

High Speed Rail (Crewe – Manchester)

Background information and data

Ecology and biodiversity

BID EC-007-00001_Part 1

Ecological baseline data - amphibian and
pond and canal surveys - Part 1 of 2

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Department
for Transport

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1 Introduction

- 1.1.1 This report presents a summary of the baseline data relating to:
- amphibians; and
 - ponds and canals
- 1.1.2 Ecological baseline data have been collected for the Proposed Scheme in relation to the following community areas (CA):
- Hough to Walley's Green (MA01);
 - Wimboldsley to Lostock Gralam (MA02);
 - Pickmere to Agden and Hulsheath (MA03);
 - Broomedge to Glazebrook (MA04);
 - Risley to Bamfurlong (MA05);
 - Hulseheath to Manchester Airport (MA06);
 - Davenport Green to Ardwick (MA07); and
 - Manchester Piccadilly Station (MA08).
- 1.1.3 This report should be read in conjunction with Map Series EC-04 in the Background Information and Data, Ecology Map Book. Map Series EC-04 shows the locations of water bodies in relation to the Proposed Scheme.
- 1.1.4 The Environmental Statement¹ should be referred to for details of the ecology impact assessment.

¹ High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

2 Amphibians

2.1 Methodology

- 2.1.1 Details of the standard methodology utilised for amphibian surveys are provided in Technical Note – Ecology and biodiversity – Ecological field survey methods and standards (FSMS) included in the Environmental Impact Assessment Scope and Methodology Report (SMR) (see Environmental Statement, Volume 5, Appendix CT-001-00001)².
- 2.1.2 Mapping was reviewed in Geospatial Information Systems (GIS) to show all water bodies present within 500m of land required for the construction of the Proposed Scheme. Aerial photography was then reviewed to identify any water bodies missed by the GIS review. All water bodies within 250m were scoped in for survey, unless separated from land required for the construction of the Proposed Scheme by barriers to amphibian dispersal.
- 2.1.3 The Natural England Rapid Risk Assessment³ method was applied to all water bodies identified within 250m - 500m of land required for the construction of the Proposed Scheme. This method has been employed to align with the FSMS scoping process and categorises the water bodies as 'red', 'amber' or 'green' (high to low impact respectively) based on the area of habitat lost within a certain radius of the water body. This tool calculates a notional probability of an offence⁴ being committed based on the type and level of potential impacts upon a water body and the surrounding terrestrial habitat (which is also of value for survival of amphibians).
- 2.1.4 All water bodies categorised 'red' and 'amber' were scoped in for survey. Those categorised 'green' were reviewed using professional judgement to assess whether any of these warranted further survey, based on:
- their connectivity (absence of barriers) to other water bodies within 250m of land required for the construction of the Proposed Scheme (water body clusters functioning as one potential ecosystem/metapopulation⁵);
 - whether there are potential important commuting routes between terrestrial and/or aquatic habitats that are at risk of severance; and

² High Speed Two Ltd (2022), High Speed Rail (Crewe –Manchester), *Environmental Statement, Environmental Impact Assessment Scope and Methodology Report*, Volume 5, Appendix CT-001-00001. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

³ Natural England (2016), *Method statement template for great crested newt licence*. Available online at: <https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence>.

⁴ Protection for great crested newts is afforded through the provisions of the Wildlife and Countryside Act 1981 (as amended).

⁵ A great crested newt metapopulation is defined as 4 or more linked ponds with great crested newt occupancy (Cameron, R; Burgess, K; and Payne, B. (2019), *The Rationale for Great Crested Newt District Level Licensing*, in *In Practice Issue 103*, March 2019).

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- whether there are potential impacts to suitable terrestrial habitat (likely supporting amphibians using the water body) within land required for the construction of the Proposed Scheme.
- 2.1.5 Desk study records for amphibians were obtained from the following sources and available documents:
- Cheshire Biological Record Centre (EcoRecord);
 - Cheshire East Council;
 - Warrington Council;
 - Cheshire Wildlife Trust;
 - Greater Manchester Local Record Centre; and
 - Natural England.
- 2.1.6 Different symbols are used to show the survey scoping status and/or highest level of amphibian survey completed at each water body. Ecology Survey Codes are shown on the EC-04 map series for water bodies with positive survey results for great crested newt.
- 2.1.7 Each water body described in this report has at least one ecology survey code. If no survey work has been completed, the water body will be described by pond number only, for example 'Pond123'. If survey work has been completed, the ecology survey code will include the survey type code. For example, if Pond123 had been subject to traditional surveys (survey type code = AA1), the ecology survey code would be AA1_Pond123.
- 2.1.8 Water bodies that have been subject to multiple survey types may have more than one ecology survey code. When referring to a water body in the context of a particular survey type, that survey code is used. For example, if Pond123 had been subject to environmental DNA (eDNA) survey (survey code = AA3), the ecology survey code used in the eDNA results table would be AA3_Pond123. The same water body would be referred to as AA1_Pond123 in the traditional survey results table, if also subject to traditional survey.
- 2.1.9 Some of the eDNA surveys referred to in this report were completed as part of 'Early Ecology Surveys' (EES). These were surveys completed early in the project programme, before the main ecology surveys were started. Early Ecology Surveys for eDNA include 'EES' in the ecology survey code. For example, an Early Ecology Survey for eDNA of Pond321, would be written as 'AA3_EES_Pond321'.
- 2.1.10 In text outside the survey results tables, the highest level of completed survey is used⁶. For example, a water body that has only had a Habitat Suitability Index (HSI) survey completed, would be referred to as AH1_Pond456. If a water body has been subject to both HSI and

⁶ The highest level of survey completed refers to a hierarchy of GCN survey types for indicating the likely presence/absence of GCN in a waterbody. Traditional survey (AA1) is considered to be more definitive than eDNA (AA3), which is considered more definitive than HSI survey as an indicator of likely presence/absence of GCN in a given waterbody.

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eDNA, it would be referred to as AA3_Pond456. If a water body had been subject to HSI, eDNA, and traditional surveys, it would be referred to as AA1_Pond456.

- 2.1.11 Water body numbers from the HS2 Phase 2a surveys are referenced in this report but are not shown within the accompanying Map Series EC-04 to this report. The HS2 (West Midlands to Crewe) Environmental Statement should be referred to for further details⁷.

2.2 Deviations, constraints and limitations

- 2.2.1 Table 1 provides a summary of those sites that were identified as requiring amphibian survey, but for which no access to the land was available to undertake this work. This information is cross-referenced to the accompanying Map Series EC-04.
- 2.2.2 The water bodies identified for survey were then scoped-in for a habitat suitability assessment to determine Habitat Suitability Index (HSI), and/or an Environmental DNA (eDNA) survey. In some cases, traditional surveys⁸ were also commenced, up to two survey visits, prior to awaiting the result of the eDNA sample, to avoid losing survey time during the optimal survey period according to the FSMS.
- 2.2.3 There were 569 water bodies (MA01 – 114 water bodies, MA02 – 125 water bodies, MA03 – 145 water bodies, MA04 – 14 water bodies, MA05 – 55 water bodies, MA06 – 112 water bodies, and MA07 – 4 water bodies) requiring initial survey for which no access was obtained; these are set out in Table 1.
- 2.2.4 The surveys were also subject to deviation from the standard methodology in the FSMS:
- a number of water bodies were surveyed fewer than the required four presence/absence (P/A) surveys or six (population assessment) times. Where this has occurred with positive results for great crested newt (*Triturus cristatus*) presence, it is stated in the results tables as a partial survey;
 - for a number of water bodies, the survey visits required between mid-April and mid-May by Natural England guidance were not completed; those being, two visits for P/A surveys and three visits for population size class assessments (PSC);
 - access to some water bodies was refused from the start of or part way through the relevant survey type;
 - cold weather at the start and hot dry weather at the end of the 2018 survey season may have impacted amphibian activity and hence survey results;

⁷ High Speed Two Ltd (2016), High Speed Rail (West Midlands – Crewe), *Environmental Statement*. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2a-environmental-statement>.

⁸ Traditional surveys involve the use of one or more survey techniques to detect amphibians. These include nocturnal torchlight surveys of ponds; the use of funnel traps to catch and record newts; searching aquatic vegetation for amphibian eggs; the use of pond nets to catch and record amphibians; and searching materials in terrestrial habitats around ponds, that may be used by sheltering amphibians.

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- a prolonged period of wet weather during June 2019 meant some survey techniques could not be employed (principally bottle trapping and/or torching) during June 2019 survey visits;
- a number of water bodies could not be surveyed for health and safety reasons (e.g. steep bank at pond edge);
- where eDNA results were inconclusive or negative and the water body margin was less than 80% accessible⁹, then traditional surveys were employed instead, e.g. P/A surveys;
- where traditional survey methods indicated presence of great crested newt, this took precedence over eDNA results that either indicated absence or were inconclusive;
- some HSI surveys were conducted outside the optimal May to September period, which may have affected the results for affected water bodies;
- not all water bodies that may be present will be visible on OS mapping or aerial photography and some ponds evident on OS mapping or aerial photography may no longer be present, limiting the efficacy of the desk-based scoping; and
- on the basis of an unseasonably cold spring in 2018 and 2019, Natural England agreed to an extension on the previously defined period for conducting eDNA surveys, which is typically mid-April to June, inclusive. As a result, eDNA surveys were undertaken until early July in both years.

2.2.5 None of the deviations stated above are anticipated to have significantly affected the results, as reasonable effort has been applied, and a precautionary approach to identifying presence has been taken where survey information is below the recommended survey effort.

Table 1: Summary of sites requiring amphibian survey, but no access obtained at point of survey

Ecology survey code	Location	Centroid OS grid reference	Full survey prescription based on initial scoping exercise	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond850	East of Hough	SJ7227250882	HSI, eDNA	MA01	293m south
Pond848	East of Hough	SJ7236250883	HSI, eDNA	MA01	293m south
Pond852	East of Hough	SJ7234150956	HSI, eDNA, PSC	MA01	247m south
Pond851	East of Hough	SJ7237750957	HSI, eDNA, PSC	MA01	241m south-east
Pond847	East of Hough	SJ7210451087	HSI, eDNA, PSC	MA01	170m south-west
Pond4016	South-west of Willaston	SJ6734851642	HSI, eDNA, PSC	MA01	5m south-east
Pond4002	South-west of Willaston	SJ6735451642	HSI, eDNA, PSC	MA01	12m south-east
Pond3651	North-east of Shavington	SJ7088252254	HSI, eDNA	MA01	418m south
Pond3649	North-east of Shavington	SJ7088752329	HSI, eDNA	MA01	331m south

⁹ Biggs et al. (2015), *Using eDNA to develop a national citizen science-based monitoring programme for the great crested newt (Triturus cristatus)*.

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Ecology survey code	Location	Centroid OS grid reference	Full survey prescription based on initial scoping exercise	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond3816	North-east of Shavington	SJ7105752430	HSI, eDNA	MA01	331m south-east
Pond2	North of Basford	SJ7126952442	HSI, eDNA	MA01	491m south-east
Pond3655	North-east of Shavington	SJ7114652503	HSI, eDNA	MA01	358m south-east
Pond3656	North-east of Shavington	SJ7112952589	HSI, eDNA	MA01	312m east
Pond3612	North of Shavington	SJ7060552594	HSI, eDNA, PSC	MA01	102m south
Pond3682	North-east of Shavington	SJ7057452603	HSI, eDNA, PSC	MA01	109m south-west
Pond3684	North-east of Shavington	SJ7068452613	HSI, eDNA, PSC	MA01	49m south-west
Pond3683	North-east of Shavington	SJ7107852623	HSI, eDNA, PSC	MA01	243m east
Pond3654	North-east of Shavington	SJ7101752627	HSI, eDNA, PSC	MA01	191m east
Pond3685	North-east of Shavington	SJ7078052644	HSI, eDNA, PSC	MA01	19m south
Pond3647	South of Wistaston	SJ7014352703	HSI, eDNA	MA01	487m west
Pond4029	North-east of Nantwich	SJ6718852727	HSI, eDNA, PSC	MA01	181m north-east
Pond3627	South-east of Wistaston	SJ7098252837	HSI, eDNA, PSC	MA01	147m north-east
Pond3841	South-east of Wistaston	SJ7058452872	HSI, eDNA, PSC	MA01	127m north
Pond3648	South of Wistaston	SJ7028052879	HSI, eDNA	MA01	358m west
Pond3840	South-east of Wistaston	SJ7059152893	HSI, eDNA, PSC	MA01	143m north
Pond4065	North-east of Nantwich	SJ6726152931	HSI, eDNA	MA01	383m north-east
Pond3611	South-east of Wistaston	SJ7061452956	HSI, eDNA, PSC	MA01	201m north
Pond3613	South-east of Wistaston	SJ7061352975	HSI, eDNA, PSC	MA01	221m north
Pond3652	North of Shavington	SJ7061752995	HSI, eDNA, PSC	MA01	246m north
Pond3625	South-east of Wistaston	SJ7102453008	HSI, eDNA	MA01	303m north-east
Pond3633	North of Weston	SJ7253853059	HSI, eDNA, PSC	MA01	54m south-east

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Pond3628	South-east of Wistaston	SJ7071553128	HSI, eDNA	MA01	362m north
Pond3629	South-east of Wistaston	SJ7068553131	HSI, eDNA	MA01	360m north
Pond3624	South-east of Wistaston	SJ7106553153	HSI, eDNA	MA01	422m south-west
Pond3636	North of Weston	SJ7216253235	HSI, eDNA, PSC	MA01	148m west
Pond3638	North of Weston	SJ7265853244	HSI, eDNA, PSC	MA01	214m north-east
Pond3642	North of Weston	SJ7282953247	HSI, eDNA	MA01	358m east
Pond3645	South-west of Stowford	SJ7266053249	HSI, eDNA, PSC	MA01	216m north-east
Pond3643	North of Weston	SJ7280953284	HSI, eDNA	MA01	362m north-east
Pond3637	North of Weston	SJ7258753291	HSI, eDNA, PSC	MA01	157m north-east
Pond3634	North of Weston	SJ7228353292	HSI, eDNA, PSC	MA01	18m north-west
Pond3626	South-east of Wistaston	SJ7108653293	HSI, eDNA	MA01	266m south-west
Pond3644	North of Weston	SJ7214053297	HSI, eDNA, PSC	MA01	187m west
Pond3622	South-east of Wistaston	SJ7089653301	HSI, eDNA	MA01	442m south-west
Pond3623	South-east of Wistaston	SJ7087653314	HSI, eDNA	MA01	435m south
Pond9	East of Basford Hall	SJ7200253319	HSI, eDNA	MA01	304m west
Pond3641	North of Weston	SJ7269453358	HSI, eDNA	MA01	284m north-east
Pond10	West of Basford Hall	SJ7108553439	HSI, eDNA, PSC	MA01	196m south-west
Pond3639	North of Weston	SJ7256653474	HSI, eDNA, PSC	MA01	240m north-east
Pond11	West of Basford Hall	SJ7107653511	HSI, eDNA, PSC	MA01	170m south-west
Pond12	West of Basford Hall	SJ7111953523	HSI, eDNA, PSC	MA01	118m south-west
Pond3928	North of Weston	SJ7227053530	HSI, eDNA, PSC	MA01	144m south
Pond13	West of Basford Hall	SJ7107153552	HSI, eDNA, PSC	MA01	117m south-west
Pond14	East of Basford Hall	SJ7170853668	HSI, eDNA, PSC	MA01	26m north-west
Pond15	South of Crewe Gates Farm Industrial Estate	SJ7175853684	HSI, eDNA, PSC	MA01	30m north-west
Pond3640	West of Crewe Hall Enterprise Park	SJ7244853875	HSI, eDNA, PSC	MA01	121m north-east

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Pond3782	West of Crewe Hall Enterprise Park	SJ7259453995	HSI, eDNA	MA01	300m north-east
Pond3783	West of Crewe Hall Enterprise Park	SJ7262654003	HSI, eDNA	MA01	325m north-east
Pond3785	West of Crewe Hall Enterprise Park	SJ7257754012	HSI, eDNA	MA01	294m north-east
Pond3788	West of Crewe Hall Enterprise Park	SJ7262354027	HSI, eDNA	MA01	348m north-east
Pond3787	West of Crewe Hall Enterprise Park	SJ7262654041	HSI, eDNA	MA01	354m north-east
Pond3791	West of Crewe Hall Enterprise Park	SJ7256654057	HSI, eDNA	MA01	320m north-east
Pond3789	West of Crewe Hall Enterprise Park	SJ7240054320	HSI, eDNA	MA01	490m north
Pond4011	West of Marshfield Bank	SJ6742155502	HSI, eDNA, PSC	MA01	105m west
Pond4045	West of Woolstanwood	SJ6743455871	HSI, eDNA, PSC	MA01	229m north-west
Pond4102	North of Woolstanwood	SJ6758256451	HSI, eDNA, PSC	MA01	1 m south
Pond4044	North of Woolstanwood	SJ6753656553	HSI, eDNA, PSC	MA01	44m west
Pond4028	North of Woolstanwood	SJ6739556752	HSI, eDNA, PSC	MA01	244m west
Pond3758	East of Crewe	SJ7144057123	HSI, eDNA, PSC	MA01	24m north
Pond3759	East of Crewe	SJ7137557150	HSI, eDNA, PSC	MA01	1 m east
Pond3757	East of Crewe	SJ7147457178	HSI, eDNA, PSC	MA01	84m north
Pond3847	East of Maw Green	SJ7188057320	HSI, eDNA	MA01	468m north-east
Pond3760	East of Copenhall	SJ7124857366	HSI, eDNA, PSC	MA01	99m south
Pond3848	North of Maw Green	SJ7136757393	HSI, eDNA, PSC	MA01	106m south-east
Pond3846	North of Maw Green	SJ7139957440	HSI, eDNA, PSC	MA01	103m east
Pond3930	North of Maw Green	SJ7091857636	HSI, eDNA	MA01	293m south-west

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Ecology survey code	Location	Centroid OS grid reference	Full survey prescription based on initial scoping exercise	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond3810	North of Maw Green	SJ7089657637	HSI, eDNA	MA01	308m south-west
Pond3689	North of Maw Green	SJ7092257665	HSI, eDNA	MA01	273m south-west
Pond3929	North of Maw Green	SJ7095157674	HSI, eDNA, PSC	MA01	246m south-west
Pond3754	East of Coppenhall	SJ7093357718	HSI, eDNA, PSC	MA01	233m south-west
Pond1101	North of Coppenhall	SJ7072657819	HSI, eDNA	MA01	400m west
Pond3818	East of Coppenhall Moss	SJ7152157943	HSI, eDNA	MA01	326m north-east
Pond3768	East of Coppenhall Moss	SJ7151458164	HSI, eDNA	MA01	400m north-east
Pond1102	East of Coppenhall Moss	SJ7068158298	HSI, eDNA, PSC	MA01	223m south
Pond4122	North of Weston	SJ6917658344	HSI, eDNA, PSC	MA01	166m south-west
Pond3817	East of Coppenhall Moss	SJ7138258444	HSI, eDNA	MA01	468m east
Pond3763	East of Coppenhall Moss	SJ7133458524	HSI, eDNA	MA01	411m east
Pond1524	South of Moss Farm	SJ6914658553	HSI, eDNA, PSC	MA01	90m west
Pond1103	North of Coppenhall	SJ7045858561	HSI, eDNA, PSC	MA01	223m west
Pond1520	Within High Doon	SJ6922858677	HSI, eDNA, PSC	MA01	9m north
Pond1054	West of Middle Cottage	SJ7066358803	HSI, eDNA, PSC	MA01	204m north-west
Pond3925	North-east of Bradfield Green	SJ6860959416	HSI, eDNA, PSC	MA01	215m south
Pond1117	North-west of Spring Farm	SJ6890059473	HSI, eDNA, PSC	MA01	73m south
Pond1116	North-west of Spring Farm	SJ6895759539	HSI, eDNA, PSC	MA01	1m west
Pond3879	North of Bradfield Green	SJ6807959596	HSI, eDNA	MA01	286m south-west

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Pond1545	South of Minshull Hall Court	SJ6863859659	HSI, eDNA, PSC	MA01	1m north-west
Pond3915	North of Bradfield Green	SJ6796059786	HSI, eDNA	MA01	301m west
Pond3884	North of Bradfield Green	SJ6817059822	HSI, eDNA, PSC	MA01	89m west
Pond3992	East of Larch Wood	SJ6965059916	HSI, eDNA, PSC	MA01	17m south-east
Pond4124	South of Willaston	SJ6968259940	HSI, eDNA, PSC	MA01	35m south-east
Pond1547	Within Minshull Hall	SJ6850060031	HSI, eDNA, PSC	MA01	178m east
Pond1548	East of Minshull Vernon	SJ6858560077	HSI, eDNA	MA01	271m east
Pond4110	North of Crewe	SJ6992960086	HSI, eDNA, PSC	MA01	153m east
Pond1522	West of Warmingham	SJ6973760663	HSI, eDNA, PSC	MA01	159m south
Pond3914	South-west of Warmingham	SJ6987260694	HSI, eDNA, PSC	MA01	206m south-east
Pond4015	South-west of Warmingham	SJ6949360835	HSI, eDNA, PSC	MA01	1m east
Pond4014	South-west of Warmingham	SJ6950560860	HSI, eDNA, PSC	MA01	39m north
Pond4000	South-west of Warmingham	SJ6951660872	HSI, eDNA, PSC	MA01	48m south-east
Pond59	East of Walley's Green	SJ6889061247	HSI, eDNA, PSC	MA01	Within
Pond3286	North-west of Warmingham	SJ7023561441	HSI, eDNA, PSC	MA01	237m north
Pond64	South-east of Newfield Hall Farm	SJ6857261584	HSI, eDNA, PSC	MA01	67m south
Pond1004	North of Walley's Green	SJ6822861637	HSI, eDNA, PSC	MA01	172m south-west
Pond3980	North of Walley's Green	SJ6824661657	HSI, eDNA, PSC	MA01	142m south-west
Pond65	East of Newfield Hall Farm	SJ6862361743	HSI, eDNA, PSC	MA01	24m north-west
Pond1006	West of Wimboldsley	SJ6788863303	HSI, eDNA, PSC	MA02	19m north-east
Pond1633	Within Saunders Field	SJ6934063578	HSI, eDNA	MA02	383m east

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Pond1061	North of Wimboldsley Grange	SJ6786963717	HSI, eDNA, PSC	MA02	Within
Pond1787	North of Leahead Cottages	SJ6878264750	HSI, eDNA, PSC	MA02	23m south
Pond1042	East of Norcroft Farm	SJ6935664838	HSI, eDNA	MA02	302m south-east
Pond4113	South-east of Clive Green	SJ6863664982	HSI, eDNA, PSC	MA02	Within
Pond2984	South of Clive	SJ6764365546	HSI, eDNA, PSC	MA02	148m north-west
Pond1048	Stanthorne Mill House	SJ6936566208	HSI, eDNA	MA02	325m east
Pond110	East of Winsford Industrial Estate	SJ6795666399	HSI, eDNA, PSC	MA02	200m north-west
Pond111	East of Winsford Industrial Estate	SJ6791566593	HSI, eDNA	MA02	343m south
Pond112	East of Winsford Industrial Estate	SJ6819866673	HSI, eDNA, PSC	MA02	67m west
Pond113	East of Winsford Industrial Estate	SJ6818366717	HSI, eDNA, PSC	MA02	82m west
Pond3065	North of Middlewich	SJ7086766896	HSI, eDNA, PSC	MA02	115m west
Pond1019	East of Winsford Industrial Estate	SJ6765567056	HSI, eDNA, PSC	MA02	6m north-east
Pond1014	North-west of Stanthorne	SJ6766467066	HSI, eDNA, PSC	MA02	1m south-west
Pond1009	North-west of Stanthorne	SJ6765067069	HSI, eDNA, PSC	MA02	6m north-east
Pond3094	North of Middlewich	SJ7087367079	HSI, eDNA	MA02	276m north-west
Pond1016	North-west of Stanthorne	SJ6764867081	HSI, eDNA, PSC	MA02	3m south-west
Pond3993	North of Stanthorne	SJ6873567284	HSI, eDNA, PSC	MA02	122m south-east
Pond1538	West of The Walled Garden	SJ6744068316	HSI, eDNA, PSC	MA02	22m south
Pond1685	North of Lily Lane	SJ7256969025	HSI, eDNA	MA02	475m south
Pond1695	East of Byley	SJ7278969107	HSI, eDNA	MA02	397m south
Pond1031	South-east of Whatcroft	SJ6899969131	HSI, eDNA	MA02	340m east

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Pond1047	South-east of Whatcroft	SJ6904969161	HSI, eDNA	MA02	408m east
Pond1699	East of Byley	SJ7280669221	HSI, eDNA	MA02	289m south
Pond1692	North of Shanty Farm	SJ7268069333	HSI, eDNA, PSC	MA02	155m south
Pond1688	North of Shanty Farm	SJ7262769341	HSI, eDNA, PSC	MA02	167m south
Pond1701	East of Byley	SJ7264269347	HSI, eDNA, PSC	MA02	153m south
Pond1686	East of Byley	SJ7263069356	HSI, eDNA, PSC	MA02	152m south
Pond1702	South-west of Nook Wood	SJ7286569373	HSI, eDNA, PSC	MA02	141m south
Pond1720	West of Nook Wood	SJ7276569390	HSI, eDNA, PSC	MA02	116m south
Pond1697	Byley Warehouse	SJ7244969398	HSI, eDNA, PSC	MA02	188m south-west
Pond1713	East of Puddinglake	SJ7305569410	HSI, eDNA, PSC	MA02	139m south
Pond1711	Within Nook Wood	SJ7305269415	HSI, eDNA, PSC	MA02	127m south
Pond1716	East of Puddinglake	SJ7312269415	HSI, eDNA, PSC	MA02	116m south
Pond1715	Within Nook Wood	SJ7317069437	HSI, eDNA, PSC	MA02	95m south-west
Pond1714	Within Nook Wood	SJ7305069442	HSI, eDNA, PSC	MA02	103m south
Pond1694	North of Byley Primary School	SJ7256969472	HSI, eDNA, PSC	MA02	53m south-west
Pond1691	East of Puddinglake	SJ7284069477	HSI, eDNA, PSC	MA02	23m south
Pond1730	East of Walnut Cottage	SJ7234769675	HSI, eDNA, PSC	MA02	117m west
Pond1689	North of Smithy Bank Cottage	SJ7224969697	HSI, eDNA, PSC	MA02	220m west
Pond1698	North-east of Rosebank	SJ7249069855	HSI, eDNA, PSC	MA02	7m south-west
Pond3996	West of Whatcroft	SJ6791669877	HSI, eDNA	MA02	309m north-west
Pond4092	North of Byley	SJ7222869958	HSI, eDNA, PSC	MA02	198m west
Pond1712	West of Gas Distribution Centre	SJ7314569999	HSI, eDNA, PSC	MA02	124m west

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Pond1727	North-east of Gas Distribution Station	SJ7316970013	HSI, eDNA, PSC	MA02	90m west
Pond4087	North of Byley	SJ7226370027	HSI, eDNA, PSC	MA02	200m north-west
Pond1726	North-east of Gas Distribution Station	SJ7317870030	HSI, eDNA, PSC	MA02	93m west
Pond150	North of Brook Farm	SJ6798570812	HSI, eDNA, PSC	MA02	3m north-west
Pond1082	Northeast of Kingstreet Farm	SJ6916471179	HSI, eDNA, PSC	MA02	204m east
Pond3357	South-west of Lach Dennis	SJ7014771297	HSI, eDNA	MA02	427m south
Pond3147	South-west of Lach Dennis	SJ6994371333	HSI, eDNA	MA02	400m south
Pond3350	South-west of Lach Dennis	SJ7021071359	HSI, eDNA	MA02	380m south
Pond3355	South-west of Lach Dennis	SJ7033771369	HSI, eDNA	MA02	444m south-east
Pond3352	South-west of Lach Dennis	SJ7002271382	HSI, eDNA	MA02	335m south
Pond3148	South-west of Lach Dennis	SJ6970371473	HSI, eDNA	MA02	356m east
Pond3351	South-west of Lach Dennis	SJ7033871478	HSI, eDNA	MA02	361m south-east
Pond3149	South-west of Lach Dennis	SJ6978071480	HSI, eDNA	MA02	339m south-west
Pond3143	South-west of Lach Dennis	SJ6971371490	HSI, eDNA	MA02	367m east
Pond3140	South-west of Lach Dennis	SJ6967671499	HSI, eDNA	MA02	332m east
Pond3341	South-west of Lach Dennis	SJ7022671540	HSI, eDNA, PSC	MA02	241m south-east
Pond160	South of Crowders Lane	SJ6906971549	HSI, eDNA, PSC	MA02	44m west
Pond1088	South of Crowders Lane	SJ6908771552	HSI, eDNA, PSC	MA02	27m west
Pond1087	South of Crowders Lane	SJ6910471553	HSI, eDNA, PSC	MA02	10m south-west
Pond3145	South-west of Lach Dennis	SJ6992571590	HSI, eDNA, PSC	MA02	162m south-west
Pond1811	South of Crowders Lane	SJ7004371728	HSI, eDNA, PSC	MA02	1 m west

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Pond3348	South-west of Lach Dennis	SJ7048971842	HSI, eDNA, PSC	MA02	177m south-east
Pond3345	South-west of Lach Dennis	SJ7050371870	HSI, eDNA, PSC	MA02	165m south-east
Pond1810	South of Crowders Lane	SJ7024271886	HSI, eDNA, PSC	MA02	57m south-west
Pond4496	South of Broken Cross	SJ6872571966	HSI, eDNA, PSC	MA02	Within
Pond3367	North of Lach Dennis	SJ7051072145	HSI, eDNA, PSC	MA02	175m north-east
Pond1094	Within Ashbrook House	SJ6957172187	HSI, eDNA, PSC	MA02	212m south-east
Pond3370	North-west of Lach Dennis	SJ7016872202	HSI, eDNA, PSC	MA02	214m north-west
Pond3360	North of Lach Dennis	SJ7053172233	HSI, eDNA, PSC	MA02	246m north-east
Pond1060	North of Heath Farm	SJ6960372412	HSI, eDNA, PSC	MA02	197m east
Pond1090	North-east of Clay Bank Farm	SJ6947372561	HSI, eDNA, PSC	MA02	169m east
Pond1091	North-east of Clay Bank Farm	SJ6946372576	HSI, eDNA, PSC	MA02	156m east
Pond1089	North-east of Clay Bank Farm	SJ6946472597	HSI, eDNA, PSC	MA02	160m east
Pond1058	East of Rudheath	SJ6957372622	HSI, eDNA	MA02	259m east
Pond174	South-east of Rudheath	SJ6891972701	HSI, eDNA, PSC	MA02	Within
Pond3376	North of Lach Dennis	SJ7039472787	HSI, eDNA, PSC	MA02	218m south-west
Pond3374	South of Lostock Green	SJ7022572844	HSI, eDNA, PSC	MA02	202m south
Pond3364	North of Lach Dennis	SJ7039372851	HSI, eDNA, PSC	MA02	164m south-west
Pond175	South-east of Rudheath	SJ6902372856	HSI, eDNA, PSC	MA02	Within
Pond3150	South of Lostock Green	SJ6997672947	HSI, eDNA, PSC	MA02	147m south
Pond3365	South-east of Lostock Green	SJ7052573007	HSI, eDNA, PSC	MA02	1 m south-east
Pond176	South of Lostock Green	SJ6938773008	HSI, eDNA, PSC	MA02	Within

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Ecology survey code	Location	Centroid OS grid reference	Full survey prescription based on initial scoping exercise	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond3496	South-east of Lostock Green	SJ7027773048	HSI, eDNA, PSC	MA02	1m west
Pond3388	South-east of Lostock Green	SJ7011673080	HSI, eDNA, PSC	MA02	4m south
Pond3151	South of Lostock Green	SJ6978773085	HSI, eDNA, PSC	MA02	36m south-east
Pond3498	South-east of Lostock Green	SJ7027473089	HSI, eDNA, PSC	MA02	20m north
Pond3264	North of Lach Dennis	SJ7090573102	HSI, eDNA, PSC	MA02	212m north-east
Pond177	South-west of Lostock Green	SJ6909373116	HSI, eDNA, PSC	MA02	Within
Pond3382	South-east of Lostock Green	SJ7017473116	HSI, eDNA, PSC	MA02	16m north
Pond3389	South-east of Lostock Green	SJ7053373139	HSI, eDNA, PSC	MA02	100m north-east
Pond179	West of Lostock Green	SJ6908873399	HSI, eDNA, PSC	MA02	Within
Pond3982	North-west of Lostock Green	SJ6923673827	HSI, eDNA, PSC	MA02	Within
Pond3384	East of Lostock Green	SJ7072473860	HSI, eDNA	MA02	345m east
Pond3390	East of Lostock Green	SJ7060773870	HSI, eDNA, PSC	MA02	228m east
Pond182	East of Springbank Farm	SJ6952773940	HSI, eDNA, PSC	MA02	Within
Pond181	South of Wade Brook	SJ6928373948	HSI, eDNA, PSC	MA02	Within
Pond3393	North-east of Lostock Green	SJ7028074071	HSI, eDNA, PSC	MA02	Within
Pond1531	West of Langford Farm	SJ7026074148	HSI, eDNA, PSC	MA02	Within
Pond1100	Fieldhouse Farm	SJ6977674296	HSI, eDNA, PSC	MA02	15m south-east
Pond183	North of Wade Brook	SJ6903074318	HSI, eDNA, PSC	MA02	6m south-east
Pond1529	East of Hame Farm	SJ7075474333	HSI, eDNA	MA02	371m east
Pond1533	South of Plumley Lime Beds Nature Reserve	SJ7074674364	HSI, eDNA	MA02	353m east

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Pond184	North-west of Fieldhouse Farm	SJ7006374396	HSI, eDNA, PSC	MA02	15m west
Pond1532	South of Square Wood	SJ7034974405	HSI, eDNA, PSC	MA02	Within
Pond185	South of Square Wood	SJ7020574501	HSI, eDNA, PSC	MA02	Within
Pond1549	North of Hame Farm	SJ7070874504	HSI, eDNA	MA02	318m east
Pond186	West of Square Wood	SJ7004774545	HSI, eDNA, PSC	MA02	61m west
Pond187	South of Lostock Gramam	SJ6925574579	HSI, eDNA, PSC	MA02	14m north
Pond188	South of Lostock Gramam	SJ6935174589	HSI, eDNA, PSC	MA02	93m north-east
Pond1550	South of Plumley Lime Beds Nature Reserve	SJ7066974613	HSI, eDNA, PSC	MA02	234m south-east
Pond189	West of Square Wood	SJ7018074647	HSI, eDNA, PSC	MA02	Within
Pond1124	South of Plumley Lime Beds Nature Reserve	SJ7065674658	HSI, eDNA, PSC	MA02	169m south-east
Pond1551	South of Plumley Lime Beds Nature Reserve	SJ7087074702	HSI, eDNA	MA02	365m east
Pond1121	In South-west of Plumley Nature Reserve	SJ7050874921	HSI, eDNA, PSC	MA02	35m east
Pond1308	North of Plumley Lime Beds Nature Reserve	SJ7065375276	HSI, eDNA, PSC	MA02	133m north-east
Pond1345	Within Holford Hall	SJ7093875373	HSI, eDNA	MA02	406m north-east
Pond1312	West of Plumley	SJ7095175432	HSI, eDNA	MA02	448m south-east
Pond1313	West of Plumley	SJ7089875436	HSI, eDNA	MA02	387m north-east
Pond1491	North of Plumley Nature Reserve	SJ7055675512	HSI, eDNA, PSC	MA02	195m south
Pond1310	South-east of Holford Mill House	SJ7072975546	HSI, eDNA, PSC	MA02	233m south-east

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Pond223	East of Pickmere	SJ7006976840	HSI, eDNA	MA03	281m north-west
Pond1496	West of Manor Farm	SJ7110176906	HSI, eDNA, PSC	MA03	191m north-east
Pond3608	Within Dogkennel Wood	SJ7173477053	HSI, eDNA, PSC	MA03	199m south
Pond3607	North of Royd Wood	SJ7210577054	HSI, eDNA	MA03	439m south-east
Pond237	North-east of Higher Wincham	SJ7088077144	HSI, eDNA, PSC	MA03	87m east
Pond3581	North of Royd Wood	SJ7213877152	HSI, eDNA	MA03	426m east
Pond3565	South of School Wood	SJ7194877226	HSI, eDNA, PSC	MA03	235m south-east
Pond3566	North of School Wood	SJ7171277628	HSI, eDNA	MA03	273m north
Pond250	North-east of Pickmere	SJ7013177674	HSI, eDNA	MA03	385m west
Pond1493	East of Pickmere	SJ7031777705	HSI, eDNA	MA03	271m north-west
Pond1328	North of Clay House Farm	SJ7135677713	HSI, eDNA, PSC	MA03	67m north-east
Pond3567	North of School Wood	SJ7188677717	HSI, eDNA	MA03	412m north-east
Pond1497	North of Clay House Farm	SJ7127777834	HSI, eDNA, PSC	MA03	141m north
Pond1498	Within Round Wood	SJ7137577941	HSI, eDNA, PSC	MA03	230m north
Pond1317	North-east of Pickmerehall Farm	SJ7013278038	HSI, eDNA, PSC	MA03	229m south-west
Pond1318	North-east of Pickmerehall Farm	SJ7005878072	HSI, eDNA	MA03	288m west
Pond1314	North-east of Pickmerehall Farm	SJ7003778086	HSI, eDNA	MA03	302m west
Pond967	North of Higher Wincham	SJ6944578172	HSI, eDNA	MA03	479m south-east
Pond263	North-east of Pickmeremoss Wood	SJ7019478191	HSI, eDNA, PSC	MA03	147m west
Pond1315	North-west of The Grange	SJ7008178203	HSI, eDNA, PSC	MA03	241m south-west

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Pond3542	South of Bate Heath	SJ6909478362	HSI, eDNA, PSC	MA03	175m south-east
Pond3523	East of Moss End	SJ6878478376	HSI, eDNA, PSC	MA03	17m south
Pond3558	East of Moss End	SJ6831078451	HSI, eDNA	MA03	283m west
Pond3557	East of Moss End	SJ6843078512	HSI, eDNA, PSC	MA03	153m west
Pond3559	East of Moss End	SJ6850978521	HSI, eDNA, PSC	MA03	77m west
Pond4057	South-east of Moss End	SJ6816878525	HSI, eDNA	MA03	401m west
Pond1333	North of Nether Tabley	SJ7124978554	HSI, eDNA	MA03	275m east
Pond1149	North of Froglane Cottage	SJ6987078651	HSI, eDNA, PSC	MA03	51m west
Pond971	South of Feldy	SJ6976878733	HSI, eDNA, PSC	MA03	25m south-west
Pond3521	East of Moss End	SJ6825578738	HSI, eDNA	MA03	280m west
Pond970	South of Feldy	SJ6975478754	HSI, eDNA, PSC	MA03	16m south-west
Pond3602	South of Bate Heath	SJ6915278764	HSI, eDNA, PSC	MA03	86m north-west
Pond969	South of Feldy	SJ6973578768	HSI, eDNA, PSC	MA03	17m south-west
Pond3543	South of Bate Heath	SJ6907878789	HSI, eDNA, PSC	MA03	159m north-west
Pond3540	South of Bate Heath	SJ6909678793	HSI, eDNA, PSC	MA03	147m north-west
Pond2673	South of Bate Heath	SJ6876078873	HSI, eDNA, PSC	MA03	217m north-east
Pond2675	South of Bate Heath	SJ6859278892	HSI, eDNA, PSC	MA03	133m north
Pond2672	South of Bate Heath	SJ6854378910	HSI, eDNA, PSC	MA03	140m north
Pond2792	South of Feldy	SJ6942978924	HSI, eDNA, PSC	MA03	146m north-east
Pond2671	South of Bate Heath	SJ6874478929	HSI, eDNA, PSC	MA03	243m north-east
Pond2674	South of Bate Heath	SJ6855578933	HSI, eDNA, PSC	MA03	173m north
Pond2664	South of Feldy	SJ6948478951	HSI, eDNA, PSC	MA03	163m south
Pond1319	West of Heyrose golf course	SJ7022379043	HSI, eDNA, PSC	MA03	177m north-east

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Pond2686	South of Bate Heath	SJ6878479064	HSI, eDNA	MA03	376m north-east
Pond2689	South-east of Bate Heath	SJ6901179089	HSI, eDNA, PSC	MA03	198m north-west
Pond1321	West of Heyrose Golf Course	SJ7007679110	HSI, eDNA, PSC	MA03	27m south-east
Pond1155	East of Feldy Lodge Farm	SJ6998779130	HSI, eDNA, PSC	MA03	Within
Pond2660	South of Bate Heath	SJ6866079135	HSI, eDNA	MA03	384m north
Pond2796	East of Bate Heath	SJ6899479147	HSI, eDNA, PSC	MA03	234m west
Pond2668	East of Bate Heath	SJ6902979154	HSI, eDNA, PSC	MA03	208m west
Pond2698	West of Bate Heath	SJ6946779159	HSI, eDNA, PSC	MA03	47m north-west
Pond2799	North of Belt Wood	SJ7254379162	HSI, eDNA, PSC	MA03	219m south-east
Pond2667	East of Bate Heath	SJ6901579164	HSI, eDNA, PSC	MA03	220m west
Pond2658	North-east of Bate Heath	SJ6943379169	HSI, eDNA, PSC	MA03	84m north-west
Pond2666	South of Feldy	SJ6964279188	HSI, eDNA, PSC	MA03	63m north
Pond2669	West of Feldy	SJ6928779292	HSI, eDNA, PSC	MA03	98m north
Pond2663	West of Feldy	SJ6953479313	HSI, eDNA, PSC	MA03	154m north
Pond1478	South-east of Heyrose Farm	SJ7100679339	HSI, eDNA, PSC	MA03	43m east
Pond297	South-east of Heyrose Farm	SJ7099979355	HSI, eDNA, PSC	MA03	39m east
Pond2699	East of Bate Heath	SJ6918479390	HSI, eDNA, PSC	MA03	195m north
Pond2697	East of Bate Heath	SJ6916979424	HSI, eDNA, PSC	MA03	237m north
Pond2657	West of Feldy	SJ6918979447	HSI, eDNA	MA03	260m north
Pond4025	North-east of Feldy	SJ6991179514	HSI, eDNA, PSC	MA03	160m north
Pond305	East of Heyrose Farm	SJ7091079591	HSI, eDNA, PSC	MA03	Within
Pond1191	South-west of Over Tabley	SJ7160879761	HSI, eDNA, PSC	MA03	30m north-east
Pond1192	South-west of Over Tabley	SJ7158879775	HSI, eDNA, PSC	MA03	35m north-east

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Pond1126	East of Over Tabley Hall Farm	SJ7210479864	HSI, eDNA	MA03	274m south
Pond1305	East of Over Tabley Hall Farm	SJ7208379867	HSI, eDNA	MA03	267m south
Pond1266	East of Over Tabley Hall Farm	SJ7203279871	HSI, eDNA	MA03	252m south
Pond1395	Within Over Tabley Hall grounds	SJ7197379924	HSI, eDNA, PSC	MA03	210m south-west
Pond1299	East of Over Tabley Hall Farm	SJ7206279964	HSI, eDNA, PSC	MA03	143m south
Pond1273	North-west of Over Tabley Hall	SJ7186779994	HSI, eDNA, PSC	MA03	150m south
Pond1397	North-east of Over Tabley Hall	SJ7207679994	HSI, eDNA, PSC	MA03	139m south
Pond953	South-west of Hollowood Farm	SJ7020380046	HSI, eDNA, PSC	MA03	214m west
Pond314	East of Heyrose golf course	SJ7070180051	HSI, eDNA, PSC	MA03	108m east
Pond315	North-east of Bongs Wood	SJ7041780053	HSI, eDNA, PSC	MA03	5m north-west
Pond316	North-east of Heyrose golf course	SJ7058080072	HSI, eDNA, PSC	MA03	Within
Pond317	North-east of Heyrose Golf course	SJ7059880083	HSI, eDNA, PSC	MA03	Within
Pond956	North of Bongs Wood	SJ7019480165	HSI, eDNA	MA03	260m north-west
Pond955	West of Hollowood Farm	SJ7020580176	HSI, eDNA	MA03	252m north-west
Pond1195	West of Tableypipe Wood	SJ7180080440	HSI, eDNA, PSC	MA03	167m west
Pond326	East of Tableypipe Wood	SJ7151680473	HSI, eDNA, PSC	MA03	165m north
Pond1215	In the South of Gleaveshole Wood	SJ7219880874	HSI, eDNA	MA03	279m south-east
Pond2640	Within Gleaveshole Wood	SJ7223580964	HSI, eDNA, PSC	MA03	201m south

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Pond1201	In the East of Square Wood	SJ7187281122	HSI, eDNA, PSC	MA03	68m north
Pond2644	South-west of Mere	SJ7229881251	HSI, eDNA, PSC	MA03	54m north
Pond4009	North-west of Winterbottom	SJ7051081322	HSI, eDNA	MA03	358m north-west
Pond2647	South-west of Mere	SJ7214081350	HSI, eDNA, PSC	MA03	180m north-west
Pond1556	North-east of Mere Heyes Cottages	SJ7064281450	HSI, eDNA	MA03	309m north-west
Pond1564	North of Square Wood	SJ7191381457	HSI, eDNA, PSC	MA03	Within
Pond1588	North of Square Wood	SJ7190881459	HSI, eDNA, PSC	MA03	4m west
Pond4037	North-west of Winterbottom	SJ7053281490	HSI, eDNA	MA03	429m north-west
Pond1167	North-west of Winterbottom	SJ7068181494	HSI, eDNA	MA03	286m north-west
Pond1501	North of Square Wood	SJ7188881496	HSI, eDNA, PSC	MA03	17m west
Pond1138	North of Square Wood	SJ7189481567	HSI, eDNA, PSC	MA03	7m west
Pond1128	North of Square Wood	SJ7184181573	HSI, eDNA, PSC	MA03	Within
Pond2721	North of Mere	SJ7266481699	HSI, eDNA, PSC	MA03	2m south-west
Pond1481	North of Square Wood	SJ7187781749	HSI, eDNA, PSC	MA03	Within
Pond1199	South of Hoo Green	SJ7190981749	HSI, eDNA, PSC	MA03	10m north-east
Pond1217	South of Belt Wood	SJ7201781997	HSI, eDNA, PSC	MA03	54m north-east
Pond2724	North of Mere	SJ7255482047	HSI, eDNA, PSC	MA03	196m west
Pond1592	North of Kennel Wood	SJ7227982054	HSI, eDNA	MA03	278m east
Pond365	South-east of Mellor's Covert	SJ7091582072	HSI, eDNA	MA03	263m south-west
Pond366	South-east of Mellor's Covert	SJ7089482079	HSI, eDNA	MA03	278m west
Pond1591	North of Kennel Wood	SJ7228982080	HSI, eDNA	MA03	281m east
Pond2708	West of Mere	SJ7065382113	HSI, eDNA	MA03	496m west

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Pond1168	South of High Legh	SJ7077682300	HSI, eDNA	MA03	402m west
Pond1396	North of Belt Wood	SJ7209082333	HSI, eDNA, PSC	MA03	39m south-east
Pond1371	North of Belt Wood	SJ7211382359	HSI, eDNA, PSC	MA03	47m east
Pond1301	South of Hulme Barns Farm	SJ7209682384	HSI, eDNA, PSC	MA03	27m east
Pond2788	South of Bucklow Hill	SJ7331382425	HSI, eDNA	MA03	349m east
Pond1169	North-east of Mellor's Covert	SJ7089382623	HSI, eDNA	MA03	366m south-west
Pond379	South-east of High Legh	SJ7096482672	HSI, eDNA	MA03	284m south-west
Pond1170	North-east of Mellor's Covert	SJ7094582678	HSI, eDNA	MA03	298m south-west
Pond2723	West of Bucklow Hill	SJ7286182769	HSI, eDNA, PSC	MA03	136m west
Pond1799	West of Bucklow Hill	SJ7258183146	HSI, eDNA, PSC	MA03	6m east
Pond1274	South-east of Hulse Heath Farm	SJ7247583211	HSI, eDNA, PSC	MA03	11m west
Pond1272	South-east of Hulse Heath Farm	SJ7241583220	HSI, eDNA, PSC	MA03	14m north
Pond1136	South-east of Hulse Heath Farm	SJ7249283233	HSI, eDNA, PSC	MA03	4m west
Pond1127	South-east of Hulse Heath Farm	SJ7240783255	HSI, eDNA, PSC	MA03	51m north
Pond1302	South-east of Hulse Heath Farm	SJ7246383264	HSI, eDNA, PSC	MA03	37m west
Pond1226	South-east of Hulse Heath Farm	SJ7249583266	HSI, eDNA, PSC	MA03	9m west
Pond1399	South-east of Hulse Heath Farm	SJ7243183275	HSI, eDNA, PSC	MA03	75m south-east
Pond1119	South-east of Hulse Heath Farm	SJ7244883290	HSI, eDNA, PSC	MA03	63m west

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Pond1297	South-east of Hulse Heath Farm	SJ7248383291	HSI, eDNA, PSC	MA03	Within
Pond1221	South-east of Hulseheath Lane	SJ7234983303	HSI, eDNA, PSC	MA03	Within
Pond1222	East of Aysgarth	SJ7286283405	HSI, eDNA, PSC	MA03	1 m south
Pond401	South-east of High Legh	SJ7189683453	HSI, eDNA, PSC	MA03	Within
Pond412	North-east of Hop Green	SJ7227483566	HSI, eDNA, PSC	MA03	71m north-west
Pond1205	East of High Legh	SJ7107683612	HSI, eDNA, PSC	MA03	210m north-west
Pond415	South-west of Hulse Heath Farm	SJ7218183612	HSI, eDNA, PSC	MA03	Within
Pond861	East of Hulse Heath Farm	SJ7239883627	HSI, eDNA, PSC	MA03	Within
Pond419	East of High Legh	SJ7145583661	HSI, eDNA, PSC	MA03	Within
Pond1562	North of High Legh Park (south)	SJ7105083724	HSI, eDNA	MA03	293m north-west
Pond428	West of Hulse Heath Farm	SJ7215283804	HSI, eDNA, PSC	MA03	Within
Pond1557	North of High Legh Park (south)	SJ7098883814	HSI, eDNA	MA03	396m north-west
Pond465	East of Little Moss Farm	SJ7178584325	HSI, eDNA, PSC	MA03	2m east
Pond1208	North of Whyte Cottage	SJ7118784693	HSI, eDNA, PSC	MA03	47m north-west
Pond1175	North-west of Broad Oak Farm	SJ7091984736	HSI, eDNA, PSC	MA03	150m north
Pond1183	North-west of Broad Oak Farm	SJ7085884752	HSI, eDNA, PSC	MA03	140m north
Pond1176	West of Limetree Farm	SJ7051484868	HSI, eDNA, PSC	MA03	57m north-east
Pond1284	North of Walnut Farm	SJ6992384872	HSI, eDNA	MA03	326m west
Pond1173	South-west of Beechtree Farm Close	SJ7007384909	HSI, eDNA, PSC	MA03	179m west

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Pond1210	South-east of Endfield Farm	SJ7102485045	HSI, eDNA, PSC	MA03	237m south-west
Pond534	West of Broomedge	SJ7116986233	HSI, eDNA, PSC	MA03	72m west
Pond2197	East of Oughtrington	SJ7023687912	HSI, eDNA, PSC	MA04	146m west
Pond1560	East of Longcroft Place	SJ7019088035	HSI, eDNA, PSC	MA04	116m west
Pond2183	North of Oughtrington	SJ7009488230	HSI, eDNA	MA04	331m north-west
Pond582	North of Paddocklane Farm	SJ7025789879	HSI, eDNA, PSC	MA04	165m west
Pond1394	South-east of Heathlands Farm	SJ7125289987	HSI, eDNA, PSC	MA04	182m south-east
Pond604	North-west of Warburton Park	SJ7004790714	HSI, eDNA, PSC	MA04	Within
Pond1366	North of Cleveland's Farm	SJ6906591278	HSI, eDNA	MA04	435m south-west
Pond1375	West of Glaze Brook	SJ6969292728	HSI, eDNA	MA04	277m north-east
Pond1377	West of Glaze Brook	SJ6971392735	HSI, eDNA	MA04	296m north-east
Pond2029	North-east of White Gables	SJ6945593070	HSI, eDNA, PSC	MA04	126m north-east
Pond2024	North-east of White Gables	SJ6942393101	HSI, eDNA, PSC	MA04	131m north
Pond2050	North of Glazebrook	SJ6851094142	HSI, eDNA, PSC	MA04	39m west
Pond2141	East of Culcheth	SJ6898694745	HSI, eDNA, PSC	MA04	Within
Pond4300	South of Chat Moss	SJ7008295089	HSI, eDNA, PSC	MA04	18m south-east
Pond2036	East of Pestfurlong Moss	SJ6689693515	HSI, eDNA, PSC	MA05	3m west
Pond1570	North of Risley	SJ6566693558	HSI, eDNA	MA05	401m south-east
Pond4498	North of Holcroft Moss	SJ6792393705	HSI, eDNA, PSC	MA05	203m north-east
Pond4497	North of Holcroft Moss	SJ6793393712	HSI, eDNA, PSC	MA05	215m north-east

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Pond1485	East of HM Redmand Centre	SJ6554493763	HSI, eDNA, PSC	MA05	158m south-east
Pond1383	West of Hope Farm	SJ6507393814	HSI, eDNA, PSC	MA05	169m south-west
Pond1255	North-east of Clare's Farm	SJ6502393828	HSI, eDNA, PSC	MA05	205m west
Pond869	West of the A574	SJ6514993835	HSI, eDNA, PSC	MA05	98m south-west
Pond1353	West of Hope Farm	SJ6494293854	HSI, eDNA	MA05	280m west
Pond1351	Within Hope farm	SJ6503893955	HSI, eDNA, PSC	MA05	172m west
Pond632	North of Hope Farm	SJ6514493955	HSI, eDNA, PSC	MA05	89m west
Pond1352	North of M62	SJ6496893974	HSI, eDNA	MA05	274m west
Pond2047	East of Latona Cloase	SJ6433394067	HSI, eDNA	MA05	378m south-west
Pond1133	East of Emerald Drive	SJ6445794126	HSI, eDNA	MA05	275m south
Pond639	South-west of Wigshaw	SJ6521094156	HSI, eDNA, PSC	MA05	110m south-west
Pond1245	East of Lady Lane	SJ6409094189	HSI, eDNA	MA05	301m south-west
Pond1384	East of Lady Lane	SJ6411594196	HSI, eDNA	MA05	292m south
Pond1130	North-west of Beech Trees Farm	SJ6399394474	HSI, eDNA, PSC	MA05	215m west
Pond1246	The Beeches Livery Centre	SJ6404794502	HSI, eDNA, PSC	MA05	159m west
Pond2178	South of Little Town	SJ6434194528	HSI, eDNA, PSC	MA05	16m south-east
Pond1241	North-west of The Beeches Livery Centre	SJ6390694546	HSI, eDNA	MA05	311m west
Pond674	North of Taylor Business Park	SJ6532194714	HSI, eDNA, PSC	MA05	Within
Pond1392	Within Kenyon Farm	SJ6380794791	HSI, eDNA	MA05	365m south-west
Pond686	North of Little Town	SJ6390095101	HSI, eDNA, PSC	MA05	192m south-west

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Pond687	North-west of Blakely Farm	SJ6393795196	HSI, eDNA, PSC	MA05	119m (within CCB)
Pond688	North-west of Blakely Farm	SJ6392395206	HSI, eDNA, PSC	MA05	132m (within CCB)
Pond690	North-east of Blakely Farm	SJ6450795265	HSI, eDNA, PSC	MA05	171m north-east
Pond691	North-west of Blakely Farm	SJ6386295279	HSI, eDNA, PSC	MA05	140m (within CCB)
Pond692	North-west of Blakely Farm	SJ6384695297	HSI, eDNA, PSC	MA05	143m north-west
Pond694	South-west of Leigh golf club	SJ6416695384	HSI, eDNA, PSC	MA05	Within
Pond706	North-west of Leigh Golf Course	SJ6381395921	HSI, eDNA, PSC	MA05	8m north-east
Pond1129	North of Leigh Golf Club	SJ6424696108	HSI, eDNA, PSC	MA05	243m south
Pond868	South of the B5207	SJ6303096188	HSI, eDNA, PSC	MA05	55m west
Pond1135	North-east of Kenyon Lane	SJ6250996658	HSI, eDNA	MA05	343m south-west
Pond1242	Pocket Nook Farm	SJ6387597475	HSI, eDNA	MA05	315m north
Pond1400	North of Belt Wood	SJ6365197599	HSI, eDNA, PSC	MA05	249m north-east
Pond736	Within Lowton common	SJ6325597811	HSI, eDNA, PSC	MA05	69m north-east
Pond739	North of Lowton Common	SJ6318297927	HSI, eDNA, PSC	MA05	36m south-east
Pond742	North-east of Golborne	SJ6301097982	HSI, eDNA, PSC	MA05	Within
Pond1566	North-east of Golborne High School	SJ6144898520	HSI, eDNA	MA05	290m south-east
Pond2110	North of Aspull Common	SJ6329098640	HSI, eDNA, PSC	MA05	179m south-east
Pond2113	North of Aspull Common	SJ6349498652	HSI, eDNA	MA05	353m east
Pond2112	North of Aspull Common	SJ6340198653	HSI, eDNA	MA05	260m south-east
Pond2109	North of Aspull Common	SJ6349698656	HSI, eDNA	MA05	353m east

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Pond1237	East of dismantled railway	SJ6170498665	HSI, eDNA, PSC	MA05	9m west
Pond2111	North of Aspull Common	SJ6339398697	HSI, eDNA, PSC	MA05	203m east
Pond1235	North of Lowton	SJ6158698709	HSI, eDNA, PSC	MA05	134m west
Pond1236	North of Lowton	SJ6162598745	HSI, eDNA, PSC	MA05	106m north-west
Pond792	North of Golborne	SJ6182499180	HSI, eDNA, PSC	MA05	Within
Pond794	North of Golborne	SJ6173599210	HSI, eDNA, PSC	MA05	Within
Pond793	North of Golborne	SJ6180699214	HSI, eDNA, PSC	MA05	Within
Pond796	North of Golborne	SJ6178699220	HSI, eDNA, PSC	MA05	Within
Pond797	North of Golborne	SJ6182799236	HSI, eDNA, PSC	MA05	Within
Pond1270	South-west of Scotson's Farm	SD6143000097	HSI, eDNA	MA05	255m north
Pond4023	South-west of Manchester airport	SJ7875081092	HSI, eDNA	MA06	494m south
Pond4051	South-west of Manchester airport	SJ7884781193	HSI, eDNA	MA06	422m south
Pond4063	South-west of Manchester airport	SJ7869981235	HSI, eDNA	MA06	354m south
Pond4031	South-west of Manchester airport	SJ7872581256	HSI, eDNA	MA06	335m south
Pond4046	South-west of Manchester airport	SJ7871081258	HSI, eDNA	MA06	329m south
Pond4084	South-west of Manchester airport	SJ7872181276	HSI, eDNA	MA06	310m south
Pond2888	South-west of Manchester Airport	SJ7877381287	HSI, eDNA	MA06	303m south
Pond2893	South-west of Manchester Airport	SJ7893981291	HSI, eDNA	MA06	375m south-east

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Pond2883	South-east of New Mills	SJ7859881412	HSI, eDNA, PSC	MA06	206m south
Pond2889	South-west of Manchester Airport	SJ7863481462	HSI, eDNA, PSC	MA06	135m south
Pond2887	South-west of Manchester Airport	SJ7894381513	HSI, eDNA, PSC	MA06	239m south-east
Pond2890	South-west of Manchester Airport	SJ7847681514	HSI, eDNA, PSC	MA06	169m south-west
Pond2879	South-east of New Mills	SJ7848681547	HSI, eDNA, PSC	MA06	134m south-west
Pond2882	South-east of New Mills	SJ7803381558	HSI, eDNA, PSC	MA06	130m east
Pond2894	South-west of Manchester Airport	SJ7849081572	HSI, eDNA, PSC	MA06	117m south-west
Pond2906	South-west of Manchester Airport	SJ7860181589	HSI, eDNA, PSC	MA06	34m south-west
Pond2450	East of New Mills	SJ7882281695	HSI, eDNA, PSC	MA06	57m east
Pond2884	South-east of New Mills	SJ7815781776	HSI, eDNA, PSC	MA06	86m south-west
Pond2885	South-east of New Mills	SJ7804381792	HSI, eDNA, PSC	MA06	141m south-west
Pond2886	South-east of New Mills	SJ7809981804	HSI, eDNA, PSC	MA06	66m south-west
Pond2881	South-east of New Mills	SJ7806281836	HSI, eDNA, PSC	MA06	87m south-west
Pond2454	East of New Mills	SJ7892981843	HSI, eDNA, PSC	MA06	225m north-east
Pond1808	East of Gate House Cottage	SJ7801181857	HSI, eDNA, PSC	MA06	83m east
Pond2453	East of New Mills	SJ7875381866	HSI, eDNA, PSC	MA06	109m north-east
Pond2880	South-east of New Mills	SJ7804981872	HSI, eDNA, PSC	MA06	77m south-west
Pond2452	East of New Mills	SJ7873881873	HSI, eDNA, PSC	MA06	103m north-east
Pond2451	East of New Mills	SJ7892181902	HSI, eDNA	MA06	265m north-east

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Pond2465	West of Manchester airport	SJ7903281909	HSI, eDNA	MA06	349m north-east
Pond2574	West of Manchester airport	SJ7865581935	HSI, eDNA, PSC	MA06	124m north
Pond1806	North-east of New Mills	SJ7789782022	HSI, eDNA, PSC	MA06	9m east
Pond4039	North-east of New Mills	SJ7813382264	HSI, eDNA, PSC	MA06	134m north
Pond4059	North-east of New Mills	SJ7811682268	HSI, eDNA, PSC	MA06	129m north
Pond1807	East of Pepper Street	SJ7778082277	HSI, eDNA, PSC	MA06	Within
Pond4095	North of New Mills	SJ7824882514	HSI, eDNA	MA06	360m north-east
Pond4097	North of New Mills	SJ7814182789	HSI, eDNA	MA06	416m east
Pond1433	South-east of Lower House Farm	SJ7809283076	HSI, eDNA	MA06	344m south-east
Pond1438	South-east of Lower House Farm	SJ7806883079	HSI, eDNA	MA06	320m south-east
Pond1435	South-east of Lower House Farm	SJ7810583096	HSI, eDNA	MA06	323m south-east
Pond3981	North of New Mills	SJ7784683099	HSI, eDNA, PSC	MA06	191m south
Pond4083	North of New Mills	SJ7793783105	HSI, eDNA, PSC	MA06	219m south-east
Pond1437	South-east of Lower House Farm	SJ7806883105	HSI, eDNA	MA06	301m south-east
Pond1429	South of Lower House Farm	SJ7781483109	HSI, eDNA, PSC	MA06	169m east
Pond1421	West of Sugar Brook Farm	SJ7699083114	HSI, eDNA, PSC	MA06	Within
Pond1427	South of Lower House Farm	SJ7782983118	HSI, eDNA, PSC	MA06	163m south
Pond1428	South of Lower House Farm	SJ7781483137	HSI, eDNA, PSC	MA06	146m south
Pond1430	South of Lower House Farm	SJ7782783137	HSI, eDNA, PSC	MA06	147m south

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Pond1426	South of Lower House Farm	SJ7785083137	HSI, eDNA, PSC	MA06	155m south
Pond1425	South of Lower House Farm	SJ7785783155	HSI, eDNA, PSC	MA06	139m south
Pond1439	South-east of Lower House Farm	SJ7845283170	HSI, eDNA	MA06	418m south-east
Pond1432	South-east of Lower House Farm	SJ7806983219	HSI, eDNA, PSC	MA06	239m south
Pond2502	West of Manchester airport	SJ7975883368	HSI, eDNA, PSC	MA06	239m south
Pond397	South-west of Brickhill Wood	SJ7860783405	HSI, eDNA	MA06	324m south
Pond398	South-west of Brickhill Wood	SJ7859283408	HSI, eDNA	MA06	323m south
Pond1441	Within Meadowlands	SJ7945083409	HSI, eDNA, PSC	MA06	212m south
Pond2729	North of Bucklow Hill	SJ7306783542	HSI, eDNA, PSC	MA06	200m north-east
Pond413	South-west corner of Brickhill Wood	SJ7895483575	HSI, eDNA, PSC	MA06	132m south-east
Pond2728	North of Bucklow Hill	SJ7315083618	HSI, eDNA	MA06	306m north-east
Pond1403	South of Birkinheath Covert	SJ7650383697	HSI, eDNA, PSC	MA06	Within
Pond423	East of Birkinheath Covert	SJ7638183704	HSI, eDNA, PSC	MA06	33m south-west
Pond1219	Denfield Cottage and Stables	SJ7290083806	HSI, eDNA, PSC	MA06	202m east
Pond435	South of Thorns Green	SJ7903183854	HSI, eDNA, PSC	MA06	Within
Pond1507	Within Rostherne Mere	SJ7483883918	HSI, eDNA	MA06	351m south-west
Pond1452	North-west of Manchester Airport	SJ8034084378	HSI, eDNA	MA06	258m south-west
Pond470	South of Booth Bank	SJ7286084410	HSI, eDNA, PSC	MA06	5m north-east

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Pond992	North of Sunbank Wood	SJ7980084413	HSI, eDNA, PSC	MA06	Within
Pond472	North of Briddon Wier Farm	SJ7524584421	HSI, eDNA, PSC	MA06	Within
Pond1800	West of Tanyard Farm	SJ7800284483	HSI, eDNA, PSC	MA06	79m north-west
Pond1450	North-west of Manchester Airport	SJ8046484492	HSI, eDNA, PSC	MA06	102m south-west
Pond481	West of Rostherne Mere	SJ7405184616	HSI, eDNA	MA06	303m south-east
Pond2375	North of Ashley	SJ7719584622	HSI, eDNA, PSC	MA06	99m north-east
Pond2306	North of Ashley	SJ7718884628	HSI, eDNA, PSC	MA06	111m north-east
Pond4499	South of Booth Bank	SJ7200184652	HSI, eDNA, PSC	MA06	Within
Pond484	North of Mere Covert	SJ7455684670	HSI, eDNA, PSC	MA06	1 m west
Pond1598	South-west of Rivershill Gardens	SJ7941684680	HSI, eDNA, PSC	MA06	86m north
Pond501	North of Mere Covert	SJ7421284894	HSI, eDNA, PSC	MA06	31m south-east
Pond514	South of Yarwoodheath Covert	SJ7450785214	HSI, eDNA, PSC	MA06	Within
Pond516	South of Yarwoodheath Farm	SJ7449285228	HSI, eDNA, PSC	MA06	1 m west
Pond517	South of Yarwoodheath Farm	SJ7446885240	HSI, eDNA, PSC	MA06	9m south-west
Pond518	South of Yarwoodheath Farm	SJ7443985248	HSI, eDNA, PSC	MA06	13m north
Pond519	South of Yarwoodheath Farm	SJ7441585252	HSI, eDNA, PSC	MA06	9m north-east
Pond520	South of Yarwoodheath Farm	SJ7439485260	HSI, eDNA, PSC	MA06	10m north
Pond2370	South of Bowgreen	SJ7584585286	HSI, eDNA	MA06	262m north-west

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Ecology survey code	Location	Centroid OS grid reference	Full survey prescription based on initial scoping exercise	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond2320	South of Ashley Heath	SJ7744085383	HSI, eDNA, PSC	MA06	182m north-east
Pond2347	South of Bowgreen	SJ7600285384	HSI, eDNA, PSC	MA06	233m north-west
Pond2317	South of Ashley Heath	SJ7752685399	HSI, eDNA	MA06	266m north-east
Pond2318	South of Ashley Heath	SJ7748285402	HSI, eDNA, PSC	MA06	221m north-east
Pond2319	South of Ashley Heath	SJ7743485433	HSI, eDNA, PSC	MA06	222m north-east
Pond1411	North of M56	SJ7320685484	HSI, eDNA	MA06	409m north
Pond2346	South of Bowgreen	SJ7548985536	HSI, eDNA	MA06	282m south
Pond2310	South of Bowgreen	SJ7579085605	HSI, eDNA	MA06	417m south-east
Pond2311	South of Bowgreen	SJ7581285619	HSI, eDNA	MA06	428m south-east
Pond2374	South of Bowgreen	SJ7581885655	HSI, eDNA	MA06	421m east
Pond2372	South of Bowgreen	SJ7577385659	HSI, eDNA	MA06	375m south-east
Pond2553	North of Manchester airport	SJ8214585664	HSI, eDNA, PSC	MA06	77m north-west
Pond2365	South of Bowgreen	SJ7557685712	HSI, eDNA, PSC	MA06	170m south-east
Pond1805	South of Bowdon Roundabout	SJ7454385719	HSI, eDNA, PSC	MA06	4m north
Pond535	West of Davenport Green	SJ8056586305	HSI, eDNA, PSC	MA06	Within
Pond537	West of Davenport Green	SJ8056986332	HSI, eDNA, PSC	MA06	Within
Pond1449	West of Davenport Green	SJ7994186423	HSI, eDNA, PSC	MA06	183m north
Pond1448	West of Davenport Green	SJ7995786433	HSI, eDNA, PSC	MA06	188m north
Pond2331	West of Davenport Green	SJ7980386455	HSI, eDNA	MA06	284m north-west

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Pond873	West of Davenport Green	SJ8043386480	HSI, eDNA, PSC	MA06	Within
Pond542	North of the M56	SJ8076286667	HSI, eDNA, PSC	MA06	Within
Pond1456	North of Davenport Green	SJ8022286842	HSI, eDNA	MA06	290m north-west
Pond1459	North of Davenport Green	SJ8023686851	HSI, eDNA	MA06	278m north-west
Pond1460	North of Davenport Green	SJ8018986877	HSI, eDNA	MA06	335m north-west
Pond544	South of Chapel House Farm	SJ8056186898	HSI, eDNA, PSC	MA06	93m north-west
Pond1457	North of Davenport Green	SJ8029786942	HSI, eDNA	MA06	295m north-west
Pond1458	North of Davenport Green	SJ8028586951	HSI, eDNA	MA06	310m north-west
Pond1455	North of Davenport Green	SJ8026386977	HSI, eDNA	MA06	341m north-west
Pond1454	East of Newall Green	SJ8025286996	HSI, eDNA	MA06	367m north-west
Pond1463	North of Davenport Green	SJ8030687044	HSI, eDNA	MA06	352m north-west
Pond4064	West of Moss Nook	SJ8375485260	HSI, eDNA, PSC	MA07	64m south
Pond2556	North of Manchester airport	SJ8223685714	HSI, eDNA, PSC	MA07	Within
Pond2554	North of Manchester airport	SJ8217385811	HSI, eDNA, PSC	MA07	11m south-west
Pond2555	North of Manchester airport	SJ8213885919	HSI, eDNA, PSC	MA07	32m north-east

2.3 Baseline

Scoping

- 2.3.1 An initial scoping exercise, conducted according to the methodology stated in the FSMS, considered the potential for impacts on all water bodies located within 500m of land required for the construction of the Proposed Scheme.
- 2.3.2 The Natural England Rapid Risk Assessment³ method was applied to all water bodies identified within 250m - 500m of land required for the construction of the Proposed Scheme. This method has been employed to align with the FSMS scoping process and categorises the ponds as 'red', 'amber' or 'green' (high to low impact respectively) based on the area of habitat lost within a certain radius of the water body. This tool calculates a notional probability of an offence¹⁰ being committed based on the type and level of potential impacts upon a water body and the surrounding terrestrial habitat (which is also of value for survival of amphibians).
- 2.3.3 All water bodies categorised 'red' and 'amber' were scoped in for survey. Those categorised 'green' were reviewed using professional judgement to assess whether any of these warranted further surveys, based on:
- their connectivity (absence of barriers) to other water bodies within 250m of land required for the construction of the Proposed Scheme (water body clusters functioning as one potential ecosystem/metapopulation⁵);
 - whether there are potential important commuting routes between terrestrial and/or aquatic habitats that are at risk of severance; and
 - whether there are potential impacts to suitable terrestrial habitat (likely supporting amphibians using the water body) within land required for the construction of the Proposed Scheme.

Hough to Walley's Green (MA01)

- 2.3.4 A total of 208 water bodies were identified as requiring survey within MA01.
- 2.3.5 Table 2 provides a summary of those 48 water bodies (as a subset of the 208 required for survey) which are located more than 250m from land required for the construction of the Proposed Scheme. These water bodies were scoped in, as suitable habitat is present and they form part of a water body cluster with those within 250m of land required for the construction of the Proposed Scheme, which may support a metapopulation of amphibians.

¹⁰ Protection for great crested newts is afforded through the provisions of the Wildlife and Countryside Act 1981 (as amended).

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Table 2: Summary of water bodies located more than 250m from land required for the construction of the Proposed Scheme, scoped into amphibian assessment within MA01

Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond850	East of Hough	SJ7227250882	MA01	293m south
Pond848	East of Hough	SJ7236250883	MA01	293m south
Pond3651	North-east of Shavington	SJ7088252254	MA01	418m south
Pond3649	North-east of Shavington	SJ7088752329	MA01	331m south
Pond3816	North-east of Shavington	SJ7105752430	MA01	331m south-east
Pond2	North of Basford	SJ7126952442	MA01	491m south-east
Pond3655	North-east of Shavington	SJ7114652503	MA01	358m south-east
Pond3656	North-east of Shavington	SJ7112952589	MA01	312m east
Pond3647	South of Wistaston	SJ7014352703	MA01	487m west
Pond3648	South of Wistaston	SJ7028052879	MA01	358m west
Pond4065	North-east of Nantwich	SJ6726152931	MA01	383m north-east
Pond3625	South-east of Wistaston	SJ7102453008	MA01	303m north-east
Pond3628	South-east of Wistaston	SJ7071553128	MA01	362m north
Pond3629	South-east of Wistaston	SJ7068553131	MA01	360m north
Pond3624	South-east of Wistaston	SJ7106553153	MA01	422m south-west
Pond3642	North of Weston	SJ7282953247	MA01	358m east
Pond3643	North of Weston	SJ7280953284	MA01	362m north-east
Pond3626	South-east of Wistaston	SJ7108653293	MA01	266m south-west
Pond8	East of Basford Hall	SJ7171553293	MA01	293m south
Pond3622	South-east of Wistaston	SJ7089653301	MA01	442m south-west
Pond3623	South-east of Wistaston	SJ7087653314	MA01	435m south
Pond9	East of Basford Hall	SJ7200253319	MA01	304m west
Pond3641	North of Weston	SJ7269453358	MA01	284m north-east
Pond3782	West of Crewe Hall Enterprise Park	SJ7259453995	MA01	300m north-east
Pond3783	West of Crewe Hall Enterprise Park	SJ7262654003	MA01	325m north-east
Pond3785	West of Crewe Hall Enterprise Park	SJ7257754012	MA01	294m north-east
Pond3788	West of Crewe Hall Enterprise Park	SJ7262354027	MA01	348m north-east
Pond3787	West of Crewe Hall Enterprise Park	SJ7262654041	MA01	354m north-east
Pond3791	West of Crewe Hall Enterprise Park	SJ7256654057	MA01	320m north-east
Pond3789	West of Crewe Hall Enterprise Park	SJ7240054320	MA01	490m north

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Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond3847	East of Maw Green	SJ7188057320	MA01	468m north-east
Pond3930	North of Maw Green	SJ7091857636	MA01	293m south-west
Pond3810	North of Maw Green	SJ7089657637	MA01	308m south-west
Pond3689	North of Maw Green	SJ7092257665	MA01	273m south-west
Pond1101	North of Coppenhall	SJ7072657819	MA01	400m west
Pond3818	East of Coppenhall Moss	SJ7152157943	MA01	326m north-east
Pond3768	East of Coppenhall Moss	SJ7151458164	MA01	400m north-east
Pond3817	East of Coppenhall Moss	SJ7138258444	MA01	468m east
Pond3763	East of Coppenhall Moss	SJ7133458524	MA01	411m east
Pond1523	North-east of Bradfield Green	SJ6889459226	MA01	299m south
Pond3726	East of Warmingham Moss	SJ7052459517	MA01	414m north
Pond3716	East of Warmingham Moss	SJ7053359552	MA01	448m north
Pond3879	North of Bradfield Green	SJ6807959596	MA01	286m south-west
Pond3915	North of Bradfield Green	SJ6796059786	MA01	301m west
Pond915	North of Moss Fields Farm	SJ7002659792	MA01	295m east
Pond1548	East of Minshull Vernon	SJ6858560077	MA01	271m east
Pond995	West of Spring Farm	SJ6982560392	MA01	308m north-east
Pond1544	North of Polestead Wood	SJ6782062162	MA01	265m south-west

Field survey

Habitat Suitability Index/walkover surveys

2.3.6 Following the completion of walkover surveys, incorporating HSI surveys where appropriate, the water bodies identified in Table 3 were scoped out of the assessment.

Table 3: Summary of locations where requirement for further survey was scoped out following HSI/walkover survey in MA01

Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond19	North of Coppenhall	SJ7056657601	Dry ditch.	MA01	North of Coppenhall
AH1_Pond25	Within Coppenhall	SJ7027457897	Pond not present. HSI - 0.00 (Poor)	MA01	2m south

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond826	North of Crewe	SJ6937458847	Garden pond with a plastic lining with stone banks and large non-native ornamental fish. HSI - 0.38 (Poor)	MA01	58m south
AH1_Pond1057	East of Bradfield Green	SJ6907859044	The pond was entirely dry at time of survey and grassed over across the base. Unlikely to support enough water to ever be viable for breeding amphibians. HSI - 0.00 (Poor)	MA01	242m west
AH1_Pond912	North of Crewe	SJ6926259054	Fenced off pond stocked with waterfowl, surrounded by hard-standing. HSI - 0.23 (Poor)	MA01	96m north-west
AH1_Pond1104	North of Copenhall	SJ7033759181	Standing water in south-east of land parcel 10m x 3m. Connected to drainage network via ditches that run along field boundary. HSI - 0.47 (Poor)	MA01	83m north
AH1_Pond915	North of Moss Fields Farm	SJ7002659792	Large, deep, steep sided and turbid pond in improved grassland. HSI - 0.42 (Poor)	MA01	295m east
AH1_Pond1528	East of Minshull Hall Court	SJ6867359879	Pond in middle of large arable field, small buffer of scrub and tall ruderal surrounding pond. HSI - 0.49 (Poor)	MA01	174m north-east
AH1_Pond1527	East of Minshull Hall Court	SJ6863059896	Pond in middle of large arable field, small buffer of scrub and tall ruderal surrounding pond. HSI - 0.46 (Poor)	MA01	164m north-east

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eDNA presence/absence surveys

- 2.3.7 The eDNA survey method was conducted at 63 water bodies in MA01. The summary of positive results of the eDNA P/A surveys and those with anomalies are detailed in Table 4.
- 2.3.8 Of the 63 water bodies surveyed, five ponds were dry and eDNA surveys could not be undertaken.
- 2.3.9 Of the remaining 58 water bodies, 25 were defined as positive for great crested newt eDNA. Of these, 10 were within and 15 were within 250m from land required for the construction of the Proposed Scheme. These 25 water bodies were put forward for P/A surveys.
- 2.3.10 Of the water bodies that were negative, partial access to the perimeter¹¹ was a factor in five cases and these were put forward for P/A surveys.
- 2.3.11 Nine of the ponds, AA1_Pond24, AA1_Pond26, AA1_Pond30, AA1_Pond42, AA1_Pond52, AA1_Pond54, AA1_Pond55, AA1_Pond902, and AA1_Pond909 recorded presence of great crested newts using traditional P/A surveys, even though the eDNA was inconclusive or negative. Two of the ponds had assumed presence of great crested newts through positive desk study results. These ponds were identified as requiring population size class surveys.
- 2.3.12 The reasons for there being anomalies for these nine ponds in the eDNA results, as compared to the results of P/A surveys, are currently unknown.

¹¹ At least 80% access to the pond perimeter is deemed necessary to detect a valid positive eDNA result (Biggs et al., 2014) Biggs, J., Ewald, N., Valentini, A., Gaboriaud, 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. Freshwater Habitats Trust, Oxford.

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Table 4: Summary of relevant results from eDNA presence/absence surveys for MA01

Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond20	East of Coppenhall	SJ7047357731	3 May 2017	100	No inflows present	Positive	MA01	161m north-east
AA3_Pond24	East of Coppenhall	SJ7007857891	3 May 2018	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA01	Within
AA3_Pond26	East of Coppenhall	SJ7042157923	3 May 2018	N/A	No inflows present	Negative (with positive results from subsequent P/A survey)	MA01	121m east
AA3_Pond914	East of Coppenhall	SJ7035758038	25 April 2019	90	Present and dry	Positive	MA01	1m south-east
AA3_Pond27	East of Coppenhall	SJ7024558085	3 May 2018	90	Present and wet	Positive	MA01	Within
AA3_Pond902	South-west of Coppenhall Moss	SJ7013158157	25 April 2019	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA01	Within
AA3_Pond903	East of Coppenhall Moss	SJ7011158228	25 April 2019	100	No inflows present	Positive	MA01	Within
AA3_Pond905	East of Coppenhall	SJ7001158343	9 May 2017	50	No inflows present	Positive	MA01	Within

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond28	West of Coppenhall Moss	SJ7003458376	22 May 2019	80	No inflows present	Positive	MA01	Within
EES_AA3_Pond29	North of Barrows Green	SJ6957358549	N/A - EES	N/A - EES	N/A - EES	Positive	MA01	1m east
EES_AA3_Pond30	North-east of Moss Farm	SJ6928558715	N/A – EES	N/A - EES	N/A – EES	Negative (with positive results from subsequent P/A survey)	MA01	51m north
AA3_Pond909	South of Spring Farm	SJ6940158740	30 April 2019	100	Present and dry	Negative (with positive results from subsequent P/A survey)	MA01	55m north
AA3_Pond31	East of Bradfield Green	SJ6922858976	17 June 2020	100	Present and dry	Positive	MA01	85m west
AA3_Pond32	South-east of Spring Farm	SJ6933559006	17 June 2020	100	No inflows present	Positive	MA01	24m north
AA3_Pond917	North of Coppenhall Moss	SJ7046159018	3 June 2019	100	No inflows present	Positive	MA01	62m south
AA3_Pond38	North-east of Spring Farm	SJ6940459251	24 April 2019	80	No inflows present	Positive	MA01	1m north
AA3_Pond1525	North-west of Spring Farm	SJ6880259335	28 May 2019	100	No inflows present	Positive	MA01	229m south

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond1546	South-east of Minshull Hall Court	SJ6878559607	21 June 2018	90	No inflows present	Positive	MA01	1m south-west
AA3_Pond39	South-east of Larch Wood	SJ6929459774	2 May 2018	100	No inflows present	Positive	MA01	Within
AA3_Pond40	North-east of Coppenhall Junction	SJ6954059793	1 May 2019	100	No inflows present	Positive	MA01	Within
AA3_Pond41	East of Minshull Hall Court	SJ6891359929	2 May 2018	100	No inflows present	Positive	MA01	155m west
AA3_Pond42	North of Coppenhall Junction	SJ6944659946	1 May 2019	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA01	Within
AA3_Pond43	North of Coppenhall Junction	SJ6924959975	2 May 2018	100	No inflows present	Positive	MA01	Within
AA3_Pond44	East of Minshull Hall Court	SJ6911260090	2 May 2018	60	No inflows present	Positive	MA01	Within
AA3_Pond45	East of Minshull Hall Court	SJ6914860114	2 May 2018	90	No inflows present	Positive	MA01	25m north
AA3_Pond46	East of Minshull Hall Court	SJ6914860148	2 May 2018	70	No inflows present	Positive	MA01	15m south-west
AA3_Pond51	South of Parkfield Farm	SJ6923260647	30 April 2019	80	No inflows present	Positive	MA01	Within

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond919	South of Walley's Green	SJ6850760861	23 June 2020	75	No inflows present	Positive	MA01	77m north-east
AA3_Pond52	North-west of Parkfield Farm	SJ6881660920	30 April 2019	80	Present and wet	Negative (with positive results from subsequent P/A survey)	MA01	83m west
AA3_Pond54	North of Parkfield Farm	SJ6906361015	30 April 2019	85	No inflows present	Negative (with positive results from subsequent P/A survey)	MA01	Within
AA3_Pond55	South of Park House Farm	SJ6933561050	30 April 2019	95	No inflows present	Negative (with positive results from subsequent P/A survey)	MA01	107m north-east
AA3_Pond1001	East of Walley's Green	SJ6954061103	12 June 2019	80	Present and wet	Negative (with positive results from Desk Study Records)	MA01	183m north-west
AA3_Pond60	West of Park House Farm	SJ6908661263	30 April 2018	100	No inflows present	Positive	MA01	1m east
AA3_Pond1000	West of Warmingham	SJ6948561329	18 April 2018	90	No inflows present	Negative (with positive results from Desk Study Records)	MA01	349m east

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
EES_AA3_Pond61	North of Park House Farm	SJ6927061433	N/A - EES	N/A - EES	N/A - EES	Positive	MA01	149m east
AA3_Pond63	East of Walley's Green	SJ6888561520	30 April 2018	100	No inflows present	Positive	MA01	Within

* These ponds returned negative eDNA results, however, were subject to further survey with great crested newts being recorded via traditional presence/absence surveys.

Presence/absence and population size class estimate surveys

- 2.3.13 The results from amphibian P/A and population size class estimate surveys are detailed within Table 5.
- 2.3.14 Seventeen ponds were identified as not supporting amphibians or supported low numbers of common amphibian species and are not shown in Table 5.

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Table 5: Summary of results from surveys for amphibian presence/absence and population size class assessment with associated amphibian populations within MA01

Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond20	East of Coppenhall	SJ7047357731	PSC	6	8 May 2019	17 June 2019	2 (S)	9 (L)		1 (L)		161m north-east
AA1_Pond24	East of Coppenhall	SJ7007857891	PSC	1 (partial)	3 May 2018	3 May 2018	1 (S)	4 (L)				Within
AA1_Pond26	East of Coppenhall	SJ7042157923	PSC	5 (partial)	8 May 2019	10 June 2019	1 (S)	8 (L)		Tadpoles only		121m east
AA1_Pond914	East of Coppenhall	SJ7035758038	PSC	6	24 April 2019	17 June 2019	1 (S)	23 (G)		2 (L)		1m south-east
AA1_Pond1625	South of Coppenhall Moss	SJ7038458048	PSC	2 (partial)	24 April 2019	22 May 2019	0	13 (G)	2 (L)	1 (L)		29m east
AA1_Pond27	East of Coppenhall	SJ7024558085	PSC	5 (partial)	15 April 2019	3 June 2019	Eggs only (S)	10 (G)		1 (L)	1 (L)	Within
AA1_Pond902	South-west of Coppenhall Moss	SJ7013158157	PSC	5 (partial)	24 April 2019	10 June 2019	1 (S)	1 (L)				Within
AA1_Pond905	East of Coppenhall	SJ7001158343	PSC	4 (partial)	9 May 2018	4 July 2018	3 (S)	2 (L)			Tadpoles only	Within

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond28	West of Coppenhall Moss	SJ7003458376	PSC	4 (partial)	22 May 2019	10 June 2019	1 (S)	2 (L)				Within
AA1_Pond30	North-east of Moss Farm	SJ6928558715	PSC	2 (partial)	1 May 2018	24 May 2018	1 (S)	3 (L)				51m north
AA1_Pond909	South of Spring Farm	SJ6940158740	PSC	6	16 April 2019	3 June 2019	2 (S)	1 (L)		2 (L)	1 (L)	55m north
AA1_Pond916	North of Coppenhall Moss	SJ7061758905	PSC	3 (partial)	30 April 2019	31 May 2019	Eggs only (M)	5 (L)			Tadpoles only	117m south
AA1_Pond917	North of Coppenhall Moss	SJ7046159018	PSC	3 (partial)	22 May 2019	10 June 2019	1 (S)					62m south
AA1_Pond33	South-east of Spring Farm	SJ6936859023	PSC	2 (partial)	24 April 2019	9 May 2019	4 (S)	12 (G)				45m north
AA1_Pond38	North-east of Spring Farm	SJ6940459251	PSC	2 (partial)	24 April 2019	9 May 2019	5 (S)	1 (L)				1m north
AA1_Pond1525	North-west of Spring Farm	SJ6880259335	PSC	1 (partial)	28 May 2019	28 May 2019	1 (S)					229m south

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad		
AA1_Pond908	South of Moss Fields Farm	SJ6980459 400	PSC	2 (partial)	15 May 2018	22 May 2018	Eggs only (M)	1 (L)					81m east
AA1_Pond39	South-east of Larch Wood	SJ6929459 774	PSC	4 (partial)	2 May 2018	4 July 2018	3 (S)	4 (L)				Tadpoles only	Within
AA1_Pond40	North-east of Coppenhall Junction	SJ6954059 793	PSC	6	17 April 2019	12 June 2019	9 (S)	2 (L)			1 (L)	1 (L)	Within
AA1_Pond42	North of Coppenhall Junction	SJ6944659 946	PSC	6	17 April 2019	12 June 2019	2 (S)				2 (L)	Tadpoles only	Within
AA1_Pond43	North of Coppenhall Junction	SJ6924959 975	PSC	5 (partial)	2 May 2018	4 July 2018	10 (S)	1 (L)					Within
AA1_Pond44	East of Minshull Hall Court	SJ6911260 090	PSC	1 (partial)	17 April 2019	17 April 2019	5 (S)	1 (L)			1 (L)	Tadpoles only	Within
AA1_Pond45	East of Minshull Hall Court	SJ6914860 114	PSC	3 (partial)	17 April 2019	21 May 2019	3 (S)	2 (L)			1 (L)		25m north
AA1_Pond46	East of Minshull Hall Court	SJ6914860 148	PSC	3 (partial)	17 April 2019	21 May 2019	2 (S)				1 (L)		15m south-west

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond51	South of Parkfield Farm	SJ6923260647	PSC	6	16 April 2019	12 June 2019	2 (S)	1 (L)				Within
AA1_Pond52	North-west of Parkfield Farm	SJ6881660920	PSC	6	16 April 2019	12 June 2019	6 (S)	1 (L)				83m west
AA1_Pond54	North of Parkfield Farm	SJ6906361015	PSC	6	16 April 2019	12 June 2019	9 (S)					Within
AA1_Pond55	South of Park House Farm	SJ6933561050	PSC	6	16 April 2019	12 June 2019	6 (S)			1 (L)		107m north-east
AA1_Pond60	West of Park House Farm	SJ6908661263	PSC	3 (partial)	1 May 2019	18 June 2019	8 (S)	1 (L)		1 (L)	1 (L)	1m east
AA1_Pond61	North of Park House Farm	SJ6927061433	PSC	4 (partial)	22 May 2019	18 June 2019	2 (S)	6 (L)			1 (L)	149m east
AA1_Pond63	East of Walley's Green	SJ6888561520	PSC	5 (partial)	1 May 2019	18 June 2019	4 (S)	2 (L)		1 (L)	Tadpoles only	Within
AA1_Pond1544	North of Polestead Wood	SJ6782062162	P/A	4	1 May 2018	20 June 2018	4 (S)	2 (L)		Tadpoles only		265m south-west

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Key:

**Bracketed text within species column indicates the relevant population size class for the peak count obtained as follows:*

- *Great crested newt = peak count 1-10 individuals = Small (S); peak count 11-100 individuals = Medium (M); >100 individuals = Large (L);*
- *Smooth and palmate newt = peak count less than 10 = Low (L); peak count 10-100 = Good (G); peak count over 100 = Exceptional (E);*
- *Common frog = spawn clumps counted less than 50 = Low (L); 50-500 = Good (G); greater than 500 = Exceptional (E); and*
- *Common toad = peak count of less than 100 = Low (L); peak count 100-1000 = Good (G); peak count greater than 1000 = Exceptional (E).*

A full six visits are required to obtain a robust population size class assessment. However, an indication of the corresponding size class category is shown here for all peak counts to show the minimum size class known to be present at those sites where the full six visits could not be completed during the time period available for survey.

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Desk study

- 2.3.15 EcoRecord and Natural England provided 434 records of amphibians within 1km of land required for the construction of the Proposed Scheme. Table 6 details the records of great crested newts and good or exceptional populations, where these data are provided, of other amphibians within 1km of land required for the construction of the Proposed Scheme. Desk study records from 2009 – 2020 are presented.
- 2.3.16 Results from the HS2 West Midlands to Crewe Environmental Statement⁷ amphibian surveys are relevant to the MA01 interface. Details of assumed metapopulations and the ponds associated with each population are provided in the combined discussion.

Table 6: Relevant historic amphibian records within MA01 (interface with HS2 Phase 2a)

Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
1	Common Frog	Not recorded	SJ6851160134 2014	MA01	240m north-east	Pond1509
4	Common Frog	Not recorded	SJ7170853668 2012	MA01	26m north-west	Pond14
1	Common Frog	Not recorded	SJ7216253235 2014	MA01	148m west	Pond3636
7	Common Frog	Not recorded	SJ7269453358 2012	MA01	284m north-east	Pond3641
9	Common Frog	Not recorded	SJ7282953247 2012	MA01	362m north-east	Pond3643
2	Common Frog	Not recorded	SJ7280953284 2012	MA01	368m north-east	Pond3643
5	Common Frog	Not recorded	SJ7214053297 2012	MA01	187m west	Pond3644
7	Common Frog	Not recorded	SJ7206752834 2012	MA01	372m south-west	Pond7
1	Common Frog	Not recorded	SJ6863059896 2014	MA01	164m north-east	AA3_Pond1527
3	Common Frog	Not recorded	SJ7200253319 2012	MA01	304m west	Pond9
3	Common Frog	Not recorded	SJ7253853059 2012	MA01	54m south-east	Pond3633
10	Common Frog	Not recorded	SJ7258753291 2012	MA01	157m north-east	Pond3637
1	Common Frog	Not recorded	SJ6991652517 2014	MA01	733m west	Pond3907
4	Common Frog	Not recorded	SJ7227053530 2012	MA01	144m south	Pond3928

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Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
1	Common Frog	Not recorded	SJ7280853001 2014	MA01	214m north	Pond4121
2	Common Frog	Not recorded	SJ7171553293 2012	MA01	293m south	Pond8
2	Common Toad	Not recorded	SJ6863059896 2014	MA01	164m north-east	AA3_Pond1527
2	Common Toad	Not recorded	SJ7253853059 2014	MA01	54m south-east	Pond3633
3	Common Toad	Not recorded	SJ7170853668 2012	MA01	26m north-west	Pond14
3	Common Toad	Not recorded	SJ7258753291 2012	MA01	157m north-east	Pond3637
2	Common Toad	Not recorded	SJ7280853001 2014	MA01	214m north	Pond4121
3	Common Toad	Not recorded	SJ7171553293 2012	MA01	293m south	Pond8
2	Common Toad	Not recorded	SJ7216253235 2014	MA01	148m west	Pond3636
3	Common Toad	Not recorded	SJ7282953247 2012	MA01	362m north-east	Pond3643
2	Common Toad	Not recorded	SJ7214053297 2014	MA01	187m west	Pond3644
5	Common Toad	Not recorded	SJ7200253319 2012	MA01	304m west	Pond9
1	Common Toad	Not recorded	SJ6851160134 2012	MA01	240m north-east	Pond1509
1	Great Crested Newt	Not recorded	SJ6948561329 2009	MA01	349m east	Pond1000
1	Great Crested Newt	4	SJ7025060081 2009	MA01	457m east	Pond1105
6	Great Crested Newt	Not recorded	SJ7170853668 2012	MA01	26m north-west	Pond14
2	Great Crested Newt	Not recorded	SJ7056657601 2013	MA01	175m east	Pond19
4	Great Crested Newt	Not recorded	SJ7047357731 2013	MA01	161m north-east	Pond20
1	Great Crested Newt	Not recorded	SJ7006161947 2009	MA01	785m north	Pond3267
5	Great Crested Newt	Not recorded	SJ7000561640 2013	MA01	500m north	Pond3300
1	Great Crested Newt	2	SJ6960461750 2009	MA01	527m north-east	Pond3301

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Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
10	Great Crested Newt	5	SJ7061452956 2013	MA01	201m north	Pond3611
7	Great Crested Newt	6	SJ7061352975 2013	MA01	228m north	Pond3613
3	Great Crested Newt	5	SJ7089653301 2013	MA01	435m south	Pond3623
6	Great Crested Newt	5	SJ7087653314 2013	MA01	445m south	Pond3623
1	Great Crested Newt	5	SJ7068553131 2013	MA01	360m north	Pond3629
5	Great Crested Newt	6	SJ7071253277 2013	MA01	502m south-west	Pond3631
1	Great Crested Newt	Not recorded	SJ7074653286 2014	MA01	516m south-west	Pond3631
7	Great Crested Newt	Not recorded	SJ7216253235 2014	MA01	148m west	Pond3636
3	Great Crested Newt	Not recorded	SJ7269453358 2012	MA01	284m north-east	Pond3641
36	Great Crested Newt	Not recorded	SJ7282953247 2012	MA01	362m north-east	Pond3643
27	Great Crested Newt	1	SJ7280953284 2015	MA01	368m north-east	Pond3643
17	Great Crested Newt	3	SJ7214053297 2012	MA01	187m west	Pond3644
5	Great Crested Newt	7	SJ7028052879 2013	MA01	358m west	Pond3648
11	Great Crested Newt	12	SJ7087652254 2013	MA01	393m south	Pond3650
2	Great Crested Newt	Not recorded	SJ7112952589 2013	MA01	312m east	Pond3656
1	Great Crested Newt	1	SJ7036960112 2009	MA01	584m east	Pond3728
2	Great Crested Newt	2	SJ7040260166 2010	MA01	639m east	Pond3729
1	Great Crested Newt	5	SJ7049460468 2013	MA01	705m south	Pond3730
1	Great Crested Newt	1	SJ7069660250 2009	MA01	865m south	Pond3731
1	Great Crested Newt	1	SJ7007060484 2009	MA01	489m south-east	Pond3732
2	Great Crested Newt	16	SJ7171858233 2013	MA01	684m north-east	Pond3761

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Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
1	Great Crested Newt	6	SJ7110059789 2010	MA01	751m north-east	Pond3774
6	Great Crested Newt	2	SJ7058452872 2013	MA01	127m north	Pond3841
5	Great Crested Newt	Not recorded	SJ6971052964 2013	MA01	946m west	Pond3890
1	Great Crested Newt	2	SJ6991753014 2009	MA01	763m west	Pond3896
1	Great Crested Newt	Not recorded	SJ6891359929 2009	MA01	155m west	Pond41
1	Great Crested Newt	22	SJ6924959975 2009	MA01	Within	Pond43
1	Great Crested Newt	Not recorded	SJ6923260647 2009	MA01	Within	Pond51
1	Great Crested Newt	3	SJ6906361015 2009	MA01	Within	Pond54
1	Great Crested Newt	2	SJ6932561051 2009	MA01	107m north-east	Pond55
1	Great Crested Newt	1	SJ6937861118 2009	MA01	192m north-east	Pond57
18	Great Crested Newt	Not recorded	SJ7206752834 2012	MA01	372m south-west	Pond7
1	Great Crested Newt	Not recorded	SJ7236250883 2009	MA01	293m south	Pond848
1	Great Crested Newt	Not recorded	SJ7227250882 2009	MA01	293m south	Pond850
24	Great Crested Newt	Not recorded	SJ7200253319 2012	MA01	304m west	Pond9
1	Great Crested Newt	4	SJ6987060577 2009	MA01	291m south-east	Pond1005
2	Great Crested Newt	Not recorded	SJ7072657819 2013	MA01	400m west	Pond1101
4	Great Crested Newt	7	SJ6914658553 2014	MA01	90m west	Pond1524
1	Great Crested Newt	1	SJ6973761896 2009	MA01	709m north-east	Pond2913
1	Great Crested Newt	2	SJ7000062087 2009	MA01	926m south-east	Pond3303
2	Great Crested Newt	Not recorded	SJ7253853059 2013	MA01	54m south-east	Pond3633
17	Great Crested Newt	Not recorded	SJ7258753291 2012	MA01	157m north-east	Pond3637

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Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
2	Great Crested Newt	Not recorded	SJ7133458524 2013	MA01	411m east	Pond3763
4	Great Crested Newt	Not recorded	SJ7227053530 2013	MA01	144m south	Pond3928
1	Great Crested Newt	22	SJ6954059793 2009	MA01	Within	Pond40
2	Great Crested Newt	40	SJ6951660872 2009	MA01	48m south-east	Pond4000
4	Great Crested Newt	Not recorded	SJ6748354883 2013	MA01	501m south	Pond4069
4	Great Crested Newt	10	SJ6917658344 2014	MA01	166m south-west	Pond4122
4	Great Crested Newt	1	SJ6757354651 2012	MA01	730m south	Pond4202
2	Great Crested Newt	1	SJ6762054530 2012	MA01	855m south	Pond4203
4	Great Crested Newt	Not recorded	SJ6685056032 2013	MA01	723m west	Pond4207
2	Great Crested Newt	2	SJ6911260090 2010	MA01	Within	AA1_Pond44
1	Great Crested Newt	6	SJ6914860148 2010	MA01	15m south-west	Pond46
4	Great Crested Newt	1	SJ7011158228 2012	MA01	Within	Pond903
1	Great Crested Newt	Not recorded	SJ6954061103 2014	MA01	183m north-west	Pond1001
1	Great Crested Newt	Not recorded	SJ7107153552 2014	MA01	117m south-west	Pond13
1	Great Crested Newt	Not recorded	SJ7096361160 2014	MA01	98m north-east	Pond3268
1	Great Crested Newt	Not recorded	SJ7023561441 2014	MA01	237m north	Pond3286
1	Great Crested Newt	Not recorded	SJ7102453008 2014	MA01	303m north-east	Pond3625
2	Great Crested Newt	Not recorded	SJ7105257511 2017	MA01	187m west	Pond3755
3	Great Crested Newt	Not recorded	SJ7089657637 2014	MA01	308m south-west	Pond3810
6	Great Crested Newt	Not recorded	SJ7227053530 2016	MA01	144m south	Pond3928
1	Great Crested Newt	Not recorded	SJ6951660872 2014	MA01	48m south-east	Pond4000

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Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
3	Great Crested Newt	Not recorded	SJ7166253920 2014	MA01	37m north-east	Pond4120
2	Great Crested Newt	Not recorded	SJ6917658344 2017	MA01	166m south-west	Pond4122
1	Great Crested Newt	Not recorded	SJ7157452817 2014	MA01	736m east	Pond6
4	Smooth Newt	Not recorded	SJ6957358549 2009	MA01	1m east	Pond29
2	Smooth Newt	Not recorded	SJ7269453358 2012	MA01	284m north-east	Pond3641
2	Smooth Newt	12	SJ7280953284 2012	MA01	368m north-east	Pond3643
4	Smooth Newt	Not recorded	SJ7258753291 2009	MA01	157m north-east	Pond3637
1	Smooth Newt	33	SJ6951660872 2010	MA01	48m south-east	Pond4000
10	Smooth Newt	100	SJ6967057830 2009	MA01	318m south-west	Pond4119
4	Smooth Newt	Not recorded	SJ6685056032 2009	MA01	723m west	Pond4207

- 2.3.17 Cheshire East Council, Cheshire West and Chester Council, Cheshire Wildlife Trust (CWT), and Cheshire Local Biological Records Centre (rECOrd) supplied citation records for Local Wildlife Sites within 1km of land required for the construction of the Proposed Scheme. No Local Wildlife Sites reported presence of any amphibian species.
- 2.3.18 To obtain any relevant amphibian survey information, a review has been undertaken of developments within 1km of land required for the construction of the Proposed Scheme. Amphibian survey information covering the period 2009 – 2020 has been considered. Three developments have been identified.
- 2.3.19 One development¹² provided records for great crested newt (with a peak count of nine) at Pond3637; Pond3641; Pond3643; Pond3642; Pond7; Pond3644; Pond3636; Pond9; and Pond15¹³.

¹² Land at Bashford East, Crewe. Planning application reference 15/1537N. Reported in Basford East – Environmental Statement Volume iii: Technical Appendices: Appendix 8.7a – Great Crested Newt Survey.

¹³ Reported in Basford East – Environmental Statement Volume iii: Technical Appendices: Appendix 8.7a – Great Crested Newt Survey.

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- 2.3.20 Another development undertook P/A surveys on water bodies at Moss Side Farm in Crewe¹⁴, approximately 100m south of land required for the construction of the Proposed Scheme¹⁵. Great crested newts were reported from two water bodies, the exact locations of which are unknown and may no longer be present, with a peak count of four.
- 2.3.21 Another development undertook P/A surveys on Pond20 and Pond3754¹⁶. Great crested newts were recorded from Pond20 and Pond3754, with a peak count of one in Pond20 and no count data for Pond3754¹⁷.

Discussion of combined results

- 2.3.22 Of the 49 water bodies subject to P/A surveys, 19 are situated within land required for the construction of the Proposed Scheme in MA01. Of these, 27 are within 250m, and three are within 500m of land required for the construction of the Proposed Scheme.
- 2.3.23 Great crested newts have been found in 31 of the 49 water bodies subject to P/A surveys and/or PSC survey, comprising 29 small population size classes and two assumed medium population size classes.
- 2.3.24 Twenty-eight of these 31 water bodies with great crested newts also support other amphibian species (smooth newts in 25, common frog in 14, common toad in 11). Four other water bodies where great crested newt was not found did support other common amphibian species. They include water body AA1_Pond1625, which supports a good population of smooth newts.
- 2.3.25 A further seven water bodies that were only subject to eDNA survey were found to support great crested newts.
- 2.3.26 Twenty-two populations (across up to three water bodies) or metapopulations (across four or more water bodies) have been identified in MA01, and a total of 95 water bodies (57 from relevant desk-study records, seven from eDNA survey and 31 from P/A and/or population size class surveys) confirmed as supporting great crested newt.
- 2.3.27 Populations and metapopulations are presented from south to north in each community area. It should be noted that some populations and metapopulations cross community area boundaries. This occurs where clusters of linked ponds, that may be used by great crested newts, occur both sides of a community area boundary. Great crested newt metapopulation

¹⁴ Pennine Ecological (2016), *Great crested newt presence & absence survey* - Land at Moss Side Farm, Moss Lane, Leighton, Crewe.

¹⁵ Moss Side Farm, Moss Lane, Leighton Planning application 16/3836N. Available online at: <http://planning.cheshireeast.gov.uk/applicationdetails.aspx?pr=16/3836N&query=0b76d0dfd8344c47960a746e71da85cf&from=p>.

¹⁶ Land to the east of, Broughton Road, Crewe, Cheshire, CW1 4NS. Planning application reference 15/1552N.

¹⁷ Cheshire East Council planning application tool. Available online at: <http://planning.cheshireeast.gov.uk/applicationdetails.aspx?pr=15/0366N&query=55259044a9a44500aaa5cf356c6be7d1&from=p>.

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(GCNMP)1.1.19 and great crested newt population (GCNP)1.1.22 cross the community area boundary between MA01 and MA02.

- 2.3.28 There is overlap within MA01 with HS2 Phase 2a. Two metapopulations identified within Phase 2a CA5 are within 1km of land required for the construction of the Proposed Scheme: amphibian metapopulation (AMP) 5.3 and AMP5.4¹⁸. These metapopulations overlap with GCNMP1.1.1 and GCNMP1.1.2. The Phase 2a descriptions for AMP5.3 and AMP5.4 have been included below, for reference.
- 2.3.29 AMP5.3 lies within and extends beyond 500m of land required for the construction of the Proposed Scheme, west and south-west of Hough, to Chorlton. This metapopulation supports an estimated medium population of great crested newts, as ponds 000-AA1-244009 and 000-AA1-244014 were positive for great crested newt eDNA. South of Hough, the surrounding landscape is farmland connected to smaller field systems and hedgerows with areas of semi-natural grassland and scrub, including Hough Common Local Wildlife Site.
- 2.3.30 Great crested newts were anticipated to be present within AMP5.4, as there are historic records for this, and other amphibian species, associated with developments for Basford East housing and Jack Mills Way/Crewe Green Link Road. The area has been surveyed twice previously, for the Crewe Green Link Road/housing development in 2012 and Basford East for housing in 2012 and 2014. All previously undertaken surveys suggest AMP5.4 functions as a breeding population, due to presence of great crested newt eggs, larvae, juveniles and adults. Low numbers of great crested newts were recorded from each pond, equating to a total of 50 individuals in 2012/medium population. Smooth newts are also recorded from this area in low numbers.
- 2.3.31 The field surveys for AMP5.4 estimated a medium population following surveys for pond 000-AA1-247013, which yielded a total peak count of 63 great crested newt individuals, in line with desk study records. Additionally, pond 000-AA1-247013 supports a medium population of great crested newts and an exceptional population of smooth newts (118 individuals).
- 2.3.32 AMP5.4 is linked to 10 ponds which support a medium population and six ponds which support a small population of great crested newts. Therefore, the estimated population size class of this metapopulation is medium.
- 2.3.33 GCNMP1.1.1 is situated south-east of Hough and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 71 water bodies, four situated within 250m, three situated within 500m, and 64 situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond848 and Pond850. The population size class of this metapopulation is assumed medium, due to the presence of un-

¹⁸ High Speed Two Ltd (2017), High Speed Rail (West Midlands - Crewe), Background Information Data, Ecology and biodiversity, Ecological baseline data – amphibian and pond and canal surveys, (BID-EC-007-000).

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surveyed ponds. South-east of Hough the surrounding landscape is farmland connected to hedgerows, with areas of woodland.

- 2.3.34 GCNMP1.1.2 is situated east of Butt Green to Blakelow and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 16 water bodies, two situated within 250m, five situated within 500m, and nine situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. East of Butt Green the landscape is open fields, with the A500 to the north and residential areas to the north and east.
- 2.3.35 GCNMP1.1.3 is situated east of Shavington and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 14 water bodies, six situated within 250m, seven situated within 500m, and one situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond3650, Pond3651 and Pond3656. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. East of Shavington the surrounding landscape is farmland with hedgerows, with areas of semi-natural grassland and scrub.
- 2.3.36 GCNMP1.1.4 is situated south of Wistaton and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 23 water bodies, six situated within 250m, six situated within 500m, and 11 situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond3611, Pond3613, Pond3622, Pond3623, Pond3628, Pond3629, Pond3630, Pond3631, Pond3648, Pond3652, Pond3653, Pond3840, Pond3841, Pond3890 and Pond3896. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. East of Nantwich the surrounding landscape is farmland, with scattered woodland and hedgerows. There is some potential for this assumed metapopulation to be connected to GCNMP1.1.5 across Jack Mills Way.
- 2.3.37 GCNMP1.1.5 is situated north of Basford and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 10 water bodies, five situated within 250m, three situated within 500m, and two situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond13, Pond3625 and Pond6. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. The assumed metapopulation is surrounded by agricultural buildings to the north and farmland to the east, west and south. There is some potential for this assumed metapopulation to be connected to GCNMP1.1.4 across Jack Mills Way.
- 2.3.38 GCNMP1.1.6 is situated north of Weston and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of 10 water bodies, six situated within 250m and four situated within 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be

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present at Pond14, Pond3928 and Pond9. Data from planning applications identified the presence of great crested newts in Pond15, Pond3636, Pond3644, Pond7 and Pond9. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. The assumed metapopulation is within open grassland areas, bordered by the A500 to the north and the village of Weston to the south. There is some potential for this assumed metapopulation to be connected to GCNP1.1.9 across the West Coast Main Line railway corridor.

- 2.3.39 GCNMP1.1.7 is situated east of Nantwich and west of Willaston and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 11 water bodies, one situated within 250m, three situated within 500m, and seven situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. the assumed metapopulation is surrounded to the north, east and south by residential development associated with Nantwich and Willaston.
- 2.3.40 GCNMP1.1.8 is situated west of Stowford and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 10 water bodies, six situated within 250m, three situated within 500m, and one situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond3633. Data from planning applications identified the presence of great crested newts in Pond3637, Pond3641, Pond3642 and Pond3643. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. West of Stowford the surrounding landscape is farmland with scattered woodland and hedgerows.
- 2.3.41 GCNP1.1.9 is situated south of Crewe railway station and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. The surrounding landscape is farmland, with scattered woodland and hedgerows. There is some potential for this population to be connected to GCNMP1.1.6 across the West Coast Main Line railway corridor.
- 2.3.42 GCNMP1.1.10 is situated north of Stowford and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 12 water bodies, one situated within 250m, six situated within 500m, and five situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of Stowford the surrounding landscape is farmland with hedgerows, with Englesea Brook running from north-west to south-east.
- 2.3.43 GCNMP1.1.11 is situated south of Crewe Green and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 19 water bodies, one situated within 250m, one situated within 500m, and 17 situated more than 500m from land required for the construction of the Proposed Scheme. The population

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size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. south of Crewe Green the surrounding landscape is mainly residential development, with some farmland with an associated hedgerow network.

- 2.3.44 GCNMP1.1.12 is situated west of Woolstanwood and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of eight water bodies, two situated within 250m, two situated within 500m, and four situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond4207. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. West of Woostanwood the surrounding landscape is farmland connected with hedgerows. There is some potential for this metapopulation to be connected to GCNMP1.1.14 across the North Wales Coast railway corridor.
- 2.3.45 GCNP1.1.13 is situated north-west of Crewe and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. The assumed population is surrounded by railway infrastructure, residential development, and commercial buildings.
- 2.3.46 GCNMP1.1.14 is situated north-west of Crewe and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of nine water bodies, two situated within 250m, one situated within 500m, and six situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-west of Crewe the surrounding landscape consists of farmland, with scattered woodland and hedgerows. There is some potential for this metapopulation to be connected to GCNMP1.1.12 across the North Wales Coast railway corridor.
- 2.3.47 GCNMP1.1.15 is situated north-east of Crewe and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 31 water bodies, five situated within 250m, seven situated within 500m, and 19 situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond3761, Pond3763, Pond3769, Pond3770 and Pond3774. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-east of Crewe the surrounding landscape consists of farmland, with improved grassland and hedgerows. There is some potential for this assumed metapopulation to be connected to GCNMP1.1.16 across Groby Road.
- 2.3.48 GCNMP1.1.16 is situated north-east of Crewe and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of six water bodies, three situated within 250m and three situated within 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are

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likely to be present at Pond3810 and Pond3930. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-east of Crewe the surrounding landscape consists of farmland, with improved grassland and hedgerows. There is some potential for this assumed metapopulation to be connected to GCNMP1.1.15 across Groby Road and to GCNMP1.1.18 across Stoneley Road.

- 2.3.49 GCNP1.1.17 is situated north of Crewe and lies within land required for the construction of the Proposed Scheme. It consists of three water bodies, all situated within land required for the construction of the Proposed Scheme. P/A surveys to AA1_Pond24 and AA1_Pond27 revealed small populations of great crested newts. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. North of Crewe the surrounding landscape consists of farmland with hedgerows. There is some potential for the assumed population to be connected to GCNMP1.1.18 across Broughton Road.
- 2.3.50 GCNMP1.1.18 is situated north of Crewe and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of nine water bodies, six situated within 250m, and three situated within 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond20, AA1_Pond26 and AA1_Pond914. Based on desk study records, great crested newts are likely to be present at Pond1101 and AH1_Pond19. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of Crewe the surrounding landscape consists of industrial land, woodland and farmland. There is some potential for this assumed metapopulation to be connected to GCNMP1.1.16 across Stoneley Road and to GCNP1.1.17 across Broughton Road.
- 2.3.51 GCNMP1.1.19 is situated north of Crewe, extending northwards towards the south-east of Middlewich. This metapopulation extends into the Wimboldsley to Lostock Gralam area (MA02), and therefore includes water bodies located within MA02. It lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 130 water bodies, 12 situated within, 44 situated within 250m, 27 situated within 500m, and 47 situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond28, AA1_Pond40, AA1_Pond42, AA1_Pond51, AA1_Pond54, AA1_Pond55, AA1_Pond60, AA1_Pond61, AA1_Pond63, AA1_Pond66, AA1_Pond68, AA1_Pond74, AA1_Pond854, AA1_Pond856, AA1_Pond902, AA1_Pond905 and AA1_Pond917, whilst surveys to AA1_Pond908 and AA1_Pond916 revealed medium populations of great crested newts. eDNA surveys to AA3_Pond1038, AA3_Pond1051, AA3_Pond1791, AA1_Pond903, and AA3_Pond923 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at AA3_Pond1000, AA3_Pond1001, Pond1005, Pond1105, Pond2913, Pond2914, Pond3046, Pond3049, Pond3267, Pond3286, Pond3300, Pond3301, Pond3302, Pond3303, Pond3728, Pond3729, Pond3730, Pond3731, Pond3732, Pond3736, Pond4000, Pond4014, Pond4015, and AA1_Pond57. The population size class of this metapopulation is assumed large, due to the presence of over 100 water

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bodies within the assumed metapopulation. The surrounding landscape consists of farmland with hedgerows, areas of woodland, grassland, and minor watercourses. There is some potential for this assumed metapopulation to be connected to GCNMP1.1.20 across the West Coast Main Line railway corridor.

- 2.3.52 GCNMP1.1.20 is situated north of Crewe to Walley's Green. It lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 56 water bodies, six situated within, 30 situated within 250m, 14 situated within 500m, and six situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond1525, AA1_Pond30, AA1_Pond33, AA1_Pond38, AA1_Pond39, AA1_Pond43, AA1_Pond44, AA1_Pond45, AA1_Pond46, AA1_Pond52 and AA1_Pond909. eDNA surveys to AA3_Pond1546, EES_AA3_Pond29, AA3_Pond31, AA3_Pond32, AA1_Pond41 and AA3_Pond919 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at Pond1524 and Pond4122. The population size class of this metapopulation is medium, due to the presence of unsurveyed ponds. North of Crewe the surrounding landscape consists of farmland with hedgerows. There is some potential for this assumed metapopulation to be connected to GCNMP1.1.19 across the West Coast Main Line railway corridor.
- 2.3.53 GCNMP1.1.21 is situated east of Church Minshull and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 38 water bodies, one situated within 250m, 11 situated within 500m, and 26 situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. West of Crewe the surrounding landscape consists of farmland with hedgerows.
- 2.3.54 GCNMP1.1.22 is situated west of Walley's Green and lies within 250m of land required for the construction of the Proposed Scheme. This population extends into the Wimboldsley to Lostock Gralam area (MA02). It consists of three water bodies, all situated within 250m from land required for the construction of the Proposed Scheme. P/A surveys to AA1_Pond67 revealed a small population of great crested newts. The population size class of this population is assumed medium, due to the presence of un-surveyed ponds. West of Walley's Green the surrounding landscape is farmland with hedgerows, with pockets of semi-natural grassland, scrub and residential buildings. The Shropshire Union Canal is to the west with Middlewich Road to the east.
- 2.3.55 Table 7 summarises the 22 great crested newt metapopulations and details the associated population size classes.

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Table 7: Summary of assumed great crested newt populations and metapopulations within MA01

Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNMP1.1.1	Pond850, Pond848, Pond852, Pond851, Pond1115, Pond847, Pond1; and 64 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	170m south-west
GCNMP1.1.2	Pond4107, Pond4078, Pond4012, Pond4001, Pond4016, Pond4002, Pond3990; and 9 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	5m west
GCNMP1.1.3	Pond3650, Pond3651, Pond3649, Pond3816, Pond2, Pond3655, Pond3656, Pond3612, Pond3682, Pond3684, Pond3683, Pond3654, Pond3685; and 1 additional pond more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	19m north-east
GCNMP1.1.4	Pond3647, Pond3841, Pond3648, Pond3840, Pond3611, Pond3613, Pond3652, Pond3653, Pond3628, Pond3629, Pond3622, Pond3623; and 11 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	127m south
GCNMP1.1.5	Pond3627, Pond3625, Pond3624, Pond3626, Pond10, Pond11, Pond12, Pond13; and 2 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	117m south-west
GCNMP1.1.6	Pond5, Pond7, Pond3636, Pond3634, Pond8, Pond3644, Pond9, Pond3928, Pond14 and Pond15.	Assumed medium	18m south
GCNMP1.1.7	Pond4029, Pond4065, Pond4034, Pond4013; and 7 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	181m south-east
GCNMP1.1.8	Pond4121, Pond3633, Pond3638, Pond3642, Pond3645, Pond3643, Pond3637, Pond3641, Pond3639; and 1 additional pond more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	54m west
GCNMP1.1.9	Pond4106.	Assumed medium	109m west
GCNMP1.1.10	Pond3640, Pond3782, Pond3783, Pond3785, Pond3788, Pond3787,	Assumed medium	121m east

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	Pond3791; and 5 additional ponds more than 500m from land required for the construction of the Proposed Scheme.		
GCNMP1.1.11	Pond3790, Pond3789; and 17 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	195m south
GCNMP1.1.12	Pond4011, Pond4101, Pond4045, Pond4117; and 4 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	105m south-east
GCNP1.1.13	Pond4102.	Assumed medium	1m south-west
GCNMP1.1.14	Pond4044, Pond4028, Pond4081; and 6 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	44m west
GCNMP1.1.15	Pond3758, Pond3759, Pond3757, Pond3847, Pond3848, Pond3846, Pond3818, Pond3768, Pond3817, Pond3763, AA3_Pond3772, Pond3615; and 19 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	1m south-west
GCNMP1.1.16	Pond3760, Pond3930, Pond3810, Pond3689, Pond3929 and Pond3754.	Assumed medium	99m south
GCNP1.1.17	AA1_Pond18, AA1_Pond24 and AA1_Pond27.	Assumed medium	Within
GCNMP1.1.18	AH1_Pond19, AA1_Pond20, AA3_Pond21, Pond1101, Pond4060, AA1_Pond26, Pond3998, AA1_Pond914 and Pond1102.	Assumed medium	1m south-west
GCNMP1.1.19	AA1_Pond902, AA1_Pond903, AA1_Pond905, AA1_Pond28, Pond1103, Pond1054, AA1_Pond916, AA1_Pond917, AA3_Pond1753, Pond1752, Pond3821, AA1_Pond908, AA3_Pond907, AA3_Pond3717, AH1_Pond3720, AA1_Pond906, Pond1111, AA1_Pond40, Pond3992, Pond4124, AA1_Pond42, Pond1105, Pond4110, AH1_Pond47, AH1_Pond48, AH1_Pond49, Pond3812, AH1_Pond50, Pond997, Pond995, Pond996, Pond998, Pond3732, Pond999, Pond1005, AA1_Pond51, Pond1522, Pond3914, Pond3739, Pond3901, Pond4015, Pond4014, Pond4000, AA1_Pond54, AA1_Pond55,	Assumed large	Within

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	AA3_Pond1001, AA1_Pond57, AA1_Pond60, AA3_Pond1000, AA1_Pond61, Pond3286, AA1_Pond63, Pond3300, AA1_Pond1002, AA1_Pond1003, AA1_Pond66, AH1_Pond904, AA1_Pond68, AA1_Pond69, AA3_Pond1051, AA1_Pond74, AH1_Pond1794, Pond3986, Pond1035, AA3_Pond923, Pond1037, Pond1036, Pond1039, Pond81, Pond82, AA3_Pond1038, Pond1633, AH1_Pond920, Pond1640, Pond829, AH1_Pond88, AA3_Pond1791, AA1_Pond91, AA1_Pond854, AA3_Pond855, AA1_Pond856, AA1_Pond97, Pond1042; and 47 additional ponds more than 500m from land required for the construction of the Proposed Scheme.		
GCNMP1.1.20	Pond4122, EES_AA3_Pond29, Pond1524, Pond1520, AA1_Pond30, AA1_Pond909, AA1_Pond1521, AA3_Pond31, AA3_Pond32, AA1_Pond33, Pond3878, AH1_Pond1526, Pond3875, AA1_Pond35, Pond3924, Pond994, AA3_Pond37, Pond3923, Pond3874, Pond1523, AA1_Pond38, Pond3877, AA1_Pond1525, Pond3881, Pond3925, Pond1117, Pond3882, Pond1116, AA3_Pond1546, Pond1545, AA1_Pond39, AA1_Pond41, AA1_Pond43, Pond1547, Pond1548, AA1_Pond44, AA1_Pond45, AA3_Pond1512, AA3_Pond1509, AA1_Pond46, AA3_Pond1510, AA3_Pond1508, AA1_Pond1511, AA3_Pond919, AA1_Pond52, AA1_Pond53, AH1_Pond918, Pond59, Pond64, Pond65; and 6 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Medium	Within
GCNMP1.1.21	Pond3883, Pond3879, Pond3854, Pond3915, Pond3884, Pond4116, Pond4118, Pond3858, Pond3617, Pond3885, Pond3862, Pond3863; and 26 additional ponds more than 500m from	Assumed medium	89m north-east

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	land required for the construction of the Proposed Scheme.		
GCNP1.1.22	Pond1004, Pond3980 and AA1_Pond67.	Assumed medium	44m west

Wimboldsley to Lostock Gralam (MA02)

- 2.3.56 A total of 336 water bodies were identified as requiring survey within MA02.
- 2.3.57 Table 2 provides a summary of those 68 water bodies (as a subset of the 336 required for survey) which are located more than 250m from land required for the construction of the Proposed Scheme. These water bodies were scoped in, as suitable habitat is present and they form part of a pond cluster with those within 250m of land required for the construction of the Proposed Scheme, which may support a metapopulation of amphibians.

Table 8: Summary of water bodies located more than 250m from land required for the construction of the Proposed Scheme, scoped into amphibian assessment within MA02

Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1051	South-west of Occlestone Green	SJ6942562506	MA02	290m east
Pond1035	South of Occlestone Green	SJ6951962845	MA02	443m east
Pond1633	Within Saunders Field	SJ6934063578	MA02	383m east
Pond920	South of Newfield Farm	SJ6929063808	MA02	374m east
Pond1791	North-east of Wimboldsley	SJ6925664275	MA02	415m east
Pond1537	East of Wimboldsley Wood	SJ6746464328	MA02	307m north-west
Pond1049	North of Wimboldsley	SJ6920664344	MA02	348m east
Pond1052	North of Wimboldsley	SJ6922664381	MA02	381m east
Pond1041	North of Wimboldsley	SJ6909464433	MA02	256m east
Pond854	South of Norcroft Farm	SJ6926564673	MA02	365m south-east
Pond1032	South of Norcroft Farm	SJ6938464752	MA02	381m south-east
Pond1042	East of Norcroft Farm	SJ6935664838	MA02	302m south-east
Pond1048	Stanthorne Mill House	SJ6936566208	MA02	325m east
Pond111	East of Winsford Industrial Estate	SJ6791566593	MA02	343m south
Pond3094	North of Middlewich	SJ7087367079	MA02	276m north-west

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Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1018	North-east of Winsford	SJ6727367491	MA02	478m north
Pond1011	North-east of Winsford Industrial Estate	SJ6743867565	MA02	498m north
Pond1639	North of Middlewich	SJ6977267622	MA02	279m east
Pond1010	West of Wharton Green	SJ6783167648	MA02	312m west
Pond1641	North of Middlewich	SJ6995367698	MA02	455m east
Pond1636	West of Yatehouse Green	SJ6963368140	MA02	450m north
Pond1043	North of Dairyhouse Farm	SJ6917368355	MA02	386m north-east
Pond1022	Northwest of Dairyhouse Farm	SJ6898868440	MA02	390m north
Pond1023	West of Yatehouse Green	SJ6889168791	MA02	367m south-east
Pond1025	West of Yatehouse Green	SJ6890968936	MA02	300m south-east
Pond1024	West of Yatehouse Green	SJ6889268952	MA02	278m south-east
Pond1685	North of Lily Lane	SJ7256969025	MA02	475m south
Pond1695	East of Byley	SJ7278969107	MA02	397m south
Pond1031	South-east of Whatcroft	SJ6899969131	MA02	340m east
Pond1047	South-east of Whatcroft	SJ6904969161	MA02	408m east
Pond1029	South of Whatcroft Hall	SJ6890969191	MA02	292m east
Pond1699	East of Byley	SJ7280669221	MA02	289m south
Pond835	Southeast of Whatcroft	SJ6875869380	MA02	262m north-east
Pond1027	South-east of Whatcroft	SJ6887469440	MA02	389m north-east
Pond3996	West of Whatcroft	SJ6791669877	MA02	309m north-west
Pond1020	East of Whatcroft	SJ6887869899	MA02	340m south-east
Pond135	East of Whatcroft	SJ6886369922	MA02	312m south-east
Pond1033	East of Whatcroft	SJ6887869925	MA02	314m south-east
Pond1026	East of Whatcroft	SJ6898469928	MA02	411m south-east
Pond1046	East of Whatcroft	SJ6908169969	MA02	480m east
Pond148	South-east of Northwich	SJ6894470795	MA02	258m south
Pond3357	South-west of Lach Dennis	SJ7014771297	MA02	427m south
Pond3147	South-west of Lach Dennis	SJ6994371333	MA02	400m south
Pond3350	South-west of Lach Dennis	SJ7021071359	MA02	380m south
Pond3355	South-west of Lach Dennis	SJ7033771369	MA02	444m south-east
Pond3352	South-west of Lach Dennis	SJ7002271382	MA02	335m south
Pond3148	South-west of Lach Dennis	SJ6970371473	MA02	356m east
Pond3351	South-west of Lach Dennis	SJ7033871478	MA02	361m south-east
Pond3149	South-west of Lach Dennis	SJ6978071480	MA02	339m south-west
Pond3143	South-west of Lach Dennis	SJ6971371490	MA02	367m east

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Pond3140	South-west of Lach Dennis	SJ6967671499	MA02	332m east
Pond1058	East of Rudheath	SJ6957372622	MA02	259m east
Pond3384	East of Lostock Green	SJ7072473860	MA02	345m east
Pond1529	East of Hame Farm	SJ7075474333	MA02	371m east
Pond1533	South of Plumley Lime Beds Nature Reserve	SJ7074674364	MA02	353m east
Pond1549	North of Hame Farm	SJ7070874504	MA02	318m east
Pond1551	South of Plumley Lime Beds Nature Reserve	SJ7087074702	MA02	365m east
Pond1490	East of Lostock Gralam	SJ7093575066	MA02	319m east
Pond3170	Plumley Lime Nature Reserve	SJ7099375088	MA02	421m east
Pond1345	Within Holford Hall	SJ7093875373	MA02	406m north-east
Pond1312	West of Plumley	SJ7095175432	MA02	448m south-east
Pond1313	West of Plumley	SJ7089875436	MA02	387m north-east
Pond1309	East of Holford Farm	SJ7090575755	MA02	262m south
Pond1311	South of Holford Cottages	SJ7096075787	MA02	255m south-east
Pond1322	East of Holford Cottages	SJ7111375868	MA02	264m south-east
Pond1325	North-east of Henshaw Green Cottages	SJ7153076256	MA02	335m south-east
Pond1324	North-east of Henshaw Green Cottages	SJ7153376285	MA02	329m east

Field survey

Habitat Suitability Index/walkover surveys

2.3.58 Following the completion of walkover surveys, incorporating HSI surveys where appropriate, the water bodies identified in Table 9 were scoped out of the assessment.

Table 9: Summary of locations where requirement for further survey was scoped out following HSI/walkover survey in MA02

Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond84	North-east of Wimboldsley Grange Farm	SJ6828763626	Area of damp ground - no water body present. HSI - 0.00 (Poor)	MA02	Within

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond86	South-west of Middlewich	SJ6896263670	Ditch within broadleaved woodland. HSI - 0.00 (Poor)	MA02	14m east
AH1_Pond1609	South of Clive Green	SJ6795364304	Slurry pit within improved field. HSI - 0.41 (Poor)	MA02	40m west
AH1_Pond1052	North of Wimboldsley	SJ6922664381	Pond does not exist. HSI - 0.00 (Poor)	MA02	381m east
AH1_Pond96	South-west of Middlewich	SJ6820964796	Pond does not exist. HSI - 0.00 (Poor)	MA02	24m north-east
AH1_Pond100	South-west of Park Farm	SJ6870364989	Depression inside a mixed woodland containing standing water. Low water levels with a build up of leaf litter. HSI - 0.47 (Poor)	MA02	3m east
AH1_Pond102	South-east of Park Farm	SJ6844165158	Small puddle in the corner of an improved grassland. No vegetation around margins and had high content of organic waste. HSI - 0.40 (Poor)	MA02	Within
AH1_Pond103	East of Park Farm	SJ6875565178	Dried up hollow located in dense scrub habitat. Appears to dry annually aided by the large stands of willow, elder and hawthorn scrub. HSI - 0.47 (Poor)	MA02	48m east
AH1_Pond921	West of Manor Park	SJ6894965432	Shallow water with evidence of poor water quality, full of willow leaves, expected to dry	MA02	79m east

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
			annually. HSI - 0.00 (Poor)		
AH1_Pond106	East of Clive	SJ6867665743	Lagoon used for runoff from cattle barns. Deep, steep sided and devoid of vegetation. HSI - 0.42 (Poor)	MA02	1m north-west
AH1_Pond108	North of Yew Tree Farm	SJ6882865974	Shallow, muddy, leaf-filled and shaded water body, with no macrophyte cover. HSI - 0.45 (Poor)	MA02	3m north-west
AH1_Pond911	North of Yew Tree Farm	SJ6854066007	Recently created lagoon. Deep, steep sided and devoid of vegetation. HSI - 0.32 (Poor)	MA02	Within
AH1_Pond1634	East of the Trent and Merseyside Canal	SJ6966767592	Small pond on edge of grassland field, with shallow water and absence of aquatic vegetation. HSI - 0.46 (Poor)	MA02	182m south-east
AH1_Pond1639	North of Middlewich	SJ6977267622	Completely dry, some footprint of a former pond but all incorporated into grass field. HSI - 0.00 (Poor)	MA02	279m east
AH1_Pond1641	North of Middlewich	SJ6995367698	Dry pond on edge of grassland field. Dense reed, grass and scrub in pond footprint. HSI - 0.00 (Poor)	MA02	455m east

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond1636	West of Yatehouse Green	SJ6963368140	Dry pond with dense reed and some scrub. Completely dry, some footprint of a pond but reed dense across all of footprint. HSI - 0.00 (Poor)	MA02	450m north
AH1_Pond1022	Northwest of Dairyhouse Farm	SJ6898868440	Dry pond within areas of dense scrub. No water or signs of water at time of survey. HSI - 0.00 (Poor)	MA02	390m north
AH1_Pond3989	South of Whatcroft	SJ6873569024	Small open pond with reeds and shallow water. HSI - 0.35 (Poor)	MA02	104m east
AH1_Pond128	South of Whatcroft	SJ6881469257	Shallow pond in small patch of woodland, highly shaded with no macrophytes. HSI - 0.46 (Poor)	MA02	240m north-east
AH1_Pond1027	South-east of Whatcroft	SJ6887469440	Dried pond located just inside the woodland edge. Heavily vegetated with wetland and terrestrial plant species. HSI - 0.00 (Poor)	MA02	389m north-east
AH1_Pond154	North of Manor Farm	SJ6808471042	Large fishing lake. HSI - 0.31 (Poor)	MA02	17m west
AH1_Pond157	East of Billinge Green	SJ6814271318	Large fishing lake. HSI - 0.53 (Poor)	MA02	118m west
AH1_Pond936	South-east of Higher Shurlach	SJ6841271534	Dry ephemeral pond, unsuitable for use by GCN. HSI - 0.00 (Poor)	MA02	15m south-west
AH1_Pond1067	South of Rudheath	SJ6818071679	Small, shallow pond in	MA02	26m west

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
			woodland with eutrophic water. HSI - 0.44 (Poor)		
AH1_Pond196	East of Lostock Gralam	SJ7045075035	No water body present. HSI - 0.00 (Poor)	MA02	Within
AH1_Pond1369	East of Lostock Gralam	SJ6984475246	Standing water; artificial pond present next to car park, surrounded by roads. HSI - 0.40 (Poor)	MA02	33m south-east
AH1_Pond205	North-east of Northwich	SJ7002075719	Ephemeral Pond within woodland, likely to dry regularly. HSI - 0.47 (Poor)	MA02	152m west

eDNA presence/absence surveys

- 2.3.59 The eDNA survey method was conducted at 136 water bodies in MA02. The summary of positive results of the eDNA P/A surveys and those with anomalies are detailed in Table 10.
- 2.3.60 Of the 136 water bodies surveyed, 13 were dry and eDNA could not be undertaken.
- 2.3.61 Of the remaining 123 water bodies, 23 were defined as positive for great crested newt eDNA. Of these, nine were within, nine were within 250m, and five were within 500m from land required for the construction of the Proposed Scheme. From these 23 water bodies those 18 within 250m were put forward for P/A surveys.
- 2.3.62 Of the water bodies that were negative, partial access to the pond perimeter was a factor in 28 cases and these were put forward for P/A surveys.
- 2.3.63 Nine of the water bodies, AA1_Pond67, AA1_Pond119, AA1_Pond121, AA1_Pond133, AA1_Pond144, AA1_Pond74, AA1_Pond77, AA1_Pond151, and AA1_Pond153, recorded presence of great crested newts using traditional P/A surveys, even though the eDNA was inconclusive or negative. These water bodies were identified as requiring population size class surveys.
- 2.3.64 The reasons for there being anomalies for these nine water bodies in the eDNA results, as compared to the results of P/A surveys are currently unknown.

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Table 10: Summary of relevant results from eDNA presence/absence surveys for MA02

Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond66	North-east of Newfield Hall Farm	SJ6875962048	30 April 2018	100	No inflows present	Positive	MA02	Within
EES_AA3_Pond67	South of Wimboldsley Hall	SJ6832962137	N/A - EES	N/A - EES	N/A - EES	Negative (with positive results from subsequent P/A survey)	MA02	44m north-east
EES_AA3_Pond68	North of Park Hall Farm	SJ6910462283	N/A - EES	N/A - EES	N/A - EES	Positive	MA02	80m south-east
AA3_Pond1051	South-west of Occlstone Green	SJ6942562506	18 April 2018	100	No inflows present	Positive	MA02	290m east
AA3_Pond74	South of Occlstone Green	SJ6907162586	2 May 2018	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA02	52m east
EES_AA3_Pond77	South of Wimboldsley Grange	SJ6828362905	N/A - EES	N/A - EES	N/A - EES	Negative (with positive results from subsequent P/A survey)	MA02	Within
AA3_Pond923	North of Occlstone Green	SJ6908762947	18 April 2018	100	No inflows present	Positive	MA02	14m east
EES_AA3_Pond78	North-west of Occlstone Green	SJ6891662989	N/A - EES	N/A - EES	N/A - EES	Positive	MA02	Within
EES_AA3_Pond79	South of Yewtree Farm	SJ6886063026	N/A - EES	N/A - EES	N/A - EES	Positive	MA02	Within
EES_AA3_Pond80	South-west of Yewtree Farm	SJ6873863081	N/A - EES	N/A - EES	N/A - EES	Positive	MA02	Within
AA3_Pond1038	South-east of Wimboldsley	SJ6917063476	18 April 2018	50	No inflows present	Positive	MA02	194m east

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
EES_AA3_Pond827	North of Wimboldsley Grange Farm	SJ6806463512	N/A - EES	N/A - EES	N/A - EES	Positive	MA02	14m west
AA3_Pond85	North-east of Wimboldsley Grange Farm	SJ6827963659	1 May 2018	100	No inflows present	Positive	MA02	Within
AA3_Pond89	East of Lea Hall	SJ6871964164	1 May 2018	70	No inflows present	Positive	MA02	Within
AA3_Pond1791	North-east of Wimboldsley	SJ6925664275	5 June 2019	90	No inflows present	Positive	MA02	415m east
AA3_Pond854	South of Norcroft Farm	SJ6926564673	8 May 2019	60	No inflows present	Positive	MA02	365m south-east
AA3_Pond922	South-east of Clive Green	SJ6805364980	24 April 2018	100	No inflows present	Positive	MA02	29m north-west
AA3_Pond99	South-west of Middlewich	SJ6815764991	24 June 2020	90	No inflows present	Positive	MA02	Within
AA3_Pond119	South-east of Bostock Hall Farm	SJ6808568001	25 April 2018	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA02	155m south
AA3_Pond121	South-east of Bostock Hall Farm	SJ6789968242	25 April 2018	85	No inflows present	Negative (with positive results from subsequent P/A survey)	MA02	40m west
AA3_Pond1023	West of Yatehouse Green	SJ6889168791	29 June 2020	30	No inflows present	Positive	MA02	367m south-east
AA3_Pond124	East of the Trent and Mersy Canal	SJ6869968996	25 April 2018	50	No inflows present	Positive	MA02	83m south-east

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond125	South of Whatcroft	SJ6841769027	29 June 2020	60	No inflows present	Positive	MA02	Within
AA3_Pond129	South-east of Dairy Farm	SJ6859269364	25 April 2018	40	No inflows present	Positive	MA02	124m north-east
AA3_Pond133	South-east of Dairy Farm	SJ6839469730	26 April 2018	40	No inflows present	Negative (with positive results from subsequent P/A survey)	MA02	Within
AA3_Pond142	North of Whatcroft	SJ6864070471	25 June 2019	80	No inflows present	Positive	MA02	15m west
AA3_Pond144	South-west of kingstreet farm	SJ6880670608	23 April 2018	45	No inflows present	Negative (with positive results from subsequent P/A survey)	MA02	102m east
AA3_Pond147	East of the Trent and Mersey Canal	SJ6878370667	23 April 2018	50	Present and wet	Positive	MA02	106m north-east
EES_AA3_Pond148	South-east of Northwich	SJ6894470795	N/A - EES	N/A - EES	N/A - EES	Positive	MA02	258m south
AA3_Pond151	South of Higginslane Farm	SJ6858870900	23 April 2018	30	No inflows present	Negative (with positive results from subsequent P/A survey)	MA02	34m east
AA3_Pond152	South-east of Higginslane Farm	SJ6861670983	23 April 2018	40	No inflows present	Positive	MA02	80m east
EES_AA3_Pond153	West of Kingstreet Farm	SJ6886070992	N/A - EES	N/A - EES	N/A - EES	Negative (with positive results from subsequent P/A survey)	MA02	25m south

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond194	East of Lostock Gralam	SJ7024574988	23 June 2020	65	Present and dry	Positive	MA02	Within

* These ponds returned negative eDNA results, however, were subject to further survey with great crested newts being recorded via traditional presence/absence surveys.

Presence/absence and population size class estimate surveys

2.3.65 The results from amphibian P/A and population size class estimate surveys are detailed within Table 11.

2.3.66 Seventy-four water bodies were identified as not supporting amphibians or supported low numbers of common amphibian species and are not shown in Table 11.

Table 11: Summary of results from surveys for amphibian presence/absence and population size class assessment with associated amphibian populations within MA02

Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond66	North-east of Newfield Hall Farm	SJ6875962048	PSC	6	16 April 2019	18 June 2019	2 (S)	2 (L)				Within

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond67	South of Wimboldsley Hall	SJ6832962137	PSC	6	1 May 2018	3 July 2018	3 (S)	4 (L)				44m north-east
AA1_Pond68	North of Park Hall Farm	SJ6910462283	PSC	6	2 May 2018	3 July 2018	2 (S)	25 (G)	4 (L)		Tadpoles only	80m south-east
AA1_Pond74	South of Occleston Green	SJ6907162586	PSC	5 (partial)	2 May 2018	3 July 2018	1 (S)	12 (G)				52m east
AA1_Pond76	North-east of Wimboldsley Hall	SJ6857662789	PSC	4 (partial)	16 May 2018	3 July 2018	3 (S)	6 (L)			Tadpoles only	Within
AA1_Pond77	South of Wimboldsley Grange	SJ6828362905	PSC	6	1 May 2018	3 July 2018	12 (M)	7 (L)	1 (L)			Within
AA1_Pond827	North of Wimboldsley Grange Farm	SJ6806463512	PSC	3 (partial)	16 May 2018	20 June 2018	3 (Assumed M)	9 (L)			Tadpoles only	14m west
AA1_Pond85	North-east of Wimboldsley Grange Farm	SJ6827963659	PSC	5 (partial)	1 May 2018	5 July 2018	10 (S)	16 (G)				Within

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad		
AA1_Pond89	East of Lea Hall	SJ6871964164	PSC	5 (partial)	1 May 2018	5 July 2018	1 (S)						Within
AA1_Pond854	South of Norcroft Farm	SJ6926564673	P/A	3 (partial)	17 April 2019	15 May 2019	1 (S)	1 (L)			Tadpoles only		365m south-east
AA1_Pond856	South-west of Norcroft Farm	SJ6911464787	PSC	5 (partial)	27 April 2018	5 July 2018	Eggs only (S)	2 (L)			Tadpoles only		178m south-east
AA1_Pond97	North-east of Lea House Farm	SJ6897564822	PSC	2 (partial)	17 April 2019	7 May 2019	0	11 (G)					90m south
AA1_Pond922	South-east of Clive Green	SJ6805364980	PSC	6	14 May 2019	26 June 2019	7 (S)	5 (L)	4 (L)		12 (L)		29m north-west
AA1_Pond1015	East of Winsford	SJ6744667286	PSC	3 (partial)	16 April 2019	16 May 2019	1 (Assumed M)						239m north
AA1_Pond1018	North-east of Winsford	SJ6727367491	P/A	2 (partial)	2 May 2019	16 May 2019	0	18 (G)					478m north
AA1_Pond118	East of Wharton	SJ6854867871	PSC	3 (partial)	25 April 2018	7 June 2018	0	29 (G)				Tadpoles only	15m north-east

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							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond119	South-east of Bostock Hall Farm	SJ6808568001	PSC	4 (partial)	25 April 2018	12 June 2018	1 (S)	7 (L)			Tadpoles only	155m south
AA1_Pond121	South-east of Bostock Hall Farm	SJ6789968242	PSC	4 (partial)	25 April 2018	12 June 2018	1 (S)	4 (L)			1 (L)	40m west
AA1_Pond122	North-west of Dairyhouse farm	SJ6866968611	PSC	2 (partial)	23 April 2019	21 May 2019	10 (Assumed M)	1 (L)				205m north-east
AA1_Pond123	East of Bostock Hall Farm	SJ6857668760	PSC	6	23 April 2019	27 June 2019	6 (S)	3 (L)		2 (L)	Tadpoles only	143m north-east
AA1_Pond124	East of the Trent and Mersy Canal	SJ6869968996	PSC	5 (partial)	25 April 2018	5 July 2018	3 (S)	4 (L)				83m south-east
AA1_Pond133	South-east of Dairy Farm	SJ6839469730	PSC	5 (partial)	26 April 2018	28 June 2018	3 (S)	1 (L)				Within
AA1_Pond137	East of Mere Heath	SJ6856570050	PSC	4	8 May 2019	6 June 2019	0	10 (G)		Tadpoles only	Tadpoles only	18m south
AA1_Pond142	North of Whatcroft	SJ6864070471	PSC	4	23 April 2019	30 May 2019	0	30 (G)		2 (L)	1 (L)	15m west

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond144	South-west of kingstreet farm	SJ6880670 608	PSC	2 (partial)	15 May 2019	6 June 2019	1 (Assumed M)	1 (L)		1 (L)		102m east
AA1_Pond147	East of the Trent and Mersey Canal	SJ6878370 667	PSC	6	23 April 2018	6 July 2018	6 (S)	5 (L)				106m north-east
AA1_Pond151	South of Higginslane Farm	SJ6858870 900	PSC	5 (partial)	23 April 2018	5 July 2018	2 (S)	6 (L)				34m east
AA1_Pond153	West of Kingstreet Farm	SJ6886070 992	PSC	6	23 April 2019	13 June 2019	15 (M)	10 (G)				25m south
AA1_Pond166	South of Rudheath	SJ6870671 933	PSC	4 (partial)	30 April 2019	18 June 2019	24 (M)	5 (L)		1 (L)		Within
AA1_Pond167	South of Rudheath	SJ6868971 955	PSC	4 (partial)	30 April 2019	18 June 2019	16 (M)	10 (G)		5 (L)		Within
AA1_Pond192	East of Lostock Gram	SJ7002074 851	PSC	2 (partial)	23 April 2019	2 May 2019	1 (Assumed M)	1 (L)		3 (L)		Within
AA1_Pond200	North-east of Lostock Gram	SJ7008175 296	PSC	4 (partial)	23 April 2019	20 June 2019	1 (S)	2 (L)		Present		Within

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond201	North-east of Lostock Gralam	SJ6993075 302	PSC	4	23 April 2019	30 May 2019	0	15 (G)		2 (L)	1 (L)	10m south-west
AA1_Pond206	West of Plumley	SJ7062775 856	PSC	3 (partial)	23 April 2019	16 May 2019	4 (Assumed M)	20 (G)		5 (L)	1 (L)	109m south-east

Key:

*Bracketed text within species column indicates the relevant population size class for the peak count obtained as follows:

- Great crested newt = peak count 1-10 individuals = Small (S); peak count 11-100 individuals or eggs only = Medium (M); >100 individuals = Large (L);
- Smooth and palmate newt = peak count less than 10 = Low (L); peak count 10-100 = Good (G); peak count over 100 = Exceptional (E);
- Common frog = spawn clumps counted less than 50 = Low (L); 50-500 = Good (G); greater than 500 = Exceptional (E); and
- Common toad = peak count of less than 100 = Low (L); peak count 100-1000 = Good (G); peak count greater than 1000 = Exceptional (E).

A full six visits are required to obtain a robust population size class assessment. However, an indication of the corresponding size class category is shown here for all peak counts to show the minimum size class known to be present at those sites where the full six visits could not be completed during the time period available for survey.

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Desk study

2.3.67 rECORd and Natural England provided 23 records of amphibians within 1km of land required for the construction of the Proposed Scheme. Table 12 details the records of great crested newts and good or exceptional populations, where this data is provided, of other amphibians within 1km of land required for the construction of the Proposed Scheme. Desk study records from 2009 – 2020 are presented.

Table 12: Relevant historic amphibian records within MA02

Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
1	Common Frog	Not Recorded	SJ6884674685 2014	MA0 2	306m north-west	Pond3159
1	Common Frog	Not Recorded	SJ6898574540 2014	MA0 2	119m north	Pond925
1	Common Frog	Not Recorded	SJ7066372571 2014	MA0 2	396m south	Pond3366
1	Common Frog	Not Recorded	SJ7156465684 2014	MA0 2	938m south	Pond4287
1	Common Toad	Not Recorded	SJ6898574540 2012	MA0 2	119m north	Pond925
1	Common Toad	Not Recorded	SJ7156465684 2012	MA0 2	938m south	Pond4287
6	Great Crested Newt	Not Recorded	SJ6920670048 2012	MA0 2	532m south-east	Pond3127
1	Great Crested Newt	10	SJ6884674685 2014	MA0 2	306m north-west	Pond3159
3	Great Crested Newt	3	SJ6759373663 2013	MA0 2	706m west	Pond3248
1	Great Crested Newt	5	SJ7153873421 2013	MA0 2	914m north-east	Pond3416
1	Great Crested Newt	8	SJ7145173464 2010	MA0 2	865m north-east	Pond3418
1	Great Crested Newt	Not Recorded	SJ7136765899 2009	MA0 2	688m south	Pond4290
1	Great Crested Newt	44	SJ6898574540 2014	MA0 2	119m north	Pond925
1	Great Crested Newt	Not Recorded	SJ6955571103 2014	MA0 2	441m south-east	Pond3255
1	Great Crested Newt	Not Recorded	SJ7132065791 2014	MA0 2	785m south	Pond4289
1	Great Crested Newt	Not Recorded	SJ7211970784 2014	MA0 2	895m north	Pond4368

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- 2.3.68 Cheshire East Council, Cheshire West and Cheshire Council, CWT, and rECOrd supplied citation records for Local Wildlife Sites within 1km of land required for the construction of the Proposed Scheme. No Local Wildlife Sites reported presence of amphibian species.
- 2.3.69 To obtain any relevant amphibian survey information, a review has been undertaken of developments within 1km of land required for the construction of the Proposed Scheme. Amphibian survey information covering the period 2009 – 2020 has been considered. Two developments have been identified.
- 2.3.70 One development¹⁹ provided records for great crested newt at five water bodies. Due to the very low resolution of available mapping, it was not possible to identify the exact locations of these ponds. A peak count of 26 was recorded in one water body²⁰.
- 2.3.71 Another development²¹ undertook P/A surveys on Pond1011, Pond1012, Pond1013, Pond1014, Pond2979, Pond2980, and Pond3039. Great crested newts were recorded from Pond1012, Pond1013, Pond2979, Pond2980 and Pond3039²². A peak count of 99 was recorded in a water body that appears to no longer exist based on OS mapping and aerial imagery.

Discussion of combined results

- 2.3.72 Of the 108 water bodies subject to P/A survey, 43 are situated within land required for the construction of the Proposed Scheme in MA02, 61 are located within 250m and four within 500m of land required for the construction of the Proposed Scheme.
- 2.3.73 Great crested newts have been found in 32 of the 108 water bodies subject to P/A and/or population size class survey, comprising four confirmed and six assumed medium population size classes and 22 small population size classes.
- 2.3.74 Twenty six of these 32 water bodies with great crested newts also support other amphibian species (smooth newts in 26, palmate newt in three, common frog in 10 and common toad in seven). Forty-four other water bodies where great crested newt was not identified did support other common amphibian species. Six water bodies, AA1_Pond97, AA1_Pond118, AA1_Pond137, AA1_Pond142, AA1_Pond201, and AA1_Pond1018, supported good populations of smooth newts.

¹⁹ Holford Brinefield off Moss Lane, Lostock Gramam, Northwich. Planning application reference 14/05319/MIN. Available online at: <https://pa.cheshirewestandchester.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=NGS9ZYTE03R00>.

²⁰ Ecology Kingdom (July 2014) Ecological surveys (sic).

²¹ Land to the east of Road One, Winsford Industrial Estate, Winsford. Planning application reference 17/03818/FUL. Available online at: <https://pa.cheshirewestandchester.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OVL9O9TEFO500>.

²² The Environment Partnership (2017), Ecological Assessment (doc ref: 5721.02.004). Downloaded from: https://pa.cheshirewestandchester.gov.uk/online-applications/files/32627EE29C1D06693EA5CCD445062613/pdf/17_03818_FUL-Great_Crested_Newt_Survey-2491561.pdf.

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- 2.3.75 A further 15 water bodies that were only subject to eDNA survey were found to support great crested newts.
- 2.3.76 Thirty-seven populations (across up to three water bodies) or metapopulations (across four or more water bodies) have been identified within MA02, and a total of 58 water bodies (11 from relevant desk-study records, 15 from eDNA survey and 32 from P/A and/or population size class surveys) confirmed as supporting great crested newt.
- 2.3.77 Populations and metapopulations are presented from south to north. It should be noted that some populations and metapopulations cross community area boundaries. This occurs where clusters of linked water bodies, that may be used by great crested newts, occur both sides of a community area boundary. GCNMP1.1.19 and GCNP1.1.22 cross the community area boundary between MA01 and MA02. GCNMP1.2.35, GCNMP1.2.36 and GCNMP1.2.37 cross the community area boundary between MA02 and MA03.
- 2.3.78 GCNMP1.2.1 is situated south-east of Winsford and south-west of Middlewich and lies within land required for the construction of the Proposed Scheme. It consists of six water bodies, all situated within land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond76. eDNA surveys to EES_AA3_Pond78, EES_AA3_Pond79 and EES_AA3_Pond80 returned positive results for great crested newt DNA. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South-east of Winsford the surrounding landscape is farmland with hedgerows, with scattered trees and pockets of scrub and woodland. There is some potential for this metapopulation to be connected to GCNP1.2.2 across the West Coast Main Line railway corridor.
- 2.3.79 GCNP1.2.2 is situated north of Walley's Green and south-west of Wimboldsley and lies within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. P/A surveys revealed a medium population of great crested newts at AA1_Pond77. The population size class of this population is medium, due to the presence of a medium population of great crested newts found at water body AA1_Pond77. North of Walley's Green the surrounding landscape is farmland with hedgerows, with scattered trees and pockets of scrub and woodland. There is some potential for this population to be connected to GCNP1.2.1 across the West Coast Main Line railway corridor.
- 2.3.80 GCNP1.2.3 is situated west of Wimboldsley and lies partially within and extends up to 250m from land required for the construction of the Proposed Scheme. It consists of three water bodies, one situated within and two situated within 250m from land required for the construction of the Proposed Scheme. P/A surveys revealed an assumed medium population of great crested newts at water body AA1_Pond827. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. West of Wimboldsley the surrounding landscape is farmland with hedgerows, with scattered trees and pockets of scrub and woodland. There is some potential for this population to be connected to GCNP1.2.4 across the West Coast Main Line railway corridor.

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- 2.3.81 GCNP1.2.4 is situated west of Wimboldsley and lies within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. P/A surveys revealed a small population of great crested newts at AA1_Pond85. The population size class of this population is small, due to the presence of a small population in water body AA1_Pond85. West of Wimboldsley the surrounding landscape is farmland with hedgerows, with scattered trees and pockets of scrub and woodland. There is some potential for this population to be connected to GCNP1.2.3 across the West Coast Main Line railway corridor.
- 2.3.82 GCNP1.2.5 is situated north of Wimboldsley and lies within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. P/A surveys revealed a small population of great crested newts at AA1_Pond89. The population size class of this population is small, due to the presence of the small population of great crested newts found at water body AA1_Pond89. North of Wimboldsley the surrounding landscape is farmland with hedgerows, with scattered trees and pockets of scrub and woodland.
- 2.3.83 GCNP1.2.6 is situated north of Wimboldsley and lies partially within and extends up to 250m from land required for the construction of the Proposed Scheme. It consists of two water bodies, one situated within and one situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. North of Wimboldsley the surrounding landscape is farmland with hedgerows, with scattered trees and pockets of scrub and woodland. There is some potential for this assumed population to be connected to GCNMP1.2.9 across Clivegreen Lane.
- 2.3.84 GCNP1.2.7 is situated south-west of Middlewich and south-east of Winsford and lies partially within and extends up to 250m from land required for the construction of the Proposed Scheme. It consists of two water bodies, one situated within and one situated within 250m from land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond99 returned positive results for great crested newt DNA. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. South-west of Middlewich the surrounding landscape is farmland with hedgerows, scattered trees and pockets of woodland. There is some potential for this assumed population to be connected to GCNMP1.2.9 across Clivegreen Lane and to GCNP1.2.8 across the Shropshire Union Canal.
- 2.3.85 GCNP1.2.8 is situated south-west of Middlewich and south-east of Winsford and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. P/A surveys revealed a small population of great crested newts at AA1_Pond922. The population size class of this population is small, due to the presence of a small population of great crested newts found at water body AA1_Pond922. South-west of Middlewich the surrounding landscape is farmland with hedgerows, scattered trees and pockets of

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woodland. There is some potential for this population to be connected to GCNMP1.2.7 across the Shropshire Union Canal.

- 2.3.86 GCNP1.2.9 is situated south-west of Middlewich and south-east of Winsford and lies partially within and extends up to 250m from land required for the construction of the Proposed Scheme. It consists of three water bodies, two situated within and one situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. South-west of Middlewich the surrounding landscape is farmland with hedgerows, scattered trees and pockets of woodland. There is some potential for this assumed population to be connected to GCNP1.2.6 and GCNP1.2.7 across Clivegreen Lane and to GCNMP1.2.10 across the Shropshire Union Canal.
- 2.3.87 GCNMP1.2.10 is situated north of Clive Green and lies within 250m of land required for the construction of the Proposed Scheme. It consists of five water bodies, all situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of Clive Green the surrounding landscape is farmland with hedgerows, scattered trees and pockets of woodland. There is some potential for this to be connected to GCNMP1.2.9 across the Shropshire Union Canal.
- 2.3.88 GCNMP1.2.11 is situated west of Middlewich and lies partially within and extends up to 500m from land required for the construction of the Proposed Scheme. It consists of five water bodies, one situated within, two situated within 250m, and two situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. West of Middlewich the surrounding landscape is farmland with hedgerows and pockets of woodland.
- 2.3.89 GCNMP1.2.12 is situated west of Middlewich and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 20 water bodies, nine situated within 250m, three situated within 500m, and eight situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed an assumed medium population of great crested newts at AA1_Pond1015. Data from planning applications identified the presence of great crested newts in Pond1012, Pond1013, Pond2979 and Pond2980. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. West of Middlewich the surrounding landscape is farmland with hedgerows and pockets of woodland.
- 2.3.90 GCNP1.2.13 is situated north-west of Middlewich and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. West of Middlewich the surrounding landscape is farmland with hedgerows, scattered trees and pockets of woodland.

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- 2.3.91 GCNP1.2.14 is situated north-west of Middlewich and north-east of Winsford and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of two water bodies, one situated within 250m and one situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. West of Middlewich the surrounding landscape is farmland with hedgerows, scattered trees and pockets of woodland.
- 2.3.92 GCNP1.2.15 is situated north-west of Middlewich and north-east of Winsford and lies within 250m of land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. West of Middlewich the surrounding landscape is farmland with hedgerows, scattered trees and pockets of woodland.
- 2.3.93 GCNMP1.2.16 is situated north-west of Middlewich to south-east of Northwich and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 174 water bodies, one situated within, 17 situated within 250m, 24 situated within 500m, and 132 situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond3255. The population size class of this metapopulation is assumed large, due to the presence of over 100 water bodies. The landscape within the assumed metapopulation is farmland with hedgerows, scattered trees and pockets of woodland. There is some potential for this metapopulation to be connected to GCNMP1.2.26 and 1.2.27 across Penny's Lane (B5082).
- 2.3.94 GCNMP1.2.17 is situated north-east of Winsford and south-east of Moulton and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of five water bodies, four situated within 250m and one situated within 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond119 and AA1_Pond121. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-east of Winsford the surrounding landscape is woodland and farmland with hedgerows.
- 2.3.95 GCNMP1.2.18 is situated north of Middlewich and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 25 water bodies, three situated within, seven situated within 250m, seven situated within 500m, and eight situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond123, AA1_Pond124 and AA1_Pond133, whilst surveys to AA1_Pond122 revealed an assumed medium population of great crested newts. eDNA surveys to AA3_Pond1023, AA1_Pond125 and AA1_Pond129 returned positive results for great crested newt DNA. The population size class of this metapopulation is medium, due to the presence of unsurveyed water bodies. The assumed metapopulation is surrounded by residential buildings to the south and

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farmland with hedgerows and pockets of woodland to the north. There is some potential for this metapopulation to be connected to GCNMP1.2.19 across the Sandbach to Northwich railway corridor.

- 2.3.96 GCNMP1.2.19 is situated north of Middlewich and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 23 water bodies, one situated within, five situated within 250m, four situated within 500m, and 13 situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond147 and AA1_Pond151, whilst surveys to AA1_Pond144 and AA1_Pond153 revealed medium populations of great crested newts. eDNA surveys to EES_AA3_Pond148 and AA1_Pond152 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at Pond3127 and Pond3477. The population size class of this metapopulation is medium, due to the presence of a medium population of great crested newts found at AA1_Pond153 and the presence of unsurveyed ponds. North of Middlewich the surrounding landscape is farmland with hedgerows, scattered trees and pockets of woodland. North-east of Winsford the surrounding landscape is woodland and farmland with hedgerows. There is some potential for this metapopulation to be connected to GCNMP1.2.18 across the Sandbach to Northwich railway corridor.
- 2.3.97 GCNMP1.2.20 is situated north-east Middlewich and within the village of Byley and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of 19 water bodies, 16 situated within 250m and three situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-east of Middlewich and within the village of Byley the surrounding landscape is woodland and farmland with hedgerows, plus areas of residential development. There is some potential for this metapopulation to be connected to GCNMP1.2.21 across the B5081.
- 2.3.98 GCNMP1.2.21 is situated north-east of Middlewich and within the village of Byley and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 54 water bodies, three situated within 250m, eight situated within 500m, and 43 situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond4368. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-east of Middlewich and within the village of Byley the surrounding landscape is woodland and farmland with hedgerows. There is some potential for this metapopulation to be connected to GCNMP1.2.20 and GCNMP1.2.22 across the B5081.
- 2.3.99 GCNMP1.2.22 is situated north-east of Middlewich and within the village of Byley and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of five water bodies, three situated within 250m, one situated within 500m, and one situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium,

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due to the presence of un-surveyed water bodies. North-east of Middlewich and within the village of Byley the surrounding landscape is woodland and farmland with hedgerows. There is some potential for this to be connected to GCNMP1.2.21 across the B5081.

- 2.3.100 GCNMP1.2.23 is situated south-east of Northwich and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 10 water bodies, one situated within, three situated within 250m, three situated within 500m, and three situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. The surrounding landscape consists of farmland with pockets of woodland and industrial areas. There is some potential for this metapopulation to be connected to GCNMP1.2.24 across the Sandbach to Northwich railway corridor.
- 2.3.101 GCNMP1.2.24 is situated south-east of Rudheath and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. eDNA surveys to AA1_Pond142 returned positive results for great crested newt DNA. The population size class of this population is assumed medium, due to the presence of a water body that could not be subject to full survey effort. South-east of Rudheath the surrounding landscape is farmland with hedgerows, with pockets of semi-natural grassland and scrub. There is some potential for this population to be connected to GCNMP1.2.23 across the Sandbach to Northwich railway corridor.
- 2.3.102 GCNMP1.2.25 is situated south-east of Rudheath and lies partially within and extends up to 250m from land required for the construction of the Proposed Scheme. It consists of seven water bodies, three situated within and four situated within 250m from land required for the construction of the Proposed Scheme. P/A surveys revealed medium populations of great crested newts at AA1_Pond166 and AA1_Pond167. The population size class of this metapopulation is medium, due to the presence of medium populations of great crested newts found at pond AA1_Pond166 and AA1_Pond167. South-east of Rudheath the surrounding landscape is farmland with hedgerows, with pockets of semi-natural grassland and scrub.
- 2.3.103 GCNMP1.2.26 is situated east of Northwich and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 147 water bodies, six situated within, 20 situated within 250m, 26 situated within 500m, and 95 situated more than 500m from land required for the construction of the Proposed Scheme. Desk study records from Pond3416 and Pond3418 suggest that great crested newts are likely to be present. The population size class of this metapopulation is assumed large, due to the presence of over 100 water bodies within the assumed metapopulation. The surrounding landscape consists of farmland with pockets of woodland and industrial areas. There is some potential for this metapopulation to be connected to GCNMP1.2.16 and GCNMP1.2.27 across Birches Lane and Holmes Chapel Road and to GCNMP1.2.32 across the Mid-Cheshire Line railway corridor.

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- 2.3.104 GCNMP1.2.27 is situated east of Northwich and south of Lostock Gralam and lies partially within and extends up to 500m from land required for the construction of the Proposed Scheme. It consists of 16 water bodies, four situated within, eight situated within 250m, and four situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. East of Northwich the surrounding landscape is farmland connected to smaller field systems and hedgerows with pockets of semi-natural grassland, scrub and residential developments. There is some potential for this metapopulation to be connected to GCNMP1.2.26 across Birches Lane and GCNMP1.2.16 across Penny's Lane (B5082).
- 2.3.105 GCNP1.2.28 is situated east of Northwich and south of Lostock Gralam and lies within land required for the construction of the Proposed Scheme. It consists of three water bodies, all situated within land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. East of Northwich the surrounding landscape is farmland with, hedgerows with pockets of semi-natural grassland, scrub and residential developments. There is some potential for this population to be connected to GCNP1.2.29 across Birches Lane.
- 2.3.106 GCNP1.2.29 is situated east of Northwich and south of Lostock Gralam and lies within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. East of Northwich the surrounding landscape is farmland with pockets of semi-natural grassland, scrub and residential developments. There is some potential for this population to be connected to GCNP1.2.28 across Birches Lane and GCNP1.2.30 across Lostock Green.
- 2.3.107 GCNP1.2.30 is situated east of Northwich and south of Lostock Gralam and lies within 250m of land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within 250m, from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at AH1_Pond925. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. East of Northwich the surrounding landscape is farmland with hedgerows, with pockets of semi-natural grassland, scrub and residential developments. There is some potential for this population to be connected to GCNP1.2.29 across Lostock Green and GCNP1.2.31 across Lostock Hollow.
- 2.3.108 GCNP1.2.31 is situated south of Lostock Gralam and lies within 250m of land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. South of Lostock Gralam the surrounding landscape is farmland with hedgerows and scattered trees, and residential development areas. There is some potential for this population to be connected to GCNP1.2.30 across Lostock Hollow.

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- 2.3.109 GCNMP1.2.32 is situated east of Lostock Gralam and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 34 water bodies, seven situated within, eight situated within 250m, eight situated within 500m, and 11 situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed a small population of great crested newts at AA1_Pond200, whilst surveys to AA1_Pond192 revealed an assumed medium population. eDNA surveys to AA1_Pond194 returned positive results for great crested newt DNA. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. East of Lostock Gralam the surrounding landscape is farmland with hedgerows, with scattered trees and residential development areas. There is some potential for this metapopulation to be connected to GCNMP1.2.26 across the Mid-Cheshire Line railway corridor and GCNMP1.2.35 across Plumley Moor Road.
- 2.3.110 GCNP1.2.33 is situated north of Lostock Gralam and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. North of Lostock Gralam the surrounding landscape consists of farmland with hedgerows and woodland.
- 2.3.111 GCNP1.2.34 is situated north of Lostock Gralam and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. North of Lostock Gralam the surrounding landscape consists of farmland with hedgerows and woodland.
- 2.3.112 GCNMP1.2.35 is situated north-east of Lostock Gralam and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Pickmere to Agden and Hulseheath area (MA03). It consists of 69 water bodies, two situated within 250m, four situated within 500m, and 63 situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-east of Lostock Gralam the surrounding landscape consists of farmland with hedgerows and woodland. There is some potential for this metapopulation to be connected to GCNMP1.2.32 across Plumley Moor Road.
- 2.3.113 GCNMP1.2.36 is situated north of Lostock Gralam and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Pickmere to Agden and Hulseheath area (MA03). It consists of 132 water bodies, 12 situated within, 45 situated within 250m, 36 situated within 500m, and 39 situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond206, AA1_Pond208, AA1_Pond211, AA1_Pond216, AA1_Pond218, AA1_Pond224, AA1_Pond225, and AA1_Pond247, whilst surveys to AA1_Pond209, AA1_Pond210, AA1_Pond213,

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AA1_Pond226, AA1_Pond231, AA1_Pond242, AA1_Pond243, AA1_Pond244, and AA1_Pond252 revealed medium or assumed medium populations of great crested newts. Based on desk study records, great crested newts are likely to be present at Pond3588, Pond3593 and Pond3594. The population size class of this metapopulation is assumed large, due to the presence of over 100 water bodies. North of Lostock Gralam the surrounding landscape consists of farmland with hedgerows and woodland. There is some potential for this metapopulation to be connected to GCNMP 1.2.37 and GCNMP1.3.1 across Pickmere Lane (B5391).

2.3.114 GCNMP1.2.37 is situated north of Lostock Gralam and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Pickmere to Agden and Hulseheath area (MA03). It consists of 68 water bodies, 22 situated within 250m, 17 situated within 500m, and 29 situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of Lostock Gralam the surrounding landscape consists of farmland with hedgerows and woodland. There is some potential for this metapopulation to be connected to GCNMP1.2.36 across Pickmere Lane (B5391), to GCNMP1.3.1 across Frog Lane and to GCNMP1.3.3 across Budworth Road.

2.3.115 Table 13 summarises the 37 great crested newt populations and metapopulations and details the associated population size classes.

Table 13: Summary of assumed great crested newt populations and metapopulations within MA02

Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²³	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNMP1.2.1	AH1_Pond75, AA1_Pond76, EES_AA3_Pond78, EES_AA3_Pond79, EES_AA3_Pond80 and EES_AA3_Pond83.	Assumed medium	Within
GCNP1.2.2	AA1_Pond77.	Medium	Within
GCNP1.2.3	Pond1006, AA1_Pond827 and Pond1061.	Assumed medium	Within
GCNP1.2.4	AA1_Pond85.	Medium	Within
GCNP1.2.5	AA1_Pond89.	Small	Within
GCNP1.2.6	Pond1787 and AA1_Pond98.	Assumed medium	Within
GCNP1.2.7	AA1_Pond95 and AA3_Pond99.	Assumed medium	Within

²³ Water bodies listed in this table either support great crested newts as identified through desk study, eDNA, P/A and/or PSC surveys, or are those that have a high likelihood to support great crested newts based on presence of suitable habitat for great crested newt that occur within a connected landscape for this species.

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²³	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNP1.2.8	AA1_Pond922.	Small	29m north
GCNP1.2.9	Pond4113, AA1_Pond910 and AA1_Pond830.	Assumed medium	Within
GCNMP1.2.10	AA1_Pond832, AA1_Pond105, Pond2991, Pond2984 and AA3_Pond1470.	Assumed medium	Within
GCNMP1.2.11	Pond4086, Pond4020, AH1_Pond107, Pond1048 and AH1_Pond109.	Assumed medium	Within
GCNMP1.2.12	Pond110, Pond111, Pond112, Pond113, AA1_Pond1050, Pond1019, Pond1014, Pond1009, Pond1016, AA1_Pond1015, AA1_Pond1018, Pond1011; and 8 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	1m south-west
GCNP1.2.13	Pond853.	Assumed medium	81m west
GCNP1.2.14	Pond3065 and Pond3094.	Assumed medium	115m west
GCNP1.2.15	AA1_Pond1519 and Pond3993.	Assumed medium	89m north-east
GCNMP1.2.16	Pond3252, Pond3135, Pond3253, Pond3251, Pond3478, Pond3255, Pond1082, Pond3357, Pond3147, Pond3144, Pond3350, Pond3355, Pond3141, Pond3352, Pond3148, Pond3351, Pond3149, Pond3143, Pond3140, Pond3341, Pond160, Pond1088, Pond1087, AA3_Pond937, Pond3145, Pond163, Pond1811, Pond940, Pond1098, Pond941, Pond3342, Pond3348, Pond3345, Pond1810, Pond3344, Pond3262, Pond942, AH1_Pond938, Pond943, Pond170, Pond1094, AA1_Pond172; and 132 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed large	Within
GCNMP1.2.17	Pond1010, AH1_Pond1788, AA1_Pond119, AA1_Pond121 and Pond1538.	Assumed medium	22m south
GCNMP1.2.18	AA3_Pond1044, AA3_Pond1045, AA1_Pond122, AA1_Pond123, AA3_Pond1023, AA1_Pond124, AA1_Pond125, Pond1031, Pond1047, AA1_Pond129, AA3_Pond1028, AA3_Pond1034, AA3_Pond1030, EES_AA3_Pond130, AA1_Pond133, AA1_Pond132, AA1_Pond138; and 8 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Medium	Within
GCNMP1.2.19	Pond3984, AA3_Pond1543, AA1_Pond144, AA1_Pond146, Pond4114, AA1_Pond147,	Medium	Within

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²³	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	EES_AA3_Pond148, AA1_Pond151, AA1_Pond152, AA1_Pond153; and 13 additional ponds more than 500m from land required for the construction of the Proposed Scheme.		
GCNMP1.2.20	Pond1703, Pond1721, Pond1699, Pond1692, Pond1688, Pond1701, Pond1686, Pond1702, Pond1720, Pond1697, Pond1713, Pond1711, Pond1716, Pond1715, Pond1714, Pond1694, Pond1691, Pond1730 and Pond1698.	Assumed medium	7m west
GCNMP1.2.21	Pond1689, Pond4091, Pond4088, Pond4103, Pond4073, Pond4092, Pond4087, Pond4056, Pond4042, Pond4048, Pond4055; and 43 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	198m north
GCNMP1.2.22	Pond1712, Pond1727, Pond1726, Pond1725; and 1 additional pond more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	90m north-east
GCNMP1.2.23	AA1_Pond143, AA1_Pond149, Pond150, Pond1097, Pond3480, AH1_Pond946, Pond3122; and 3 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	Within
GCNP1.2.24	AA1_Pond142.	Assumed medium	15m south-east
GCNMP1.2.25	Pond1068, Pond1070, Pond3053, AA1_Pond166, AA1_Pond167, Pond4496 and AH1_Pond169.	Medium	Within
GCNMP1.2.26	Pond3367, Pond3360, Pond3369, Pond3375, Pond3368, Pond3377, Pond3373, Pond3366, Pond3359, Pond3363, Pond3376, Pond3398, Pond3374, Pond3364, Pond3400, Pond3402, Pond3365, Pond3503, Pond3496, Pond3388, Pond3498, Pond3421, Pond3264, Pond3382, Pond3389, Pond3383, Pond3386, Pond3380, Pond3387, Pond3258, Pond3391, Pond3384, Pond3390, Pond3385, Pond182, Pond3393, Pond3392, Pond1531, Pond1100, Pond1529, Pond1533, Pond184, Pond1532, Pond1530, Pond185, Pond1549, AH1_Pond927, Pond186, Pond1550, Pond189, Pond1124, Pond1551; and 95 additional ponds more than 500m	Assumed large	Within

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²³	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	from land required for the construction of the Proposed Scheme.		
GCNMP1.2.27	Pond3370, Pond1060, Pond3378, Pond1090, Pond1091, Pond1089, Pond1058, Pond1092, Pond1093, Pond174, Pond175, Pond3150, Pond176, Pond3151, Pond177 and Pond1095.	Assumed medium	Within
GCNP1.2.28	AA1_Pond178, Pond179 and Pond3982.	Assumed medium	Within
GCNP1.2.29	Pond181.	Assumed medium	Within
GCNP1.2.30	Pond183 and AH1_Pond925.	Assumed medium	6m north-east
GCNP1.2.31	Pond187 and Pond188.	Assumed medium	14m north
GCNMP1.2.32	AA1_Pond190, AA1_Pond191, AA1_Pond192, AA1_Pond193, AH1_Pond947, AH1_Pond948, Pond1121, AA1_Pond194, AA1_Pond197, Pond1490, Pond3170, Pond1308, AA1_Pond200, Pond1345, AH1_Pond202, Pond1312, Pond1313, Pond1491, Pond1310, Pond1309, Pond1311, Pond1322, Pond1323; and 11 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	Within
GCNP1.2.33	AH1_Pond924.	Assumed medium	170m south-west
GCNP1.2.34	AA1_Pond203.	Assumed medium	14m north
GCNMP1.2.35	Pond1325, Pond1324, Pond3608, Pond3607, Pond3581, Pond3565; and 63 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	199m south
GCNMP1.2.36	AA1_Pond206, AA1_Pond207, AH1_Pond929, AA1_Pond208, AA1_Pond209, AH1_Pond934, AH1_Pond933, AA1_Pond210, AH1_Pond932, AA1_Pond211, AA1_Pond213, Pond214, Pond215, AA1_Pond216, Pond217, AA1_Pond218, AA1_Pond219, AA1_Pond220, AA1_Pond222, AA3_Pond1326, Pond223, AA1_Pond224, Pond1496, Pond1495, AA1_Pond225, AA1_Pond226, Pond228, Pond229, Pond230, AA1_Pond231, AA1_Pond232, AA1_Pond233, AA1_Pond234, Pond235, AA1_Pond236, Pond1553, Pond237, Pond238, AA3_Pond1327, AA1_Pond239, AA1_Pond240, AA1_Pond242, AA1_Pond241, AA1_Pond243, AA3_Pond1329, AA1_Pond244, AA1_Pond245, AA1_Pond246, Pond3566,	Assumed large	Within

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²³	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	AA1_Pond247, AA1_Pond248, AA1_Pond249, Pond250, AH1_Pond1494, Pond1493, Pond1328, Pond3567, AA1_Pond251, AA1_Pond252, AH1_Pond1492, AA1_Pond253, AA1_Pond254, Pond1497, Pond3564, Pond1498, AA1_Pond258, Pond1332, Pond1339, Pond1334, AA1_Pond266, Pond1330, Pond1336, Pond1338, AA1_Pond268, AA1_Pond269, AA1_Pond271, AA1_Pond272, Pond1499, AA1_Pond274, Pond1500, Pond1331, Pond1335, Pond1333, AA1_Pond278, Pond3588, AA1_Pond280, Pond286, Pond2786, Pond3985, Pond2614, Pond2712, Pond1193, Pond2702; and 39 additional ponds more than 500m from land required for the construction of the Proposed Scheme.		
GCNMP1.2.37	Pond3509, Pond3549, Pond3520, Pond3519, Pond4112, Pond3522, Pond3601, Pond3541, Pond3536, Pond3542, AH1_Pond968, Pond3523, Pond3558, Pond3557, Pond3559, Pond4057, Pond1149, Pond971, Pond3521, Pond970, Pond3602, Pond969, Pond3543, Pond3540, Pond2673, Pond2675, Pond2672, Pond2792, Pond2671, Pond2674, Pond2664, Pond2686, Pond2689, Pond2660, Pond2796, Pond2668, Pond2667, Pond2661, Pond2682; and 29 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	16m south-east

Pickmere to Adgen and Hulseheath (MA03)

- 2.3.116 A total of 485 ponds were identified as requiring survey within MA03.
- 2.3.117 Table 14 provides a summary of those 88 water bodies (as a subset of the 485 required for survey) which are located more than 250m from land required for the construction of the Proposed Scheme. These water bodies were scoped in, as suitable habitat is present and they form part of a water body cluster with those within 250m of land required for the construction of the Proposed Scheme, which may support a metapopulation of amphibians.

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Table 14: Summary of water bodies located more than 250m from land required for the construction of the Proposed Scheme, scoped into amphibian assessment within MA03

Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond221	South-west of Providence Farm	SJ7001776793	MA03	280m north-west
Pond3609	Within Royd Wood	SJ7230476812	MA03	491m east
Pond223	East of Pickmere	SJ7006976840	MA03	281m north-west
Pond228	East of Pickmere	SJ7008476960	MA03	364m north-west
Pond229	East of Pickmere	SJ7009376976	MA03	362m west
Pond230	East of Pickmere	SJ7010376990	MA03	353m west
Pond3607	North of Royd Wood	SJ7210577054	MA03	439m south-east
Pond1553	North-west of Providence Farm	SJ6998977140	MA03	438m west
Pond3581	North of Royd Wood	SJ7213877152	MA03	426m east
Pond3566	North of School Wood	SJ7171277628	MA03	273m north
Pond250	North-east of Pickmere	SJ7013177674	MA03	385m west
Pond1494	North-east of Pickmere	SJ7014077693	MA03	412m north-west
Pond1493	East of Pickmere	SJ7031777705	MA03	271m north-west
Pond3567	North of School Wood	SJ7188677717	MA03	412m north-east
Pond1492	East of Pickmere	SJ7027377754	MA03	319m west
Pond1318	North-east of Pickmerehall Farm	SJ7005878072	MA03	288m west
Pond1314	North-east of Pickmerehall Farm	SJ7003778086	MA03	302m west
Pond1332	North-west of Round Wood	SJ7131178127	MA03	356m north-east

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Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1339	North-west of Round Wood	SJ7120978129	MA03	260m north-east
Pond967	North of Higher Wincham	SJ6944578172	MA03	479m south-east
Pond1334	North-west of Round Wood	SJ7130678178	MA03	363m north-east
Pond1330	North-west of Round Wood	SJ7124278296	MA03	342m south-east
Pond4057	South-east of Moss End	SJ6816878525	MA03	401m west
Pond1335	North of Nether Tabley	SJ7122878543	MA03	253m east
Pond1333	North of Nether Tabley	SJ7124978554	MA03	275m east
Pond3521	East of Moss End	SJ6825578738	MA03	280m west
Pond3588	South of Burnthouse Farm	SJ7205578757	MA03	495m south
Pond2686	South of Bate Heath	SJ6878479064	MA03	376m north-east
Pond2660	South of Bate Heath	SJ6866079135	MA03	384m north
Pond2657	West of Feldy	SJ6918979447	MA03	260m north
Pond2696	Northeast of Feldy	SJ6988379631	MA03	262m north
Pond1126	East of Over Tabley Hall Farm	SJ7210479864	MA03	274m south
Pond1305	East of Over Tabley Hall Farm	SJ7208379867	MA03	267m south
Pond1266	East of Over Tabley Hall Farm	SJ7203279871	MA03	252m south
Pond956	North of Bongs Wood	SJ7019480165	MA03	260m north-west
Pond955	West of Hollowood Farm	SJ7020580176	MA03	252m north-west
Pond1157	Southwest of Winterbottom	SJ7019280587	MA03	455m west

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Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1159	Southwest of Winterbottom	SJ7019280622	MA03	439m west
Pond1215	In the South of Gleaveshole Wood	SJ7219880874	MA03	279m south-east
Pond866	North of M6	SJ7046180879	MA03	283m north-west
Pond1156	Southwest of Winterbottom	SJ7054180901	MA03	252m north-west
Pond4009	North-west of Winterbottom	SJ7051081322	MA03	358m north-west
Pond1166	West of Mere	SJ7066981424	MA03	273m north-west
Pond1556	North-east of Mere Heyes Cottages	SJ7064281450	MA03	309m north-west
Pond4037	North-west of Winterbottom	SJ7053281490	MA03	429m north-west
Pond1167	North-west of Winterbottom	SJ7068181494	MA03	286m north-west
Pond2645	Mere	SJ7231681595	MA03	332m east
Pond2809	North of Mere	SJ7328781805	MA03	256m east
Pond1165	North-east of Mere Heyes Cottages	SJ7065681815	MA03	443m north-west
Pond1592	North of Kennel Wood	SJ7227982054	MA03	278m east
Pond1563	Within Belt Wood	SJ7234882062	MA03	331m east
Pond365	South-east of Mellor's Covert	SJ7091582072	MA03	263m south-west
Pond366	South-east of Mellor's Covert	SJ7089482079	MA03	278m west
Pond1591	North of Kennel Wood	SJ7228982080	MA03	281m east
Pond1373	South of Belt Wood	SJ7227182108	MA03	255m east
Pond2708	West of Mere	SJ7065382113	MA03	496m west
Pond367	East of Goodiersgreen	SJ7086182123	MA03	295m west

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Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1475	North of Winterbottom	SJ7072382204	MA03	435m west
Pond1477	North of Winterbottom	SJ7079182285	MA03	376m west
Pond1168	South of High Legh	SJ7077682300	MA03	402m west
Pond1476	North of Winterbottom	SJ7082282308	MA03	355m west
Pond2789	Mere Golf Country Club	SJ7327882382	MA03	329m east
Pond2655	Mere Golf Country Club	SJ7326982410	MA03	306m east
Pond2788	South of Bucklow Hill	SJ7331382425	MA03	349m east
Pond1169	North-east of Mellor's Covert	SJ7089382623	MA03	366m south-west
Pond379	South-east of High Legh	SJ7096482672	MA03	284m south-west
Pond1170	North-east of Mellor's Covert	SJ7094582678	MA03	298m south-west
Pond1171	East of Park Farm	SJ7090682964	MA03	270m west
Pond2260	East of High Legh	SJ7086183622	MA03	413m west
Pond1562	North of High Legh Park (south)	SJ7105083724	MA03	293m north-west
Pond1557	North of High Legh Park (south)	SJ7098883814	MA03	396m north-west
Pond1561	North of High Legh Park (south)	SJ7103683848	MA03	365m west
Pond2225	East of High Legh	SJ7071684122	MA03	473m south
Pond1398	North of Mere	SJ7085484134	MA03	409m south
Pond1761	High Legh Park (north)	SJ7048384201	MA03	461m south-west
Pond1766	High Legh Park (north)	SJ7066184201	MA03	382m south

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Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1776	High Legh Park (north)	SJ7052484240	MA03	407m south-west
Pond1757	High Legh Park (north)	SJ7048384278	MA03	391m south-west
Pond1767	High Legh Park (north)	SJ7043984433	MA03	283m south-west
Pond1759	High Legh Park (north)	SJ7022084543	MA03	348m south-west
Pond1174	North of High Legh	SJ7093684857	MA03	264m north
Pond1284	North of Walnut Farm	SJ6992384872	MA03	326m west
Pond1282	East of Mowpenbrow Farm	SJ6990784892	MA03	347m west
Pond1286	East of Mowpenbrow Farm	SJ6991984918	MA03	314m west
Pond1177	East of Endfield Farm Caravan Park	SJ7080684930	MA03	290m north-east
Pond1281	East of Mowpenbrow Farm	SJ6996484945	MA03	286m west
Pond1404	South-east of Spodegreen Farm	SJ7386085529	MA03	266m north

Field survey

Habitat Suitability Index/walkover surveys

2.3.118 Following the completion of walkover surveys, incorporating HSI surveys where appropriate, the water bodies identified in Table 15 were scoped out of the assessment.

Table 15: Summary of locations where requirement for further survey was scoped out following HSI/walkover survey in MA03

Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond256	North-east of Higher Wincham	SJ7041177939	Small pond within middle of field,	MA03	194m south

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
			Poor water quality. HSI - 0.45(Poor)		
AH1_Pond262	West of Knutsford	SJ7058978153	No pond found at this location, possibly a seasonally wet area of a field. HSI - 0.00 (Poor)	MA03	Within
AH1_Pond964	East of Feldy	SJ7006179373	Small water body in field, likely to dry annually. HSI - 0.46 (Poor)	MA03	27m north-west
AH1_Pond1157	Southwest of Winterbottom	SJ7019280587	Pond in depression in field surrounded by scrub, heavily impacted by waterfowl. HSI - 0.41 (Poor)	MA03	455m west
AH1_Pond1159	Southwest of Winterbottom	SJ7019280622	Pond surrounded by scrub. HSI - 0.41 (Poor)	MA03	439m west
AH1_Pond838	North of the M6	SJ7091581180	Small ornamental water feature not suitable to support great crested newts. HSI - 0.00 (Poor)	MA03	32m west
AH1_Pond342	North of the M6	SJ7091781200	Two water bodies connected by sluice - ornamental carp pond and pond reservoir. HSI - 0.41 (Poor)	MA03	22m west
AH1_Pond983	North of the M6	SJ7091281213	Two water bodies connected by sluice - ornamental carp pond and pond reservoir. HSI - 0.41 (Poor)	MA03	20m south-east
AH1_Pond351	South of Hoo Green	SJ7103081729	Pond in field depression surrounded by scrub. HSI - 0.42 (Poor)	MA03	86m north-west
AH1_Pond1171	East of Park Farm	SJ7090682964	Pond located in pasture field, large	MA03	270m west

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
			willows surround half of pond, large waterfowl populations recorded. HSI - 0.42 (Poor)		
AH1_Pond387	South-west of Altrincham	SJ7211183152	Water body shallow with poor water quality. Litter in water and pond heavily shaded. See F018 on Phase 1 map. HSI - 0.43 (Poor)	MA03	Within
AH1_Pond962	North-west of Bucklow Hill	SJ7213483821	Pond dry and expected to only occasionally hold water, not suitable for HSI. HSI - 0.00 (Poor)	MA03	Within
AH1_Pond840	East of High Legh	SJ7153584217	Pond no longer present. HSI - 0.00 (Poor)	MA03	43m south-west
AH1_Pond505	West of Booth Bank	SJ7211885024	No water bodies present within land parcel. HSI - 0.00 (Poor)	MA03	Within
AH1_Pond901	North-east of Broomedge	SJ7124786254	Small garden pond, completely choked with vegetation. HSI - 0.28 (Poor)	MA03	27m north-west

eDNA presence/absence surveys

- 2.3.119 The eDNA survey method was conducted at 163 water bodies in MA03. The summary of positive results of the eDNA P/A surveys and those with anomalies are detailed in Table 16.
- 2.3.120 Of the 163 water bodies surveyed, four water bodies were dry and eDNA could not be undertaken.
- 2.3.121 Of the remaining 159 water bodies, 23 were defined as positive for great crested newt eDNA. Of these, ten were within, and 13 were within 250m from land required for the construction of the Proposed Scheme. These 23 water bodies were put forward for P/A surveys.

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- 2.3.122 Of the water bodies that were negative, partial access to the pond perimeter¹¹ was a factor in 34 cases and these were put forward for P/A surveys.
- 2.3.123 Ten of the water bodies, AA1_Pond285, AA1_Pond335, AA1_Pond352, AA1_Pond356, AA1_Pond394, AA1_Pond399, AA1_Pond276, AA1_Pond304, AA1_Pond306, and AA1_Pond343, recorded presence of great crested newts using traditional P/A surveys, even though the eDNA was inconclusive or negative. Three of the water bodies had assumed presence of great crested newts through positive desk study results.
- 2.3.124 The reasons for there being anomalies for these ten water bodies in the eDNA results, as compared to the results of P/A surveys are currently unknown.

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Table 16: Summary of relevant results from eDNA presence/absence surveys for MA03

Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond210	South-west of Smoker Hill Farm	SJ7078276284	2 May 2018	60	No inflows present	Positive	MA03	60m north-west
AA3_Pond211	South-west of Smoker Hill Farm	SJ7052176321	2 May 2018	60	No inflows present	Positive	MA03	Within
AA3_Pond276	North-east of School Farm	SJ7058678531	1 May 2018	35	No inflows present	Negative (with positive results from subsequent P/A survey)	MA03	56m north-west
AA3_Pond285	North of Roses Farm	SJ7062078873	30 April 2018	90	No inflows present	Negative (with positive results from subsequent P/A survey)	MA03	13m west
AA3_Pond287	North of Budworth Road	SJ7054779016	3 May 2018	95	No inflows present	Positive	MA03	67m west
AA3_Pond289	North of Budworth Road	SJ7054779069	3 May 2018	100	No inflows present	Positive	MA03	87m west
AA3_Pond291	South of Heyrose Golf Course	SJ7058579075	3 May 2018	65	No inflows present	Positive	MA03	32m west
EES_AA3_Pond294	North of Budworth Road	SJ7097379211	N/A - EES	N/A - EES	N/A - EES	Positive	MA03	45m east
AA3_Pond302	West of Heyrose Golf Course	SJ7080179556	3 May 2018	5	No inflows present	Positive	MA03	9m west
AA3_Pond306	South-west of Over Tabley	SJ7113179575	9 May 2019	60	Present and wet	Negative (with positive results from	MA03	72m north

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
						subsequent P/A survey)		
AA3_Pond304	South-west of Over Tabley	SJ7111979590	9 May 2019	80	Present and wet	Negative (with positive results from subsequent P/A survey)	MA03	81m south-east
AA3_Pond307	North-east of Heyrose Farm	SJ7099379641	2 May 2018	40	Present and wet	Positive	MA03	Within
AA3_Pond312	East of Heyrose golf course	SJ7072380018	2 May 2018	25	Present and wet	Positive	MA03	114m north-east
AA3_Pond1307	North of Over Tabley	SJ7203180525	9 June 2020	100	No inflows present	Positive	MA03	113m north
AA3_Pond335	South-east of Winterbottom	SJ7105380856	24 April 2018	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA03	Within
AA3_Pond341	South of Hoo Green	SJ7152181141	4 June 2019	60	Present and wet	Negative (with positive results from Desk Study Records)	MA03	5m east
AA3_Pond343	North-west of Bentleyhurst Farm	SJ7124681264	24 April 2018	35	No inflows present	Negative (with positive results from subsequent P/A survey)	MA03	Within
AA3_Pond344	North-east of Winterbottom Farm	SJ7128181411	15 May 2019	60	No inflows present	Positive	MA03	Within

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond347	North-east of Winterbottom Farm	SJ7116381537	15 May 2019	50	No inflows present	Positive	MA03	Within
AA3_Pond352	South of Daisybank Farm	SJ7119081735	24 April 2018	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA03	Within
AA3_Pond356	East of Daisybank Farm	SJ7150081896	25 April 2018	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA03	Within
AA3_Pond357	East of Daisybank Farm	SJ7166681925	25 April 2018	100	No inflows present	Positive	MA03	Within
AA3_Pond1202	South of Hoo Green	SJ7199382171	29 June 2020	100	No inflows present	Negative (with positive results from Desk Study Records)	MA03	Within
EES_AA3_Pond382	West of Hoo Green	SJ7163482749	N/A - EES	N/A - EES	N/A - EES	Positive	MA03	Within
EES_AA3_Pond394	North-east of Hoo Green	SJ7154283376	N/A - EES	N/A - EES	N/A - EES	Negative (with positive results from subsequent P/A survey)	MA03	1m north-west
AA3_Pond395	East of High Legh	SJ7129183395	14 May 2019	80	No inflows present	Positive	MA03	Within
AA3_Pond399	North-west of Hoo Green	SJ7131883414	14 May 2019	80	No inflows present	Negative (with positive results from subsequent P/A survey)	MA03	3m east

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond1340	East of High Legh	SJ7102583547	04 June 2019	90	Present and wet	Positive	MA03	229m west
EES_AA3_Pond414	South-west of Altrincham	SJ7232883595	N/A - EES	N/A - EES	N/A - EES	Negative (with positive results from Desk Study Records)	MA03	10m west
EES_AA3_Pond508	West of Booth Bank	SJ7215285031	N/A - EES	N/A - EES	N/A - EES	Positive	MA03	Within
EES_AA3_Pond506	South of Broomedge	SJ7140085036	N/A - EES	N/A - EES	N/A - EES	Positive	MA03	147m north-west
EES_AA3_Pond510	West of Booth Bank	SJ7159685090	N/A - EES	N/A - EES	N/A - EES	Positive	MA03	8m west
EES_AA3_Pond512	West of Booth Bank	SJ7130685126	N/A - EES	N/A - EES	N/A - EES	Positive	MA03	70m south
AA3_Pond1225	Booth Bank Farm	SJ7225785154	2 May 2019	80	No inflows present	Positive	MA03	Within
AA3_Pond1209	South-east of Broomedge	SJ7104285360	13 June 2019	20	No inflows present	Positive	MA03	188m north-west
AA3_Pond531	South of Agden Brook Farm	SJ7162886057	23 April 2018	30	No inflows present	Positive	MA03	Within

* These ponds returned negative eDNA results, however, were subject to further survey with great crested newts being recorded via traditional presence/absence surveys.

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Presence/absence and population size class estimate surveys

- 2.3.125 The results from amphibian P/A and population size class estimate surveys are detailed within Table 17.
- 2.3.126 One-hundred-and-twenty-five water bodies were identified as not supporting amphibians or supported low numbers of common amphibian species and are not shown in Table 17.

Table 17: Summary of results from surveys for amphibian presence/absence and population size class assessment with associated amphibian populations within MA03

Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond208	West of Smoker Hill Farm	SJ7033076 206	PSC	5 (partial)	2 May 2018	26 June 2018	3 (S)	18 (G)		1 (L)	1 (L)	Within
AA1_Pond209	West of Smoker Hill Farm	SJ7031776 226	PSC	1 (partial)	17 April 2019	17 April 2019	1 (Assumed M)	18 (G)			1 (L)	Within
AA1_Pond210	South-west of Smoker Hill Farm	SJ7078276 284	PSC	2 (partial)	2 May 2018	23 May 2018	Eggs only (Assumed M)					60m north-west
AA1_Pond211	South-west of Smoker Hill Farm	SJ7052176 321	PSC	5 (partial)	2 May 2018	26 June 2018	Eggs only (S)					Within
AA1_Pond213	East of Higher Wincham	SJ7019776 419	PSC	1 (partial)	17 April 2019	17 April 2019	10 (Assumed M)	5 (L)			Tadpoles only	125m west

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond216	West of Smoker Hill Farm	SJ7057576509	PSC	5 (partial)	3 May 2018	25 June 2018	Eggs only (S)	3 (L)		1 (L)		1m east
AA1_Pond218	West of Smoker Hill Farm	SJ7038476656	PSC	5 (partial)	1 May 2018	25 June 2018	1 (S)					26m south-east
AA1_Pond224	East of Providence Farm	SJ7058876906	PSC	5 (partial)	1 May 2018	25 June 2018	Eggs only (S)					Within
AA1_Pond225	East of Providence Farm	SJ7058676925	PSC	5 (partial)	1 May 2018	25 June 2018	Eggs only (S)					Within
AA1_Pond226	East of Providence Farm	SJ7079376927	PSC	1 (partial)	23 May 2019	23 May 2019	Eggs only (Assumed M)					23m east
AA1_Pond231	East of Providence Farm	SJ7064676993	PSC	1 (partial)	23 May 2019	23 May 2019	Eggs only (Assumed M)					Within
AA1_Pond242	East of Pickmere	SJ7089877291	PSC	1 (partial)	24 April 2019	24 April 2019	6 (Assumed M)	3 (L)				90m east
AA1_Pond243	East of Pickmere	SJ7104377329	PSC	1 (partial)	24 April 2019	24 April 2019	19 (M)	2 (L)				224m east

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad		
AA1_Pond244	East of Pickmere	SJ7068477 343	PSC	2 (partial)	23 April 2019	15 May 2019	1 (Assumed M)				1 (L)		Within
AA1_Pond247	North-east of Roses Farm	SJ7043977 633	PSC	2 (partial)	17 April 2018	8 May 2018	1 (Assumed M)						109m north-west
AA1_Pond252	North-west of Clay House Farm	SJ7099877 749	PSC	1 (partial)	24 April 2019	24 April 2019	1 (Assumed M)	1 (L)					147m east
AA1_Pond255	North of Higher Wincham	SJ7052077 796	PSC	2 (partial)	24 April 2018	16 May 2018	0	11 (G)					84m west
AA1_Pond276	North-east of School Farm	SJ7058678 531	PSC	3 (partial)	23 May 2018	20 June 2018	Eggs only (Assumed M)	Eggs only			1 (L)	Tadpoles only	56m north-west
AA1_Pond285	North of Roses Farm	SJ7062078 873	PSC	2 (partial)	25 May 2018	21 June 2018	1 (Assumed M)				Present		13m west
AA1_Pond287	North of Budworth Road	SJ7054779 016	PSC	4 (partial)	3 May 2018	28 June 2018	3 (S)						67m west

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond289	North of Budworth Road	SJ7054779 069	PSC	4 (partial)	3 May 2018	28 June 2018	1 (S)	Larvae only				87m west
AA1_Pond291	South of Heyrose Golf Course	SJ7058579 075	PSC	4 (partial)	3 May 2018	28 June 2018	10 (S)					32m west
AA1_Pond306	South-west of Over Tabley	SJ7113179 575	PSC	5 (partial)	24 April 2019	12 June 2019	8 (S)	1 (L)		5 (L)	2 (L)	72m north
AA1_Pond304	South-west of Over Tabley	SJ7111979 590	PSC	5 (partial)	24 April 2019	12 June 2019	27 (M)	5 (L)		6 (L)	1 (L)	81m south-east
AA1_Pond312	East of Heyrose golf course	SJ7072380 018	PSC	3 (partial)	2 May 2018	7 June 2018	1 (Assumed M)					114m north-east
AA1_Pond335	South-east of Winterbottom	SJ7105380 856	PSC	6	24 April 2018	25 June 2018	1 (S)	1 (L)				Within
AA1_Pond336	South-east of	SJ7104080 859	PSC	6	24 April 2018	25 June 2018	1 (S)	1 (L)				Within

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
	Winterbottom											
AA1_Pond338	North-west of Over Tabley	SJ7137381079	PSC	3 (partial)	25 April 2019	20 June 2019	2 (Assumed M)	1 (L)				Within
AA1_Pond339	North-west of Bentleyhurst farm	SJ7153881080	PSC	6	25 April 2019	20 June 2019	1 (S)					37m south-east
AA1_Pond340	North of Over Tabley	SJ7154481126	PSC	6	25 April 2019	20 June 2019	1 (S)	2 (L)	1 (L)	2 (L)		29m east
AA1_Pond343	North-west of Bentleyhurst Farm	SJ7124681264	PSC	6	24 April 2018	25 June 2018	1 (S)	6 (L)				Within
AA1_Pond345	North-east of Winterbottom Farm	SJ7130581492	PSC	6	24 April 2018	25 June 2018	2 (S)	14 (G)		Tadpoles only		Within
AA1_Pond346	West of Mere	SJ7143781537	PSC	3 (partial)	24 April 2019	06 June 2019	0	10 (G)				Within
AA1_Pond350	South of Daisybank Farm	SJ7130881643	PSC	4 (partial)	25 April 2018	12 June 2018	Eggs only (S)					Within

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							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad		
AA1_Pond879	West of Mere	SJ7135181717	PSC	3 (partial)	17 April 2019	15 May 2019	1 (Assumed M)						Within
AA1_Pond352	South of Daisybank Farm	SJ7119081735	PSC	6	24 April 2018	26 June 2018	1 (S)	Larvae only					Within
AA1_Pond356	East of Daisybank Farm	SJ7150081896	PSC	7	25 April 2018	26 June 2018	1 (S)						Within
AA1_Pond361	East of Daisybank farm	SJ7139981926	PSC	4 (partial)	17 April 2019	15 May 2019	1 (S)						Within
AA1_Pond362	South-east of School Farm	SJ7177182007	PSC	5 (partial)	24 April 2019	20 June 2019	Eggs only (S)			3 (L)			13m south-east
AA1_Pond394	North-east of Hoo Green	SJ7154283376	PSC	6	26 April 2018	27 June 2018	By refuge search only (S)				10 (L)		1m north-west
AA1_Pond395	East of High Legh	SJ7129183395	PSC	2 (partial)	14 May 2019	11 June 2019	8 (Assumed M)			1 (L)			Within
AA1_Pond399	North-west of Hoo Green	SJ7131883414	PSC	2 (partial)	14 May 2019	28 May 2019	1 (Assumed M)	4 (L)		1 (L)	1 (L)		3m east

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							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad		
AA1_Pond458	West of Moss House Farm	SJ7193884 260	PSC	2 (partial)	17 April 2018	9 May 2018	Eggs only (Assumed M)	2 (L)					Within
AA1_Pond1181	North of High Legh	SJ7097584 690	PSC	3 (partial)	23 April 2019	21 May 2019	0	14 (G)					91m north
AA1_Pond1225	Booth Bank Farm	SJ7225785 154	PSC	2 (partial)	30 April 2019	14 May 2019	7 (Assumed M)	19 (G)		1 (L)			Within
AA1_Pond899	West of Little Bollington	SJ7190086 567	PSC	5 (partial)	14 May 2018	28 June 2018	0	10 (G)					107m north-west

Key:

*Bracketed text within species column indicates the relevant population size class for the peak count obtained as follows:

- Great crested newt = peak count 1-10 individuals = Small (S); peak count 11-100 individuals = Medium (M); >100 individuals = Large (L);
- Smooth and palmate newt = peak count less than 10 = Low (L); peak count 10-100 = Good (G); peak count over 100 = Exceptional (E);
- Common frog = spawn clumps counted less than 50 = Low (L); 50-500 = Good (G); greater than 500 = Exceptional (E); and
- Common toad = peak count of less than 100 = Low (L); peak count 100-1000 = Good (G); peak count greater than 1000 = Exceptional (E).

A full six visits are required to obtain a robust population size class assessment. However, an indication of the corresponding size class category is shown here for all peak counts to show the minimum size class known to be present at those sites where the full six visits could not be completed during the time period available for survey.

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Desk study

2.3.127 rECOrd and The Greater Manchester Local Record Centre (MANEC) provided 65 records of amphibians within 1km of land required for the construction of the Proposed Scheme. Table 18 details the records of great crested newts and good or exceptional populations, where this data is provided, of other amphibians within 1km of land required for the construction of the Proposed Scheme. Desk study records from 2009 – 2020 are presented.

Table 18: Relevant historic amphibian records within MA03

Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
2	Great Crested Newt	1	SJ7249283233 2012	MA03	4m west	Pond1136
2	Great Crested Newt	1	SJ7199382171 2012	MA03	Within	Pond1202
3	Great Crested Newt	Not recorded	SJ7214380633 2012	MA03	267m north-east	Pond1216
10	Great Crested Newt	Not recorded	SJ7231681595 2013	MA03	332m east	Pond2645
1	Great Crested Newt	3	SJ7214081350 2009	MA03	180m north-west	Pond2647
4	Great Crested Newt	2	SJ7266481699 2013	MA03	2m south-west	Pond2721
7	Great Crested Newt	2	SJ7153881080 2013	MA03	29m east	AA1_Pond340
6	Great Crested Newt	3	SJ7154481126 2013	MA03	5m east	Pond341
5	Great Crested Newt	2	SJ7152181141 2013	MA03	14m east	AA3_Pond341
1	Great Crested Newt	1	SJ7232883595 2009	MA03	10m west	Pond414
1	Great Crested Newt	Not recorded	SJ7254379162 2009	MA03	219m south-east	Pond2799
5	Great Crested Newt	Not recorded	SJ7205578757 2016	MA03	495m south	Pond3588
1	Palmate Newt	Not recorded	SJ7250780477 2013	MA03	485m east	Pond2718
1	Smooth Newt	Not recorded	SJ7214380633 2013	MA03	267m north-east	Pond1216
1	Smooth Newt	Not recorded	SJ7231681595 2013	MA03	332m east	Pond2645
1	Smooth Newt	Not recorded	SJ7214081350 2013	MA03	180m north-west	Pond2647

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Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
1	Smooth Newt	Not recorded	SJ7266481699 2013	MA03	2m south-west	Pond2721
1	Smooth Newt	Not recorded	SJ7153881080 2013	MA03	29m east	AA1_Pond340
1	Smooth Newt	Not recorded	SJ7152181141 2013	MA03	14m east	AA3_Pond341
1	Smooth Newt	Not recorded	SJ7232883595 2013	MA03	10m west	Pond414
1	Smooth Newt	Not recorded	SJ7244679549 2013	MA03	142m north-east	Pond2713
1	Smooth Newt	Not recorded	SJ7294079365 2013	MA03	560m east	Pond2715
1	Smooth Newt	Not recorded	SJ7222480291 2013	MA03	179m north-east	Pond2719
1	Smooth Newt	Not recorded	SJ7234080589 2013	MA03	368m north-east	Pond2790
4	Smooth Newt	Not recorded	SJ7214980495 2009	MA03	165m north-east	Pond2807
1	Smooth Newt	Not recorded	SJ7176882051 2013	MA03	1m south-west	AA1_Pond364
1	Smooth Newt	Not recorded	SJ7170780792 2013	MA03	47m south	Pond864

- 2.3.128 Cheshire East Council, CWT, rECOrd, and MANEC supplied citation records for Local Wildlife Sites (LWS) within 1km of land required for the construction of the Proposed Scheme. One Local Wildlife Site reported presence of smooth newt and common frog but with no records for great crested newt. The site is not situated within land required for the construction of the Proposed Scheme.
- 2.3.129 To obtain any relevant amphibian survey information, a review has been undertaken of developments within 1km of land required for the construction of the Proposed Scheme. Amphibian survey information covering the period 2009 – 2020 has been considered. No developments were found to have records of or potential impacts upon great crested newts in MA03.

Discussion of combined results

- 2.3.130 Of the 171 water bodies subject to P/A surveys, 73 are situated within land required for the construction of the Proposed Scheme in MA03, 95 are located within 250m, two are located within 500m, and one is located more than 500m from land required for the construction of the Proposed Scheme.

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- 2.3.131 Great crested newts have been found in 47 of the 171 water bodies subject to P/A and/or population size class survey, comprising 20 medium population size classes and 27 small population size classes.
- 2.3.132 Twenty-six of these 42 water bodies with great crested newts also support other amphibian species (smooth newts in 21, palmate newts in one, common frogs in 13, and common toads in eight). Thirty-five other water bodies where great crested newt was not identified did support other common amphibian species. Four water bodies, AA1_Pond255, AA1_Pond346, AA1_Pond899, and AA1_Pond1181, supported good populations of smooth newts.
- 2.3.133 A further 15 water bodies that were only subject to eDNA survey were found to support great crested newts.
- 2.3.134 Twelve populations (across up to three water bodies) or metapopulations (across four or more water bodies) have been identified within the MA03 community area, and a total of 76 water bodies (14 from relevant desk-study records, 15 from eDNA survey and 47 from P/A or population size class surveys) confirmed as supporting great crested newt.
- 2.3.135 Populations and metapopulations are presented from south to north. It should be noted that some populations and metapopulations cross community area boundaries. This occurs where clusters of linked water bodies, that may be used by great crested newts, occur both sides of a community area boundary. GCNMP1.2.35, GCNMP1.2.36 and GCNMP1.2.37 cross the community area boundary between MA02 and MA03. GCNMP1.3.11 crosses the community area boundary between MA03 and MA04. GCNMP1.3.7 and GCNMP1.3.9 cross the community area boundary between MA03 and MA06.
- 2.3.136 GCNMP1.3.1 is situated north of Lostock Gralam and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 47 water bodies, two situated within, 10 situated within 250m, 11 situated within 500m, and 24 situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed assumed medium populations of great crested newts at AA1_Pond276 and AA1_Pond285. The population size class of this metapopulation is medium, due to the presence of unsurveyed water bodies. North of Lostock Gralam the surrounding landscape consists of farmland with hedgerows and woodland. There is some potential for this metapopulation to be connected to GCNMP1.2.36 across Pickmere Lane (B5391), to GCNMP1.2.37 across Frog Lane, and to GCNMP1.3.3 across Budworth Road.
- 2.3.137 GCNMP1.3.2 is situated west of Knutsford and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 16 water bodies, one situated within 250m, seven situated within 500m, and eight situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond2799. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. West of Knutsford the surrounding landscape consists of farmland with hedgerows and woodland.

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- 2.3.138 GCNMP1.3.3 is situated north of Lostock Gralam and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 97 water bodies, 10 situated within, 46 situated within 250m, 17 situated within 500m, and 24 situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond287, AA1_Pond289, AA1_Pond291 and AA1_Pond306, whilst surveys to AA1_Pond312 and AA1_Pond304 revealed medium or assumed medium populations of great crested newts. eDNA surveys to EES_AA3_Pond294, AA1_Pond302 and AA1_Pond307 returned positive results for great crested newt DNA. The population size class of this metapopulation is medium, due to the presence of medium populations of great crested newts found at water bodies AA1_Pond312 and AA1_Pond304 and unsurveyed ponds. North of Lostock Gralam the surrounding landscape consists of farmland with hedgerows and woodland. There is some potential for this metapopulation to be connected to GCNMP1.2.37 and GCNMP1.3.1 across Budworth Road.
- 2.3.139 GCNMP1.3.4 is situated south of High Legh and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 170 water bodies, 26 situated within, 45 situated within 250m, 26 situated within 500m, and 73 situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond335, AA1_Pond336, AA1_Pond339, AA1_Pond340, AA1_Pond343, AA1_Pond345, AA1_Pond350, AA1_Pond352, AA1_Pond356, AA1_Pond361 and AA1_Pond362, whilst P/A surveys to AA1_Pond338 and AA1_Pond379 revealed assumed medium populations of great crested newts. eDNA surveys to AA3_Pond1307, AA1_Pond344, AA1_Pond347, AA1_Pond357 and EES_AA3_Pond382 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at AA3_Pond1202, and AA3_Pond341. The population size class of this metapopulation is assumed large, due to the presence of over 100 water bodies. South of High Legh the surrounding landscape is farmland, with pockets of woodland, semi-improved grassland and scrub.
- 2.3.140 GCNMP1.3.5 is situated south of High Legh and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of 26 water bodies, 11 situated within 250m and 15 situated within 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond1216, Pond2645, Pond2647, Pond2721. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South of High Legh the surrounding landscape is farmland, with pockets of woodland, semi-improved grassland and scrub.
- 2.3.141 GCNMP1.3.6 is situated south-east of High Legh, west of Tatton Dale and lies within 250m of land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. South of High Legh the surrounding landscape is farmland, with pockets of woodland, semi-improved grassland and scrub. There is some potential for this

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population to be connected to GCNMP1.3.8 across good quality terrestrial habitat to the west of The Mere.

- 2.3.142 GCNMP1.3.7 is situated north of Tatton Dale and lies between 250m and 500m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Broomedge to Glazebrook area (MA04). It consists of 16 water bodies, 15 situated within 250m and one situated within 500m from land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond1298 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at AA3_Pond1223, Pond2729 and Pond2812. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of Tatton Dale the surrounding landscape is farmland connected to smaller field systems and hedgerows with pockets of semi-natural grassland, scrub and woodland. There is some potential for this metapopulation to be connected to GCNMP1.6.6 across the B5699.
- 2.3.143 GCNMP1.3.8 is situated south-east of High Legh, west of Tatton Dale and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of four water bodies, one situated within 250m and three situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South of High Legh the surrounding landscape is farmland, with pockets of woodland, semi-improved grassland, and scrub. There is some potential for this metapopulation to be connected to GCNMP1.3.6 across good quality terrestrial habitat to the west of The Mere.
- 2.3.144 GCNMP1.3.9 is situated north of Tatton Dale and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Hulseheath to Manchester Airport area (MA06). It consists of 110 water bodies, 27 situated within, 57 situated within 250m, 20 situated within 500m, and six situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond394 and AA1_Pond511, whilst surveys to AA1_Pond1225, AA1_Pond395, AA1_Pond399, AA1_Pond458 and AA1_Pond952 revealed medium or assumed medium populations of great crested newts. eDNA surveys to AA3_Pond1340, EES_AA3_Pond439, EES_AA3_Pond506, EES_AA3_Pond508, EES_AA3_Pond510 and EES_AA3_Pond512 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at Pond1136, Pond1226, Pond1274 and EES_AA3_Pond414. The population size class of this metapopulation is assumed large, due to the presence of over 100 water bodies within the assumed metapopulation. North of Tatton Dale the surrounding landscape is farmland with hedgerows, with pockets of semi-natural grassland, scrub and woodland. There is some potential for this metapopulation to be connected to GCNMP1.3.10 across West Lane (B5159).
- 2.3.145 GCNMP1.3.10 is situated west of Rostherne and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 21 water bodies, one situated within 250m, seven situated within 500m, and 13 situated more

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than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. West of Rostherne the surrounding landscape is grassland with hedgerows and pockets of woodland and agricultural buildings. There is some potential for this metapopulation to be connected to GCNMP1.3.9 across West Lane (B5159).

- 2.3.146 GCNMP1.3.11 is situated north of High Legh and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Hulseheath to Manchester Airport area (MA06). It consists of 10 water bodies, two situated within 250m, seven situated within 500m, and one situated more than 500m from land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond1209 returned positive results for great crested newt DNA. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of High Legh the surrounding landscape is farmland with pockets of semi-improved grassland, scrub and residential buildings.
- 2.3.147 GCNP1.3.12 is situated south-west of Hale and south-east of Lymm and lies partially within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. eDNA surveys to AA1_Pond531 returned positive results for great crested newt DNA. The population size class of this population is assumed medium as population size class surveys have not been undertaken. South-east of Lymm the surrounding landscape is farmland with pockets of semi-improved grassland, woodland and residential buildings.
- 2.3.148 Table 19 summarises the 12 great crested newt metapopulations and details the associated population size classes.

Table 19: Summary of assumed great crested newt populations and metapopulations within MA03

Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²⁴	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNMP1.3.1	Pond1341, Pond1342, Pond1317, Pond1318, Pond1314, Pond3539, Pond1151, Pond967, Pond1150, Pond263, Pond1315, Pond264, EES_AA3_Pond265, Pond1154, EES_AA3_Pond267, Pond1153, Pond1147, Pond960, AH1_Pond273, AA1_Pond975, AA1_Pond276, AA1_Pond277, AA1_Pond285; and 24 additional ponds more	Medium	Within

²⁴ Water bodies listed in this table either support great crested newts as identified through desk study, eDNA, P/A and/or PSC surveys, or are those that have a high likelihood to support great crested newts based on presence of suitable habitat for great crested newt that occur within a connected landscape for this species.

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²⁴	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	than 500m from land required for the construction of the Proposed Scheme.		
GCNMP1.3.2	Pond3603, Pond2797, Pond4105, Pond2787, Pond4108, Pond2714, Pond2634, Pond2799; and 8 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	219m east
GCNMP1.3.3	AA1_Pond287, Pond1319, AA1_Pond289, AA1_Pond291, Pond1321, Pond1155, Pond2698, Pond2658, Pond2666, AH1_Pond293, EES_AA3_Pond294, Pond295, AH1_Pond296, Pond2669, Pond2663, AH1_Pond963, Pond1478, Pond297, Pond2699, Pond2681, Pond2697, AA1_Pond298, Pond2683, Pond2657, Pond299, Pond300, AH1_Pond965, Pond4025, AH1_Pond966, Pond301, AA1_Pond302, Pond303, AA1_Pond306, Pond2676, Pond2656, AA1_Pond304, Pond305, Pond2613, Pond2696, AA1_Pond307, Pond308, Pond1191, Pond1192, AH1_Pond309, Pond1320, Pond2783, AA1_Pond310, AA1_Pond865, Pond2798, AA1_Pond312, Pond313, Pond953, Pond314, Pond315, Pond2781, Pond316, Pond1555, Pond317, AA1_Pond318, Pond2777, AH1_Pond319, AA1_Pond320, Pond954, Pond956, Pond955, AA1_Pond322, Pond4035, AA1_Pond323, Pond1163, Pond1162, Pond1160, Pond1164, Pond1118; and 24 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Medium	Within
GCNMP1.3.4	Pond1126, Pond1305, Pond1266, Pond1395, Pond1299, Pond1273, Pond1397, Pond1195, Pond326, AA3_Pond1307, AA3_Pond1194, Pond1350, Pond1756, AA1_Pond328, AA1_Pond332, AA1_Pond333, Pond334, AA1_Pond864, AA1_Pond335, AA1_Pond336, AH1_Pond1783, AH1_Pond1784, AA1_Pond337, AH1_Pond1161, AH1_Pond1780, AH1_Pond1782, AA1_Pond338, AA1_Pond339, Pond1201, AA1_Pond340, AA3_Pond341, AA1_Pond1197, Pond1393, AA1_Pond343, Pond4009, AH1_Pond1781, AA1_Pond344, Pond1166, Pond1556, Pond1564, Pond1588, Pond4037, AA1_Pond345, Pond1167, Pond1501, AA1_Pond347, AA1_Pond346, Pond1138, Pond1128, AA1_Pond875, AA1_Pond350,	Assumed large	Within

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²⁴	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	AA1_Pond879, AA1_Pond352, AA1_Pond353, Pond1481, Pond1199, AA1_Pond1479, AA1_Pond1480, Pond2622, AH1_Pond1200, AA1_Pond354, AA1_Pond355, Pond1165, AA1_Pond356, AA1_Pond358, AA1_Pond357, AA1_Pond361, AA1_Pond359, Pond1217, AA1_Pond362, AA1_Pond363, AA1_Pond364, Pond365, Pond366, Pond2708, AH1_Pond367, AA3_Pond1202, Pond1475, Pond2601, Pond1477, Pond1168, Pond1476, Pond1396, Pond1371, Pond1301, Pond2605, Pond2751, Pond2600, Pond1169, EES_AA3_Pond377, Pond379, Pond1170, EES_AA3_Pond381, EES_AA3_Pond382, AA3_Pond383, EES_AA3_Pond385, AA3_Pond1172; and 73 additional ponds more than 500m from land required for the construction of the Proposed Scheme.		
GCNMP1.3.5	Pond2801, Pond2719, Pond2811, Pond4017, Pond2802, Pond2807, Pond2808, Pond2806, Pond2790, Pond2791, Pond1216, Pond2643, Pond2638, Pond2637, Pond2716, Pond1215, Pond2640, Pond2644, Pond2647, Pond2645, Pond2721, Pond1372, Pond1592, Pond1563, Pond1591 and Pond1373	Assumed medium	2m south
GCNMP1.3.6	Pond2722 and Pond2646.	Assumed medium	114m east
GCNMP1.3.7	Pond2724, Pond4067, AH1_Pond973, AH1_Pond972, Pond2723, Pond1798, Pond1797, AA3_Pond974, Pond1799, Pond1222, AA3_Pond1374, AA3_Pond1298, Pond2729, Pond2728, AA3_Pond1223 and Pond2812.	Assumed medium	1m south-west
GCNMP1.3.8	Pond2789, Pond2655, Pond2788 and Pond2649.	Assumed medium	211m south-east
GCNMP1.3.9	AA1_Pond386, Pond1274, Pond1272, Pond1136, AA1_Pond388, Pond1127, Pond1302, Pond1226, AA3_Pond389, Pond1399, Pond1119, Pond1297, Pond1221, AA1_Pond394, AA1_Pond395, AA1_Pond396, AA1_Pond399, Pond401, AH1_Pond409, AA3_Pond1340, AA1_Pond410, AA3_Pond411, Pond412, Pond1224, EES_AA3_Pond414, AA3_Pond1204, AA3_Pond1203, Pond1205, Pond415, Pond2260, AA3_Pond1559, Pond861, AA3_Pond1558, Pond419, Pond1562, AA1_Pond952, Pond428, Pond1219, Pond1557, AA1_Pond432, AH1_Pond1561, EES_AA3_Pond439, AA1_Pond438, AA1_Pond436, AA1_Pond440, Pond1218,	Assumed large	Within

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²⁴	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	Pond1765, Pond1755, AA3_Pond1207, Pond449, Pond2225, Pond1398, Pond1761, Pond1766, Pond1776, AA1_Pond458, Pond1757, EES_AA3_Pond1601, Pond1182, EES_AA3_Pond1602, Pond465, Pond466, AH1_Pond980, Pond1229, Pond1184, Pond1347, Pond1764, Pond470, AA1_Pond959, Pond1767, Pond1185, Pond1763, Pond1179, Pond1768, Pond1759, Pond1758, Pond1346, AA3_Pond477, Pond1760, Pond4499, AA1_Pond1181, Pond1208, Pond1178, Pond1175, Pond1183, AA3_Pond491, EES_AA3_Pond489, Pond494, AA1_Pond499, Pond1174, Pond1176, Pond1177, Pond1348, EES_AA3_Pond504, EES_AA3_Pond508, EES_AA3_Pond506, AA1_Pond977, AH1_Pond961, Pond1210, EES_AA3_Pond510, Pond1406, AA1_Pond511, EES_AA3_Pond512, AA1_Pond1225; and 6 additional ponds more than 500m from land required for the construction of the Proposed Scheme.		
GCNMP1.3.10	Pond1762, Pond1283, Pond1284, Pond1282, Pond1173, Pond1286, Pond1281, Pond859; and 13 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	179m west
GCNMP1.3.11	Pond876, Pond860, Pond862, Pond863, Pond878, Pond1187, AA3_Pond1209, Pond1186, EES_AA3_Pond525; and 1 additional pond more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	32m north-east
GCNMP1.3.12	AA1_Pond531.	Assumed medium	Within

Broomeedge to Glazebrook (MA04)

- 2.3.149 A total of 88 water bodies were identified as requiring survey within MA04.
- 2.3.150 Table 20 provides a summary of those 12 water bodies (as a subset of the 88 required for survey) which are located more than 250m from land required for the construction of the Proposed Scheme. These water bodies were scoped in, as suitable habitat is present and they may support a metapopulation of amphibians.

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Table 20: Summary of water bodies located more than 250m from land required for the construction of the Proposed Scheme, scoped into amphibian assessment within MA04

Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond2183	North of Oughtrington	SJ7009488230	MA04	331m north-west
Pond1212	South-east of Lower Carr Green Farm	SJ7156788313	MA04	329m north-east
Pond552	Within Lower Carr Green Farm grounds	SJ7142288453	MA04	264m east
Pond1483	North of Mossbrow	SJ7133089707	MA04	328m east
Pond1484	North of Mossbrow	SJ7135189817	MA04	352m east
Pond610	North-west of Hollinfare	SJ6929391231	MA04	258m west
Pond1366	North of Cleveland's Farm	SJ6906591278	MA04	435m south-west
Pond2039	East of Risley Moss	SJ6819791651	MA04	452m south-west
Pond1267	North of Milverton Farm	SJ6819892353	MA04	342m west
Pond1375	West of Glaze Brook	SJ6969292728	MA04	277m north-east
Pond1377	West of Glaze Brook	SJ6971392735	MA04	296m north-east
Pond1370	North of New Farm Cottages	SJ6921993426	MA04	300m east

Field survey

Habitat Suitability Index/walkover surveys

2.3.151 Following the completion of walkover surveys, incorporating HSI surveys where appropriate, the water bodies identified in Table 21 were scoped out of the assessment.

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Table 21: Summary of locations where requirement for further survey was scoped out following HSI/walkover survey in MA04

Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond548	North-east of Broomedge	SJ7147387221	Well stocked fishing pond with chubb and perch. Water quality is moderate to poor. high turbidity and increased nutrients levels likely from adjacent field. HSI - 0.47 (Poor)	MA04	47m north-east
AH1_Pond1611	South-east of Heatley	SJ7122187713	Small garden pond, lined. HSI - 0.47 (Poor)	MA04	Within
AH1_Pond554	North-east of Heatley	SJ7079288733	Pond currently dry, no HSI could be undertaken. HSI - 0.00 (Poor)	MA04	5m south
AH1_Pond576	West of Warburton	SJ7045889624	Shallow ephemeral pond, in slight depression within arable field. HSI - 0.29 (Poor)	MA04	Within
AH1_Pond579	West of Warburton	SJ7035089695	Dried pond, in slight depression within arable field. HSI - 0.29 (Poor)	MA04	74m north-west
AH1_Pond1483	North of Mossbrow	SJ7133089707	Dry depression on field boundary, overgrown with shrubs HSI - 0.00 (Poor)	MA04	328m east
AH1_Pond599	North of Warburton	SJ6996990476	Shallow pond surrounded by trees. HSI - 0.47 (Poor)	MA04	67m west
AH1_Pond600	North of Warburton	SJ6999190499	Shallow linear pond surrounded by trees. HSI - 0.44 (Poor)	MA04	46m south-west
AH1_Pond601	North of Warburton	SJ6998090507	Shallow linear pond surrounded by trees. HSI - 0.44 (Poor)	MA04	36m south
AH1_Pond1360	North of Coroners Wood	SJ7071890802	Dry depression in woodland. Colonised	MA04	112m north-east

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
			by early ruderal species. Not suitable for newts at time of survey. Not a pond. HSI - 0.00 (Poor)		
AH1_Pond610	North-west of Hollinfare	SJ6929391231	Small pond in the centre of an agricultural field. HSI - 0.35 (Poor)	MA04	258m west
AH1_Pond1610	North of Hollinfare	SJ6992691473	Small ornamental garden pond within amenity grassland land surrounded by ornamental planting. Wood piles within 100m of pond suitable refuge for GCN but no other suitable habitat within land parcel. HSI - 0.48 (Poor)	MA04	92m east
AH1_Pond843	North-west of Hollinfare	SJ6927691573	Area of standing water in ditch. HSI - 0.36 (Poor)	MA04	146m west
AH1_Pond612	North of Hollinfare	SJ6962891584	Wooded and dry. Ruderals and bareground. HSI - 0.25 (Poor)	MA04	Within
AH1_Pond622	South-east of Holcroft Moss	SJ6871093048	Lake, likely to support predatory fish species. HSI - 0.36 (Poor)	MA04	Within
AH1_Pond1795	North of Holcroft Moss	SJ6796393735	Hollow in well grazed semi improved grassland. Dry at time of visit. HSI - 0.37 (Poor)	MA04	248m north

eDNA presence/absence surveys

- 2.3.152 The eDNA survey method was conducted at 47 water bodies in MA04. No water bodies were recorded as positive for great crested newt eDNA.
- 2.3.153 Of the 47 water bodies surveyed, three were dry and eDNA could not be undertaken.
- 2.3.154 Of the remaining 44 water bodies, none were defined as positive for great crested newt eDNA.

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- 2.3.155 Of the ponds that were negative, partial access to the pond perimeter¹¹ was a factor in 16 cases and these were put forward for P/A surveys.

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Presence/absence and population size class estimate surveys

2.3.156 The results from amphibian P/A and population size class estimate surveys are detailed within Table 22.

2.3.157 Twenty-two water bodies were identified as not supporting amphibians or supported low numbers of common amphibian species and are not shown in Table 22.

Table 22: Summary of results from surveys for amphibian presence/absence and population size class assessment with associated amphibian populations within MA04

Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond614	West of Cadishead	SJ6922791852	PSC	4 (partial)	26 April 2018	05 June 2018	0	10 (G)				18m south-east

Key:

*Bracketed text within species column indicates the relevant population size class for the peak count obtained as follows:

- Great crested newt = peak count 1-10 individuals = Small (S); peak count 11-100 individuals = Medium (M); >100 individuals = Large (L);
- Smooth and palmate newt = peak count less than 10 = Low (L); peak count 10-100 = Good (G); peak count over 100 = Exceptional (E);
- Common frog = spawn clumps counted less than 50 = Low (L); 50-500 = Good (G); greater than 500 = Exceptional (E); and
- Common toad = peak count of less than 100 = Low (L); peak count 100-1000 = Good (G); peak count greater than 1000 = Exceptional (E).

A full six visits are required to obtain a robust population size class assessment. However, an indication of the corresponding size class category is shown here for all peak counts to show the minimum size class known to be present at those sites where the full six visits could not be completed during the time period available for survey.

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Desk study

2.3.158 rECOrd provided one record of amphibians within 1km of land required for the construction of the Proposed Scheme. Table 23 details the records of great crested newts and good or exceptional populations, where these data are provided, of other amphibians within 1km of land required for the construction of the Proposed Scheme. Desk study records from 2009 – 2020 are presented.

Table 23: Relevant historic amphibian records within MA04

Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
1	Great Crested Newt	Not recorded	SJ6877290764 2009	MA04	900m west	Pond1967

2.3.159 Rixton Clay Pits Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) is located 961m west of land required for the construction of the Proposed Scheme at Hollins Green. The SAC includes great crested newts as the sole reason for designation. A peak count of 518 great crested newts was recorded during SSSI condition assessment reporting in 2015²⁵.

2.3.160 rECOrd, and MANEC supplied citation records for Local Wildlife Sites within 1km of land required for the construction of the Proposed Scheme. Two LWS reported presence of amphibians including common toad and common frog. Neither reported presence of great crested newt. Neither of these sites are situated within land required for the construction of the Proposed Scheme.

2.3.161 To obtain any relevant amphibian survey information, a review has been undertaken of developments within 1km of land required for the construction of the Proposed Scheme. Amphibian survey information covering the period 2009 – 2020 has been considered. No developments were found to have records of or potential impacts upon great crested newts in MA04.

Discussion of combined results

2.3.162 Of the 23 water bodies subject to P/A survey in MA04, nine are within, and 14 are within 250m of land required for the construction of the Proposed Scheme.

2.3.163 Great crested newts have been found in none of the 23 water bodies subject to P/A and/or population size class survey.

²⁵Natural England, Condition of SSSI Units for Site Rixton Clay Pits SSSI. Available online at: <https://designatedsites.naturalengland.org.uk/ReportUnitCondition.aspx?SiteCode=S1003514&ReportTitle=Rixton%20Clay%20Pits%20SSSI>.

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- 2.3.164 There were seven water bodies where great crested newt were not recorded but where smooth newt and/or common toad were found. They include water body AA1_Pond614 which supports a good population of smooth newts.
- 2.3.165 Great crested newts have been found in none of the water bodies subject to eDNA survey.
- 2.3.166 Twelve populations (across up to three water bodies) or metapopulations (across four or more water bodies) have been identified within the MA04 community area, and one water body (from relevant desk-study records) confirmed as supporting great crested newt.
- 2.3.167 Populations and metapopulations are presented from south to north. It should be noted that some populations and metapopulations cross community area boundaries. This occurs where clusters of linked ponds, that may be used by great crested newts, occur both sides of a community area boundary. GCNMP1.3.11 crosses the community area boundary between MA03 and MA04. GCNP1.4.8 and GCNMP1.4.9 cross the community area boundary between MA04 and MA05.
- 2.3.168 GCNMP1.4.1 is situated north of Broomedge and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of eight water bodies, one situated within 250m, two situated within 500m, and five situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of Broomedge the surrounding landscape is farmland with pockets of semi-improved grassland, woodland and residential buildings.
- 2.3.169 GCNP1.4.2 is situated east of Lymm and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of three water bodies, two situated within 250m and one situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. East of Lymm the surrounding landscape is farmland with pockets of semi-improved grassland, woodland and agricultural buildings.
- 2.3.170 GCNP1.4.3 is situated north-east of Lymm and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of three water bodies, two situated within 250m and one situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. The surrounding landscape is farmland with hedgerows and pockets of semi-improved grassland, scrub and agricultural buildings.
- 2.3.171 GCNMP1.4.4 is situated south of Partington and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 28 water bodies, two situated within 250m, two situated within 500m, and 24 situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. The surrounding landscape is farmland with hedgerows and pockets of semi-improved grassland, scrub and agricultural buildings.

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- 2.3.172 GCNMP1.4.5 is situated south of Partington and lies partially within and extends up to 500m from land required for the construction of the Proposed Scheme. It consists of 19 water bodies, four situated within, 14 situated within 250m, and one situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of unsurveyed water bodies. South of Partington the surrounding habitats include farmland, grassland and woodland.
- 2.3.173 GCNP1.4.6 is situated south of Partington and lies within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. South of Partington the surrounding habitats include farmland, grassland and woodland.
- 2.3.174 GCNP1.4.7 is situated south-west of Partington and lies within land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. South-west of Partington the surrounding landscape includes farmland, grassland and woodland.
- 2.3.175 GCNMP1.4.8 is situated east of Risley and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Risley to Bamfurlong area (MA05). It consists of 36 water bodies, four situated within 250m, nine situated within 500m, and 23 situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed a medium population of great crested newts at AA1_Pond1260 in MA05. Based on desk study records, great crested newts are likely to be present at AA3_Pond1256, Pond1949, Pond1950, Pond1953, Pond1954 and Pond2001 (these water bodies are in MA05). The population size class of this metapopulation is medium, due to the presence of a medium population of great crested newts found at pond AA1_Pond1260 and the presence of unsurveyed water bodies. East of Risley the surrounding landscape is farmland with scattered trees and pockets of woodland.
- 2.3.176 GCNMP1.4.9 is situated north-west of Partington and lies between 250m and 500m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Risley to Bamfurlong area (MA05). It consists of nine water bodies, six situated within 250m and three situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-west of Partington the surrounding landscape is farmland with scattered trees and pockets of woodland.
- 2.3.177 GCNMP1.4.10 is situated north-west of Partington and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of 10 water bodies, one situated within 250m and nine situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-west of

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Partington the surrounding landscape is farmland with scattered trees and pockets of woodland.

- 2.3.178 GCNP1.4.11 is situated north-west of Partington and lies within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. The surrounding landscape comprises arable farmland with hedgerows and pockets of woodland to the west.
- 2.3.179 GCNMP1.4.12 is situated east of Birchwood and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of four ponds, one situated within 250m, two situated within 500m, and one situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. The assumed metapopulation is surrounded by urban development, with residential dwellings to the south and east, and industrial development to the north and west.
- 2.3.180 Table 24 summarises the 12 great crested newt metapopulations and details the associated population size classes.

Table 24: Summary of assumed great crested newt metapopulations within MA04

Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²⁶	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNMP1.4.1	Pond2194, Pond2182, Pond534; and five additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	72m south
GCNP1.4.2	Pond2197, Pond1560 and Pond2183.	Assumed medium	116m west
GCNP1.4.3	Pond552, AA1_Pond553 and AA3_Pond874.	Assumed medium	5m west
GCNMP1.4.4	Pond2238, Pond1214, Pond1213, Pond1394; and 24 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	Within

²⁶ Water bodies listed in this table either support great crested newts as identified through desk study, eDNA, P/A and/or PSC surveys, or are those that have a high likelihood to support great crested newts based on presence of suitable habitat for great crested newt that occur within a connected landscape for this species.

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²⁶	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNMP1.4.5	AA3_Pond571, AA1_Pond580, Pond1291, AA1_Pond581, AA3_Pond583, Pond582, AH1_Pond584, AH1_Pond585, AH1_Pond1785, AA3_Pond587, AA3_Pond589, AA3_Pond591, AH1_Pond592, AA3_Pond594, AH1_Pond593, AH1_Pond595, AA1_Pond597, AA3_Pond598 and Pond1802.	Assumed medium	Within
GCNP1.4.6	AA1_Pond557.	Assumed medium	Within
GCNP1.4.7	AA1_Pond603 and Pond604.	Assumed medium	Within
GCNMP1.4.8	Pond2040, Pond2058, Pond1986, Pond1966, Pond1267, Pond2045, Pond1262, Pond1261, AA3_Pond1258, AA3_Pond1257, Pond1263, AA3_Pond1256, AA1_Pond1260; and 23 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Medium	92m south-east
GCNMP1.4.9	Pond1375, Pond1377, Pond2012, Pond2011, Pond2029, Pond2024, Pond1370, Pond1380 and AA3_Pond1389.	Assumed medium	126m north-east
GCNMP1.4.10	Pond1487, Pond2013, Pond1503, Pond2014, Pond2015, Pond1378, Pond1379, Pond1268, Pond1269 and Pond2050.	Assumed medium	39m south-east
GCNP1.4.11	Pond2141.	Assumed medium	Within
GCNMP1.4.12	Pond4300, Pond4302, Pond4301; and one additional pond more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	18m south

Risley to Bamfurlong (MA05)

- 2.3.181 A total of 309 water bodies were identified as requiring survey within MA05.
- 2.3.182 Table 25 provides a summary of those 38 water bodies (as a subset of the 309 required for survey) which are located more than 250m from land required for the construction of the Proposed Scheme. These water bodies were scoped in, as suitable habitat is present and

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they form part of a pond cluster with those within 250m of land required for the construction of the Proposed Scheme, which may support a metapopulation of amphibians.

Table 25: Summary of water bodies located more than 250m from land required for the construction of the Proposed Scheme, scoped into amphibian assessment within MA05

Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1570	North of Risley	SJ6566693558	MA05	401m south-east
Pond1486	North of Risley	SJ6610693712	MA05	363m south
Pond628	North of Holcroft Moss	SJ6792593792	MA05	273m north-east
Pond630	South of Hole Mill Farm	SJ6807393838	MA05	324m north
Pond1353	West of Hope Farm	SJ6494293854	MA05	280m west
Pond1352	North of M62	SJ6496893974	MA05	274m west
Pond2047	East of Latona Cloase	SJ6433394067	MA05	378m south-west
Pond1133	East of Emerald Drive	SJ6445794126	MA05	275m south
Pond641	South of Culcheth	SJ6466394183	MA05	254m south
Pond1245	East of Lady Lane	SJ6409094189	MA05	301m south-west
Pond1384	East of Lady Lane	SJ6411594196	MA05	292m south
Pond1241	North-west of The Beeches Livery Centre	SJ6390694546	MA05	311m west
Pond1387	East of Culcheth	SJ6660894743	MA05	357m north-east
Pond1392	Within Kenyon Farm	SJ6380794791	MA05	365m south-west
Pond684	West of Culcheth	SJ6367695041	MA05	418m south-west
Pond1569	East of Twiss Green	SJ6450595783	MA05	303m north-east
Pond709	North-west of Culcheth	SJ6421495940	MA05	307m north-east
Pond1504	North-west of Culcheth	SJ6450895949	MA05	458m north
Pond1472	North-west of Edge Green	SJ6454895962	MA05	434m south
Pond1252	West of Twiss Green	SJ6441896061	MA05	334m south
Pond1251	South of Broseley Hall Farm	SJ6442096075	MA05	322m south
Pond1386	North-west of Twiss Green	SJ6459396101	MA05	314m south
Pond1385	North-west of Twiss Green	SJ6458696130	MA05	290m south
Pond1239	South-east of Lane Head	SJ6264496204	MA05	435m west
Pond1139	South of Golborne	SJ6284496524	MA05	280m south
Pond1135	North-east of Kenyon Lane	SJ6250996658	MA05	343m south-west

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Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1242	Pocket Nook Farm	SJ6387597475	MA05	315m north
Pond1566	North-east of Golborne High School	SJ6144898520	MA05	290m south-east
Pond2113	North of Aspull Common	SJ6349498652	MA05	353m east
Pond2112	North of Aspull Common	SJ6340198653	MA05	260m south-east
Pond2109	North of Aspull Common	SJ6349698656	MA05	353m east
Pond1132	North of Byrom Wood	SJ6223899411	MA05	337m north-east
Pond1270	South-west of Scotson's Farm	SD6143000097	MA05	255m north
Pond1227	South-west of Scotson's Farm	SD6145200111	MA05	261m north
Pond1628	South-west of Abram	SD6057200970	MA05	270m east
Pond1474	South of Bamfurlong	SD5975501059	MA05	264m south
Leeds and Liverpool Canal	South of Abram	SD6049801125	MA05	252m east
Pond823	West of Bamfurlong	SD5950801723	MA05	334m north-west

Field survey

Habitat Suitability Index/walkover surveys

2.3.183 Following the completion of walkover surveys, incorporating HSI surveys where appropriate, the water bodies identified in Table 26 were scoped out of the assessment.

Table 26: Summary of locations where requirement for further survey was scoped out following HSI/walkover survey in MA05

Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond1265	North of Gorse Covert	SJ6715593029	No HSI carried out due to the absence of the pond. HSI - 0.00 (Poor)	MA05	105m south-west
AH1_Pond895	North-east of Gorse Covert	SJ6728193606	Pond in the middle of marshy grassland, low water level and choked with vegetation. HSI - 0.46 (Poor)	MA05	98m west

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond643	East of Wigshaw	SJ6464094262	Fishing lake, with predatory fish species noted. HSI - 0.54 (Poor)	MA05	163m south
AH1_Pond897	South-east of Little Town	SJ6488894359	Small pond adjacent to arable field, low water level. HSI - 0.48 (Poor)	MA05	150m south
AH1_Pond657	East of Wigshaw	SJ6457794471	Long linear fishing pond. HSI - 0.49 (Poor)	MA05	Within
AH1_Pond660	South of Wigshaw	SJ6456794485	Long linear fishing pond. HSI - 0.48 (Poor)	MA05	Within
AH1_Pond655	East of Wigshaw	SJ6447994493	Small fishing pond with island in the middle. HSI - 0.49 (Poor)	MA05	1m north-east
AH1_Pond662	South of Wigshaw	SJ6470694541	Large fishing pond with a number of angling platforms. HSI - 0.53 (Below average)	MA05	Within
AH1_Pond666	South of Wigshaw	SJ6460394578	Large fishing pond. HSI - 0.53 (Poor)	MA05	20m north-west
AH1_Pond664	South of Wigshaw	SJ6474494605	Circular fishing pond with small island in the middle. HSI - 0.49 (Poor)	MA05	6m north-west
AH1_Pond665	South of Wigshaw	SJ6469794626	Fishing pond, with evidence of predatory fish species. HSI - 0.71 (Good)	MA05	Within
AH1_Pond673	East of Wigshaw	SJ6458494644	Water body with apparent poor water quality and heavy shading. HSI - 0.53 (Below average)	MA05	Within
AH1_Pond670	North of Taylor Business Park	SJ6555494676	A small, shallow and heavily shaded pond with scattered willow. HSI - 0.49 (Poor)	MA05	Within
AH1_Pond671	East of Wigshaw	SJ6507894683	Pond does not exist. Wet ditch with slow flow present where pond location shown on OS mapping.	MA05	65m south

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
			HSI - 0.00 (Poor)		
AH1_Pond677	West of Taylor Business Park	SJ6526794734	Ephemeral pool, partially shaded by surrounding oak trees and supporting floating sweet grass. HSI - 0.47 (Poor)	MA05	1m south-west
AH1_Pond681	South of Culcheth	SJ6517794838	Within linear woodland, 'pond' is extension of drainage ditch. HSI - 0.37 (Poor)	MA05	8m north
AH1_Pond683	North of Coppenhall Junction	SJ6466294957	Small pond in the middle of an arable field. HSI - 0.43 (Poor)	MA05	Within
AH1_Pond684	West of Culcheth	SJ6367695041	Small pond in corner of horse field surrounded by trees. HSI - 0.43 (Poor)	MA05	418m south-west
AH1_Pond693	South-west of Leigh golf club	SJ6420895332	A dry pond with deep leaf litter on base at time of survey. HSI - 0.30 (Poor)	MA05	Within
AH1_Pond696	Within Leigh Golf Course	SJ6435095486	Pond next to golf course in a small area of woodland. HSI - 0.49 (Poor)	MA05	12m north-west
AH1_Pond698	Within Leigh Golf Course	SJ6418995634	Pond in the middle of golf course, limited terrestrial habitat. HSI - 0.34 (Poor)	MA05	139m north-east
AH1_Pond1569	East of Twiss Green	SJ6450595783	Woodland Pond surrounded by trees and scrub. Water level low with lots of leaf litter and dead wood. HSI - 0.45 (Poor)	MA05	303m north-east
AH1_Pond1141	East of Wilton Grange	SJ6343095887	Pond is within field of semi-improved grassland. Slight depression within field at mapped location, dry at time of survey. HSI - 0.45 (Poor)	MA05	151m south-west

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond1254	North-west of Culcheth	SJ6468296295	Within golf course - mature willow and oak overshadow pond. HSI - 0.48 (Poor)	MA05	197m south-east
AH1_Pond726	North-west of Culcheth	SJ6394996616	Pond within field grazed by horses. Edges of pond heavily poached. HSI - 0.48 (Poor)	MA05	45m north-east
AH1_Pond734	East of Lowton St Mary's	SJ6337397332	Pond with significant waterfowl populations present. HSI - 0.34 (Poor)	MA05	10m north
AH1_Pond765	North-west of Garton Common	SJ6257298374	Large pond with waterfowl and poor water quality. HSI - 0.43 (Poor)	MA05	Within
AH1_Pond770	North of Garton Common	SJ6226298564	Ephemeral pond, with very low water at time of survey. Poor water quality. HSI - 0.45 (Poor)	MA05	22m south
AH1_Pond1615	North of Laburnum Farm	SJ6266698673	Pond surrounded by agricultural land. Likely to be very ephemeral in nature. HSI - 0.45 (Poor)	MA05	Within
AH1_Pond780	North of Golborne High School	SJ6141798795	Within poor semi-improved grassland field with small areas of marshy grassland, scattered scrub and tall ruderal habitat. Pond overgrown with common reed and horsetail. Water level shallow. HSI - 0.35 (Poor)	MA05	64m south-east
AH1_Pond779	West of Saddletree Fold Farm	SJ6266798800	Pond in agricultural field with no surrounding vegetation, shallow and expected to dry annually. HSI - 0.42 (Poor)	MA05	Within
AH1_Pond781	East of Little Byrom Hall Farm	SJ6256898822	Pond in agricultural field with no surrounding vegetation. HSI - 0.42 (Poor)	MA05	Within

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond789	East of Edge Green	SJ6100799121	Pond does not exist. HSI - 0.00 (Poor)	MA05	24m west
AH1_Pond790	North of Golborne	SJ6131399142	A small water body fed by a drainage ditch along the field margin. Water was clear with no emergent vegetation noted. Water depth was <10cm deep. HSI - 0.38 (Poor)	MA05	40m south-east
AH1_Pond1630	East of Hey Brook Farm	SJ6258599277	Pond created from overflowing ditches, ephemeral in nature and unlikely to be present outside periods of heavy rainfall. HSI - 0.40 (Poor)	MA05	213m north
AH1_Pond888	West of Hey Brook Farm	SJ6189399332	Within poor semi-improved grassland field with small areas of marshy grassland, scattered scrub and tall ruderal habitat. Pond overgrown with common reed and horsetail. HSI - 0.34 (Poor)	MA05	1m north
AH1_Pond1134	North-east of Windy Bank Farm	SJ6126799559	Ephemeral pond in arable field, expected to dry annually. No aquatic vegetation present. HSI - 0.50 (Poor)	MA05	Within
AH1_Pond803	North-east of Edge Green	SJ6039799576	Pond in an arable field, poor water quality recorded. HSI - 0.47 (Poor)	MA05	54m west
AH1_Pond812	South-west of Abram	SD6034000239	Pond found to be dry and only expected to hold water after periods of heavy rainfall. HSI - 0.00 (Poor)	MA05	Within
AH1_Canal2	South of Abram	SD6085700550	Highly modified and impounded canal, with some flow evident and reinforced vertical banks. HSI - 0.36 (Poor)	MA05	71m east

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Canal1	South of Abram	SD6064700875	Highly modified and impounded canal, with some flow evident and reinforced vertical banks. HSI - 0.36 (Poor)	MA05	196m north
AH1_Pond1628	South-west of Abram	SD6057200970	Small area of pooled water within wetland area, likely to be ephemeral and connected to watercourse. HSI - 0.49 (Poor)	MA05	270m east
AH1_Pond818	South-east of Bryn Gates	SD5987601049	Fishing pond with evidence of predatory fish species. HSI - 0.36 (Poor)	MA05	190m west
AH1_Canal5	South of Abram	SD6050601375	A section of the Leeds and Liverpool Canal with high artificial banks (sheet piling and concrete) and no aquatic vegetation, likely to support predatory fish species. HSI - 0.46 (Poor)	MA05	201m east
AH1_Canal4	East of Bamfurlong	SD6033101680	A section of the Leeds and Liverpool Canal with high artificial banks (sheet piling and concrete) and no aquatic vegetation, likely to support predatory fish species. HSI - 0.46 (Poor)	MA05	123m north-east
AH1_Pond823	West of Bamfurlong	SD5950801723	Water body forms part of a drainage/ditch network. HSI - 0.36 (Poor)	MA05	334m north-west
AH1_Canal3	North-east of Bamfurlong	SD6015001923	A section of the Leeds and Liverpool Canal with high artificial banks (sheet piling and concrete) and no aquatic vegetation, likely to support predatory fish species. HSI - 0.46 (Poor)	MA05	154m north

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eDNA presence/absence surveys

- 2.3.184 The eDNA survey method was conducted at 154 water bodies in MA05. The summary of positive results of the eDNA P/A surveys and those with anomalies are detailed in Table 27.
- 2.3.185 Of the 154 water bodies surveyed, one water body was dry and eDNA surveys could not be undertaken.
- 2.3.186 Of the remaining 153 water bodies, 14 were defined as positive for great crested newt eDNA. Of these, one was within, 11 were within 250m of, and two were within 500m of, land required for the construction of the Proposed Scheme. From these 14 water bodies those 12 within 250m were put forward for P/A surveys.
- 2.3.187 Of the water bodies that were negative, partial access to the water body perimeter¹¹ was a factor in 37 cases and these were put forward for P/A surveys.
- 2.3.188 Two of the water bodies, AA1_Pond689, and AA1_Pond701, recorded presence of great crested newts using traditional P/A surveys, even though the eDNA was inconclusive or negative. One of the water bodies had assumed presence of great crested newts through positive desk study results. These water bodies were identified as requiring population size class surveys.
- 2.3.189 The reasons for there being anomalies for these two water bodies in the eDNA results, as compared to the results of P/A surveys are currently unknown.

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Table 27: Summary of relevant results from eDNA presence/absence surveys for MA05

Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond1256	North of Gorse Covert	SJ6686492935	16 May 2019	80	No inflows present	Negative (with positive results from Desk Study Records)	MA05	108m south
AA3_Pond1260	North of Gorse Covert	SJ6694093043	16 April 2019	60	No inflows present	Positive	MA05	92m south-east
AA3_Pond627	North of Holcroft Moss	SJ6806393710	31 May 2018	65	No inflows present	Positive	MA05	183m north
AA3_Pond628	North of Holcroft Moss	SJ6792593792	31 May 2018	100	Present and dry	Positive	MA05	273m north-east
AA3_Pond631	East of Hope Farm	SJ6595393913	10 May 2018	65	No inflows present	Positive	MA05	134m south-east
AA3_Pond689	East of Culcheth	SJ6407595223	01 May 2019	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA05	Within
AA3_Pond695	Within Leigh Golf Course	SJ6416895410	09 May 2018	50	No inflows present	Positive	MA05	6m north-east
AA3_Pond697	Within Leigh Golf Course	SJ6430695555	31 May 2018	15	Present and wet	Positive	MA05	55m north-west
AA3_Pond701	West of Leigh Golf Course	SJ6385095837	23 April 2018	100	No inflows present	Negative (with positive results from subsequent P/A survey)	MA05	12m north-east
AA3_Pond703	East of Kenyon	SJ6345895881	25 April 2018	60	No inflows present	Positive	MA05	148m south-west
AA3_Pond1386	North-west of Twiss Green	SJ6459396101	05 June 2019	90	No inflows present	Positive	MA05	314m south

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond871	West of Broseley Hall Farm	SJ6423996335	23 April 2018	100	No inflows present	Positive	MA05	12m south
AA3_Pond727	West of Diggle Green	SJ6363096622	N/A - EES	N/A - EES	N/A - EES	Positive	MA05	104m west
AA3_Pond732	South-east of Lowton St Mary's	SJ6326997058	19 April 2018	55	No inflows present	Positive	MA05	Within
EES_AA3_Pond776	North-east of Golborne	SJ6182698694	N/A - EES	N/A - EES	N/A - EES	Positive	MA05	2m south-east
AA3_Pond886	North of Lowton	SJ6192798706	24 April 2018	80	No inflows present	Positive	MA05	2m west
AA3_Pond1796	South-east of Culcheth	SJ6796693728	16 June 2020	100	No inflows present	Positive	MA05	238m north

* These ponds returned negative eDNA results, however, were subject to further survey with great crested newts being recorded via traditional presence/absence surveys.

Presence/absence and population size class estimate surveys

- 2.3.190 The results from amphibian P/A and population size class estimate surveys are detailed within Table 28.
- 2.3.191 Eighty-four ponds were identified as not supporting amphibians or supported low numbers of common amphibian species and are not shown in Table 28.

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Table 28: Summary of results from surveys for amphibian presence/absence and population size class assessment with associated amphibian populations within MA05

Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond1260	North of Gorse Covert	SJ6694093043	PSC	2 (partial)	30 April 2019	07 May 2019	15 (M)	15 (G)				92m south-east
AA1_Pond626	North of Holcroft Moss	SJ6812593698	PSC	2 (partial)	17 April 2019	01 May 2019	0	18 (G)		Tadpoles only	Tadpoles only	186m north
AA1_Pond689	East of Culcheth	SJ6407595223	PSC	4 (partial)	01 May 2019	05 June 2019	1 (S)	1 (L)				Within
AA1_Pond697	Within Leigh Golf Course	SJ6430695555	PSC	6	01 May 2019	13 June 2019	10 (S)	10 (G)	1 (L)	3 (L)	3 (L)	55m north-west
AA1_Pond701	West of Leigh Golf Course	SJ6385095837	PSC	6	23 April 2018	25 June 2018	3 (S)	5 (L)				12m north-east
AA1_Pond703	East of Kenyon	SJ6345895881	PSC	6	25 April 2018	05 July 2018	6 (S)	4 (L)				148m south-west
AA1_Pond715	North of Kenyon	SJ6327296036	PSC	2 (partial)	25 April 2018	10 May 2018	4 (S)	1 (L)				14m north-west
AA1_Pond871	West of Broseley Hall Farm	SJ6423996335	PSC	6	23 April 2018	25 June 2018	20 (M)	5 (L)			Present	12m south

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Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond732	South-east of Lowton St Mary's	SJ63269970 58	PSC	5 (partial)	19 April 2018	12 June 2018	14 (M)	2 (L)				Within
AA1_Pond886	North of Lowton	SJ61927987 06	PSC	6	24 April 2018	12 June 2018	4 (S)	5 (L)	Eggs only			2m west
AA1_Pond788	East of Edge Green	SJ60969991 04	PSC	3 (partial)	19 April 2018	07 June 2018	0	10 (G)			Tadpoles only	43m north-west
AA1_Pond798	South of The Old Shippen	SJ61534992 35	PSC	3 (partial)	17 April 2018	14 May 2018	1 (S)	4 (L)				Within
AA1_Pond804	North-east of Edge Green	SJ60365995 77	PSC	4	19 April 2018	04 June 2018	0	11 (G)			Present	48m east
AA1_Pond811	East of Stubshaw Cross	SJ60488998 38	PSC	4	18 April 2018	21 May 2018	0	16 (G)				Within

Key:

**Bracketed text within species column indicates the relevant population size class for the peak count obtained as follows:*

- Great crested newt = peak count 1-10 individuals = Small (S); peak count 11-100 individuals = Medium (M); >100 individuals = Large (L);
- Smooth and palmate newt = peak count less than 10 = Low (L); peak count 10-100 = Good (G); peak count over 100 = Exceptional (E);
- Common frog = spawn clumps counted less than 50 = Low (L); 50-500 = Good (G); greater than 500 = Exceptional (E); and
- Common toad = peak count of less than 100 = Low (L); peak count 100-1000 = Good (G); peak count greater than 1000 = Exceptional (E).

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A full six visits are required to obtain a robust population size class assessment. However, an indication of the corresponding size class category is shown here for all peak counts to show the minimum size class known to be present at those sites where the full six visits could not be completed during the time period available for survey.

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Desk study

2.3.192 rECOrd, MANEC and Natural England provided 64 records of amphibians within 1km of land required for the construction of the Proposed Scheme. Table 29 details the records of great crested newts and good or exceptional populations, where this data is provided, of other amphibians within 1km of land required for the construction of the Proposed Scheme. Desk study records from 2009 – 2020 are presented.

Table 29: Relevant historic amphibian records within MA05

Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
5	Common Frog	Not recorded	SJ6660892192 2012	MA05	687m south	Pond1950
3	Common Frog	Not recorded	SJ6649592014 2012	MA05	696m south-east	Pond1953
1	Common Frog	Not recorded	SJ6590894587 2014	MA05	27m north	Pond893
1	Common Toad	Not recorded	SJ6670192001 2012	MA05	862m south-east	Pond1944
2	Common Toad	Not recorded	SJ6871093048 2014	MA05	Within	Pond622
2	Common Toad	100 Tadpole	SD5875801644 2009	MA05	971m west	Pond1880
3	Common Toad	100 Tadpole	SD5908901754 2009	MA05	679m north-west	Pond1883
1	Common Toad	Not recorded	SJ6125598976 2013	MA05	131m north-west	Pond784
1	Common Toad	Not recorded	SD6061000879 2013	MA05	206m north-west	Pond815
2	Great Crested Newt	Not recorded	SJ6686492935 2017	MA05	108m south	Pond1256
1	Great Crested Newt	Not recorded	SJ6694093043 2014	MA05	92m south-east	Pond1260
2	Great Crested Newt	Not recorded	SJ6422592605 2017	MA05	766m west	Pond1938
2	Great Crested Newt	Not recorded	SJ6422592605 2017	MA05	766m west	Pond1938
1	Great Crested Newt	Not recorded	SJ6687192170 2009	MA05	913m south	Pond1949
2	Great Crested Newt	Not recorded	SJ6689492228 2013	MA05	859m south	Pond1954
1	Great Crested Newt	2	SJ6352297596 2009	MA05	133m north-east	Pond735

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Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
3	Great Crested Newt	1	SJ6660892192 2010	MA05	687m south-east	Pond1950
3	Great Crested Newt	Not recorded	SJ6649592014 2012	MA05	696m south-east	Pond1953
1	Great Crested Newt	Not recorded	SJ6477392801 2014	MA05	248m north-west	Pond2043
12	Great Crested Newt	17	SD6159201180 2014	MA05	964m north-east	Pond1848
2	Great Crested Newt	Not recorded	SJ6125598976 2013	MA05	131m north-west	Pond784
2	Great Crested Newt	Not recorded	SJ6283599846 2017	MA05	822m north	Pond1909
1	Great Crested Newt	Not recorded	SJ6118898512 2014	MA05	309m south-west	Pond2091
3	Great Crested Newt	Not recorded Present	SJ6441997393 2014	MA05	420m north-east	Pond2165
1	Palmate Newt	Not recorded	SJ6687192170 2013	MA05	913m south	Pond1949
1	Smooth Newt	Not recorded	SJ6686492935 2013	MA05	108m south	Pond1256
2	Smooth Newt	Not recorded	SJ6687192170 2012	MA05	913m south	Pond1949
3	Smooth Newt	Not recorded	SJ6649592014 2011	MA05	696m south-east	Pond1953

- 2.3.193 rECOrd, MANEC, and Merseyside BioBank (MEREC) supplied citation records for Local Wildlife Sites within 1km of land required for the construction of the Proposed Scheme. A total of eight Local Wildlife Sites reported presence of amphibian species. Of these sites, three reported presence of great crested newt along with other amphibian species (Amberswood Common, Lightshaw Lime Beds, and Ponds near Lightshaw Lane). The remaining five sites reported presence of other amphibian species including smooth newt, common toad and common frog. One of these sites (Ponds near Lightshaw Lane) is situated within land required for the construction of the Proposed Scheme.
- 2.3.194 The Local Wildlife Site “Three Sisters” is also designated as a Natural England Local Nature Reserve. The citation reports smooth newt, common toad, and common frog on site.
- 2.3.195 To obtain any relevant amphibian survey information, a review has been undertaken of developments within 1km of land required for the construction of the Proposed Scheme.

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Amphibian survey information covering the period 2009 – 2020 has been considered. One development has been identified²⁷.

- 2.3.196 One development provided records for great crested newt (with a peak count of one in each waterbody) at Pond735; Pond1240; and Pond1400²⁸.

Discussion of combined results

- 2.3.197 Of the 101 water bodies subject to P/A surveys, 29 are situated within land required for the construction of the Proposed Scheme in MA05, 70 are located within 250m, and two are located within 500m of land required for the construction of the Proposed Scheme.
- 2.3.198 Great crested newts have been found in 10 of the 101 water bodies subject to P/A and/or population size class survey, comprising three medium population size classes and seven small population size classes.
- 2.3.199 All ten of these water bodies with great crested newts also support other amphibian species (smooth newts in 12, palmate newt in two, common frog in one, and common toad in one). Thirty-five other water bodies where great crested newt was not found did support other common amphibian species. Four of these water bodies, AA1_Pond626, AA1_Pond788, AA1_Pond804, and AA1_Pond811, supported good populations of smooth newts.
- 2.3.200 A further seven water bodies that were only subject to eDNA survey were found to support great crested newt.
- 2.3.201 Nineteen metapopulations have been identified within MA05, and a total of 35 water bodies (15 from relevant desk-study records, seven from eDNA survey and 13 from P/A and/or population size class surveys) confirmed as supporting great crested newt.
- 2.3.202 Populations and metapopulations are presented from south to north. It should be noted that some populations and metapopulations cross community area boundaries. This occurs where clusters of linked ponds, that may be used by great crested newts, occur both sides of a community area boundary. GCNP1.4.8 and GCNMP1.4.9 cross the community area boundary between MA04 and MA05.
- 2.3.203 GCNMP1.5.1 is situated south of Culcheth and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 32 water bodies, five situated within, 15 situated within 250m, seven situated within 500m, and five situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South of Culcheth the landscape is woodland and

²⁷ Land at Pocket Nook Lane, Lowton. Planning Application Reference A/16/82102/NMAS. Downloaded from: <https://planning.wigan.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=OEOFSZRR03M00>.

²⁸ White Young Green (2016). Pocket Nook, Warrington – Great Crested Newt Report. Downloaded from: <https://planningdocs.wigan.gov.uk/planning/planning-documents?SDescription=A/16/82102/MAJOR&viewdocs=true>.

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farmland with areas of bare ground and scrub. There is some potential for this metapopulation to be connected to GCNMP1.5.4 across Mustard Lane.

- 2.3.204 GCNMP1.5.2 is situated south of Culcheth and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 15 water bodies, four situated within, six situated within 250m, two situated within 500m, and three situated more than 500m from land required for the construction of the Proposed Scheme. eDNA surveys to AA1_Pond631 returned positive results for great crested newt DNA. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South of Culcheth the landscape is woodland and farmland with areas of bare ground and scrub.
- 2.3.205 GCNMP1.5.3 is situated south-east of Culcheth and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of seven water bodies, five situated within 250m and two situated within 500m from land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond1796, AA1_Pond627 and AA3_Pond628 returned positive results for great crested newt DNA. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South-east of Culcheth the landscape is woodland and farmland with areas of bare ground and scrub.
- 2.3.206 GCNMP1.5.4 is situated west of Culcheth and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 29 water bodies, three situated within, 19 situated within 250m, five situated within 500m, and two situated more than 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond689, AA1_Pond697, AA1_Pond701, and AA1_Pond703, whilst surveys to AA1_Pond715 and AA1_Pond871 revealed medium or assumed medium populations of great crested newts. eDNA surveys to AA1_Pond695 also returned positive results for great crested newt DNA. The population size class of this metapopulation is medium, due to the presence of medium populations of great crested newts found at water body AA1_Pond871. West of Culcheth the landscape is farmland with areas of bare ground and scrub. There is some potential for this metapopulation to be connected to GCNMP1.5.1 across Mustard Lane, to GCNMP1.5.5 across Kenyon Lane, to GCNMP1.5.6 across Broseley Lane and to GCNMP1.5.7 and GCNMP1.5.8 across the Liverpool to Manchester Line (via Warrington Central) railway corridor.
- 2.3.207 GCNMP1.5.5 is situated west of Culcheth and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. West of Culcheth the landscape is farmland with areas of bare ground and scrub. There is some potential for this population to be connected to GCNMP1.5.4 across Kenyon Lane and GCNMP1.5.7 across the Liverpool to Manchester Line (via Warrington Central) railway corridor.

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- 2.3.208 GCNP1.5.6 is situated north-west of Culcheth and lies within 500m of land required for the construction of the Proposed Scheme. It consists of three water bodies, all situated within 500m of land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond1386 returned positive results for great crested newt DNA. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. North-west of Culcheth the surrounding landscape is farmland with hedgerows. There is some potential for this population to be connected to GCNMP1.5.4 across Broseley Lane.
- 2.3.209 GCNP1.5.7 is situated south-east of Golborne and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. South-east of Golborne the surrounding landscape is farmland with hedgerows. There is some potential for this population to be connected to GCNMP1.5.4 and GCNP1.5.5 across the Liverpool to Manchester Line (via Warrington Central) railway corridor.
- 2.3.210 GCNMP1.5.8 is situated south-east of Golborne and lies within 250m of land required for the construction of the Proposed Scheme. It consists of four water bodies, all situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South-east of Golborne the surrounding landscape is farmland with hedgerows. There is some potential for this metapopulation to be connected to GCNMP1.5.4 across the railway corridor and GCNP1.5.10 across Wilton Lane (B5207).
- 2.3.211 GCNMP1.5.9 is situated south-east of Golborne and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of five water bodies, two situated within 250m and three situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South-east of Golborne the surrounding landscape is farmland with hedgerows.
- 2.3.212 GCNP1.5.10 is situated south-east of Golborne and lies within 250m of land required for the construction of the Proposed Scheme. It consists of three water bodies, all situated within 250m of land required for the construction of the Proposed Scheme. eDNA surveys to AA1_Pond727 returned positive results for great crested newt DNA. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. South-east of Golborne the surrounding landscape is farmland with hedgerows. There is some potential for this population to be connected to GCNMP1.5.8 across Wilton Lane (B5207).
- 2.3.213 GCNP1.5.11 is situated south-east of Golborne and lies within land required for the construction of the Proposed Scheme. It consists of one pond, situated within land required for the construction of the Proposed Scheme. P/A surveys revealed a medium population of great crested newts at AA1_Pond732. The population size class of this population is medium, due to the presence of the medium population of great crested newts found at pond

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AA1_Pond732. South-east of Golborne the surrounding landscape is farmland with hedgerows.

- 2.3.214 GCNMP1.5.12 is situated south-east of Golborne and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of six water bodies, three situated within 250m, two situated within 500m, and one situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond2165. Data from planning applications identified the presence of great crested newts in Pond1240 and Pond1400. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South-east of Golborne the surrounding landscape is farmland with hedgerows.
- 2.3.215 GCNP1.5.13 is situated south-east of Golborne and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. Data from planning applications identified the presence of great crested newts in Pond735. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. South-east of Golborne the surrounding landscape is farmland with hedgerows, with nearby residential development.
- 2.3.216 GCNMP1.5.14 is situated south-east of Golborne and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 16 water bodies, four situated within, seven situated within 250m, four situated within 500m, and one situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of unsurveyed water bodies. The assumed metapopulation is located within an urban area, predominantly comprised of residential development. There is some potential for this metapopulation to be connected to GCNMP1.5.15 across Slag Lane.
- 2.3.217 GCNMP1.5.15 is situated north-east of Golborne and lies partially within and extends up to 500m from land required for the construction of the Proposed Scheme. It consists of 46 water bodies, 12 situated within, 21 situated within 250m, and 13 situated within 500m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at water body AA1_Pond886, whilst surveys to AA1_Pond798 revealed an assumed medium population. eDNA surveys to EES_AA3_Pond776 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at Pond2085, Pond2086, Pond2087, Pond2088, Pond2090, Pond2091 and AA1_Pond784. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-east of Golborne the surrounding landscape is predominantly farmland with hedgerows and pockets of woodland and agricultural buildings. There is some potential for this metapopulation to be connected to GCNMP1.5.14 across Slag Lane.
- 2.3.218 GCNMP1.5.16 is situated north of Golborne and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of four water bodies, two

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situated within 250m and two situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of Golborne the surrounding landscape is predominantly farmland with hedgerows and pockets of woodland and agricultural buildings.

- 2.3.219 GCNP1.5.17 is situated north-east of Ashton-in-Makerfield and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. North-east of Ashton-in-Makerfield the surrounding landscape is predominantly farmland with hedgerows and pockets of woodland and agricultural buildings.
- 2.3.220 GCNMP1.5.18 is situated north-east of Ashton-in-Makerfield and lies partially within and up to 250m from land required for the construction of the Proposed Scheme. It consists of four water bodies, one situated within and three situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed ponds. North-east of Ashton-in-Makerfield the surrounding landscape is predominantly farmland with hedgerows and pockets of woodland and agricultural buildings.
- 2.3.221 GCNMP1.5.19 is situated north-east of Ashton-in-Makerfield and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 10 water bodies, one situated within 250m, two situated within 500m, and seven situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North-east of Ashton-in-Makerfield the surrounding landscape is predominantly farmland with hedgerows and pockets of woodland and agricultural buildings.
- 2.3.222 Table 30 summarises the 19 great crested newt populations and metapopulations and details the associated population size classes.

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Table 30: Summary of assumed great crested newt metapopulations within MA05

Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²⁹	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNMP1.5.1	Pond1995, Pond1383, Pond1255, Pond869, Pond1353, Pond1351, Pond632, Pond1352, Pond2047, Pond1133, Pond639, Pond1245, Pond1384, AA1_Pond644, AA3_Pond1568, AH1_Pond1125, EES_AA3_Pond656, Pond2178, EES_AA3_Pond663, EES_AA3_Pond667, EES_AA3_Pond668, AH1_Pond894, EES_AA3_Pond675, Pond674, AH1_Pond676, EES_AA3_Pond679, AA1_Pond680; and 5 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	Within
GCNMP1.5.2	Pond1943, AA3_Pond1259, AA3_Pond625, Pond2036, Pond1570, Pond1485, AA1_Pond631, AA3_Pond636, AA3_Pond640, AA3_Pond642, AH1_Pond893, AA1_Pond669; and 3 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	Within
GCNMP1.5.3	Pond4498, Pond2048, AA1_Pond627, Pond4497, AA3_Pond1796, AA3_Pond629 and AA3_Pond628.	Assumed medium	180m north-east
GCNMP1.5.4	Pond1130, Pond1246, Pond1241, AA3_Pond672, Pond1392, AA3_Pond685, Pond686, Pond687, Pond688, AA1_Pond689, Pond690, Pond691, Pond692, Pond694, AA1_Pond695, AA1_Pond697, AA1_Pond1614, Pond699, AA1_Pond701, AA1_Pond703, EES_AA3_Pond707, Pond706, AA3_Pond1247, AA1_Pond715, Pond1251, Pond1129, AA1_Pond871; and 2 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Medium	Within
GCNP1.5.5	AA1_Pond711.	Assumed medium	46m south-west
GCNP1.5.6	AA3_Pond1386, AH1_Pond1253 and Pond2158.	Assumed medium	292m east
GCNP1.5.7	Pond868.	Assumed medium	55m north-west
GCNMP1.5.8	AH1_Pond896, EES_AA3_Pond721, AA3_Pond724 and Pond1382.	Assumed medium	5m west

²⁹ Water bodies listed in this table either support great crested newts as identified through desk study, eDNA, P/A and/or PSC surveys, or are those that have a high likelihood to support great crested newts based on presence of suitable habitat for great crested newt that occur within a connected landscape for this species.

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ²⁹	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNMP1.5.9	AA3_Pond1233, AA3_Pond1238, Pond1135, Pond1300 and AA1_Pond731.	Assumed medium	2m south
GCNP1.5.10	AA1_Pond727, AH1_Pond1248 and AA3_Pond1626.	Assumed medium	104m south
GCNP1.5.11	AA1_Pond732.	Medium	Within
GCNMP1.5.12	Pond1243, Pond2165, Pond1242, Pond1400, Pond1240; and 1 additional pond more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	29m north
GCNP1.5.13	Pond735.	Assumed medium	133m north-east
GCNMP1.5.14	Pond736, Pond739, Pond742, AA1_Pond890, AA1_Pond759, AA1_Pond883, Pond2114, AH1_Pond1244, AA1_Pond867, Pond2110, AA3_Pond774, Pond2113, Pond2112, Pond2109, Pond2111; and 1 additional pond more than 500m from land required for the construction of the Proposed Scheme.	Medium	Within
GCNMP1.5.15	Pond2089, Pond2085, Pond2090, Pond2088, Pond2087, Pond2086, Pond2091, Pond1566, AA1_Pond892, Pond1237, EES_AA3_Pond776, AA1_Pond886, Pond1235, Pond1236, Pond887, Pond1234, Pond782, Pond783, AA1_Pond784, Pond785, AA1_Pond786, AA1_Pond791, Pond792, Pond794, AH1_Pond795, Pond793, Pond796, AA1_Pond798, Pond797, AA3_Pond1381, AH1_Pond1620, AH1_Pond1618, AA1_Pond800, AH1_Pond801, Pond1910, EES_AA3_Pond807, AH1_Pond1489, AH1_Pond1629, AH1_Pond1616, Pond1590, EES_AA3_Pond810, AH1_Pond1552, AH1_Pond1617, AH1_Pond1142, Pond1270 and Pond1227.	Assumed medium	Within
GCNMP1.5.16	AH1_Pond1355, AA3_Pond1391, Pond1357 and AA3_Pond1589.	Assumed medium	Within
GCNP1.5.17	AA1_Pond813.	Assumed medium	19m north-east
GCNMP1.5.18	Pond815, AH1_Pond820, AH1_Pond819 and Pond881.	Assumed medium	Within
GCNMP1.5.19	Pond1573, AA1_Pond824, Pond1572; and 7 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	218m north-west

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Hulseheath to Manchester Airport (MA06)

- 2.3.223 A total of 253 ponds were identified as requiring survey within MA06.
- 2.3.224 Table 31 provides a summary of those 55 water bodies (as a subset of the 253 required for survey) which are located more than 250m from land required for the construction of the Proposed Scheme. These water bodies were scoped in, as suitable habitat is present and they form part of a pond cluster with those within 250m of land required for the construction of the Proposed Scheme, which may support a metapopulation of amphibians.

Table 31: Summary of water bodies located more than 250m from land required for the construction of the Proposed Scheme, scoped into amphibian assessment within MA06

Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond4023	South-west of Manchester airport	SJ7875081092	MA06	494m south
Pond4051	South-west of Manchester airport	SJ7884781193	MA06	422m south
Pond4063	South-west of Manchester airport	SJ7869981235	MA06	354m south
Pond4031	South-west of Manchester airport	SJ7872581256	MA06	335m south
Pond4046	South-west of Manchester airport	SJ7871081258	MA06	329m south
Pond4084	South-west of Manchester airport	SJ7872181276	MA06	310m south
Pond2888	South-west of Manchester Airport	SJ7877381287	MA06	303m south
Pond2893	South-west of Manchester Airport	SJ7893981291	MA06	375m south-east
Pond2451	East of New Mills	SJ7892181902	MA06	265m north-east
Pond2465	West of Manchester airport	SJ7903281909	MA06	349m north-east
Pond4095	North of New Mills	SJ7824882514	MA06	360m north-east
Pond4098	North of New Mills	SJ7815182693	MA06	404m north-east
Pond4097	North of New Mills	SJ7814182789	MA06	416m east
Pond1433	South-east of Lower House Farm	SJ7809283076	MA06	344m south-east
Pond1438	South-east of Lower House Farm	SJ7806883079	MA06	320m south-east
Pond1435	South-east of Lower House Farm	SJ7810583096	MA06	323m south-east
Pond1437	South-east of Lower House Farm	SJ7806883105	MA06	301m south-east

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Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1439	South-east of Lower House Farm	SJ7845283170	MA06	418m south-east
Pond397	South-west of Brickhill Wood	SJ7860783405	MA06	324m south
Pond398	South-west of Brickhill Wood	SJ7859283408	MA06	323m south
Pond2728	North of Bucklow Hill	SJ7315083618	MA06	306m north-east
Pond1419	South of Shaw Green Farm	SJ7537083665	MA06	302m south
Pond1420	North-east of Rostherne	SJ7500583854	MA06	337m south-west
Pond1407	North-east of Rostherne	SJ7496283915	MA06	333m south-west
Pond1507	Within Rostherne Mere	SJ7483883918	MA06	351m south-west
Pond2532	South-east of Hale	SJ8031783942	MA06	328m north-east
Pond2534	South-east of Hale	SJ8030183956	MA06	319m north-east
Pond1599	South of Hale	SJ8025783992	MA06	300m north-east
Pond454	South of Warburton Green	SJ8011384181	MA06	282m south-east
Pond1451	North-west of Manchester Airport	SJ8026584239	MA06	369m south-east
Pond2825	North-west of Rostherne	SJ7380584308	MA06	324m south-east
Pond2830	South of M56	SJ7389184326	MA06	386m south-east
Pond1453	North-west of Manchester Airport	SJ8031884353	MA06	296m south-west
Pond1597	North of Bucklow Hill	SJ7389984355	MA06	379m south-east
Pond1452	North-west of Manchester Airport	SJ8034084378	MA06	258m south-west
Pond1417	North of Rostherne	SJ7406884468	MA06	409m south-east
Pond481	West of Rostherne Mere	SJ7405184616	MA06	303m south-east
Pond513	South of M56	SJ7281485185	MA06	314m east
Pond2370	South of Bowgreen	SJ7584585286	MA06	262m north-west
Pond2317	South of Ashley Heath	SJ7752685399	MA06	266m north-east
Pond1411	North of M56	SJ7320685484	MA06	409m north
Pond2346	South of Bowgreen	SJ7548985536	MA06	282m south
Pond2310	South of Bowgreen	SJ7579085605	MA06	417m south-east
Pond2311	South of Bowgreen	SJ7581285619	MA06	428m south-east
Pond2374	South of Bowgreen	SJ7581885655	MA06	421m east
Pond2372	South of Bowgreen	SJ7577385659	MA06	375m south-east
Pond2331	West of Davenport Green	SJ7980386455	MA06	284m north-west
Pond1456	North of Davenport Green	SJ8022286842	MA06	290m north-west

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Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond1459	North of Davenport Green	SJ8023686851	MA06	278m north-west
Pond1460	North of Davenport Green	SJ8018986877	MA06	335m north-west
Pond1457	North of Davenport Green	SJ8029786942	MA06	295m north-west
Pond1458	North of Davenport Green	SJ8028586951	MA06	310m north-west
Pond1455	North of Davenport Green	SJ8026386977	MA06	341m north-west
Pond1454	East of Newall Green	SJ8025286996	MA06	367m north-west
Pond1463	North of Davenport Green	SJ8030687044	MA06	352m north-west

Field survey

Habitat Suitability Index/walkover surveys

2.3.225 Following the completion of walkover surveys, incorporating HSI surveys where appropriate, the water bodies identified in Table 32 were scoped out of the assessment.

Table 32: Summary of locations where requirement for further survey was scoped out following HSI/walkover survey in MA06

Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond405	West of Lower House Farm	SJ7737883521	Shallow depression in field overshadowed by alder, likely to dry annually. HSI - 0.41 (Poor)	MA06	Within
AH1_Pond417	South-west of Thorns Green	SJ7860683655	Small pond within woodland, expected to dry annually. HSI - 0.41 (Poor)	MA06	73m south
AH1_Pond418	South of Ashley	SJ7746883657	Dry at time of survey and likely to hold water only occasionally.	MA06	Within

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
			HSI - 0.00 (Poor)		
AH1_Pond426	South of Ashley	SJ7695583774	Ditch at edge of field margin, heavily shaded by vegetation. HSI - 0.00 (Poor)	MA06	7m south
AH1_Pond1465	South of Ashley	SJ7728583857	No water or evidence of water body recorded. HSI - 0.00 (Poor)	MA06	Within
AH1_Pond441	West of Thorns Green	SJ7846883893	Pond dry at time of survey and expected to hold water only occasionally. HSI - 0.00 (Poor)	MA06	56m north
AH1_Pond445	South of Ashley	SJ7734884007	Ditch in field margin, overgrown with scrub and other vegetation. HSI - 0.00 (Poor)	MA06	21m west
AH1_Pond448	South of Ashley	SJ7704284076	Water body completely overgrown with vegetation and dry at time of survey. HSI - 0.00 (Poor)	MA06	3m south
AH1_Pond1440	South of Deansgreen	SJ7858084099	Pond was dry/ did not exist and therefore not suitable to support breeding amphibians. HSI - 0.00 (Poor)	MA06	104m south
AH1_Pond450	South of Ashley	SJ7734684101	Pond completely overgrown with vegetation. HSI - 0.00 (Poor)	MA06	11m west
AH1_Pond1778	Within Sunbank Wood	SJ7999684157	Waterlogged area within woodland, expected to dry annually. HSI - 0.50 (Poor)	MA06	207m south-east
AH1_Pond452	South of Birkin Brook	SJ7603484163	Pond was found to be part of flowing ditch network. HSI - 0.00 (Poor)	MA06	Within

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond462	West of Thorns Green	SJ7855584299	No ponds recorded within land parcel. HSI - 0.00 (Poor)	MA06	90m north-west
AH1_Pond461	West of Thorns Green	SJ7853784300	No ponds recorded within land parcel. HSI - 0.00 (Poor)	MA06	103m north-west
AH1_Pond979	East of Ashley	SJ7764684316	Water body found to be a swimming pool. HSI - 0.00 (Poor)	MA06	117m north-west
AH1_Pond978	East of Ashley	SJ7768084339	Garden pond surrounded by amenity grassland with ornamental fish species. HSI - 0.38 (Poor)	MA06	126m north
AH1_Pond1597	North of Bucklow Hill	SJ7389984355	Dry pond in woodland, likely to hold water only occasionally. HSI - 0.00 (Poor)	MA06	379m south-east
AH1_Pond475	South-west of Booth Bank	SJ7203684457	No water bodies present on the land parcel. HSI - 0.00 (Poor)	MA06	Within
AH1_Pond476	East of High Legh	SJ7212884527	Fishing pond within a farmland pasture setting. HSI - 0.48 (Poor)	MA06	42m west
AH1_Pond478	South-west of Altrincham	SJ7203884596	Small sheep-drinking pond in field. Tyres dumped on edges. HSI - 0.47 (Poor)	MA06	22m east
AH1_Pond482	South of M56	SJ7516084627	No water body present. HSI - 0.00 (Poor)	MA06	Within
AH1_Pond485	East of Warburton Green	SJ8005284701	Water body with apparently poor water quality and large amounts of litter. Shaded by oak trees. HSI - 0.43 (Poor)	MA06	Within

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond981	West of Stonedolph Farm	SJ7201484778	Very small artificial pond used by domestic ducks and geese. Poor water quality and dense with leaf litter. HSI - 0.30 (Poor)	MA06	14m south
AH1_Pond872	South-east of M56	SJ8027884798	Large pond with extensive populations of water fowl present. HSI - 0.45 (Poor)	MA06	24m north-west
AH1_Pond495	Within Bowdon View Farm	SJ7476684814	Large pond in field with extensive populations of water fowl present. HSI - 0.45 (Poor)	MA06	Within
AH1_Pond500	Within Bowdon View Farm	SJ7475384863	Water body found to be absent on survey. HSI - 0.00 (Poor)	MA06	Within
AH1_Pond509	South of the M56	SJ7255785072	Ornamental duck pond. HSI - 0.45 (Poor)	MA06	47m north-east
AH1_Pond982	South of the M56	SJ7343885136	Ornamental pond in front garden of house, water fowl present. HSI - 0.32 (Poor)	MA06	51m north-west
AH1_Pond515	Within Hale	SJ7988885219	No water bodies present on land parcel. HSI - 0.00 (Poor)	MA06	141m south-east
AH1_Pond526	Within Hale	SJ8016985563	No water bodies present on the land parcel. HSI - 0.00 (Poor)	MA06	Within
AH1_Pond528	East of Hale Barns	SJ8047785671	Small pond in woodland area, completely dry at time of survey and unlikely to hold water at any time of the year. HSI - 0.43 (Poor)	MA06	Within
AH1_Pond532	South of Davenport Green	SJ8030186111	Pond with low water level and highly shaded under tree canopy,	MA06	3m north-east

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Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
			likely to dry out regularly. HSI - 0.41 (Poor)		

eDNA presence/absence surveys

- 2.3.226 The eDNA survey method was conducted at 85 water bodies in MA06. The summary of positive results of the eDNA P/A surveys and those with anomalies are detailed in Table 33.
- 2.3.227 From the 85 water bodies, 15 were defined as positive for great crested newt eDNA. Of these, three were within, nine were within 250m, and three were within 500m from land required for the construction of the Proposed Scheme. From the 15 water bodies those 12 within 250m were put forward for P/A surveys.
- 2.3.228 Of the water bodies that were negative, partial access to the pond perimeter¹¹ was a factor in four cases and these were put forward for P/A surveys.
- 2.3.229 Two of the water bodies, AA1_Pond460 and AA1_Pond511 recorded presence of great crested newts using traditional P/A surveys, even though the eDNA was inconclusive or negative. One of the water bodies also had assumed presence of great crested newts through positive desk study results. These ponds were identified as requiring population size class surveys.
- 2.3.230 The reasons for there being anomalies for the two water bodies in the eDNA results, as compared to the results of P/A surveys is currently unknown.

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Table 33: Summary of relevant results from eDNA presence/absence surveys for MA06

Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond402	South of Ashley	SJ7751583454	27 June 2019	80	No inflows present	Positive	MA06	Within
AA3_Pond1298	South-west of Altrincham	SJ7278183511	11 June 2019	100	No inflows present	Positive	MA06	8m north
AA3_Pond1419	South of Shaw Green Farm	SJ7537083665	23 June 2020	80	No inflows present	Positive	MA06	302m south
AA3_Pond952	South of Hulseheath	SJ7246283787	26 April 2018	100	No inflows present	Positive	MA06	47m north-west
EES_AA3_Pond439	West of Rostherne	SJ7245883854	N/A - EES	N/A - EES	N/A - EES	Positive	MA06	6m east
AA3_Pond442	South of Hale	SJ7804783928	24 June 2020	100	No inflows present	Positive	MA06	65m north
AA3_Pond444	South of Hale	SJ7675783981	25 June 2019	100	No inflows present	Positive	MA06	Within
AA3_Pond1599	South of Hale	SJ8025783992	26 June 2019	30	No inflows present	Positive	MA06	300m north-east
AA3_Pond446	South of Hale Bank Farm	SJ7997784023	25 June 2019	80	No inflows present	Positive	MA06	168m north
AA3_Pond451	South of Hale Bank Farm	SJ7990084117	25 June 2019	95	Present and wet	Positive	MA06	157m south-east
AA3_Pond454	South of Warburton Green	SJ8011384181	13 June 2019	100	Present and dry	Positive	MA06	282m south-east
AA3_Pond460	East of Ashley	SJ7858084294	15 May 2019	85	Present and dry	Negative (with positive results from subsequent P/A survey)	MA06	72m north

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Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond473	South-west of Warburton Green	SJ7893484428	24 June 2020	100	Present and dry	Positive	MA06	87m west
AA3_Pond1786	South of Warburton Green	SJ7982184553	22 June 2020	70	Present and wet	Positive	MA06	Within
AA3_Pond493	South of Bowdon	SJ8025784802	8 May 2019	80	No inflows present	Negative (with positive results from Planning Application records)	MA06	32m north-west
AA3_Pond503	South of Bowdon	SJ7590484947	23 June 2020	80	Present and wet	Positive	MA06	15m south-east
AA3_Pond1803	South of Hale	SJ7719385041	23 June 2020	80	No inflows present	Positive	MA06	93m west
EES_AA3_Pond511	South of the M56	SJ7308585118	N/A - EES	N/A - EES	N/A - EES	Negative (with positive results from subsequent P/A survey)	MA06	78m north-west

* These ponds returned negative eDNA results, however, were subject to further survey with great crested newts being recorded via traditional presence/absence surveys.

Presence/absence and population size class estimate surveys

2.3.231 The results from amphibian P/A and population size class estimate surveys are detailed within Table 34.

2.3.232 Seventeen ponds were identified as not supporting amphibians or supporting low numbers of common amphibian species and are not shown in Table 34.

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Table 34: Summary of results from surveys for amphibian presence/absence and population size class assessment with associated amphibian populations within MA06

Ecology survey code	Location	OS centroid grid reference	Survey type	Number of visits completed	First survey visit	Last survey visit	Peak count during single visit with single method					Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
							Great crested newt	Smooth newt	Palmate newt	Common frog	Common toad	
AA1_Pond952	South of Hulseheat h	SJ7246283787	PSC	5 (partial)	26 April 2018	28 June 2018	11 (M)	9 (L)			1 (L)	47m north-west
AA1_Pond460	East of Ashley	SJ7858084294	PSC	6	17 April 2019	19 June 2019	1 (S)	2 (L)	1 (L)	1 (L)		72m north
AA1_Pond993	South of Warburton Green	SJ7978484413	PSC	1 (partial)	19 April 2018	19 April 2018	0	21 (G)				Within
AA1_Pond511	South of the M56	SJ7308585118	PSC	6	16 April 2019	18 June 2019	1 (S)	3 (L)	1 (L)	1 (L)		78m north-west
AA1_Pond530	North-east of Hale Barns	SJ8016585885	PSC	1 (partial)	9 May 2018	9 May 2018	0	12 (G)				Within
AA1_Pond538	West of Davenport Green	SJ8034486375	PSC	1 (partial)	18 April 2018	18 April 2018	0	29 (G)				36m north-west

Key:

*Bracketed text within species column indicates the relevant population size class for the peak count obtained as follows:

- Great crested newt = peak count 1-10 individuals = Small (S); peak count 11-100 individuals = Medium (M); >100 individuals = Large (L);
- Smooth and palmate newt = peak count less than 10 = Low (L); peak count 10-100 = Good (G); peak count over 100 = Exceptional (E);
- Common frog = spawn clumps counted less than 50 = Low (L); 50-500 = Good (G); greater than 500 = Exceptional (E); and
- Common toad = peak count of less than 100 = Low (L); peak count 100-1000 = Good (G); peak count greater than 1000 = Exceptional (E).

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A full six visits are required to obtain a robust population size class assessment. However, an indication of the corresponding size class category is shown here for all peak counts to show the minimum size class known to be present at those sites where the full six visits could not be completed during the time period available for survey.

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Desk study

2.3.233 rECOrd, MANEC and Natural England provided 82 records of amphibians within 1km of land required for the construction of the Proposed Scheme. Table 35 details the records of great crested newts and good or exceptional populations, where this data is provided, of other amphibians within 1km of land required for the construction of the Proposed Scheme. Desk study records from 2009 – 2020 are presented.

Table 35: Relevant historic amphibian records within MA06

Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
1	Common Frog	Not Recorded	SJ7520983920 2014	MA06	134m south-west	Pond1405
4	Common Frog	Not Recorded	SJ7439784217 2012	MA06	462m south	AH1_Pond 1505
6	Common Frog	Not Recorded	SJ7789782022 2013	MA06	9m east	Pond1806
5	Common Frog	Not Recorded	SJ7815182693 2012	MA06	404m north-east	Pond4098
2	Common Toad	Not Recorded	SJ8058586763 2014	MA06	4m south-west	Pond543
1	Common Toad	Not Recorded	SJ7705584631 2013	MA06	25m east	Pond2316
1	Common Toad	Not Recorded	SJ7706884630 2013	MA06	44m east	Pond2315
11	Common Toad	Not Recorded	SJ7815182693 2013	MA06	404m north-east	Pond4098
3	Great Crested Newt	Not Recorded	SJ8046484492 2014	MA06	102m south-west	Pond1450
1	Great Crested Newt	Not Recorded	SJ8112584106 2014	MA06	504m south-east	Pond2547
1	Great Crested Newt	Not Recorded	SJ7530283493 2014	MA06	488m south	Pond2844
3	Great Crested Newt	Not Recorded	SJ7289383622 2012	MA06	153m north-east	Pond1223
7	Great Crested Newt	3	SJ7306783542 2013	MA06	200m north-east	Pond2729
8	Great Crested Newt	Not Recorded	SJ7302083643 2013	MA06	248m north-east	Pond2812
9	Great Crested Newt	Not Recorded	SJ7346883669 2013	MA06	511m north-east	Pond2824
1	Great Crested Newt	37	SJ7750683432 2012	MA06	Within	AH1_Pond 400

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Number of records	Common name	Peak count	National Grid Reference (NGR) and year of record	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation	Nearest water body
4	Great Crested Newt	5	SJ7455684670 2013	MA06	1m west	Pond484
13	Great Crested Newt	Not Recorded	SJ7789782022 2013	MA06	9m east	Pond1806
1	Great Crested Newt	48	SJ8461884214 2013	MA06	923m south-east	Pond4335

- 2.3.234 rECOrd and MANEC supplied citation records for Local Wildlife Sites within 1km of land required for the construction of the Proposed Scheme. A total of six Local Wildlife Sites reported presence of amphibian species. Of these sites, all six confirmed presence of great crested newt along with other amphibian species (Big Wood, Bollin Oxbow at Castle Hill, Ponds at Davenport Green, Ponds near Manchester Airport Runway, Sunbank Wood and Ponds, and Wood End at Lady Lane). Other species reported included smooth newt, common toad and common frog. One of these sites (Sunbank Wood and Ponds) is situated within land required for the construction of the Proposed Scheme.
- 2.3.235 To obtain any relevant amphibian survey information, review has been undertaken of developments within 1km of land required for the construction of the Proposed Scheme. Amphibian survey information covering the period 2009 – 2020 has been considered. One development has been identified³⁰.
- 2.3.236 One development provided records for great crested newt (with a peak count of 20) at Pond493, Pond1450, Pond451, Pond446, Pond2534, Pond1599, Pond2529, Pond2547, and Pond2530³¹. A good population of smooth newt (with a peak count of 20) was also recorded in Pond1599.

Discussion of combined results

- 2.3.237 Of the 23 water bodies subject to P/A surveys, three are situated within land required for the construction of the Proposed Scheme in MA06, 19 are located within 250m and one within 500m of land required for the construction of the Proposed Scheme.
- 2.3.238 Great crested newts have been found in three of the 23 water bodies subject to P/A and/or population size class survey, comprising one medium population size class and two small population size classes.

³⁰ Land Bounded By M56 And A538 To The South West Of The World Freight Terminal Manchester. Planning Application reference 100263/OO/2012/S2. Available online at: <https://pa.manchester.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=M91V90BC01D00>.

³¹ Manchester Airport Group - World Logistics Hub - Environmental Statement Volume 2: Technical Appendices. Appendix 4D: GCN Survey Result.

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- 2.3.239 All three water bodies with great crested newts also support other amphibian species (smooth newts in three, palmate newts in two, common frogs in two, and common toads in one). Thirteen other water bodies where great crested newt were not found did support other common amphibian species. Three of these water bodies, AA1_Pond530, AA1_Pond538, and AA1_Pond993, supported a good population of smooth newts.
- 2.3.240 A further 14 water bodies that were only subject to eDNA survey were found to support great crested newts.
- 2.3.241 Twenty-seven populations (across up to three water bodies) or metapopulations (across four or more water bodies) have been identified in MA06, and a total of 32 water bodies (15 from relevant desk-study records, 14 from eDNA survey and three from P/A and/or population size class surveys) confirmed as supporting great crested newt.
- 2.3.242 Populations and metapopulations are presented from south to north. It should be noted that some populations and metapopulations cross community area boundaries. This occurs where clusters of linked ponds, that may be used by great crested newts, occur both sides of a community area boundary. GCNP1.6.23 and GCNMP1.6.27 cross the community area boundary between MA06 and MA07.
- 2.3.243 GCNMP1.6.1 is situated south of Thorns Green and East of New Mills and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 179 water bodies, three situated within, 44 situated within 250m, 23 situated within 500m, and 109 situated more than 500m from land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond442 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at Pond1806. The population size class of this metapopulation is assumed large, due to the presence of over 100 water bodies within the assumed metapopulation. East of New Mills the surrounding landscape comprises principally arable farmland with woodland parcels to the west leading to Tatton Mere. There is some potential for this metapopulation to be connected to GCNP1.6.2 and GCNP1.6.5 across the Mid-Cheshire Line railway corridor and to GCNP1.6.11 and GCNMP1.6.12 across Castle Mill Lane and Back Lane.
- 2.3.244 GCNP1.6.2 is situated east of Tatton Dale and lies within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. The land within the assumed population comprises principally arable fields with an area of semi-improved grassland extending to the west and plantation forestry to the north. There is some potential for this population to be connected to GCNMP1.6.1 across the Mid-Cheshire Line railway corridor.
- 2.3.245 GCNP1.6.3 is situated north of New Mills and lies partially within and extends up to 250m from land required for the construction of the Proposed Scheme. It consists of two water bodies, one situated within and one situated within 250m from land required for the

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construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. The land within the assumed population comprises principally arable fields.

- 2.3.246 GCNMP1.6.4 is situated north-east of Rostherne and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of 16 water bodies, one situated within, five situated within 250m, four situated within 500m, and six situated more than 500m from land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond1419 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at Pond2844. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. The landscape north-east of Rostherne comprises principally arable fields and pasture grassland.
- 2.3.247 GCNP1.6.5 is situated north of New Mills and lies within land required for the construction of the Proposed Scheme. It consists of three water bodies, all situated within land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond402 returned positive results for great crested newt DNA. Based on desk study records, great crested newts are likely to be present at AH1_Pond400. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. The land within the population comprises principally arable fields. There is some potential for this population to be connected to GCNMP1.6.1 across the Mid-Cheshire Line railway corridor, and to GCNP1.6.8 across Mobberley Lane.
- 2.3.248 GCNMP1.6.6 is situated north of Rostherne and lies between 250m and extends more than 500m from land required for the construction of the Proposed Scheme. It consists of nine water bodies, two situated within 250m, five situated within 500m, and two situated more than 500m from land required for the construction of the Proposed Scheme. Based on desk study records, great crested newts are likely to be present at Pond2824 and Pond484. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. East of High Legh the surrounding landscape is farmland, with pockets of woodland, semi-improved grassland and scrub. There is some potential for this metapopulation to be connected to GCNMP1.3.7 across the B5569.
- 2.3.249 GCNP1.6.7 is situated south of Ashley and lies partially within and extends up to 250m from land required for the construction of the Proposed Scheme. It consists of three water bodies, two situated within and one situated within 250m of land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond444 returned positive results for great crested newt DNA. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. South of Ashley the land comprises arable farmland with pockets of woodland and areas of semi-improved grassland. There is some potential for this population to be connected to GCNMP1.6.10 across Ashely Road.
- 2.3.250 GCNP1.6.8 is situated north of New Mills and lies partially within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. The population size class of this

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population is assumed medium, due to the presence of an un-surveyed water body. The landscape north of New Mills comprises principally arable fields. There is some potential for this population to be connected to GCNMP1.6.5 across Mobberley Road.

- 2.3.251 GCNMP1.6.9 is situated north of New Mills and lies partially within and extends up to 500m from land required for the construction of the Proposed Scheme. It consists of 17 water bodies, three situated within, five situated within 250m and nine situated within 500m from land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond1599, AA3_Pond1786, AA3_Pond446, AA3_Pond451 and AA3_Pond454 returned positive results for great crested newt DNA. Data from planning applications identified the presence of great crested newts in Pond1450, AA3_Pond1599, Pond2534, AA3_Pond446 and AA3_Pond451. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. The landscape north of New Mills comprises principally arable fields and pasture grassland.
- 2.3.252 GCNP1.6.10 is situated west of Ashley and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. West of Ashley, the land comprises principally arable farmland with Birkin Brook running from north-west to south-east. There is some potential for this population to be connected to GCNMP1.6.7 across Ashley Road.
- 2.3.253 GCNP1.6.11 is situated east of Ashley and lies within 250m of land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. East of Ashley, the land comprises principally arable farmland. There is some potential for this population to be connected to GCNMP1.6.1 across Back Lane.
- 2.3.254 GCNP1.6.12 is situated east of Ashley and north of Thorns Green and lies within 250m of land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within 250m from land required for the construction of the Proposed Scheme. P/A surveys revealed small populations of great crested newts at AA1_Pond460. eDNA surveys to AA3_Pond473 returned positive results for great crested newt DNA. The population size class of this population is assumed medium, due to the presence of water bodies not subject to full survey effort. East of Ashley, the land comprises principally arable farmland. There is some potential for this water body to be connected to GCNMP1.6.1 across Castle Mill Lane.
- 2.3.255 GCNP1.6.13 is situated north of Ashley and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. North of Ashley, the land comprises principally arable farmland with the M56 on the northern boundary.

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- 2.3.256 GCNMP1.6.14 is situated north of Ashley and lies within 250m of land required for the construction of the Proposed Scheme. It consists of seven water bodies, all situated within 250m from land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond1803 returned positive results for great crested newt DNA. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of Ashley, the land comprises principally arable farmland with the M56 on the southern boundary. There is some potential for this metapopulation to be connected to GCNMP1.6.21 across the Mid-Cheshire Line railway corridor.
- 2.3.257 GCNP1.6.15 is situated south of Hale and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. South of Hale the land comprises arable fields and grassland bordered by the M56 to the south.
- 2.3.258 GCNP1.6.16 is situated east of Warburton Green and lies within 250m of land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within 250m from land required for the construction of the Proposed Scheme. Data from planning applications identified the presence of great crested newts in AA1_Pond493. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. The land within the assumed metapopulation comprises principally arable fields and pasture grassland.
- 2.3.259 GCNMP1.6.17 is situated west of Ashley and lies within 250m of land required for the construction of the Proposed Scheme. It consists of four water bodies, all situated within 250m from land required for the construction of the Proposed Scheme. eDNA surveys to AA3_Pond503 returned positive results for great crested newt DNA. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. West of Ashley, the land comprises principally arable farmland with the River Bollin on the northern boundary.
- 2.3.260 GCNMP1.6.18 is situated within junction eight of the M56 and lies partially within and extends up to 250m from land required for the construction of the Proposed Scheme. It consists of six water bodies, one situated within and five situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. Within junction eight of the M56 the land comprises fields of semi-improved grassland with woodland parcels surrounded by major roads.
- 2.3.261 GCNP1.6.19 is situated east of Hale and lies partially within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. East of Hale the land comprises arable fields and grassland bordered by the M56 to the south.

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- 2.3.262 GCNMP1.6.20 is situated south of Hale and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of eight water bodies, two situated within 250m and six situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South of Hale the land comprises arable fields and grassland bordered by the River Bollin to the south.
- 2.3.263 GCNMP1.6.21 is situated South of Ashley and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of four water bodies, three situated within 250m and one situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. South of Ashley the land comprises fields of semi-improved grassland with woodland parcels with the River Bollin to the north.
- 2.3.264 GCNP1.6.22 is situated within junction eight of the M56 and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. Within junction eight of the M56 the land comprises fields of semi-improved grassland with woodland parcels surrounded by major roads.
- 2.3.265 GCNP1.6.23 is situated within the urban area associated with Manchester Airport and lies partially within and extends up to 250m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Davenport Green to Ardwick area (MA07). It consists of three water bodies, one situated within and two situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. Within the urban area associated with Manchester airport, habitats are dominated by commercial and industrial buildings. There is some potential for this population to be connected to GCNP1.6.24 and GCNP1.7.2 across Aviator Way.
- 2.3.266 GCNP1.6.24 is situated within the urban area associated with Manchester Airport and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. Within the urban area associated with Manchester airport, habitats are dominated by commercial and industrial buildings. There is some potential for this population to be connected to GCNMP1.6.23 and GCNP1.7.3 across Aviator Way.
- 2.3.267 GCNP1.6.25 is situated east of Hale and lies within land required for the construction of the Proposed Scheme. It consists of one water body, situated within land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. East of Hale the land comprises pasture farmland with hedgerows, and some areas of woodland.

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- 2.3.268 GCNP1.6.26 is situated east of Davenport Green and lies partially within land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. East of Davenport Green the land comprises pasture farmland with hedgerows, with patches of woodland surrounding Timperley Brook to the south. There is some potential for this metapopulation to be connected to GCNMP1.6.27 across Thorley Lane.
- 2.3.269 GCNMP1.6.27 is situated north of Manchester Airport and lies partially within and extends more than 500m from land required for the construction of the Proposed Scheme. This metapopulation extends into the Davenport Green to Ardwick area (MA07). It consists of 42 water bodies, two situated within, six situated within 250m, nine situated within 500m, and 25 situated more than 500m from land required for the construction of the Proposed Scheme. The population size class of this metapopulation is assumed medium, due to the presence of un-surveyed water bodies. North of Manchester airport, this area comprises some areas of hardstanding and buildings, pasture farmland with hedgerows and scattered woodlands, and areas of residential development. There is some potential for this metapopulation to be connected to GCNP1.6.26 across Thorley Lane.
- 2.3.270 Table 36 summarises the 27 great crested newt metapopulations and details the associated population size classes.

Table 36: Summary of assumed great crested newt metapopulations within MA06

Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ³²	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNMP1.6.1	Pond4023, Pond4051, Pond4063, Pond4031, Pond4046, Pond4084, Pond2888, Pond2893, Pond2883, Pond2889, Pond2887, Pond2890, Pond2879, Pond2882, Pond2894, Pond2906, Pond2450, Pond2884, Pond2885, Pond2886, Pond2881, Pond2454, Pond1808, Pond2453, Pond2880, Pond2452, Pond2451, Pond2465, Pond2574, Pond1806, Pond4039, Pond4059, Pond2562, Pond4095, Pond4098, Pond4097, Pond1433, Pond1438, Pond1435, Pond3981, Pond4083, Pond1437,	Assumed large	Within

³² Water bodies listed in this table either support great crested newts as identified through desk study, eDNA, P/A and/or PSC surveys, or are those that have a high likelihood to support great crested newts based on presence of suitable habitat for great crested newt that occur within a connected landscape for this species.

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ³²	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
	Pond1429, Pond1427, Pond1428, Pond1430, Pond1426, Pond2506, Pond1425, Pond1439, Pond1432, Pond1445, Pond2502, Pond397, Pond398, Pond1441, AA3_Pond986, AA3_Pond988, AA3_Pond989, AA3_Pond987, AA1_Pond408, Pond413, AA3_Pond416, Pond420, Pond421, AA3_Pond422, AH1_Pond430, Pond435, AA3_Pond442, AA3_Pond455; and 109 additional ponds more than 500m from land required for the construction of the Proposed Scheme.		
GCNP1.6.2	Pond1807.	Assumed medium	Within
GCNP1.6.3	Pond1421 and Pond1424.	Assumed medium	Within
GCNMP1.6.4	Pond2844, AA3_Pond1419, Pond1408, Pond1464, Pond1407, Pond1507, Pond1405, AA3_Pond464, Pond469, Pond472; and 6 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	Within
GCNP1.6.5	AH1_Pond400, AA3_Pond402 and AH1_Pond404.	Assumed medium	Within
GCNMP1.6.6	Pond2805, Pond2825, Pond2830, Pond1417, Pond481, Pond484, Pond501; and 2 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	1m south-west
GCNP1.6.7	Pond1403, Pond423 and AA3_Pond444.	Assumed medium	Within
GCNP1.6.8	AA3_Pond424.	Assumed medium	Within
GCNMP1.6.9	Pond2533, Pond2532, Pond2534, AA3_Pond1599, AA3_Pond446, AA3_Pond451, AA3_Pond454, Pond2538, Pond2542, Pond1451, AA1_Pond459, Pond1453, Pond1452, AA1_Pond993, Pond992, Pond1450 and AA3_Pond1786.	Assumed medium	Within
GCNP1.6.10	AA3_Pond431.	Assumed medium	69m south-east
GCNP1.6.11	AA3_Pond456 and Pond1800.	Assumed medium	27m west
GCNP1.6.12	AA1_Pond460 and AA3_Pond473.	Assumed medium	72m south
GCNP1.6.13	AA3_Pond1804.	Assumed medium	81m west
GCNMP1.6.14	Pond2313, Pond2375, Pond2306, Pond2315, Pond2316, Pond2314 and AA3_Pond1803.	Assumed medium	24m south-west
GCNP1.6.15	Pond1598.	Assumed medium	86m north

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Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ³²	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNP1.6.16	AA1_Pond493 and Pond502.	Assumed medium	18m south
GCNMP1.6.17	AA3_Pond503, Pond2369, Pond2312 and Pond2367.	Assumed medium	15m south-east
GCNMP1.6.18	Pond514, Pond516, Pond517, Pond518, Pond519 and Pond520.	Assumed medium	Within
GCNP1.6.19	Pond524.	Assumed medium	Within
GCNMP1.6.20	Pond2370, Pond2347, Pond2346, Pond2310, Pond2311, Pond2374, Pond2372 and Pond2365.	Assumed medium	170m south-west
GCNMP1.6.21	Pond2320, Pond2317, Pond2318 and Pond2319.	Assumed medium	182m south-east
GCNP1.6.22	Pond1805.	Assumed medium	4m west
GCNP1.6.23	Pond2553, Pond2556 and Pond2554.	Assumed medium	Within
GCNP1.6.24	Pond2548.	Assumed medium	169m east
GCNP1.6.25	AA1_Pond530.	Assumed medium	Within
GCNP1.6.26	Pond535 and Pond537.	Assumed medium	Within
GCNMP1.6.27	AA1_Pond538, AA1_Pond540, Pond1449, Pond1448, Pond2331, Pond873, Pond542, Pond543, Pond1456, Pond1459, Pond1460, Pond544, Pond1457, Pond1458, Pond1455, Pond1454, Pond1463; and 25 additional ponds more than 500m from land required for the construction of the Proposed Scheme.	Assumed medium	Within

Davenport Green to Ardwick (MA07)

- 2.3.271 A total of 19 ponds were identified as requiring survey within MA07.
- 2.3.272 Table 37 provides a summary of those two water bodies (as a subset of the 19 required for survey) which are located more than 250m from land required for the construction of the Proposed Scheme. These water bodies were scoped in, as suitable habitat is present and they form part of a pond cluster with those within 250m of land required for the construction of the Proposed Scheme, which may support a metapopulation of amphibians.

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Table 37: Summary of water bodies located more than 250m from land required for the construction of the Proposed Scheme, scoped into amphibian assessment within MA07

Ecology survey code	Location	OS centroid grid reference	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
Pond2415	Within Didsbury Golf Course	SJ8398690129	MA07	411m south-east
Pond588	Within Didsbury Golf Course	SJ8384990216	MA07	252m south-east

Field survey

Habitat Suitability Index/walkover surveys

2.3.273 Following the completion of walkover surveys, incorporating HSI surveys where appropriate, the water bodies identified in Table 38 were scoped out of the assessment.

Table 38: Summary of locations where requirement for further survey was scoped out following HSI/walkover survey in MA07

Ecology survey code	Location	OS centroid grid reference	Brief rationale for scoping out (with HSI score)	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AH1_Pond555	Within Baguley	SJ8212888966	Water body found to be dry at time of survey and expected to hold water only occasionally. HSI – 0.00 (Poor)	MA07	132m west
AH1_Pond588	Within Didsbury Golf Course	SJ8384990216	Pond used as drainage from golf course. HSI - 0.39 (Poor)	MA07	252m south-east

eDNA presence/absence surveys

- 2.3.274 The eDNA survey method was conducted at five water bodies in MA07. The summary of positive results of the eDNA P/A surveys and those with anomalies are detailed in Table 39.
- 2.3.275 Of these five water bodies, one was defined as positive for great crested newt eDNA. This water body was within 500m from land required for the construction of the Proposed Scheme.
- 2.3.276 Of the water bodies that were negative, partial access to the pond perimeter¹¹ was a factor in two cases and these were put forward for P/A surveys.

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Table 39: Summary of relevant results from eDNA presence/absence surveys for MA07

Ecology survey code	Location	OS centroid grid reference	Date water sample taken	Approximate % pond margin accessible ¹¹	Presence of inflows	GCN eDNA test result	CA	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
AA3_Pond2415	Within Didsbury Golf Course	SJ8398690129	18 June 2020	100	No inflows present	Positive	MA07	411m south-east

Presence/absence and population size class estimate surveys

2.3.277 Three ponds were identified as not supporting amphibians or supporting low numbers of common amphibian species and are not reported.

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Desk study

- 2.3.278 MANEC provided no records of amphibians within 1km of land required for the construction of the Proposed Scheme.
- 2.3.279 Cheshire East Council, CWT, and MANEC supplied citation records for Local Wildlife Sites within 1km of land required for the construction of the Proposed Scheme. A total of three Local Wildlife Sites reported presence of amphibian species. Of these sites, one reported presence of great crested newt along with other amphibian species (Fletcher Moss, situated more than 100m to the east of GCNP1.7.3). The remaining two sites reported presence of other amphibian species including smooth newt and common frog.
- 2.3.280 To obtain any relevant amphibian survey information, a review has been undertaken of developments within 1km of land required for the construction of the Proposed Scheme. No developments were found to have records of or potential impacts upon great crested newts in MA07.

Discussion of combined results

- 2.3.281 Of the three water bodies subject to P/A survey, two were within 250m, and one was within 500m of land required for the construction of the Proposed Scheme.
- 2.3.282 Great crested newts were not found in the three water bodies subject to P/A surveys and/or PSC survey.
- 2.3.283 The three water bodies where great crested newt were not found did support other common amphibian species. None of these water bodies supported good or exceptional populations of other common amphibian species.
- 2.3.284 One water body that was only subject to eDNA survey was found to support great crested newts. This water body is isolated from land required for the construction of the Proposed Scheme by the River Mersey. It had been subject to survey because a previous design for the Proposed Scheme included land on the same side of the River Mersey as the water body. Because of this, this water body does not form part of any populations or metapopulations.
- 2.3.285 Six populations (across up to three water bodies) have been identified in MA07, and a total of one water body was confirmed as supporting great crested newt from eDNA survey.
- 2.3.286 No metapopulations (across four or more water bodies) have been recorded. Populations are presented from south to north. It should be noted that some populations and metapopulations cross community area boundaries. This occurs where clusters of linked water bodies, that may be used by great crested newts, occur both sides of a community area boundary. GCNP1.6.23 and GCNMP1.6.27 cross the community area boundary between MA06 and MA07.
- 2.3.287 GCNP1.7.1 is situated north of Moss Nook and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this

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population is assumed medium, due to the presence of an un-surveyed water body. North of Moss Nook contains areas of semi-improved grassland with residential buildings and associated gardens and large areas of hardstanding.

- 2.3.288 GCNP1.7.2 is situated within the urban area associated with Manchester Airport and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. Within the urban area of Manchester Airport, the landscape is dominated by commercial and industrial buildings. There is some potential for this population to be connected to GCNP1.6.23 across Aviator Way.
- 2.3.289 GCNP1.7.3 is situated south of Ashley Heath and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. South of Ashley Heath the land comprises arable farmland with pockets of woodland and areas of semi-improved grassland. There is some potential for this population to be connected to GCNMP1.6.24 across Aviator Way.
- 2.3.290 GCNP1.7.4 is situated south of Northenden and lies between 250m and 500m from land required for the construction of the Proposed Scheme. It consists of two water bodies, one situated within 250m and one situated within 500m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. South of Northenden mainly comprises residential areas with amenity grassland and small areas of woodland.
- 2.3.291 GCNP1.7.5 is situated south-west of Didsbury and lies within 250m of land required for the construction of the Proposed Scheme. It consists of two water bodies, both situated within 250m from land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of un-surveyed water bodies. South-west of Didsbury the majority of the land consists of golf courses, comprising amenity grassland and scattered trees with some commercial buildings and associated hardstanding surrounding the River Mersey. There is some potential for this population to be connected to GCNP1.7.6 across Palatine Road (B5167).
- 2.3.292 GCNP1.7.6 is situated south-west of Didsbury and lies within 250m of land required for the construction of the Proposed Scheme. It consists of one water body, situated within 250m of land required for the construction of the Proposed Scheme. The population size class of this population is assumed medium, due to the presence of an un-surveyed water body. South-west of Didsbury the majority of the land consists of golf courses comprising amenity grassland and scattered trees with some commercial buildings and associated hardstanding surrounding the River Mersey. There is some potential for this population to be connected to GCNP1.7.5 across Palatine Road (B5167).

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2.3.293 Table 40 summarises the six great crested newt populations and details the associated population size classes.

Table 40: Summary of assumed great crested newt metapopulations within MA07

Assumed metapopulation reference (GCNMP)	Ecology survey code of water bodies within assumed metapopulation ³³	Estimated population size class of metapopulation (peak counts from all known great crested newt populations from a single nights' survey visit within the assumed metapopulation)	Approximate distance from land required for the construction of the Proposed Scheme (m) and orientation
GCNP1.7.1	Pond4064.	Assumed medium	64m south
GCNP1.7.2	Pond2555.	Assumed medium	32m north-east
GCNP1.7.3	Pond2551.	Assumed medium	241m south-west
GCNP1.7.4	Pond558 and Pond567.	Assumed medium	176m north
GCNP1.7.5	AA3_Pond602 and AH1_Pond607.	Assumed medium	16m south-east
GCNP1.7.6	AA3_Pond608.	Assumed medium	188m west

Manchester Piccadilly Station (MA08)

2.3.294 No ponds requiring assessment for great crested newts or other amphibians were identified in MA08. As such, map series EC-04 does not include any mapsheets for MA08.

³³ Water bodies listed in this table either support great crested newts as identified through desk study, eDNA, P/A and/or PSC surveys, or are those that have a high likelihood to support great crested newts based on presence of suitable habitat for great crested newt that occur within a connected landscape for this species.

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