In Parliament – Session 2022 - 2023

HS2

High Speed Rail (Crewe – Manchester)

Background information and data accompanying SES1 and AP1 ES

Ecology and biodiversity

BID EC-004-00000 SES1 and AP1 ES
Ecological baseline data –
National Vegetation Classification
and ancient woodland
MA01: Hough to Walley's Green
MA02: Wimboldsley to Lostock Gralam
MA03: Pickmere to Agden and Hulseheath

Q44

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Department for Transport

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High Speed Two (HS2) Limited
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA

Telephone: 08081 434 434

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.hs2.org.uk

A report prepared for High Speed Two (HS2) Limited:

ARUP+ ERM | FOSTER + PARTNERS | JACOBS
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MWJV
Mott MacDonald | WSP

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1 Introduction

1.1.1 This document sets out Background Information and Data (BID) that accompanies the High Speed Rail (Crewe – Manchester) Supplementary Environmental Statement 1 (SES1) and Additional Provision 1 Environmental Statement (AP1 ES)[1].

1.1.2 This document sets out baseline data for National Vegetation Classification (NVC) and ancient woodland survey not reported in the Background Information and Data report[2] (the main BID report) that accompanied the High Speed Rail (Crewe – Manchester) Environmental Statement published in 2022[2] (the main ES).

1.1.3 Baseline data covering other habitats and species are contained in the following SES1 and AP1 ES ecological baseline data reports:

- Ecological baseline data – amphibians (BID EC-007-00000 SES1 and AP1 ES);
- Ecological baseline data – bats (BID EC-011-00000 SES1 and AP1 ES); and
- Ecological baseline data – other (BID EC-017-00000 SES1 and AP1 ES), containing data relating to habitats, hedgerows, birds, ponds and canals, river habitat, otter and water vole.

1.1.4 This document covers the following community areas (CA):

- Hough to Walley's Green (MA01);
- Wimboldsley to Lostock Gralam (MA02); and
- Pickmere to Agden and Hulseheath (MA03).

1.1.5 Maps referred to in this report are contained in the Background Information and Data, Ecology Map Book: Map Series EC-10 that accompanies the SES1 and AP1 ES. It should be noted that EC-10 only covers MA02 and MA03.

1.1.6 In order to differentiate between the original scheme and the subsequent changes, the following terms are used:

- the 'original scheme' – the Bill scheme submitted to Parliament in January 2022, which was assessed in the main ES;
- 'the SES1 scheme' – the original scheme with the changes described in SES1 that are within the existing powers of the Bill; and

[1] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Supplementary Environmental Statement 1 and Additional Provision 1 Environmental Statement.* Available online at: https://www.gov.uk/government/collections/hs2-phase-2b-crewe-manchester-supplementary-environmental-statement-1-and-additional-provision-1-environmental-statement.

[2] High Speed Two Ltd (2022), High Speed Rail (Crewe – Manchester), *Environmental Statement.* Available online at: https://www.gov.uk/government/collections/hs2-phase2b-crewe-manchester-environmental-statement.

- 'the AP1 revised scheme' – the original scheme as amended by the SES1 changes and AP1 amendments.

2 National Vegetation Classification and ancient woodland

2.1 Methodology

2.1.1 The assessment scope, key assumptions and limitations are as set out in the main ES Environmental Impact Assessment Scope and Methodology Report (SMR) (see Volume 5, Appendix: CT-001-00001 in the main ES)[3].

2.1.2 Details of the standard methodology used for NVC surveys are provided in the Technical note – Ecology and biodiversity – Ecological field survey methods and standards, which is included within Volume 5, Appendix: CT-001-00001 of the main ES.

2.1.3 The scoping, desk study exercises and surveys reported can be found in the main BID Ecological baseline data – National Vegetation Classification and ancient woodland (BID EC-004-00001) which accompanied the main ES. This section contains the outcomes of surveys undertaken that were not reported in the BID document that accompanied the main ES. This is either because the survey reporting process had not been completed to inform the assessment within the main ES, or because the surveys have been undertaken since production of the main ES.

2.1.4 A total of eight stands of vegetation were subject to NVC survey within MA01 – MA03, as listed in Table 1. The NVC survey stand locations are indicated in the accompanying SES1 and AP1 ES Background Information and Data, Ecology Map Book: Map Series EC-10.

[3] 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-phase2b-crewe-manchester-environmental-statement.

Table 1: Summary of NVC surveys undertaken within MA01 – MA03

Ecology survey code	NVC survey stand name	Location	Ordnance Survey (OS) grid reference	Habitat types included in survey	Survey date	CA	Approximate distance from the land required for the AP1 revised scheme (m)	Relevant to SES1 scheme	Relevant to the AP1 revised scheme
CH614901_L5388_F001_PH2_090621	Greenhays Farm Pasture	Middlewich	SJ6893467019	Unimproved neutral grassland	9 June 2021	MA02	Adjacent	Y	N
CH446766-CH614832_L5429_PH2_260521	Bull's Wood and Meadow	East of Bostock	SJ6828268234	Unimproved neutral grassland	26 May 2021	MA02	Adjacent	Y	N
CH614475_L5152_F001_PH2_100621	East of Whatcroft Lane Wetlands	Whatcroft	SJ6872570680	Marshy grassland	10 June 2021	MA02	Adjacent	Y	N
CH552565_CH649605_L17922_F002_PH2_100621	Whatcroft Lane Wetlands	Whatcroft	SJ6845670769	Marshy grassland	10 June 2021	MA02	Within	Y	N
CH561720_L4808-L5197_F001_PH2_260521	Winnington and Peas Wood[4]	Lostock Gralam	SJ7021675688	Broadleaved semi-natural woodland	26 May 2021	MA02	Within	Y	N
CH561720-CH634300_L5197_PH2_080621	Winnington and Peas Wood	Lostock Gralam	SJ7022775703	Broadleaved semi-natural woodland	26 May 2021	MA02	Within	Y	N
CH561720-CH634300_L5278_PH2_080621	Leonard's and Smoker Wood	Lostock Gralam	SJ7051176038	Broadleaved semi-natural woodland	8 June 2021	MA02	Adjacent	Y	N

[4] The NVC survey stand lies within Winnington and Peas Wood Local Wildlife Site (LWS).

Ecology survey code	NVC survey stand name	Location	Ordnance Survey (OS) grid reference	Habitat types included in survey	Survey date	CA	Approximate distance from the land required for the AP1 revised scheme (m)	Relevant to SES1 scheme	Relevant to the AP1 revised scheme
CH155661_L45789_F001_PH2_080621	Bongs Wood and Rough	West of Over Tabley	SJ7009479846	Broadleaved semi-natural woodland	8 June 2021	MA03	Adjacent	Y	N

2.1.5 NVC survey stands which are Ancient Woodland Inventory (AWI) sites[5] or ancient woodland were subject to a search for vascular plant species that are typically more prevalent in ancient[6] rather than secondary woodlands[7,8]. In particular, the survey involved a search for those ancient woodland plant indicator species that exhibit strong affinity to such sites on the basis of the list compiled by Rose (1999)[9] in consultation with other professional botanists. A total of four stands were surveyed for ancient woodland plant indicator species within MA01 – MA03, as described in Table 2.

[5] Sites identified on Natural England's Ancient Woodland Inventory. Available online at: https://naturalengland-defra.opendata.arcgis.com/.

[6] Ancient woodland sites are those that have had continuity of woodland cover since at least AD 1600.

[7] Peterken, G.F. (1974), *A method for assessing woodland flora for conservation for using Indicator Species.* Biological Conservation, 6, P239-245.

[8] Thompson, R.J., Butcher, W.G., Williams, P. & Warren, M. (2003), *The use of vascular plants as indicators of ancient woodland in Somerset: The development of a county specific list*, Somerset Archaeology and Natural History.

[9] Rose, F. (1999), *Indicators of ancient woodland: The use of vascular plants in evaluating ancient woods for nature conservation*, British Wildlife, 10(4), P241-251.

Table 2: Summary of ancient woodland plant indicator species surveys undertaken within MA01 – MA03

Ecology survey code	Survey stand name	Location	OS grid reference	Habitat types included in survey	Survey date	CA	Approximate distance from the land required for the AP1 revised scheme (m)	Relevant to SES1 scheme	Relevant to AP1 revised scheme
CH561720_L4808-L5197_F001_PH2_260521	Winnington and Peas Wood	Lostock Gralam	SJ7021675688	Broadleaved semi-natural woodland	26 May 2021	MA02	Within	Y	N
CH561720-CH634300_L5197_PH2_080621	Winnington and Peas Wood	Lostock Gralam	SJ7022775703	Broadleaved semi-natural woodland	26 May 2021	MA02	Within	Y	N
CH561720-CH634300_L5278_PH2_080621	Leonard's and Smoker Wood	SJ7051176038	SJ7051176038	Broadleaved semi-natural woodland	8 June 2021	MA02	Within	Y	N
CH155661_L45789_F001_PH2_080621	Bongs Wood and Rough	West of Over Tabley	SJ7009479846	Broadleaved semi-natural woodland	8 June 2021	MA03	Within	Y	N

2.2 Deviations, constraints and limitations

2.2.1 Deviations, constraints and limitations are as reported in the main BID Ecological baseline data – National Vegetation Classification and ancient woodland report (BID EC-004-00001), which accompanied the main ES.

2.2.2 Eight additional stands of vegetation were surveyed relating to seven sites[10] between May and July 2021. The following approximate percentages of the following stands could not be surveyed owing to a lack of access: 50% of Bongs Wood and Rough; 10% of Whatcroft Lane Wetlands.

2.3 Baseline

Introduction

2.3.1 This section sets out ecological baseline data relating to NVC and ancient woodland not reported in the main BID report. It should be read in conjunction with main BID report, Ecological baseline data – National Vegetation Classification and ancient woodland (see main BID EC-004-00001), which accompanied the main ES.

Hough to Walley's Green (MA01)

2.3.2 There is no new NVC data from the Hough to Walley's Green area relating to the AP1 revised scheme.

Wimboldsley to Lostock Gralam (MA02)

Greenhays Farm Pasture (CH614901_L5388_F001_PH2_090621)

Site description and reasons for selection for survey

2.3.3 Unimproved neutral grassland present in Greenhays Farm Pasture Local Wildlife Site (LWS). The surveyed land comprises an area identified as 'good quality semi-improved grassland' on Natural England's Priority Habitat Inventory (PHI).

[10] A site may contain multiple different types of vegetation, each of which is sampled individually as a stand using NVC method. Each different sample is called a stand.

Vegetation communities present

2.3.4 Red fescue (*Festuca rubra*), bird's-foot trefoil (*Lotus corniculatus*), black knapweed (*Centaurea nigra*) and ribwort plantain (*Plantagot lanceoloata*) are dominant, with frequent cock's foot (*Dactylus glomerata*) and field wood-rush (*Luzula campestris*). This habitat is attributed to MG5a *Cynosurus cristatus-Centaurea nigra* grassland *Lathyrus pratensis* sub-community. The TABLEFIT 'goodness of fit' result was 46% in support of NVC community MG5. This vegetation qualifies as lowland meadow Habitat of Principal Importance listed on Section 41 of the Natural Environment and Rural Communities Act 2006 (HoPI).

2.3.5 Table 3 sets out the NVC survey data from Greenhays Farm Pasture.

Table 3: NVC survey data from Greenhays Farm Pasture (CH614901_L5388_F001_PH2_090621)

Species	Quadrat locations					Constancy (Domin range)[11]
	Q1	Q2	Q3	Q4	Q5	
Ground flora layer (4m x 4m)						
Festuca rubra	5	7	7	7	5	V (5 – 7)
Lotus corniculatus	7	7	4	5	4	V (4 – 7)
Centaurea nigra	4	4	6	4	5	V (4 – 6)
Plantago lanceolata	3	2	2	2	1	V (1 – 3)
Dactylis glomerata	2	2	4	2	-	IV (2 – 4)
Luzula campestris	1	-	1	2	2	IV (1 – 2)
Anthoxanthum odoratum	4	-	-	3	5	III (3 – 5)
Holcus lanatus	3	-	-	5	7	III (3 – 7)
Potentilla erecta	-	2	4	2	-	III (2 – 4)
Knautia arvensis	4	-	3	-	2	III (2 – 4)
Equisetum arvense	-	1	1	-	1	III (1 – 1)
Arrhenatherum elatius	-	4	-	4	-	II (4 – 4)
Conopodium majus	-	-	3	5	-	II (3 – 5)
Potentilla reptans	3	-	-	-	3	II (3 – 3)
Poa trivialis	3	2	-	-	-	II (2 – 3)
Betonica officinalis	-	2	3	-	-	II (2 – 3)
Heracleum sphondylium	1	-	-	1	-	II (1 – 1)
Quercus petraea (seedling)	-	1	-	1	-	II (1 – 1)
Agrostis capillaris	5	-	-	-	-	I (5 – 5)

[11] This column summarises the maximum and minimum Domin abundance score and the number of quadrats in which a sample was present: V = five quadrats; IV = four quadrats; III = three quadrats; II = two quadrats; I = one quadrat. The Domin scale is as follows: 10 = 91–100%; 9 = 76–90%; 8 = 51–75%; 7 = 34–50%; 6 = 26–33%; 5 = 11–25%; 4 = 4–10%; 3 = <4% (many individuals); 2 = <4% (several individuals); 1 = <4% (few individuals).

Species	Quadrat locations					Constancy (Domin range)[11]
	Q1	Q2	Q3	Q4	Q5	
Kindbergia praelonga	4	-	-	-	-	I (4 – 4)
Rumex acetosa	-	5	-	-	-	I (5 – 5)
Alopecurus pratensis	-	4	-	-	-	I (4 – 4)
Trisetum flavescens	-	-	-	3	-	I (3 – 3)
Lathyrus pratensis	2	-	-	-	-	I (2 – 2)

Bull's Wood and Meadow (CH446766-CH614832_L5429_PH2_260521)

Site description and reasons for selection for survey

2.3.6 This vegetation is the grassland component of Bull's Wood and Meadow LWS. It is not on Natural England's PHI.

Vegetation communities present

2.3.7 Grazed pasture dominated by red fescue, sweet vernal grass (*Anthoxanthum odoratum*), common sorrel (*Rumex acetosa*) and meadow foxtail (*Alopecurus pratensis*), with frequent smooth meadow-grass (*Poa pratensis*), hairy sedge (*Carex hirta*), lesser celandine (*Ficaria verna*) and common bent (*Agrostis capillaris*). The TABLEFIT analysis supported NVC communities MG3b, MG7c and MG7d with 'goodness of fit' result of 41%, 37% and 37% respectively. This area is best regarded as an area of unimproved grassland/pasture not closely resembling any NVC community but loosely referable to the MG5 grassland *Cynosurus cristatus - Centaurea nigra* grassland *Lathyrus pratensis* sub-community. It is of insufficient diversity to qualify as lowland meadow HoPI but unimproved grassland is typically uncommon in intensively farmed areas.

2.3.8 Table 4 sets out the NVC survey data from Bull's Wood and Meadow and surrounding land.

Table 4: NVC survey data from Bull's Wood and Meadow (CH446766-CH614832_L5429_PH2_260521)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Ground flora layer (4m x 4m)						
Festuca rubra	4	6	5	4	5	V (4 – 6)
Anthoxanthum odoratum	3	4	6	4	6	V (3 – 6)
Rumex acetosa subsp. *acetosa*	3	5	3	5	5	V (3 – 5)
Alopecurus pratensis	6	6	2	6	2	V (2 – 6)
Poa pratensis	4	-	5	3	2	IV (2 – 5)
Carex hirta	3	3	2	3	-	IV (2 – 3)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Ficaria verna	2	0	1	5	4	IV (1 – 5)
Agrostis capillaris	4	1	3	2	-	IV (1 – 4)
Plantago lanceolata	-	-	3	2	3	III (2 – 3)
Holcus lanatus	-	2	2	-	2	III (2 – 2)
Lotus pedunculatus	6	7	-	-	-	II (6 – 7)
Lotus corniculatus	-	-	4	-	4	II (4 – 4)
Juncus articulatus	-	5	-	-	3	II (3 – 5)
Dactylis glomerata	-	1	-	1	-	II (1 – 1)
Potentilla anglica	4	-	-	-	-	I (4 – 4)
Potentilla erecta	-	-	-	-	4	I (4 – 4)
Carex flacca	-	-	3	-	-	I (3 – 3)
Lathyrus pratensis	-	-	3	-	-	I (3 – 3)
Luzula campestris	-	-	3	-	-	I (3 – 3)
Bromus hordeaceus	2	-	-	-	-	I (2 – 2)
Centaurea nigra	-	-	2	-	-	I (2 – 2)
Rhytidiadelphus squarrosus	-	-	2	-	-	I (2 – 2)
Lolium perenne	1	-	-	-	-	I (1 – 1)
Taraxacum sect. Celtica	-	-	-	1	-	I (1 – 1)
Ranunculus acris	-	-	-	1	-	I (1 – 1)
Ranunculus bulbosus	-	-	1	-	1	I (1 – 1)
Juncus conglomeratus	1	-	-	-	-	I (1 – 1)

East of Whatcroft Lane Wetlands (CH614475_L5152_F001_PH2_100621)

Site description and reasons for selection for survey

2.3.9 Marshy grassland adjacent, to the east, of Whatcroft Lane Wetlands LWS. This land is not identified on Natural England's PHI and is outside the LWS boundary.

Vegetation communities present

2.3.10 Marshy grassland directly adjacent to the Trent and Mersey Canal. The area is enclosed by barbed-wire stock-proof fencing and is cattle-grazed on rotation with neighbouring fields. Marshy grassland dominated by Yorkshire fog (*Holcus lanatus*), creeping buttercup (*Ranunculus repens*), perennial ryegrass (*Lolium perenne*) and common meadow-grass, with occasional soft rush (*Juncus effusus*) and water foxtail (*Alopecurus geniculatus*). This habitat is classified as mosaic of MG6a *Lolium perenne - Cynosurus cristatus* grassland typical sub-

community and MG10b *Holcus lanatus - Juncus effusus* rush-pasture *Juncus inflexus* sub-community. The TABLEFIT 'goodness of fit' result was 39% in support of NVC community MG10. It does not qualify as a HoPI. Table 5 sets out the NVC survey data from East of Whatcroft Lane Wetlands.

Table 5: NVC survey data from East of Whatcroft Lane Wetlands (CH614475_L5152_F001_PH2_100621)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Ground flora layer (4m x 4m)						
Holcus lanatus	8	8	8	7	8	V (7 – 8)
Ranunculus repens	5	4	-	5	4	IV (4 – 5)
Lolium perenne	3	3	3	3	-	IV (3 – 3)
Poa pratensis	2	4	4	-	4	IV (2 – 4)
Juncus effusus	5	5	4	-	-	III (4 – 5)
Alopecurus geniculatus	3	-	3	-	4	III (3 – 4)
Juncus inflexus	4	-	-	-	4	II (4 – 4)
Cynosurus cristatus	-	-	3	5	-	II (3 – 5)
Festuca rubra	3	-	-	3	-	II (3 – 3)
Ranunculus acris	2	-	-	3	-	II (2 – 3)
Cerastium fontanum	-	1	-	1	-	II (1 – 1)
Alopecurus pratensis	-	-	3	-	-	I (3 – 3)
Taraxacum officinale agg.	-	-	-	1	-	I (1 – 1)

Whatcroft Lane Wetlands (CH552565_CH649605_L17922_F002_PH2_100621)

Site description and reasons for selection for survey

2.3.11 Marshy grassland within Whatcroft Lane Wetlands LWS. This land is not identified on Natural England's PHI.

Vegetation communities present

2.3.12 Common reed (*Phragmites australis*) is dominant, with occasional common nettle (*Urtica dioica*). This habitat is classified as S4a *Phragmites australis* swamp and reed-beds, *Phragmites australis* sub-community. The TABLEFIT 'goodness of fit' result was 32% in support of NVC community S4a. This vegetation qualifies as reedbed HoPI. Table 6 sets out the NVC survey data from Whatcroft Lane Wetlands.

Table 6: NVC survey data from Whatcroft Lane Wetlands (CH552565_CH649605_L17922_F002_PH2_100621)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Ground flora layer (4m x 4m)						
Phragmites australis	8	10	10	10	9	V (8 – 10)
Urtica dioica	-	-	4	4	-	II (4 – 4)
Iris pseudacorus	-	-	-	-	4	I (4 – 4)
Oenanthe crocata	-	-	-	-	4	I (4 – 4)
Juncus inflexus	3	-	-	-	-	I (3 – 3)
Cardamine hirsuta	3	-	-	-	-	I (3 – 3)
Vicia sativa	-	3	-	-	-	I (3 – 3)
Galium aparine	-	3	-	-	-	I (3 – 3)
Calystegia sepium	-	3	-	-	-	I (3 – 3)
Poa trivialis	-	-	-	2	-	I (2 – 2)
Cirsium arvense	-	-	-	-	2	I (2 – 2)
Epilobium hirsutum	-	-	-	-	2	I (2 – 2)
Rumex obtusifolius	-	-	-	-	2	I (2 – 2)

Winnington and Peas Wood (CH561720_L4808-L5197_F001_PH2_260521)

Site description and reasons for selection for survey

2.3.13 Broadleaved semi-natural woodland, mapped by Natural England as an AWI site (ancient semi-natural woodland) and on the Natural England PHI as deciduous woodland. The stand falls within Winnington and Peas Wood LWS.

Vegetation communities present

2.3.14 Sycamore (*Acer pseudoplatanus*), pedunculate oak (*Quercus robur*) and common alder (*Alnus glutinosa*) are dominant, with occasional ash (*Fraxinus excelsior*). Elder (*Sambuccus nigra*) and common hawthorn (*Crataegus monogyna*) dominant in the shrub layer. Himalayan balsam (*Impatiens glandulifera*) and bluebell (*Hyacinthoides non-scripta*) dominate the ground layer. This habitat is attributed to W10 *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland. The TABLEFIT 'goodness of fit' result was 42% in support of NVC community W10. The sampled vegetation qualifies as lowland mixed deciduous woodland HoPI.

2.3.15 Nine vascular plant species that are indicative of ancient woodland were recorded (either incidentally or in quadrats): holly (*Ilex aquifolium*), wild cherry (*Prunus avium*), bird cherry (*Prunus padus*), bluebell, yellow archangel (*Lamium galeobdolon* subsp. *montanum*), wood

anemone (*Anemone nemorosa*), pignut (*Conopodium majus*), wood speedwell (*Veronica montana*) and moschatel (*Adoxa moschatellina*). Table 7 sets out the NVC survey data from Winnington and Peas Wood.

Table 7: NVC survey data from Winnington and Peas Wood (CH561720_L4808-L5197_F001_PH2_260521)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Canopy (50m x 50m)						
Acer pseudoplatanus	6	6	6	5	5	V (5 – 6)
Quercus robur	5	6	5	5	5	V (5 – 6)
Alnus glutinosa	5	3	5	4	4	V (3 – 5)
Fraxinus excelsior	-	-	-	2	1	II (1 – 2)
Salix euxina	-	1	-	-	1	II (1 – 1)
Betula pendula	-	-	-	-	3	I (3 – 3)
Betula pubescens	-	-	1	-	-	I (1 – 1)
Sorbus aucuparia	-	-	1	-	-	I (1 – 1)
Understorey (10m x 10m)						
Sambucus nigra	3	4	2	3	3	V (2 – 4)
Crataegus monogyna	3	4	2	3	3	V (2 – 4)
Fraxinus excelsior	5	2	2	-	2	IV (2 – 5)
Ilex aquifolium	2	-	3	4	2	IV (2 – 4)
Acer pseudoplatanus	4	3	-	2	-	III (2 – 4)
Corylus avellana	2	2	-	-	-	II (2 – 2)
Salix euxina	-	1	-	-	2	II (1 – 2)
Sorbus aucuparia	1	-	1	-	-	II (1 – 1)
Prunus avium	1	-	-	1	-	II (1 – 1)
Prunus padus	1	-	-	-	-	I (1 – 1)
Carpinus betulus	-	1	-	-	-	I (1 – 1)
Ground flora layer (4m x 4m)						
Impatiens glandulifera	8	8	8	8	7	V (7 – 8)
Hyacinthoides non-scripta	6	2	6	6	7	V (2 – 7)
Brachythecium rutabulum	1	3	2	2	2	V (1 – 3)
Dryopteris dilatata	4	3	4	4	-	IV (3 – 4)
Kindbergia praelonga	2	2	-	3	2	IV (2 – 3)
Rubus fruticosus agg.	3	-	5	-	2	III (2 – 5)
Rubus ser. vestiti	1	-	2	3	-	III (1 – 3)
Hedera helix	-	-	1	2	3	III (1 – 3)
Athyrium filix-femina	-	2	1	-	-	II (1 – 2)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Atrichum undulatum	1	-	-	-	1	II (1 – 1)
Hypnum cuppressiforme	1	2	-	-	-	II (1 – 2)
Lamium galeobdolon subsp. montanum	-	-	-	-	5	I (5 – 5)
Anemone nemorosa	-	-	3	-	-	I (3 – 3)
Ribes rubrum	-	-	-	2	-	I (2 – 2)
Conopodium majus	-	-	-	2	-	I (2 – 2)
Orthotrichum affine	1	-	-	-	-	I (1 – 1)
Veronica montana	-	-	1	-	-	I (1 – 1)
Adoxa moschatellina	-	-	-	-	1	I (1 – 1)
Crataegus monogyna	-	-	1	-	-	I (1 – 1)

Winnington and Peas Wood (CH561720-CH634300_L5197_PH2_080621)

Site description and reasons for selection for survey

2.3.16 Broadleaved semi-natural woodland, mapped by Natural England as an AWI site (ancient semi-natural woodland) and on the Natural England PHI as deciduous woodland. The stand falls within Winnington and Peas Wood LWS.

Vegetation communities present

2.3.17 Sycamore and pedunculate oak are dominant, with occasional common alder. Sycamore and common hawthorn dominate the shrub layer. Bluebell and bramble (*Rubus fruticosus* agg.) dominate the ground layer. This habitat is attributed to W10a *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland typical sub-community. The TABLEFIT 'goodness of fit' result was 38% in support of NVC community W10a. The sampled vegetation qualifies as lowland mixed deciduous woodland HoPI.

2.3.18 Five vascular plant species that are indicative of ancient woodland were recorded (either incidentally or in quadrats): holly, wood anemone, pignut, bluebell and soft shield fern (*Polystichum setiferum*).

2.3.19 Table 8 sets out the NVC survey data from Winnington and Peas Wood.

Table 8: NVC survey data from Winnington and Peas Wood (CH561720-CH634300_L5197_PH2_080621)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Canopy (50m x 50m)						
Acer pseudoplatanus	8	5	8	7	5	V (5 – 8)
Quercus robur	2	6	4	4	6	V (2 – 6)
Alnus glutinosa	-	-	-	4	2	II (2 – 4)
Sorbus aucuparia	2	-	-	-	-	I (2 – 2)
Larix kaempferi	-	-	1	-	-	I (1 – 1)
Understorey (10m x 10m)						
Acer pseudoplatanus	-	-	2	3	1	III (2 – 4)
Crataegus monogyna	2	-	2	1	-	III (1 – 2)
Ilex aquifolium	-	-	2	2	-	II (2 – 2)
Corylus avellana	2	2	-	-	-	II (2 – 2)
Sambucus nigra	-	-	2	-	1	II (1 – 2)
Sorbus aucuparia	1	-	1	-	-	II (1 – 1)
Ground flora layer (4m x 4m)						
Hyacinthoides non-scripta	4	5	-	3	2	IV (2 – 5)
Rubus fruticosus agg.	4	2	3	1	-	IV (1 – 4)
Impatiens glandulifera	-	-	6	7	6	III (6 – 7)
Hedera helix	1	5	4	-	-	III (1 – 5)
Dryopteris filix-mas	5	5	-	-	-	II (5 – 5)
Anemone nemorosa	-	-	1	-	5	II (1 – 5)
Polystichum setiferum	-	-	1	-	3	II (1 – 3)
Ilex aquifolium (seedling)	1	1	-	-	-	II (1 – 1)
Dryopteris dilatata	-	-	-	5	-	I (5 – 5)
Conopodium majus	-	-	3	-	-	I (3 – 3)
Poa nemoralis	-	-	2	-	-	I (2 – 2)
Acer pseudoplatanus (seedling)	-	-	-	1		I (1 – 1)
Silene dioica	-	-	1	-	-	I (1 – 1)
Geum urbanum	-	-	1	-	-	I (1 – 1)

Leonard's and Smoker Wood (CH561720-CH634300_L5278_PH2_080621)

Site description and reasons for selection for survey

2.3.20 Broadleaved semi-natural woodland, mapped by Natural England as an AWI site (ancient semi-natural woodland) and on the Natural England PHI as deciduous woodland. The stand falls within Leonard's and Smoker Wood LWS.

Vegetation communities present

2.3.21 Sycamore and small-leaved lime (*Tilia cordata*) are dominant, with occasional common alder and European larch (*Larix decidua*). Common hawthorn and elder dominate the shrub layer. Common nettle and bramble dominate the ground layer. This habitat is attributed to W10a *Quercus robur - Pteridium aquilinum - Rubus fruticosus* woodland typical sub-community. The TABLEFIT analysis results were inconclusive (25% 'goodness of fit' in support of NVC community W6) but W10 woodland is a better fit for this woodland community. The woodland qualifies as lowland mixed deciduous woodland HoPI.

2.3.22 One vascular plant species indicative of ancient woodland was recorded (either incidentally or in quadrats): small-leaved lime.

2.3.23 Table 9 sets out the NVC survey data from Leonard's and Smoker Wood.

Table 9: NVC survey data from Leonard's and Smoker Wood (CH561720-CH634300_L5278_PH2_080621)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Canopy (50m x 50m)						
Acer pseudoplatanus	6	8	6	-	-	III (6 – 8)
Tilia cordata	1	-	-	5	5	III (1 – 5)
Alnus glutinosa	-	5	-	-	-	I (5 – 5)
Quercus petraea	-	-	4	-	-	I (4 – 4)
Salix alba	3	-	-	-	-	I (3 – 3)
Larix decidua	-	-	1	-	-	I (1 – 1)
Understorey (10m x 10m)						
Crataegus monogyna	-	1	-	-	-	V (2 – 4)
Sambucus nigra	-	1	-	-	-	V (2 – 4)
Quercus petraea	-	-	-	4	2	IV (2 – 5)
Corylus avellana	-	-	-	4	-	IV (2 – 4)
Salix caprea	-	-	-	4	-	III (2 – 4)
Sorbus aucuparia	-	-	1	-	-	II (2 – 2)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Ground flora layer (4m x 4m)						
Urtica dioica	4	9	4	-	8	V (7 – 8)
Rubus fruticosus agg.	7	4		-	-	V (2 – 7)
Rubus obtusifolius	2	-	-	1	3	V (1 – 3)
Impatiens glandulifera	7	-	8	-	-	IV (3 – 4)
Stachys sylvatica	2	-	-	-	-	IV (2 – 3)
Poa trivialis	3	-	-	2	4	III (2 – 5)
Silene dioica	-	4	-	3	-	III (1 – 3)
Geum urbanum	-	-	-	1	-	II (1 – 2)
Dryopteris filix-mas	-	-	-	7	-	II (1 – 2)
Galium aparine	-	-	4	-	-	II (1 – 1)
Ranunculus repens	-	-	-	1	-	I (3 – 3)
Epilobium hirsutum	-	-	-	-	5	I (2 – 2)
Arrhenatherum elatius	-	-	-	7	-	I (1 – 1)
Crataegus monogyna (seedling)	-	-	-	1	-	I (1 – 1)

Pickmere to Agden and Hulseheath (MA03)

Bongs Wood and Rough (CH155661_L45789_F001_PH2_080621)

Site description and reasons for selection for survey

2.3.24 Woodland in Bongs Wood and Rough LWS. The woodland is all on Natural England's PHI. Part of the woodland is on Natural England's AWI, the surveyed vegetation is partly plantation on ancient woodland and part ancient semi-natural woodland.

Vegetation communities present

2.3.25 Beech (*Fagus sylvatica*) and Japanese larch (*Larix kaempferi)* are dominant, with occasional crack willow (*Salix* x *fragilis*) and hybrid black poplar (*Populus x canadensis*). Holly, elder and beech dominate the shrub layer. Common feather-moss (*Kindbergia praelonga*), bluebell, ivy (*Hedera helix*) and bramble dominate the ground layer. This habitat is attributed to W12a *Fagus sylvatica – Mercurialis perennis* woodland *Mercurialis perennis* sub-community. The TABLEFIT 'goodness of fit' result was 36% in support of NVC community W12a. The sampled vegetation technically qualifies as lowland beech and yew woodland HoPI as it is a beech woodland with a relatively natural ground flora. However, it is also heavily modified in places with planted trees and is not a distinctive example of this HoPI type.

2.3.26 Seven vascular plant species that are indicative of ancient woodland were recorded (either incidentally or in quadrats): ramsons (*Allium ursinum*), wood anemone, bluebell, holly, dog's mercury (*Mercurialis perennis*), soft shield fern and guelder-rose (*Viburnham opulus*).

2.3.27 Table 10 sets out the NVC survey data from Bongs Wood and Rough.

Table 10: NVC survey data from Bongs Wood and Rough (CH155661_L45789_F001_PH2_080621)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Canopy (50m x 50m)						
Fagus sylvatica	-	5	9	9	7	IV (5 – 9)
Larix kaempferi	-	-	2	4	4	III (2 – 4)
Populus x canadensis	4	2	-	-	-	II (2 – 4)
Salix x fragilis	5	-	-	-	-	I (5 – 5)
Alnus glutinosa	2	-	-	-	-	I (2 – 2)
Acer pseudoplatanus	1	-	-	-	-	I (1 – 1)
Ulmus glabra (dead)	1	-	-	-	-	I (1 – 1)
Understorey (10m x 10m)						
Ilex aquifolium	-	-	2	2	4	III (2 – 4)
Sambucus nigra	3	2	-	2	-	III (2 – 3)
Fagus sylvatica	2	1	-	2	-	III (1 – 2)
Corylus avellana	4	3	-	-	-	II (3 – 4)
Hedera helix	2	-	-	-	-	I (2 – 2)
Crataegus monogyna	-	1	-	-	-	I (1 – 1)
Viburnum opulus	-	1	-	-	-	I (1 – 1)
Ulmus glabra	1	-	-	-	-	I (1 – 1)
Ground flora layer (4m x 4m)						
Bare Ground	5	5	7	10	9	V (5 – 10)
Kindbergia praelonga (moss)	4	3	-	-	4	III (3 – 4)
Hyacinthoides non-scripta	1	-	-	2	5	III (1 – 5)
Hedera helix	3	5	-	-	1	III (1 – 5)
Rubus fruticosus	1	3	-	-	1	III (1 – 3)
Impatiens glandulifera	8	5	-	-	-	II (5 – 8)
Urtica dioica	4	3	-	-	-	II (3 – 4)
Atrichum undulatum	1	3	-	-	-	II (1 – 3)
Circaea lutetiana	-	2	-	-	1	II (1 – 2)
Anemone nemorosa	1	2	-	-	-	II (1 – 2)
Allium ursinum	1	-	-	-	1	II (1 – 1)
Heracleum sphondylium	1	1	-	-	-	II (1 – 1)
Poa trivialis	1	1	-	-	-	II (1 – 1)

Species	Quadrat locations					Constancy (Domin range)
	Q1	Q2	Q3	Q4	Q5	
Fraxinus excelsior (seedling)	-	1	-	-	1	II (1 – 1)
Leaf Litter / dead wood/ brash piles (cover)	-	-	8	-	-	I (8 – 8)
Carex pendula	-	6	-	-	-	I (6 – 6)
Deschampsia cespitosa	-	5	-	-	-	I (5 – 5)
Mercurialis perennis	-	3	-	-	-	I (3 – 3)
Polystichum setiferum	-	-	3	-	-	I (3 – 3)
Galium aparine	2	-	-	-	-	I (2 – 2)
Dryopteris filix-mas	-	2	-	-	-	I (2 – 2)
Arum maculatum	-	1	-	-	-	I (1 – 1)
Silene dioica	-	1	-	-	-	I (1 – 1)
Sambucus nigra (seedling)	-	-	-	1	-	I (1 – 1)
Fagus sylvatica (seedling)	-	-	-	1	-	I (1 – 1)
Crataegus monogyna (seedling)	-	-	-	-	1	I (1 – 1)
Glechoma hederacea	1	-	-	-	-	I (1 – 1)
Stachys sylvatica	-	1	-	-	-	I (1 – 1)

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High Speed Two (HS2) Limited
Two Snowhill
Snow Hill Queensway
Birmingham B4 6GA
Freephone: 08081 434 434
Minicom: 08081 456 472
Email: HS2enquiries@hs2.org.uk