa Farm

Leadbrook Hall Farm

Little Leadbrook Farm

Leadbrook Cottage

Bryn Mawr Farmhouse

Oakenholt Wood
Leadbrook Wood



Key:

- Newbuild Infrastructure Boundary
- Survey Area
- Presence / Likely Absence Result**
- Present
- Likely Absent
- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

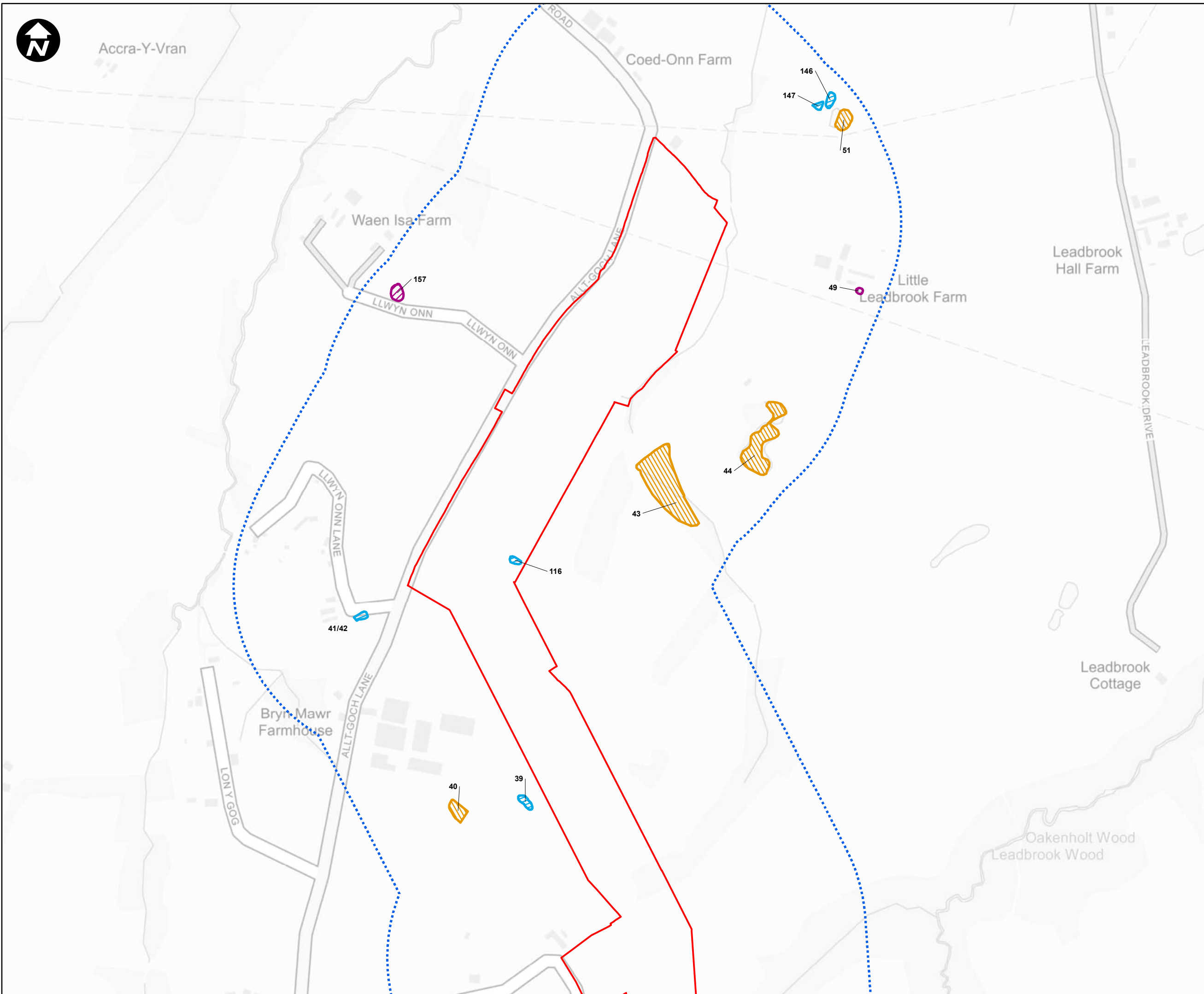
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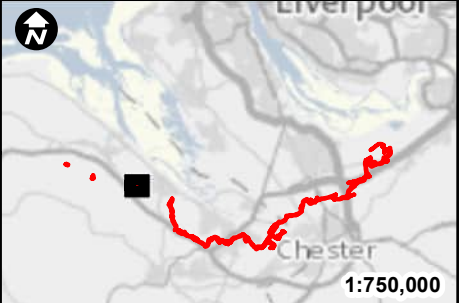
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Final for DCO Examination - submitted at Deadline 7

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EN070007-APP-ES-9.2.3-Sheet23





Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

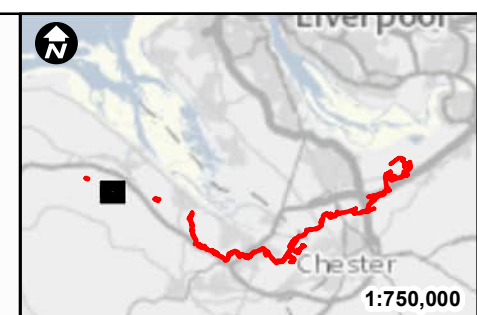
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DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet 24



Key:

- Newbuild Infrastructure Boundary
- Survey Area

Presence / Likely Absence Result

- Not Surveyed

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PROJECT TITLE
HyNet Carbon Dioxide Pipeline DCO

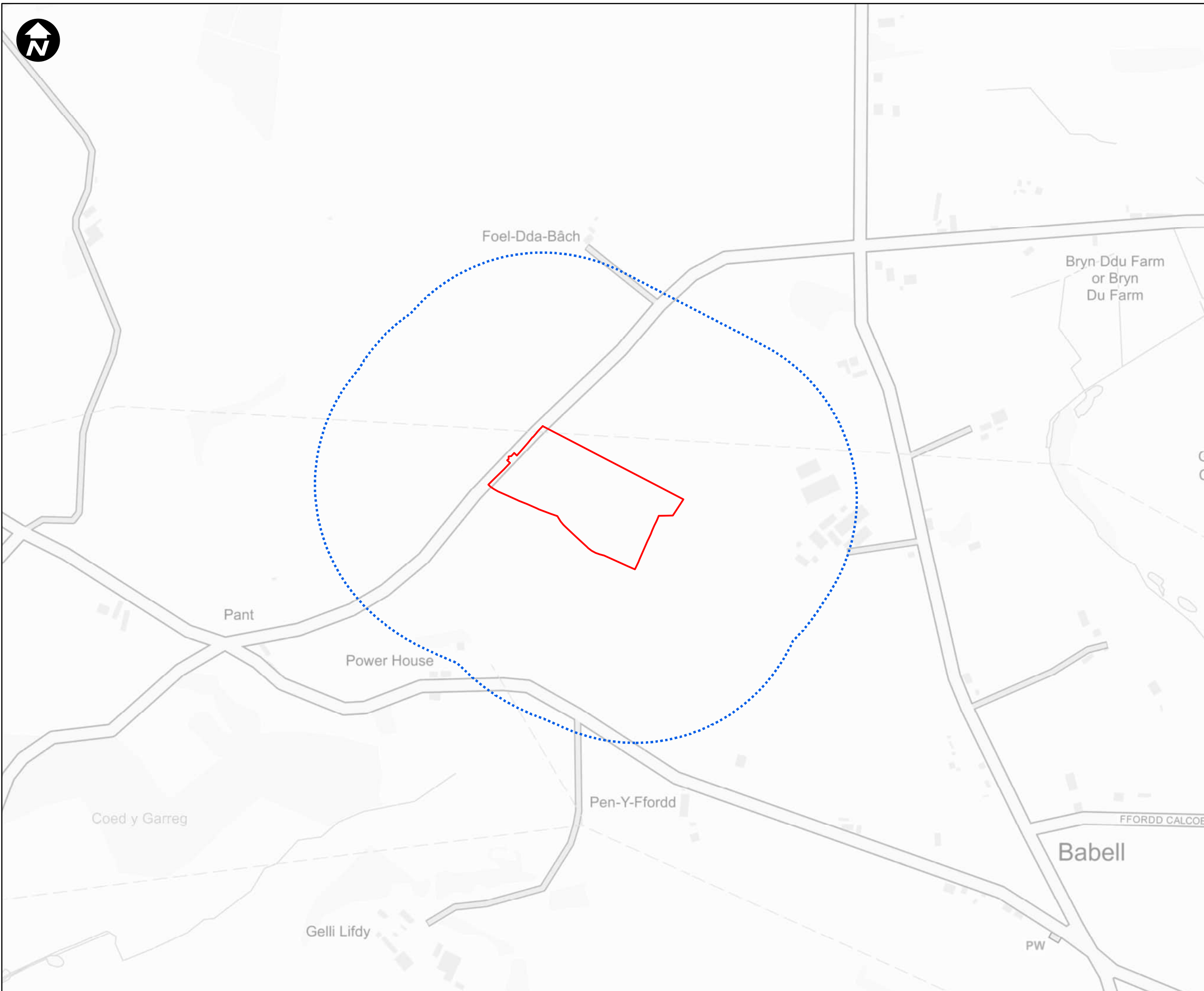
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 25 of 26



DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

<small>DRAWN</small> AB	<small>CHECKED</small> NC	<small>APPROVED</small> NM	<small>AUTHORISED</small> SF
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<small>SCALE @ A3 SIZE</small> 1:5,000	<small>DATE</small> 22/08/2023	<small>REVISION</small> C
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DRAWING NUMBER
 EN070007-APP-ES-9.2.3-Sheet 25



Key:
 Newbuild Infrastructure Boundary
 Survey Area

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HyNet North West

PROJECT TITLE
 HyNet Carbon Dioxide Pipeline DCO

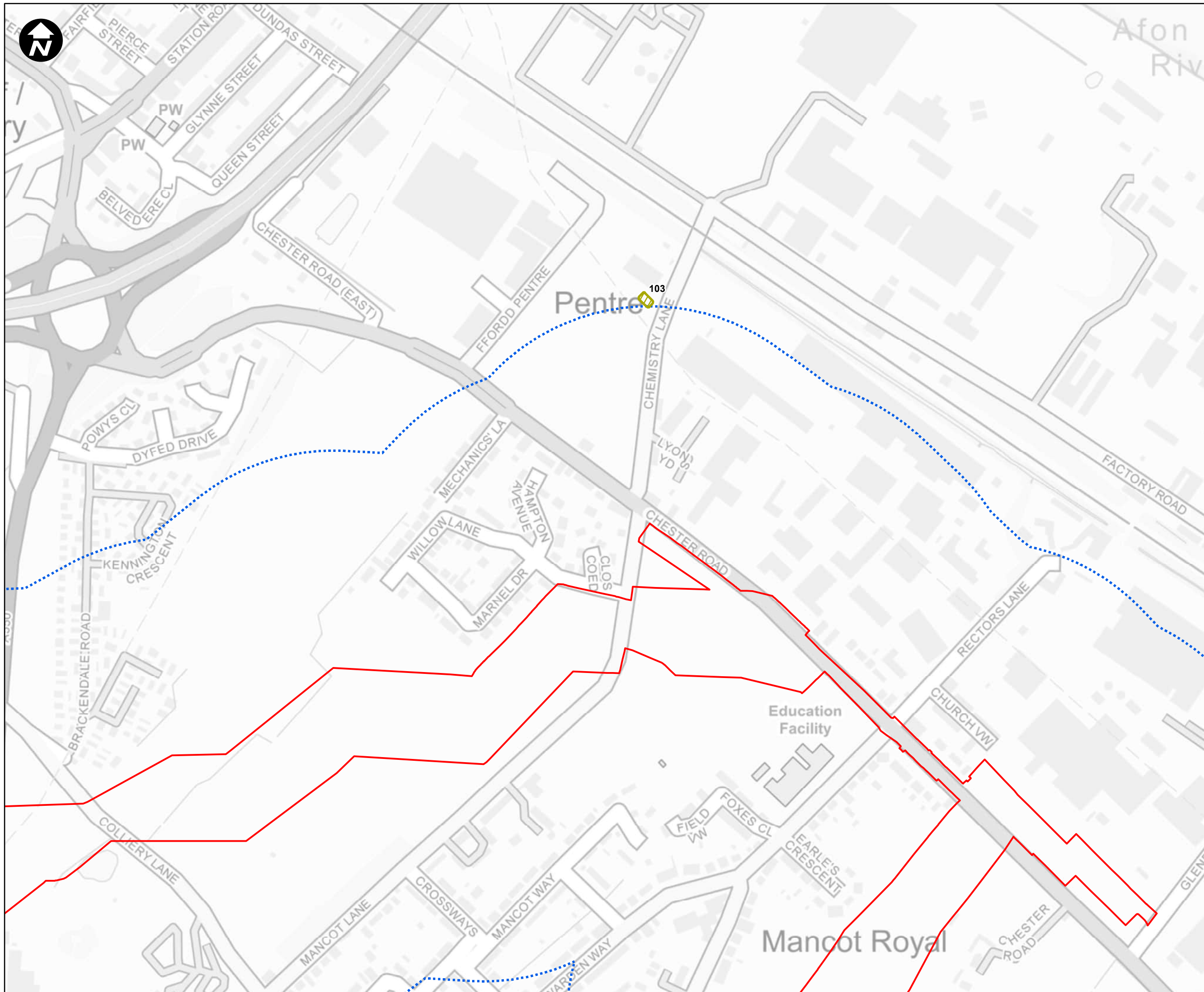
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 Figure 9.2.3 - Presence / Likely Absence Results Sheet - 26 of 26

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

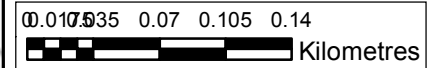
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SCALE @ A3 SIZE 1:5,000	DATE 22/08/2023	REVISION C
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 EN070007-APP-ES-9.2.3-Sheet 26



Key:
 Newbuild Infrastructure Boundary
 Survey Area
eDNA Results
 Negative



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HyNet North West

PROJECT TITLE
 HyNet North West
 CO2 Pipeline DCO

DRAWING TITLE
 Figure 9.2.2 - eDNA Results
 Sheet 5 of 5

DRAWING STATUS
 Final for DCO Examination - submitted at Deadline 7

DRAWN AA	CHECKED NC	APPROVED NM	AUTHORISED SF
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SCALE @ A3 SIZE 1:4,000	DATE 21/08/2023	REVISION C
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 EN070007-APP-ES-9.2.2-Sheet 5

Annex B

RESULTS OF HSI ASSESSMENT

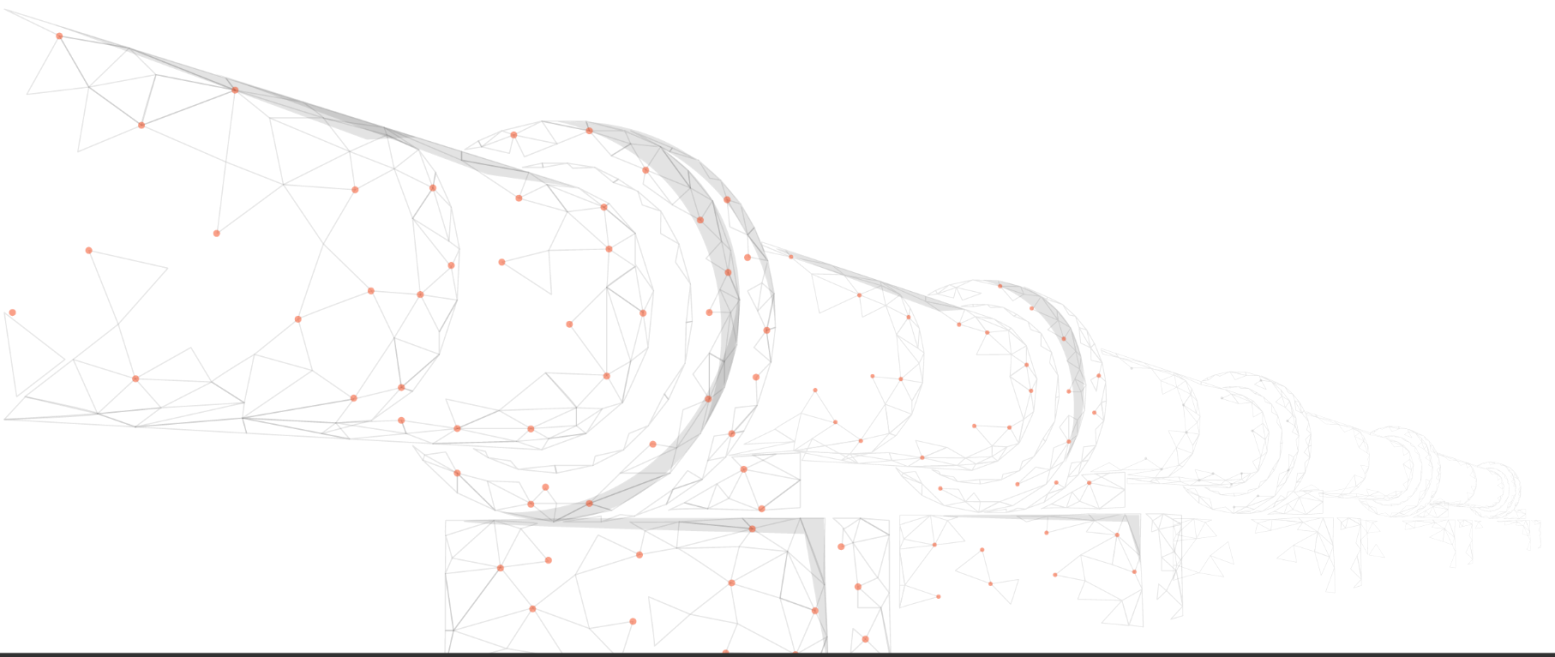


Table 7 - Results of HSI Assessment

Location	Waterbody Reference	Geographic location	Area m ²	Permanence	Water quality	Shade (%)	Waterfowl effect	Fish presence	Waterbody density	Terrestrial habitat	Macrophyte cover (%)	HSI Score	Suitability
Cornist Lane Block Valve Station - Wales	CL1	1	100	1	0.33	0	1	1	0.72	0.6	95	0.7	Good
Pentre Halkyn Block Valve Station - Wales	PH6	1	40	0.9	0.33	10	1	0.01	0.33	0.91	15	0.34	Poor
Pentre Halkyn Block Valve Station - Wales	PH5	1	400	0.5	0.67	60	1	1	0.9	0.67	60	0.84	Excellent
Pentre Halkyn Block Valve Station - Wales	PH4	1		0.9	1	80	0.67	0.67	0.6	0.67	0	0.7	Good
Pentre Halkyn Block Valve Station - Wales	PH3	1	50	0.9	0.67	80	0.67	1	0.6	0.67	0	0.58	Poor
Pentre Halkyn Block Valve Station - Wales	PH2	1	50	0.9	0.67	0	0.67	1	0.6	0.67	0	0.59	Poor
Pentre Halkyn Block Valve Station - Wales	PH1	1	400	1	1	0	0.67	0.67	0.6	1	0	0.76	Good
England	1	1	15	0.1	0.67	60	1	1	0.67	0.4	50	0.48	Poor
England	2	1	18	0.1	0.67	60	1	1	0.67	0.4	0	0.44	Poor
Wales	4	0.5	350	0.9	1	60	0.01	0.67	0.89	0.67	5	0.46	Poor
Wales	5	1	50	0.5	0.67	10	1	0.67	0.67	0.4	10	0.55	Below Average
Wales	6	1	250	0.1	1	35	0.67	1	0.65	0.33	0	0.54	Below Average

Location	Waterbody Reference	Geographic location	Area m ²	Permanence	Water quality	Shade (%)	Waterfowl effect	Fish presence	Waterbody density	Terrestrial habitat	Macrophyte cover (%)	HSI Score	Suitability
Wales	7	0	400	0.1	0.67	80	1	1	0.65	0.67	0	0.56	Below Average
England	7	1	250	0.9	0.33	25	1	1	0.33	0.95	50	0.72	Good
Wales	8	1	1600	0.1	1	5	0.01	0.01	0.65	0.33	5	0.24	Poor
Wales	10	0.5	350	0.1	0.67	100	1	1	0.33	0.6	0	0.44	Poor
England	11	0.5	200	0.9	0.33	80	0.67	0.67	0.67	0.72	5	0.55	Below Average
England	12	1	100	0.9	0.67	100	1	1	0.67	0.65	0	0.56	Below Average
Wales	13	0.5	100	0.5	0.67	100	1	1	1	0.8	0	0.53	Below Average
Wales	14	1	16	0.9	1	5	1	1	1	0.6	5	0.63	Average
Wales	14a	1	20	0.9	1	5	1	1	1	0.6	60	0.69	Average
Wales	15	1	12	0.9	1	5	1	1	1	0.6	10	0.64	Average
England	15	0.5	200	0.9	0.67	100	0.67	0.67	0.67	0.72	20	0.55	Below Average
England	17	1	450	1	0.33	30	0.67	1	1	0.4	35	0.74	Good
Wales	17/18	1	750	0.9	0.67	60	0.67	0.33	1	0.75	25	0.75	Good
England	18	2	50	0.1	0.33	20	1	1	1	0.4	35	0.49	Poor
England	19	1	20	0.1	0.33	100	1	1	1	0.6	0	0.38	Poor
Wales	19	1	100	0.5	0.67	80	0.67	0.33	1	0.75	0	0.54	Below Average
England	20	1	600	0.9	0.67	70	0.67	0.67	1	0.6	5	0.73	Good
Wales	20	1	250	0.5	0.67	80	0.67	0.33	1	0.75	2	0.59	Below Average
Wales	21	1	200	0.9	0.67	80	0.67	0.33	1	0.75	5	0.62	Average

Location	Waterbody Reference	Geographic location	Area m ²	Permanence	Water quality	Shade (%)	Waterfowl effect	Fish presence	Waterbody density	Terrestrial habitat	Macrophyte cover (%)	HSI Score	Suitability
Wales	21a	1	50	0.1	0.67	70	1	1	1	0.75	2	0.48	Poor
Wales	22	1	250	0.5	0.67	30	1	1	0.67	0.75	0	0.69	Average
Wales	25	0.5	13	0.5	0.67	30	1	0.67	0.85	0.67	25	0.53	Below Average
Wales	25	0.5	350	0.9	0.67	80	0.67	0.67	1	0.85	0	0.63	Average
Wales	26	0.5	400	0.9	0.67	60	1	0.67	1	0.85	0	0.73	Good
England	27	1	10	0.5	0.33	100	1	1	0.33	0.85	0	0.41	Poor
Wales	27	0	150	1	1	90	1	0.67	1	0.67	5	0.62	Average
England	28	0.5	200	0.9	0.33	100	0.67	0.67	0.33	0.85	5	0.47	Poor
England	29	0.5	50	0.5	0.33	20	0.67	0.33	0.67	0.6	0	0.43	Poor
England	30	1	250	0.5	0.67	0	1	1	0.67	1	0	0.71	Good
Wales	31	0	350	0.9	1	15	0.67	0.67	1	1	10	0.74	Good
Wales	33	1	350	1	0.67	50	0.67	1	1	1	70	0.89	Excellent
England	34	1	250	0.9	0.33	0	1	0.67	0.33	1	100	0.69	Average
England	35	1	1150	0.9	0.33	0	0.67	0.67	0.33	1	20	0.68	Average
Wales	36	0.5	450	0.9	0.67	80	1	0.67	0.89	1	0	0.7	Good
England	36	0.5	800	1	0.1	100	1	1	0.33	1	90	0.56	Below Average
Wales	37	1	200	0.1	1	70	1	1	1	1	0	0.63	Average
England	37	0.5	200	0.9	1	10	1	1	0.33	1	90	0.75	Good
Wales	38	1	300	0.1	1	70	1	1	1	1	0	0.65	Average
England	38	1	950	0.9	1	0	1	0.67	0.33	1	75	0.85	Excellent
Wales	40	1	350	1	0.33	100	0.67	0.67	0.67	1	0	0.58	Below Average
England	42	0.5	700	1	0.67	65	0.67	1	1	1	0	0.76	Good

Location	Waterbody Reference	Geographic location	Area m ²	Permanence	Water quality	Shade (%)	Waterfowl effect	Fish presence	Waterbody density	Terrestrial habitat	Macrophyte cover (%)	HSI Score	Suitability
Wales	43	0.5	3200	0.9	0.67	50	0.67	0.01	1	0.97	10	0.49	Poor
England	43	1	250	0.9	0.33	100	0.67	0.67	0.67	1	90	0.62	Average
Wales	44	0.5	3600	1	0.67	70	0.67	0.01	0.67	0.97	20	0.47	Poor
England	45	1	550	0.9	0.67	90	0.67	0.67	0.33	1	10	0.65	Average
England	46	1	400	0.9	0.67	60	0.67	0.67	0.33	1	10	0.7	Good
England	47	1	200	0.9	0.33	100	0.67	0.67	0.33	1	80	0.57	Below Average
Wales	49	0.5	600	0.9	0.33	50	0.67	0.33	1	0.97	30	0.67	Average
England	50	1	250	0.9	0.33	90	0.67	0.67	0.67	1	10	0.61	Average
	50	0.5	250	1	1	10	0.67	0.67	0.67	1	50	0.75	Good
Wales	51	1	300	0.9	0.67	90	0.67	0.67	1	0.67	0	0.65	Average
England	51	1	400	0.9	0.33	95	0.67	0.67	0.33	1	0	0.56	Below Average
England	52	1	100	1	0.33	80	0.67	0.67	0.33	1	90	0.59	Below Average
England	53	1	200	0.5	0.67	10	1	0.67	0.33	0.8	50	0.67	Average
England	54	1	100	0.5	0.67	95	1	0.67	0.97	1	50	0.61	Average
England	56	0.5	150	0.5	0.33	0	1	1	0.33	1	0	0.55	Below Average
England	58	1	400	0.9	0.67	15	1	0.67	1	0.97	80	0.89	Excellent
England	61	0.5	2900	1	0.67	90	0.67	0.67	0.33	1	0	0.59	Below Average
England	62	0.5	350	1	0.67	5	0.67	0.67	0.33	1	0	0.63	Average
England	63	0.5	600	1	0.67	70	0.67	0.67	1	1	20	0.75	Good
England	65	0.5	100	0.9	0.33	50	1	0.67	0.67	0.6	0	0.55	Below Average

Location	Waterbody Reference	Geographic location	Area m ²	Permanence	Water quality	Shade (%)	Waterfowl effect	Fish presence	Waterbody density	Terrestrial habitat	Macrophyte cover (%)	HSI Score	Suitability
England	67	0.5	550	0.9	0.67	60	0.67	0.67	0.33	0.65	0	0.62	Average
England	70	1	500	0.9	1	25	1	0.67	0.33	1	0	0.75	Good
England	71	1	150	0.5	0.67	90	1	1	0.67	1	0	0.62	Average
England	72	1	100	0.5	0.67	60	1	1	0.67	1	0	0.65	Average
England	74	1	300	0.9	1	60	0.01	0.67	0.67	1	0	0.49	Poor
England	75	1	150	0.1	0.1	100	1	1	0.33	1	100	0.42	Poor
England	79	0.5	250	1	0.67	20	1	0.67	0.67	0.6	70	0.73	Good
England	81	0.5	200	0.9	0.33	5	1	0.33	0.67	0.95	60	0.64	Average
England	82	1	250	0.9	0.67	40	0.67	0.67	0.67	0.97	50	0.77	Good
England	84	1	450	0.9	1	0	0.01	0.67	0.33	0.91	0	0.47	Poor
England	90	1	50	0.5	0.67	100	1	1	0.67	0.89	5	0.52	Below Average
Wales	90	0.5	100	0.9	0.67	95	1	0.67	0.65	1	0	0.55	Below Average
Wales	91	0.5	1900	0.9	1	10	0.67	0.67	0.65	1	0	0.72	Good
England	91	1	100	1	0.67	100	1	1	0.67	0.89	5	0.6	Average
Wales	92	1	450	0.9	0.67	15	0.01	1	0.6	0.67	0	0.48	Poor
England	94	1	500	1	0.67	0	0.67	0.67	0.67	0.75	75	0.83	Excellent
England	95	1	500	1	0.67	0	0.67	0.67	0.67	0.75	5	0.75	Good
England	96	1	600	1	0.67	0	1	0.67	0.33	0.75	5	0.72	Good
England	97	1	400	1	0.67	60	1	0.67	1	0.75	5	0.79	Good
England	99	0.5	500	1	0.33	10	0.67	0.67	0.33	0.65	1	0.59	Below Average
England	100	0.5	400	0.9	0.33	1	0.67	0.67	0.33	1	0	0.59	Below Average

Location	Waterbody Reference	Geographic location	Area m ²	Permanence	Water quality	Shade (%)	Waterfowl effect	Fish presence	Waterbody density	Terrestrial habitat	Macrophyte cover (%)	HSI Score	Suitability
Wales	103	0.5	150	0.5	0.33	0	0.67	0.67	0.33	0.1	0	0.4	Poor
England	108	0.5	550	0.9	0.67	60	0.67	0.67	1	0.91	10	0.74	Good
England	109	0.5	40	0.5	0.67	100	0.67	0.67	0.33	0.6	80	0.41	Poor
England	110	0.5	21	0.5	0.67	80	0.67	0.67	0.33	0.6	20	0.43	Poor
England	111	1	50	0.5	0.67	100	0.01	0.67	0.33	1	0	0.27	Poor
Wales	112	0.5	10	0.5	0.67	100	1	1	0.72	0.1	0	0.42	Poor
England	112	1	600	0.1	0.67	90	1	1	1	0.8	0	0.6	Average
England	114	1	100	1	0.67	30	1	1	1	0.67	0	0.73	Good
Wales	114	1	750	0.9	0.67	5	0.01	0.33	0.75	0.33	0	0.41	Poor
England	116	1	400	0.9	1	0	0.01	0.67	0.33	1	10	0.48	Poor
Wales	116	0.5	50	0.1	0.33	100	1	1	1	1	0	0.37	Poor
England	120	0.5	300	1	0.67	80	0.67	1	1	0.4	60	0.7	Good
England	121	0.5	200	0.9	0.67	95	1	0.67	0.67	0.8	50	0.63	Average
Wales	121	0.5	7.2	1	0.33	95	1	1	0.67	0.4	10	0.44	Poor
Wales	122	0.5	5	0.9	1	0	0.67	0.33	1	0.72	50	0.56	Below Average
England	122	0.5	450	0.9	0.67	45	0.67	0.67	0.33	1	30	0.69	Average
England	123	1	50	0.5	0.33	100	1	1	0.33	1	0	0.42	Poor
England	124	1	50	0.5	0.33	100	1	1	0.33	1	0	0.42	Poor
England	125	0.5	200	1	0.1	90	0.67	0.67	0.33	1	50	0.5	Below Average
England	127	1	2500	0.5	0.67	60	1	0.67	0.67	1	0	0.73	Good
England	128	0.5	1350	1	0.67	80	0.67	0.67	0.33	1	30	0.66	Average
England	129	1	150	0.5	1	80	1	1	0.67	1	10	0.69	Average
England	130	1	50	0.9	0.33	0	0.01	1	0.33	1	0	0.35	Poor

Location	Waterbody Reference	Geographic location	Area m ²	Permanence	Water quality	Shade (%)	Waterfowl effect	Fish presence	Waterbody density	Terrestrial habitat	Macrophyte cover (%)	HSI Score	Suitability
England	131	1	500	0.5	0.1	0	1	1	0.33	0.65	0	0.56	Below Average
England	132	0.5	150	1	0.67	80	0.67	0.67	0.33	0.91	80	0.62	Average
England	134	0.5	50	1	1	40	1	0.67	0.67	0.72	20	0.58	Below Average
Wales	137	0.5	100	1	0.33	100	1	0.67	0.4	0.67	100	0.5	Below Average
England	138	0.5	100	0.9	0.33	50	0.67	0.67	0.33	0.6	20	0.52	Below Average
England	139	1	50	0.1	0.67	0	0.67	0.67	0.33	0.4	100	0.42	Poor
England	140	1	50	0.1	0.33	100	1	1	0.33	1	0	0.38	Poor
England	141	1	400	0.9	0.67	0	1	1	0.33	0.95	0	0.73	Good
England	142	1	550	0.5	0.33	80	1	1	1	0.67	0	0.68	Average
Wales	144	1	150	1	0.67	50	0.67	1	0.33	0.1	40	0.56	Below Average
Wales	148	0.5	100	0.9	1	90	1	1	0.67	1	50	0.69	Average
Wales	150	1	150	0.9	0.33	50	0.67	0.33	0.4	1	0	0.55	Below Average
Wales	152	1	100	0.5	0.33	100	1	0.33	1	0.33	100	0.47	Poor
Wales	154	0.5	300	0.9	1	35	1	0.67	1	1	0	0.75	Good
Wales	155	0.5	150	0.9	1	20	1	0.67	1	1	0	0.7	Good
Wales	156	1	2500	0.9	1	25	1	0.67	1	1	0	0.79	Good
Wales	157	0.5	100	0.5	1	50	1	1	1	0.67	20	0.66	Average
Wales	160	0	950	0.9	1	40	0.01	0.01	0.67	0.89	5	0.31	Poor
Wales	161	0.5	250	0.9	1	50	1	0.67	1	0.95	5	0.74	Good

Location	Waterbody Reference	Geographic location	Area m ²	Permanence	Water quality	Shade (%)	Waterfowl effect	Fish presence	Waterbody density	Terrestrial habitat	Macrophyte cover (%)	HSI Score	Suitability
England	162	1	300	0.5	0.33	100	1	1	0.33	1	0	0.54	Below Average
England	163	1	250	0.5	0.67	100	1	1	0.33	1	0	0.57	Below Average
England	164	1	200	0.5	0.33	100	1	1	0.33	1	0	0.51	Below Average
England	165	1	800	0.9	0.67	5	0.01	0.67	0.33	1	0	0.46	Poor
England	166	0.5	350	0.9	1	0	1	0.67	1	1	5	0.77	Good
England	167	0.5	500	0.9	1	0	1	1	1	1	10	0.84	Excellent
England	168	0.5	350	0.9	1	0	1	0.67	1	1	50	0.84	Excellent
England	169	0.5	350	0.9	1	50	1	0.67	1	1	15	0.79	Good
England	170	0.5	50	0.5	1	10	1	0.67	1	1	10	0.61	Average
England	171	0.5	450	0.9	1	20	1	1	0.67	1	0	0.78	Good
England	172	0.5	1800	0.9	1	1	1	0.67	1	1	0	0.78	Good

Annex C

RESULTS OF PRESENCE / LIKELY ABSENCE SURVEYS

Table 8 - Presence / Likely Absence Survey Results

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
Waterbodies located in Wales									
CL1									
26.04.2022	No	3	0	No	11	4	5	1 Lh male	N/A
10.05.2022	No	3	0	No	13	4	3	5 Lv female	N/A
31.05.2022	No	1	0	No	12	5	N/A	No	N/A
14.06.2022	No	2	0	No	15	5	N/A	1 Lh male	N/A
Waterbody 4									
15.03.2022	No	3	0	No	8	0	2	No	N/A
23.03.2022	No	3	0	No	9	1	2	Frogspawn	N/A
13.04.2022	No	3	0	No	10	1	1	No	N/A
26.04.2022	No	2	0	No	9	0	3	No	N/A
Waterbody 5									
28.04.2021	No	3	0	No	10	1	2	No	N/A
11.05.2021	No	3	0	No	11	1	2	No	N/A
25.05.2021	No	3	0	No	12	1	2	No	N/A
02.06.2021	No	3	0	No	19	1	2	No	N/A
Waterbody 8									
16.03.2022	No	3	0	No	6	2	3	No	N/A
24.03.2022	No	3	0	No	10	2	3	86 Rt	N/A
19.04.2022	No	3	0	No	12	1	3	2 Lv Female	N/A
28.04.2022	No	3	0	No	10	1	5	No	N/A
Waterbody 9									
17.03.2022	No	3	0	No	9	3	4	L sp. Eggs	N/A
19.04.2022	No	3	0	No	12	3	1	5 Lv Male 10 Lv Female 4 Lh Male	N/A
28.04.2022	Yes	3	2 Male	No	8	4	3	2 Lv Male 5 Lv Female	Small

⁶ Using one survey method (i.e., torch or bottle trap)

⁷ Other amphibians are denoted using scientific names. Lh = *Lissotriton helveticus* palmate newt, Lv = *Lissotriton vulgaris*, smooth newt; L sp = *Lissotriton* species, when it was not possible to ID down to species level, Bb = *Bufo bufo*, common toad, Rt = *Rana temporaria*, common frog.

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
								1 Lh Male 1 L sp. Unknown 2 Tadpoles	
11.05.2022	Yes	3	0	Yes	10	3	2	4 Lv Male 20 Lv Female 3 Lh Male 2 Lh Female L sp. Eggs 2 Rt Tadpoles	N/A
17.05.2022	No	2	0	No	10	4	3	4 Lv Male 2 Lv Female 1 L sp. Female	N/A
31.05.2022	DRY								
Waterbody 13									
17.03.22	No	3	0	No	9	3	5	No	N/A
19.04.22	DRY								
Waterbody 14									
19.05.2021	Yes	3	1	Yes	14	2	1	5 Lv Male 6 Lv Female	Small
26.05.2021	No	3	0	No	14	2	1	31 Lv Male 35 Lv Female	N/A
03.06.2021	Yes	3	2 Female	No	13	4	1	8 Lv Male 10 Lv Female 1 Lh Male	Small
14.06.2021	No	3	0	No	14	2	3	3 Lv Male 10 Lv Female	N/A
22.06.2021	No	3	0	No	11	3	2	1 Lv Male 4 Lv Female	N/A
29.06.2021	No	3	0	No	13	3	2	2 Lv Female	N/A
Waterbody 14a									
19.05.2021	No	3	0	No	14	3	2	8 Lv Male 3 Lv Female	N/A
26.05.2021	No	3	0	No	14	3	2	2 Lv Male 1 Lv Female	N/A
03.06.2021	DRY								

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
Waterbody 15									
19.05.2021	Yes	3	1	Yes	14	2	1	4 Lv Male 18 Lv Female 3 L sp. Imm.	Small
26.05.2021	Yes	3	3	No	14	2	1	11 Lv Male 2 Lv Female	Small
03.06.2021	Yes	3	1	No	14	2	1	10 Lv Male 12 Lv Female 1 Lh Female	Small
14.06.2021	Yes	3	4	No	14	3	3	6 Lv Male 5 Lv Female 1 L sp. Imm.	Small
22.06.2021	Yes	3	1	Yes	11	4	3	3 Lv Male 2 Lv Female 1 L sp. Imm.	Small
29.06.2021	Yes	3	2 Male	No	13	4	1	2 Tc Imm.	Small
Waterbody 17/18									
30.03.2021	No	3	0	No	14	1	4	3 Lv Male 2 Lv Female	N/A
12.04.2021	No	3	0	No	3	1	3	No	N/A
19.04.2021	No	3	0	No	9	3	3	1 Lv Male	N/A
10.05.2021	No	3	0	No	8	1	4	No	N/A
Waterbody 19									
30.03.2021	No	3	0	No	14	0	4	No	N/A
12.04.2021	No	3	0	No	3	0	1	No	N/A
19.04.2021	No	3	0	No	9	1	3	No	N/A
10.05.2021	No	3	0	No	9	0	4	No	N/A
Waterbody 20									
30.03.2021	No	3	0	No	14	1	4	2 Lv Female	N/A
12.04.2021	No	3	0	No	3	1	1	No	N/A
19.04.2021	No	3	0	No	9	1	2	1 Lv Female	N/A
10.05.2021	No	3	0	No	8	1	4	No	N/A
Waterbody 21									
30.03.2021	No	3	0	No	14	1	4	No	N/A

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
12.04.2021	No	3	0	No	3	0	1	No	N/A
19.04.2021	No	3	0	No	9	1	1	No	N/A
10.05.2021	No	3	0	No	8	1	4	No	N/A
Waterbody 22									
30.03.2021	No	3	0	No	14	4	4	1 Lv Male 2 Lv Female	N/A
12.04.2021	No	3	0	No	3	4	1	No	N/A
19.04.2021	No	3	0	No	7	5	2	Lv Egg	N/A
10.05.2021	No	3	0	No	8	4	4	No	N/A
Waterbody 25									
17.03.2022	No	3	0	No	7	4	0	No	N/A
04.04.2022	No	1	0	No	12	4	1	No	N/A
20.04.2022	DRY								
Waterbody 27									
17.03.2022	No	2	0	No	7	0	1	No	N/A
04.04.2022	No	2	0	No	12	1	3	No	N/A
20.04.2022	No	2	0	No	16	1	4	No	N/A
25.04.2022	No	2	0	No	9	1	4	No	N/A
Waterbody 30									
16.03.2022	No	3	0	No	7	1	3	No	N/A
05.04.2022	No	3	0	No	11	0	4	No	N/A
28.04.2022	No	3	0	No	11	0	1	2 Rt Tadpoles	N/A
12.05.2022	No	3	0	No	12	2	4	Tadpoles	N/A
Waterbody 31									
15.03.2022	No	3	0	No	8	1	2	1 Lv Female	N/A
07.04.2022	Yes	3	1	No	5	1	2	No	Small
26.04.2022	Yes	3	1	Yes	11	1	3	1 Lv Male L sp. Eggs Tadpoles	Small
10.05.2022	Yes	3	6	Yes	12	1	2	1 Lv Female 1 Lh Male Tadpoles	Small

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
19.05.2022	Yes	3	4	Yes	13	2	3	1 Lh Male Bb Tadpoles	Small
24.05.2022	Yes	2	2	No	12	1	4	No	Small
Waterbody 32									
15.03.2022	No	3	0	No	8	3	3	1 Bb	N/A
07.04.2022	No	3	0	No	5	1	2	No	N/A
26.04.2022	No	3	0	No	11	1	1	1 Lv Male	N/A
10.05.2022	No	3	0	No	12	2	2	1 Lv Male 1 Lv Female 1 Lh Male	N/A
Waterbody 33									
15.03.2022	No	3	0	No	11	3	3	No	N/A
07.04.2022	No	3	0	No	5	2	2	No	N/A
26.04.2022	No	3	0	No	11	2	1	1 Lv Male	N/A
10.05.2022	No	3	0	No	12	2	3	No	N/A
Waterbody 34									
16.03.2022	No	3	0	No	7	1	2	No	N/A
05.04.2022	No	3	0	No	11	1	3	No	N/A
28.04.2022	No	3	0	No	16	1	3	7 Lv Male 1 Lv Female L sp. Egg	N/A
12.05.2022	No	3	0	No	11	2	3	1 Lv Male L sp. Egg Tadpoles	N/A
Waterbody 35									
16.03.2022	No	3	0	No	7	1	2	No	N/A
05.04.2022	No	3	0	No	11	1	2	1 Lv Female	N/A
28.04.2022	Yes	3	0	Yes	7	2	2	2 Lv Male	N/A
12.05.2022	Yes	3	7	No	11	1	2	2 Lh Male	Small
19.05.2022	Yes	3	5	No	11	1	3	4 Lv Male 4 Lv Female 1 Lh Male 2 L sp. Female	Small
24.05.2022	No	3	0	No	12	0	3	1 Lv Male	N/A

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
								2 Lv Female 2 L sp. Male 4 L sp. Female	
Waterbody 36									
11.05.2022	No	3	0	No	11	0	3	1 Lh Male 1 Bb	N/A
19.05.2022	No	3	0	No	13	0	4	2 Lh Male	N/A
31.05.2022	No	3	0	No	10	0	2	1 Lh Male	N/A
14.06.2022	No	3	0	No	13	0	1	No	N/A
Waterbody 37									
15.03.2022	No	3	0	No	12	0	3	No	N/A
06.04.2022	No	2	0	No	9	0	2	No	N/A
27.04.2022	No	3	0	No	16	0	2	No	N/A
11.05.2022	No	3	0	No	12	0	2	No	N/A
Waterbody 38									
15.03.2022	No	3	0	No	12	0	2	No	N/A
06.04.2022	No	2	0	No	9	0	2	No	N/A
27.04.2022	No	3	0	No	16	0	3	No	N/A
11.05.2022	Yes	3	1 Female	No	11	0	3	1 Lh Male	Small
19.05.2022	No	3	0	No	13	0	3	1 Lv Female 2 Lh Male	N/A
24.05.2022	Yes	3	3	No	12	0	2	1 Lh Male 1 Lh Female 1 L sp. Female	Small
Waterbody 40									
27.04.2021	No	3	0	No	16	0	1	No	N/A
11.05.2021	No	3	0	No	11	1	2	No	N/A
19.05.2021	No	3	0	No	9	1	2	No	N/A
07.06.2021	No	3	0	No	16	1	4	No	N/A
Waterbody 43									
20.04.2021	No	3	0	No	9	2	4	1 Lv Male	N/A
17.05.2021	No	3	0	No	10	2	5	No	N/A
01.06.2021	No	3	0	No	15	2	5	No	N/A

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
15.06.2021	No	3	0	No	14	2	4	No	N/A
Waterbody 44									
20.04.2021	No	3	0	No	9	2	3	1 Lv Male	N/A
17.05.2021	No	3	0	No	9	2	3	1 Lv Male	N/A
01.06.2021	No	3	0	No	14	2	4	1 Lv Male 2 Lv Female 1 Lh Male	N/A
15.06.2021	No	3	0	No	14	2	3	3 Lv Male 5 Lv Female	N/A
Waterbody 49									
20.04.2021	No	3	0	No	9	3	4	4 Lv Male 13 Lv Female	N/A
17.05.2021	Yes	3	1	No	10	3	4	3 Lv Male 6 Lv Female	Small
01.06.2021	No	3	0	No	10	3	4	2 Lv Male	N/A
15.06.2021	No	3	0	No	14	4	5	1 Lv Female	N/A
22.06.2021	No	3	0	No	11	2	5	No	N/A
29.06.2021	No	3	0	No	13	2	5	No	N/A
Waterbody 51									
04.04.2022	No	3	0	No	12	0	2	1 Lh: Female	N/A
26.04.2022	No	3	0	No	11	0	3	1 L sp. Female	N/A
10.05.2022	No	3	0	No	13	0	4	1 Lv Female	N/A
17.05.2022	No	3	0	No	13	0	4	No	N/A
Waterbody 90									
14.03.2022	No	3	0	No	6	1	1	1 Bb	N/A
22.03.2022	No	3	0	No	14	1	0	2 Bb 1 Rt	N/A
12.04.2022	No	3	0	No	13	0	0	No	N/A
26.04.2022	No	3	0	No	11	0	1	No	N/A
Waterbody 91									
14.03.2022	No	3	0	No	6	1	1	13 Bb 2 Bb Juvenile 1 Rt	N/A

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
								1 Rt Juvenile	
22.03.2022	No	3	0	No	14	0	1	13 Bb	N/A
12.04.2022	No	3	0	No	13	1	3	No	N/A
26.04.2022	No	3	0	No	11	4	0	2 Lv Male	N/A
Waterbody 92									
14.03.2022	No	3	0	No	6	1	3	No	N/A
22.03.2022	No	3	0	No	11	0	4	No	N/A
12.04.2022	No	2	0	No	12	1	1	No	N/A
28.04.2022	No	1	0	No	9	1	5	No	N/A
Waterbody 112									
15.03.22	No	1	0	No	7	0	2	No	N/A
23.03.22	No	1	0	No	11	0	2	No	N/A
13.04.22	No	1	0	No	10	0	2	No	N/A
26.04.22	DRY								
Waterbody 113									
16.03.2022	No	3	0	No	7	1	1	No	N/A
05.04.2022	No	3	0	No	11	0	1	No	N/A
28.04.2022	No	3	0	No	11	0	2	No	N/A
12.05.2022	No	3	0	No	12	0	2	No	N/A
Waterbody 114									
15.03.2022	No	3	0	No	8	1	2	1 Lv Female	N/A
23.03.2022	No	3	0	No	10	2	2	No	N/A
13.04.2022	No	3	0	No	10	2	2	No	N/A
26.04.2022	No	3	0	No	9	1	5	No	N/A
Waterbody 116									
16.03.2022	No	2	0	No	6	2	4	No	N/A
04.04.2022	DRY								
Waterbody 137									
12.04.22	No	3	0	No	13	3	2	7 Lv Female 1 Lv Male	N/A
28.04.22	No	3	0	No	9	3	1	1 Lv Female	N/A
10.05.22	DRY								

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
Waterbody 149									
15.03.2022	No	2	0	No		0	3	No	N/A
23.03.2022	No	1	0	No	11	0	3	No	N/A
13.04.2022	No	1	0	No	10	0	2	No	N/A
26.04.2022	No	0	0	No	9	0	4	No	N/A
Waterbody 150									
24.03.2022	No	3	0	No	12	0	3	No	N/A
19.04.2022	No	2	0	No	11	1	2	No	N/A
28.04.2022	No	3	0	No	10	0	1	No	N/A
10.05.2022	No	2	0	No	11	0	1	No	N/A
Waterbody 152									
14.03.2022	No	3	0	No	8	4	1	No	N/A
24.03.2022	No	3	0	No	12	5	1	No	N/A
20.04.2022	No	3	0	No	16	1	3	3 Lv – 1 Male 2 Female	N/A
28.04.2022	No	3	0	No	8	4	4	No	N/A
Waterbody 153									
15.03.2022	No	3	0	No	8	0	3	1 L sp. Imm.	N/A
07.04.2022	No	3	0	No	5	0	2	No	N/A
26.04.2022	No	3	0	No	10	1	3	1 L sp. Imm.	N/A
10.05.2022	No	3	0	No	13	1	4	2 Lh Male 1 L sp. Imm.	N/A
Waterbody 154									
15.03.2022	Yes	3	2	No	11	2	2	2 Lv Female	Small
06.04.2022	No	2	0	No	9	2	2	No	N/A
11.05.2022	Yes	3	1	No	11	2	3	No	Small
31.05.2022	Yes	3	1	No	10	1	3	1 Lh Male	Small
14.06.2022	No	3	0	No	13	2	3	No	N/A
21.06.2022	Yes	3	2	No	13	2	3	1 Lh Male 1 L sp. Female	N/A
Waterbody 155									
15.03.2022	No	3	0	No	11	1	3	No	N/A

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
06.04.2022	Yes	3	5	No	9	2	2	No	Small
11.05.2022	Yes	3	1	No	11	1	3	4 Lh Male 1 Lh Female	Small
31.05.2022	Yes	3	1	No	10	1	2	No	Small
14.06.2022	No	3	0	No	13	2	3	3 Lv Female 2 Lh Female 1 L Sp. Female	N/A
21.06.2022	Yes	3	1	No	13	2	3	1 Lv Male 1 Lv Female 2 L sp. Female	Small
Waterbody 157									
17.03.2022	Yes	3	0	Yes	6	3	2	No	N/A
04.04.2022	Yes	3	8	No	12	2	2	2 Lv Male 1 Lv Female 1 Lh Male	Small
20.04.2022	Yes	2	19	Yes	16	3	1	1 Lv Male 4 Lv Female 3 Lh Male 1 Lh Female	Medium
26.04.2022	Yes	2	12	No	11	2	2	3 Lv Male 2 Lv Female	Medium
10.05.2022	Yes	2	4	No	13	2	2	3 Lv Male	Small
17.05.2022	Yes	2	5	No	16	3	3	3 Lv Male 2 Lv Female 1 Lh Female 3 L sp. Female	Small
Waterbody 160									
15.03.2022	No	2	0	No	8	1	1	No	N/A
23.03.2022	No	3	0	No	9	1	2	No	N/A
13.04.2022	No	3	0	No	10	1	4	No	N/A
26.04.2022	No	2	0	No	9	0	4	No	N/A
Waterbody 161									
24.03.2022	Yes	3	2	Yes	12	2	0	1 Lv Male 2 Lv Female 11 Lh Male	Small

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
21.04.2022	Yes	3	12	No	15	3	0	3 Lv Male 5 Lv Female 1 Lh Male 1 Lh Female	Medium
28.04.2022	Yes	3	4	No	8	2	0	3 Lv Female 4 L sp. Unknown	Small
11.05.2022	Yes	2	10	No	10	3	1	4 Lv Male 15 Lv Female 3 Lh Male 1 Lh Female 5 L sp. Female	Small
17.05.2022	Yes		15	No	10	3	1	1 Lv Male 2 Lh Male 1 Lh Female 23 L sp. Female	Medium
England Waterbodies Within the Red Risk Zone									
Waterbody 43									
14.04.2021	No	3	0	No	8	4	2	No	N/A
26.04.2021	Yes	3	1 Male	No	11	3	5	1 Lv Male	Small
06.05.2021	No	3	0	No	8	1	5	No	N/A
18.05.2021	No	3	0	No	13	2	2	1 Lv Female	N/A
27.05.2021	Yes	3	1 Female	No	13	2	4	No	Small
23.06.2021	DRY								
Waterbody 45									
14.04.2021	No	3	0	No	8	0	1	No	N/A
26.04.2021	No	3	0	No	11	0	3	No	N/A
06.05.2021	No	3	0	No	8	0	1	No	N/A
18.05.2021	No	3	0	No	13	1	3	No	N/A
Waterbody 46									
14.04.2021	No	3	0	No	8	1	2	No	N/A
26.04.2021	Yes	3	1	No	11	1	3	3 Lv Male 1 Lv Female	Small
06.05.2021	No	3	0	No	8	1	0	No	N/A
18.05.2021	No	3	0	No	13	2	2	No	N/A

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
27.05.2021	Yes	3	1	No	13	2	2	No	Small
23.06.2021	No	3	0	No	13	2	5	No	N/A
Waterbody 47									
14.04.2021	No	2	0	No	9	4	1	No	N/A
26.04.2021	No	2	0	No	11	4	1	No	N/A
06.05.2021	No	0	0	No	8	N/A	N/A	No	N/A
18.05.2021	No	0	0	No	13	N/A	N/A	No	N/A
Waterbody 50									
14.04.2021	No	3	0	No	8	1	5	No	N/A
06.05.2021	No	3	0	No	8	1	5	No	N/A
18.05.2021	No	3	0	No	13	1	2	No	N/A
27.05.2021	No	3	0	No	13	1	2	1 Lv Female	N/A
Waterbody 51									
14.04.2021	No	2	0	No	9	0	1	1 Lv Female	N/A
26.04.2021	No	1	0	No	8	1	4	No	N/A
06.05.2021	No	1	0	No	8	1	4	No	N/A
18.05.2021	No	1	0	No	13	1	4	No	N/A
Waterbody 52									
14.04.2021	No	3	0	No	8	4	1	No	N/A
26.04.2021	No	0	0	No	N/A	N/A	N/A	No	N/A
06.05.2021	No	3	0	No	8	5	1	No	N/A
18.05.2021	No	0	0	No	13	2	5	No	N/A
Waterbody 53									
31.03.21	No	3	0	No	17	4	1	No	N/A
14.04.21	No	3	0	No	7	4	1	No	N/A
26.04.21	No	3	0	No	11	3	3	4 Lv Male 2 Lv female	N/A
06.05.21	No	3	0	No	8	3	2	5 Lv Male	N/A
Waterbody 54									
11.04.2022	No	3	0	No	13	3	1	No	N/A
21.04.2022	No	3	0	No	15	3	2	No	N/A
26.04.2022	DRY								

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
Waterbody 112									
21.03.2022	No	2	0	No	8	1	0	No	N/A
21.04.2022	DRY								
Waterbody 114									
21.03.2022	No	3	0	No	8	0	2	1 Lv Male 1 Bb	N/A
11.04.2022	No	3	0	No	13	1	2	No	N/A
21.04.2022	No	3	0	No	15	2	2	No	N/A
26.04.2022	No	3	0	No	11	2	3	4 Lv Male	N/A
Waterbody 142									
14.03.2022	No	3	0	No	8	1	0	No	N/A
21.03.2022	No	3	0	No	8	1	0	1 Bb	N/A
21.04.2022	No	2	0	No	15	1	2	No	N/A
25.04.2022	No	2	0	No	10	1	4	No	N/A
Waterbody 166									
15.03.2021	Yes	2	0	Egg	10	2	2	No	N/A
29.03.2021	Yes	2	0	Egg	9	2	2	1-10 Bb, spawn	N/A
12.04.2021	Yes	2	0	Egg	7	2	2	No	N/A
26.04.2021	Yes	2	0	Egg	12	2	2	No	N/A
10.05.2021	No	1	0	No	12	2	2	No	N/A
24.05.2021	No	1	0	No	11	2	2	No	N/A
Waterbody 167									
15.03.2021	Yes	1	2	No	10	2	3	No	Small
12.04.2021	Yes	1	7	No	7	2	3	No	Small
26.04.2021	No	1	0	No	12	2	3	No	N/A
10.05.2021	Yes	1	1	No	12	2	3	No	Small
24.05.2021	Yes	1	6	No	11	2	3	No	Small
Waterbody 168									
12.04.2021	No	1	0	No	7	4	3	No	N/A
26.04.2021	No	1	0	No	12	4	3	No	N/A
10.05.2021	No	1	0	No	12	4	3	No	N/A
24.05.2021	No	1	0	No	11	4	3	No	N/A

Date	GCN Recorded	Number of Methods	Peak Adult GCN Count ⁶	GCN Eggs or Larvae?	Air Temperature (°C)	Vegetation Cover (0-5)	Turbidity (0-5)	Other Amphibians ⁷	Population Size Class
Waterbody 169									
16.03.2022	No	2	0	No	3	0.5	5	1 Bb	N/A
30.03.2022	No	2	0	No	3	2.5	5	No	N/A
13.04.2022	Yes	2	1	No	3	2.5	1	2 Lv Male 2 Lv Female	Small
27.04.2022	No	2	0	No	9	3	3	1 Lv Male 1 Lv Female 1 Rt	N/A
12.05.2022	No	2	0	No	11	2.5	5	2 Bb	N/A
19.05.2022	No	2	0	No	14	3	5	1 Lv Female 4 Rt	N/A
Waterbody 170									
12.04.2021	No	1	0	No	7	4	3	No	N/A
26.04.2021	No	1	0	No	12	4	3	No	N/A
10.05.2021	No	1	0	No	12	4	3	No	N/A
24.05.2021	No	1	0	No	11	4	3	No	N/A
Waterbody 171									
15.03.2021	Yes	2	1	Yes	10	2	2	No	Small
29.03.2021	Yes	1	2	No	9	2	2	No	Small
12.04.2021	No	1	0	No	7	2	3	No	N/A
26.04.2021	No	1	0	No	12	2	3	No	N/A
10.05.2021	No	1	0	No	12	2	3	No	N/A
24.05.2021	No	1	0	No	11	2	3	No	N/A
Waterbody 172									
12.04.2021	No	1	0	No	7	2	3	No	N/A
26.04.2021	No	1	0	No	12	2	3	No	N/A
10.05.2021	No	1	0	No	12	2	3	No	N/A
24.05.2021	No	1	0	No	11	2	3	No	N/A