

Appendix 5I

Reptile Survey Report

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1. Introduction

1.1 Background

- 1.1.1 The Environment Partnership (TEP) was commissioned through WSP by Cadent Gas Limited (Cadent) in 2022 to undertake reptile surveys at selected locations along the HyNet North West Hydrogen Pipeline (hereafter referred to as 'the Project'). Cadent (the Applicant) is applying to the Secretary of State+ for a Development Consent Order (DCO) to construct, operate, and maintain a new underground hydrogen pipeline of approximately 100km in length. The Project within the Preliminary Order Limits can be split into five distinct areas, comprising four pipeline corridor routes and the Central Hub, an area where the four corridor routes meet which is not associated with any specific route. Please note that as part of the design process, the order limits have undergone a number of iterations (as described in **Appendix 2A: Design evolution** of the Draft ES) and this report is based on the Preliminary Order Limits as they stood in early 2023.
- 1.1.2 This report details the results of reptile surveys conducted in 2022 and 2023 to inform the impact assessment for the Project.

1.2 Legislation

- 1.2.1 All species of reptile native to the UK are protected to some degree under national and/or international legislation, which provides mechanisms to protect the species, their habitats and sites occupied by the species.
- 1.2.2 Sand lizards (*Lacerta agilis*) and smooth snakes (*Coronella austriaca*) are European Protected Species (EPS); all life stages and their habitats are afforded full statutory protection. Neither species will be present within the Preliminary Order Limits or zone of influence of the Project as it does not provide suitable habitat and is not located within the recorded natural ranges of these species.
- 1.2.3 The remaining species of native reptiles; adder (*Vipera berus*), grass snake (*Natrix helvetica*), slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*) are protected under the Wildlife and Countryside Act 1981 as (amended). They are listed as a Schedule 5 species and therefore protected against killing and injury under section 9(1). Trade of the species is also prohibited under section 9(5).
- 1.2.4 The habitats of these species are not statutorily protected, although there is a duty of welfare in respect of exclusion or translocation to ensure sufficient suitable habitat is available to permit survival of the species. The presence of protected species is a material consideration for in the determination of planning applications.

- 1.2.5 Common lizard, slow worm, grass snake and adder are also ‘species of principle importance’, identified under the obligations set out under Section 41 of the Natural Environment and Rural Communities Act (2006) (as amended). These are species found in England, which have been identified as being of principal importance for the purpose of conserving and enhancing biodiversity. All local authorities and other public authorities in England have a duty to promote and enhance biodiversity in all of their functions.
- 1.2.6 In respect of development, including site clearance and demolition activities, disturbing, or destroying habitat where reptiles are (or are likely to be) presents a risk of an offence being committed under the Wildlife and Countryside Act 1981 (as amended). Reasonable measures must be taken to ensure the species are removed from the threat of injury or death created by site activities.

2. Methodology

2.1 Desk Study

Reptile records

- 2.1.1 A desk study was undertaken in Spring 2022 and the methodology for this is set out in Section 5.5 and Table 5.8 of the Preliminary Environmental Information Report (PEIR). The desk study recorded the presence of statutory designated sites within up to 20km¹ of the Preliminary Order Limits (Section 5.6.1, Table 5.10, and Figure 5.1 of the PEIR) and non-statutory designated sites within 2km (Section 5.6.2, Table 5.11, and Figure 5.2 of the PEIR). The desk study also recorded the presence of Habitats of Principal Importance (HPI) within 2km of the Preliminary Order Limits (section 5.6.3., Table 5.12 and Figure 5.3 of the PEIR). Records of protected and notable species within 2km of the Preliminary Order Limits are discussed within section 5.6.12-5.6.41 of the PEIR.
- 2.1.2 The desk study information from the PEIR is not repeated in this report or discussed further. The desk study will be updated for the Environmental Statement following design freeze for the Project.
- 2.1.3 In addition, publicly available local reports pertaining to the distribution of reptiles were reviewed, further details are provided at Section 3.1.

2.2 Survey Area

Defining survey scope

- 2.2.1 In line with CIEEM guidance², surveys were focussed on those areas in which works associated with the Project could contribute to significant adverse effects on reptile populations or could result in contravention of the legislation protecting reptiles.
- 2.2.2 After scoping the potential effects of the works, it was considered that across much of the Preliminary Order Limits, works would have relatively low impacts due to the nature of the habitats affected and the subsequent re-establishment of previously disturbed habitats.
- 2.2.3 The Project covers six local planning authority (LPA) boundaries: Cheshire West and Chester, Cheshire East, Halton, St Helens, Warrington, and Trafford. The

¹ Dependent on reasons for designation; within 2km for habitats, extending to 10km for bats, and up to 20km for ornithological interest for international sites.

² Chartered Institute of Ecology and Environmental Management (CIEEM) (2019). Guidelines for Ecological Impact Assessment in the United Kingdom. CIEEM, Winchester

Project is divided into the following four Corridors, which meet at the Central Hub near Bartington, northwest of Northwich in Cheshire:

- **Line 1 West Corridor - Stanlow HPP Hydrogen Above Ground Installation (HAGI) to Central Hub HAGI** (hereafter referred to as the 'Western Mainline'): The Western Corridor runs from Elton, Cheshire heading northeast to Frodsham before turning east, crossing the M56 motorway and towards Bartington;
- **Line 2 South Corridor - Central Hub HAGI to Inovyn HSF HAGI** (hereafter referred to as the 'Southern Corridor'): The Southern Corridor runs from east of Bostock Green, Middlewich heading west and then north around Moulton before heading west again across the River Weaver and then north across the A556 and A49 towards Bartington;
- **Line 3 East Corridor - Central Hub HAGI to Partington HAGI** (hereafter referred to as the 'Eastern Corridor'): The Eastern Corridor runs from Carrington, Trafford heading south to the M56 motorway before heading southwest and across the M6 motorway towards Bartington; and
- **Line 4 North Corridor - Central Hub HAGI to Clock Face HAGI** (hereafter referred to as the 'Northern Corridor'): The Northern Corridor runs from St Helens heading south to the M62 motorway before turning southeast towards the Manchester Ship Canal and then south again and across the M56 motorway towards Bartington.

- 2.2.4 The survey area for reptile surveys focussed on land within the Preliminary Order Limits, targeting areas of higher quality habitat that have potential to support significant populations of reptiles.
- 2.2.5 Habitat within the Preliminary Order Limits is predominately farmland with scattered woodland, hedgerows and tree-lined field boundaries and watercourses. The Preliminary Order Limits also cross or run adjacent to some active industrial/commercial areas, mineral extraction sites, inactive post-industrial areas, golf courses and residential areas. Reptiles require a mix of habitats and landscape features and whilst the majority of the land within the Preliminary Order Limits comprises arable and pasture fields with negligible or low value for reptiles, there are areas with a mosaic of habitats creating higher value landscapes for the common reptile species found inland in the North West (i.e., common lizard, slow worm, and grass snake).
- 2.2.6 Suitable areas of habitat were identified following the methodology in the following section.

Habitat suitability assessment

- 2.2.7 A high-level habitat suitability assessment was undertaken using aerial imagery³ of the Project footprint with due consideration to the reptile species whose ranges overlap with the Preliminary Order Limits. Each species of native reptile has specific habitat requirements, but generally shared features include a structurally

³ Google Earth Pro [Accessed 04/04/2022]

diverse habitat that provides opportunities for shelter, basking, foraging, and hibernating.

2.2.8 The Habitat Suitability Assessment was carried out in two stages. The first stage identified areas containing potential reptile habitat within the Preliminary Order Limits, including:

- Mosaic habitats;
- Woodland edges;
- Continuous and scattered scrub;
- Heathland;
- Rough grassland;
- Wetland and riparian habitats; and
- Bare ground.

2.2.9 Reptiles favour a range of habitat types and varying topography to provide a combination of necessary conditions required for shelter, foraging and basking. The second stage involved further examination of areas with potential reptile habitats and considered additional factors that may impact the suitability of an area to support reptiles, including:

- Connectivity to nearby good quality habitat;
- Topography, aspect, and insolation (sun exposure);
- Vegetation structure;
- Refuge opportunity including hibernation habitat;
- Potential prey abundance;
- Disturbance; and
- Potential egg-laying (grass snake only).

2.2.10 In total, 11 survey areas were accessed for reptile surveys across 2022 and 2023. Descriptions of survey locations are provided in **Table 5I 2.1**, illustrated in Figure 5I.1 in 0 and summarised below:

- Western Corridor: Areas 1, 2 and 3
- Northern Corridor: Areas 4, 5, 6, 7 and 8
- Southern Corridor: Areas 9, 10 and 11
- Eastern Corridor: None

2.2.11 Higher quality habitat locations were judged relative to the habitats present within and adjacent to the Preliminary Order Limits in spring 2022. The Preliminary Order Limits were updated in 2023 and these were reviewed to identify any new areas requiring survey either due to changes in the Preliminary Order Limits or due to

updated land access availability as the project progressed⁴. A total of 11 areas were accessed for reptile surveys across 2022 and 2023, these are described in **Table 5I 2.1** and shown in Figure 5I.1 in 0. Due to evolving route design, some areas now fall outside the Preliminary Order Limits.

Table 5I 2.1 Areas selected for reptile surveys

Area:	Name:	Location / Description:	Corridor*:
Area 1	Sutton Causeway	Located near Frodsham on Weaver Island. It is bounded by a railway line to the northwest, an access road and the Weaver Navigation to the northeast, the A56 Sutton Causeway to the southeast and an industrial estate to the southwest. The habitats are rough pasture grassland with areas of tall ruderal and scrub. The survey area is approximately 3.5 hectares.	Western (within)
Area 2	East Clifton Tip	Located at East Clifton Tip LWS, on Weaver Island, Frodsham. It is bounded by the Weaver Navigation to the northeast, a railway line to the southeast, the River Weaver to the southwest the M56 motorway viaduct to the northwest. The area is dominated by semi-natural and plantation woodland with open areas of rough grassland and bare ground towards the centre. The survey area is approximately 26 hectares.	Western (within)
Area 3	Clifton Lagoon	Located at Clifton Lagoon LWS on the outskirts of Runcorn. It is flanked by the A557 Weston Point Expressway to the northeast, the M56 motorway to the southeast and the Weaver Navigation to the south, Cholmondeley Road to the west and Weaver View road to the north. The habitats include rank semi-improved grassland with areas of low scrub and tall ruderal. The boundaries of the site are predominantly screening plantation woodland and underlying scrub. This area can be prone to some antisocial behaviour including fires. The survey area is approximately 11 hectares.	Western (within / adjacent)

⁴ The layout of the Project (notably the routes of the Corridors) was subject to design changes during the survey period and thus some surveyed areas have since fell outside of the footprint of key project components (such as the routes of the Corridors) or the Preliminary Order Limits.

Area:	Name:	Location / Description:	Corridor*:
Area 4	Moore Nature Reserve North	Located within Moore Nature Reserve LWS it is bounded by a railway line to the east, open water habitats to the south by more mosaic habitat to the west and woodland regeneration to the north. Habitat within this area included lowland heath scrub and wet/rank grassland with semi-natural woodland regeneration to the north. A track passes through the middle of the site. The survey area is approximately 5 hectares.	Northern (within / adjacent)
Area 5	Moore Nature Reserve South	Located south of Moore Nature Reserve LWS it is bounded by the former Runcorn and Latchford Canal to the north, Lapwing Lane to the east and west and the Manchester Ship canal to the south. Habitat within this area is predominantly bare ground and rank grassland mosaic bordered by semi-natural and screening plantation woodland. The survey area is approximately 5 hectares.	Northern (within)
Area 6	Moore Nature Reserve West	Located within Moore Nature Reserve Bounded by the former Runcorn and Latchford Canal to the north, Lapwing Lane to the east and west and the Manchester Ship canal to the south. Habitats within this area include semi-natural woodland with dense understory scrub associated with the old canal basin and a mosaic of lowland heath, grassland and scrub and wet grassland towards the centre. The area is frequently used by dog walkers. The survey area is approximately 12 hectares.	Northern (outside)
Area 7	Upper Moss Side Fields	Located at Norton Marsh and Upper Moss Side Fields LWS. Bounded by the River Mersey and estuarine habitats to the west, by arable fields to the north and east. The LWS habitat continues to the south. The area is bounded by a narrow strip of young/semi-mature woodland plantation with evidence of use for game birds, whilst the centre is more open with habitats of rank tussocky lowland heath, patches of bare earth and small ephemeral pools. The survey area is approximately 7 hectares.	Northern (outside)
Area 8	Pilkington Glass	Located in Ravenhead on the southwest edge of St Helens. Pilkington Glass Works to the west, Ravenhead Retail Park to the north and	Northern (within)

Area:	Name:	Location / Description:	Corridor*:
		Ravenhead Household Waste Centre to the east and Ravenhead Nature Park to the south. The survey area is part of the works yard of a transport company and peripheral habitats include low lying scrub and rank grassland. The survey area is just over 1 hectare.	
Area 9	Forest Hill Quarry	Located east of Sandiway, Northwich. It is situated on the edge of a quarry (west side of the survey area). There is a partial wooded area to the east (Littledales Gorse LWS) and agricultural and arable fields to the north and south. The survey area is situated in a non-operational area of an active quarry and habitats include bare ground and low rank grassland with outlying woodland and scrub. The survey area is approximately 4 hectares.	Southern (within)
Area 10	East of Sandiway Golf Course	Located adjacent to Sandiway Golf Course LWS. It is bounded by a golf course to the west and south, and agricultural and arable fields to the north and east. The area is a mix of lowland heath in the northwest and agricultural pasture fields to the southeast. The total area is just under 7 hectares.	Southern (within)
Area 11	Anderton	Located near Anderton within Anderton Nature Park and adjacent to the east is Anderton Lime Bed LWS. It is bounded by the River Weaver to the southwest, angling ponds to the northwest and scrub / wooded areas of the nature park surround the area. The majority of the site is a mix of grassland and low scrub, footpaths run through the area, which as part of a nature park, is subject to heavy recreational footfall. The survey area is approximately 4 hectares.	Tata Spur (outside)

*Location in relation to January 2024 Preliminary Order Limits is provided in brackets ()

2.3 Field Survey

Reptile survey method

- 2.3.1 All reptile surveys followed guidance provided in Froglife's Advice Sheet 10⁵ plus additional guidance within the Herpetofauna Workers' Manual⁶ and Natural England standing advice⁷.
- 2.3.2 Artificial refugia, were laid out in the survey areas in locations considered to have the highest potential to support reptiles. These survey areas included hedgerow bases, woodland edges, bare ground, lowland heath, rough grassland, and land adjacent to water.
- 2.3.3 Froglife recommends placing between 5 and 10 refugia per hectare (ha) of land. However, some habitats within each survey area were not considered suitable for reptiles (e.g. well managed amenity grasslands that are highly disturbed by public access are unlikely to be attractive areas for basking or foraging reptiles). Therefore, the total number of refugia used was altered depending on the proportion of suitable habitat present. The refugia deployed (which consisted of mix of both 0.5m x 0.5m felt tiles and 0.5m x 0.5m corrugated metal tins) for each area is given in **Table 5I 2.2** and locations within each Survey Area are shown on Figure 5I.1 in 0 (due to scale of the figure and GPS accuracy, multiple tins/mats may be deployed at each mapped refuge location shown on the figure).

Table 5I 2.2 Refugia deployment per survey area

Survey area:	Name:	Approximate Size:	Refugia Deployed:
Area 1	Sutton Causeway	3.5 hectares	23 felt
Area 2	East Clifton Tip	26 hectares	163 felt & 52 tin
Area 3	Clifton Lagoon	11 hectares	83 felt & 17 tin
Area 4	Moore Nature Reserve North	5 hectares	21 felt & 10 tin
Area 5	Moore Nature Reserve South	5 hectares	29 felt & 20 tin

⁵ Froglife, (1999) Reptile Survey: an introduction to planning, conducting, and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

⁶ JNCC (1998) Herpetofauna Workers' Manual.

⁷ Natural England (2022). Standing Advice: Reptiles: advice for making planning decisions. (online) Available at: <https://www.gov.uk/guidance/reptiles-advice-for-making-planning-decisions>

Survey area:	Name:	Approximate Size:	Refugia Deployed:
Area 6	Moore Nature Reserve West	12 hectares	44 felt
Area 7	Upper Moss Side Fields	7 hectares	50 felt
Area 8	Pilkington Glass	1 hectare	10 felt
Area 9	Forest Hill Quarry	4 hectares	20 felt & 16 tin
Area 10	East of Sandiway Golf Course	7 hectares	40 felt & 18 tin
Area 11	Anderton	4 hectares	48 felt

2.3.4 In line with best practice guidance (Froglife 1999), seven survey visits are required to determine reptile presence/likely absence. The required number of survey visits were conducted at each survey area on different occasions during suitable weather conditions (see below). On each survey visit, and with the aid of binoculars, any reptiles observed on top of, or next to both artificial and natural refugia were recorded. A general inspection of the survey area was also carried out to identify and record any reptiles basking in the open. Following this, artificial and natural refugia were carefully searched for reptiles, with the surveyor slowly lifting each artificial refugia to check for reptiles sheltering beneath. Natural refugia may have included log-piles, rubble and discarded wood or old carpet.

2.4 Population Size Classification

2.4.1 The Froglife (1999) guidelines⁸ set out a method for obtaining a population size class for reptile species, based on the maximum number of adults recorded on a single survey visit over a period of 20 survey visits. **Table 5I 2.3** summarises the method used for calculating size class. The numbers in the table refer to the maximum number of adults seen by observation and/or under tiles (placed at a density of 10 per hectare), by one person in one day.

⁸ Froglife, (1999) Reptile Survey: an introduction to planning, conducting, and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Table 5I 2.3 Classification of reptile populations⁹

Species	Low Population (Score 1 point)	Good Population (Score 2 points)	Exceptional Population (Score 3 points)
Common lizard	<5	5-20	>20
Slow worm	<5	5-20	>20
Adder	<5	5-10	>10
Grass snake	<5	5-10	>10

2.4.2 This also forms part of the criteria for the selection of Key Reptile Sites¹⁰ i.e. areas of high value for reptiles. To qualify for the Key Reptile Site Register a site must meet at least one of the following criteria:

- it supports three or more reptile species.
- it supports two snake species.
- it supports an exceptional population of one species.
- it supports an assemblage of species scoring a total of at least four points; or
- the site does not satisfy the above criteria but is of particular regional importance due to local rarity.

2.4.3 This population size class assessment is also used to quantify any subsequent mitigation required, such as the recommended duration of any translocation exercises that may be necessary, as detailed by the Herpetofauna Groups of Britain and Ireland¹¹.

2.4.4 Whilst the guidelines recommend 20 survey visits to inform the size class assessment, the results obtained over the seven visits from the presence/likely absence surveys can be used to extrapolate a broad estimated population size. Reptiles were recorded (1 juvenile adder) at one location and a review of habitats in this area concludes the local adder population will be reliant on offsite habitat to

⁹ Froglife, (1999) Reptile Survey: Froglife Advice Sheet 10. Froglife, Halesworth. Page 8 - Interpreting Survey Results (Survey Assessment: Key Reptile Sites)

¹⁰ Key Reptile Sites are listed on a register held by Local Amphibian and Reptile Groups and/or Biological Record Centres.

¹¹ Herpetofauna Groups of Britain and Ireland (1998) Evaluating local mitigation/translocation programmes: Maintaining Best Practice and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs). HGBI, Froglife, Halesworth.

the west and south, primarily within Sandiway Golf Course¹². Therefore, it is considered that an additional 13 visits would not be a proportionate approach and mitigation for impacts on reptiles at this location can be designed without further population size class assessment surveys.

2.5 Constraints

- 2.5.1 One area along the Eastern Corridor was initially identified for survey, but the level of access necessary for a reptile survey was not granted. The area is Carrington at the eastern extent of this Corridor and further investigation revealed this brownfield site was subject to an extant planning permission granted in 2022 (Voltage Park). The ecology report (2019)¹³ for that development did not scope reptiles into the assessment and the CEMP¹⁴ submitted in February 2024 does not mention reptiles. The site is being redeveloped.
- 2.5.2 Area 11 had restricted access to nine (out of 48) tiles on two occasions due to the shooting range being in use. The entirety of Area 11 is now significantly outside the Preliminary Order Limits as illustrated on Figure 5I.1 in 0.
- 2.5.3 Some surveys were outside the core seasonal and / or temperature windows. Reptile activity is very dependent on the weather and time of year, as reptiles are ectotherms and therefore must bask to warm themselves and become active. April, May and September are key months for identifying basking reptiles, as more continuous mid-summer heat means they require less basking time to become active. Successful surveys may still be carried out from June to August and October however, if weather conditions are suitable. Optimum conditions occur under intermittent sunshine with little or no wind, particularly after a spell of cooler or wetter weather. Individual species have some specific preferences although generally it is preferable to survey when the temperature is between 9°C and 18°C. Survey visits were conducted as far as was practically possible in optimum conditions and **Table 5I 2.4** summarises these conditions and given all other surveys were in season and optimal conditions, concludes no significant effect on the validity of the survey for any of the survey areas.

¹² The field with the northwest of Survey Area 10 falls partly within the POL and provides potential reptile habitat but no reptiles were recorded here, it is a relatively small area compared to the golf course. With the exception of field boundaries, other habitats within the POL are arable fields subject to ground disturbance. Habitats beyond the POL (on the opposite / north and east side) are not of notable value for reptiles.

¹³ Ecological Impact Assessment, Voltage Park, Carrington (February 2019), Waterman Infrastructure & Environment Limited (planning ref: 97261/FUL/19).

¹⁴ Construction Environmental Management Plan, Voltage Park Phase 2, Common Lane, November 2023, Author unknown (planning ref 112794/FUL/24).

Table 5I 2.4 Summary of potential survey timing constraints

Survey Area	Potential Constraint	Survey Validity
1	1 survey outside of core survey period.	Completed on 2 nd October, 15 ⁰ C, sunny and dry. Only 2 days outside core period and in good survey conditions. No limitation.
2	None	No limitation.
3	2 surveys outside core temp range.	Temp 8 ⁰ C, ideal range 9-18 ⁰ C so only 1 ⁰ C outside. Sunny with clouds and dry on both occasions, which are good survey conditions. No limitation.
4	6 surveys outside core survey period.	These 6 visits were completed between 5 th and 22 nd June at temperatures between 11-18 ⁰ C in dry conditions with a mix of sunny and overcast weather which are good survey conditions. No limitation.
5	7 surveys outside of core survey period.	The visits were completed between 12 th June 7 th July at temperatures between 14-18 ⁰ C in dry conditions with a mix of sunny and overcast weather which are good survey conditions. No limitation.
6	1 survey outside of core survey period.	Completed on 2 nd October, 16 ⁰ C, overcast with damp ground indicating rain earlier. Only 2 days outside core period and in good survey conditions. No limitation.
7	2 surveys with light rain.	The rain was at the end of the surveys when most of the site had been surveyed. No limitation.
8	1 survey outside core temp range.	Temp 19 ⁰ C, ideal range 9-18 ⁰ C so only 1 ⁰ C outside. Overcast and dry, which are good survey conditions. No limitation.
9	None	No limitation.
10	None	No limitation.
11	1 survey outside of core survey period.	Completed on 2 nd October, 16 ⁰ C, sunny and dry. Only 2 days outside core period and in good survey conditions. No limitation.

- 2.5.4 Several refugia were found to be missing during survey visits either through suspected human intervention (Areas 1, 2, 3, 5 and 8) or agricultural practice (silage cutting, strimming – Areas 9, 10 and 11). These were single occurrences at any one site (identified during visits 2 to 6) affecting 6 or fewer refugia with the exception of Area 2 (where up to 11 out of 215 went missing on visits 2, 5 and 6) and Area 3 where some tiles were reported missing on every visit (up to 44 out of 100).
- 2.5.5 The small and isolated instances of missing tiles on most sites are not deemed a significant constraint to survey. Any missing or damaged refugia were replaced in-situ or replaced close by. The exception was Area 8 where removal was repeated, here the presence of natural refugia for reptiles to bask on or reside beneath was such that the reduction in artificial refugia was not deemed a significant constraint.
- 2.5.6 The three instances of losses in Area 2 represent only a small proportion of the refugia deployed and are not deemed a significant constraint to survey.
- 2.5.7 The regular and larger number of missing tiles in Area 3 are a constraint to survey, with the availability of natural refugia / basking areas to survey not sufficient to fully compensate for the missing artificial refugia. In addition, the area was found to be subject to disturbance from dog walkers and antisocial activities which can be counter-indicative for reptiles. Additionally, the POL changed and the habitat identified as the highest potential value for reptiles now falls outside the Project. The POL in this location now comprises wooded habitats. As such, no further survey is deemed necessary.

3. Results

3.1 Desk Study

- 3.1.1 Records of reptiles within Cheshire are relatively sparse, with only scattered reports of grass snake, slow worm, and common lizard. Whilst under reporting may attribute to this, lack of species records is thought to be due to loss of habitat and fragmentation over the decades. However, two survey reports are openly available, one conducted by Cheshire Wildlife Trust (CWT) in 2016 looking at the distribution of grass snake within the Cheshire peat basins¹⁵ and a second by Andy Harmer in 2012, titled 'Adders in Cheshire' for the Amphibian and Reptile Group (ARG)¹⁶. The report on the distribution of grass snake identified numbers within the Delamere peat basin area some distance to the west of the Preliminary Order Limits. The short report on the distribution of adders within Cheshire identifies the majority of post 2000 records to be to the far north of the county (Risley Moss SSSI) as part of reintroduction project, Oakhanger Moss SSSI to the south and Goyt Valley to the extreme east of the county. From discussions with staff and personnel at Sandiway Golf Course, anecdotal evidence of adder sightings were confirmed within habitat on the golf course adjacent to survey area 10, Southern Corridor.

3.2 Field Survey

- 3.2.1 The detailed results of the field surveys are presented in 0 and summarised in **Table 5I 3.1**. Reptiles were only recorded at one location and on one occasion, this was a single juvenile adder (*Vipera berus*), sex not determined at Area 10 along the Southern Corridor. It was a brief sighting within gorse, along the remnants of a hedgerow extending from the adjacent (south) Sandiway Golf Course and LWS (NGR: SJ 62229 70650).
- 3.2.2 The hedgerow runs north/south but is gappy and does not connect to other hedgerows further north. The land either side of the hedge (east and west) and to the southeast is arable and subject to disturbance from agricultural activities. It is likely that the adder is reliant on habitats within the golf course (outside the POL) to the south and west which provides a mosaic of habitats. This assumption is supported by only recording a single sighting, by the habitat composition within the

¹⁵ Cheshire Wildlife Trust – Delamere's Lost Mosses Final Report – 2013-2018. Available at <https://www.cheshirewildlifetrust.org.uk/search?search=sites%20default%20files%202018%2006%20Delamere%20Lost%20Mosses%20final%20report%20202013%2018%20pdf> [accessed 25/08/2023].

¹⁶ Harmer, A. (2012). Adders in Cheshire. (online). Available at <https://www.arguk.org/info-advice/survey-and-monitoring/155-adders-in-cheshire-by-andy-harmer/file> [accessed 25/08/2023].

POL vs within the golf course and by the anecdotal evidence¹⁷ of adder at the golf course.

- 3.2.3 There is one small field within the POL that could provide habitat of value to reptiles and this is northwestern field within Survey Area 10, it comprises lowland heath and scrub habitats and is connected to the golf course along the southwest field boundary. A mix of felt mats and tins were placed in this field but no reptiles were recorded in this field.

Table 5I 3.1 Survey Results Summary

Survey Area	Survey Name	Reptiles Recorded	Other Observations
1	Sutton Causeway	None	Common Toad (<i>Bufo bufo</i>) and Common Frog (<i>Rana temporaria</i>)
2	East Clifton Tip	None	Common Toad
3	Clifton Lagoon	None	None
4	Moore Nature Reserve North	None	None
5	Moore Nature Reserve South	None	Common Toad and Common Frog
6	Moore Nature Reserve West	None	Common Toad and Common Frog
7	Upper Moss Side Fields	None	Common Toad and Common Frog
8	Pilkington Glass	None	None
9	Forest Hill Quarry	None	Common Toad
10	East of Sandiway Golf Course	Adder (1x juvenile)	None
11	Anderton	None	Common Toad

¹⁷ Discussions between surveyors and personnel at Sandiway Golf Course May 2023

3.3 Population Size Classification

- 3.3.1 The results of the survey identified 1 count of reptile (juvenile adder) within Area 10 on one survey visit only within a small section of hedgerow dividing two areas of improved grassland. No other sightings were made throughout the survey period at Area 10 or any other area within the survey scope. Using the classification criteria as set out in **Table 5I 2.3** a score of 1 (low population of adder) can be deduced from the findings for Area 10 only.
- 3.3.2 Based on the survey results, none of the criteria have been met to qualify for the Key Reptiles Sites Register or areas of high value for reptiles. This is because it only supports a single species and this is not an exceptional population.
- 3.3.3 Despite the low count (a single record of an individual reptile), the presence of adder is of particular importance due to local rarity. However, as land within the POL at Survey Area 10 is unlikely to be key to the local population, it would still not qualify for the Key Reptiles Sites Register.

4. Summary

4.1 Overview

- 4.1.1 Much of the land within the POL is suboptimal for reptiles, being active agricultural land, however, suitable reptile habitat was present throughout the 11 survey areas in 2022/2023. As of February 2024, three of these areas fall completely outside the POL.
- 4.1.2 The surveys identified the presence of one species of reptile in one survey area during one visit. This was a juvenile adder at Area 10 on the Southern Corridor.
- 4.1.3 Based on the survey results, the site supports a low population of adder and none of the criteria have been met to qualify for the Key Reptiles Sites Register or areas of high value for reptiles. Despite the low count (a single record of an individual reptile), the presence of adder is of particular importance due to local rarity. However, the local population is likely to be reliant on habitat outside the POL to the south and west associated with Sandiway Golf Course.
- 4.1.4 Elsewhere across the POL, reptiles may be present but in low numbers making detection difficult and this needs to be considered when interpreting these survey results.
- 4.1.5 Incidental records of common toad were made during the reptile surveys at survey Areas 1, 2, 5, 6, 7, 9 and 11. and common frog at survey areas 1, 5, 6 and 7.

Annex 5I 1

Survey Results

Table 5I1.1 Survey Results Area 1

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
1	24/09/22	AM	DH	Sunny Intervals (15)	Light rain prior to survey	Common Toad
2	25/09/22	AM	DH	Sunny (15)	Dry	None
3	26/09/22	PM	EM / HN	Sunny Intervals (13)	Light rain prior to survey	None
4	28/09/22	PM	DH / DL	Sunny (14)	Dry	None
5	29/09/22	AM	DH	Sunny (11)	Dry	None
6	29/09/22	PM	HN	Overcast (16)	Damp ground conditions	Common Toad and Common Frog
7	02/10/22	AM	DH	Sunny (15)	Dry	None

Table 5I1.2 Survey Results Area 2

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
1	12/05/23	AM	AM	Sunny (12)	Dry	Common Toad
2	17/05/23	AM	AM / KR	Sunny (12)	Dry	Common Toad
3	20/05/23	AM	DH	Sunny (10)	Dry	None
4	22/05/23	AM	DH	Sunny (10)	Dry	Common Toad
5	25/05/23	AM	AM / SV	Sunny (14)	Dry	Common Toad

6	26/05/23	AM	KR / SV	Sunny (13)	Dry	Common Toad
7	30/05/23	AM	DH / DS	Sunny (9)	Dry	None

Table 5I1.3 Survey Results Area 3

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
1	12/05/23	AM	AM	Sunny (12)	Dry	None
2	17/05/23	AM	AM / KR	Sunny with clouds (14)	Dry	None
3	20/05/23	AM	DH	Sunny (10)	Dry	None
4	22/05/23	AM	DH	Sunny with clouds (8)	Dry	None
5	25/05/23	AM	AM / SV	Hazy sunshine (11)	Dry	None
6	26/05/23	AM	KR / SV	Sunny (16)	Dry	None
7	30/05/23	AM	DH / DS	Sunny with clouds (8)	Dry	None

Table 5I1.4 Survey Results Area 4

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
1	17/05/23	AM	KR	Sunny (14)	Dry	None
2	05/06/23	AM	KR	Overcast (12)	Dry	None
3	08/06/23	AM	SC	Sunny with clouds (11)	Dry	None
4	12/06/23	AM	KR	Sunny (18)	Dry	None

5	15/06/23	AM	KR	Sunny (13)	Dry	None
6	19/06/23	AM	KR	Sunny (15)	Dry	None
7	22/06/23	AM	KR	Hazy sunshine (15)	Dry	None

Table 5I1.5 Survey Results Area 5

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
1	12/06/23	AM	KR	Overcast (18)	Dry	None
2	15/06/23	AM	KR	Sunny (14)	Dry	None
3	19/06/23	AM	KR	Sunny (15)	Dry	None
4	22/06/23	AM	KR	Hazy sunshine (15)	Dry	None
5	26/06/23	AM	KR	Overcast (15)	Dry	Common Frog
6	28/06/23	AM	KR	Cloudy (18)	Dry	Common Frog Common Toad
7	07/07/23	AM	KR	Sunny with clouds (15)	Dry	None

Table 5I1.6 Survey Results Areas 6 and 7

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
0	24/09/22	AM	DH / AC	Sunny (11)	Dry	None
2	25/09/22	AM	DH / AC	Sunny with clouds (10)	Dry	Common Toad (Area 7)

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
3	26/09/22	PM	EM / HM	Sunny intervals (14)	Light rain at end (Area 7)	Common Frog Common Toad (Area 6)
4	27/09/22	AM	DH	Sunny intervals (10)	Shower before survey	Common Frog (Area 6)
5	28/09/22	AM	SC / SV	Sunny (12)	Dry	Common Toad (Area 6 & 7)
6	29/09/22	AM	SC / HN	Overcast (14)	Light rain at end (Area 7)	Common Toad (Area 6 & 7)
7 - Area 7	30/09/22	AM	PP / HN	Sunny (11)	Dry	Common Toad (Area 7)
7 - Area 6	02/10/22	PM	DH	Overcast (16)	Damp ground conditions	None

Table 5I1.7 Survey Results Area 8

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
1	17/05/23	AM	KR	Sunny (15)	Dry	None
2	05/06/23	AM	KR	Overcast (12)	Dry	None
3	08/06/23	AM	SC	Sunny with clouds (11)	Dry	None
4	12/06/23	AM	KR	Overcast (19)	Dry	None
5	15/06/23	AM	KR	Sunny (13)	Dry	None

6	19/06/23	AM	KR	Sunny (17)	Dry	None
7	22/06/23	AM	KR	Sunny (18)	Dry	None

Table 5I1.8 Survey Results Area 9

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
1	12/05/23	AM	SV	Sunny with clouds (16)	Dry	Common Toad
2	15/05/23	AM	AM	Sunny (12)	Dry	Common Toad
3	22/05/23	AM	AM	Sunny (12)	Dry	Common Toad
4	24/05/23	AM	SC	Sunny (13)	Dry	Common Toad
5	26/05/23	AM	AM	Sunny (14)	Dry	Common Toad
6	30/05/23	AM	SC	Overcast (12)	Dry	Common Toad
7	01/06/23	AM	DH / DS	Sunny with clouds (14)	Dry	Common Toad

Table 5I1.9 Survey Results Area 10

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
1	12/05/23	AM	SV	Sunny with clouds (14)	Dry	Adder - visual sighting of juvenile within hedgerow close to refugia – NGR: SJ SJ 62229 70650
2	15/05/23	PM	PB	Sunny (15)	Dry	None
3	16/05/23	PM	DH	Sunny (10)	Dry	None
4	20/05/23	AM	AM	Sunny (12)	Dry	None

5	22/05/23	AM	SC	Sunny (11)	Dry	None
6	24/05/23	AM	AM	Sunny (14)	Dry	None
7	26/05/23	AM	DH / DS	Hazy sunshine (13)	Dry	None

Table 5I1.10 Survey Results Area 11

Visit No.	Date	AM / PM	Surveyor(s)	Weather/Temp (°C):	Precipitation	Observations
1	24/09/22	AM	DH	Overcast (15)	Dry	None
2	25/09/22	AM	DH	Overcast (14)	Dry	None
3	28/09/22	PM	DH / DL	Sunny with clouds (14)	Dry	None
4	29/09/22	AM	DH	Sunny with clouds (12)	Dry	None
5	29/09/22	PM	HN	Sunny intervals (16)	Dry	Common Toad
6	30/09/22	AM	DH / DL	Occasional sun (12)	Dry	None
7	02/10/22	AM	DH	Sunny (16)	Dry	None

Annex 5I 2

Reptile Survey Extent Figure

HyNet North West Hydrogen Pipeline

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