



High Speed Rail, Phase 2b Crewe to Manchester Working Draft Environmental Statement, Community Areas MA01, MA02, MA03, MA04, MA05, MA06.

Response from the Cheshire Wildlife Trust (December 2018)

Overview

The Cheshire Wildlife Trust represents the interests of 13,000 members, operating under a charitable objective to ‘..promote the conservation, protection and improvement of the physical and natural environment...’(1962, last amended October 2016). It is within this charitable objective that we make this response to the consultation for the High Speed Phase 2b Working Draft Environmental Statement, in the interests of protecting and improving habitats, species and the landscape within the Cheshire region.

It is our view that the scheme is likely to result in unacceptable losses of wildlife in the Cheshire region. In a county that has already seen devastating impacts to wild places through changes in land use and development, this scheme is set to compound these losses by further fragmenting vulnerable species populations and their habitats. It is clear from the preliminary information provided in the WDES that there will be massive shortfalls in the amount of compensatory habitat provided which could lead to significant impacts to many groups of species, making them more vulnerable to local extinctions.

There are a number of specific issues we would like to raise which we have set out in our response below. These focus on:

1. the use of outdated/inaccurate datasets relating to Local Wildlife Sites and the omission of potential Local Wildlife Site data (pLWS);
2. the effects on ecological connectivity including the failure to acknowledge the existence of the Great Manchester Wetlands Nature Improvement Area;
3. the shortfall in habitat creation which is required to fulfil the stated aim of no net loss in biodiversity and the knock on impacts this will have on several groups of species including bats;
4. the inappropriate siting of mitigation habitat on areas of land which are of existing high ecological value resulting in a loss of biodiversity value (e.g. tree planting in traditional orchards or on areas of species-rich grassland);
5. the undervaluing of certain species and habitats in a Cheshire context;
6. Site specific information including direct impacts to 30 Local Wildlife Sites or potential Local Wildlife Sites, which include irreplaceable habitats such as ancient woodland. There may be further indirect impacts to 10 SSSIs. We have highlighted where the most damage is likely to occur and where we would like to see alternative solutions considered.

We recognise that the Environmental Statement is a draft document and that most of the detailed information is missing at this stage but we hope that the broad points we raise can be addressed in

subsequent iterations. We reserve the right to amend our comments when more information becomes available.

Many of the issues we raise (particularly site specific issues) are the result of recent survey work we have undertaken in the area.

1. The use of outdated Local Wildlife Site data

We are astonished that HS2 Ltd. have used datasets that are approximately 6 years out of date. This is despite CWT sending the revised Local Wildlife Site boundaries to HS2 Ltd. in January 2018. Boundaries of potential Local Wildlife Sites (pLWS) were also sent at this time. These are sites which are awaiting designation as LWSs, most of the pLWSs impacted by HS2 have been surveyed by CWT during 2018. We urge HS2 to include this information in the next iteration of the Environmental Statement and make the appropriate impact assessments.

2. Ecological Connectivity

Whilst we recognise that efforts have been made to connect or expand existing habitats within the redline boundary, we still have serious concerns that ecological connectivity will be severely impeded by the scheme. Developing a Nature Recovery Network to reconnect wildlife habitats is at the heart of the government's 25 Year Environment Plan, yet the proposals for HS2 appear to do the exact opposite by severing ecological connectivity particularly along hundreds of hedgerows and small watercourses¹.

We are especially concerned about the impacts to watercourses in Community Areas MA05 and MA06. Up to 27 small water courses could be impacted in MA05 particularly if these are culverted. Culverts are also likely to affect ecological connectivity along Millington Clough and its numerous tributaries in MA06.

Increasing the fragmentation of wildlife habitats will affect many Priority species but particularly brown hare, willow tit, aquatic invertebrates, amphibians and fish, notably the critically endangered European eel and European protected River Lamprey. One of the species that could be most affected by habitat fragmentation is the water vole, a UK Priority species and listed on Schedule 5 of the Wildlife and Countryside Act 1981. Water voles are one of the fastest disappearing mammals in the UK, the likely reasons for this include fragmentation and contraction of remaining populations due to habitat loss and habitat degradation. An unprecedented, rapid decline in the local water vole population is one of the most pressing conservation concerns in the Cheshire region at the moment.

We are concerned that riparian habitat losses are not being adequately mitigated for, which further compounds the issue of reduced habitat connectivity. The proposed areas for wetland habitat creation are too small and fragmented to offset the impacts, particularly where water vole may be

¹ Measures to reduce fragmentation along watercourses could involve ensuring all culverts are less than 30m in length, >1m headroom and have mammal ledges incorporated. The work on watercourses should be timed so it doesn't coincide with active periods for species such as water vole.

affected (eg. at Silver Lane Ponds LWS in MA05, on Red brook in MA04, Agden brook and Blackburn's brook in MA06, Wade brook in MA02, Millington Clough MA03/MA06).

Where hedgerows are removed this may impact the breeding success of local bat populations unless additional habitat is created to compensate for the losses. We hope that, in accordance with the HS2 No Net Loss metric, losses of linear habitats will be accounted for by applying the correct risk multipliers when determining the amount of compensation required. We trust that these figures will be provided in the next version of the Environmental Statement.

Nature Improvement Area

We are particularly concerned about the effect on ecological connectivity in the Great Manchester Wetlands Nature Improvement Area and the wider Manchester Mosses SAC (community area MA05). The NIA was designated by the Local Nature Partnership and has recognition in local planning frameworks. The WDES has not only failed to recognise the importance of this area, in terms of ecological connectivity and restoration potential, but it has also failed to identify the significance of the peatland and wetland habitats present outside designated sites. Holcroft Moss is not limited to the designated SSSI but extends a much greater distance north and west towards Risley and Pestfurlong Mosses. Although farmed, the remaining peatland is still very wet in parts and provides suitable habitat for species such as wintering birds, dragonflies and brown hare. The M62 bisected Holcroft Moss east-west in the 1970s and HS2 is set to further fragment Holcroft Moss on a north-south axis. This will leave the SSSI isolated from the rest of Holcroft Moss and the wider Manchester Mosses area, further compromising the species that are associated with the moss.

The current plans show that the scheme will run along an embankment next to Holcroft Moss SSSI/SAC (owned and managed by the Cheshire Wildlife Trust). CWT urge HS2 to choose the viaduct option as it passes close to the SSSI. A viaduct will help retain ecological/hydrological connectivity between the SSSI and Pestfurlong Moss LWS/Risley Moss SSSI to the west and south, whereas the embankment option would sever connectivity for a number of UK Priority species including the brown hare and common lizard and it may alter the hydrology of the wider peat body. We also urge HS2 to use this opportunity to help reconnect Holcroft Moss following the damage that occurred as the result of the construction of the M62. This could involve creating a green bridge across the motorway that may be utilised by the aforementioned species. We also urge HS2 to consider the creation and *long term management* of wetland buffer habitats in the vicinity of Holcroft moss to help mitigate the wider impacts in this sensitive area. Compensation measures should be better aligned with the aims and objectives of the Great Manchester Wetlands NIA, for example woodland planting is not necessarily the best option for the open habitats and specialised species associated with the NIA.

3. No Net Loss/Net gain

We note that the HS2 Environmental Policy states a commitment to:

'developing an exemplar project, and to limiting negative impacts through design, mitigation and by challenging industry standards whilst seeking environmental enhancements and benefits.'

The policy also states that:

'In order to guide and manage our potential environmental impacts, we will seek to:

- *achieve no net loss in biodiversity, reducing impacts on species and creating and enhancing habitats;*

We are disappointed that an 'exemplar project' cannot demonstrate a commitment to the government's Net Gain policy - as set out in the NPPF 2018 and the government's 25 year Environment Plan 2018. The established mechanism to measure losses and gains in biodiversity is through the use of a biodiversity metric, therefore we believe that the use of these calculations is a fundamental requirement if obligations are to be fulfilled. We urge HS2 to be more transparent by publishing these calculations on an on-going basis. We don't believe it is acceptable that the calculations will only be available for scrutiny during the construction phase i.e.

Assurance given to the Royal Society of Wildlife Trusts 6th July 2018:

'to monitor and report against the no net loss calculation during the construction of the Proposed Scheme'

No Net Loss calculations

NNL calculations (biodiversity metrics) are required in order to determine the amount of compensatory habitat required to reduce the impact of the scheme to levels which are not considered significant. This is also important when considering the impact on species, for example when determining the amount of habitat required to ensure there are no residual significant impacts on species such as bats.

Great Crested Newts are the one species where a replacement ratio (2:1 for occupied ponds) has been provided by HS2 Ltd. In line with the No Net Loss commitment we hope that unoccupied ponds are replaced on at least a 1:1 basis, however this does not take into account any risk/time factors in establishing new habitat. There are 216 ponds which lie within or partly within the scheme (areas MA01 – MA06), with the highest density of impacted ponds in area MA03 Pickmere to Agden. The loss of these ponds will require approximately 290 ponds to be created in the Cheshire region in advance of the scheme (assuming the local GCN occupancy rate is 34%, as determined by Natural England 2018).

For three other habitats we have calculated the replacement ratio required to ensure No Net Loss of biodiversity. We have done this using the methodology set out in *Biodiversity Methodology and Results (HS2 Ltd 2017)*. The use of this ratio to determine the amount of habitat creation in each community area MA01 – MA06 will also ensure the residual significant effects on the species listed in the Environmental baseline sections of the community area reports are minimised as far as possible.

- *Semi-natural woodland, replacement ratio required to achieve NNL 1:5.4*
This does not include ancient woodland which is an irreplaceable habitat. In accordance with the Woodland Trust we suggest a replacement ratio of 1:30 for ancient woodland is more appropriate.
- *Grassland unimproved - moderately species-rich (LWS quality, county value), replacement ratio required to achieve NNL 1:2.52*
- *Semi-improved grassland, replacement ratio required to achieve NNL 1:1.68*

The justification for the above figures is set out in the appendix.

Although the final areas for habitat loss and creation for these three habitat types have not yet been published, there are some initial published figures for the losses and gains of semi-natural woodland which we have analysed below:

Community Area	Area semi-natural lowland mixed deciduous woodland lost (ha)	Area (ha) of plantation woodland required to achieve NNL (replacement ratio 1:5.4). Assumes none is ancient	Area (ha) plantation woodland (ecology) proposed. We have removed areas of pre-existing woodland and/or other high value habitats
MA01	0.3	1.62	1.81 ²
MA02	2.44 (0.14 ancient)	13.18	17.46 ³
MA03	0.9 (0.4 ancient)	4.86	5.9
MA04	2.4	12.97	8.3
MA05	12.3 (minimum)	66.42	17
MA06	9.29 (2.9 minimum ancient)	50.17	8.3

The figures in the table above do not take into account that areas of ancient woodland will require a greater replacement ratio⁴ compared to non-ancient woodland. The figures demonstrate that in areas MA04, 05 and 06 there are considerable shortfalls of woodland habitat provision. As a consequence there are likely to be significant residual impacts on many groups of species that rely on woodlands including bats and birds such as spotted flycatcher and willow tit. Bats are a European Protected Species which utilise woodlands and hedgerows, including those present along the route in Community Areas MA04, 05 and 06. The loss of large areas of woodland without adequate mitigation is highly likely to impact the reproductive success of these species.

4. Inappropriate siting of mitigation habitat

CWT are concerned that the plans show that much of the proposed mitigation habitat will be located on land that is already of wildlife value. This is unacceptable, especially where it leads to a reduction in wildlife value, for example tree planting onto species-rich grassland at Spring Plantation Meadow pLWS, Bull's wood and Meadow pLWS, and in a traditional orchard pLWS in area MA01 and by Birkin brook in area MA06. There are also plans to create wetland mitigation habitat on areas of existing high value wetland/reedbed along the Trent and Mersey Canal and on important habitat by the Peover Eye and on Arley and Waterless Brook corridor. Furthermore there are numerous examples

² Minus areas of high value habitats i.e. 0.71ha (woodland on woodland), 0.22 ha (wood on traditional orchard), 1.06 ha (woodland on good semi-improved grassland)

³ Minus areas of high value habitats i.e. 1.57 ha (woodland on woodland), 0.87 ha (woodland on good grassland)

⁴ 1:30 According to the Woodland Trust

of where areas of woodland habitat creation have been mapped over existing semi-natural woodland, particularly in Community Area MA02.

We recognise that this is a draft ES, however it is essential that the plans and figures for habitat creation are amended as soon as possible to remove these valuable areas. It is evident that many of the mitigation areas have been ill thought through and instead of creating a 'green corridor' they may actually destroy important habitats.

5. The undervaluing of species and habitats in a Cheshire context.

During 2012-2014 much work was done on the evaluation of species and habitats in the Cheshire region. Over 42 professional ecologists, environmental planners and expert local naturalists input into the criteria. The outcome of this work was the production of the Local Wildlife Site criteria for the Cheshire region. This document describes which habitats and species should be recognised as being of county value. We recommend HS2 Ltd. takes this document into account when attributing values to habitats and species. For example there may be species which are commonplace in other counties but rare in Cheshire, so different values should be attributed.

Our analysis of the ES has led us to conclude that HS2 Ltd. has undervalued some species and habitats. The following resources/features would meet the criteria for selection as a Local Wildlife Site so are considered to be of county value. We ask that HS2 Ltd. amend their valuations accordingly:

Feature	Status	Level of county value importance ⁵	Importance attributed by HS2 Ltd.	Community area where records exist (example only)
Reptiles	UK species of Principal Importance	Significant populations of common lizard. All populations of grass snake, slow worm or adder.	Up to district/borough	MA01, MA05
European eel	Critically endangered and UK species of Principal Importance	Any population	Up to district/borough	MA02, MA03, MA04, MA05, MA06
River Lamprey	UK species of Principal Importance	Significant populations	Up to district/borough	MA02, MA03, MA06
Brown trout	UK species of Principal Importance	Naturally sustaining populations	Up to district/borough	MA02, MA03, MA04, MA06
Whiteletter hairstreak	UK species of Principal Importance	Probable breeding populations	Up to district/borough	MA01, MA02, MA03

⁵ According to the Local Wildlife Site Criteria for the Cheshire Region 2014

Dingy skipper	UK species of Principal Importance	Probable breeding populations	Up to district/borough	MA01
An assemblage of 8+ species of <i>Odonata</i>	May include Local Biodiversity Action Plan species	Probable breeding populations	Up to district/borough	MA05

References to badger are omitted from the community area reports. We understand that this may be due to the sensitivity surrounding this species, however we expect HS2 Ltd. to fully assess the impact the proposed work would have on this species and to provide the appropriate mitigation.

References in the WDES to water voles being 'widespread and locally common in Cheshire' should be removed as these have been taken from an outdated Biodiversity Action Plan document. A study in 2011 concluded that water voles may have been lost from up to 56% of previously occupied sites within the Northwest Lowlands between 2001 and 2011 (Powell and Milburn 2011). In Cheshire the situation is particularly serious with a recent study by the Cheshire Wildlife Trust finding that during a five year period (2013-2018) 16 out of 24 previously occupied water vole sites have lost their populations. This indicates that the rate of loss may have increased since 2011 (A study of the water vole population in Cheshire 2018, CWT - Powell *in preparation*).

Breeding and overwintering birds

CWT has particular concerns relating to the impact the scheme will have on breeding and overwintering birds, especially those that forage or nest in open habitats that are considered Priority species. HS2 Ltd. must take into consideration the most recent population data which is available from the BTO in order to value populations correctly. Where the scheme is likely to impact >1% of the county population there will be significant impacts at the county level.

We were disappointed that this information was not considered adequately in Phase 2a and we hope that this will not be the case for Phase 2b.

It is unlikely that appropriate mitigation for impacts to ground nesting farmland birds or overwintering birds will be secured within the confines of the scheme (due to the large areas of land required) and it is likely that offsite compensation/habitat creation will be required. This should be acknowledged in the forthcoming Environmental Statement.

We urge HS2 to undertake appropriate surveys of land where breeding farmland birds or overwintering birds are likely to be present paying particular attention to land managed under Environmental Stewardship schemes. These include (but are not restricted to) land near Bradfield Green in MA01, Rudheath Limebeds pLWS MA02, farmland in Community Areas MA02 and MA03, land near the River Bollin and Manchester Ship Canal MA04, the peatlands in MA05 in the Great Manchester Wetlands NIA.

6. Site specific information

Apart from the impacts to Holcroft Moss and the NIA considered in point 2, the most significant impacts will be to the ancient woodlands at Winnington and Peas Wood LWS, Hancock's Bank South LWS, Leonard's and Smoker Wood LWS, Davenport Green SBI, Sunbank Wood and Ponds SBI. The first two of these ancient woodlands are already impacted by road schemes and HS2 is set to further sever or disrupt these irreplaceable habitats. The total loss of irreplaceable habitat within these sites is approximately 4.24 hectares.

There will also be unacceptable impacts to Silver Lane Ponds LWS and to Mossbridge Marsh pLWS which hosts marshy grassland and grass-snake. Silver Lane Ponds is largely set to disappear under the route unless a viaduct option could be considered for this site. Created as attenuation ponds for the adjacent tip site, this is now an important wildlife habitat with notable assemblages of birds as well as wetland habitats.

Ashley Brickworks LWS (formally Erlam's Meadow LWS) will largely be destroyed due to a road diversion. Road diversions are also set to directly impact important ancient woodlands including Brickhill Wood LWS and Wood near Arden House LWS. The Cheshire Wildlife Trust suggests that many of these impacts are wholly avoidable and the roads could be diverted to secure the woodlands.

We are also very concerned about the impact to important woodlands containing numerous veteran trees along the river Dane and Trent and Mersey Canal (part of the Trent and Mersey Canal Whatcroft to Middlewich pLWS and River Dane, Bostock pLWS) and the impacts to Ecclesfield wood LWS in MA06. We ask that HS2 look again at the route and prioritise avoiding these impacts.

The following table summarises the impacts to specific sites in the Cheshire region (including Trafford and Warrington) that are of most concern:

Table 1: The sites of most concern within Cheshire

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
MA01	Crewe Swift Colony	LWS	Indirect	Crewe and Nantwich, CE	SJ688561 (along this road)	Site lies adjacent to A532 West Street, a construction access route	There may be some impact on the swifts through the increased traffic flow.	Survey is recommended
MA01	Winton Equestrian Centre	pLWS	Direct	Crewe and Nantwich, CE	SJ70755822	Within land potentially required during construction. Hedgerow and marshy grassland creation in this area.	Seems likely that there would be significant disturbance in this area with the proposed works and demolition of the house, farm buildings, menage and car parking and their conversion to marshland. Likely to be breeding site for grass snake within the haybales (the pLWS). The stables and barns are also a breeding site for swallow. It is possible that the ponds in the south east would meet criteria for dragonflies.	Thorough reptile surveys must be undertaken in this and the surrounding area with a mitigation strategy put in place. Bird survey would also be expected
MA01	Mossbridge Marsh	pLWS	Direct	Crewe and Nantwich, CE	SJ 69873 58488 to SJ 69827 58747	The west of the site to be consumed by HS2. Landscape mitigation of scrub planting is shown on the maps along the north of Mossbridge Marsh. However, this area is already composed of a wide strip of overgrown hedgerow/scrub.	The area of this site affected by HS2 contains marshy grassland, neutral grassland, undetermined grassland and corridors/buffers between more species rich areas. This site meets LWS criteria for marshy grassland, neutral grassland, grass snake etc. Grass snake has been recorded by a neighbour at SJ7027758370 and breeds within the haybale area SJ7005158232 (Winton Equestrian Centre pLWS). Landowner has reported lapwing, common snipe, tawny owl, barn owl, ringlet, several dragonfly species. A CWT surveyor heard lapwing in the area in the winter. CWT surveyors also recorded several bird species including singing dunnock (amber listed) and yellowhammer (red listed).	Reptile surveys must be undertaken in this area. Would also expect farmland/wetland bird surveys to be undertaken. With records for lesser silver diving beetle in the vicinity (according to HS2) the CWT would expect surveys for aquatic invertebrates including this species in the ditches and swamp areas. The land may also be of terrestrial invertebrates.
MA01	Spring Plantation Grassland	pLWS	Direct	Eddisbury, CE	SJ6971958740 to SJ6954158778	pLWS. Spring Plantation Grassland is to the west of the route. Land potentially required in construction. Woodland creation (1ha) for the pLWS in plans. "Grasslands outside designated sites occur within the land required for the Proposed Scheme. This includes areas of grassland near Spring Plantation and north of Moss Bridge, which may qualify as a habitat of principal importance and local BAP habitat. On a precautionary basis, pending the findings of field surveys (which may identify these as unimproved grasslands) these grasslands are considered to be of up to district/borough value."	This grassland meets the LWS for undetermined grassland and neutral grassland and should not be afforested- species include bird's foot trefoil, meadowsweet, black knapweed, selfheal, sorrel, meadow vetchling. Juvenile barn owl recorded near spring farm by HS2.	Woodland habitat creation should not be carried out on this piece of grassland. Depending on the quality of the already existing grassland, perhaps woodland habitat creation would be better suited to the south west (eg. SJ 69418 58544), adjacent to the already existing plantation woodland.

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
						This does not appear to be the case with the value of this grassland.		
MA01	Burnt Covert	pLWS	Immediately adjacent	Eddisbury, CE	SJ69196031	No works planned in the woodland. Habitat creation works to link to Larch Wood.	May cause disturbance.	
MA01	Larch Wood	pLWS	Immediately adjacent	Eddisbury, CE	SJ69106014	No works planned in the woodland. Habitat creation works to link to Larch Wood.	May cause disturbance.	
MA02	Shropshire Union Canal (Middlewich branch)	LWS	Direct	Eddisbury, CWAC		The canal is being crossed by two bridges- Shropshire Union Canal Underbridges. HS2 is dualled at this point. Woodland habitat creation is planned in fields to the canal.	Canal-side vegetation may be affected by the works. The site is designated for neutral grassland, wildlife corridor, accessible natural greenspace and vascular plants (yellow vetch- nationally scarce species, stone parsley, water avens both locally scarce). The woodland planting will link existing woodland fragments together. However, if planted too close to the canal shading of the existing marginal-emergent species and neutral grassland may occur.	Botanical surveys should be carried out adjacent to the Trent and Mersey Canal and in the area of proposed works in the north. Nationally scarce and locally scarce plant species may be present in these areas. Woodland planting should not be carried out right up to the edge of the Trent and Mersey Canal to prevent shading of vegetation along the canal corridor.
MA02	Rookery/Small Wood	LWS	Adjacent	Eddisbury, CWAC		Adjacent to area of habitat enhancement	Beneficial as woodland planting will create link to other woodland.	
MA02	Wood nr Lea Hall	LWS	Adjacent	Eddisbury, CWAC		Adjacent to area of habitat enhancement	Beneficial as woodland planting will create link to other woodland.	
MA01/02	Woodlands south of Wimboldsley Hall	N/A	Direct	Eddisbury, CWAC	SJ682621; SJ 8496204, tip of woodland at SJ 680 624; SJ 681 624; SJ 686 655(area in north)	Map shows tree planting (woodland habitat creation) over already existing woodland. Woodland and grassland habitat creation also planned for area in north. Some of this area may be required during the works. OS map shows woodland/parkland here although aerial doesn't show many trees.	Tree planting not needed where existing woodland is present.	Habitat enhancement on these areas should not be included in compensation figures since woodland is already present. The woodland/parkland should be surveyed before any planting is carried out.
MA01/02	Orchard at Wimboldsley Hall CHES0618	pLWS	Direct	Eddisbury, CWAC	SJ680622	Map shows tree planting (woodland habitat creation) in this location.	There are approx. 6 trees visible within the northern part of this area, and it seems possible that traditional orchard remains present.	Tree planting shouldn't be carried out where there is already a traditional orchard present as this is priority habitat. Nor should the planting be included within compensation figures.
MA02	The Willowbeds	LWS	Adjacent	Eddisbury, CWAC		The LWS is located adjacent to the land required for the Proposed Scheme	The Willowbeds is a broadleaved woodland with a system of drains and ditches and a marshy area. Moschatel, wood anemone, wood avens and ground ivy are present. The site may be affected by a change in drainage into the LWS.	Whether drainage into the LWS will be affected by the proposed works needs to be considered.

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
MA02	Bostock Road Orchards	pLWS	Direct	Eddisbury, CWAC	SJ 68556703	Land required in road construction	Looks like there will be a partial loss of the traditional orchard (in road construction)	It is recommended that the road construction works avoid the traditional orchard and leave it intact. If any loss of the orchard occurs, orchard planting should be carried out to compensate for the loss.
MA02	Greenhayes Farm Rush	pLWS	Indirect/ Direct	Eddisbury, CWAC	SJ68596702	Trackway potentially required during construction	Adjacent to Greenhayes Farm orchard, likely marshy grassland with rushes including jointed rush and meadow buttercup. Not likely to be very affected.	To minimise damage to the marshy grassland and the traditional orchard it would be desirable to restrict the construction route to the current track
MA02	Bank Hall Farm Flush	pLWS	Direct	Eddisbury, CWAC	SJ68366789	Some of the flush within the land required for the scheme.	Flush with bur reed, brooklime, jointed rush, celery-leaved buttercup and reedmace which may meet the LWS criteria.	Survey should be undertaken of the flush to assess whether it is priority habitat.
MA02	River Dane, Bostock	pLWS	Direct	Eddisbury and Tatton, CWAC	SJ68386736; SJ68376807; SJ68416819, SJ68336875	River Dane, Bostock pLWS is crossed in three places by the HS2 route- at Greenhays Farm (Stanthorne Embankment), at Bank Hall Farm (River Dane viaduct) and Bostock Hall Farm.	At Greenhays Farm: Both veteran trees in the hedgerows are within land potentially required during construction. One tree close to the route which may be affected during the works. The other in area for habitat creation. Destruction of possible ancient woodland (woodland present on OS in 1875 but not tithe 1836-51) there are several very large veteran crack willow trees here, although these possibly formed an ancient field boundary. Further east the deciduous woodland is host to an ancient ground flora- moschatel, bluebells, toothwort, wood anemone, dog's mercury, wild garlic. Bluebell present on bank through which HS2 is passing, as well as a species rich hedgerow. Bank Hall Farm: Land immediately to west of waterbody is potentially required during construction. Species in the pond include water plantain, bur-reed, nodding bur-marigold, reedmace, marsh yellow cress. There are veteran crack willow where HS2 crosses the Dane for the first time. Construction of the viaduct may destroy these trees. With the viaduct at over 26m in height, is there the possibility that these veteran trees can remain in situ. At the first (southern) River Dane crossing a LWS surveyor observed two kingfisher and a bat. Existing records for bats near River Dane north of	We recommend moving the adjacent proposed works slightly further west to completely avoid the pond and its surrounding habitat, provided this does not have a increased negative impact on Bull's Wood and grassland pLWS. Is it possible to avoid felling of the veteran trees, where the viaduct will be passing above them? If felling is deemed necessary it is recommended that large trees are left close to the location in which they were felled and as intact as possible in order to provide a better habitat for invertebrates. Where the bluebells bank is to be destroyed, native bluebells should be translocated as they are considered a local priority within Cheshire.

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
							<p>Bostock Green (HS2). Pair of kingfisher breeding recorded by HS2.</p> <p>The River Dane is freely meandering with steep banks, which in addition to providing a nesting site (perhaps multiple sites) for kingfisher may also be of value to invertebrates.</p> <p>A corridor of wet woodland is found along the west side of the river on the proposed HS2 route's first and second crossings. Wet woodland is present on the eastern side on the second crossing.</p> <p>At the third crossing of the River Dane the river remains freely meandering with a steep bank on the west.</p>	
MA02	Bull's Wood and Grassland	AWI/pLWS	Direct	Eddisbury, CWAC	Tip of Bull's Wood: SJ 68334 68176 Grassland: SJ68 27768250	<p>The northern tip of Bull's Wood is in the land required for the proposed scheme.</p> <p>Woodland habitat creation is planned on the grassland to the north of Bull's Wood.</p> <p>'Grasslands outside designated sites occur within the land required for the Proposed Scheme. This includes areas at Bostock Hall and Whatcroft, which may qualify as habitats of principal importance and local BAP habitats. On a precautionary basis, pending the findings of field surveys (which may identify these as unimproved grasslands) these grasslands are considered to be of up to district/borough value.'</p>	<p>Bull's Wood (AWIS) is sycamore dominated but with a bluebell understorey. Yellow archangel and dog's mercury also present. Other species such as wood false-brome, wood avens, red campion, remote sedge, ground ivy.</p> <p>The grassland meets LWS criteria (bird's-foot trefoil, knapweed, meadow vetchling, tormentil, common sorrel, jointed rush) at Bostock Hall. LBAP ringlet also present in the grassland.</p> <p>Not the entire grassland meets the LWS criteria with the west and the east being less species rich.</p>	<p>The grassland should not have woodland planted upon it. As it is the woodland planting on already existing priority habitat should not be counted as part of compensation figures.</p> <p>Woodland planting in the Bostock Hall area would be a good to improve woodland connectivity. However HS2 must be certain that the already existing habitat is not of value. Arable land to the west and likely poor semi-improved to the east. These areas may be more suitable for habitat creation.</p> <p>Would it would be possible to avoid carrying out any works within Bull's Wood and avoid any direct impact on the pLWS.</p> <p>If some of Bull's Wood is to be lost compensation should be carried out according to an ancient woodland compensation strategy.</p>
MA02	Trent and Mersey Canal,	pLWS	Direct	Eddisbury, CWAC & Tatton, CWAC	Sycamore SJ68346878	End of River Dane viaduct over the Trent and Mersey Canal with Dane Valley embankment.	Huge veteran sycamore on route of HS2, approx. 480cm in girth.	Habitat creation is not recommended on the woodlands to the west and east of the canal that already meet the Cheshire LWS

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	Whatcroft to Middlewich				<p>Woodland on west of canal SJ68216910</p> <p>Woodland on east of canal SJ68366885</p> <p>Woodland at Puddinglake Brook SJ 68357013</p> <p>Hedgerow along Trent and Mersey Canal SJ68457025</p> <p>Grassland: SJ68397079</p>	<p>Woodland habitat creation is shown along either side of the Trent & Mersey Canal. Wetland habitat creation is shown along part of the channel of the Trent & Mersey Canal.</p> <p>Puddinglake Brook Viaduct an embankment and Puddinglake Brook Satellite compound.</p> <p>Whatcroft Embankment and Trent and Mersey underbridge. Habitat creation is shown in the form of wetland habitat creation to the west and east of the Trent and Mersey Canal.</p>	<p>Some of the woodland on the west side of the canal is sycamore with a ramsons understorey which therefore meets the LWS criteria.</p> <p>The woodland on the east side of the Trent and Mersey Canal is part of a woodland dominated by ash and oak with some sycamore.</p> <p>Oak-ash woodland (present on 1875 OS map, no tithe map available) 'potentially required during construction' and may be destroyed. Although not as species rich directly on the route of HS2 the woodland does host wood anemone, dog's mercury, wood speedwell, wood millet, violets and sanicle further along. Protected species are also present within woodland, south of HS2 route. Connectivity within the woodland will be reduced and some of the woodland destroyed.</p> <p>Veteran trees are also found in this woodland to the north (and close) to the track and look set to be destroyed by the proposed works. Veteran trees and ancient woodland are irreplaceable.</p> <p>The majority of the proposed woodland habitat creation along the west and east of the Trent and Mersey Canal is on already existing woodland that meets the LWS criteria.</p> <p>Construction of the viaduct over Puddinglake Brook and Canal is likely to lead to destruction and disturbance of some of the existing deciduous woodland. Puddinglake Brook Viaduct Satellite compound looks to be almost at the stream's edge. Kingfisher, tawny owl recorded here (LWS surveyor 2018). Protected species may be affected by the proposed works.</p> <p>Hare recorded in field at SJ685698 (LWS surveyor 2018)</p> <p>A short section of species rich hedgerow is found alongside the canal.</p> <p>An area of reedbed will be destroyed by the Whatcroft Embankment and bridge over the Trent and Mersey Canal. With cowbane present at Billinge Green Farm Pond LWS it is possible that</p>	<p>criteria. These woodlands should also not be included within the figures for compensatory habitat.</p> <p>Where woodland is not already present along the west of the canal woodland habitat creation would be beneficial. This is provided the woodland is not being planted on existing woodland.</p> <p>It is questionable whether wetland habitat creation will be carried out along this entire section of canal between the two woods. There is scope however for habitat enhancement of the canalside vegetation and emergent vegetation, perhaps with reedbed creation.</p> <p>Compensation for the loss of ancient woodland should be carried out according to an ancient woodland compensation strategy.</p> <p>CWT recommends that Puddinglake Satellite compound is moved slightly eastwards to reduce disturbance to and any unnecessary destruction of the wood alongside Puddinglake Brook.</p> <p>We would expect relevant protected species surveys to be carried out to assess the impact on these species.</p> <p>It would be expected that bird, invertebrate and botanical surveys (particularly to look for cowbane) are undertaken, in particular in the north of the pLWS.</p> <p>Where wetland habitat creation is mapped as being carried out on existing reedbed this should not be included within the figures for compensatory habitat.</p>

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							<p>this species would be found within the wetland/marshy grassland area.</p> <p>Habitat creation of wetland is a good idea in this area, however some of this area is already wetland so it is not all creation. There is no mention of the loss of this priority habitat at this stage in HS2's reporting.</p>	
MA02	Whatcroft Lane Pond	LWS	Indirect	Tatton, CWAC		Opposite land required for habitat creation works	<p>Pond and ditches with diverse flora- reed swamp, marginal and aquatic flora such as water lilies, meadowsweet, gipsywort. Good semi improved neutral grassland. Although not designated for its birdlife it may be host to waterfowl. There may be additional disturbance to birds in construction and operation.</p>	This LWS is not clearly marked on map CT-10-307 Environmental Baseline.
MA02	Billinge Green Farm Pond	LWS	Indirect	Tatton, CWAC			<p>Possible disturbance to waterfowl using the site both in construction and operation phases. 30m from land identified for habitat creation and enhancement.</p> <p>The site was not designated for its waterfowl but restorable grassland, lake, wildlife corridor, natural greenspace and vascular plants (namely cowbane). Presence of cowbane, perhaps it will be present elsewhere in this area. The previous citation did mention that many butterflies, other insects and many birds were present at the site.</p>	The CWT would expect bird surveys to be undertaken to assess the impact that an additional rail route in close proximity would have upon the site's birdlife.
MA02	Pear Tree Farm Orchard	pLWS	Direct	Tatton, CWAC	SJ68587147	Davenham Road Underbridge, Billinge Green Embankment and Billinge Green Retaining Wall	<p>Destruction of some of the traditional orchard. There would also likely be a disturbance to wildlife visiting the orchard through the running and construction.</p>	It is recommended that orchard planting is carried out to compensate for the loss of any parts of traditional orchard.
MA02	Marshall's Gorse	pLWS	Direct	Tatton, CWAC	SJ68617182	Gad Brook Viaduct proposed, to a max of 17m, through the eastern end of Marshall's Gorse.	<p>Loss of some of the woodland which looks to be lowland mixed deciduous woodland and is present on NE's priority habitats layer.</p>	
	Proposed woodland planting	N/A			SJ68707191	Woodland habitat creation is proposed between the route of HS2 and the road at Gadbrook distribution centre: 'an area of woodland habitat creation, east of the route of the Proposed Scheme and west of the A530 King Street, to provide replacement habitat and habitat connectivity'.	<p>Aerial images suggest this grassland could be rough grassland or marshy grassland. It would therefore be lost through woodland planting.</p>	<p>HS2 should be certain that this is not priority habitat before planting trees on it.</p> <p>If it is found to be priority habitat tree planting should not be carried out here but elsewhere adjacent to Marshall's Gorse.</p>

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MA02	Rudheath Lime Beds	pLWS	Indirect	Tatton, CWAC		The Lime Beds lie to the west of the proposed works with the A556 being diverted nearer to the site.	This is an open mosaic habitat on previously developed land. It is also an important overwintering site for birds such as lapwing with numbers on 28 Nov 2018 at 800, 38 golden plover, 8 curlew, 75 black-backed gull. The close proximity of the Lime Beds to the proposed works means that the wildlife may be disturbed by both the construction but also the diverted A556 and the operation of HS2.	We would expect bird surveys of the Lime Beds to be carried out and adequate measures put in place to minimise disturbance and to compensate for any adverse effects.
MA02	Grassland to east of Rudheath Lime Beds	N/A	Direct	Tatton, CWAC	SJ6896573102	This field lies within the area potentially required during construction. The A556 realignment will be going through this area and HS2. Grassland habitat creation is proposed for the part of the field remaining after the works.	Aerial images suggest that this may be an interesting grassland, although on google streetview it appears to be tussocky. It might be a breeding site for ground nesting birds.	We would expect a habitat survey to be carried out here to ascertain whether the grassland is priority habitat. Bird survey should also be undertaken in this area in combination with survey at Rudheath Lime Beds. If it is found to be priority habitat compensation should be put in place for its loss and habitat creation should not be carried out here.
MA02/ MA03	Long wood	LWS	Direct	Tatton, CWAC (the east end of the site lies in Tatton, CE)		Lostock Gralam embankment and the start of the Smoker Brook Viaduct is proposed within the western part of the woodland. Smoker Brook Viaduct South Satellite is proposed immediately to the north of the woodland while an access route is proposed immediately adjacent to the south.	Some of Long Wood will be lost to the proposed works in the west (0.6ha according to community area report). This is a woodland with pedunculate oak, sycamore, small leaved lime, chestnuts etc. dog's mercury, enchanter's-nightshade, wood sage, wood millet, wood sedge. In addition to the direct loss of habitat there is likely to be much disturbance to the woodland through the satellite compound and the access route. Being a very thin woodland disturbance on three sides may have a significant impact. Works adjacent to the wood may affect the roots of trees, disturb wildlife within the wood and temporarily reduce connectivity into the wider landscape.	The Cheshire Wildlife Trust recommends a buffer of at least 15m between the woodland and the access route and satellite compound to minimise disturbance. It looks like it would be possible to move the access route further south. Will the satellite compound need to reach all the way to the edge of the woodland? Is it possible to make this area smaller to avoid the woodland edge? There appears to be no woodland planting planned for the northernmost part of Long Wood. This area is within the land potentially required during construction. If trees are to be felled for the works then replacement woodland should be planted.

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MA02/ MA03	Winnington Belt Wood	pLWS/ AWIS	Indirect	Tatton, CE	SJ70217539	20m east of the land required in the proposed scheme. Woodland habitat creation is proposed adjacent to the LWS. A satellite construction compound lies approx. 20m to the south.	There may be some disturbance to the wood's wildlife during construction and operation of HS2. The current plans do however show the works being more than the 15m away from a LWS that we would usually recommend. The proposed woodland creation will improve connectivity to Long Wood.	HS2 should ensure a buffer of at least 15m is maintained around the LWS. An assessment on the impact of disturbance should be made.
MA02/ MA03	Winnington and Peas Wood	LWS/A WI	Direct	Tatton, CWAC		Railway passes over a good stretch of the woodland as Smoker Brook Viaduct.	<p>Winnington Wood is a large woodland with pedunculate oak, silver birch, sycamore and alder frequent in the canopy with hazel and rowan dominating the understorey. Small-leaved lime (locally scarce & ancient woodland indicator) is present. Bluebell (a priority within Cheshire), wood sedge, dog's mercury (ancient woodland indicators), wood sorrel and enchanter's nightshade are present in the ground flora.</p> <p>A loss of 1.4 (0.6-ancient) ha of woodland will occur due to HS2. Despite a viaduct being built some of the connectivity within the woodland will be lost. The building of the A559 has already resulted in a loss of connectivity between woodlands in this area. HS2 will further reduce connectivity.</p> <p>The operation of the route will create disturbance. Where the route of HS2 and the A559 meet there will be disturbance to woodland on two sides.</p> <p>Adjacent to Winnington Wood SJ 70182 75766 is mapped as woodland habitat creation, however woodland already present in this location. Not part of the LWS so perhaps not good quality woodland. Woodland habitat creation is planned in adjacent arable field which would be of value.</p> <p>It seems likely that ancient trees would be present within Winnington and Peas Wood that would be felled with the construction works. Ancient woodland and veteran trees are irreplaceable.</p>	<p>Compensation for the loss of ancient woodland should be carried out according to an ancient woodland compensation strategy.</p> <p>Woodland shouldn't be planted on already existing woodland and should not be included within the habitat compensation figures.</p> <p>Is it possible to avoid felling of the veteran trees, where the viaduct will be passing above them? If this is not possible as much of the trees should remain standing as possible.</p> <p>If felling is deemed necessary it is recommended that large trees are left close to the location in which they were felled and as intact as possible in order to provide a better habitat for invertebrates.</p>
MA02/ MA03	Peover Eye	N/A	Indirect	Tatton, CEC	SJ 70357 75608- Wetland habitat creation	A stretch of the Peover Eye is marked as land potentially required during construction-wetland habitat creation. The Smoker Brook Viaduct will also pass over the river.	<p>Not a LWS or pLWS, however records for eel in this area (EA fisheries spreadsheet)</p> <p>The proposed works may have a negative impact on this endangered species.</p>	Should the wetland habitat creation along this stretch of the river be included in the compensation figures since it is already existing wetland habitat?

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								If the wetland habitat along the river is improved, the impact of this work on the fish species in particular eel needs to be considered.
MA02/ MA03	Leonards and Smokers Wood	LWS/A WI	Direct	Tatton, CEC & CWAC		<p>The Smoker Brook Viaduct passes over Leonards and Smokers Wood LWS. The viaduct returns to an embankment shortly after the wood.</p> <p>Smoker Brook north satellite compound is located adjacent to the woodland and an access road (which will remain as an access road permanently) also runs close to the northern edge of the woodland.</p>	<p>Leonards and Smoker Wood: Deciduous woodland mixed woodland and conifer plantation. Ancient woodland flora: ramsons, wood anemone, bluebell, dog's mercury. Also lesser celandine.</p> <p>0.4 ha are proposed to be lost through the works. It seems likely that veteran trees will be lost through the works. Ancient woodland and veteran trees are irreplaceable.</p> <p>Disturbance will be created in construction and operation of HS2 through the woodland. Despite being on a viaduct there will be some loss of connectivity in the woodland.</p>	<p>Compensation for the loss of ancient woodland should be carried out according to an ancient woodland compensation strategy.</p> <p>The Cheshire Wildlife Trust recommends a buffer of at least 15m between the woodland and the access route and satellite compound to minimise disturbance.</p> <p>If felling of veteran trees is deemed necessary it is recommended that large trees are left close to the location in which they were felled and as intact as possible in order to provide a better habitat for invertebrates.</p>
MA02/ MA03	Roadside Verge near Holford Farm pLWS	pLWS	Indirect	Tatton, CEC	SJ70537568	Land adjacent potentially required during construction as hedgerow and woodland habitat creation.	This site was previously a LWS, but following 2012 surveys was taken off the LWS register. It remains on the pLWS layer as seeds may remain in the seedbank from the species rich grassland. It seems unlikely that HS2 will have much impact on this site.	It may be worth considering not planting trees right up to the edge of the pLWS to avoid shading the road verge.
MA03	Arley and Waterless Brook Corridor	LWS	Direct	Tatton, CEC		<p>Arley Brook Viaduct will be crossing over Arley and Waterless Brook corridor.</p> <p>Wetland habitat creation works are planned for the banks of the river.</p>	<p>The river is freely meandering with a woodland corridor. 0.1 ha of the LWS will be destroyed, which includes wet woodland.</p> <p>The wetland habitat creation appears to be in some of the areas that are already host to woodland.</p> <p>Despite the rail route being on a viaduct there will be some impact on the corridor and movement of wildlife along it.</p>	<p>Wetland habitat creation should not be carried out in areas where woodland is already present. It is possible that some of the woodland will be destroyed as part of the proposed works, but where it is not necessary to destroy it should be left.</p> <p>Wetland habitat creation on already existing woodland should not be counted within the habitat compensation figures.</p>
MA03	Tabley Wood	AWIS/ pLWS	Indirect	Tatton, CEC		Lies close to the M6 which will be potentially required during construction.	There may be a bit of additional disturbance, however it seems unlikely that there will be much impact	

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N/A	Tabley Pipe Wood	LWS	Direct	Tatton, CEC		Construction haul route leading to severance of site, however this is not detailed on the map 'a construction haul route at Over Tabley would result in the permanent loss and severance of habitat within Tabley Pipe LWS. Habitat loss and severance would result in a permanent adverse effect on site integrity that would be significant at up to the county/metropolitan level.' The map (CT-05-319) however seems to indicate the construction haul route is proposed further north than Tabley Pipe Wood.	Tabley Pipe Wood has a canopy dominated by species such as sycamore, horse-chestnut and beech. Alder is found along the stream with oak and ash also present in the woodland. Willow carr is also found within the site. Ground flora includes dogs mercury, wood anemone and wood sorrel, lords and ladies, ramsons, opposite leaved golden saxifrage. Marshy areas. It is not clear what impact the proposed route will have. Some destruction of the woodland and loss of connectivity.	The CWT recommends that the haulage route is moved outside the LWS and at least 15m from it in order to reduce the disturbance to the woodland.
MA03	CHES0071 (Traditional orchard)	pLWS	Indirect	Tatton, CEC		30m from proposed construction route.	A traditional orchard, not directly on the route. There may be some disturbance	
MA03	Belt Wood	LWS	Indirect	Tatton, CEC		Land immediately adjacent to be planted with landscape mitigation planting (scrub/woodland) and grassland planting. Hoo Green Grid supply point close to the woodland.	Belt Wood is a deciduous woodland dominated by oak with some scots pine and larch. We understand that this woodland is being added to the AWI. Extending the woodland habitat through scrub/woodland planting will be beneficial, however there is likely to be disturbance to the wildlife using the woodland from the construction, grid supply point and HS2 operation.	The grid supply point should be at least 15m from Belt Wood to reduce disturbance to the woodland.
MA03	14891/Park Covert	pLWS/AWI	Indirect	Tatton, CEC		295m from the proposed scheme	There may be disturbance to the wildlife utilising the woodland.	
MA04	Fields behind "Ye Olde No.3"	LWS	Possible indirect	Tatton, CEC		South of (not immediately) the land required in the scheme. Woodland habitat creation to the west.	This is an area of marshy grassland, woodland and swamp habitat with a diversity of species including tussock sedge. This is not a common habitat within Cheshire. Despite the route of HS2 being a distance away on an embankment there may be an impact on drainage and water levels in the area. Water levels might also be affected by the woodland habitat creation.	There was no mention of this LWS within the community area report. The Cheshire Wildlife Trust would expect some consideration as to drainage in the area to be made with regard to this LWS.
MA04	Fox covert and meadows	SBI	Direct	Trafford		Partially within the land required for the Proposed Scheme. There would be loss of east end of SBI with the construction of Heatley embankment.	0.3ha loss of woodland. There is likely to be a lot of disturbance to the woodland with the construction access route along the west, south and part of the east of the site, in addition to the construction work in the east. The construction route looks like it will absorb a small	If it would have less impact would it be possible to relocate the construction haul route to the east of the proposed HS2 route. We usually recommend a 15m buffer

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						Construction road along western boundary and close to southern boundary.	part of the meadow and may also create some disturbance here.	between priority habitats and developments.
MA04	Wigsey Lane Meadows	SBI	Indirect	Trafford		Some distance west of the proposed works	'Potentially hydrologically linked to the land required for the Proposed Scheme via the catchment of the River Bollin'	The CWT expects further ground investigations and any impacts to be compensated.
MA04	Moss Wood	SBI	Indirect	Trafford		This site is 1.4km from the proposed works.	'Potentially hydrologically linked to the land required for the Proposed Scheme via a series of drains' With the name Moss Wood hydrology is likely to the site's integrity.	The CWT expects further ground investigations and any impacts to be compensated.
MA04	Coroner's Wood	SBI/AWIS	Indirect	Trafford		40m east of land required for scheme	The land nearest to the LWS is required for habitat creation. There may be some disturbance to the woodland from the works and operational phase.	
MA04	Millbank Hall Woodland (This is within Trafford and GMEU would be responsible for any designation)	pLWS/AWIS (Coroner's Wood)	Direct	Trafford	SJ70109082	The route of the railway will be going through the west of the site as Manchester Ship Canal Viaduct. The Manchester Ship Canal Viaduct South Satellite Compound will be adjacent to part of the southern boundary of the woodland. Woodland habitat creation proposed along the south.	0.4 ha of loss of ancient woodland, likely to include veteran trees. There will be disturbance, particularly in the west of the woodland and adjacent to the satellite compound. The proximity of the satellite compound may damage roots. Extension of the woodland will join to the neighbouring woodland.	If possible the satellite compound should be built a minimum of 15m from the edge of the woodland to reduce damage and disturbance. If felling of veteran trees is deemed necessary it is recommended that large trees are left close to the location in which they were felled and as intact as possible in order to provide a better habitat for invertebrates. Compensation for the loss of ancient woodland should be carried out according to an ancient woodland compensation strategy.
MA04	Rixton Brickworks	LWS	Indirect	Warrington		Adjacent to the A57 Manchester Road, proposed construction traffic access road.	The site is designated for its waterbodies, emergent vegetation, woodland, and neutral grassland. All the waterbodies are fished but nevertheless the site may be important for GCN and birds. There may be disturbance to the bird's that utilise the site through the increased traffic flow.	We would expect consideration to be made as to the impact of the increased traffic flow on the bird population.
MA05	Gorse Covert Mounds	LWS	Direct	Warrington		Some of the north/north east of the site in the area of proposed works, adjacent to the M62. A construction traffic route on one of the tracks through the site.	0.3ha of the site is proposed to be lost. It looks like the area to be lost is plantation woodland and semi-improved grassland.	
MA05	Silver Lane Ponds	LWS	Direct	Warrington		Culcheth South Embankment is proposed to be built through the northern side of the LWS.	The site was designated for it grassland, restorable grassland, swamp/reed, accessible natural	The impact of HS2 on this Local Wildlife Site could be much reduced with the construction of a viaduct

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						<p>Silver Lane Brook to be culverted (possibly just outside/at edge of LWS).</p> <p>Grassland habitat creation is proposed around one of the ponds, however grassland is already likely to be present here. It is however not clear whether the present habitat will be destroyed by the works.</p>	<p>greenspace and birdlife. The site is important for several species of owl.</p> <p>There would be significant damage to the LWS with loss of 13ha (67% of the site). There would be loss of one of the ponds with partial loss of two of the ponds with creation of the embankment.</p> <p>The proposed works as well as the operation of HS2 is likely to cause disturbance to the birdlife (one of the reasons for the site's designation).</p> <p>Water voles were previously recorded here according to the community area report. The works here would have a significant impact on the water vole population (if it is still existent) through destruction and alteration of the ponds and culverting of the brook. Water vole populations are becoming increasingly rare within Cheshire and every effort should be made to protect them.</p> <p>It is possible that the ponds would support a range of aquatic invertebrates that would be affected by the proposed works.</p>	<p>rather than an embankment. There would be a reduction in the loss of habitat and some connectivity would remain between the north and south of the site. This would also avoid the need to culvert Silver Lane Brook and reduce the impact on any water vole population.</p> <p>We expect surveys undertaken to include bird, bat, water vole and aquatic invertebrates, with the impact to be fully assessed.</p> <p>Where existing priority habitat is already present and not to be affected by the works it should remain and not have any compensatory habitat put in its place.</p>
MA05	Eleven Acre common	LWS	Indirect	Warrington	And grassland at SJ64009542	<p>Eleven Acre common is immediately adjacent to the proposed works. The route previously went through this area but has been moved.</p>	<p>This is an area of herb rich neutral grassland with scattered trees and scrub. There is an abundance of sneezewort and butterflies such as gatekeeper and skipper have been recorded.</p> <p>Given the mosaic nature of this site it seems like it would be a suitable habitat for reptiles. There may be an impact on reptiles in this area.</p> <p>It is not clear what works would be carried out adjacent to the wildlife site, but there would likely be disturbance to the wildlife such as birds that use the site.</p> <p>From aerial images the grassland at SJ64009542 looks like it could be an interesting habitat. This area is required by the proposed works. There will be a loss of this habitat and effect on the species that utilise it.</p>	<p>The Cheshire Wildlife Trust recommends a buffer of 15m between the edge of the LWS and the proposed works to reduce the disturbance to the site.</p> <p>We would expect reptile, bat and bird surveys to be undertaken in this area.</p> <p>A habitat survey of the adjacent grassland should be undertaken to ascertain whether priority habitat would be lost by the proposed works.</p>
MA06	Peacock Lane East Overbridge, Chapel Lane	N/A		Tatton, CEC	SJ72338414 (this area)	<p>Broom Manor and Millington Clough (CT-05-351-R1). Peacock Lane East Overbridge: embankment to be created and a</p>	<p>There are historic records for water vole at Sean Hawkin's Meadow along Agden Brook.</p>	<p>The Cheshire Wildlife Trust expects water vole surveys to be undertaken in this area within the water vole survey season.</p>

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	House Accommodation Access					<p>tributary to Millington Clough is to be culverted or just filled in</p> <p>Millington Clough Underbridge: bridge over Millington Clough</p> <p>Chapel Lane House Accommodation Access: Millington Clough to be culverted</p> <p>Agden Brook Viaduct</p>	<p>Culverting not desired where water voles may be present.</p> <p>Water voles may be present at Agden Brook where viaduct is to be created. Despite the route passing as a viaduct there will still be disturbance and possible impacts on the banks.</p> <p>HS2 asked the CWT for permission to survey Sean Hawkin's Meadow in October 2018. This is outside the optimal survey season outlined in the Water Vole Mitigation Handbook.</p>	<p>With water vole populations falling rapidly within Cheshire every effort should be made to maintain suitable conditions for any existing population.</p>
MA06	Agden Brook	pLWS	Direct	Tatton, CEC	SJ72518461	Part of southern end in land potentially required during construction for Millington Embankment creation	Part of this broadleaved woodland will be lost to the proposed works.	
MA06	Millington Lane Wood	pLWS	Direct (minor)	Tatton, CEC	SJ72628484	Very small direct impact, with north east end with land potentially required during construction	Broadleaved woodland with bluebells.	If land with bluebells is consumed by the scheme it is recommended that these plants are translocated to a suitable location since bluebells are considered a local priority within Cheshire.
MA06	Rushy Pits Covert	pLWS	Indirect,	Tatton, CEC	SJ73048497	Approx. 50m from proposed works- Rostherne Cutting	<p>This is a sycamore dominated woodland with bluebell. In the north is an area of willow carr. The site was delisted as a LWS following 2012 survey. There is likely to be some disturbance to the site through the construction works and during operation.</p> <p>Lapwing were seen in fields around this area. A shallow field pond/scrape was observed to the south of the woodland which may be of value to overwintering birds.</p>	We would expect bird surveys to be undertaken in this area.
MA06	Yarwood Heath Covert	LWS	Indirect	Tatton, CEC		90m from land required (and separated by motorway) and 110m from a haul route	A semi-natural woodland. Disturbance to this woodland is already likely to be high due to the motorway. The proposed works will increase the disturbance to the site.	
MA06	Hancock's Bank South	AWI/LWS	Direct	Tatton, CEC		HS2 route through the LWS as Blackburn's Brook Embankment, Blackburn's Brook Viaduct and part of the LWS consumed by Blackburn's Brook Viaduct Satellite Compound.	<p>The north of the LWS is comprised of deciduous woodland with wet hollows.</p> <p>1.1ha of woodland to be lost due to the proposed works.</p> <p>The satellite compound is immediately adjacent to the edge of the woodland. It looks like there will be a high level of disturbance to the remaining woodland in the north of the site. There is already</p>	<p>Could the viaduct be started further to the west so that there is more connectivity between the north and mid-section of the wood?</p> <p>Ideally the satellite compound should be 15m from the edge of the LWS to avoid disturbance. Could the satellite compound be moved further west?</p>

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
							<p>high disturbance from the M56, the works and operational phase will add to this.</p> <p>There will be a loss of connectivity whilst the works are taking place and reduced connectivity once completed. It is possible that veteran trees will be lost.</p> <p>The proposed works may result in a change in water levels and water flows in the area, which may affect the woodland, marshy grassland areas and wet hollows.</p>	<p>If felling of veteran trees is deemed necessary, it is recommended that large trees are left close to the location in which they were felled and as intact as possible in order to provide a better habitat for invertebrates.</p> <p>Compensation for the loss of ancient woodland should be carried out according to an ancient woodland compensation strategy.</p>
MA06	Hancock's Bank North	LWS/A WIS	Indirect	Tatton, CEC		110m north of the proposed works.	An increase in the level of disturbance in the area in addition to current M56 disturbance.	
MA06	Ryecroft Covert	LWS	Direct	Tatton, CEC		A small part of the LWS is within the land potentially required during construction. Land adjacent has habitat creation works proposed.	<p>'Construction of the viaduct over Blackburn's Brook and Birkin Brook floodplains would result in the permanent loss of 100m² (0.3%) of habitats within Ryecroft Covert LWS.'</p> <p>The route of HS2 to the south (with some habitat inbetween) and the M56 to the north will mean that there is disturbance to the LWS from two sides.</p> <p>The woodland is lowland mixed deciduous with ancient woodland indicators. We understand that this woodland is being added to the AWI. Ancient woodland is irreplaceable. There are also areas of marshy grassland. It is possible that water levels within the LWS will be affected by the proposed works.</p>	It is not clear what the proposed works within the LWS are. Would it be possible to avoid direct impact to the site entirely?
MA06	Birkin Brook	pLWS	Direct	Tatton, CEC	SJ75828445	Blackburn's Brook Viaduct and Rostherne Embankment will be passing through the site, along with the Birkin Brook Viaduct Satellite Compound. Woodland habitat creation is planned on the grassland in the north of the site, while wetland habitat creation is proposed on an area that may already be wetland habitat.	<p>The pLWS is thought to contain semi-improved grassland, marshy grassland and some willow scrub.</p> <p>Some of the grassland will be lost with the construction of the route through the site and the satellite compound.</p> <p>There will be a loss of grassland with the proposed woodland and wetland habitat creation.</p>	<p>HS2 need to be sure that the grassland is not a priority habitat (or of value where increasing the quality of the grassland would be more beneficial) before carrying out woodland or wetland habitat creation.</p> <p>If the grassland is found to be species which could the viaduct be made longer to the east to retain some of this area.</p>
MA06	Woods near Arden House	LWS/A WI	Direct	Tatton, CEC		Mobberley Road realignment proposed in the east of the site.	A broadleaved woodland with a good understorey and rich ground flora with ancient woodland indicator species. The east (which would be destroyed by HS2- 0.03ha) is undisturbed with	CWT believes that it would be possible to avoid any direct damage to the LWS by moving the

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							<p>wood melick, bluebell, stitchwort and red campion. The wet floodplain is host to species such as dog's mercury, yellow pimpernel and moschatel.</p> <p>It is feasible that veteran trees would be present in the woodland and lost through the works.</p>	<p>Mobberley Road diversion further to the north.</p> <p>Woodland planting adjacent to the LWS would be positive (provided it is not on already existing priority habitat) and extend the woodland.</p>
MA06	Ashley Brickworks (formerly known as Erlam's Meadow and mentioned in the consultation as such) & Ashley Brickworks Extension (pLWS)	pLWS LWS	Direct	Tatton, CEC		<p>Mobberley Road realignment. Woodland habitat creation is planned on the grassland.</p>	<p>Majority of site to be consumed by proposed works including satellite compound. 62% of site to be lost to works.</p> <p>Loss of oak-ash lowland mixed deciduous woodland with ancient woodland indicator species dog's mercury and wood speedwell, swamp, semi-improved grassland of moderate species richness and species rich ponds which may support good dragonfly assemblage.</p> <p>GCN record 'east of Mobberley Road'. The landowner of Erlam's meadow has mentioned GCN.</p> <p>Tree planting proposed in area of woodland that already meets LWS criteria and over grassland and ponds. It would make sense to create ponds in this area that may be recolonised by species remaining in adjacent ponds.</p>	<p>We strongly recommend that the route of the proposed road diversion be moved to avoid this LWS and Woods near Arden House. This is mentioned as an option in the community area report under 'other mitigation measures'.</p> <p>If the road diversion continues to destroy part of Erlam's Meadow we would expect great crested newt, aquatic and terrestrial invertebrate surveys, bird, botanical, reptile and bat surveys to be undertaken within this area.</p> <p>Woodland habitat creation is not recommended on the area within Erlam's Meadow which is currently occupied by grassland and ponds.</p>
MA06	Ecclesfield Wood	LWS	Direct	Tatton, CEC		<p>Partially within area required for scheme. Ashley Embankment and related works in the north of the site.</p>	<p>North of site to be consumed by scheme.: 0.8ha</p> <p>A stream and scattered ponds are found along the northern boundary (area to be affected). Alder and crack willow are associated with the ponds. There is a dense understorey and shrub layer.</p> <p>As well as the loss of habitat there will be disturbance to wildlife within the woodland.</p>	<p>Could the route be brought slightly further to the north to avoid direct impact on the LWS with a 15m buffer between the proposed works and the LWS?</p>
MA06	Brickhill wood	LWS/A WIS (PAWS)	Direct	Tatton, CEC		<p>Brickhill Lane Diversion will affect the north western corner of the LWS.</p>	<p>Partially within area required for scheme. An area of 100m2 would be permanently loss. Brickhill Wood is an oak dominated ancient woodland. The wood is considered to be a good bird site</p> <p>The wildlife, particularly birds may be affected by the constriction of Thorns Green Cutting to the north, the diversion of Brickhill Lane and eventually the operation of HS2.</p>	<p>It looks as though any direct impact on the LWS could be avoided by diverting Brickhill Lane slightly differently.</p> <p>Bird survey of Brickhill Wood is recommended to assess what disturbance HS2 will have upon the birds of the woodland.</p>

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
							It is possible that veteran trees would be in the area to be lost	Compensation for the loss of any ancient woodland should be carried out according to an ancient woodland compensation strategy.
MA06	Thorns Green Sycamore	pLWS	Direct Or Indirect	Tatton, CEC	SJ79238409	With land potentially required during construction- Thorns Green Cutting.	This is a very large sycamore proposed to be lost by the route. Veteran trees are irreplaceable.	It is recommended that the trunk is left close to the location in which it grew and as intact as possible (large sections) in order to provide a better habitat for invertebrates.
MA06	Thorns Green Oak	pLWS	Direct	Tatton, CEC	SJ79278413	With land potentially required during construction- Thorns Green Cutting.	This is a large oak of approx. 400cm in girth. There is another mature but smaller oak in the vicinity. It looks like this tree will be destroyed by the proposed route with landscape mitigation planting planned in this area. Veteran trees are irreplaceable.	If possible the trees should be remain standing with a root protection zone. If felling is deemed necessary It is recommended that the trunks are left close to the location in which they grew and as intact as possible (large sections) in order to provide a better habitat for invertebrates.
MA06	Mill Wood Castle Mill Extension	pLWS	Direct	Tatton, CEC	SJ79438421	With land potentially required during construction. River Bollin South Embankment and River Bollin East Viaduct	The viaduct will destroy part of the pLWS. The woodland is an oak-ash woodland with some sycamore. Alder and willow are found towards the river, which is freely meandering with areas of deposition. An ancient woodland flora is present with species such as bluebell, wood speedwell and dog's mercury in the area through which HS2 is passing, further south east species such as violet, wood sorrel, great wood-rush, wood sedge and yellow archangel are also present. LWS surveyor noted protected species within the land potentially required during construction, as well as a very large/veteran oak tree. The oak tree had a large hollow cavity which would be suitable as a bat roost. Veteran trees are irreplaceable. Despite presence of a viaduct there will still be some loss of connectivity along this woodland corridor. There will be disturbance to wildlife utilising the woodland.	Where trees are felled it is recommended that the trunks are left close to the location in which they grew and as intact as possible (large sections) in order to provide a better habitat for invertebrates. We expect the impact of the proposed works on protected species to be assessed.
MA06	Mill Wood Castle Mill	LWS	Indirect	Tatton, CEC		Adjacent to a proposed construction access route along Mill Lane, west of Castle Hill.	Additional traffic is likely to increase disturbance to this mature deciduous woodland (present on OS map 1875) with many veteran trees and an ancient ground flora.	
MA06	Sunbank Wood and Ponds	SBI/A WIS	Direct	Manchester, Stockport Altrincham and Sale, Trafford		The west of the site lies within the land required for the proposed scheme. This includes River Bollin East Viaduct, Halebank Cutting	0.3ha of this broadleaf woodland with ponds host to a range of amphibians would be lost. The area of woodland to be lost is not on the ancient woodland inventory, the east of Sunbank Woods and Ponds is.	If any veteran trees are felled it is recommended that the trunks are left close to the location in which they grew and as intact as possible

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
						and Manchester Airport High Speed Station Cutting. Dewatering is proposed in the area	It is possible that veteran trees would be destroyed by the proposed works, these are irreplaceable. Dewatering is likely to affect the hydrology of the site and therefore have an impact on the ponds and the woodland.	(large sections) in order to provide a better habitat for invertebrates.
MA06	Wood near Chapel Lane	SBI	Direct	Manchester, Stockport Altrincham and Sale, Trafford		Construction of River Bollin East viaduct. Some wetland habitat creation appears to be proposed in the west of the site on already existing woodland.	An area of 0.01ha is proposed to be lost. It is possible that the woodland might be affected by a change in water levels in the area.	Wetland habitat creation should not be carried out on existing priority habitat. This should not be included within the compensation figures. Would it be possible to avoid a direct impact on the site completely?
MA06	Davenport Green wood	SBI/A WIS	Direct	Manchester, Stockport Altrincham and Sale, Trafford		The east of the site will be destroyed with the creation of Manchester Airport High Speed Station. Wetland habitat creation is proposed alongside the river.	1.8 ha of the ancient woodland is to be lost. Ancient woodland is irreplaceable habitat. It is likely that veteran trees would be lost through the proposed works which are also irreplaceable.	Compensation for the loss of any ancient woodland should be carried out according to an ancient woodland compensation strategy. As with the loss of any other veteran trees their felling should be avoided. If unavoidable the trunks should be left close to the felling site and as intact as possible (large sections) in order to provide a better habitat for invertebrates. The habitat along the river is already likely to be ecologically important. Unless it is being destroyed by the proposed works habitat creation should not be carried out here. Habitat creation on already existing priority habitat cannot be counted in the compensation figures.
MA06	Grassland and Ponds	N/A	Direct	Manchester, Stockport Altrincham and Sale, Trafford	SJ8074,8667 (this region)	Manchester Tunnel South Portal, Manchester Tunnel South Portal Main Compound, Manchester Airport High Speed Station Cutting	Aerial images suggest that this area may have ecological value as a mosaic of habitats including grassland, scrub and ponds. A number of routes are visible through the site and it is likely to be of importance as publicly accessible natural greenspace. There will be permanent loss of some of this habitat while it is not clear to us at this stage	We expect habitat and species surveys to be undertaken in this area to determine what is present. Should priority habitat be present compensation will be required.

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
							what will happen to the habitat after it is used as the main compound for the tunnel works.	
MA06	Ponds at Davenport Green	SBI	Indirect	Manchester, Stockport Altrincham and Sale, Trafford		120m northwest of land required for the Proposed Scheme	This is an area of grassland and ponds. The ponds may support a diverse bird fauna that may be disturbed by the proposed works (particularly the proximity of the satellite compound) as well as the operational phase.	Bird survey would be expected.

Table 2: Impact on SSSIs

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
MA04/ MA05	Holcroft Moss	SSSI/Part of Manchester Mosses SAC	Indirect	Warrington		<p>Immediately adjacent to proposed works. Grassland habitat creation is proposed in the south.</p> <p>Glazebrook Embankment is proposed to the east of Holcroft Moss with a culvert- Glazebrook Moss Culvert</p>	<p>Holcroft Moss is an important site with bog and heath vegetation with an area of willow scrub and calcareous grassland. The nationally rare Jumping spider <i>Sibianor larae</i> has recently been discovered on the moss. It is also valuable for breeding and wintering bird assemblages, black darter is also known to be present.</p> <p>Cheshire Wildlife Trust is concerned about the creation of an embankment in such close proximity to the moss. This is likely to significantly reduce connectivity between the moss and the surrounding landscape. With connectivity already lost on one side due to the M62, we consider additional loss of connectivity to be a problem. Although we understand hydrological survey is being undertaken we are concerned about the impact of the works on the hydrology of the site.</p> <p>The works themselves as well as operational phase may cause disturbance to the birds that utilise the site.</p>	<p>The Cheshire Wildlife would like to see a viaduct put in place here rather than an embankment.</p> <p>We expect thorough hydrological surveys to be taken as well as bird surveys to assess the impact of the bird fauna.</p>
MA06	Cotteril Clough SSSI	LWS/A WIS/C WT Reserve	Indirect <i>Outside CWT boundary</i>	Manchester, Stockport Altrincham and Sale?			<p>610m south of the land required in the proposed scheme.</p> <p><i>'However, on a precautionary basis and in the absence of further information, at this stage the assessment assumes there would be a temporary adverse effect, which would be significant at national level.'</i></p>	
MA03/ MA06	Rostherne Mere Ramsar site	SSSI/R AMSARR	Indirect	Tatton, CEC			<p>Disturbance.</p> <p>Directly adjacent in MA06. 1.2km east of MA03</p> <p><i>'Habitats Regulations Screening Assessment. With inclusion of the design-led avoidance measures, should they prove necessary, impacts on the groundwater regime (and therefore, the water levels and water quality in Rostherne Mere) would not be significant and that no likely significant effect to the Ramsar Site would occur.</i></p> <p><i>'Any risk of disturbance to the water bird assemblage for which the SSSI/NNR is also designated would be controlled through measures in the draft CoCP. Consequently, there would be no significant effects on the integrity of the SSSI.'</i></p>	<p>Recommend water vole and bird surveys.</p> <p>No significant effect on the Ramsar site - it very much depends on the measures that are brought in and what species may be impacted.</p>

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
MA04	Risley Moss	SSSI/Manchester Mosses SAC	Indirect	Warrington		790m west of the land required for HS2.1km from MA05.	Loss of connectivity within the Great Manchester Wetlands NIA	Habitat creation to bolster species populations in the vicinity of the scheme
MA04	Rixton Clay Pits SSSI & Rixton Clay Pits SAC	SSSI/SAC/Rixton Clay Pits Local Nature Reserve	Indirect	Warrington		Adjacent to the A57 Manchester Road, a proposed construction traffic route.	<p>'The site is designated due to populations of great crested newt which are of international value'. It is also designated for calcareous grassland and marginal/aquatic plants. Diverse populations of birds are associated with the site.</p> <p>There may be disturbance to the birds that utilise the site through the increased traffic flow.</p>	We would expect consideration to be made as to the impact of the increased traffic flow on the bird population.
MA03	The Mere, Mere	SSSI/Midland Meres and Mosses Phase 1 Ramsar site	Indirect	Tatton, CEC		1.4km east of the land required. <i>'Ongoing consultation, appropriate design and further assessment, where required, are being undertaken to ensure there would be no adverse impact on the Ramsar site and on the aquatic habitats present to ensure there would be no significant effects on the integrity of the SSSI.'</i>	Red-eyed damselfly (restricted distribution in Cheshire).	
MA01	Sandbach Flashes	SSSI	Indirect			660m east of the land required for the proposed scheme. Also 2.4km east of Wimboldsley to Lostock Gralam area.	<i>'Potential obstruction to surface water flows to the SSSI from the west. However, the alignment of the route in this area would principally be on an embankment and the assessment of impacts on both surface and groundwater, as provided in Section 15, Water resources and flood risk, concludes that there would be no significant adverse effects on either surface water or groundwater flow to this site. Therefore, there would be no adverse effect on the integrity of Sandbach Flashes SSSI'</i>	
MA03	Tabley Mere	SSSI	Indirect	Tatton, CEC		864m east of land required. 110m east of construction access route	<i>'It is anticipated that implementation of measures in the draft CoCP would reduce the magnitude of these impacts to a level where there would be no significant effects. However, on a precautionary basis and in the absence of further information, at this stage the assessment assumes there would be a temporary adverse effect, which would be significant at national level.'</i>	
MA02	Wimboldsley Wood	SSSI	Adjacent	Eddisbury, CWAC		Approx. 650m from depot and 20m west of the land identified for the purpose of habitat creation or enhancement.	Wet woodland, unimproved grassland, open water, brackish marsh	Any drainage into the woodland has the potential to impact saliferous springs and Brackish marsh within woodland

Area	Site	Status	Impact	Constituency	Grid Ref. of points of impact	Proposed Works	Habitat or species likely to be affected	Recommendations
MA02/ MA03	Plumley Lime Beds	SSSI	Indirect	Tatton, CEC		Adjacent to access road.	Adverse effect on site from access road, deemed significant at national level by HS2. <i>'construction haul route for the Proposed Scheme would be located adjacent to the north-western boundary of the SSSI resulting in an adverse effect, which would be significant at national level.'</i> As well as hosting a limestone flora Plumley Lime Beds is also a breeding site for species such as lesser whitethroat and reed warbler. Little ringed plover is known to have bred at the site. There may be disturbance to the birds through the construction haul route.	Bird survey recommended, Schedule 1 species may be present

Appendix

- **Woodlands.** To achieve no net loss of biodiversity locally so that the impacts to habitat specialists (e.g. bats) have no significant impact, a ratio of **1:5.4** hectares of semi-natural plantation woodland will be required. This assumes an existing distinctiveness value of 6 and an average existing condition score of 2 (moderate condition) for the priority habitat lost (12u/ha). Time to achieve good condition for plantation woodland is assumed to be 30+ years (x3) and difficulty is medium (x 1.5). The baseline score of habitat creation site is assumed to be low distinctiveness, poor condition (i.e. $2 \times 1 = 2\text{bu/ha}$).
- **Grassland Unimproved/moderately species rich semi-improved.** To achieve no net loss in biodiversity locally so that the impacts to habitat specialists (e.g. terrestrial invertebrates) have no significant impact, a replacement ratio of **1:2.52** is required. This assumes an existing distinctiveness value of 6 and an average existing condition score of moderate (2) for the priority habitat lost (12u/ha), or a distinctiveness value of 4 and a condition score of 3 (12u/ha). Time to achieve moderate condition priority habitat is assumed to be 10 years (x1.4) and difficulty is medium (x 1.5). The baseline score of habitat creation site is assumed to be low distinctiveness, poor condition (i.e. $2 \times 1 = 2\text{bu/ha}$).
- **Grassland Semi-improved.** To achieve no net loss in biodiversity locally so that the impacts to habitat specialist (e.g. terrestrial invertebrates) have no significant impact a replacement ratio of **1:1.68** is required. This assumes an existing distinctiveness value of 4 and an average existing condition score of moderate (2) for the habitat lost (8u/ha). Time to achieve moderate condition priority habitat is assumed to be 10 years (x1.4) and difficulty is medium (x 1.5). The baseline score of habitat creation site is assumed to be low distinctiveness, poor condition (i.e. $2 \times 1 = 2\text{bu/ha}$).