

# **High Speed Rail (Crewe – Manchester)**

## **Background information and data**

### **Ecology and biodiversity**

BID EC-003-00001

Ecological baseline data -  
protected and notable flora

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## Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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# 1 Introduction

- 1.1.1 This report presents a summary of the baseline data relating to protected and notable flora, including ancient and veteran trees.
- 1.1.2 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 Hulseheath (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 The Environmental Statement<sup>1</sup> should be referred to for details of the ecology impact assessment.

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<sup>1</sup> 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 Protected and/or notable flora

### 2.1 Methodology

- 2.1.1 Desk study records related to protected and/or notable flora, including ancient and veteran trees, were obtained from the following data sources:
- rECOrd<sup>2</sup>, Local Biological Records Centre for the Cheshire region;
  - Woodland Trust Ancient and Veteran Tree Inventory<sup>3</sup>;
  - Merseyside Biobank, Local Biological Records Centre for the North Merseyside Region;
  - GMLRC, Greater Manchester Local Record Centre;
  - British Bryological Society; and
  - British Lichen Society.
- 2.1.2 In addition, records of protected and/or notable flora were made during the course of Phase 1 habitat and National Vegetation Classification (NVC) surveys (see Background Information and Data, Phase 1 habitat survey (BID EC-002-00001), and National Vegetation Classification and ancient woodland (BID EC-004-00001)).
- 2.1.3 Information on the status of wildflowers, nationally and in South Lancashire (Vice County 59)<sup>4</sup> and Cheshire (Vice County 58), was taken from:
- The Vascular Plant Red Data List for Great Britain published by the Joint Nature Conservation Committee (JNCC) (updated in 2018)<sup>5,6</sup>;
  - A Vascular Plant Red List for England<sup>7</sup>;
  - the list of Nationally Rare and Nationally Scarce plants compiled by the Botanical Society of Britain and Ireland (BSBI) and available on their website<sup>8</sup>;

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<sup>2</sup> rECOrd, *Local Biological Records Centre serving Cheshire*. Available online at: <http://www.record-irc.co.uk>.

<sup>3</sup> Woodland Trust, *Ancient Tree Inventory*. Available online at: <https://ati.woodlandtrust.org.uk/>.

<sup>4</sup> A Vice County is a geographical system for biological recording in the British Isles invented in the 19th century but still in use today. Vice counties are loosely aligned with modern administrative counties, but there are more Vice Counties than modern counties.

<sup>5</sup> Cheffings, C.M. and Farrell, L. (Eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005), *The Vascular Plant Red Data List for Great Britain*, Species Status, 7: 1-116, Joint Nature Conservation Committee, Peterborough.

<sup>6</sup> Leach, S. (2018), *Vascular plant Red Data List for Great Britain: a summary of amendments in years 12 and 13 (2017-2018) of the annual amendments process*, BSBI News, 141. P3-7.

<sup>7</sup> Stroh, P.A., Leach, S.J., August, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., Fay, M.F., Martin, J.P., Pankhurst, T., Preston, C.D., Taylor I. (2014), *A Vascular Plant Red List for England*, Botanical Society of Britain and Ireland.

<sup>8</sup> Botanical Society of Britain and Ireland, *BSBI species accounts*. Available online at: <http://bsbi.org/species-accounts>.

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- the list of Species of Principal Importance in England in Section 41 of the Natural Environment and Rural Communities Act 2006<sup>9</sup>;
- Cheshire County Rare Plant Register (2015)<sup>10</sup>;
- Cheshire Region Biodiversity Action Plan<sup>11</sup>;
- South Lancashire Rare and Scarce Plant Register (2016) for Vice County 59<sup>12</sup>;
- Wildlife and Countryside Act Schedule 8<sup>13</sup>;
- A Conservation Evaluation of British Lichens and Lichenicolous Fungi, published by the JNCC (2012)<sup>14</sup>;
- The Conservation of Habitats and Species Regulations 2017 (as amended) – Schedule 5 which lists European Protected Species of plants<sup>15</sup>.

2.1.4 Information on the national status of notable plants, taken from The Vascular Plant Red Data Lists for England and Great Britain, is based on the International Union for the Conservation of Nature (IUCN) Red List<sup>16</sup> criteria. Under these criteria, Least Concern is a category that includes species that do not qualify for the following status:

- Critically Endangered;
- Endangered;
- Vulnerable; or/and
- Near Threatened.

2.1.5 Least Concern species are described as widespread and abundant on the Red List and, therefore, are not included as notable plants for this assessment. Species listed as Near Threatened are included as notable plants, but due to their varying status across the country, their county status is taken into consideration before they are included in the Environmental Statement Volume 2, Community Area reports<sup>1</sup>, Section 7.

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<sup>9</sup> Natural Environment and Rural Communities (NERC) Act 2006 (Section 41) Biodiversity lists and action (England). London, Her Majesty's Stationery Office.

<sup>10</sup> Kay, G. M. (2015), *Cheshire County Rare Plant Register*, Cheshire Wildlife Trust. Available online at: [https://bsbi.org/wp-content/uploads/dlm\\_uploads/Cheshire\\_RDB\\_2015.pdf](https://bsbi.org/wp-content/uploads/dlm_uploads/Cheshire_RDB_2015.pdf).

<sup>11</sup> Cheshire Wildlife Trust (2007), *Cheshire region Biodiversity Action Plan*.

<sup>12</sup> Lancashire Botany Group. Available online at: <https://bsbi.org/lancashire>.

<sup>13</sup> Wildlife and Countryside Act 1981 (England and Wales) (as amended), Chapter 69. Her Majesty's Stationery Office, London.

<sup>14</sup> Woods, R.G. and Coppins, B.J. (2012), *A Conservation Evaluation of British Lichens and Lichenicolous Fungi*, Species Status No.13, JNCC, Peterborough, ISSN 1473-0154.

<sup>15</sup> The Conservation of Habitats and Species Regulations 2017 - Schedule 5 European Protected Species of plants. Her Majesty's Stationery Office, London.

<sup>16</sup> International Union for the Conservation of Nature (IUCN) (2016), The IUCN Red List of Threatened Species, Version 2016-3. Available online at: <http://www.iucnredlist.org>.

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- 2.1.6 The South Lancashire County Rare Plant Register lists Locally Rare, Locally Endangered, Locally Scarce and Locally Extinct plant species<sup>17</sup>. The number of locations within which a species has been recorded is also listed.
- 2.1.7 The Cheshire County Rare Plant Register lists Internationally Rare, Nationally Rare, Nationally Scarce and Locally Rare plant species and then provides brief notes on the species status for each. The Register also provides a list of Locally Scarce species, which it advises should be regarded as 'Potentially Vulnerable' as they occur in 4-16 locations across the vice county.
- 2.1.8 Species within any of these categories have been included in Table 1 and Table 2.
- 2.1.9 For this assessment, the definition of an ancient or veteran tree is taken from Annex 2 of the National Planning Policy Framework (glossary)<sup>18</sup>: *'A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.'*

## 2.2 Deviations, constraints and limitations

- 2.2.1 Desk study records have been obtained up to and including 2017.
- 2.2.2 Desk study records are provided by records centres to differing levels of geographic accuracy. These range from six-figure grid references, which are accurate to within 100m, to 10-figure grid references which are accurate to within a metre.
- 2.2.3 Where a six-figure grid reference is provided by a third-party supplier, this is accurate to within 100m. If such records map to a location next to, and are strongly associated with habitat which is present in, the land required for the construction of the Proposed Scheme, they are assumed to be present within the land required for construction.
- 2.2.4 Information on notable flora was collected during the Phase 1 habitat survey and NVC surveys. Due to the seasonal variation in emergence of some plant species, not all notable plant species may have been in evidence at the time of survey.
- 2.2.5 Notable plant species records extracted from statutory and non-statutory designated site citations (see Environmental Statement Volume 5, Ecological baseline data – designated

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<sup>17</sup> The Botanical Society for the British Isles provides standard definitions for the rare plant register categories in this publication – BSBI (2017). County Rare Plant Register Guidelines – an update (2017). Available online at: [https://bsbi.org/wp-content/uploads/dlm\\_uploads/BSBI-County-Rare-Plant-Register-Guidelines-2017.pdf](https://bsbi.org/wp-content/uploads/dlm_uploads/BSBI-County-Rare-Plant-Register-Guidelines-2017.pdf).

<sup>18</sup> Ministry of Housing Communities and Local Government (2019), National Planning Policy Framework. Available online at: <https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>.



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sites, EC-001-00001<sup>19</sup>) are dated as per the date of site citation. This may not necessarily be the same as the date of record collection, which is not stated on the citation.

- 2.2.6 Local records centres do not hold precise coordinates for plants listed on designated site citations, thus species have been inferred to occur in the land required for construction of the Proposed Scheme if the designation overlaps the land required for construction of the Proposed Scheme. However, this may not be the case for designations which only partially overlap (i.e. the plant may not occur in the part of the designation which overlaps).
- 2.2.7 Information on veteran trees was not specifically available at the county level for Lancashire or Cheshire (other than where a non-statutory Local Wildlife Site has been designated for an ancient/veteran tree), but information on nationally recognised veteran trees was obtained from the Woodland Trust.

## 2.3 Baseline

- 2.3.1 The study has focussed on any protected and/or notable flora located within or adjacent to the land required for construction of the Proposed Scheme or located at greater distance but considered potentially subject to adverse effects.

### Desk study

- 2.3.2 A summary of desk study records of relevant protected or notable flora is provided in Table 1.

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<sup>19</sup> High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement, Volume 5, Ecological baseline data - designated sites*, EC-001-00001. Available online at: <https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-environmental-statement>.

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**Table 1: Desk study records of protected and notable species records relevant to the assessment in MA01 to MA08**

Common name	Latin name	Status <sup>20</sup>	Location	Date <sup>21</sup>	Ordnance Survey (OS) grid reference	CA	Within the land required for construction of the Proposed Scheme (Yes/No)
Large-leaved lime	<i>Tilia platyphyllos</i> <sup>22</sup>	Nationally Scarce Great Britain (GB)	Bradfield Road, Crewe	28 September 2012	SJ699574	MA01	No
Ragged robin	<i>Silene flos-cuculi</i>	Near Threatened – England Red List	Gresty Brook, South of Crewe Green Industrial Estate	2012	SJ71715366	MA01	No
Common valerian	<i>Valeriana officinalis</i>	Near Threatened – England Red List	Gresty Brook, South of Crewe Green Industrial Estate	2012	SJ71715366	MA01	No
Common cottongrass	<i>Eriophorum angustifolium</i>	Vulnerable – England Red List	Crewe Green Link Road South	4 August 2008	SJ724532	MA01	Yes
Oak fern	<i>Gymnocarpium dryopteris</i>	Near Threatened – England Red List; Locally Scarce in South Lancashire (Vice County [VC] 59)	Crewe Green Link Road South	4 August 2008	SJ724532	MA01	Yes
Marsh pennywort	<i>Hydrocotyle vulgaris</i>	Near Threatened – England Red List	Crewe Green Link Road South	4 August 2008	SJ724532	MA01	Yes
Creeping forget-me-not	<i>Myosotis secunda</i>	Locally Scarce in Cheshire (VC58)	Crewe Green Link Road South	4 August 2008	SJ724532	MA01	Yes
Marsh cinquefoil	<i>Comarum</i>	Near Threatened – England	Crewe Green Link	4 August 2008	SJ724532	MA01	Yes

<sup>20</sup> Where the status listed is the same in 'A Vascular Plant Red List for England' and 'The Vascular Plant Red Data List for Great Britain', only 'The Vascular Plant Red Data List for Great Britain' has been referenced.

<sup>21</sup> Where a date range for a biological record was provided by a third party the date is expressed to year only in this table. Certain biological records were only supplied to year.

<sup>22</sup> In Cheshire and South Lancashire, this species is likely to be a planted/introduced specimen.

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Common name	Latin name	Status <sup>20</sup>	Location	Date <sup>21</sup>	Ordnance Survey (OS) grid reference	CA	Within the land required for construction of the Proposed Scheme (Yes/No)
	<i>palustris</i>	Red List	Road South				
Marsh ragwort	<i>Senecio aquaticus</i>	Near Threatened – England Red List	Crewe Green Link Road South	4 August 2008	SJ724532	MA01	Yes
Ragged robin	<i>Silene flos-cuculi</i>	Near Threatened – England Red List	Mossbridge Marsh Local Wildlife Site (LWS)	2018	SJ69875861	MA01	Yes
Common valerian	<i>Valeriana officinalis</i>	Near Threatened – England Red List	Mossbridge Marsh LWS	2018	SJ69875861	MA01	Yes
Friberg's screw-moss	<i>Tortula fribergii</i>	Section 41 Natural Environment and Rural Communities (NERC) Act	Shropshire Union Canal, Middlewich Branch	2008	SJ67876472	MA02	No
White bryony	<i>Bryonia dioica</i>	Locally Scarce in South Lancashire (VC59)	Lea Hall/Clive Green	27 May 2009	SJ6864	MA02	Yes
Welsh poppy	<i>Meconopsis cambrica</i> <sup>23</sup>	Nationally Scarce (GB)	Lea Hall/Clive Green	27 May 2009	SJ6864	MA02	Yes
Friberg's screw-moss	<i>Tortula fribergii</i>	Section 41 NERC Act	Shropshire Union Canal, Middlewich Branch	2008	SJ68066249	MA02	Yes
Friberg's screw-moss	<i>Tortula fribergii</i>	Section 41 NERC Act	Trent and Mersey Canal, south of Rudheath	2008	SJ68257197	MA02	No
Friberg's screw-moss	<i>Tortula fribergii</i>	Section 41 NERC Act	Trent and Mersey Canal, south of Rudheath	2008	SJ68277178	MA02	No

<sup>23</sup> This species is likely present as an introduction or casual. The native Welsh poppy population is associated with moist, shady, rocky places, often under trees and usually on base-rich soils.

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Common name	Latin name	Status <sup>20</sup>	Location	Date <sup>21</sup>	Ordnance Survey (OS) grid reference	CA	Within the land required for construction of the Proposed Scheme (Yes/No)
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Trent and Mersey Canal, south of Rudheath	2008	SJ68287145	MA02	No
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Trent and Mersey Canal, Rudheath	2008	SJ68317297	MA02	No
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Trent and Mersey Canal, north of Middlewich	2008	SJ68356884	MA02	Yes
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Trent and Mersey Canal, north of Rudheath	2008	SJ68367388	MA02	No
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Trent and Mersey Canal, north of Whatcroft	2008	SJ68397083	MA02	Yes
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Trent and Mersey Canal, north of Whatcroft	2008	SJ68507066	MA02	No
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Trent and Mersey Canal, north of Middlewich	2008	SJ68536868	MA02	No
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Trent and Mersey Canal, north of Middlewich	2008	SJ68896786	MA02	No
White bryony	<i>Bryonia dioica</i>	Locally Scarce in South Lancashire (VC59)	Middlewich	26 May 2009	SJ7066	MA02	Yes
Harebell	<i>Campanula rotundifolia</i>	Near Threatened – England Red List	Middlewich	2007	SJ7066	MA02	Yes
Greater knapweed	<i>Centaurea scabiosa</i>	Locally Scarce in Cheshire (VC58)	Greenhays Farm Pasture LWS	2018	SJ688671	MA02	Yes

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Common name	Latin name	Status <sup>20</sup>	Location	Date <sup>21</sup>	Ordnance Survey (OS) grid reference	CA	Within the land required for construction of the Proposed Scheme (Yes/No)
Alternate-leaved golden-saxifrage	<i>Chrysosplenium oppositifolium</i>	Locally Scarce in Cheshire (VC58)	Greenhays Farm Pasture LWS	2018	SJ688671	MA02	Yes
Small-leaved lime	<i>Tilia cordata</i>	Rare in South Lancashire (VC59), Locally Scarce in Cheshire (VC58)	Rookery/Small Rookery Woods LWS	2010	SJ675636	MA02	Yes
Freiberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Shropshire Union Canal (Middlewich Branch) LWS	2008	SJ67876472	MA02	No
Devil's-bit scabious	<i>Succisa pratensis</i>	Near Threatened – England Red List	Mill Wood Castle Mill Site of Biological Importance (SBI)	2018	SJ797838	MA02	Yes
Water-purslane	<i>Lythrum portula</i>	Locally Scarce in Cheshire (VC58)	The Willowbeds LWS	2010	SJ676670	MA02	Yes
Devil's-bit scabious	<i>Succisa pratensis</i>	Near Threatened – England Red List	Greenhays Farm Pasture LWS	2018	SJ688671	MA02	Yes
Common toothwort	<i>Lathraea squamaria</i>	Locally Scarce in South Lancashire (VC59)	River Dane, Bostock LWS	2018	SJ683681	MA02	Yes
Tormentil	<i>Potentilla erecta</i>	Near Threatened – England Red List	Bull's Wood and Meadow LWS	2018	SJ683680	MA02	Yes
Marsh arrow-grass	<i>Triglochin palustris</i>	Near Threatened – England Red List	Wade Brook LWS	5 July 2013	SJ688743	MA02	Yes
Small-leaved lime	<i>Tilia cordata</i>	Rare in South Lancashire (VC59), Locally Scarce in Cheshire (VC58)	Long Wood, Lostock LWS	2010	SJ701750	MA02	Yes
Flamingo moss	<i>Tortula cernua</i>	Schedule 8 of the Wildlife and Countryside Act (WCA) 1981	Plumley Lime Beds Site of Special Scientific Interest (SSSI)	2008	SJ7075	MA02	Yes
Wood sorrel	<i>Oxalis acetosella</i>	Near Threatened – England	Winnington and Peas	2010	SJ700756	MA02	Yes

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Common name	Latin name	Status <sup>20</sup>	Location	Date <sup>21</sup>	Ordnance Survey (OS) grid reference	CA	Within the land required for construction of the Proposed Scheme (Yes/No)
		Red List	Wood LWS				
Small-leaved lime	<i>Tilia cordata</i>	Rare in South Lancashire (VC59), Locally Scarce in Cheshire (VC58)	Winnington and Peas Wood LWS	2010	SJ700756	MA02	Yes
Marsh ragwort	<i>Senecio aquaticus</i>	Near Threatened – England Red List	Pickmere area	7 August 2006	SJ6878	MA03	Yes
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce (GB)	Pickmere area	30 October 2010	SJ6878	MA03	Yes
Fine-leaved water-dropwort	<i>Oenanthe aquatica</i>	Locally Scarce in South Lancashire (VC59)	East of Pickmere	5 June 2007	SJ70797706	MA03	No
White bryony	<i>Bryonia dioica</i>	Locally Scarce in South Lancashire (VC59)	North-west of Millington	4 June 2013	SJ7186	MA03	Yes
Bee orchid	<i>Ophrys apifera</i>	Locally Scarce in Cheshire (VC58)	M56 Motorway north of Agden Lane	2008	SJ718852	MA03	Yes
Bee orchid	<i>Ophrys apifera</i>	Locally Scarce in Cheshire (VC58)	M56 Motorway north of Agden Lane	2008	SJ718853	MA03	Yes
Small-leaved lime	<i>Tilia cordata</i>	Rare in South Lancashire (VC59), Locally Scarce in Cheshire (VC58)	Over Tabley	11 September 2006	SJ7280	MA03	Yes
Harebell	<i>Campanula rotundifolia</i>	Near Threatened – England Red List	Bucklow Hill	25 August 2010	SJ72458305	MA03	Yes
Harebell	<i>Campanula rotundifolia</i>	Near Threatened – England Red List	Bucklow Hill	25 August 2010	SJ72468303	MA03	Yes
Alternate-leaved golden-saxifrage	<i>Chrysosplenium oppositifolium</i>	Locally Scarce in Cheshire (VC58)	Leonard's and Smoker Wood LWS	2015	SJ704762	MA03	Yes
Sainfoin	<i>Onobrychis viciifolia</i>	Vulnerable – Great Britain Red List	Fields north of Park Lane, Nr Pickmere	11 September 2006	SJ7278	MA03	Yes
Corn spurrey	<i>Spergula arvensis</i>	Vulnerable – Great Britain Red List	Fields north of Park Lane, Nr Pickmere	7 August 2006	SJ7278	MA03	Yes

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Small-leaved lime	<i>Tilia cordata</i>	Rare in South Lancashire (VC59), Locally Scarce in Cheshire (VC58)	Leonard's and Smoker Wood LWS	2015	SJ704762	MA03	Yes
Alternate-leaved golden-saxifrage	<i>Chrysosplenium oppositifolium</i>	Locally Scarce in Cheshire (VC58)	Tableypipe Wood LWS	2012	SJ719804	MA03	Yes
Wood sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Tableypipe Wood LWS	2012	SJ719804	MA03	Yes
Ragged robin	<i>Silene flos-cuculi</i>	Near Threatened – England Red List	Fields Behind "Ye Olde No.3" LWS	2017	SJ720865	MA03	No
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Bridgewater Canal between Lymm and Little Bollington	2008	SJ70518730	MA04	No
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Bridgewater Canal between Lymm and Little Bollington	2008	SJ70788721	MA04	No
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Bridgewater Canal between Lymm and Little Bollington	2008	SJ71068711	MA04	Yes
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Bridgewater Canal between Lymm and Little Bollington	2008	SJ71238696	MA04	Yes
Friberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Bridgewater Canal between Lymm and Little Bollington	2008	SJ71548675	MA04	No
Spindle	<i>Euonymus europaeus</i>	Locally Scarce in Cheshire (VC58)	Culcheth	27 May 2009	SJ6494	MA05	Yes
Spindle	<i>Euonymus europaeus</i>	Locally Scarce in Cheshire (VC58)	Culcheth Linear Park	27 May 2009	SJ6494	MA05	Yes
Ragged robin	<i>Silene flos-cuculi</i>	Near Threatened – England	Leigh Golf Course /	10 June 2013	SJ642954	MA05	Yes

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Common name	Latin name	Status <sup>20</sup>	Location	Date <sup>21</sup>	Ordnance Survey (OS) grid reference	CA	Within the land required for construction of the Proposed Scheme (Yes/No)
		Red List	Twiss Green area				
Wild pansy	<i>Viola tricolor</i>	Near Threatened – England Red List	Culcheth Linear Park	27 June 2010	SJ64779497	MA05	No
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce (GB)	Culcheth Linear Park	27 June 2010	SJ64849492	MA05	No
Northern marsh-orchid	<i>Dactylorhiza purpurella</i>	Locally Scarce in Cheshire (VC58)	Silver Lane Ponds	2 June 2012	SJ659939	MA05	No
Rigid hornwort	<i>Ceratophyllum demersum</i>	Locally Scarce in Cheshire (VC58)	Birchwood area	30 July 2011	SJ6692	MA05	Yes
Common cottongrass	<i>Eriophorum angustifolium</i>	Vulnerable – England Red List	Risley Moss <sup>24</sup>	21 June 2015	SJ6692	MA05	No
Common cottongrass	<i>Eriophorum angustifolium</i>	Vulnerable – England Red List	Risley Moss	13 June 2009	SJ6692	MA05	No
A hawkweed <sup>25</sup>	<i>Hieracium aggregatum</i>	Nationally Rare (GB)	Birchwood area	30 July 2011	SJ6692	MA05	Yes
Cabbage	<i>Brassica oleracea</i> <sup>26</sup>	Nationally Scarce (GB)	Silver Lane Ponds	2 April 2016	SJ6693	MA05	Yes
Northern marsh-orchid	<i>Dactylorhiza purpurella</i>	Locally Scarce in Cheshire (VC58)	Risley/Birchwood	8 June 2010	SJ669931	MA05	No
Grass vetchling	<i>Lathyrus nissolia</i>	Locally Rare in Cheshire	Risley/Birchwood	8 June 2010	SJ669931	MA05	No

<sup>24</sup> Risley Moss is not adjacent to the land required for the construction of the Proposed Scheme, but the record is given to 1km accuracy and thus it is grouped with other records that are adjacent.

<sup>25</sup> This species record is highly likely to be a recording error as this species of hawkweed is endemic to Scotland and has only been recorded there (McCosh and Rich, 2018).

<sup>26</sup> The biological records do not make clear which of the sub-species of *B.oleracea* is present. This record is unlikely to relate to the notable sub-species which is *Brassica oleracea* var. *oleracea* (other sub-species are horticultural crops) which is most frequent in south and south-west England.



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Common name	Latin name	Status <sup>20</sup>	Location	Date <sup>21</sup>	Ordnance Survey (OS) grid reference	CA	Within the land required for construction of the Proposed Scheme (Yes/No)
		(VC58)					
Ragged robin	<i>Silene flos-cuculi</i>	Near Threatened – England Red List	Risley/Birchwood	8 June 2010	SJ669931	MA05	Yes
Cross-leaved heath	<i>Erica tetralix</i>	Near Threatened – England Red List	Holcroft Moss SSSI	14 June 2009	SJ684933	MA05	No
Cross-leaved heath	<i>Erica tetralix</i>	Near Threatened – England Red List	Holcroft Moss SSSI	20 June 2012	SJ684934	MA05	Yes
Large-flowered hemp-nettle	<i>Galeopsis speciosa</i>	Vulnerable – England Red List	Holcroft Moss SSSI	10 July 2011	SJ686931	MA05	Yes
Heather	<i>Calluna vulgaris</i>	Near Threatened – England Red List	Holcroft Moss SSSI	2004	SJ685933	MA05	Yes
Common cottongrass	<i>Eriophorum angustifolium</i>	Vulnerable – England Red List	Holcroft Moss SSSI	2004	SJ685933	MA05	Yes
Chalk fragrant orchid	<i>Gymnadenia conopsea</i> <sup>27</sup>	Rare in South Lancashire (VC59), Locally Scarce in Cheshire (VC58)	Holcroft Moss SSSI	2004	SJ685933	MA05	No
Deergrass	<i>Trichophorum cespitosum</i> <sup>28</sup>	Data Deficient – England Red List	Holcroft Moss SSSI	2004	SJ685933	MA05	Yes

<sup>27</sup> South Lancashire Rare and Scarce Plant Register (2016) makes a distinction between *Gymnadenia conopsea* s.l (s.l = sensu lato, in the loose sense) and *Gymnadenia conopsea* s.s (s.s= sensu stricto, in the strict sense). Recent taxonomic revision has divided the species into three separate species. It is not clear if this record is of the s.s. species or s.l. species aggregate.

<sup>28</sup> The taxonomy of this species was revised by Stace (2010). *Trichophorum cespitosum* (as was) was split into northern deergrass (*T. cespitosum*) and deergrass (*T. germanicum*). The latter taxon is considered far more common/widespread than the former taxon. In biological record data pre-dating 2010, the presence of '*T. cespitosum*' at a site is more likely to mean the presence of the more common taxon (*T. germanicum*) rather than the rarer one.

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Common name	Latin name	Status <sup>20</sup>	Location	Date <sup>21</sup>	Ordnance Survey (OS) grid reference	CA	Within the land required for construction of the Proposed Scheme (Yes/No)
Marsh helleborine	<i>Epipactis palustris</i>	Near Threatened – England Red List, Rare in Cheshire (VC58)	Bryn Marsh and Ince Moss SSSI	2004	SD591026	MA05	No
Common cottongrass	<i>Eriophorum angustifolium</i>	Vulnerable – England Red List	Bryn Marsh and Ince Moss SSSI	2004	SD591026	MA05	No
Marsh pennywort	<i>Hydrocotyle vulgaris</i>	Near Threatened – England Red List	Bryn Marsh and Ince Moss SSSI	2004	SD591026	MA05	No
Royal fern	<i>Osmunda regalis</i>	Locally Scarce in Cheshire (VC58)	Bryn Marsh and Ince Moss SSSI	2004	SD591026	MA05	No
Common club-rush	<i>Schoenoplectus lacustris</i>	Locally Scarce in Cheshire (VC58)	Bryn Marsh and Ince Moss SSSI	2004	SD591026	MA05	No
Marsh cinquefoil	<i>Comarum palustris</i>	Near Threatened – England Red List	New Mills	19 July 2006	SJ7882	MA06	Yes
Lesser spearwort	<i>Ranunculus flammula</i>	Vulnerable – England Red List	New Mills	19 July 2006	SJ7882	MA06	Yes
Ragged robin	<i>Silene flos-cuculi</i>	Near Threatened – England Red List	New Mills	19 July 2006	SJ7882	MA06	Yes
Common valerian	<i>Valeriana officinalis</i>	Near Threatened – England Red List	New Mills	19 July 2006	SJ7882	MA06	Yes
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Sunbank wood	28 April 2007	SJ7984	MA06	Yes
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Rostherne, Mere Covert	5 April 2011	SJ748842	MA06	No
Tufted sedge	<i>Carex elata</i>	Near Threatened – England Red List; Locally Scarce in Cheshire (VC58)	Yarwood Heath Covert	4 June 2006	SJ745853	MA06	Yes
Purple small-reed	<i>Calamagrostis canescens</i>	Locally Scarce and Declining in South Lancashire (VC59), Locally	Rostherne Mere SSSI	2005	SJ744842	MA06	Yes

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Common name	Latin name	Status <sup>20</sup>	Location	Date <sup>21</sup>	Ordnance Survey (OS) grid reference	CA	Within the land required for construction of the Proposed Scheme (Yes/No)
		Scarce, Cheshire (VC58)					
Early-purple orchid	<i>Orchis mascula</i>	Locally Scarce in South Lancashire (VC59), Locally Scarce in Cheshire (VC58)	Rostherne Mere SSSI	2005	SJ744842	MA06	Yes
Ragged robin	<i>Silene flos-cuculi</i>	Near Threatened – England Red List	Rostherne Mere SSSI	2005	SJ744842	MA06	Yes
Marsh cinquefoil	<i>Comarum palustris</i>	Near Threatened – England Red List	North of Mobberley	19 July 2006	SJ7882	MA06	Yes
Devil's-bit scabious	<i>Succisa pratensis</i>	Near Threatened – England Red List	Mill Wood; Castle Mill LWS	2018	SJ797838	MA06	Yes
Floating water-plantain	<i>Luronium natans</i>	The Conservation of Habitats and Species Regulations 2017 – Schedule 5; Nationally Scarce (GB)	Ashton Canal (West)	21 December 2015	SJ85599844	MA08	No

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- 2.3.3 There are numerous records of bluebell (*Hyacinthoides non-scripta*) obtained from the desk study. This species is a Cheshire Local Biodiversity Action Plan (LBAP) species and is listed in Schedule 8 of the WCA 1981<sup>29</sup> (as amended) which lists protected plants in England. This species is listed in respect of Section 13(2), only: plants which are protected from selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative); or advertising (any of these) for buying or selling. This species is omitted from the primary offence in the act of intentional picking, uprooting or destruction due to its widespread distribution and locally high abundance in Britain.
- 2.3.4 Following a review of desk study records, bluebell was found to be present within the land required for the construction of the Proposed Scheme in five locations. These include the area around Lea Hall/Clive Green, in Tableypipe Wood, in woodland South of Millington and in Mere Covert, Rostherne. The records from south of Millington and Lea Hall/Clive Green are within the land required for construction of the Proposed Scheme, other records are adjacent.

## Field survey

- 2.3.5 A summary of relevant protected or notable flora recorded during field surveys is provided in Table 2.

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<sup>29</sup> Wildlife and Countryside Act 1981 (England and Wales) (as amended), Chapter 69. Her Majesty's Stationery Office, London.

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**Table 2: Records of protected and notable flora relevant to the assessment obtained during field survey in MA01 to MA08**

Common name	Latin name	Status <sup>20</sup>	Location	OS grid reference	CA	Within the land required for the construction of the Proposed Scheme (Yes/No)
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	Crewe	SJ7034158018	MA01	No
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	Crewe	SJ7010858144	MA01	Yes
Rough horsetail	<i>Equisetum hyemale</i>	Locally Rare in Cheshire (VC58), Locally Endangered in Lancashire (VC59)	North of Crewe	SJ6939458752	MA01	No
Rough horsetail	<i>Equisetum hyemale</i>	Locally Rare in Cheshire (VC58), Locally Endangered in Lancashire (VC59)	North of Crewe	SJ6955158814	MA01	No
Clustered clover	<i>Trifolium glomeratum</i>	Nationally Scarce, Locally Endangered South Lancashire (VC59)	North of Crewe	SJ6935158926	MA01	Yes
Marsh cinquefoil	<i>Comarum palustre</i>	Near Threatened – England Red List	West of Middlewich	SJ6785364688	MA02	No
Devil's-bit scabious	<i>Succisa pratensis</i>	Near Threatened – England Red List	West of Middlewich	SJ6858565579	MA02	Yes
Deadly nightshade	<i>Atropa belladonna</i>	Locally Rare in South Lancashire (VC59)	West of Middlewich	SJ6892765709	MA02	No
Harebell	<i>Campanula rotundifolia</i>	Near Threatened – England Red List	West of Middlewich	SJ6904965754	MA02	No
Box <sup>30</sup>	<i>Buxus sempervirens</i>	Nationally Rare	East of Winsford	SJ6808866209	MA02	No
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	East of Winsford	SJ6887666568	MA02	No
Chicory	<i>Cichorium intybus</i>	Vulnerable – England Red List	East of Winsford	SJ6825366620	MA02	No
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58),	East of Winsford	SJ6886466674	MA02	No

<sup>30</sup> In Cheshire and South Lancashire, this species is likely to be a planted/introduced specimen.

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Common name	Latin name	Status <sup>20</sup>	Location	OS grid reference	CA	Within the land required for the construction of the Proposed Scheme (Yes/No)
		Locally Rare in South Lancashire (VC59)				
Hoary plantain	<i>Plantago media</i>	Near Threatened – England Red List	East of Winsford	SJ6873966715	MA02	Yes
Hoary plantain	<i>Plantago media</i>	Near Threatened – England Red List	East of Winsford	SJ6866966722	MA02	Yes
Large-leaved lime <sup>31</sup>	<i>Tilia platyphyllos</i>	Nationally Scarce	East of Winsford	SJ6872266775	MA02	Yes
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	East of Winsford	SJ6861166954	MA02	Yes
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	South-east of Bostock	SJ6817067871	MA02	No
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	South-east of Bostock	SJ6790468227	MA02	No
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	South of Whatcroft	SJ6841869705	MA02	No
Garden angelica	<i>Angelica archangelica</i> <sup>32</sup>	Regionally Extinct – Great Britain Red List	Between Whatcroft and Rudheath	SJ6794070780	MA02	No
Wild strawberry	<i>Fragaria vesca</i>	Near Threatened – England Red List	Rudheath	SJ7025874714	MA02	No
Bee orchid	<i>Ophrys apifera</i>	Locally Scarce, Cheshire (VC58)	East of Lostock Gramam	SJ7025874714	MA02	No
Wild strawberry	<i>Fragaria vesca</i>	Near Threatened – England Red List	East of Lostock Gramam	SJ7043874725	MA02	No
Bee orchid	<i>Ophrys apifera</i>	Locally Scarce, Cheshire (VC58)	East of Lostock Gramam	SJ7043874725	MA02	No
White bryony	<i>Bryonia dioica</i>	Locally Scarce in South Lancashire	East of Lostock	SJ7019974835	MA02	Yes

<sup>31</sup> In Cheshire and South Lancashire, this species is likely to be a planted/introduced specimen.

<sup>32</sup> This record is likely to be sub-species *archangelica*, which is a weed of waste places, rather than sub-species *littoralis*, which is native (regionally extinct) in Shetland.

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Common name	Latin name	Status <sup>20</sup>	Location	OS grid reference	CA	Within the land required for the construction of the Proposed Scheme (Yes/No)
		(VC59)	Gralam			
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	Long Wood	SJ7024075077	MA02	Yes
Wild strawberry	<i>Fragaria vesca</i>	Near Threatened – England Red List	Plumley Lime Beds	SJ7061575173	MA02	No
Thin-spiked wood-sedge	<i>Carex strigosa</i>	Locally Scarce in Cheshire (VC58), Locally Scarce in South Lancashire (VC59)	Winnington Wood	SJ6973175547	MA02	No
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Winnington Wood	SJ7015675576	MA02	No
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	Winnington Wood	SJ7013075760	MA02	No
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Winnington Wood	SJ7022975818	MA02	Yes
Black poplar	<i>Populus nigra subsp. betulifolia</i>	Cheshire BAP	Leonard's and Smoker Wood	SJ7033776028	MA02	Yes
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Leonard's and Smoker Wood	SJ7033776028	MA02	Yes
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Leonard's and Smoker Wood	SJ7052376053	MA02	No
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Leonard's and Smoker Wood	SJ7024576078	MA02	No
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Leonard's and Smoker Wood	SJ7062676081	MA02	No
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Leonard's and Smoker Wood	SJ7102876170	MA03	No
Wild strawberry	<i>Fragaria vesca</i>	Near Threatened – England Red List	Leonard's and Smoker Wood	SJ7014276234	MA03	No

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Common name	Latin name	Status <sup>20</sup>	Location	OS grid reference	CA	Within the land required for the construction of the Proposed Scheme (Yes/No)
Hoary plantain	<i>Plantago media</i>	Near Threatened – England Red List	Between Pickmere and Tabley	SJ7074777438	MA03	Yes
Rough horsetail	<i>Equisetum hyemale</i>	Locally Rare in Cheshire (VC58), Locally Endangered in Lancashire (VC59)	Between Pickmere and Tabley	SJ7052177800	MA03	No
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Belt Wood and surrounds	SJ7131581634	MA03	Yes
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Belt Wood and surrounds	SJ7181181978	MA03	No
Creeping willow	<i>Salix repens</i>	Near Threatened – England Red List	Hoo Green	SJ7180583227	MA03	Yes
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Between High Legh and Hoo green	SJ7121383589	MA03	No
Large-leaved lime	<i>Tilia platyphyllos</i>	Nationally Scarce	Moston	SJ7207583959	MA03	Yes
Deadly nightshade	<i>Atropa belladonna</i>	Locally Rare in South Lancashire (VC59)	Moston	SJ7151084221	MA03	No
Box	<i>Buxus sempervirens</i>	Nationally Rare	Moston	SJ7195584576	MA03	Yes
Hoary plantain	<i>Plantago media</i>	Near Threatened – England Red List	Broomedge	SJ7112885275	MA03	No
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	Between Broomedge and Dunham Massey	SJ7157886377	MA03	Yes
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	Between Broomedge and Dunham Massey	SJ7157886377	MA03	Yes
Marsh ragwort	<i>Senecio aquaticus</i>	Near Threatened – England Red List	Between Broomedge and Dunham Massey	SJ7206986524	MA03	No
Common valerian	<i>Valeriana officinalis</i>	Near Threatened – England Red List	Between	SJ7206986524	MA03	No



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Common name	Latin name	Status <sup>20</sup>	Location	OS grid reference	CA	Within the land required for the construction of the Proposed Scheme (Yes/No)
			Broomedge and Dunham Massey			
Freiberg's screw-moss	<i>Tortula freibergii</i>	Section 41 NERC Act	Between Broomedge and Dunham Massey	SJ7151386758	MA04	No
Early marsh-orchid	<i>Dactylorhiza incarnata</i>	Locally Rare in Cheshire (VC58)	Fox Covert and Meadows SBI	SJ7071388569	MA04	No
Ragged robin	<i>Silene flos-cuculi</i>	Near Threatened – England Red List	Fox Covert and Meadows SBI	SJ7071388569	MA04	No
Alternate-leaved golden-saxifrage	<i>Chrysosplenium alternifolium</i>	Locally Scarce, Cheshire (VC58)	Fox Covert and Meadows SBI	SJ7083388669	MA04	No
Field woundwort	<i>Stachys arvensis</i>	Near Threatened – England Red List	Warburton	SJ7076189154	MA04	Yes
Wild service-tree	<i>Sorbus torminalis</i>	Locally Rare in Cheshire (VC58)	Coroners Wood/Millbank Hall Wood	SJ70169087	MA04	Yes
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Coroners Wood	SJ7077390769	MA04	No
Bloody crane's-bill	<i>Geranium sanguineum</i>	Near Threatened – England Red List, Locally Scarce in Cheshire (VC58)	Hollins Green	SJ6969591260	MA04	No
Cornflower <sup>33</sup>	<i>Centaurea cyanus</i>	Section 41 NERC Act	Hollins Green	SJ6996391310	MA04	Yes
Lesser chickweed	<i>Stellaria pallida</i>	Locally Scarce, Cheshire (VC58)	Glazebrook	SJ6949692102	MA04	Yes
Devil's-bit scabious	<i>Succisa pratensis</i>	Near Threatened – England Red List	Pestfurlong Moss	SJ6717493096	MA05	No

<sup>33</sup> This species was recorded on land adjacent to the A57 Manchester Road and is likely to be an introduction/casual from a seed mix, as native cornflower is typically associated with arable land.

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Common name	Latin name	Status <sup>20</sup>	Location	OS grid reference	CA	Within the land required for the construction of the Proposed Scheme (Yes/No)
Heather	<i>Calluna vulgaris</i>	Near Threatened – England Red List	Holcroft Moss	SJ6837093218	MA05	No
Heather	<i>Calluna vulgaris</i>	Near Threatened – England Red List	Holcroft Moss	SJ6836293292	MA05	No
Cross-leaved heath	<i>Erica tetralix</i>	Near Threatened – England Red List	Holcroft Moss	SJ6836293292	MA05	No
Large-flowered hemp-nettle	<i>Galeopsis speciosa</i>	Vulnerable – England Red List	East of Holcroft Moss	SJ6875793424	MA05	Yes
Early marsh-orchid	<i>Dactylorhiza incarnata</i>	Locally Rare in Cheshire (VC58)	Silver Lane Ponds	SJ6588394016	MA05	No
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	West of Culcheth	SJ6521394822	MA05	No
Heather	<i>Calluna vulgaris</i>	Near Threatened – England Red List	West of Culcheth	SJ6468694848	MA05	No
Chicory	<i>Cichorium intybus</i>	Vulnerable – England Red List	North-east of Lowton	SJ6233198868	MA05	Yes
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	North-east of Lowton	SJ6244698915	MA05	No
Chicory	<i>Cichorium intybus</i>	Vulnerable - England Red List	Ponds near Lightshaw Lane	SJ6176499214	MA05	Yes
Small-leaved lime	<i>Tilia cordata</i>	Locally Scarce in Cheshire (VC58), Locally Rare in South Lancashire (VC59)	South-west of Plank Lane	SJ6188599448	MA05	No
Marsh cinquefoil	<i>Comarum palustre</i>	Near Threatened – England Red List	South-west of Abram	SD6040700567	MA05	Yes
Wild strawberry	<i>Fragaria vesca</i>	Near Threatened – England Red List	Sunbank Wood and Ponds	SJ7960884099	MA06	No
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Mill Wood, Castle Mill	SJ7960884099	MA06	No
Grass vetchling	<i>Lathyrus nissolia</i>	Locally Rare in Cheshire (VC58)	Birkinheath Brook	SJ7615184108	MA06	Yes

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Common name	Latin name	Status <sup>20</sup>	Location	OS grid reference	CA	Within the land required for the construction of the Proposed Scheme (Yes/No)
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Sunbank Wood and Ponds	SJ7987784138	MA06	No
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Sunbank Wood and Ponds	SJ7977084161	MA06	No
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Sunbank Wood and Ponds	SJ7977084161	MA06	No
Wild strawberry	<i>Fragaria vesca</i>	Near Threatened – England Red List	Sunbank Wood and Ponds	SJ7952084227	MA06	Yes
Common valerian	<i>Valeriana officinalis</i>	Near Threatened – England Red List	Moston	SJ7254684301	MA06	Yes
Common valerian	<i>Valeriana officinalis</i>	Near Threatened – England Red List	Moston	SJ7254584304	MA06	No
Quaking-grass	<i>Briza media</i>	Near Threatened – England Red List	South of Ryecroft Covert	SJ7570184363	MA06	No
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Sunbank Wood and Ponds	SJ8002284374	MA06	No
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Sunbank Wood and Ponds	SJ8005084416	MA06	No
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Hancock's Bank South	SJ7551884465	MA06	No
Sanicle	<i>Sanicula europaea</i>	Near Threatened – England Red List, Locally Scarce in Cheshire (VC58)	Wood near Chapel Lane	SJ7950484501	MA06	No
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Wood near Chapel Lane	SJ7950384516	MA06	Yes
Sanicle	<i>Sanicula europaea</i>	Near Threatened – England Red List, Locally Scarce in Cheshire (VC58)	Wood near Chapel Lane	SJ7950384516	MA06	Yes
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Ryecroft Covert	SJ7579584522	MA06	Yes

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Common name	Latin name	Status <sup>20</sup>	Location	OS grid reference	CA	Within the land required for the construction of the Proposed Scheme (Yes/No)
Water-soldier	<i>Stratiotes aloides</i> <sup>34</sup>	Nationally Rare	Ringway	SJ7985284547	MA06	Yes
Water-soldier	<i>Stratiotes aloides</i>	Nationally Rare	Ringway	SJ7985284547	MA06	Yes
Purple small-reed	<i>Calamagrostis canescens</i>	Locally Scarce in Cheshire (VC58), Locally Scarce in South Lancashire (VC59)	Rostherne Mere	SJ7427084664	MA06	No
Box	<i>Buxus sempervirens</i>	Nationally Rare	Warburton Green	SJ7963384726	MA06	No
Purple small-reed	<i>Calamagrostis canescens</i>	Locally Scarce in Cheshire (VC58), Locally Scarce in South Lancashire (VC59)	Rostherne Mere	SJ7404184800	MA06	No
Field scabious	<i>Knautia arvensis</i>	Near Threatened – England Red List	Warburton Green	SJ7990684823	MA06	Yes
Purple ramping-fumitory	<i>Fumaria purpurea</i>	Nationally Scarce	North of Rostherne Mere	SJ7378084916	MA06	No
Box	<i>Buxus sempervirens</i>	Nationally Rare	Broomedge	SJ8024585433	MA06	Yes
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Davenport Green Wood	SJ8031586135	MA06	No
Wood-sorrel	<i>Oxalis acetosella</i>	Near Threatened – England Red List	Davenport Green Wood	SJ8023086146	MA06	No
Spiked sedge	<i>Carex spicata</i>	Locally Scarce, Cheshire (VC58)	Ardwick	SJ8652997349	MA07	Yes

<sup>34</sup> In Cheshire/Lancashire, this species is present outside of its native range in the UK, which is fen habitat in East Anglia and Lincolnshire.

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2.3.6 Bluebell (WCA, Schedule 8) was recorded during field surveys within the land required for the construction of the Proposed Scheme at:

- west of Middlewich;
- east of Winsford;
- near Whatcroft;
- Long Wood Local Wildlife Site (LWS);
- Winnington Wood LWS;
- Leonard's and Smoker Wood LWS;
- Belt Wood and surrounding land;
- numerous hedges and small woodlands close to Moston;
- woodland near Birkinheath Brook LWS;
- woodland near Chapel Lane LWS; and
- Ryecroft Covert LWS.

2.3.7 Records for bluebell were also present directly adjacent to the land required for construction of the Proposed Scheme at:

- Wimboldsley;
- West of Middlewich;
- south-east of Bostock;
- south of Whatcroft;
- near Whatcroft;
- east of Lostock Gralam;
- Winnington Wood LWS;
- Leonard's and Smoker Wood LWS;
- Belt Wood and surrounding land;
- between High Legh and Hoo Green;
- small woodlands and hedges close to Moston;
- near Broomedge;
- between Broomedge and Dunham Massey;
- Fox Covert and Meadows SBI;
- near Hollins Green;
- north-east of Lowton;
- Sunbank Wood and Ponds LWS;
- south of Ryecroft Covert LWS; and
- Hancock's Bank South LWS.

## Discussion

### Hough to Walley's Green (MA01)

- 2.3.8 Field surveys identified two notable plant species in the land required for construction of the Proposed Scheme. Small-leaved lime (*Tilia cordata*) is listed as Locally Scarce in Cheshire (VC58) and is Locally Rare in South Lancashire (VC59). Clustered clover (*Trifolium glomeratum*) is listed as Nationally Scarce and is Locally Endangered in South Lancashire (VC59). Both species are in two separate locations in farmland on the north edge of Crewe.
- 2.3.9 Field surveys identified three records of two notable plant species adjacent to the land required for construction of the Proposed Scheme. Small-leaved lime is in farmland and adjacent to a residential road at the north edge of Crewe. Rough horsetail (*Equisetum hyemale*) is adjacent to the land required for the construction of the Proposed Scheme, in two locations: farmland north of Crewe, and, in near proximity to Spring Plantation Grassland LWS. Rough horsetail is Locally Rare in Cheshire (VC58) and Locally Endangered in Lancashire (VC59).
- 2.3.10 The desk study identified eight records of eight species within land required for construction of the Proposed Scheme. Five species: marsh cinquefoil (*Comarum palustris*); marsh ragwort (*Senecio aquaticus*); ragged robin (*Silene flos-cuculi*); common valerian (*Valeriana officinalis*); and marsh pennywort (*Hydrocotyle vulgaris*) are all Near Threatened on the England Red List and are in either Mossbridge Marsh LWS or land required for construction of Crewe Green Link Road South. Oak fern (*Gymnocarpium dryopteris*) is also Near Threatened on the England Red List and is Locally Scarce in South Lancashire (VC59). This species was present in land required for construction of Crewe Green Link Road South. Common cottongrass (*Eriophorum angustifolium*) is Vulnerable on the England Red List and is present in land required for construction of the Crewe Green Link Road. Creeping forget-me-not (*Myosotis secunda*) is Locally Scarce in Cheshire (VC58) and is present in land required for construction of the Crewe Green Link Road.
- 2.3.11 The desk study identified three records of notable or protected plant species adjacent to the land required for construction of the Proposed Scheme. Ragged robin and common valerian are adjacent to the land required for the construction of the Proposed Scheme near the Gresty Brook, south of Crewe Green Industrial Estate. Both species are Near Threatened on the England Red List. A single record of large-leaved lime (*Tilia platyphyllos*) is adjacent to the land required for construction of the Proposed Scheme along Bradford Road, Crewe. This tree species is Nationally Scarce in its native range, but likely to be introduced/ planted in this location.
- 2.3.12 Citations for LWSs confirm the presence of the following features in or partly in the land required for construction of the Proposed Scheme: a group of veteran crack willows (*Salix x fragilis*) along the northern field boundary of Mossbridge Marsh LWS; and a group of veteran crack willow along the southern field boundary of Spring Plantation Grassland LWS. The Spring Plantation Grassland trees were also identified by Phase 1 habitat surveys.

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- 2.3.13 A non-statutory designation called Mossbridge Marsh Veteran Tree LWS is in land adjacent to the land required for construction of the Proposed Scheme (approximately 100m east). This veteran tree/LWS is inside the, much larger, Mossbridge Marsh LWS. However, the veteran tree is not in the part of Mossbridge Marsh LWS which is in the land required for construction of the Proposed Scheme.
- 2.3.14 There are no other records of ancient or veteran trees in or adjacent to the land required for construction of the Proposed Scheme in MA01.
- 2.3.15 No other protected or notable species were reported from desk study or recorded during field surveys in MA01.

## Wimboldsley to Lostock Gralam (MA02)

- 2.3.16 Field surveys recorded ten records of six species in the land required for construction of the Proposed Scheme. A single record of devil's-bit scabious (*Succisa pratensis*) is adjacent to the Shropshire Union Canal west of Middlewich. Two records of hoary Plantain (*Plantago media*) are in farmland between Middlewich and farmland east of Winsford. Both species are Near Threatened on the England Red List. Four records of large-leaved lime are at various locations (including East of Winsford, in Winnington Wood LWS and in Leonard's and Smoker Wood LWS). This species is regarded as Nationally Scarce in its native range but is likely a planted tree in Cheshire. A single record of small-leaved lime is in Long Wood; this species is Locally Scarce in Cheshire (VC58) and Locally Rare in South Lancashire (VC59). A record of white bryony (*Bryonica dioica*) is in farmland east of Lostock Gralam; this species is Locally Scarce in South Lancashire (VC59). Finally, native black poplar (*Populus nigra* subsp. *betulifolia*), present in Leonard's and Smoker Wood, is a priority species listed on the Cheshire Biodiversity Action Plan.
- 2.3.17 Field surveys recorded 22 records of 12 notable plant species adjacent to the land required for the construction of the Proposed Scheme. Six of these records are of two species: large-leaved lime (which is Nationally Scarce) and box (*Buxus sempervirens*), which is Nationally Rare. Large-leaved lime and box are all likely planted specimens as they are outside of their naturally occurring range in Cheshire. There is a single record of chicory (*Cichorium intybus*), which is Vulnerable on the England Red List, in farmland east of Winsford (near Stanthorne Hall Farm). Four species that are listed as Near Threatened on the England Red List are adjacent to the land required for construction of the Proposed Scheme: wild strawberry (*Fragaria vesca*), in woodland near to Rudheath, to the east of Lostock Gralam, and also, in Plumley Lime Beds SSSI; single records of marsh cinquefoil and harebell (*Campanula rotundifolia*) are present alongside the Shropshire Union Canal (Middlewich Branch); and wood sorrel (*Oxalis acetosella*), south-east of Bostock in Bulls Wood and Meadow LWS. Garden angelica (*Angelica archangelica*), which is Regionally Extinct on the Great Britain Red List, was recorded near a farmstead between Whatcroft and Rudheath. Although sub-species was not documented, this angelica record is likely to be sub-species *archangelica* (a weed of waste places), rather than sub-species *littoralis* (native and likely extinct in Shetland). Seven records of three species which are Locally Scarce in Cheshire (VC58) are adjacent to the land

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required for construction of the Proposed Scheme. Four of these records are of small-leaved lime (also Locally Rare in South Lancashire VC59), which is present in a number of places, including in Winnington Wood. Two of the seven records of bee orchid (*Ophrys apifera*) are in woodland/scrub edge habitat, due south of the Mid-Cheshire Line railway. The seventh record is of thin-spiked wood-sedge (*Carex strigosa*) (also Locally Scarce in South Lancashire VC59), which is in Winnington Wood. Finally, a record of deadly nightshade (*Atropa belladonna*), Locally Rare in South Lancashire (VC59), is west of Middlewich and adjacent to the Shropshire Union Canal (Middlewich Branch).

- 2.3.18 The desk study identified 20 records of 14 notable or protected plant species within the land required for the construction of the Proposed Scheme. Three records of Freiberg's screw-moss (*Tortula freibergii*) (listed on Section 41 of the NERC act) are present on the Shropshire Union Canal (Middlewich Branch) LWS or the Trent and Mersey Canal. Six records relating to five species are Near Threatened on the England Red List, those being: harebell (*Campanula rotundifolia*) near Middlewich; wood sorrel in Winnington and Peas Wood LWS; tormentil (*Potentilla erecta*) in Bull's Wood and Meadow LWS; two records of devil's-bit scabious (*Succisa pratensis*) in Mill Wood Castle Mill SBI and Greenhays Farm Pasture LWS; and marsh arrow-grass (*Triglochin palustris*) in Wade Brook LWS. Three records/species are Locally Scarce in Cheshire (VC58): greater knapweed (*Centaurea scabiosa*) in Greenhays Farm Pasture LWS; alternate-leaved golden-saxifrage (*Chrysosplenium oppositifolium*) in Greenhays Farm Pasture LWS; and water-purslane (*Lythrum portula*) in The Willowbeds LWS. Three records of two species are Locally Scarce in South Lancashire (VC59): two records of white bryony near Lea Hall/Clive Green and near Middlewich; and common toothwort (*Lathraea squamaria*) in the River Dane, Bostock LWS. The Nationally Scarce (GB) Welsh poppy (*Meconopsis cambrica*) was near Lea Hall/Clive Green but is likely a planted or casual occurrence in Cheshire, where it is not native. Three records of small-leaved lime which is Rare in South Lancashire (VC59) and Locally Scarce in Cheshire (VC58) are at Rookery/Small Rookery Woods LWS, Long Wood, Lostock LWS and Winnington and Peas Wood LWS respectively. Finally, Flamingo moss (*Tortula cernua*) is in Plumley Lime Beds SSSI and is on Schedule 8 of the WCA 1981.
- 2.3.19 The desk study identified 10 records of a single notable species adjacent to the land required for construction of the Proposed Scheme. Freiberg's screw-moss is at various locations along the Shropshire Union Canal, Middlewich Branch and the Trent and Mersey Canal.
- 2.3.20 NVC field surveys recorded four birch trees (*Betula* sp.) of sufficient size and age status to be considered ancient trees, in the vicinity of a quadrat sample collected at National Grid reference SJ7008675652, in Winnington and Peas Wood LWS. This location is adjacent to the land required for construction of the Proposed Scheme. Phase 1 habitat surveys recorded veteran trees in Long Wood LWS, in the land required for the construction of the Proposed Scheme; their precise location is not specified.
- 2.3.21 Field surveys identified two veteran trees/groups of veteran trees in the land required for the construction of the Proposed Scheme as follows: a veteran horse-chestnut (*Aesculus hippocastanum*) in farmland west of the A530 Nantwich Road, south of Clivegreen Lane at approximate OS grid reference SJ687641; and a number of veteran oaks (*Quercus* sp.) in



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Long Wood which is due east of Lostock Gralam. A further veteran alder (*Alnus glutinosa*) was in Winnington and Peas Wood LWS at a location adjacent to and east of the land required for construction of the Proposed Scheme.

- 2.3.22 The desk study identified three veteran ash trees (*Fraxinus excelsior*) within the land required for the construction of the Proposed Scheme. They are near to Bank farm, Bostock, and on Whatcroft Lane near Davenham. The citation for the Trent and Mersey Canal LWS includes reference to an unspecified number of veteran ash trees in the LWS, which is centred on a location near Billinge Green. Veteran Ash Tree 1, Whatcroft Lane LWS, and Veteran Ash Tree 2, Whatcroft Lane LWS, are both in the land required for the construction of the Proposed Scheme. The Woodland Trust Ancient Tree Inventory lists the Wimboldsley Oak (*Quercus sp.*), an ancient tree near Middlewich and adjacent (but less than 10m away) from the land required for the construction of the Proposed Scheme.
- 2.3.23 No other protected or notable species were reported from desk study or recorded during field surveys in MA02.

## Pickmere to Agden and Hulseheath (MA03)

- 2.3.24 Field surveys recorded seven records of five species in the land required for the construction of the Proposed Scheme. They include two records of large-leaved lime and a single record of box. These trees/shrubs are Nationally Scarce or Rare but likely to be planted specimens. Two records of two species that are Near Threatened on the England Red List are in farmland between Pickmere and Tabley and near to Hoo Green. They are hoary plantain and creeping willow (*Salix repens*) respectively. Finally, small-leaved lime, which is Locally Scarce in Cheshire (VC58) and Locally Rare in South Lancashire (VC59), is in two locations, both between Broomedge and Dunham Massey.
- 2.3.25 Field surveys identified nine records of eight species adjacent to the land required for the construction of the Proposed Scheme. They include two records of large-leaved lime (Nationally Scarce but likely a planted specimen). Five records relate to five species which are Near Threatened on the England Red List: wild strawberry in Leonard's and Smoker Wood LWS, wood sorrel in Belt Wood, hoary plantain near Broomedge, marsh ragwort and common valerian both between Broomedge and Dunham Massey, in the Fields Behind Ye Olde No. 3 LWS. Rough Horsetail which is Locally Rare in Cheshire (VC58) and Locally Endangered in Lancashire (VC59) is between Pickmere and Tabley, north of the Royal Cheshire Show Ground. Deadly nightshade which is Locally Rare in South Lancashire (VC59) is in farmland near Moston.
- 2.3.26 The desk study identified 14 records of ten protected or notable plant species in the land required for construction of the Proposed Scheme. Four records of three species relate to species which are Near Threatened on the England Red List: two records of harebell (both at Bucklow Hill); wood sorrel (in Tableypipe Wood LWS) and marsh ragwort in the Pickmere area. Two records of two species are Vulnerable on the GB Red List: sainfoin (*Onobrychis viciifolia*) and corn spurrey (*Spergula arvensis*), both in fields north of Park Lane near Pickmere. Large-leaved lime which is Nationally Scarce (GB) is in the Pickmere area but is

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likely to be a planted specimen. Two records of small-leaved lime, which is Rare in South Lancashire (VC59) and Locally Scarce in Cheshire (VC58), are near Over Tabley and in Leonard's and Smoker Wood LWS respectively. Four records of two species that are Locally Scarce in Cheshire (VC58) are present: alternate-leaved golden-saxifrage, at Leonard's and Smoker Wood LWS and Tableypipe Wood LWS; and bee orchid (*Ophrys apifera*), with both records on the verges of the M56 Motorway north of Agden Lane. A single record of white bryony, which is Locally Scarce in South Lancashire (VC59), is north-west of Millington.

- 2.3.27 Two notable plant species are adjacent to the land required for construction of the Proposed Scheme. Fine-leaved water-dropwort (*Oenanthe aquatica*) is Locally Scarce in South Lancashire (VC59) and is east of Pickmere; and ragged robin is Near Threatened on the England Red List and is present in the 'Fields Behind Ye Olde No.3' LWS.
- 2.3.28 NVC field surveys identified two locations between 50m and 100m from the land required for construction of the Proposed Scheme with ancient or veteran trees. The golf course west of The Mere, Mere contained a veteran (but not ancient) pedunculate oak at OS grid reference SJ7280881726. In farmland near Mere Old Hall, two trees are present which may be ancient trees. The first was a sycamore (OS grid reference SJ7269681873) with a circumference at breast height of approximately 5m and the second was a small-leaved lime (OS grid reference SJ7269881871) with a circumference at breast height of approximately 6m. In a third location, several large, mature beech trees are present east of the gatehouse to the Mere Golf Resort and Spa, two of which are veteran trees. This location is approximately 25m from the land required for construction of the Proposed Scheme.
- 2.3.29 Field surveys identified two veteran oaks in a single location within the land required for construction of the Proposed Scheme, between the A56 Lymm Road and Agden Lane. Field surveys recorded a further three locations where veteran trees occur adjacent to the land required for construction of the Proposed Scheme: a veteran horse-chestnut and a veteran sweet chestnut (*Castanea sativa*) in one location, and a veteran ash situated in another, are present on High Legh Park Golf Club; and a veteran alder is situated north of High Legh in a small area of woodland which is encircled by the land required for construction of the Proposed Scheme.
- 2.3.30 The Woodland Trust Ancient Tree Inventory lists one record of a dead standing ancient oak (*Quercus* sp.), located near to the junction of Broadoak Lane and Peacock Lane, adjacent to the land required for the construction of the Proposed Scheme. It is understood that this tree is also known locally as the Blasted Oak but that it was felled in 2015<sup>35</sup>. Veteran trees are noted on the citations for Leonard's and Smoker Wood LWS (veteran pedunculate oak *Quercus robur* and ash *Fraxinus excelsior*) and in the Arley and Waterless Brook Corridor LWS (veteran crack willow *Salix x fragillis*). The precise location of these trees in LWSs is not stated.

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<sup>35</sup> News report from Warrington Worldwide on the 18 February 2015. Contains photographic evidence showing felled tree.

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- 2.3.31 No other protected or notable species were reported from desk study or recorded during field surveys in MA03.

### Broomedge to Glazebrook (MA04)

- 2.3.32 Field surveys recorded four records of four species in the land required for construction of the Proposed Scheme. A single record of the Near Threatened, England Red Data book, species field woundwort (*Stachys arvensis*) was in farmland south-east of Warburton. A single record of a species which is Locally Scarce in Cheshire (VC58): lesser chickweed (*Stellaria pallida*) was in woodland edge habitat near Glazebrook. A single record of wild service tree (*Sorbus torminalis*) is present in Coroners Wood/Millbank Hall Wood in the land required for construction of the Proposed Scheme, this tree species is Locally Rare in Cheshire VC58. Finally, the Section 41 NERC Act species cornflower (*Centaurea cyanus*) is adjacent to the A57 road near Hollins Green, it is likely to be an introduction from a seed mix or a garden escape.
- 2.3.33 There are six field records of six species adjacent to the land required for the construction of the Proposed Scheme. Three Near Threatened, England Red Data book species were recorded: ragged robin in Fox Covert and Meadows SBI; wood sorrel in Coroners Wood; and bloody crane's-bill (*Geranium sanguineum*; also Locally Scarce in Cheshire VC58) near Hollins Green. A single record of alternate-leaved golden-saxifrage, which is Locally Scarce in Cheshire (VC58), is in Fox Covert and Meadows SBI. Early marsh-orchid (*Dactylorhiza incarnata*) which is Locally Rare in Cheshire (VC58) is in Fox Covert and Meadows SBI. A small colony of the Section 41 NERC Act species Freiberg's screw-moss is present along the Bridgewater Canal.
- 2.3.34 The desk study identified two records of a single species in the land required for construction of the Proposed Scheme. Frieberg's screw-moss, listed on Section 41 of the NERC Act, is in two locations along the Bridgewater Canal between Lymm and Little Bollington.
- 2.3.35 The desk study identified a further three records of Frieberg's screw-moss, also along the Bridgewater Canal between Lymm and Little Bollington, adjacent to the land required for construction of the Proposed Scheme.
- 2.3.36 No other protected or notable species were reported from the desk study or recorded during field surveys in MA04.

### Risley to Bamfurlong (MA05)

- 2.3.37 Field surveys recorded four records relating to three species in the land required for the construction of the Proposed Scheme. Three records are of two species which are Vulnerable on the England Red Data List: large-flowered hemp-nettle (*Galeopsis speciosa*) is in farmland east of Holcroft Moss SSSI; and two records of chicory, north-east of Lowton and in ponds near Lightshaw Lane LWS. Finally, a single record of marsh cinquefoil is in farmland south-west of Abram; this species is Near Threatened on the England Red List.

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- 2.3.38 Field surveys identified nine records of five species adjacent to the land required for construction of the Proposed Scheme. There are five records, relating to three species all of which are Near Threatened on the England Red List: two records of heather (*Calluna vulgaris*) and a single record of cross-leaved heath (*Erica tetralix*) are in Holcroft Moss SSSI; devil's-bit scabious is in Pestfurlong Moss LWS; and a record of heather is present west of Culcheth. Small-leaved lime, Locally Scarce in Cheshire (VC58) and Locally Rare in South Lancashire (VC59), is in three locations: west of Culcheth; north-east of Lowton; and south-west of Plank Lane respectively. Early marsh-orchid is Locally Rare in Cheshire (VC58) and is in Silver Lane Ponds LWS.
- 2.3.39 The desk study identified 12 records of 10 species in the land required for the construction of the Proposed Scheme. Four records of three species that are all Near Threatened on the England Red List: heather and cross-leaved heath in Holcroft Moss SSSI; and two records of ragged robin, near Leigh Golf Course/Twiss Green area and near Risley/Birchwood respectively. Two records of two species which are Vulnerable on the England Red List: common cottongrass in Holcroft Moss SSSI; and large-flowered hemp-nettle (*Galeopsis speciosa*) present near the southern boundary of Holcroft Moss SSSI. A single record of a Nationally Scarce (GB) species: cabbage (*Brassica oleracea*) is in Silver Lane Ponds LWS but is likely not the native/coastal sub-species. A single record of a Nationally Rare (GB) hawkweed species (*Hieracium aggregatum*) is in the Birchwood area (although it is highly likely to be a recording error, as its native distribution is only from Scotland). Deergrass (*Trichophorum cespitosum*) is Data Deficient on the England Red List and is in Holcroft Moss SSSI. However, this species is likely to be the more common taxon (*T. germanicum*) rather than the rarer one, as it was recorded as *T. cespitosum* prior to taxonomic splitting of this species. Three records of two species are Locally Scarce in Cheshire (VC58): rigid hornwort (*Ceratophyllum demersum*) in the Birchwood area; two records of spindle (*Euonymus europaeus*) in the Culcheth area.
- 2.3.40 The desk study identified 14 records of 11 species adjacent to the land required for construction of the Proposed Scheme. Cross-leaved heath and wild pansy (*Viola tricolor*), both Near Threatened on the England Red List, are in Holcroft Moss SSSI and near Culcheth, respectively. Marsh helleborine (*Epipactis palustris*) and marsh pennywort, both also Near Threatened in the England Red list, are present in Bryn Marsh and Ince Moss SSSI. Large-leaved lime, which is Nationally Scarce (GB), is in Culcheth Linear Park and is probably a planted specimen. Three species that are Locally Scarce in Cheshire (VC58) were identified: two records of northern marsh-orchid (*Dactylorhiza purpurella*) at the Silver Lane Ponds LWS and in the Risley/Birchwood area; and royal fern (*Osmunda regalis*) and common club-rush (*Schoenoplectus lacustris*), which are in Bryn Marsh and Ince Moss SSSI. Three records of common cottongrass, which is Vulnerable on the England Red List, relate to Risley Moss and Bryn Marsh and Ince Moss SSSI. Risley Moss is not adjacent to the land required for the construction of the Proposed Scheme, but the record is given to 1km accuracy and thus is grouped with other records that are adjacent. Chalk fragrant orchid (*Gymnadenia conopsea*) is Rare in South Lancashire (VC59) and Locally Scarce in Cheshire (VC58) and is adjacent to Holcroft Moss SSSI (the sub-species of this plant is not made clear in biological data records).

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Finally, grass vetchling (*Lathyrus nissolia*) is Locally Rare in Cheshire (VC58) and is in the Risley/Birchwood area.

- 2.3.41 No other protected or notable species were reported from desk study or recorded during field surveys in MA05.

### Hulseheath to Manchester Airport (MA06)

- 2.3.42 Field surveys identified ten records of eight species in the land required for construction of the Proposed Scheme. A single record relates to box (Nationally Rare), which is likely to be a planted shrub in Cheshire. Two records relate to water soldier (*Stratiotes aloides*) which is present in two ponds in improved grassland north-east of Lowton<sup>36</sup>. In Cheshire and Lancashire, this species is present outside of its native range in the UK which is fen habitat in East Anglia and Lincolnshire. Six records of five species relate to species which are Near Threatened on the England Red List: wild strawberry in Sunbank Wood and Ponds LWS; common valerian near Moston; wood-sorrel and sanicle (*Sanicula europaea*), both in Wood near Chapel Lane LWS; wood sorrel was also in Ryecroft Covert LWS; and field scabious (*Knautia arvensis*) near Warburton Green. Finally, grass vetchling which is Locally Rare in Cheshire (VC58) is in Birkinheath Brook LWS.
- 2.3.43 Field surveys records found 17 records of eight species adjacent to the land required for construction of the Proposed Scheme. A single record of box (Nationally Rare/likely planted in Cheshire) is near Warburton Green. The Nationally Scarce purple ramping-fumitory (*Fumaria purpurea*) is in farmland west of the A556 north of Rostherne Mere NNR. Thirteen records relate to five species which are Near Threatened – England Red Data List species: nine records of wood sorrel are in Sunbank Woodland and Ponds LWS; Mill Wood/Castle Mill LWS, Hancock's Bank South LWS or Davenport Green Wood; wild strawberry is in Sunbank Wood and Ponds LWS; sanicle (also Locally Scarce in Cheshire VC58) is in Wood near Chapel Lane LWS; common valerian is near Moston; and quaking grass (*Briza media*) is south of Ryecroft Covert LWS. Finally, two records of purple small-reed (*Calamagrostis canescens*), Locally Scarce in Cheshire (VC58) and Locally Scarce in South Lancashire (VC59), are in Rostherne Mere NNR.
- 2.3.44 The desk study identified 12 records of nine species in the land required for construction of the Proposed Scheme. Eight records of six species are Near Threatened on the England Red List: tufted sedge (*Carex elata*) at Yarwood Heath Covert; two records of marsh cinquefoil at a location north of Mobberley and in the New Mills area; wood-sorrel in Sunbank Wood LWS; two records of ragged robin in Rostherne Mere SSSI and in the New Mills area; devil's-bit scabious in Castle Mill LWS; and common valerian in the New Mills area. Tufted sedge is also Locally Scarce in Cheshire (VC58). Purple small-reed is Locally Scarce and Declining in South Lancashire (VC59) and Locally Scarce, Cheshire (VC58) and is present in Rostherne Mere SSSI.

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<sup>36</sup> In Cheshire/Lancashire, this species is present outside of its native range in the UK, which is fen habitat in East Anglia and Lincolnshire.

## Background Information and Data

### Ecology and biodiversity

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### Ecological baseline data – protected and notable flora

Early-purple orchid (*Orchis mascula*) is Locally Scarce in South Lancashire (VC59) and Locally Scarce in Cheshire (VC58) and is also present in Rostherne Mere SSSI. Lesser spearwort (*Ranunculus flammula*) is Vulnerable on the England Red List and is present in the New Mills area.

- 2.3.45 The desk study identified a single species adjacent to the land required for construction of the Proposed Scheme. Wood sorrel is Near Threatened on the England Red List and is in Mere Covert, Rostherne.
- 2.3.46 Phase 1 habitat surveys in farmland south of Millington found three veteran, in-field trees, within the land required for construction of the Proposed Scheme, two ash trees and an oak. Phase 1 habitat surveys also found a veteran beech (*Fagus sylvatica*) in or directly on the boundary of the land required for construction of the Proposed Scheme north of Hasty Lane, Hale Barns.
- 2.3.47 NVC field surveys in Sunbank Wood and Ponds LWS recorded several pedunculate oaks which are likely to be veteran trees adjacent to the land required for construction of the Proposed Scheme at OS grid reference SJ7963384157.
- 2.3.48 Desk study records of veteran or ancient trees include two veteran trees near Castle Mill Lane, Thorns Green, within the land required for the construction of the Proposed Scheme. They are named: the 'Veteran tree, Rose Cottages, Thorns Green pLWS' (desk study data specifies that the tree is a maple species (*Acer* sp.) or a plane species (*Platanus* sp.)); and the 'Veteran Oak Tree, Thorns Green LWS'. Veteran trees are further mentioned in the Sugar Brook LWS citation (veteran beech *Fagus sylvatica*) and in the Mill Wood, Castle Mill LWS (an ancient oak and ash tree), their precise locations are not stated.
- 2.3.49 No other protected or notable species were reported from desk study or recorded during field surveys in MA06.

## Davenport Green to Ardwick (MA07)

- 2.3.50 Field surveys recorded a single record in the land required for construction of the Proposed Scheme: spiked Sedge (*Carex spicata*), which is Locally Scarce in Cheshire (VC58), in waste ground near Ardwick.
- 2.3.51 No field survey records of protected or notable plants are adjacent to the land required for construction of the Proposed Scheme and none arise in or adjacent to the land required for construction of the Proposed Scheme from desk study.
- 2.3.52 Phase 1 habitat surveys of a large block of woodland close to the boundary of MA06 and MA07, along Fairywell Brook, found a large veteran oak in the land required for the construction of the Proposed Scheme. A number (unspecified) of veteran oaks were also recorded by Phase 1 habitat surveys adjacent (to the west) of the land required for construction of the Proposed Scheme, on a bank, south of Rowarth Road, also near the boundary of MA06 and MA07.

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Ecological baseline data – protected and notable flora

- 2.3.53 The Woodland Trust Ancient Tree Inventory lists two records of veteran common ash trees, located in Withington Golf Course and adjacent to the land required for the construction of the Proposed Scheme.
- 2.3.54 No other protected or notable species were reported from desk study or recorded during field surveys in MA07.

### Manchester Piccadilly Station (MA08)

- 2.3.55 No protected or notable species were reported from field surveys in MA08.
- 2.3.56 The desk study identified a single species adjacent to the land required for construction of the Proposed Scheme. Floating water-plantain (*Luronium natans*), which is listed on The Conservation of Habitats and Species Regulations 2017 - Schedule 5 and is Nationally Scarce (GB), is in the Ashton Canal (west).
- 2.3.57 No other protected or notable species were reported from desk study or recorded during field surveys in MA08.

### 3 References

Botanical Society of Britain and Ireland, *BSBI species accounts*. Available online at: <http://bsbi.org/species-accounts>.

Cheffings, C.M. and Farrell, L. (Eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005), *The Vascular Plant Red Data List for Great Britain*, Species Status, 7: 1-116, Joint Nature Conservation Committee, Peterborough.

Cheshire Wildlife Trust (2007), *Cheshire region Biodiversity Action Plan*.

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>.

International Union for the Conservation of Nature (IUCN) (2016), *The IUCN Red List of Threatened Species*, Version 2016-3. Available online at: <http://www.iucnredlist.org>.

Kay, G. M. (2015), *Cheshire County Rare Plant Register*, Cheshire Wildlife Trust. Available online at: [https://bsbi.org/wp-content/uploads/dlm\\_uploads/Cheshire\\_RDB\\_2015.pdf](https://bsbi.org/wp-content/uploads/dlm_uploads/Cheshire_RDB_2015.pdf).

Lancashire Botany Group. Available online at: <https://bsbi.org/lancashire>.

Leach, S. (2018), *Vascular plant Red Data List for Great Britain: a summary of amendments in years 12 and 13 (2017-2018) of the annual amendments process*, BSBI News, 141. P. 3-7.

McCosh, D and Rich, T.C.G (2018), *Atlas of British and Irish Hawkweeds*. Botanical Society of Britain and Ireland.

Ministry of Housing Communities and Local Government (2019), National Planning Policy Framework. Available online at: <https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>.

Natural Environment and Rural Communities (NERC) Act 2006 (Section 41) Biodiversity lists and action (England). London, Her Majesty's Stationery Office.

National Planning Policy Framework. Available online at: <https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>.

Stace, C (2003), *New Flora of the British Isles*. Third Edition. Cambridge University Press.

Stroh, P.A., Leach, S.J., August, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., Fay, M.F., Martin, J.P., Pankhurst, T., Preston, C.D., Taylor I. (2014), *A Vascular Plant Red List for England*, Botanical Society of Britain and Ireland.

rECOrd, *Local Biological Records Centre serving Cheshire*. Available online at: <http://www.record-lrc.co.uk>.

The Conservation of Habitats and Species Regulations 2017 - Schedule 5 European Protected Species of plants. Her Majesty's Stationery Office, London.



## Background Information and Data

Ecology and biodiversity

BID EC-003-00001

Ecological baseline data – protected and notable flora

Woodland Trust, *Ancient Tree Inventory*. Available online at: <https://ati.woodlandtrust.org.uk/>.

Wildlife and Countryside Act 1981 (England and Wales) (as amended), Chapter 69. Her Majesty's Stationery Office, London.

Woods, R.G. and Coppins, B.J. (2012), *A Conservation Evaluation of British Lichens and Lichenicolous Fungi*, Species Status No.13, JNCC, Peterborough, ISSN 1473-0154.

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