



SUMMARY REPORT

- **Community:** general effects on residential property, community facilities and communities as a whole: e.g. effects on public footpaths, bridleways, parks and gardens. Temporary presence of construction workers;
- **Cultural Heritage:** ancient burials, old buildings, designated assets (e.g., Listed Buildings, Conservation Areas) buried archaeology, historic landscapes. The 'setting' (local landscape situation) of these heritage assets is covered here. Palaeoenvironmental resources (ancient environments) are also considered;
- **Ecology:** protected species, biodiversity, wildlife, habitat disturbance, loss and restoration. Nb. 'ecological value' is covered here but the community and social/economic value of ecological resources is considered within other categories;
- **Electromagnetic Interference:** disturbance of the electrical system, induction, radiation etc;
- **Land Quality:** contaminated land and newly occurring ground contamination. Groundwater concerns where related to contamination. Leaks/spillages etc. geological issues are also in this category, as are mineral resources;
- **Landscape and Visual Assessment:** change to landscape character and views. Concern re: visible components related to the development – e.g. overhead lines;
- **Socio-economics:** trade, employment, business and the economy/markets (local and national). E.g. isolation effects on businesses or opportunities for jobs during construction/operation. Labour supply. Changes in demographics also included here;
- **Sound, noise and vibration:** as an issue for people and where they live, and as related to shared community open areas, schools, hospitals, etc. or the route in general;
- **Traffic and Transport:** covers all modes of transport, to include walking and cycling, road and rail, waterways and air. Includes diversions and change in the volume of traffic/congestion/emptiness. Also includes accident/health and safety risks;
- **Waste and Material Resources:** off-site disposal to landfill of solid waste from construction and demolition activities (and related earthworks design). Includes waste generated (not material inputs e.g. aggregates required for construction). Disposal of contaminated soil; and
- **Water Resources and Flood Risk Assessment:** Surface water features, both natural and artificial and ground water concerns (where not related to contamination – a land quality issue). Flood risk and drainage networks (and sewers). Disposal of liquid waste.

In addition to the above further categories were included to cover comments that did not fall into any of the above categories. These are:

- **Greenbelt development:** concerns that planning applications may now be approved where they may have been refused previously;
- **Sustainability:** strategic environmental impacts including carbon issues, economics, energy requirements, long term environmental consumables, climate change, behavioural change;
- **Tunnel:** this was used for comments expressing the desire for a particular section to be fully tunnelled, for example The Chilterns;
- **Not specified:** used when no comments have been made at all;
- **Property value:** used when the comment specifically relate to property value;
- **Compensation:** used when the comment specifically relate to compensation;



- **Expense:** general issues relating to the project cost;
- **Public Consultation issues/time:** used for issues related to the public consultation process in general, e.g. too many pages, not enough time to respond, methods, difficulty with electronic forms;
- **Government:** used for general issues purely with regards to the Government e.g. 'I will not vote for this government again';
- **Environment:** for comments regarding the environment that are general statements that do not specify any of the other categories e.g. 'the project will damage the environment'. If more specific issues are mentioned then the appropriate issue category was used e.g. if it says 'the project will damage the environment and all the wildlife' then the response was categorised under 'Ecology';
- **Infrastructure:** This is for comments that relate to suggestions to upgrade/improve the existing infrastructure (railway lines) rather than build a new one;
- **Mental Health/Anxiety Concerns:** This is for perceived mental health issues, for example if somebody writes "the stress will kill me". Only used for perceived health issues that do not fit any other category. Any specific health issue related to a specific environmental impact is categorised in the appropriate issue, for example 'Air Quality';
- **Other:** used for 'other' issues such as requests for information (RFI). All use of this category included a comment preceded by the word 'other', for example "Other: RFI". The 'other' comments were closely monitored and if any trends were observed then an additional category issue was added: and
- **Lower The Line:** this was used where responses were concerned that sections of the proposed line should be lowered in height. This category was added due to the volume of responses regarding this issue.
- **Positive for the Line:** used when positive comments were made.

1.3 Campaigns

The Consultation on the ES saw the receipt of a number of specific campaigns, with correspondents using pre-produced material for submission. These varied from campaign postcards to standard letter text. On many of these, correspondents had been encouraged by the organisers to add their own comments. Where these highlighted an additional concern or issue to that of the campaign material, the additional issue(s) was logged. This means that all campaign material, even where using standard submissions, was checked by the Independent Assessor for variants. It was not simply assumed that campaign cards were uniform and could be logged automatically. Some campaigns overlapped and were concerned with the same issue or geographic area.



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The Independent Assessor received responses from a number of distinct campaigns as follows:

- 1) Postcard titled *“Don’t miss your chance to tell David Cameron the only AONB on the route of HS2 needs a full tunnel”*. This Campaign is requesting ‘the longest possible tunnel throughout the entire AONB’ of the Chilterns.
- 2) Postcard is titled *“Stop HS2 Hillingdon”* and argues against the rejection by the Secretary of State for Transport and HS2 Ltd of an extended railway tunnel for the Ickenham and Harefield areas of west London.
- 3) Postcard is titled *“Save Camden Town from HS2!”* and is campaigning for the proposed HS1/HS2 Link line to be tunnelled.
- 4) Postcard produced by HS2 Action Alliance and Stop HS2. The main message of the postcard is to campaign to lower the line beneath the West Coast Main Line and A38 near Lichfield. There is also space on this postcard for individual further comments to be made.
- 5) This campaign is a one page letter that expresses various concerns related to the Lichfield area.
- 6) This campaign is an almost exact replica of the campaign above but does not refer to Lichfield, and is worded slightly differently in places.
- 7) Two page letter relating to Camden and the HS1 Link and is predominantly focused on tunnelling being the preferred option. Letter relates to Camden Town Unlimited.
- 8) This is a two page campaign letter titled *“Resident’s Comments on the HS2 Environmental Statement”* relating to Camden Town and HS1 Link. There is also space for respondents to add their own comments.
- 9) Single sided postcard campaigning for a short, cut and cover tunnel for Hints Village and surrounding areas.
- 10) This is a 1 page letter campaigning for a tunnel through Camden.
- 11) This is a 3 page letter comprising an individual cover letter with an attached two page campaign on behalf of the residents of Old Waste Lane and Waste Lane in the parish of Berkswell.
- 12) Postcard detailing a list of statements relating to Euston and the link across Camden to HS1. Each statement has a tick box, therefore each postcard can be categorised slightly differently depending on which statements have been ticked.
- 13) This is a one page letter containing various environmental concerns campaigning predominantly for a short, cut and cover tunnel for Hints Village and surrounding areas.
- 14) This is a two page letter comprising an extensive list of statements with tick boxes relating to the Camden and Euston area. Each postcard can be categorised slightly differently depending on which statements have been ticked.
- 15) This is a one page letter relating to concerns for Lichfield, it is predominantly campaigning to lower the line.
- 16) This is a one page letter relating to issues associated with construction around the Camden Area.
- 17) This is a one page email letter addressed to Secretary of State, which is a general campaign against the project.



- 18) This is a three page letter detailing numerous concerns around the Wells House Road Cul-de-sac area.
- 19) This is a campaign based on the standard ES Response form relating to CFA13 and 14, containing numerous concerns.
- 20) Postcard detailing various environmental concerns related to Ladbroke and Southam.
- 21) This is a one page letter detailing numerous issues related to CFA3.
- 22) This is a two page letter relating to Euston with space for additional comments.
- 23) This is an eight page email campaign with numerous concerns raised across unspecified areas.

The campaign responses formed the larger part of all received responses by volume. Some examples are located in Annex A.

1.4 Organisation Responses

The Independent Assessor received a number of responses from organisations and groups with an interest in the outcomes of the HS2 Phase 1 project. Many submissions evidenced close analysis of the ES, often supported by professional and legal opinion.

This Report is not intended to be a discussion of the detailed content of these submissions and the arguments contained within them, although the issues raised by these documents have been included in the results analysis.

Information regarding names of organisations that submitted responses to the ES can be found with published consultation responses on the consultation website.



2.0 RESULTS

2.1 Key Issues

This section of the Report presents a summary of the key issues and concerns received from all respondents to the ES public consultation. The results reflect the volume of responses from a wide range of respondents, ranging from individuals to public authorities, commercial organisations (business and agriculture), Interest Groups and Non-Governmental Organisations (NGOs) concerned with natural and cultural heritage, community issues and campaigns.

This section is designed to provide the reader with a quick and accurate picture of the feedback received from the entire public consultation, the key issues by volume and ranking of issues to show respective importance as provided by the responses. *It does not evaluate responses on a technical level against assumptions presented in the ES.* This is in line with the role of the Independent Assessor only to summarise comments, rather than give an evaluation of them. Responses referencing individual CFAs are detailed in Section 2.2.

This section also provides the reader with a snapshot of the issues expressed within each category to give a better understanding of key concerns than can be given simply by headline statistics. These snapshots have been designed to represent a picture of the situation relating to each issue and CFA, not to provide comment on or précis every single received response. However, where particular geographical features or themes are a recurring element of the relevant responses, this Report highlights these issues.

Throughout the Report, no respondent has been identified in order to avoid the impression that a particular response is judged has having more value than any other. There are however some exceptions where a significant number of responses have referenced another submission or report as a key element of their own responses. A number of responses requested confidentiality for their submissions. This request has been respected and no individual enterprise or person can be identified within this commentary.

Key issues are presented below in ranked order of comments received.

Many responses referred to numerous issues. These separate issues were logged as separate comments where appropriate. Consequently, the figure for the total comments/issues is greater than the total number of responses.

Overall, minimising the impact of the proposed route through the Chilterns Area of Outstanding Natural Beauty (AONB) is the single greatest issue of concern for respondents to the HS2 ES.



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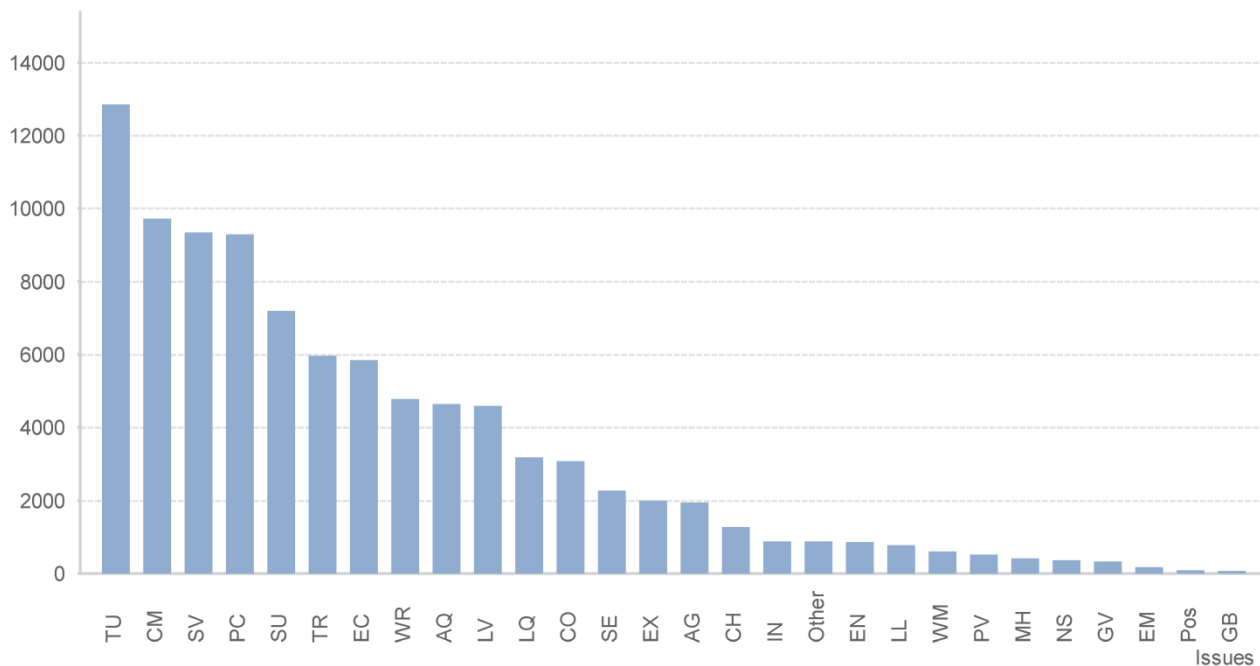


Figure 2-1: Volume of Responses per Category

Table 2-1: Key for Issue Categories

Code	Category
AG	Agriculture, Forestry and Soils
AQ	Air Quality
CH	Cultural Heritage
CM	Community
CO	Compensation
EC	Ecology
EM	Electromagnetic Interference
EN	General Environmental Issues
EX	Expense
GB	Green Development / Planning Applications
GV	Government
IN	Upgrade Existing Infrastructure
LL	Lower the Line
LQ	Land Quality
LV	Landscape and Visual Assessment
MH	Mental Health / Anxiety Concerns
NS	Not Specified
Other	Other Issues
PC	Public Consultation Process / Time
Pos	Positive for the Line
PV	Property Value



Code	Category
SE	Socio-Economics
SU	Sustainability
SV	Sound, Noise and Vibration
TR	Traffic and Transport
TU	Tunnel
WM	Waste and Material Resources
WR	Water Resources and Flood Risk Assessment

Issue 1: Tunnel - 12,637 Comments (TU)

This is the highest ranked response issue from the complete consultation. The high numbers are due to the specific campaign demanding a full length tunnel under the Chilterns AONB (Area of Outstanding Natural Beauty) supplemented by other respondents also calling for the same feature within their responses. The second ranked tunnel campaign is for the extension of the Northolt Tunnel further westwards to minimise impacts on the Ickenham area. This tunnel is to the east of the Colne valley and AONB area.

The third ranked tunnel campaign is for the HS1 Link across Camden to be tunnelled.

There are, however, other CFAs where respondents call for additional tunnelling in their areas, either to extend an existing proposal in length or to reinstate a tunnel from a previous design exercise. These are generally concerned with minimising route impacts (visual, noise, land take, community) to an area and, where the consultation results warrant it, these are referenced in the appropriate CFA section along with the location.

Issue 2: Community - 9,716 Comments (CM)

The second ranked issue and one with a range of detailed responses referring to particular local impacts is that of Community. Construction impacts are the strongest concern this category, with comments on loss of amenity and quality of life in the longer term.

Disruption is a key concern with a particular complaint being the proposed length of the disruption, from works and construction activity. There is considerable concern at the degree of proposed disruption along with disagreement with the ES that construction impacts can be considered as temporary and therefore moderate. Severance of local routes and footpaths resulting in either a loss of or increasing difficulty of accessing local amenities is a common theme in both urban and rural areas.

Long term impacts and degradation of the existing surrounding area leading to loss of community amenity and creating a perceived community blight are a key issue, including loss of tranquillity, change of character and the impacts from the operation of high speed services through the area concerned. Many respondents object to being referred to as a 'receptor' and take this to reflect a lack of human concern for their communities.



Issue 3: Sound, Noise and Vibration - 9,330 Comments (SV)

Concern about noise impacts is the third ranked issue by volume of response. This is linked to both construction and operational phases.

Many respondents are concerned with the methodology for assessment used within the ES to underpin the assessment conclusions. Common concerns include whether the assessment parameters used are appropriate in terms of time period references (particularly the claimed use of monthly levels as a key average indicator) as well as the quality of the baseline data, any monitoring that has been undertaken and the application of appropriate noise impact levels to different geographical settings. The analysis is frequently questioned and disputed and as a result the effectiveness of any proposed mitigation measures is frequently questioned.

Night-time noise is a concern for many respondents, particularly linked to areas where construction compounds and maintenance areas are proposed. The proposed 24 hour operation of many of these sites is a concern for respondents as is the design and effectiveness of any noise barriers for compounds and route infrastructure, in particular those proposed for the viaducts.

Respondents are concerned with vibration impacts where construction traffic will affect the built environment and where tunnelling under urban and built areas will take place.

Issue 4: Public Consultation - 9,280 Comments (PC)

This issue is the fourth ranked concern in the public consultation responses. Concerns fall into three main areas: the ES, the time frame allowed for the consultation and the historical communication process between communities, individuals, organisations and HS2. Each of these is discussed in detail below.

The Environmental Statement

Many respondents begin their submissions by questioning the integrity of the ES. There is a common perception that the ES consistently underplays potential impacts and has presented issues in a manner which highlights positive outcomes.

There is substantial concern that the baseline data used in the ES is not accurate or comprehensive enough for an ES and that too much use has been made of desktop and other assumptions rather than detailed on-the-ground surveys. In addition there are comments relating to geographical and boundary errors with particular reference to maps. Respondents are concerned that errors previously highlighted in the draft ES have been replicated in this ES.

Many respondents believe that the environmental impact assessment regulations have not followed EU or UK procedure.

Many respondents believe that the lack of an SEA (Strategic Environmental Assessment) has also led to the downplaying of cumulative and wider scale impacts as well as displaying a breach of required legislation.

The ES Consultation Timeframe

Many respondents make the point that, in their opinion, the timeframe allowing respondents to access the ES reports, consider the contents and make a full and detailed response has been insufficient for a project of this scale and national importance. A particular concern has been the timing of the process over the Christmas period when many public access points were closed for a significant proportion of the consultation period and respondents also had seasonal commitments. This was noted as much by the larger organisations as by individuals and smaller organisations.



The difficulty of accessing information has been exacerbated for many respondents by the amount of cross-referencing amongst documents that readers need to follow in order to understand how the key issues for their areas were being presented in the ES. This has been commented on with a degree of cynicism as a deliberate manoeuvre by the ES proponents by many respondents.

Project Communication

Many respondents feel that their efforts to engage with the project have been downplayed or ignored. There is disquiet that the previous communication process was terminated and since then respondents have felt that communication has been focussed on relaying information rather than a dialogue. Many respondents are disappointed that alternative solutions that they have presented to HS2 to specific alignments and areas of local detail have not been fully considered or responded to.

Many respondents consider that they have not been consulted sufficiently on proposals which directly affect their asset holdings, particularly farmers and landowners. Some respondents who were consulted by HS2 have noted that in their opinion the content of discussions and meetings differs to what has been reported in the ES.

Issue 5: Sustainability - 7,194 Comments (SU)

The volume of responses for this issue has been substantially influenced by the focus on general issues relating to the concept and route as a national issue. Respondents are concerned that the measures of sustainability claimed for the HS2 option are based on flawed methodology and that the claims made for the project cannot be trusted. Respondents particularly focus on the carbon balance projected for the route and its contribution to the UK's carbon, energy and climate change goals.

The other key areas of focus are comments on the scheme's contribution to the national economy and transport network, questioning whether the development is an appropriate approach for delivering a sustainable economy.

Many respondents are concerned that the full scale of the project's cumulative impacts have not been considered or assessed as part of the ES remit, with the result that the sustainability of the scheme on local and regional areas is compromised.

Issue 6: Traffic and Transport - 5,972 Comments (TR)

This was a highly ranked concern for many of the CFAs and reflects local concerns about the disruption and impacts from construction programme and the associated traffic flows. The effects of heavy transport on unsuitable road infrastructure and proximity to communities and sensitive environmental receptors involving all traffic impacts (for example, noise, air quality, vibration) is a key concern, as is the duration of the proposed disruption that is likely.

Concerns were also expressed about the cumulative impacts on traffic, including congestion, commuting and regional traffic flows for quality of life indicators. Respondents also raised concerns over planned road realignments and changes to highway infrastructure planned to support the construction programme. For urban areas where there are concentrations of commercial and business operations, respondents were concerned that not enough consideration had been given to the economic impacts of proposed road network changes and traffic congestion. In the rural areas, concerns were focused on severance and access across each region, for agricultural activity and community connectivity.



Issue 7: Ecology - 5,853 Comments (EC)

Respondents were concerned that the ecology and habitats along the route would be subject to loss and degradation, and that the natural environment will pay a heavy price along the route. Ancient woodlands were a key focus for many respondents, both for the intrinsic value of the woods themselves, for the part they have played in the regional landscape and for the amenity they provide for the local communities and wildlife.

Many respondents considered that the baseline studies undertaken for the ES were not adequate and were too heavily dependent on desk top surveys without adequate seasonal or detailed ground surveys. Concern over ecological fragmentation was a frequent theme resulting from habitat loss, disruption and the proposed fencing along the route. Respondents frequently referred to bats and barn owls although other species of local significance (fauna and flora) were also highlighted.

A frequent concern is that ecological mitigation proposals in the ES are not adequate and have not been designed in detail to reflect local situations, and that detail is lacking on long-term maintenance and responsibility. Many respondents are not convinced that replacement woodland planting as suggested is an adequate replacement for ancient woodland and the 60 year timeframe for landscape recovery quoted by many respondents is too long. Many respondents are concerned about the impact of the route and construction where the route follows green areas, crosses river valleys and potentially impacts areas where nature reserves are in operation.

Issue 8: Water Resources - 4,787 Comments (WR)

The number of comments on this issue has been influenced by its inclusion in a campaign which makes an unsubstantiated statement that the development of the route will affect drinking water quality.

Elsewhere, respondents are concerned about the potential impact of route infrastructure constructions will have on existing hydrological and surface water regimes with the concern that flooding could be increased both in the immediate vicinity and downstream. This concern is raised in particular where the route crosses river valleys on viaduct and embankment structures, as many respondents do not feel the plans as reported in the ES give enough detail, or that sufficient modelling has been undertaken.

Respondents are concerned that not enough detail on the design and number of proposed balancing ponds that are planned for construction has been provided in the ES.

The potential impact on the Chiltern Aquifer and chalk hydrological systems is a key concern for respondents concerned about impacts on the Chiltern AONB. This includes potential impacts from the perceived shallow nature of the proposed Chiltern Tunnel. Within the AONB area, the impacts on surface waters such as the River Misbourne are a further key concern for respondents.

Issue 9: Air Quality - 4,649 Comments (AQ)

Respondent concern in this issue is focussed on the potential for air quality impacts from construction traffic and construction activities. Respondents are concerned about air quality by volume in two key areas. The first is the release of quantities of dust from construction activities along the entire route and from spoil dumps and works in the Chilterns region as the chalk spoil dries in the summer months. These potential impacts are a key concern including worries over health impacts for vulnerable community members.

The second is concerned with the vehicular emissions from construction traffic and plant as well as potential congestion and traffic cumulative impacts on community air quality.



Issue 10: Landscape and Visual - 4,594 Comments (LV)

The long term impact of the route on the visual landscapes and community amenity is a key concern for many respondents. This is not limited to the Chilterns AONB but is also raised by many respondents in relation to village and community hinterlands and amenity areas. Proposed mitigation solutions in the ES are frequently questioned in respect of individual situations with particular focus on appropriate planting plans and extent. Respondents in agricultural areas in particular are concerned that proposed landscape amelioration schemes could be too extensive and that prime arable land is being sacrificed for landscape screening. The design framework for the route is also queried by many respondents, particularly for the viaduct structures along the route with many respondents wanting assurance that these structures will either blend into the landscape or represent 'good design'.

This issue is not restricted to rural areas as respondents in more developed and urban areas are also concerned that their amenity areas are treated with respect and concern.

Issue 11: Land Quality - 3,176 Comments (LQ)

The majority of responses in this issue are focussed on construction impacts with concerns about potential contamination of ground and groundwater from works and construction compounds. Concerns are also expressed by respondents about the proposed 'Sustainable Placement' areas, which will be repositories for spoil from the tunnels and used for earthworks and other structures elsewhere along the route.

Many respondents express concern about the lack of detail and oversight as stated in the ES for the proposed CoCP (Code of Construction Practice, August 2012) system. Respondents are concerned that contractors will have too many opportunities to interpret standards to their advantage and that there will not be a powerful independent evaluator overseeing that CoCP practices are implemented satisfactorily and continuously across the duration of the construction period.

Issue 12: Compensation - 3,082 Comments (CO)

Many respondent concerns for compensation reference specific instances and so cannot be directly referenced in this discussion. These cover potential loss of earnings, through disruption, probable forced cancelation of investment plans, compulsory purchase issues and property blight for individual properties. Respondents range from individual householders to agricultural enterprises and commercial and businesses operations. Many respondents have issues with the proposed zones for compensation, particularly for those who are outside of the requisite zone, but feel they would still suffer blight. A common theme for urban respondents is that they feel the compensation level for rural instances is substantially higher than that for urban dwellers and that parity at least should be considered.

Respondents are concerned that communication on likely land take, land requirements, compensation levels and certainty of impacts has been lacking to date and is creating a significant level of uncertainty which is already impacting on decision making and available options.

Issue 13: Socio-economics - 2,271 Comments (SE)

While issue 12 is focussed on impacts on assets and properties, this issue is focused on potential impacts on business, economic activity and employment impacts. Many respondents believed the ES underplayed many aspects of socio-economic impact, either through inadequate research or an inbuilt approach that considered the smaller absolute numbers involved in rural areas as less important, even though these smaller numbers may proportionally be more significant for their respective communities.



Respondents also question the economic modelling for towns and communities and effect of cumulative impacts on economic activity during the lengthy construction period. Respondents in the Chiltern AONB particularly feel that the importance of Tourism to the local economies could be jeopardised by the route impacts and lengthy construction period. Respondents in North London are also concerned about the potential negative impact on the local economies and tourism. Respondents in a number of CFAs are concerned at the likely influx of construction workers for extended periods in the construction compounds and the strains, economic and social, that could arise in the smaller communities as a consequence.

Issue 14: Expense - 1,999 Comments (EX)

Respondents in this category were concerned over the cost of the HS2 project and in particular it's potential share of national expenditure and the impact that this may have on other budgets and investments for the future. Respondents were also sceptical about the value that this project represented for the nation compared to other options favoured by the respondent.

Issue 15: Agriculture, Forestry and Soils - 1,940 Comments (AG)

Respondents for this issue are particularly concerned with land take and the impacts this would have on economic performance, severance and access across landholdings, and the viability of current operations once construction programmes begin. Many respondents have questioned the ES philosophy of mitigation, particular on the extent of planting as landscape compensation on prime arable land. The lengthy construction period is also a major concern for respondents in this category.

Issue 16: Cultural Heritage - 1,277 Comments (CH)

Respondents for this issue referenced potential impacts on specific cultural assets which include buildings and their surrounding estates, generally Grade I or Grade II listed archaeological features – known or suspected, community buildings and features of importance to that particular community, and structures within the urban landscape. Featured assets were referenced in the ES, and respondent concerns focus on particular issues including long term potential route impact on the asset, socio-economic impact for visitor numbers and access during the construction period and operation, and landscape and amenity impact. Many respondents are concerned that alternative alignment solutions presented to the HS2 design team have not been considered fully for the designs as proposed in the ES.

Where particular cultural heritage assets became a feature of CFA responses, these are referenced in the relevant CFA section.

Issue 17: Upgrade Existing Infrastructure - 884 Comments (IN)

The majority of these responses called for upgrading of the existing West Coast Main Line as an alternative to investing in the HS2 Infrastructure project. A minority of respondents called for the upgrading of the Marylebone – Chilterns line as an alternative to the HS2 Infrastructure project.

Issue 18: Other - 872 Comments

Respondents in this category demonstrated a wide range of concerns that respondents wished to express in the ES consultation process. Many made reference to a viewpoint that technological advances in communication would likely render the proposed rail infrastructure superfluous in the future. Others were concerned that China could be involved in financing and constructing the project and that British jobs should be guaranteed for the project workforce.

Construction issues are also a focus of concern in this category and included health and safety issues, security and the possible increase of vermin into surrounding areas as a result of construction disturbance.



Issue 19: General Environmental Issues - 858 Comments (EN)

This category captures responses which submitted general comments and expressions about the Environment without relating the comment to any particular issue, supporting details or CFA. Comments comprised negative remarks or slogans such as 'Environmentally irresponsible' and 'no Environmental case'.

Issue 20: Lower the Line - 768 Comments (LL)

Responses in this issue mainly refer to a campaign calling for lowering the line beneath the West Coast Main Line and A38 near Lichfield to minimise impacts in this area. Some other respondents across the route also call for lowering of the line in specific areas to minimise impacts on dwellings and landscapes in their particular area.

Issue 21: Waste and Material Resources - 604 Comments (WM)

Respondents were concerned over the scale and management of the 'Sustainable Placement' proposals for spoil, along with waste transport issues and potential contamination from spoil dumps.

Issue 22: Property Values - 511 Comments (PV)

This category references responses where the respondent particularly highlighted route impacts on individual property value and blight related to property value concerns.

Issue 23: Mental Health - 411 Comments (MH)

Respondents in this category referenced concerns for individual wellbeing and stress resulting from the long term duration of the construction period, uncertainty over outcomes and potential impacts from potential negative impacts on business or property ownership.

Issue 24: Not Specified - 365 Comments (NS)

This category captures those responses that submitted remarks and slogans of a general nature, were unsigned and unmarked campaign postcards, or concerned other matters outside the scope of this consultation. Unsigned and unmarked campaign postcards and responses providing expressions and slogans of general dissatisfaction such as 'No HS2' unsupported by additional commentary make up the bulk of this category. The category also included junk mail material sent to the consultation address, misdirected messages and advertising flyers.

Issue 25: Government - 334 Comments (GV)

Respondents in this category referenced comments on perceived national government intentions and approach for the proposed route infrastructure, often along with a stated intent on future voting intentions.

Issue 26: Electromagnetic Interference - 169 Comments (EM)

Concern was expressed by respondents in this category that safeguarding of electromagnetic interference had not been adequately addressed in the ES proposed designs. This issue was generally raised by commercial operations along the route that need to safeguard their systems and operations from electromagnetic interference and disruption.

Issue 27: Positive for the Line - 87 Comments (Pos)

Respondents in this category expressed support for the HS2 concept and the benefits that the line could bring to the national economy. The majority of these responses were followed by a particular concern relating to a relevant CFA.



Issue 28: Greenbelt Development - 76 Comments (GB)

Respondents in this category were concerned about the potential cumulative impacts on greenbelt by opening up areas for development, and enabling further impacts and commercial applications to be implemented to the detriment of these protected areas.



2.2 Community Forum Areas (CFAs)

This section of the Report presents the results from the Public Consultation related to the geographical/spatial groupings along the proposed route. Not all submissions referred specifically to a relevant CFA designation, although the project team were able to relate many submissions to the appropriate CFA through references to local settlements and features mentioned in the text.

The CFAs are taken from the ES and the Independent Assessor has decided to apply the same categorisation for ease of reference with HS2 project material. This section presents results by CFA as well as further categories to reflect wider geographical areas where submission responses were directed, as well as those further specific geographical areas referenced in the ES. General comments concerning the entire route or project philosophy are also discussed in this section.

Each CFA section presents results by volume, issue and response type. The results are presented in the following pages in numerical order rather than 'hot spot' order. Table 2-2 below presents the ranking of CFAs and geographical issues by volume of responses received.

The areas along the route with the largest volume of public responses were the Chilterns, London from Euston through to Kilburn, the Colne Valley and the West Coast Main Line connection near Lichfield.

Table 2-2: Responses per Area

Area	Count
CFA1	764
CFA2	2,886
CFA3	729
CFA4	275
CFA5	50
CFA6	2,617
CFA7	2,697
CFA8	155
CFA9	248
CFA10	216
CFA11	214
CFA12	90
CFA13	215
CFA14	179
CFA15	135
CFA16	211
CFA17	56
CFA18	138
CFA19	44
CFA20	59
CFA21	237
CFA22	1,002
CFA23	190
CFA24	47



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Area	Count
CFA25	35
CFA26	64
Chilterns	8,081
Other	55
Area not specified	4,667
London	52
Off route rail stations	18
West Coast Main Line	617
Birmingham	31

Each CFA listing uses the description used by the ES. Each CFA is also related to its section and page numbers in the Non-Technical Summary document of the ES as a convenient gateway to the key issues referenced in the ES.



2.2.1 CFA 1 – Euston - Station and Approach

ES NTS REF: Section 8.1, Page 54

There were 764 comments relating to this CFA

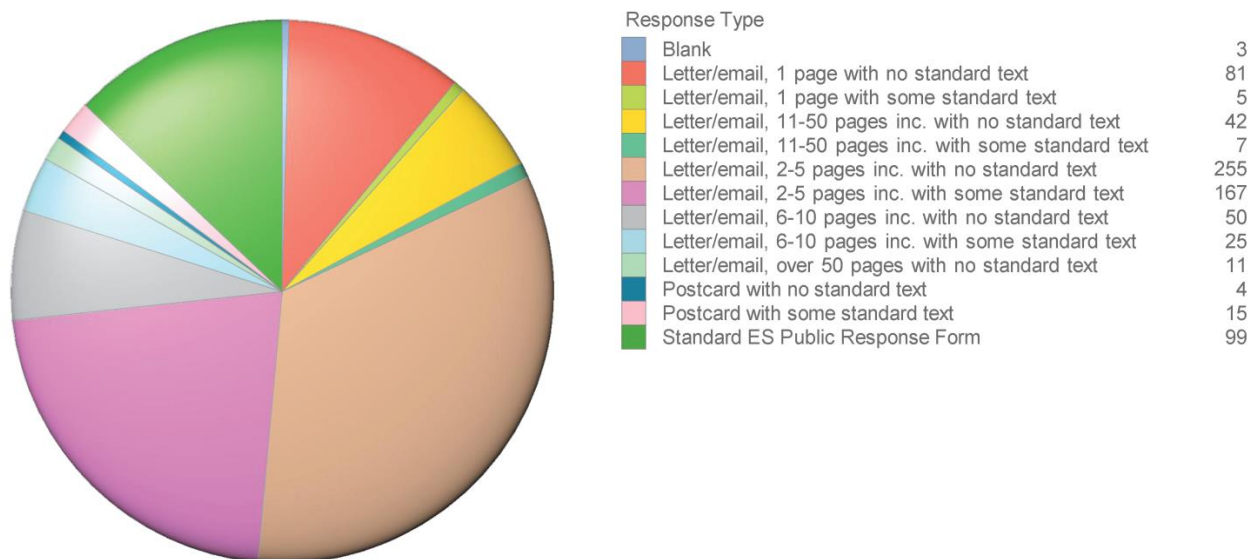


Figure 2-2: CFA1 - Response Type

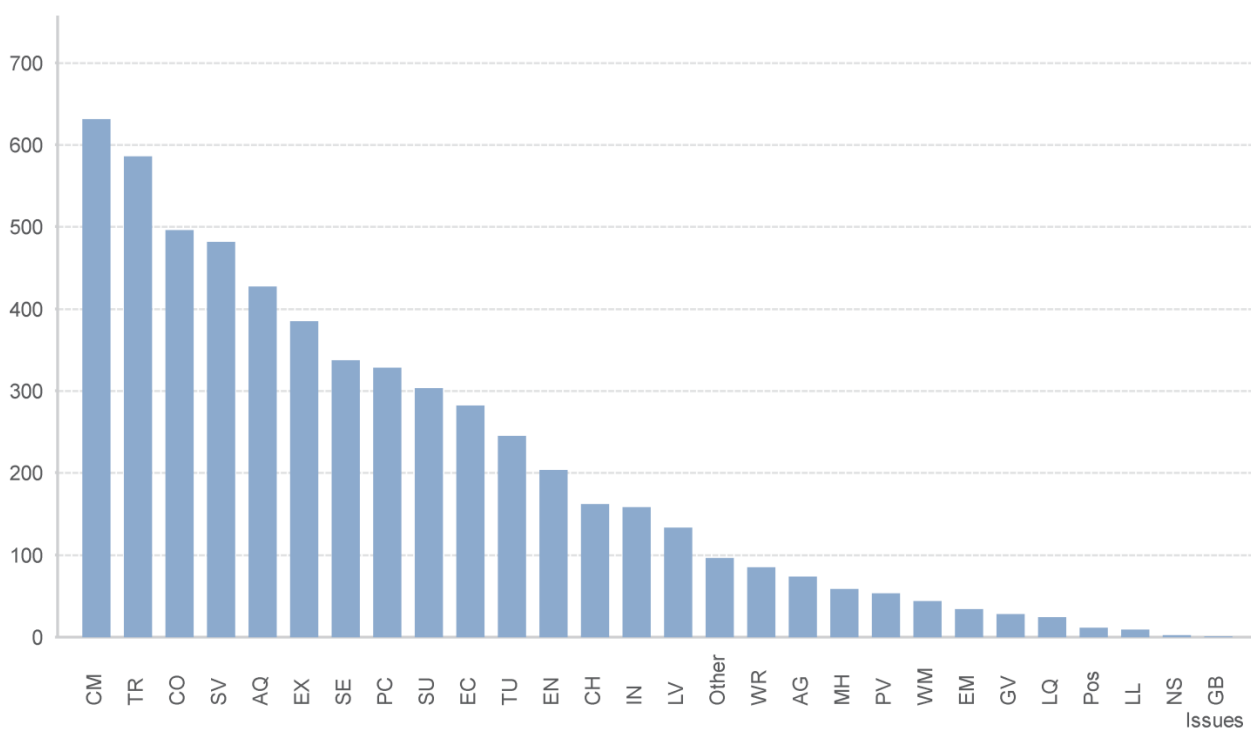


Figure 2-3: CFA1 - Environmental Topics



SUMMARY REPORT

The issues raised from the responses in this highly developed CFA are particularly concerned with the impacts of long term construction on the existing communities, residents, building assets and infrastructure fabric and cumulative impacts across the area.

The highest category of response concerned Community amenity which was also closely related in the content of the responses to the second highest category Traffic and Transport. A key concern for respondents in this CFA is the likely disruption to the area from all forms of construction activity, which is expected to be of large scale and long duration. Respondents are particularly concerned about the impacts on existing traffic flows, access, environmental impacts such as air quality, noise and vibration and construction 'blight' across the area. This also extends to wider traffic management and cumulative impacts on transportation disruption for all modes of transport. These issues are demonstrated in the top 5 ranked issues for this CFA.

The plans for Euston station itself are a common theme of discussion, with the 'Double Deck down' proposal frequently cited as a missed opportunity and many questions are raised about the economic decisions surrounding the current proposed station designs. The Euston debate also frequently raises the alternative location of an HS2 terminal elsewhere, particularly for the Old Oak Common area.

Respondents continually highlight that in their opinion there is not enough information in the ES relating to the planning and impacts for this CFA. Community relations with HS2 frequently discuss a lack of trust in the development process from residents, businesses and stakeholders.

Tunnelling itself remains a potent issue with respondents both in favour of and against additional tunnelling. Potential impacts from tunnelling on structural property assets is a common theme as is the theme of compensation and the management of potential threat to existing housing and residents. There is a smaller concern with tunnel ventilation shafts affecting visual quality.

The potential threat to existing community amenities such as Camden Market is a frequent theme as is concern with impacts on cultural heritage, particularly for buildings.



SUMMARY REPORT

2.2.2 CFA 2 – Camden and HS1 Link

ES NTS REF: Section 8.2, Page 61

There were 2,886 comments relating to this CFA

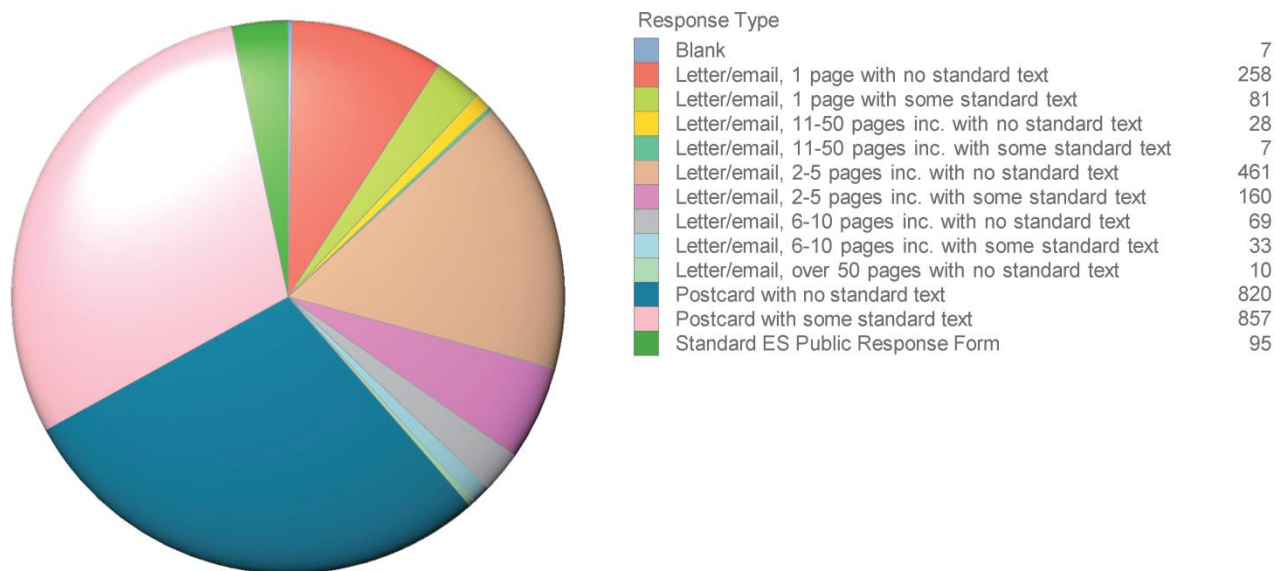


Figure 2-4: CFA2 – Response Type

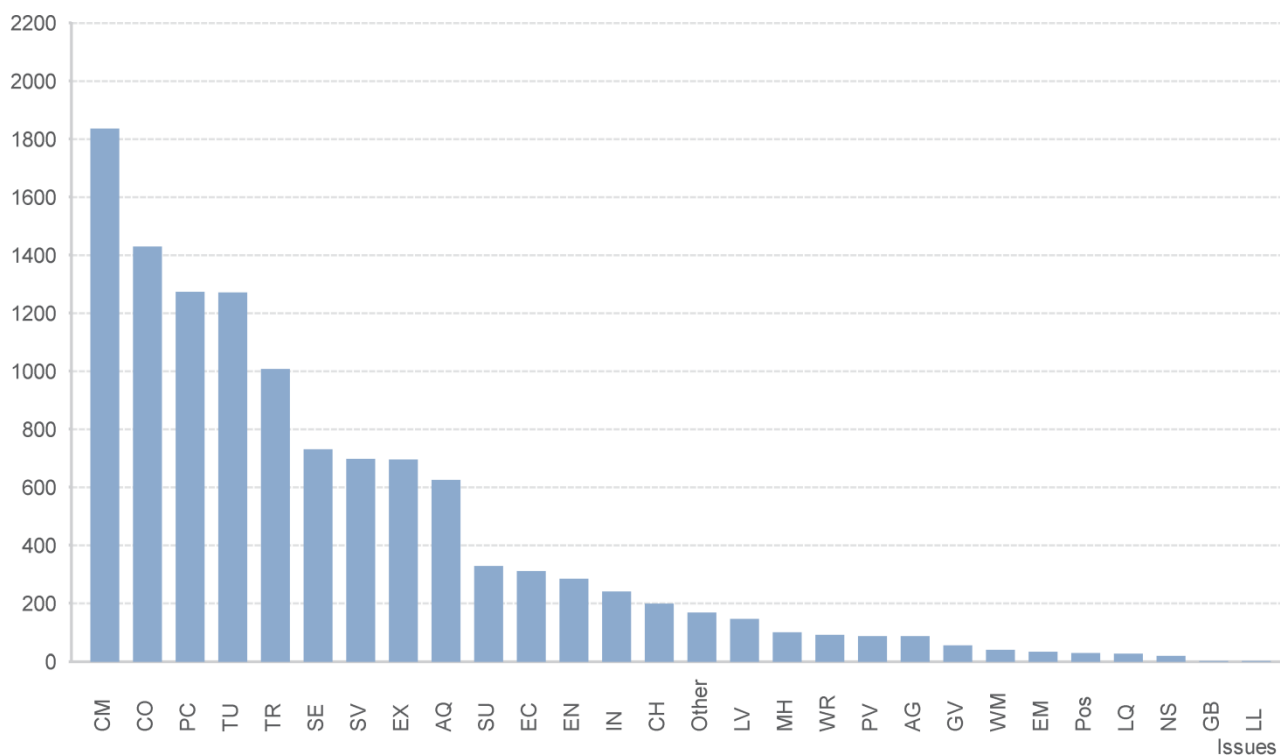


Figure 2-5: CFA2 - Environmental Topics



SUMMARY REPORT

CFA 2 has some of the densest residential and building stock of any of the CFAs within the proposed route alignment. Consequently this CFA has the fifth highest volume of responses received during this Public Consultation exercise. Community Disruption ranks highest amongst the concerns expressed, with related issues also in the next highest rankings. Considerable concern is expressed about the proposed duration of the construction disruption and the effects this will have on quality of life, environmental impacts, economic activity for local business and traffic routing and anticipated congestion.

Compensation and blight on residential housing is the second highest concern with many respondents commenting on a perceived disparity of compensation levels 'between urban and rural areas' with claims that the urban areas are being offered lowed levels of redress.

The third highest ranking concern is the issue of Public Consultation, where respondents express their lack of trust in the communication process to date and a strong feeling that previously expressed local responses concerning the detailed route design and proposed construction approaches have been inadequately considered in the ES.

Tunnelling is also a frequent theme with many respondents requesting more effort be spent looking at the options to extend tunnels in the area, although some concern is also expressed about the potential of surface impacts on housing stock from sub-surface engineering.

In common with neighbouring CFA 1, the development of Euston Station and its associated impacts is also questioned with many respondents indicating a preference for the Double Deck Down design option or relocating the terminus of HS2 to Old Oak Common.

The HS1 link is mainly mentioned in connection with concerns about community upheaval and disruption and construction impacts although amongst some of the supportive comments the HS1 link as proposed in the current plans is seen as not fit for purpose given it's likely capacity as a single line and should be designed as a double track structure.

Concern over environmental impacts are focussed on construction and disruption issues – air quality, noise and dust along with a distinct concern over potential impacts on the local nature reserve of Adelaide Park.

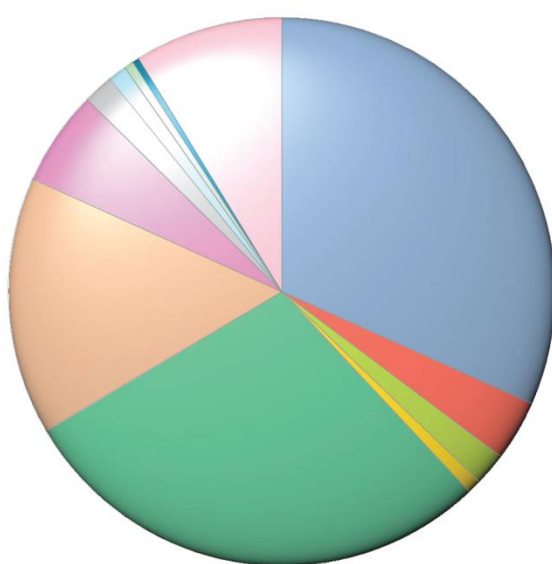


SUMMARY REPORT

2.2.3 CFA 3 – Primrose Hill to Kilburn (Camden)

ES NTS REF: Section 8.3, Page 65

There were 729 comments relating to this CFA



Response Type

Letter/email, 1 page with no standard text	231
Letter/email, 1 page with some standard text	26
Letter/email, 11-50 pages inc. with no standard text	14
Letter/email, 11-50 pages inc. with some standard text	6
Letter/email, 2-5 pages inc. with no standard text	208
Letter/email, 2-5 pages inc. with some standard text	111
Letter/email, 6-10 pages inc. with no standard text	41
Letter/email, 6-10 pages inc. with some standard text	13
Letter/email, over 50 pages with no standard text	8
Postcard with no standard text	4
Postcard with some standard text	3
Standard ES Public Response Form	64

Figure 2-6: CFA3 – Response Type

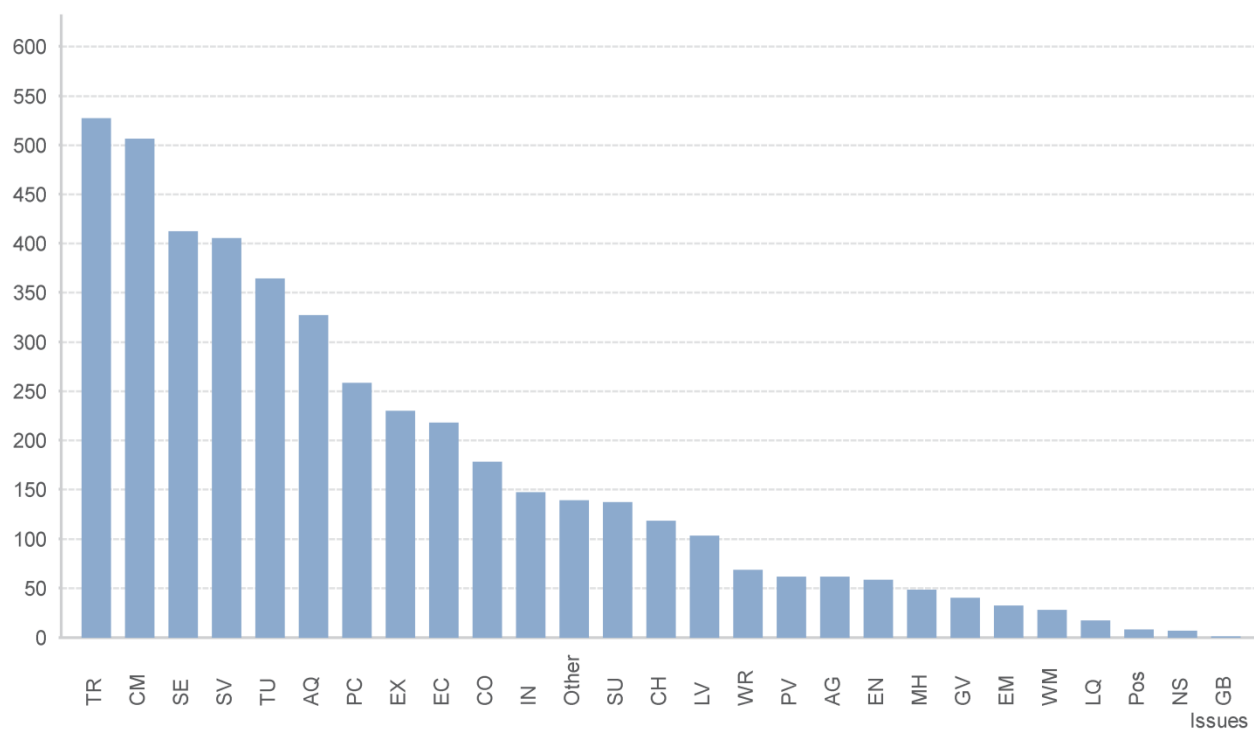


Figure 2-7: CFA3 - Environmental Issues



SUMMARY REPORT

The HS2 route will be in a tunnel throughout this CFA. However there will be two ventilation shafts and construction compounds (for wider route construction) located within the CFA. Activities associated with the construction and operation of these facilities form the majority of the highly ranked issues within this CFA. As this is a residential and urban area, respondents are particularly concerned about construction impacts, the duration of construction activity and the upheaval and disruption this is likely to cause in their area including for local business and economic activity.

Concern is expressed about the potential impacts the tunnelling could have on property, foundations, vibration and disturbance. The proposed ventilation shafts are a constant element of concern particularly for impacts on the Adelaide Road Nature Reserve which is seen as an important local amenity, for residents of surrounding CFAs as well as CFA 3.

Respondents claim that cumulative impacts have not been adequately addressed and in common with residents of surrounding CFAs are not convinced that preliminary surveys have been sufficient for planning and decision making. Inadequate mitigation is a common theme, the loss of community amenity and concern that the ES has not fully addressed the detailed implications of construction activity in the CFA.



SUMMARY REPORT

2.2.4 CFA 4 – Kilburn (Brent) to Old Oak Common

ES NTS REF: Section 8.4, Page 69

There were 275 comments relating to this CFA

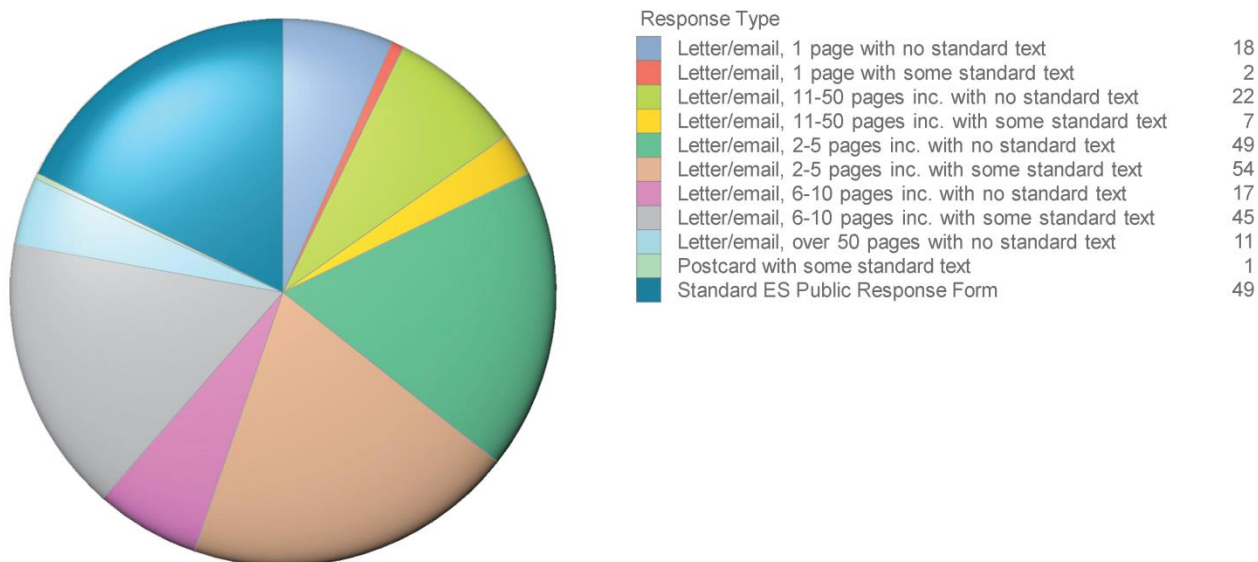


Figure 2-8: CFA4 - Response Type

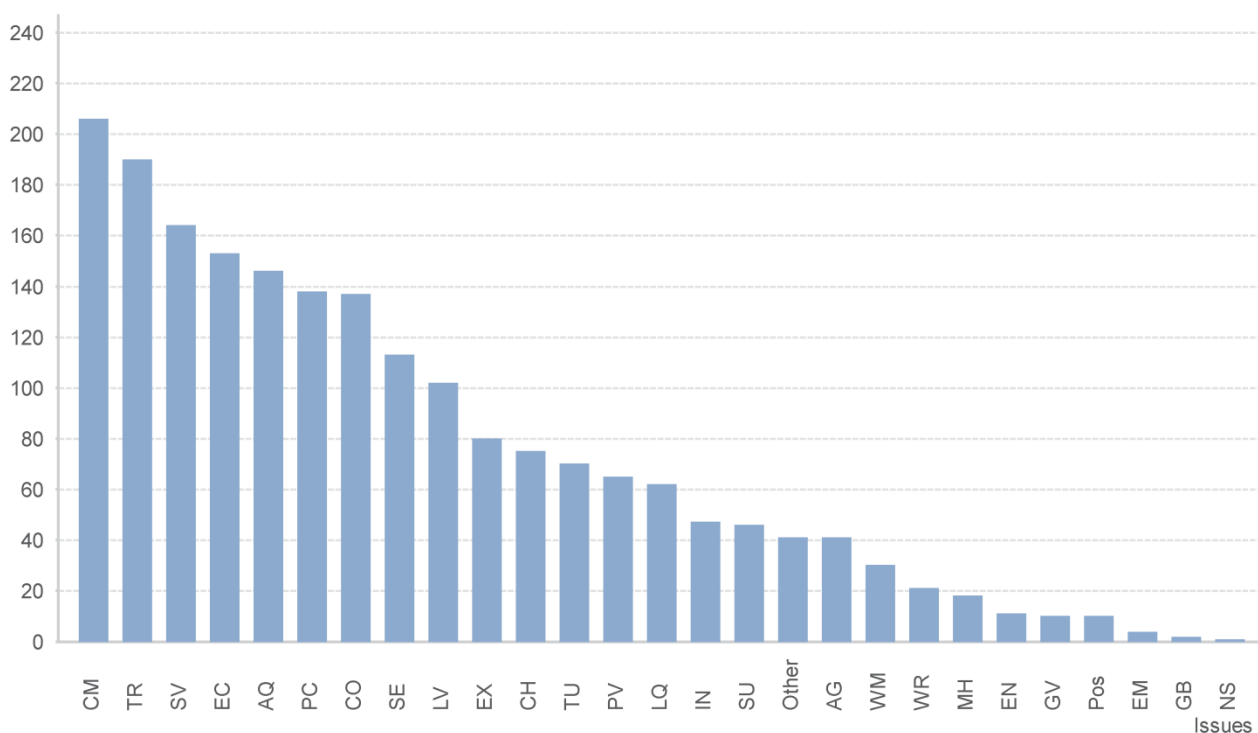


Figure 2-9: CFA4 - Environmental Issues



SUMMARY REPORT

As a primarily residential area, the highest ranked concern in CFA 4 is the Community impacts, with a particular focus on construction impacts, disruption, upheaval and loss of amenity. Concern about the long term impacts from construction activities include pollution, air quality and disruption of access to local transport routes and the impact on local infrastructure. A common theme from respondents is the feeling that the ES has a lack of detail on specific impacts, mitigation measures and management plans to deal with these issues.

Cumulative impacts, particularly on existing traffic and transport are seen as a key issue which respondents feel has not been fully addressed in the ES. CFA 4 already has a substantial amount of rail infrastructure and a number of respondents, including those with a direct interest in this aspect, are concerned about the proposals which could impact existing operations,

Ecology is the third ranked issue for this CFA. This is in response to proposed plans to create a compensatory wetland area on Wormwood Scrubs. Respondents are unclear on the reasoning for the creation of this area and concerned that long term commitment to maintain the wetland will not continue. In addition, the respondents are concerned that the proposed area will negatively impact on existing community amenity of Wormwood Scrubs in its present form and use.

Compensation as currently offered is a key concern, focused on individual instances and situations, with many worried that there are insufficient guarantees for residents and unclear about how the situation will proceed. Business is also concerned about this issue and about impacts that could affect the commercial viability of existing operations. Blight from the construction disturbance is a key concern.

Many respondents comment that there has not been enough public liaison with HS2 concerning potential impacts and addressing local issues and concerns.

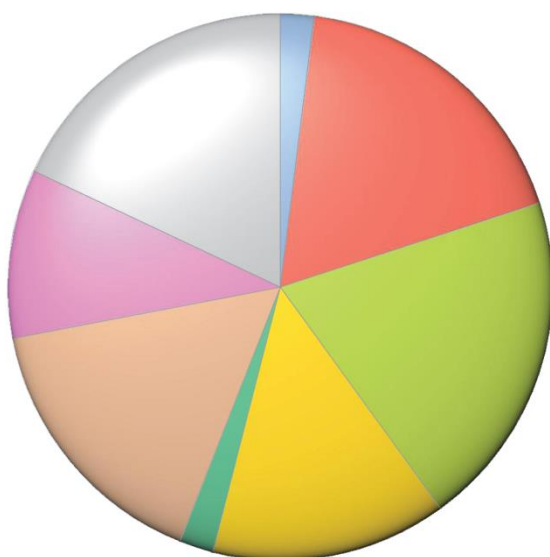
The route in CFA 4 includes substantial tunnel sections, and the proposed ventilation shafts in Queens Park and Brent are a concern for respondents in these areas, particularly for visual impact and the associated operational facilities.



2.2.5 CFA 5 – Northolt Corridor

ES NTS REF: Section 8.5, Page 74

There were 50 comments relating to this CFA



Response Type

Letter/email, 1 page with no standard text	1
Letter/email, 11-50 pages inc. with no standard text	9
Letter/email, 2-5 pages inc. with no standard text	10
Letter/email, 6-10 pages inc. with no standard text	7
Letter/email, 6-10 pages inc. with some standard text	1
Letter/email, over 50 pages with no standard text	8
Postcard with some standard text	5
Standard ES Public Response Form	9

Figure 2-10: CFA5 - Response Type

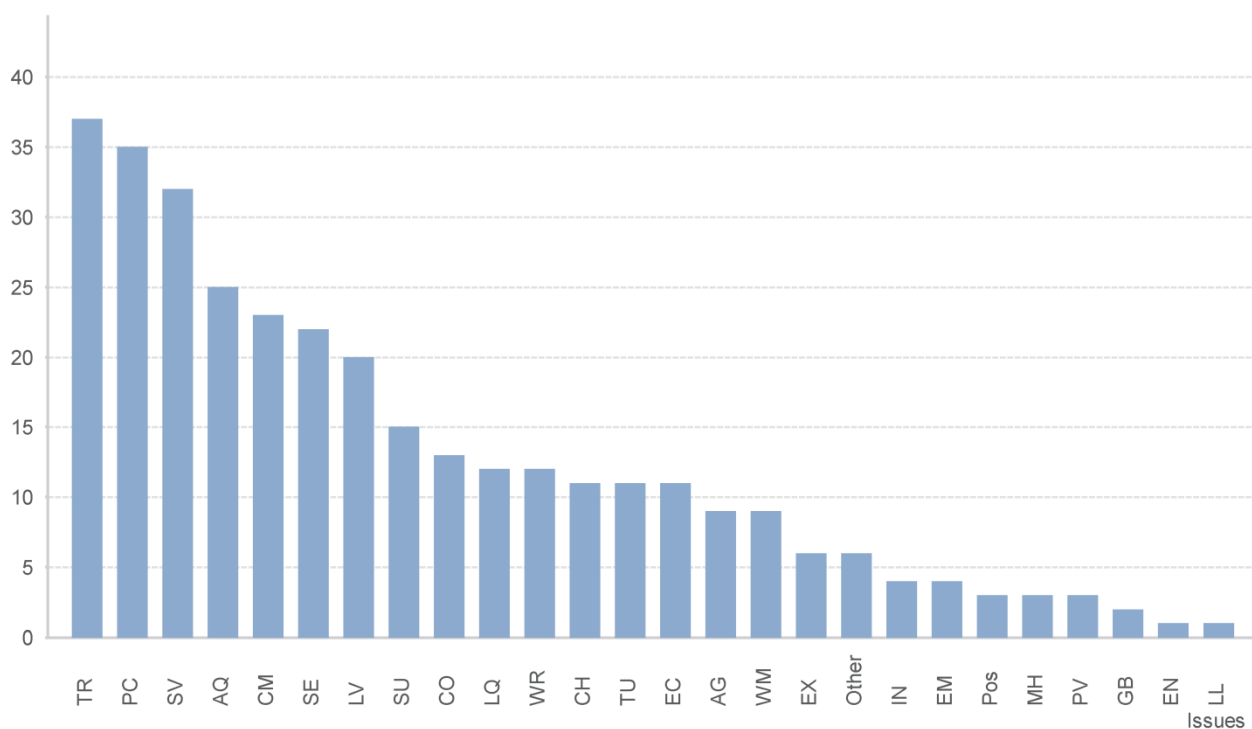


Figure 2-11: CFA5 - Environmental Issues



SUMMARY REPORT

The HS2 route will be running in a tunnel throughout this CFA. This may have influenced the smaller volume of responses received concerned with this CFA compared to neighbouring CFA's. Those that have been received are mainly from commercial operations who are concerned with potential disruptive activity to their premises from construction and works sites associated with the proposed three tunnel ventilation shafts within this CFA. This includes potential property blight, noise and vibration from construction and tunnel usage and protection of existing cables. The majority of respondents would like to see an increase in communication and liaison with HS2 over the construction proposals.



SUMMARY REPORT

2.2.6 CFA 6 – South Ruislip to Ickenham

ES NTS REF: Section 8.6, Page 76

There were 2,617 comments relating to this CFA

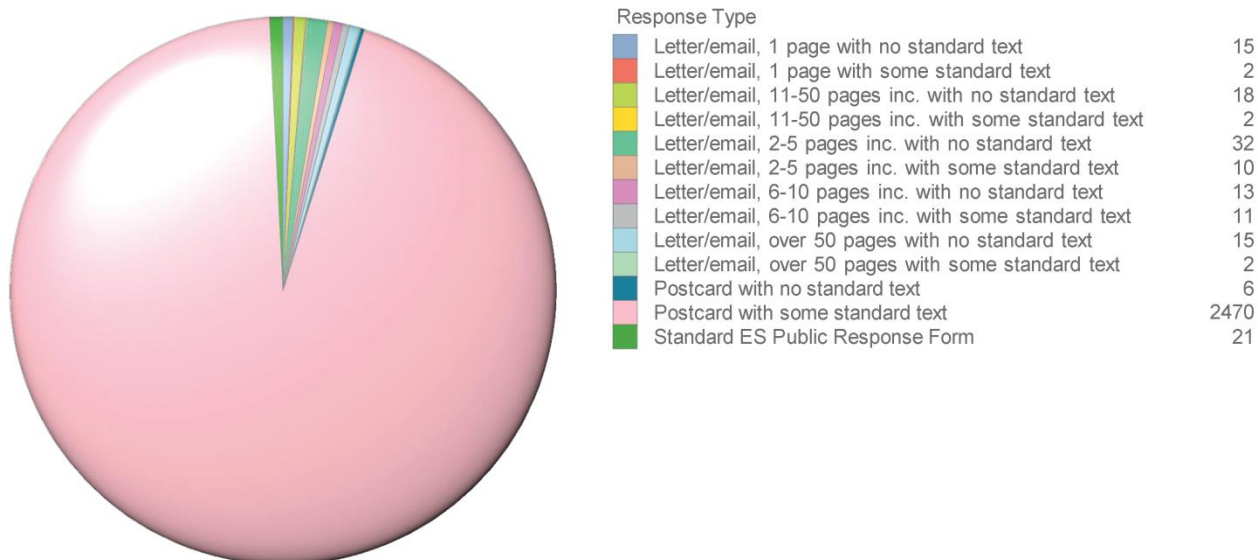


Figure 2-12: CFA6 - Response Type

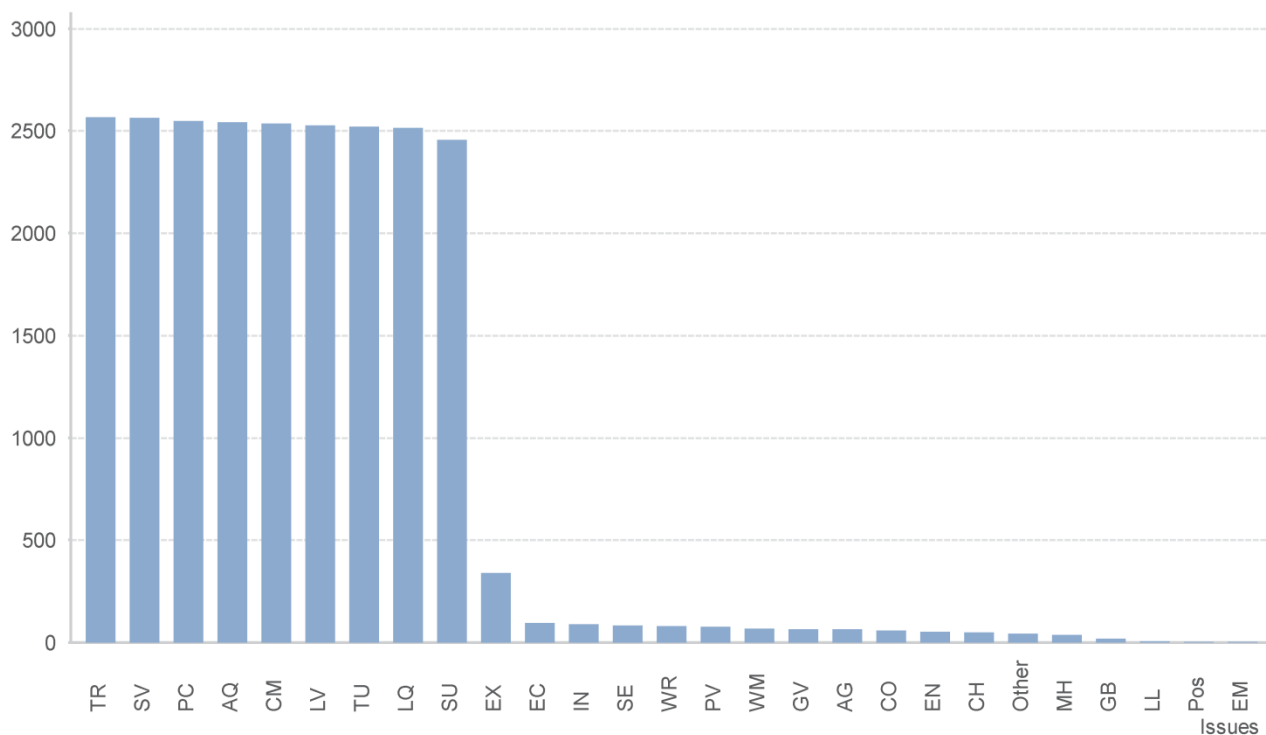


Figure 2-13: CFA6 - Environmental Issues



SUMMARY REPORT

The majority of responses received for this CFA are campaign postcards that focus on Ickenham and Ruislip and also Harefield which is in CFA 7. Other submissions which are not postcards follow similar issues, with variation of comments displayed in this CFA generally coming from respondent additions to the base postcards. This CFA is the fourth highest ranking CFA by volume of response.

Concerns and comments are therefore concentrated on the western area of this CFA where the line runs through countryside and across a 3.4 km long viaduct near Harefield (CFA 7). The campaign highlights a number of concerns including the impact of the route on the general amenity for residents, impacts on local leisure facilities and footpaths and the impacts of the viaduct (referred to as either the Harefield or Colne Valley viaduct), including both the construction impacts as well as ongoing noise impacts during operation. Some responses are concerned that the level of detail presented in the ES is not adequate particularly stating that the height and extent of proposed noise barriers on the viaduct is unclear.

Construction impacts, particularly resulting from construction traffic creating noise and air quality effects are seen as a significant issue along with a concern about the placement and extent of 'materials', referred to also as 'waste' on the postcards and referring to the storage and re-use of excavated spoil from the tunnelling works and London to the east. There is also concern that contaminated materials will be treated and stored in a particular location near Breakspear Road South.

Impacts on current local traffic flows are anticipated to be severe with congestion anticipated.

The campaign also raises concerns over the public consultation process, with the time given for assimilating the necessary ES information as being insufficient. The campaign also claims that some of the data used to inform the ES is out of date, for example it indicates that traffic analysis data is out of date, and there is more recent data available.



SUMMARY REPORT

2.2.7 CFA 7 – Colne Valley

ES NTS REF: Section 8.7, Page 79

There were 2,697 comments relating to this CFA

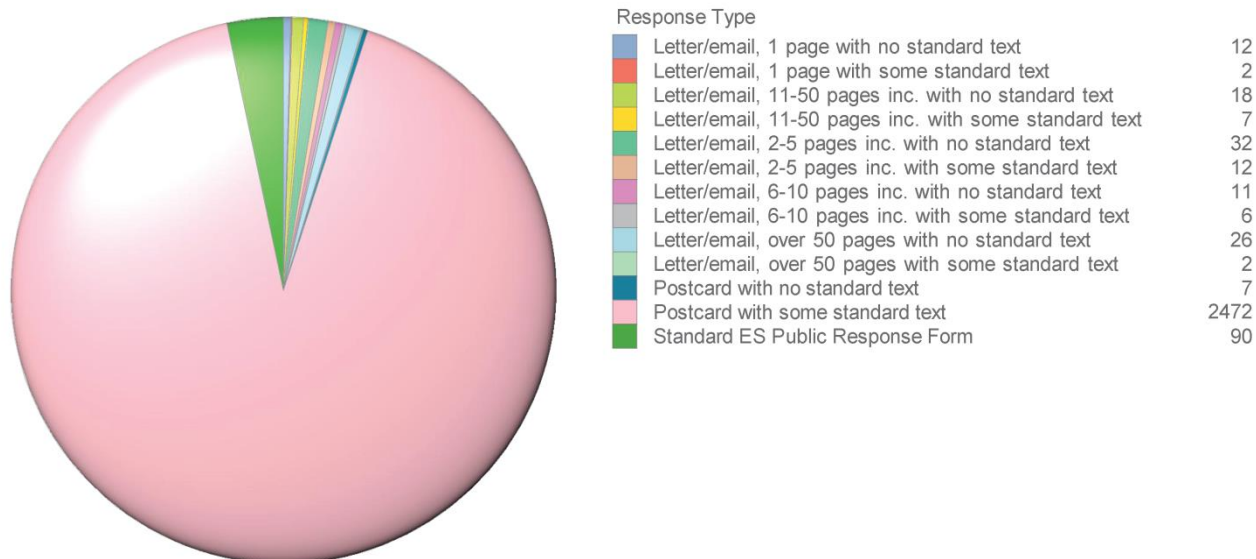


Figure 2-14: CFA7 - Response Type

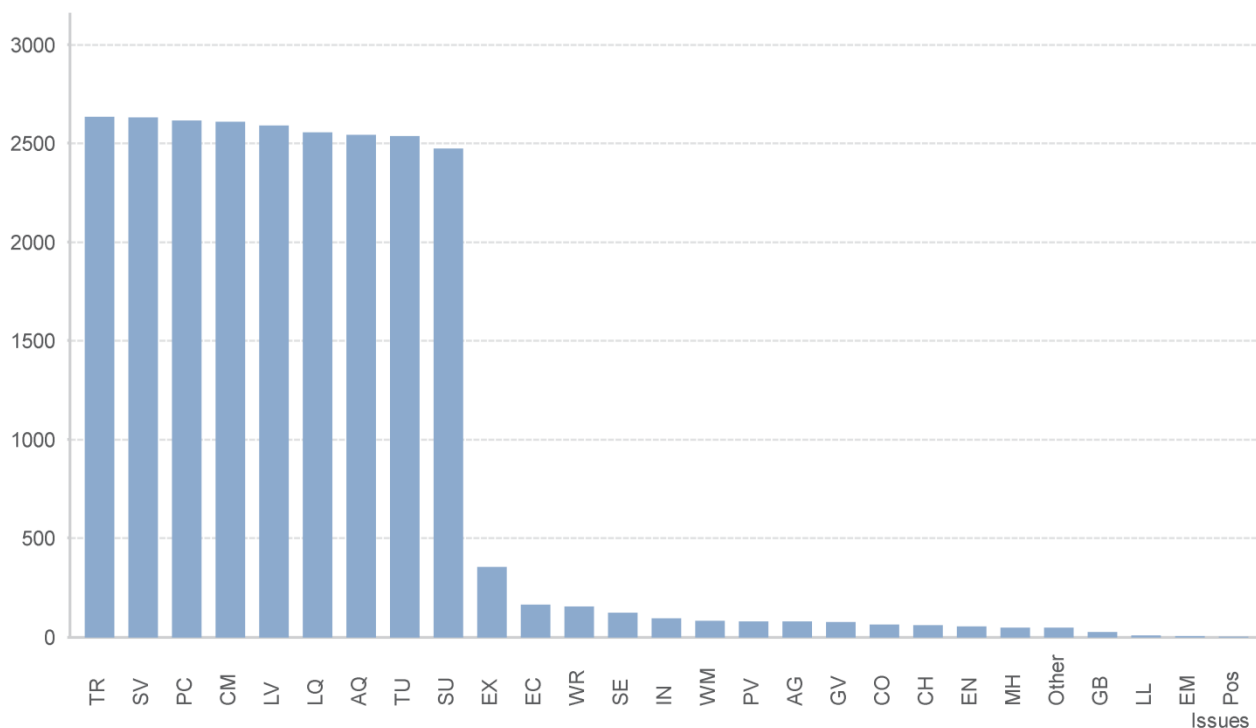


Figure 2-15: CFA7 - Environmental Issues



SUMMARY REPORT

The majority of responses received for this CFA are campaign postcards (as discussed in CFA 6 above). Other submissions follow similar issues, suggesting that they are aware of the campaign with variation of comments displayed in this CFA generally coming from respondents' additions to the base postcard.

The campaign highlights a number of concerns including the impact of the route on the general amenity for residents, including impacts on local leisure facilities and footpaths and the impacts of the Colne Valley viaduct, including both the construction impacts as well as ongoing noise impacts during operation. Some responses are concerned that the level of detail presented in the ES is not adequate, particularly stating that the height and extent of proposed noise barriers on the viaduct is unclear.

Construction impacts, particularly resulting from construction traffic creating noise and affecting air quality, is seen as a significant issue along with a concern about the placement and extent of 'materials', referred to also as 'waste' referring to the storage and re-use of excavated spoil from the tunnelling works and London to the East.

Impacts on current local traffic flows are anticipated to be severe with congestion anticipated.

Concerns are also raised over the public consultation process, with the time given for assimilating the necessary ES information as being insufficient. Respondents claim that some of the data used to inform the ES is out of date, for example it indicates that traffic analysis data is out of date, and there is more recent data available. Other respondents also claim a lack of consultation has occurred.

CFA 7 is in Metropolitan Greenbelt and concerns are expressed about the potential impacts on the areas of 'tranquillity' and landscape with a key concern being that 'the character of the area will be lost forever'. Some respondents have expressed concern about misleading photomontages where old trees re-appear in the reconstructed landscapes.

A key feature of this CFA is the landscape of the River Colne and associated water features, essentially a series of lakes which are used for fishing, leisure and community amenity. Concerns about potential impacts on water quality from the viaduct construction are raised as well as longer term water level impacts, access to lake areas and potential flooding risks downstream from the route infrastructure as it crosses the Colne Valley.



SUMMARY REPORT

2.2.8 CFA 8 – The Chalfonts and Amersham

ES NTS REF: Section 8.8, Page 83

There were 155 comments relating to this CFA

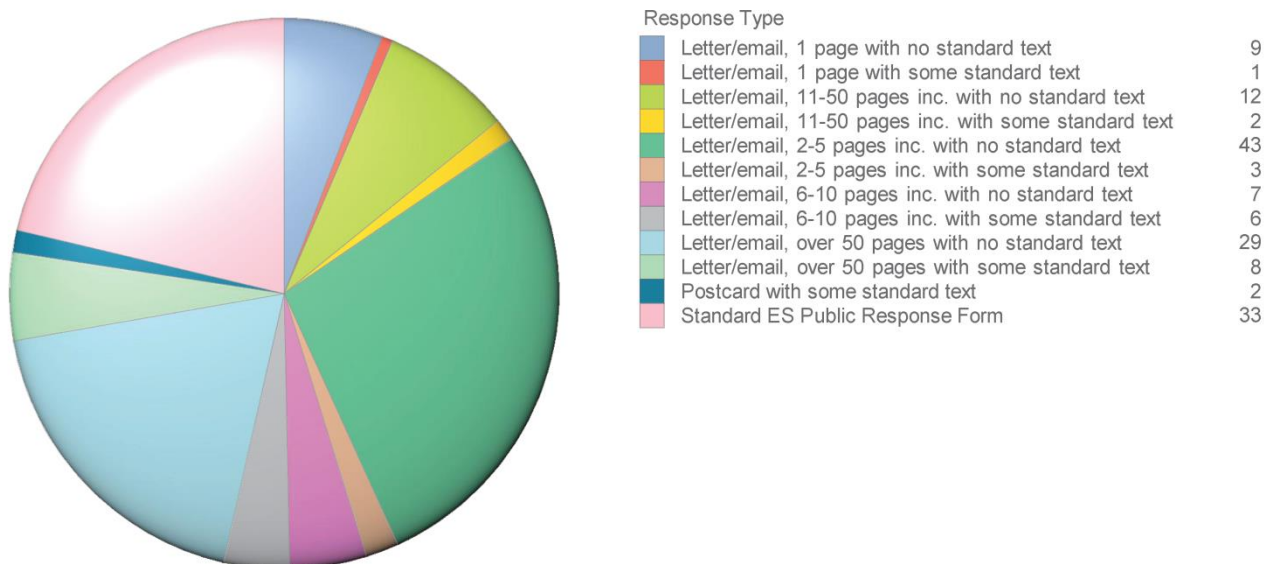


Figure 2-16: CFA8 - Response Types

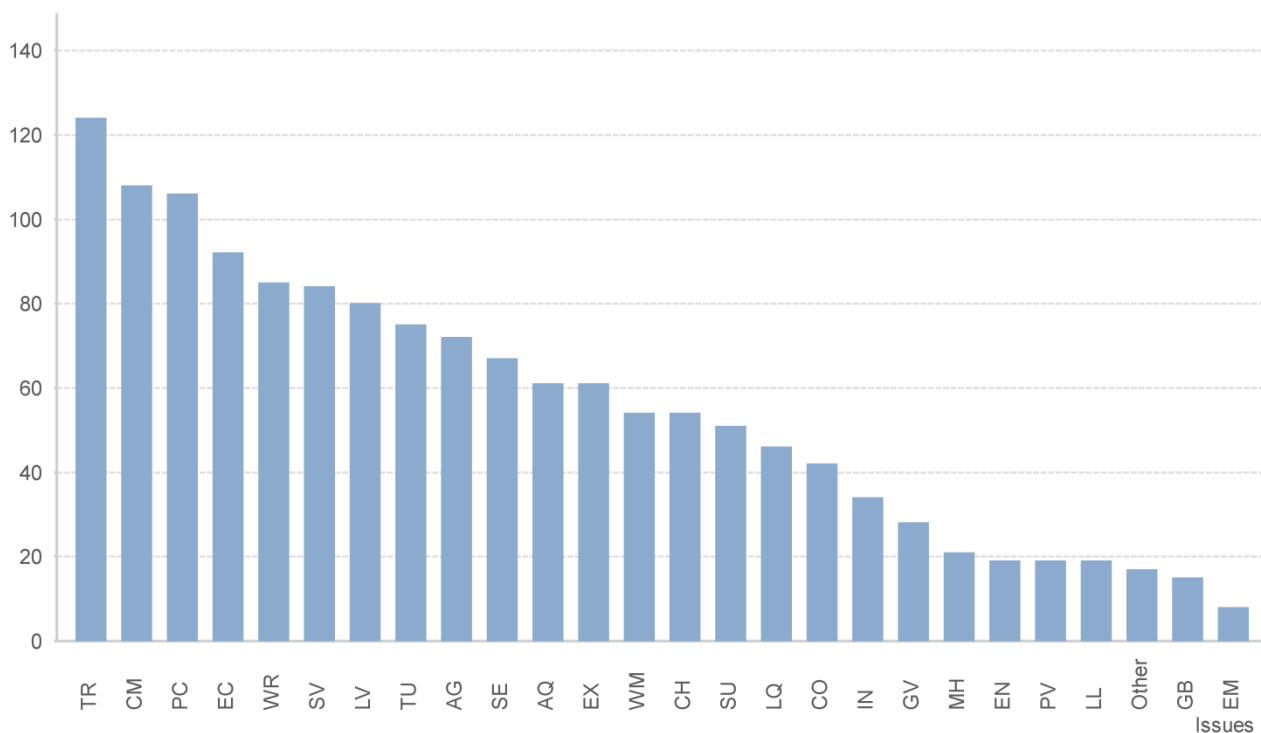


Figure 2-17: CFA8 - Environmental Issues



SUMMARY REPORT

The route infrastructure of HS2 runs through this area in a 13.5 km tunnel known as the Chiltern Tunnel. Respondent concerns for this CFA particularly focus on the potential impacts and disruption from construction activities in relation to the tunnel, with traffic issues from heavy construction plant forming the highest ranked concern for responses in this CFA. Respondents from the villages of Chalfont St Giles and Chalfont St Peter are concerned about traffic impacts on their communities and are concerned that there do not seem to be effective mitigation measures being considered to ease this issue.

There are also concerns that these traffic impacts will disrupt and impact businesses and economic activity in Amersham and that the increased construction traffic and its nature will negatively impact the current amenity the community enjoys in this area.

The Tunnel will require 3 ventilation shafts as it crosses through this CFA. All three shafts, the Chalfont St Peter Vent Shaft, Chalfont St Giles Vent Shaft and Amersham Vent Shaft are mentioned in terms of potential construction traffic impacts, visual impact and community disruption. The long time frames being proposed for construction and its attendant disruption are a source of frustration for many respondents.

The third ranked issue in this CFA expresses concerns about the short length of time that the ES was available to respondents for consideration. This is combined with a general feeling that the ES lacks detail and accuracy in assumptions in many key areas of relevance to this CFA.

Another key issue raised in this CFA is water resources. Concern is expressed about the possible impacts of the tunnel under the River Misbourne, the Chilterns Chalk Aquifer and Shardloe Lake, an area of community amenity. Respondents are worried that the tunnel will be too shallow in this area and will permanently damage these hydrological assets. They are not convinced that the level of detail expressed in the ES gives them confidence that the protection of this resource will be assured.



SUMMARY REPORT

2.2.9 CFA 9 – Central Chilterns

ES NTS REF: Section 8.9, Page 86

There were 248 comments relating to this CFA

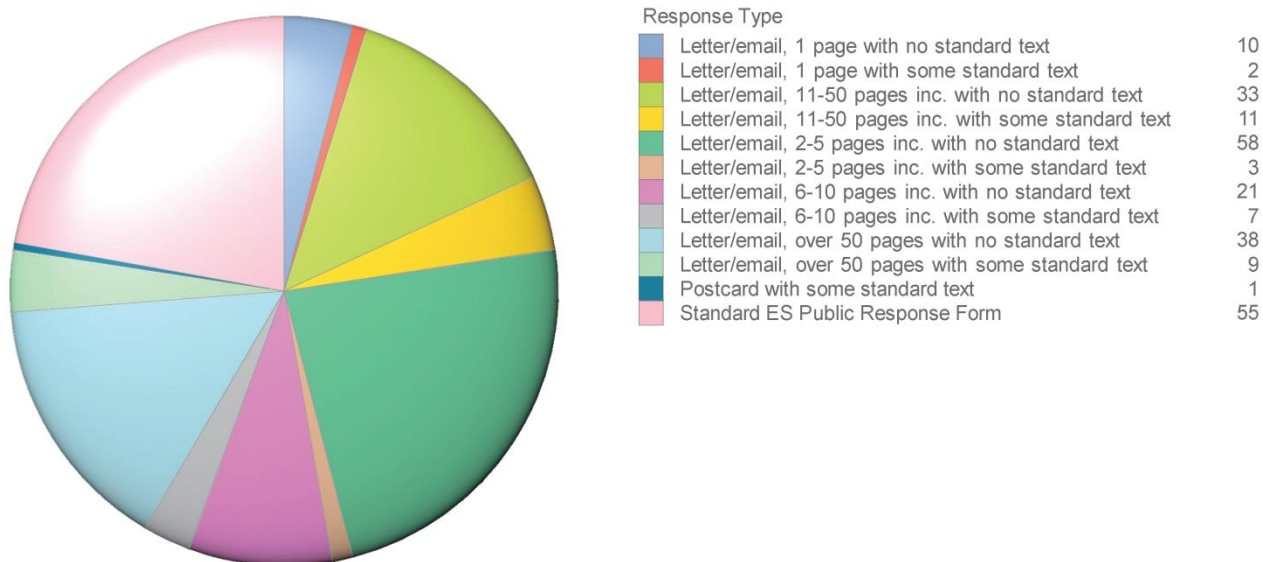


Figure 2-18: CFA9 - Response Type

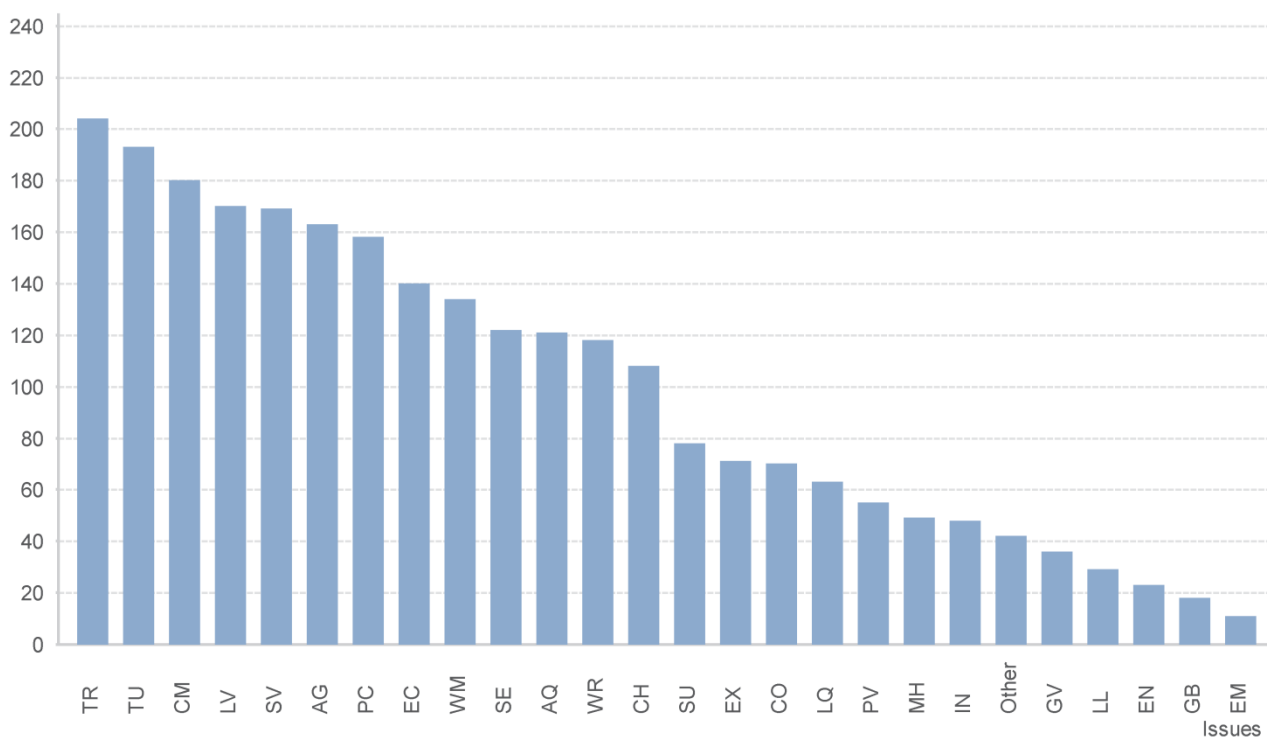


Figure 2-19: CFA9 - Environmental Issues



SUMMARY REPORT

CFA 9 is in the heart of the Chilterns Area of Outstanding Natural Beauty (AONB) and the responses received from this CFA are extremely concerned about a number of potential impacts on this area. A large number of responses call for the extension of the proposed tunnel through the area, thus supporting the tunnel for the Chilterns campaign included in the geographical section 'Chilterns' of this Report. The highest ranking issue of importance for this CFA is Traffic and Transport, concerning the likely impacts of construction traffic and its associated environmental impacts on air quality, noise and potential disruption.

The impacts of construction on the local communities in the area are of great concern, with the quality of life and amenity for the communities of Little Missenden, South Heath and Potter Row in particular, especially for the planned duration of disruption across these communities. The likely negative impact on tourism in the area and the knock-on effect on the local economy and businesses is also a key concern for these communities. The community amenity of footpaths and ancient bridleways including well known routes (e.g. Icknield Way, Chilterns Way, Ridgeway) being subject to potential disruption and alteration is another concern.

With a mixture of tunnels and surface infrastructure for the route in this CFA, landscape and visual impacts (fourth highest ranked issue) on the AONB landscape are a key concern. Respondents query the application of a number of national legislation instruments designed to protect AONB areas from development, such as the Countryside and Rights of Way (CROW) Act and National Planning Policy Framework (NPPF), and many respondents remain convinced that the ES documentation is an 'Engineering led document, not an Environmental document'.

The proposed impact on historic landscapes, woodlands, hedgerows and heritage structures in this CFA is another key concern. Respondents are not convinced that the ES has enough ecological survey detail to support the projects proposals for this area and that ecological damage is likely not just from development but also from fencing along the route creating ecological fragmentation for local fauna.

A common theme is that the respondents do not feel they had enough time to fully understand or navigate the documents making up the ES with concern that preservation and conservation for the AONB has not been fully addressed.



SUMMARY REPORT

2.2.10 CFA 10 – Dunsmore, Wendover and Halton

ES NTS REF: Section 8.10, Page 90

There were 216 comments relating to this CFA

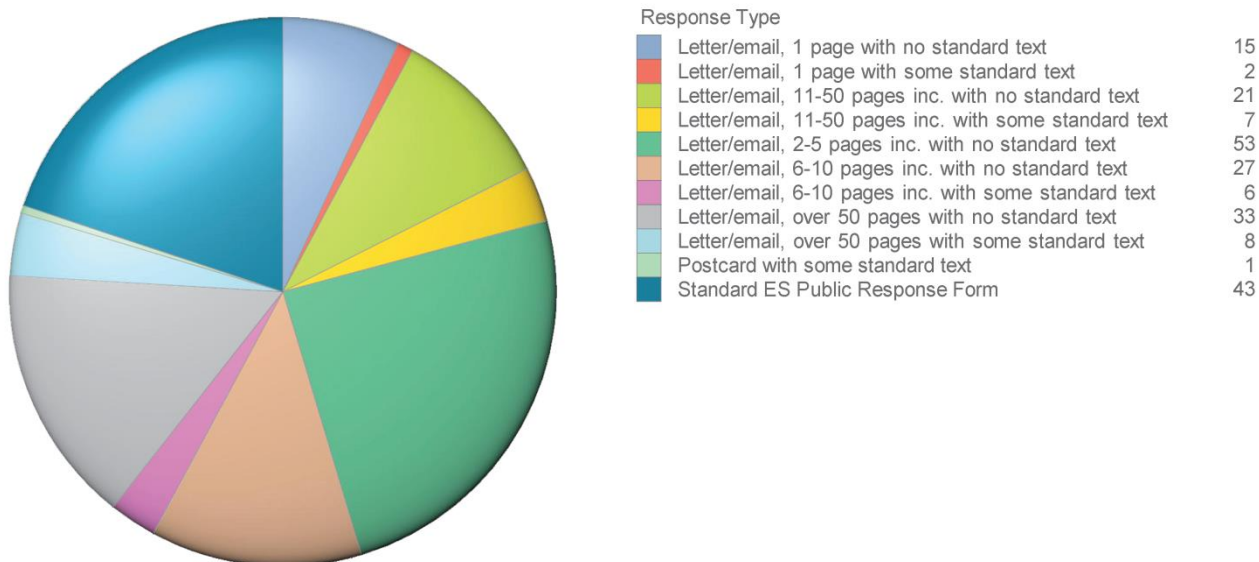


Figure 2-20: CFA10 - Response Type

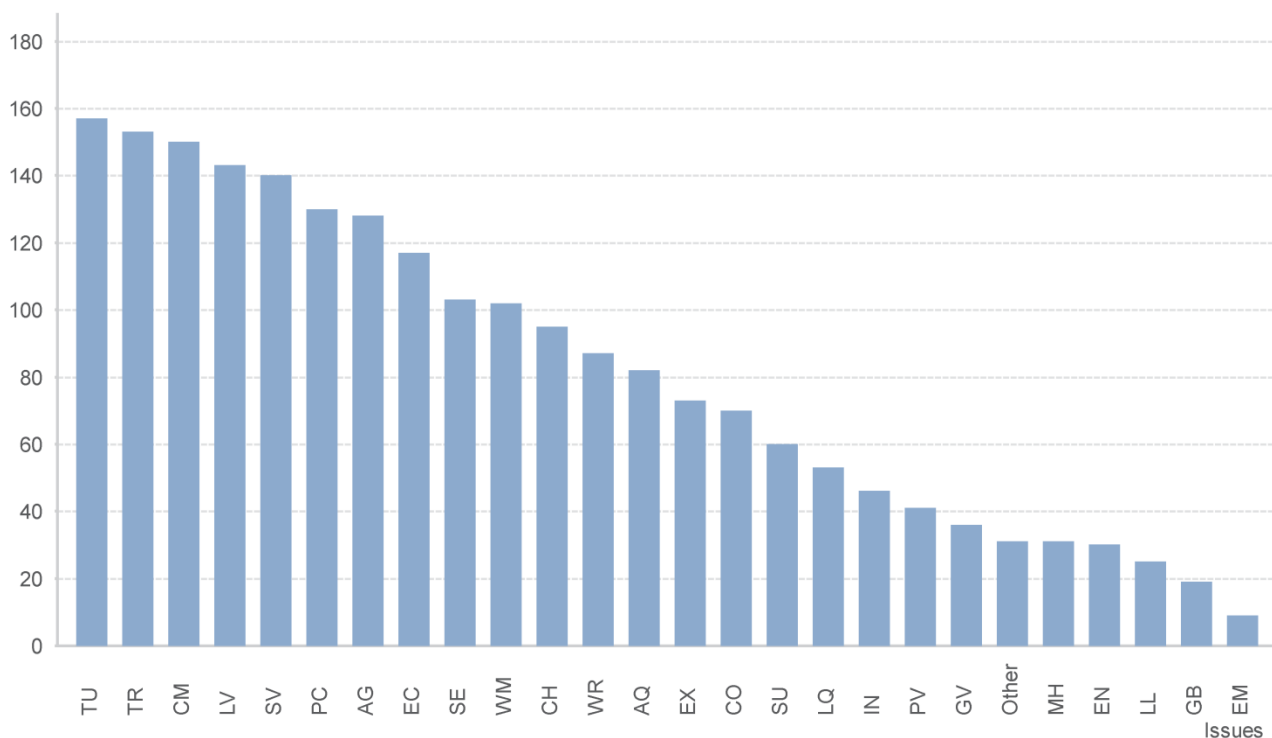


Figure 2-21: CFA10 - Environmental Issues



CFA 10 is within the Chilterns Area of Outstanding Natural Beauty (AONB) and the potential impact of the HS2 route on the area is a key concern. Many respondents feel that the ES for this CFA is 'reliant on optimistic assumptions and desk research' and that the 'significance of the impacts on the AONB have been understated'. Many respondents also feel that considerable further survey work is required in a variety of environmental areas (woodlands, hedgerows, flora and fauna) before discussions of realistic impacts and mitigation options.

The highest ranked issue in this CFA is the desire to tunnel under the complete AONB, thus avoiding many of the potential impacts on the area.

Construction disruption and impacts on traffic, air quality, dust and noise is the second ranked issue with concerns about loss of community amenity, connectivity, upheaval and nuisance from all the communities who have submitted material. Wendover, Dunsmore and Halton are all concerned about these immediate impacts and long term nature of the potential disruption. Chalk based dust from construction spoil is seen as a likely key nuisance during the construction period. A key concern is the effectiveness and policing of the proposed Code of Construction Practice (COCP), with many respondents requiring assurances that the monitoring of the COCP will be handled by an independent body of great integrity.

Landscape and visual effects rank highly in this CFA as the line in this section of the AONB is substantially on the surface including features such as cuttings and 2 viaducts, only using a section of tunnel in the proximity of Wendover. Impacts on views from hills and surrounding areas and concerns about significant loss of landscape character were a common theme in responses. The viaducts at Wendover Dean and Small Dean are frequently mentioned with requests that the structures should at least be designed to minimise blighting the landscape.

The statements in the ES concerning 'Sustainable Placement' of spoil are looked on with scepticism by many respondents concerning the use of 'sustainable' in this context. The proposed spoil placement site near Hunts Green is considered unacceptable in the AONB.

Many submissions concern the potential impacts on the rural, agricultural and farming community in this CFA. Potential negative economic impacts include putting pressure on the viability of local business and farming sectors.

Many respondents cite the timescale for public responses to the ES, and the accessibility of the ES documentation as inadequate.



2.2.11 CFA 11 – Stoke Mandeville and Aylesbury

ES NTS REF: Section 8.11, Page 94

There were 214 comments relating to this CFA

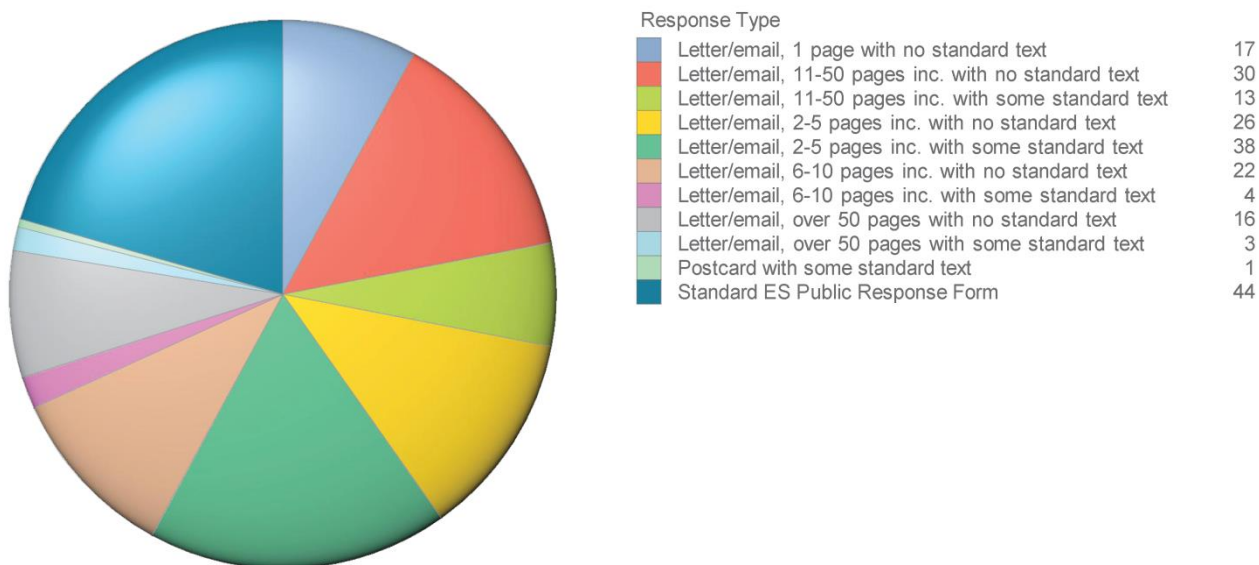


Figure 2-22: CFA11 - Response Type

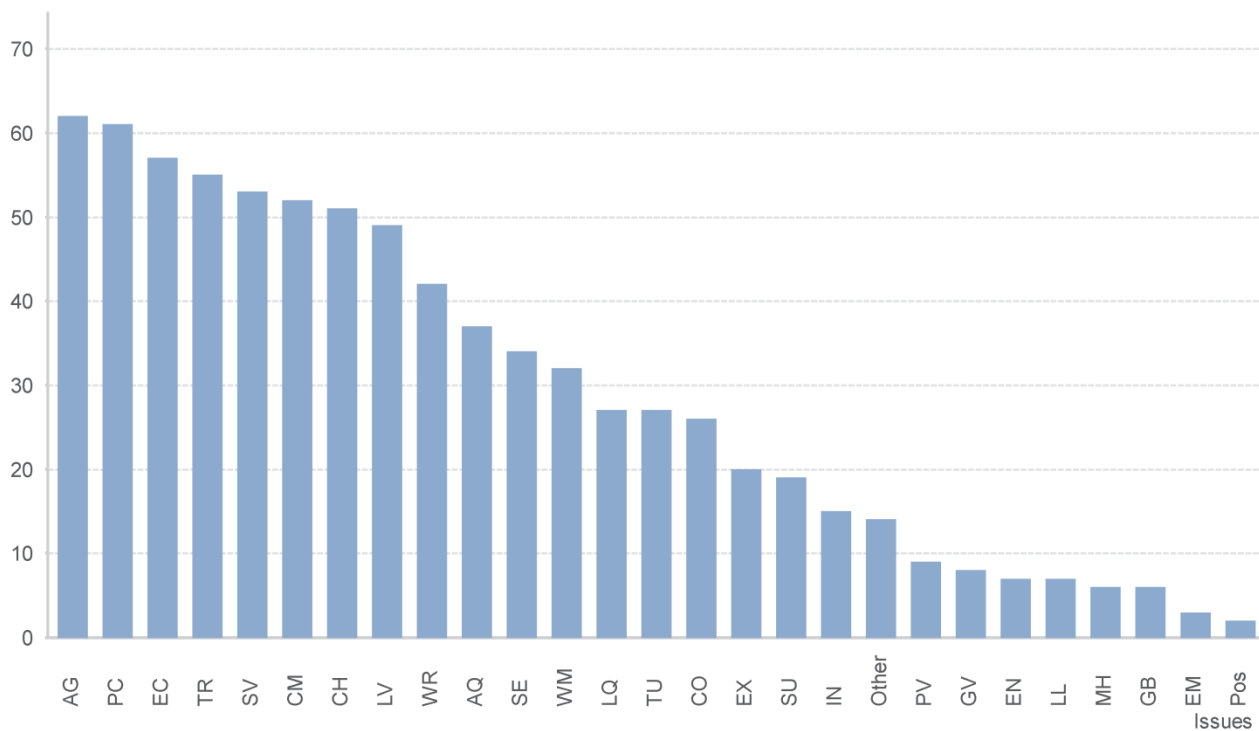


Figure 2-23: CFA11 - Environmental Issues



SUMMARY REPORT

Respondents in this CFA express deep concern over the public consultation process as conducted to date, along with construction traffic and disruption and noise issues from construction and route operation. These three issues are almost equally ranked together as the highest concern by volume of responses.

Disquiet with the consultation process focusses on the time available for respondents to obtain, read and understand the documentation, access to the documents and the timing of the consultation process. Many noted that the consultation period extended over Christmas when many respondents claimed they found it more difficult to access copies of material over a busy personal time and when many public access points were closed. There was also concern that the ES 'raised more questions' than it answered with new proposals and alignments and impact statements. The effectiveness of the public communication activities throughout was also raised.

Construction traffic, and the impacts on main and rural road networks across the area are of great concern including the likely disruption of existing access routes, satellite construction compounds and environmental impacts arising from these activities.

Noise issues ranked highly in this CFA, reflecting residential concern over proposed mitigation designs for the line itself when operational, with many commenting that 'noise mitigation should take priority over visual mitigation' when these mitigations have the potential to be in conflict. However, landscape issues are still of high importance for the respondents of this CFA and the associated potential impacts on existing agricultural activities, wildlife and water resources are of great concern.

Many respondents linked their submissions to agree with alternative proposals to limit the impact of the route in the vicinity of Hartwell House, a Grade I listed structure and grounds. Concern for this particular cultural heritage asset ensured that this issue ranked highly amongst the submissions received. There was also concern that alternative routes suggested by public depositions (also for more westerly alignments elsewhere in this CFA) had not been subject to appropriate discussion, analysis or feedback.

Effective mitigation is a key concern in discussions of the impacts and many respondents expressed their desire that the COCP should be an essential component which requires strengthening to the community's satisfaction.



SUMMARY REPORT

2.2.12 CFA 12 – Waddesdon and Quainton

ES NTS REF: Section 8.12, Page 98

There were 90 comments relating to this CFA

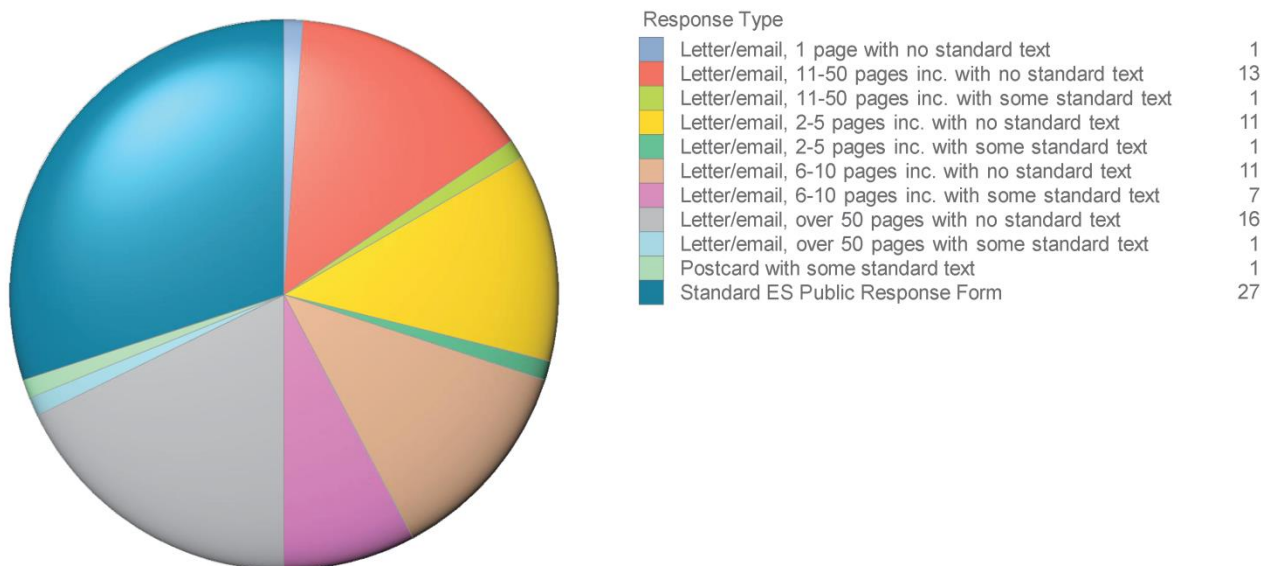


Figure 2-24: CFA12 - Response Type

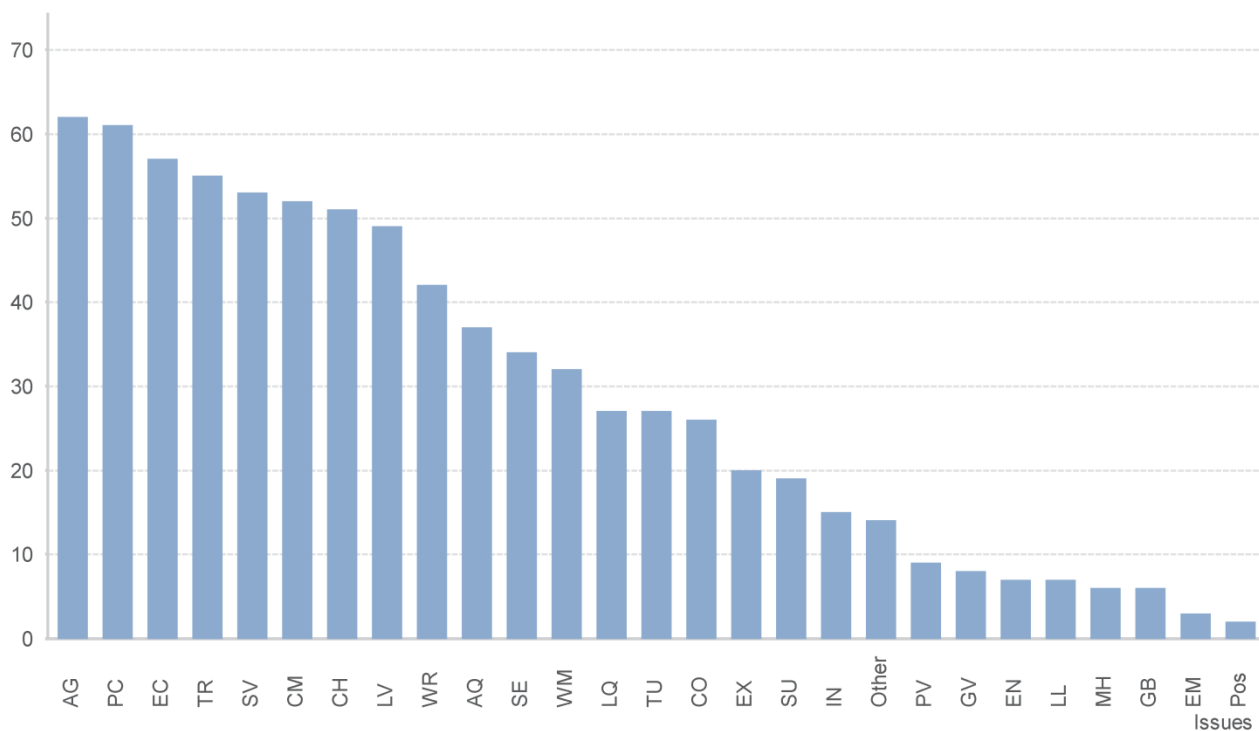


Figure 2-25: CFA12 - Environmental Issues



SUMMARY REPORT

CFA 12 is located in the open landscape of the Vale of Aylesbury. The highest ranked issue in this CFA is the Agriculture, Forestry and Soils category which for this CFA incorporates concerns about impacts on farming, land take of agricultural sites and impacts on access across farm lands.

The second highest ranking is the Public Consultation issue, with respondents concerned over the lack of available time to assess and access the ES documentation and the communication process between local communities and HS2. Concerns over the quality of the ES and the claimed 'rushed nature' of the process are also of concern.

Ecological issues forms the third highest ranking in this CFA particularly focused on comments concerning the methodologies used to survey and assess the route areas and on the proposed impacts on Sheephouse Wood, which, as many respondents point out, is a location known for the rare Bechstein Bat.

Construction traffic, its associated environmental impacts and the likely long term disruption to quality of life and community issues is a concern for all respondents in this CFA along with noise and the effectiveness of proposed noise mitigation solutions for the line when in operation.

This CFA is also the location for two sites of cultural heritage which are consistently mentioned in responses – Waddesdon Manor and Doddershall House. Both are listed properties and form an important component for the local economy in terms of visitors.



SUMMARY REPORT

2.2.13 CFA 13 – Calvert, Steeple Claydon, Twyford and Chetwode

ES NTS REF: Section 8.13, Page 101

There were 215 comments relating to this CFA

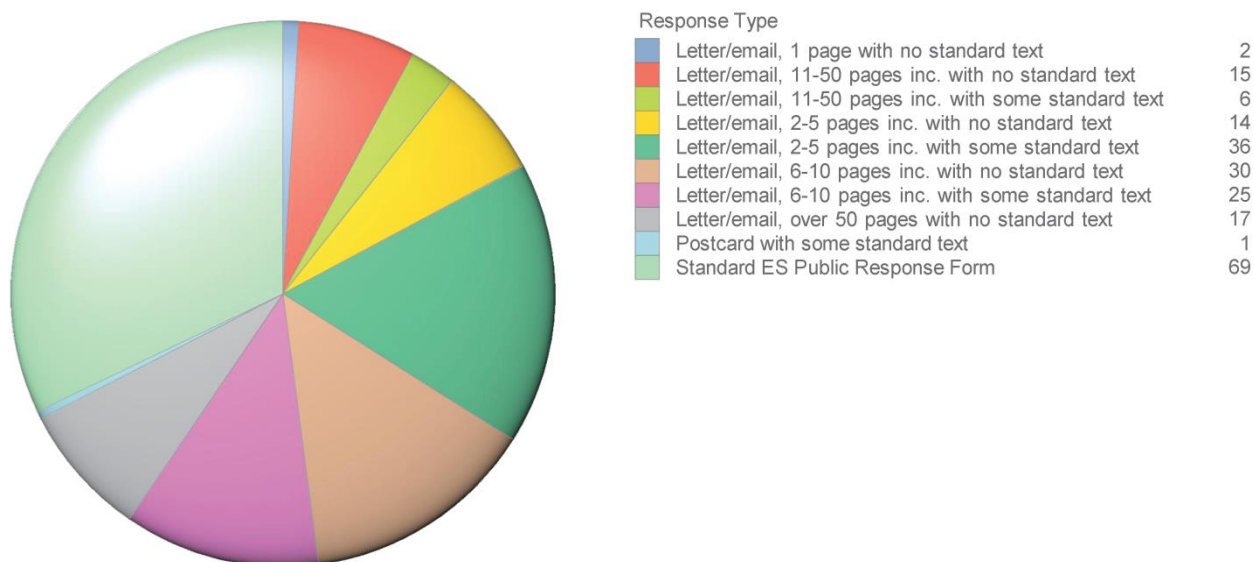


Figure 2-26: CFA13 - Response Type

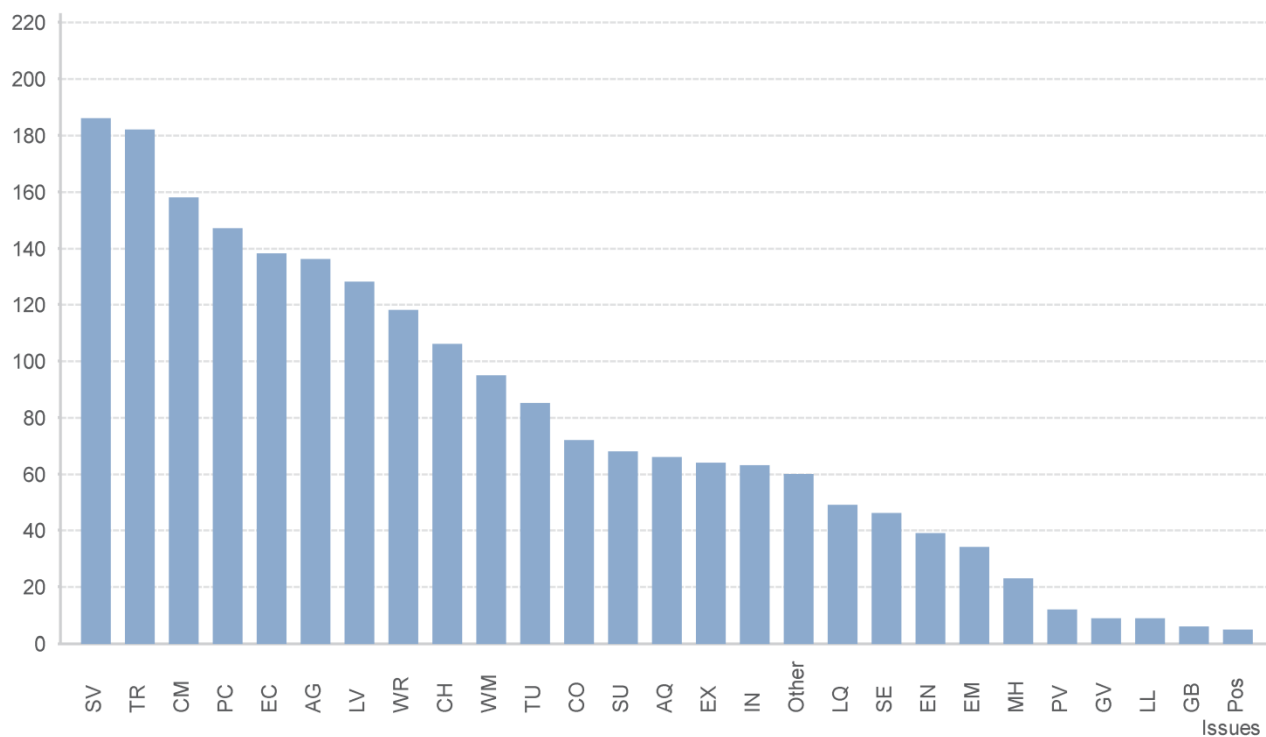


Figure 2-27: CFA13 - Environmental Issues



SUMMARY REPORT

Issues within this CFA are focused around four particular proposed installations and areas. These are the proposed HS2 Infrastructure Maintenance Depot (IMD) and the proposed land take for spoil near Shepherds Farm in between Calvert and Steeple Claydon, and the communities of Twyford and Chetwode. These elements make up the majority of responses received for this CFA.

Although noise features are the highest ranked issue for this CFA, it is really made up of two components: the concerns over likely noise impacts from the IMD near Calvert and line operational impacts on the rural areas of Twyford and Chetwode.

Respondents are concerned over the development plans for the proposed IMD and the relocation of the current FCC Waste operation to increase its impact over the community of Calvert in particular. Residents are also concerned that 24 hour operation will be practised by the IMD, with associated noise and vibration, air quality and light pollution. In addition to this, the relocation of the FCC waste operation closer to the village of Calvert is expected to increase odour issues. Taken together, there is a real concern amongst residents of both communities that they will experience a 'reduction in quality of life' and substantial upheaval in what is currently a quiet rural area.

Respondents are also concerned about the proposed 'Sustainable Placement' area for tunnelling spoil near Shepherds Furze Farm as an additional imposition on their landscape.

Negative impacts on ecology, agricultural enterprises and landscape and visual impacts are frequently raised by respondents. The construction and operation of the route in the vicinity of Twyford and Chetwode is seen as creating long term disruption to the communities and potential noise and visual impacts. The route infrastructure is seen as affecting the setting of the communities and quality of life in a detrimental way.

Many respondents state that they did not have enough time to assess the ES documentation and that accessing the necessary material was difficult in the time available. In addition, many respondents feel aggrieved at inadequate communication and discussion concerning the IMD proposals prior to the release of the ES. Mitigation remains a concern along with the potential of the route infrastructure to adversely influence flooding events.



SUMMARY REPORT

2.2.14 CFA 14 – Newton Purcell to Brackley

ES NTS REF: Section 8.14, Page 105

There were 179 comments relating to this CFA

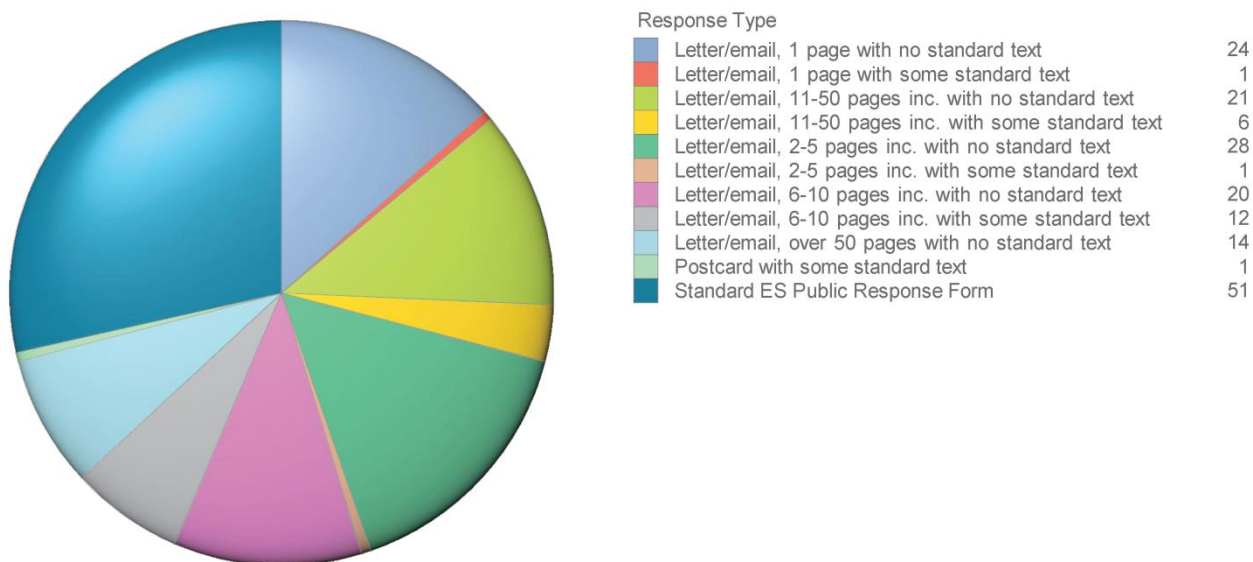


Figure 2-28: CFA14 - Response Type

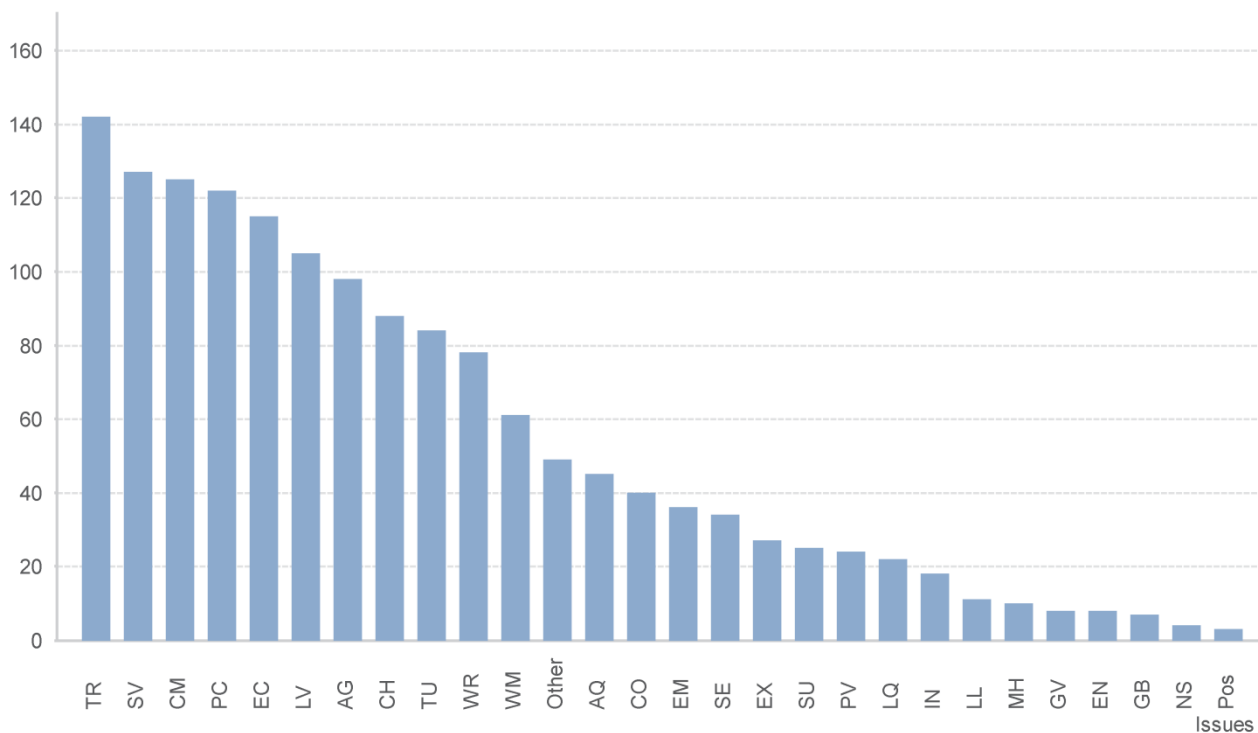


Figure 2-29: CFA14 - Environmental Issues



CFA 14 is a mainly rural area and respondents are focused on the potential impacts that their own communities and parishes within this CFA are likely to face from the proposed HS2 route. The highest ranked issue for this CFA is concerned with the potential disruption and impacts from construction traffic and associated environmental and transportation impacts. This includes access issues and any increases in heavy plant and lorry journeys within the area. This is a frequently expressed concern in this CFA, particularly in relation to cumulative impacts that may arise across the existing 'A' road network, some proposed road re-alignments and construction traffic through villages.

Respondents are also concerned about the construction sites and ancillary areas which may involve noise disruption from plant operation and light pollution.

Noise effects from the operation of the line in combination with construction noise makes noise the second ranked issue of concern in this CFA. Questions are raised about the methodologies and assumptions made by the noise modelling in the ES and the appropriateness and effectiveness of proposed noise mitigation measures suggested.

Loss of amenity for the community is raised frequently by respondents and is the third ranked issue. As a rural area, quality of life is important for residents and potential future blight on lifestyle, landscape and property is a key concern.

Concerns over the consultation process focus on the time available for respondents to obtain, read and understand the documentation, access to the documents and the timing of the consultation process. Many noted that the period extended over Christmas when many respondents claimed they found it more difficult to access copies of material over a busy personal time and when many public access points were closed. There was also concern that the ES 'raised more questions' than it answered with new proposals and alignments and impact statements. The language used in the report was also seen to be non-committal and details were lacking.

Respondents in Radstone were mystified as to why the original alignment had been changed in the ES to a position closer to the village, when the original could potentially avoid most of their current concerns. Turweston respondents claim that power lines are now going to be re-aligned closer to their village creating more unwanted impacts. Turweston cutting also appeared as a key feature in the responses with requests for the original cut and cover tunnel to be re-instated.

Concern for bats and barn owls is highlighted in particular, combined with a view that the ES did not present sufficient baseline data to inform assessment and mitigation. The proposed earthworks storage site near Brackley was also a frequent issue and agriculture enterprises were concerned about potential impacts on their viability, land access and heritage.



2.2.15 CFA 15 – Greatworth to Lower Boddington

ES NTS REF: Section 8.15, Page 108

There were 135 comments relating to this CFA

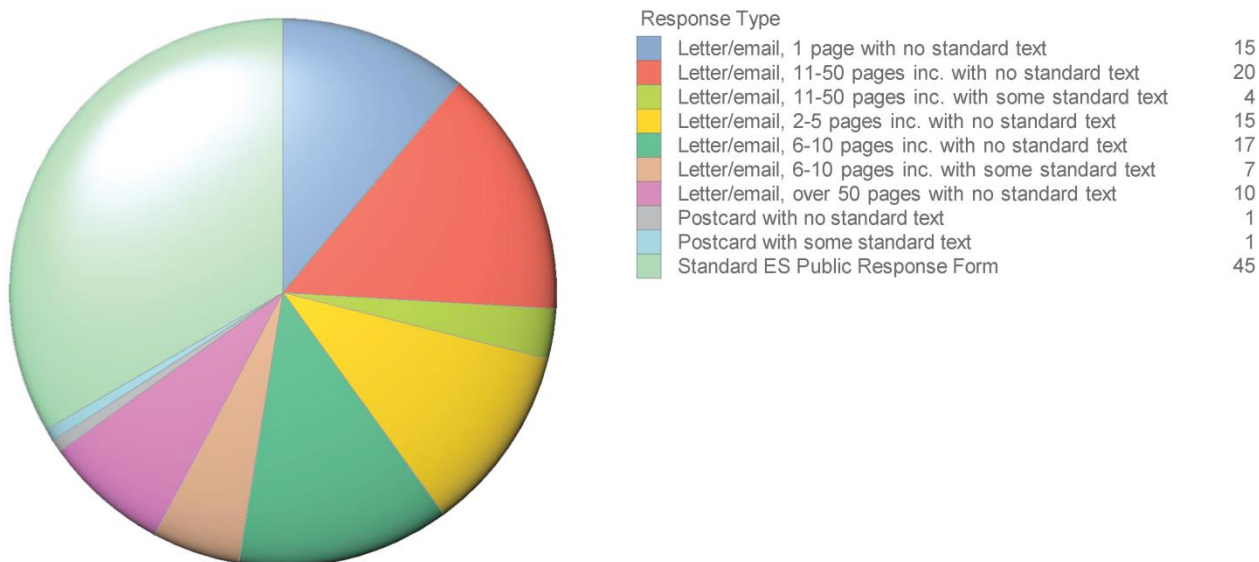


Figure 2-30: CFA15 - Response Type

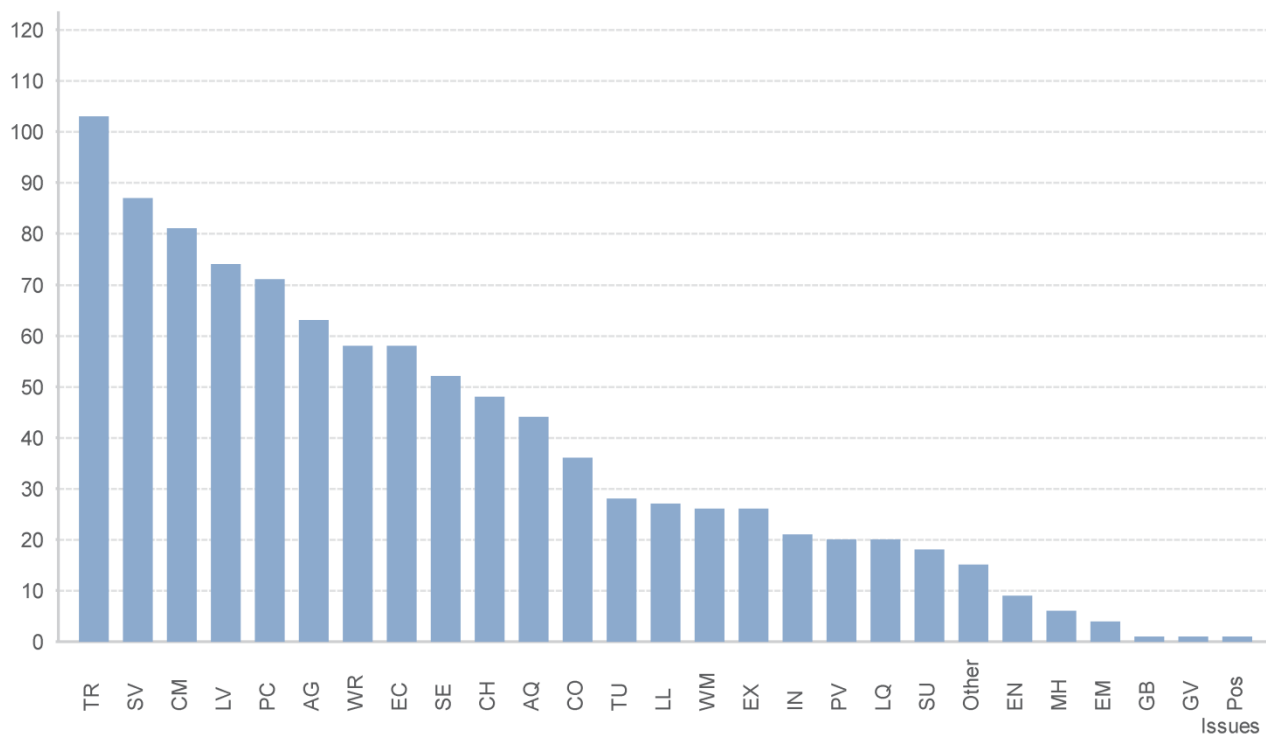


Figure 2-31: CFA15 - Environmental Issues



CFA 15 is a mainly rural area and respondents are focused on the potential impacts that their own communities and parishes within this CFA are likely to face from the proposed HS2 route. The highest ranked issue for this CFA is the potential disruption from construction traffic and associated environmental and transportation impacts. This includes access issues and any increases in heavy plant and lorry journeys within the area. This is a frequently expressed concern across the CFA, particularly in relation to cumulative impacts that may arise across the existing road network, and there is also concern over the suitability of many proposed roads and construction traffic through villages.

Respondents are also concerned about the construction sites and ancillary areas which may involve disruption from noise and light pollution. Difficulty with the management of the two construction camps in the parish of Lower Boddington under the CoCP proposals was a frequently raised issue.

Noise from the operation of the line in combination with construction noise makes noise the second ranked issue of concern in this CFA. Questions are raised about the methodologies and assumptions made by the noise modelling in the ES and the appropriateness and effectiveness of proposed noise mitigation measures.

Loss of amenity for the community is raised frequently by respondents and is the third ranked issue. Quality of life is important for residents in this CFA and potential future blight on lifestyle, landscape and property is a key concern.

Concerns over the consultation process focus on the time available for respondents to access, read and understand the documentation, and on the timing of the consultation process. Many noted that the period extended over Christmas when many respondents claimed they found it more difficult to access copies of material over a busy personal time and when many public access points were closed. There was also concern that the ES 'raised more questions' than it answered, with new proposals and alignments. The language used in the ES was seen to be non-committal. The effectiveness of the public communication activities throughout was also raised.

The CFA has a number of springs and watercourses within it and the potential disturbance to the area's hydrological character has concerned many respondents.

Concern for bats and barn owls was highlighted in particular, combined with the view that the ES did not present sufficient baseline data to inform assessment and mitigation. There was concern by many rural respondents that displacement of existing fauna, especially badgers, could result in an increase in TB in farming livestock. Issues around the proposals for temporary land take were also a key concern, especially since many respondents felt that the phrase 'temporary' was used in a cavalier manner in the ES.

The design for the proposed Greatworth tunnel was raised in many responses as it was felt that a modest extension to this structure could alleviate many of the likely impacts on the community.



SUMMARY REPORT

2.2.16 CFA 16 – Ladbroke and Southam

ES NTS REF: Section 8.16, Page 112

There were 211 comments relating to this CFA

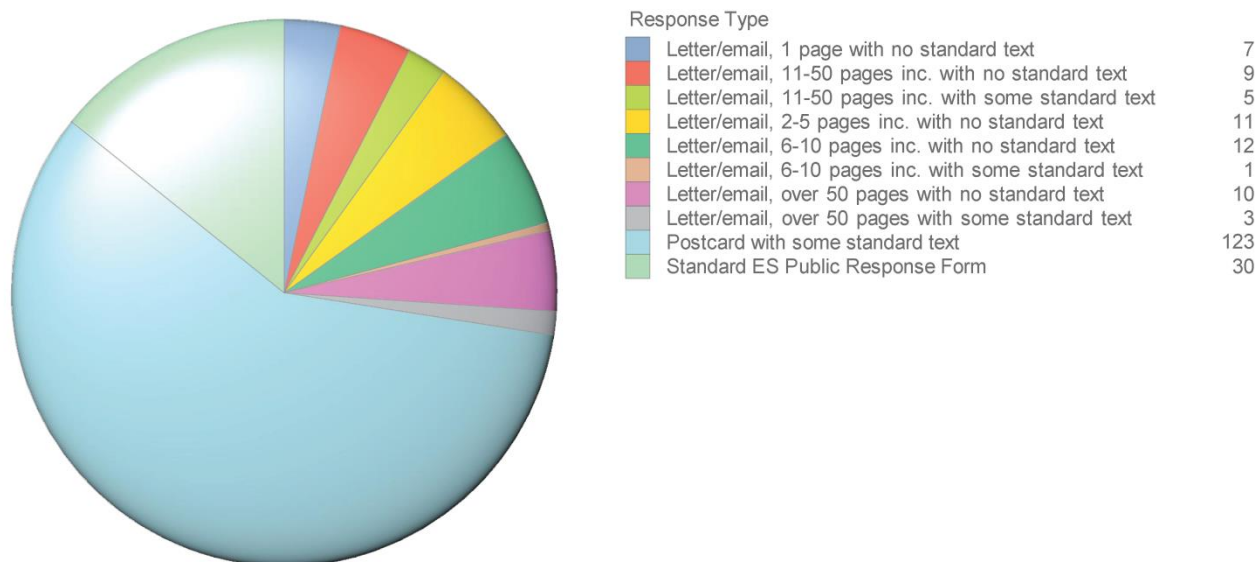


Figure 2-32: CFA16 - Response Type

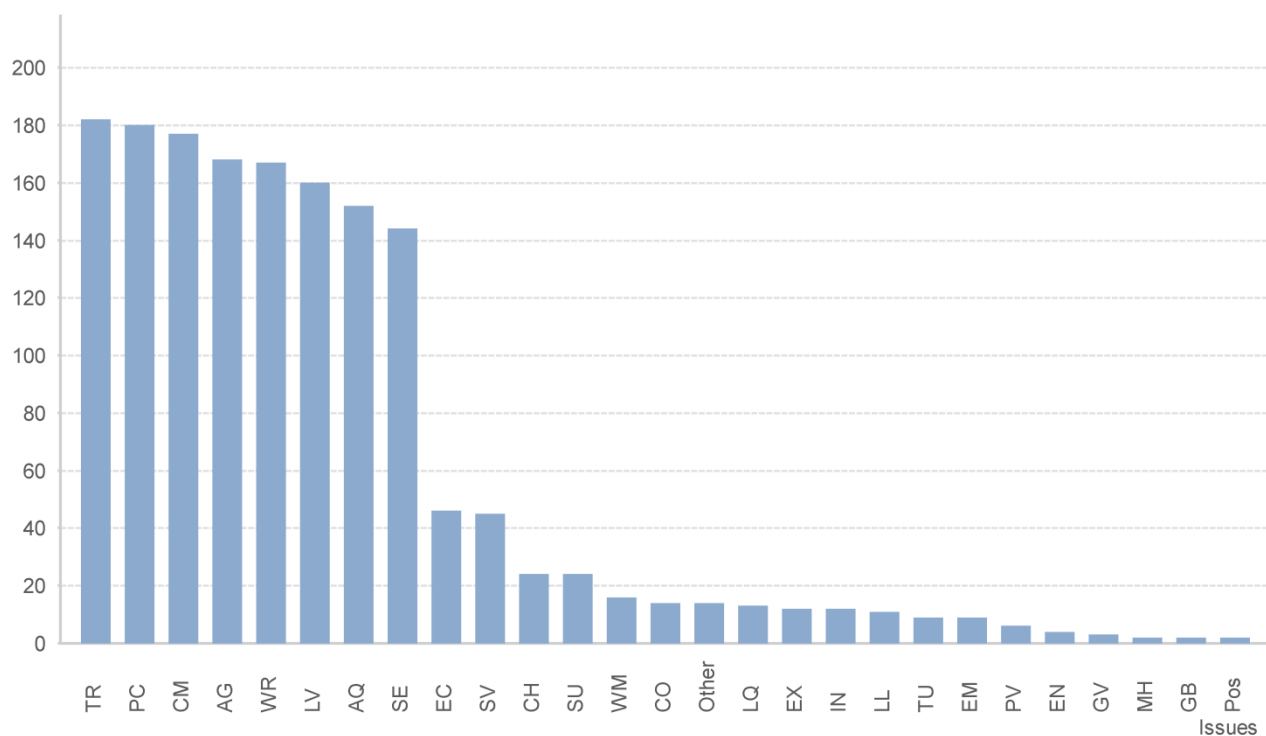


Figure 2-33: CFA16 - Environmental Issues



SUMMARY REPORT

The dominant focus of responses from this CFA is impact on the community of Southam.

The responses focus on traffic and transport from proposed construction activities, community loss of quality of life, the impact on local business and economic activity including agriculture, the impacts on woods and the local Site of Special Scientific Interest (SSSI) of Long Itchington Wood, and aspects of flood risk, air quality and potential light pollution. Some submissions relate to the same issues but the focus is wider across the area although with Southam still as the principal focus.

Other responses are more detailed on key issues and concerns for this CFA. These include the disruption to local communities from construction traffic, and the use of unsuitable roads and access routes, farming community concerns about access and viability, visual and landscape effects and the potential impact on water balance and flooding propensities in the existing hydrological regime.

The perceived deficiencies of the consultation (for example, its timing and access to documentation) were a common theme. Consultation processes were seen as inadequate as were the baseline investigations for the ES and much of the ES information on effects and mitigation.

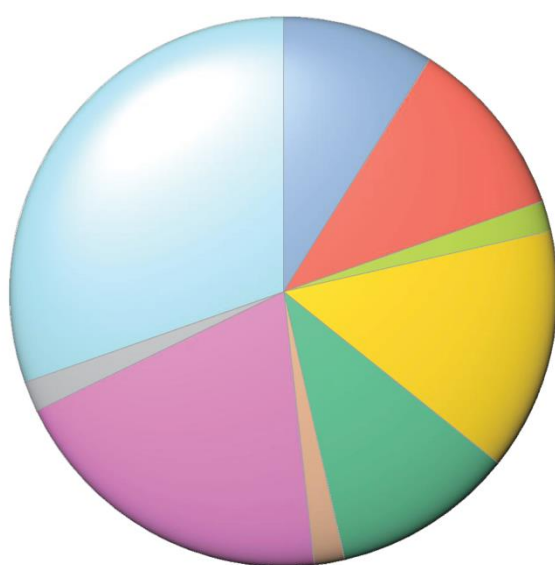
The value of Long Itchington Wood was a common theme, with concerns expressed about the proposed tunnel under the wood and its effects on water balance systems on the wood. Social issues arising from a construction workforce coming into a rural area were a concern.



2.2.17 CFA 17 – Offchurch and Cubbington

ES NTS REF: Section 8.17, Page 115

There were 56 comments relating to this CFA



Response Type

Letter/email, 1 page with no standard text	5
Letter/email, 11-50 pages inc. with no standard text	6
Letter/email, 11-50 pages inc. with some standard text	1
Letter/email, 2-5 pages inc. with no standard text	8
Letter/email, 6-10 pages inc. with no standard text	6
Letter/email, 6-10 pages inc. with some standard text	1
Letter/email, over 50 pages with no standard text	11
Postcard with some standard text	1
Standard ES Public Response Form	17

Figure 2-34: CFA17 - Response Type

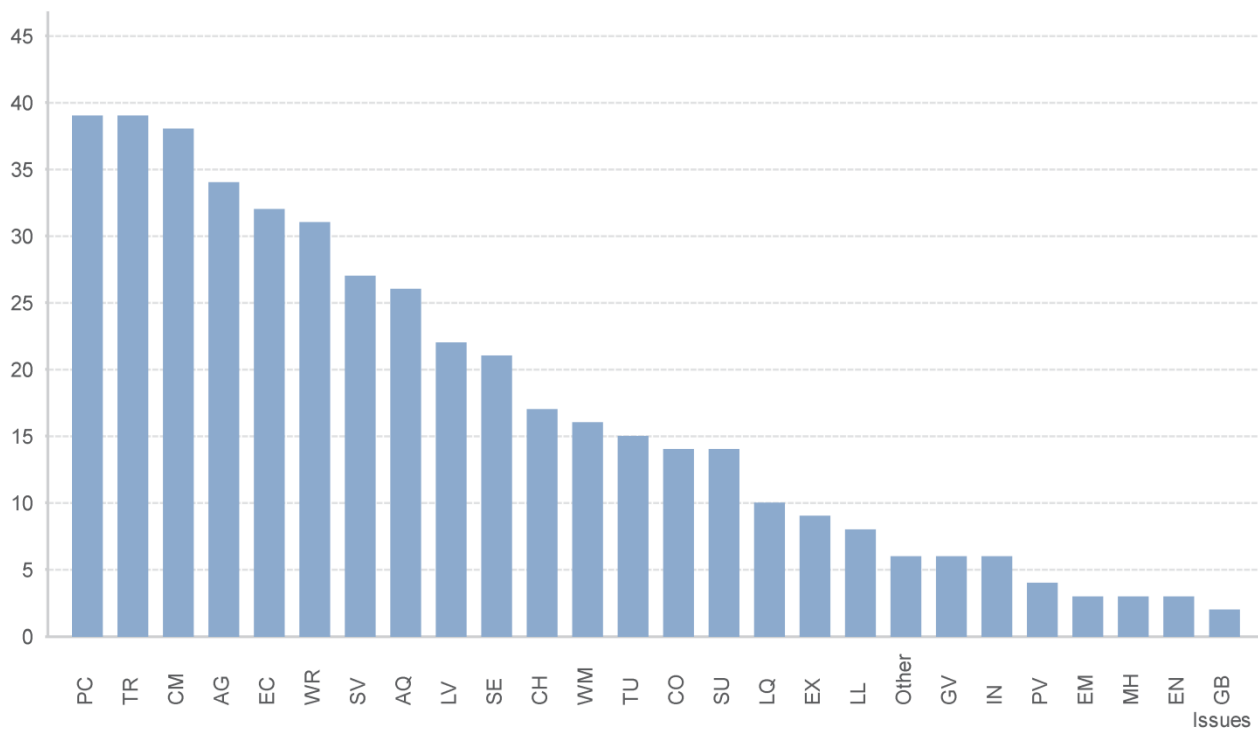


Figure 2-35: CFA17 - Environmental Issues



SUMMARY REPORT

Respondents in this CFA are concerned with the disruption from construction activities on their quality of life along with permanent land take by the route and the impacts the route will have on the rural character of the area. Construction traffic, with its associated environmental impacts and road re-alignments are of key concern for many respondents who are worried about community blight. Severance of routes for roads, footpaths and bridleways are cited as issues for many residents who are used to taking walks, horse riding and enjoying the countryside. Severance is also an issue for respondents from the farming community, with economic concerns over land access, and many question the proposed tree planting proposals which are thought to be using too much productive arable land.

Landscape and visual impacts are of key concern with respondents particularly citing issues with the proposed track heights across this CFA. The feature of South Cuddington Wood, an ancient woodland, is a particular focus with many requesting a tunnel underneath the wood. There is also an issue with a veteran pear tree in a hedgerow south of the wood, which many respondents are concerned about.

Respondents are also concerned over the potential impacts of the route infrastructure on the surface water drainage in the area, with flood risk protection the fourth ranked issue in this CFA.

Respondents believe that the time available to them to access, study and respond to the ES documentation has been insufficient and that the timing of the consultation period over Christmas made their task even harder. Dissatisfaction with the community consultation process throughout the project to date is evident in the majority of the received responses.



SUMMARY REPORT

2.2.18 CFA 18 – Stoneleigh, Kenilworth and Burton Green

ES NTS REF: Section 8.18, Page 118

There were 138 comments relating to this CFA

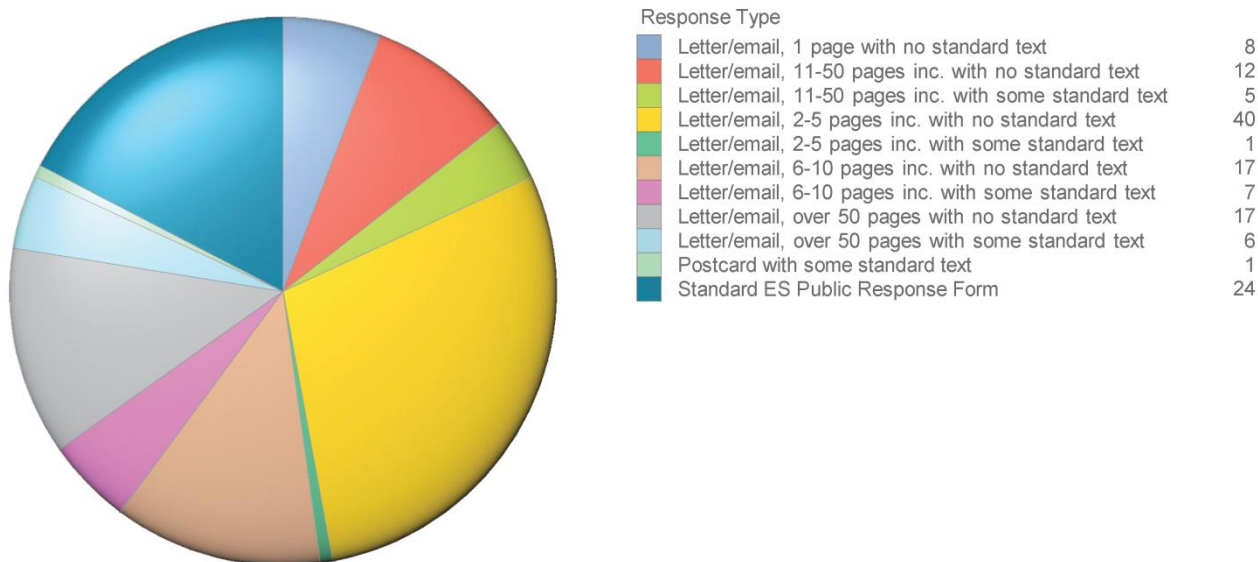


Figure 2-36: CFA18 - Response Types

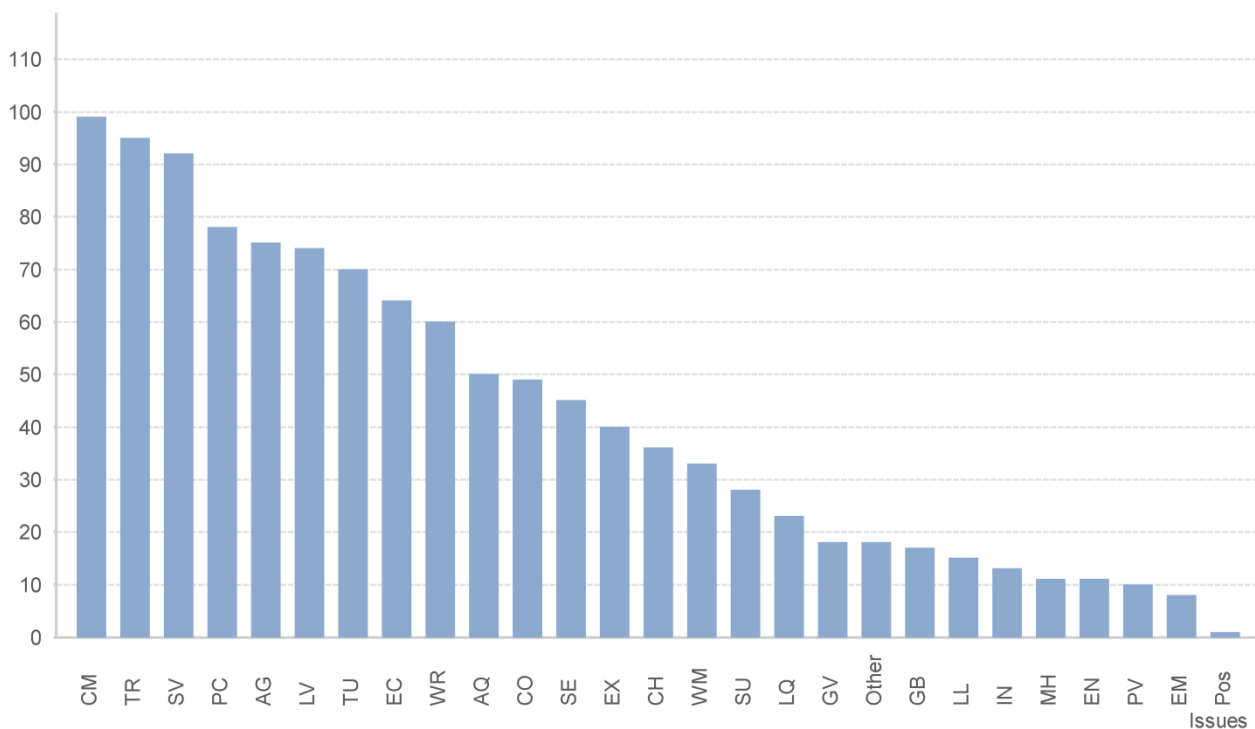


Figure 2-37: CFA18 - Environmental Issues



SUMMARY REPORT

Respondents in this CFA are particularly concerned with the cumulative impacts that the proposed construction activities will have on community amenity, traffic volumes and associated environmental impacts, and quality of life. Many highlight the disruption to cycleways and access routes, in particular the 'Greenway' route which is used by many cyclists between Kenilworth and the University of Warwick. Even if these routes are to be diverted there is concern that cyclists will have to mix with increased levels of road traffic related to the construction programme. The Greenway is also reported to be well-used as a local amenity by walkers and residents.

Potential traffic disruption in the vicinity of Stoneleigh Park with its business parks is also a key concern for the users, as well as potential negative impacts on economic activity within this CFA.

Noise is the second ranked issue in this CFA. This includes both construction activities and the operation of the route, with concern over the noise of high speed trains. Many respondents question the noise assessment methodologies used in the ES and the effectiveness of the mitigation proposed. The village of Burton Green in particular is concerned about the impacts of the line on the community, including village severance leading to questions about the village primary school and access to community amenities. Responses relating to Burton Green included requests for a more extensive tunnel.

The route crosses a number of rivers in this area and many respondents are concerned about the potential impact on surface water drainage and possible increase of flood risk as a consequence of the route infrastructure. Land take and access for farms to cross their holdings is another common theme. The 'Crackley Gap' is an area of community amenity in which respondents are concerned about the route impacts. Wildlife corridors and woodland features between Kenilworth and Coventry are prized by many respondents and they are concerned with the extent of potential loss and ecological fragmentation.

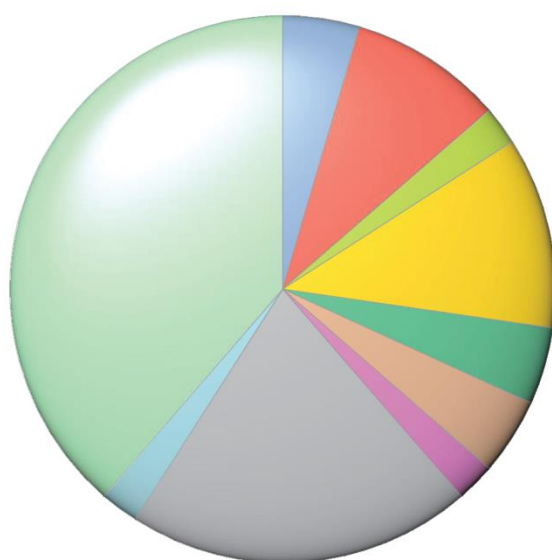
The ES consultation process is criticised by many respondents for being too short, and being held over the Christmas period, with difficult access to documents. Many question the baseline assumptions used in the ES and the detail that has been used to influence design choices. Respondents are disappointed with the communication and feedback process used to prepare the ES.



2.2.19 CFA 19 – Coleshill Junction

ES NTS REF: Section 8.19, Page 122

There were 44 comments relating to this CFA



Response Type

Letter/email, 1 page with no standard text	2
Letter/email, 11-50 pages inc. with no standard text	4
Letter/email, 11-50 pages inc. with some standard text	1
Letter/email, 2-5 pages inc. with no standard text	5
Letter/email, 2-5 pages inc. with some standard text	2
Letter/email, 6-10 pages inc. with no standard text	2
Letter/email, 6-10 pages inc. with some standard text	1
Letter/email, over 50 pages with no standard text	9
Postcard with some standard text	1
Standard ES Public Response Form	17

Figure 2-38: CFA19 - Response Type

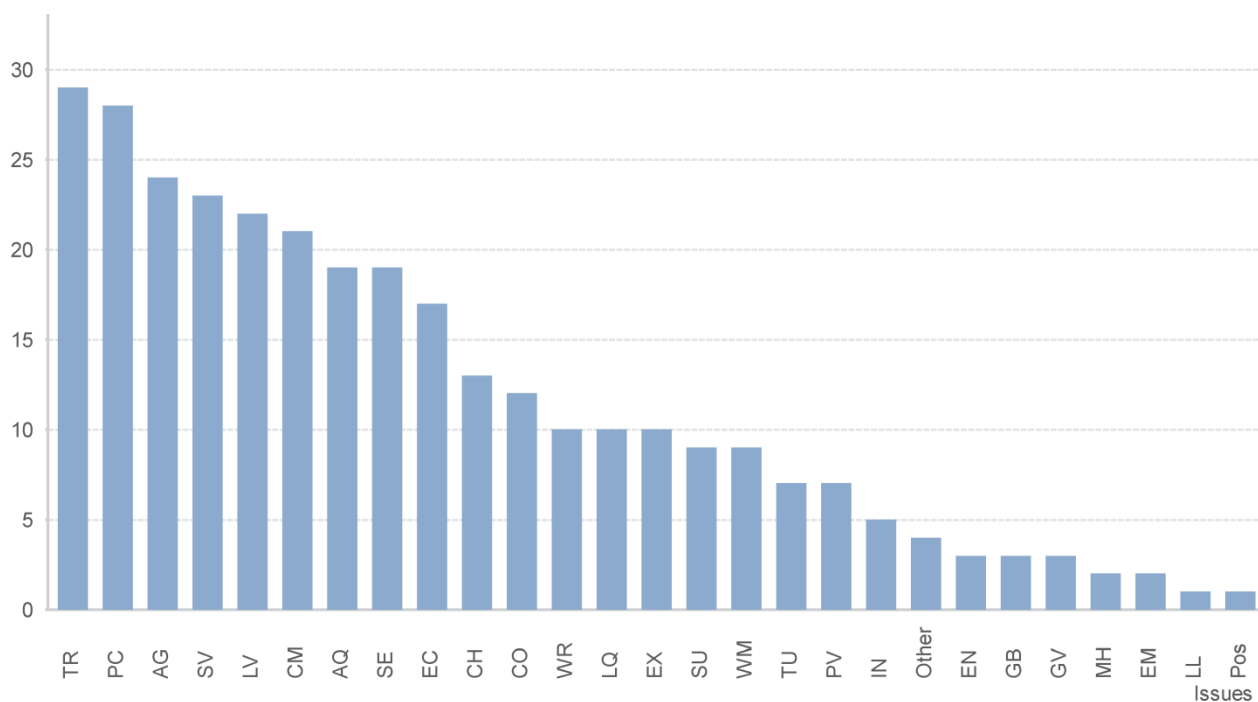


Figure 2-39: CFA19 - Environmental Issues



SUMMARY REPORT

The highest ranked issue for respondents in this CFA is traffic, both construction traffic and cumulative impacts from traffic across the area. Noise, disruption and environmental impacts from the proposed construction traffic movements are of concern from respondents in all the communities in this CFA who have responded, though particularly in the Hamlet of Gilson.

Respondents state that as the route will be substantially in high viaducts in their area, the landscape and visual impacts will be great without much possibility of effective mitigation. Despite being located in an area bisected by motorways, respondents are still concerned about noise issues – the second ranked issue, from the construction and operational phases of the project. Community disturbance and disruption during construction is a key concern. Water Orton is also concerned about the proximity of the line to Water Orton School and all respondents are concerned with cumulative impacts across their area.



SUMMARY REPORT

2.2.20 CFA 20 – Curdworth to Middleton

ES NTS REF: Section 8.20, Page 126

There were 59 comments relating to this CFA

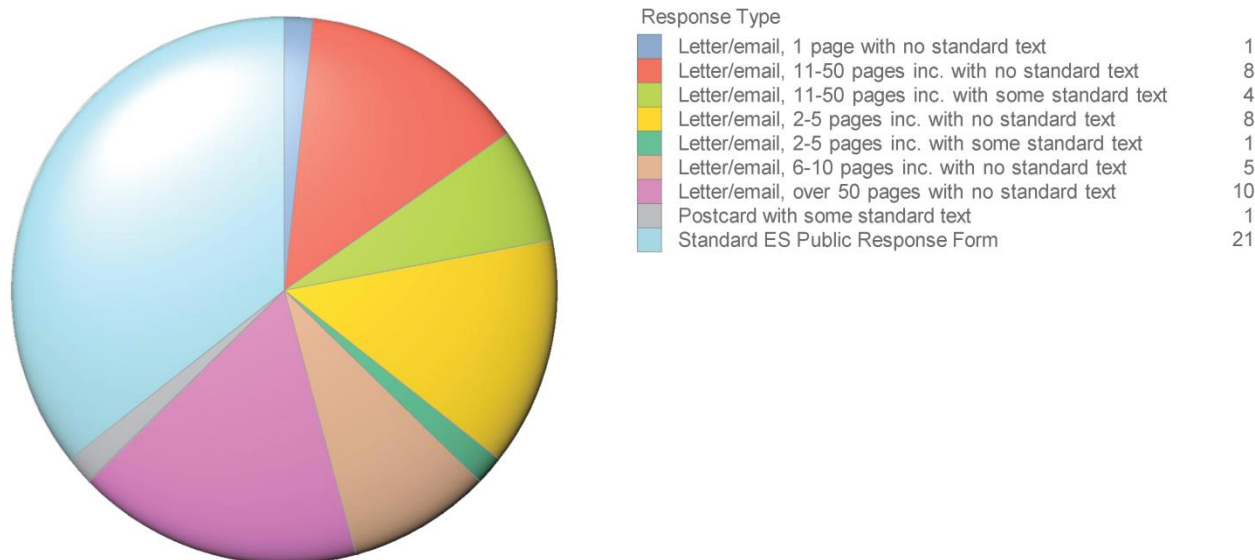


Figure 2-40: CFA20 - Response Type

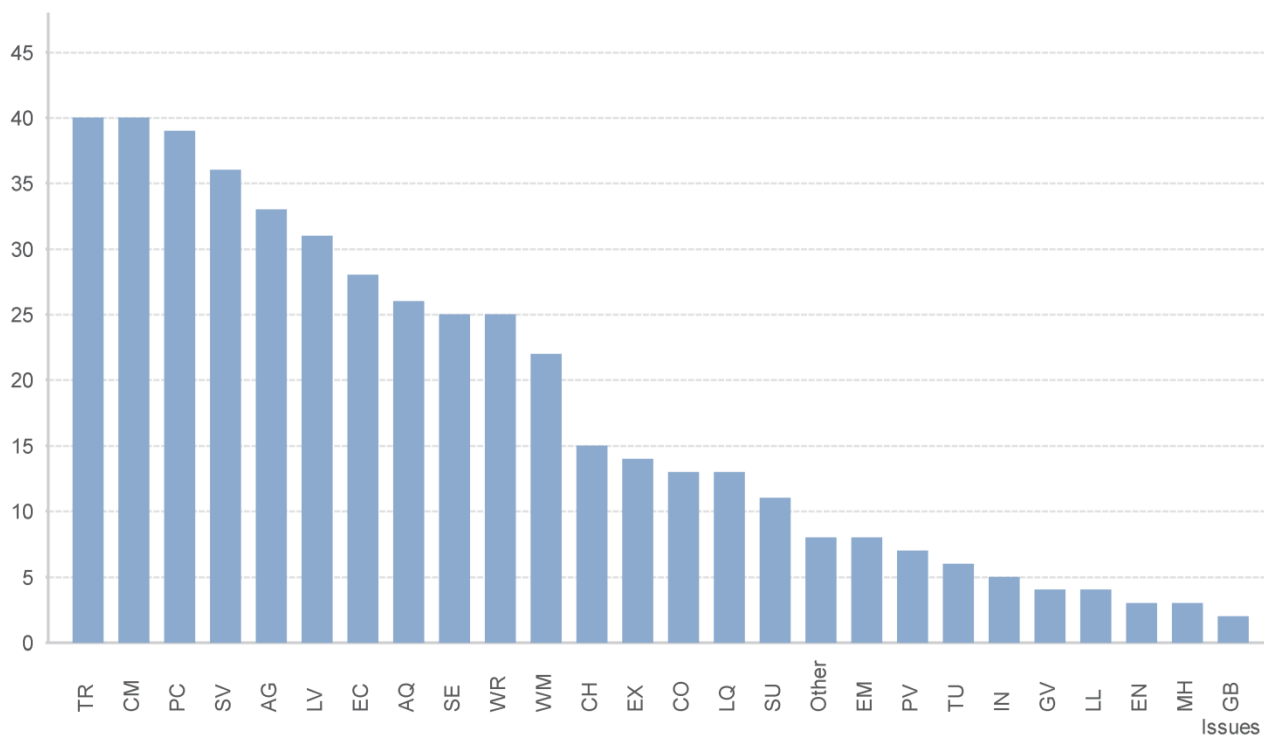


Figure 2-41: CFA20 - Environmental Issues



SUMMARY REPORT

The highest ranked issues in this CFA are concerned with the potential impacts of construction on the current quality of life within the communities. Respondents are concerned about loss of amenity with severance leading to isolation of communities, traffic disruption and cumulative impacts across the transport network. Many respondents feel that the communities will suffer a substantial degree of blight as a consequence. Noise, air quality, landscape and visual impacts are particularly cited.

There is particular concern over the proposals for the Kingsbury Railhead facility, located close to the community of Lea Marston. Concerns include light pollution and the continuous nature of potential impacts arising from the proposed 24 hour operation of this facility.

Many respondents comment that the communication process has not enabled them to safeguard their communities effectively.

Respondents from the Middleton area cite the proposed construction facilities and the Langley Brook viaduct as key concerns for their community. Many respondents point out that the ongoing landscape and wildlife initiatives undertaken by the Tam Valley Wetland Landscape Partnership will be threatened by the route construction and are concerned about the general impacts on wildlife, woodlands and amenity.



SUMMARY REPORT

2.2.21 CFA 21 – Drayton Bassett, Hints and Weeford

ES NTS REF: Section 8.21, Page 130

There were 237 comments relating to this CFA

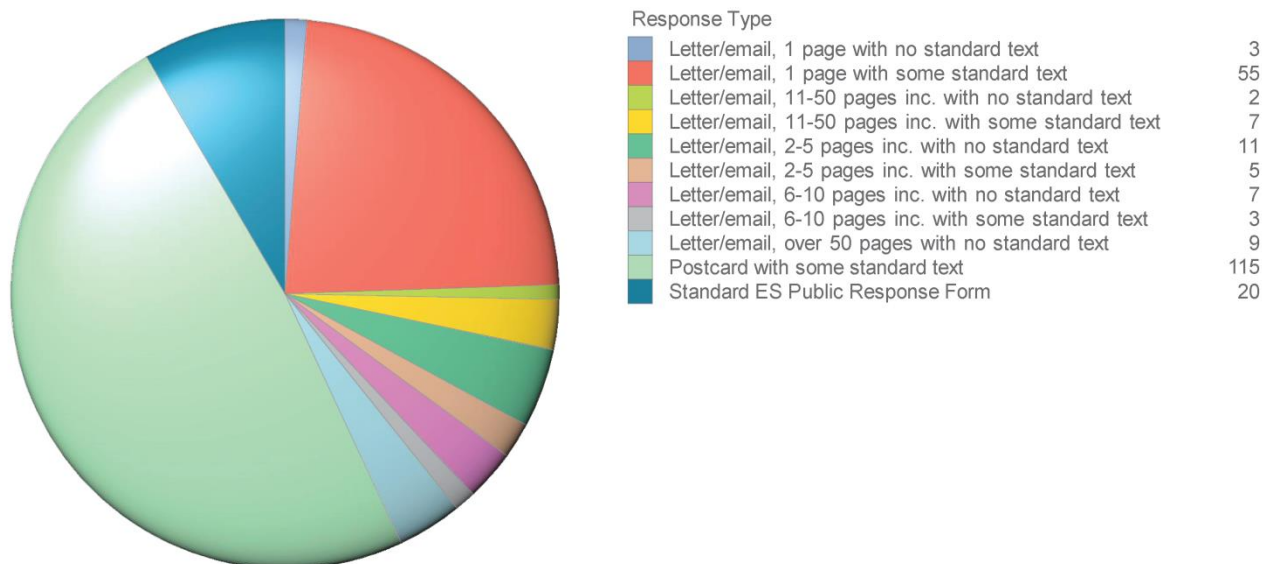


Figure 2-42: CFA21 - Response Type

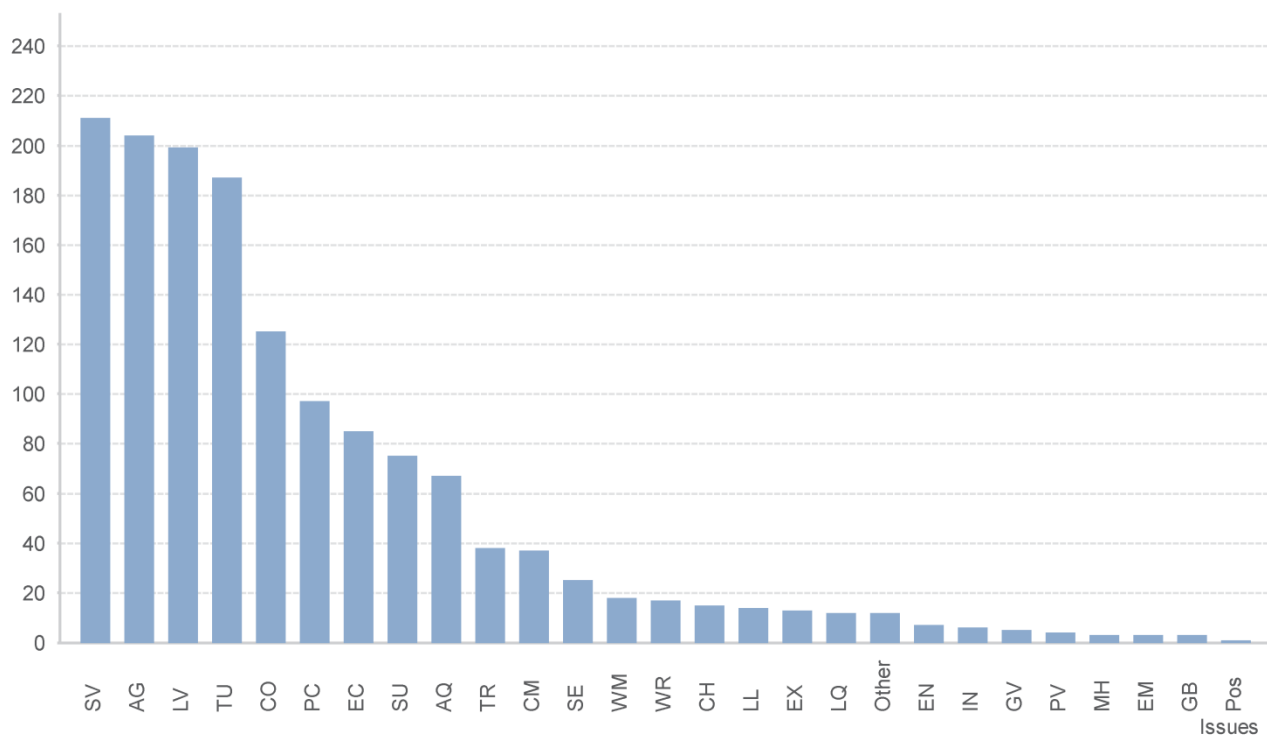


Figure 2-43: CFA21 - Environmental Issues



SUMMARY REPORT

Responses received from this CFA are dominated by the receipt of two campaigns, one a letter, one a postcard, both focussed on a similar outcome. This is to demand that a tunnel is constructed in the vicinity of Hints community which respondents claim will substantially mitigate the visual and noise impacts on Hints village and the surrounding area. The impacts on woodlands are noted along with landscape and amenity loss. The letter campaign states that the work carried out in the ES is superficial and unrealistic and that the proposed mitigation is not satisfactory. This campaign requires the project to implement the mitigation proposed by Staffordshire County Council and also states that the consultation process has been unsatisfactory. The campaign also requires that property blighted by the route construction and operation should be satisfactorily compensated.

Other responses included concerns over community amenity, the impact of construction and traffic on disruption and the resulting impacts as well as the quality of the baseline data for all issues used to underpin the ES.



SUMMARY REPORT

2.2.22 CFA 22 – Whittington to Handsacre

ES NTS REF: Section 8.22, Page 133

There were 1,002 comments relating to this CFA

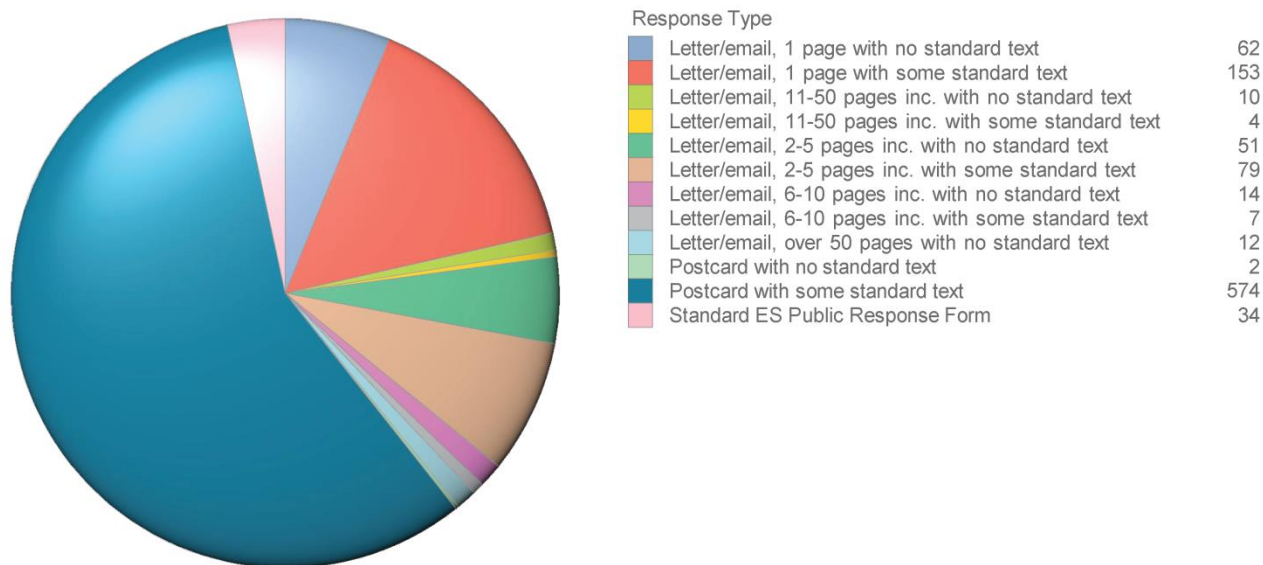


Figure 2-44: CFA22 - Response Type

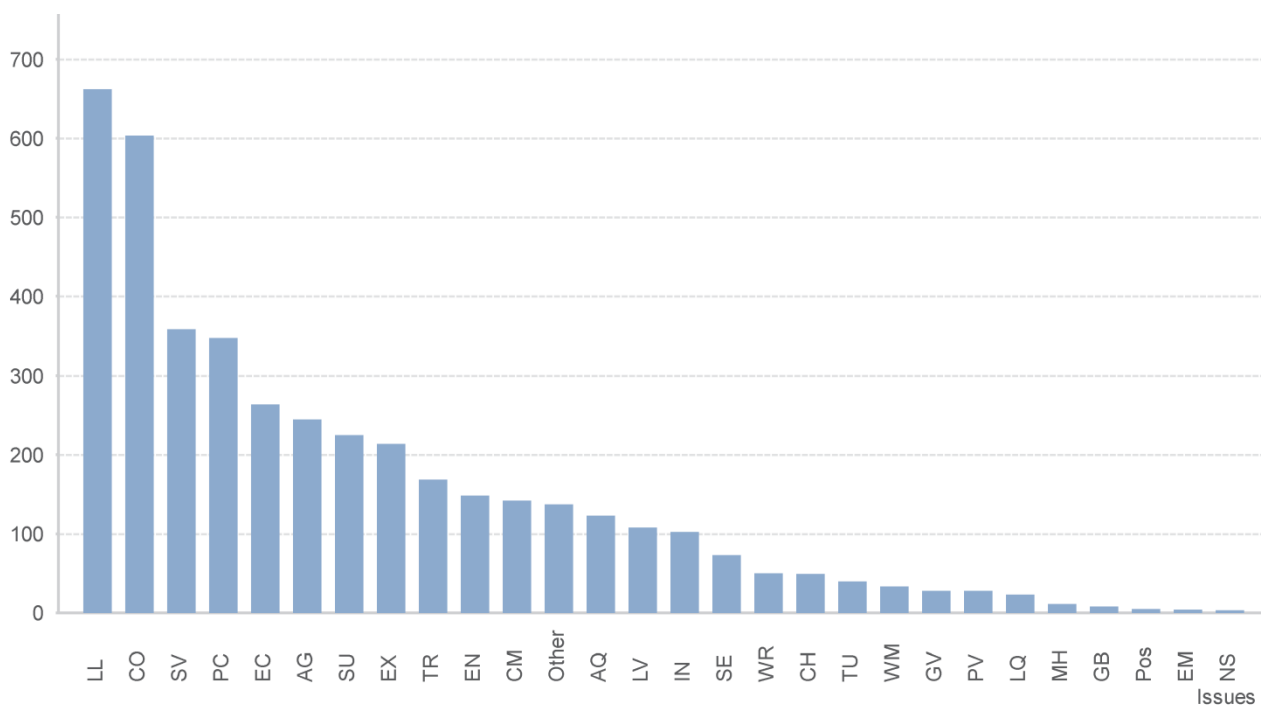


Figure 2-45: CFA22 - Environmental Issues



SUMMARY REPORT

A majority of responses in this CFA were a campaign which objected to the principles of the HS2 project and the ES as submitted. These general issues are considered in Section 2.1 of this Report. The campaign also states that the HS2 route should be lowered between the West Coast Main Line and the A38 near Lichfield and that people who have been impacted by the line must be properly compensated.

Other responses received also incorporated these two issues but added other concerns, making noise impacts, mainly from line operation, the third ranked issue in this CFA and Other the fourth ranked, with a variety of issues around the HS2 concept being raised. Many respondents commented that the trains would not stop in Lichfield and that the existing West Coast Main Line infrastructure in this CFA and services should be sufficient with upgrading.

Concern was also expressed about the impacts of the route on the land take, woodland and ecology in the area, and that the magnitude of change on the landscape character would be high. Dissatisfaction with the consultation process to date was a common issue from respondents. Many respondents agreed in principle with the ES consultation responses produced by Staffordshire and Lichfield Councils.



SUMMARY REPORT

2.2.23 CFA 23 – Balsall Common and Hampton-in-Arden

ES NTS REF: Section 8.23, Page 137

There were 190 comments relating to this CFA

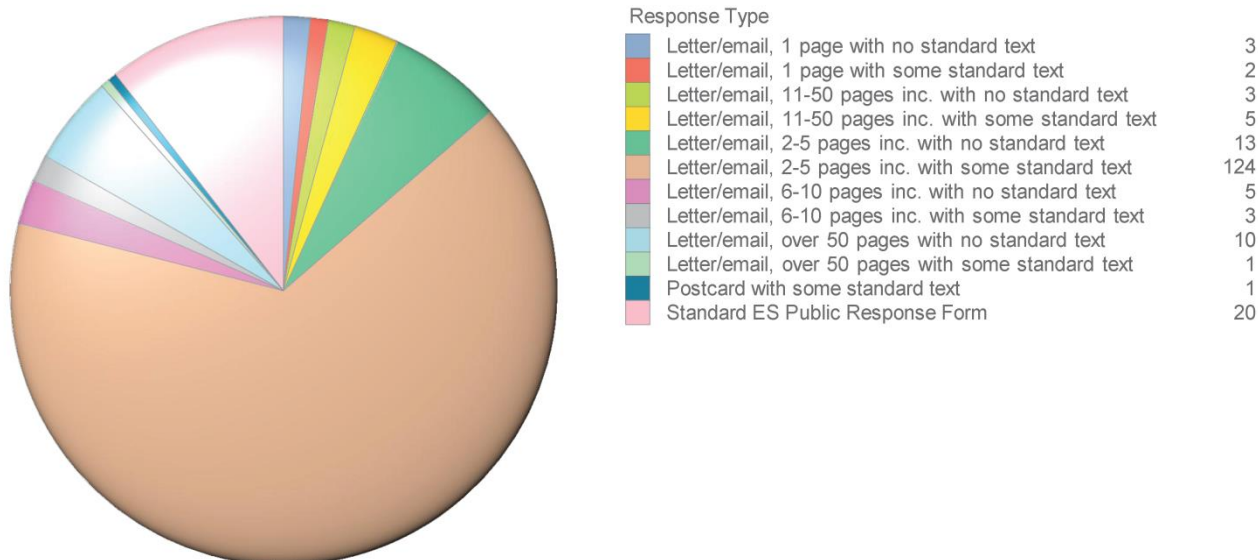


Figure 2-46: CFA23 - Response Type

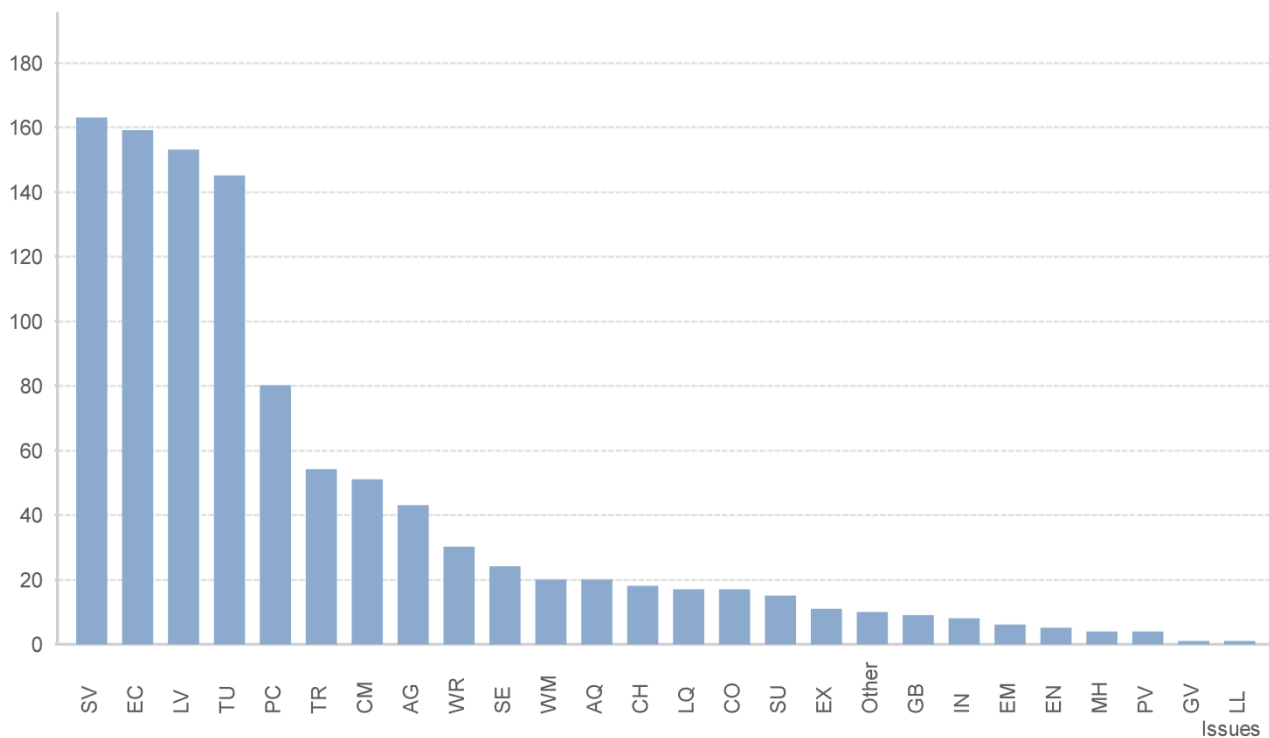


Figure 2-47: CFA23 - Environmental Issues



SUMMARY REPORT

The high ranking issues in this CFA are influenced by a campaign calling for a tunnel in the area of Balsall Common. These concerns are also shared by many other respondents who are concerned that there is not enough mitigation of operational noise along the route and that the Kenilworth Greenway will be significantly impacted.

Landscape and visual impact is cited as a key issue along the route along with construction impacts from traffic and the disruption to community amenity and quality of life. The impact of the route infrastructure on the surface water which flows into the River Blythe is also mentioned by some respondents. Concerns over the consultation process are the highest ranked issue outside the campaign issues, focussed on communication issues throughout the project development to date.



SUMMARY REPORT

2.2.24 CFA 24 – Birmingham Interchange and Chelmsley Wood

ES NTS REF: Section 8.24, Page 140

There were 47 comments relating to this CFA

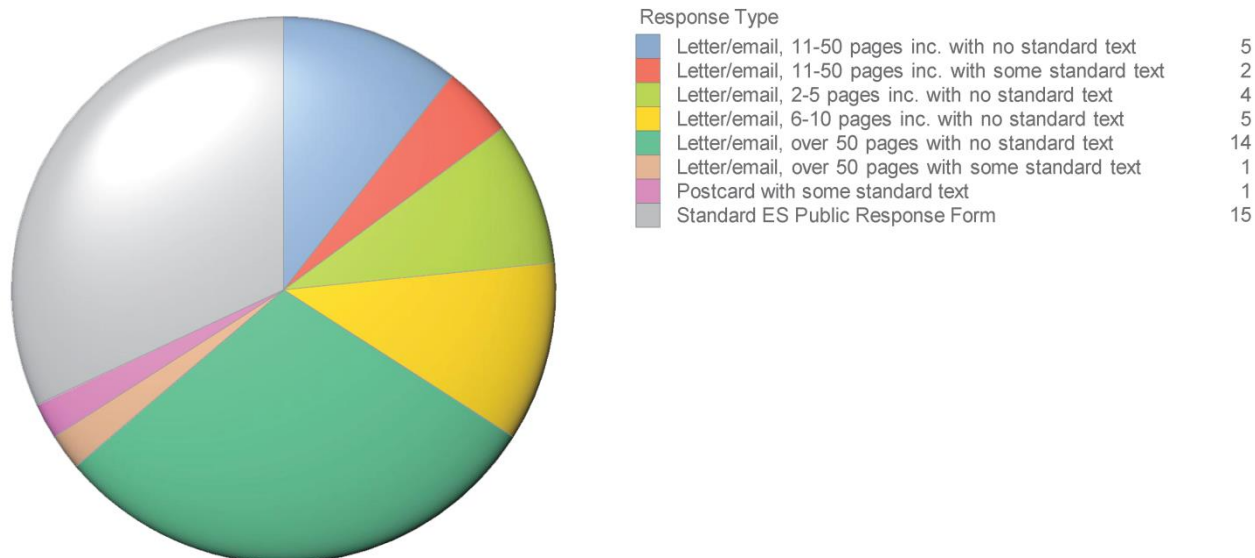


Figure 2-48: CFA24 - Response Type

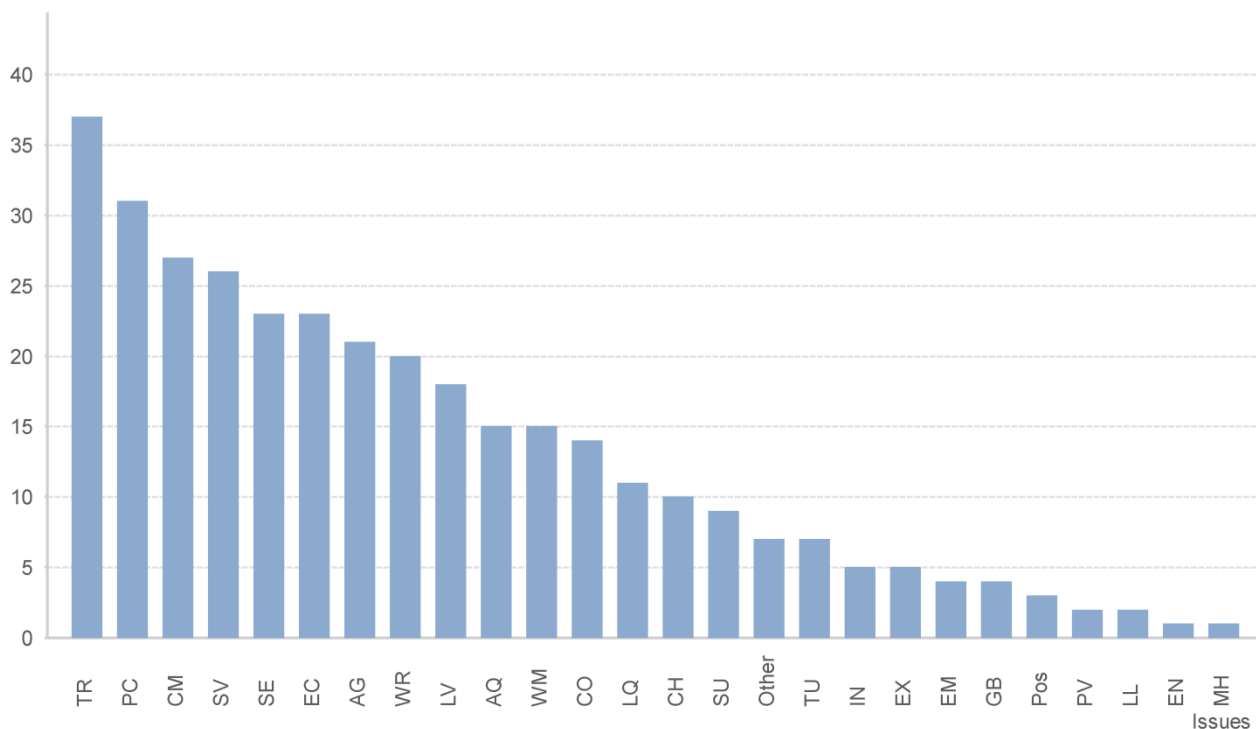


Figure 2-49: CFA24 - Environmental Issues



SUMMARY REPORT

The majority of responses in this CFA are from businesses and commercial operations, each of which has specific concerns relating to the potential impacts on their existing operations and planned investments. The disruption likely from construction traffic, alterations to existing road networks and congestion effects on economic activity is a key concern in this CFA. This extends to increases in noise and vibration and general inconvenience that may affect revenue sources. Land take impacts on both economic activity and the wildlife and amenity of the land are also a key concern.

Respondents are particularly concerned that communication with HS2 has not been responsive and although many support the overall economic potential of HS2, they remain apprehensive at the way the Environmental Impact Assessment process has been undertaken. Respondents are concerned at a lack of detail in the ES combined with a perceived disregard for other operations and their business.

Respondents state that the strategic implications of future planning for the area could be significantly impacted by the development of the HS2 route infrastructure and they are concerned that this has not been factored in to the proposed HS2 planning. Concerns include the route itself, the land take for construction facilities and the Birmingham Interchange station, the proposed People Mover system and long-term disruption.



2.2.25 CFA 25 – Castle Bromwich and Bromford

ES NTS REF: Section 8.25, Page 145

There were 35 comments relating to this CFA

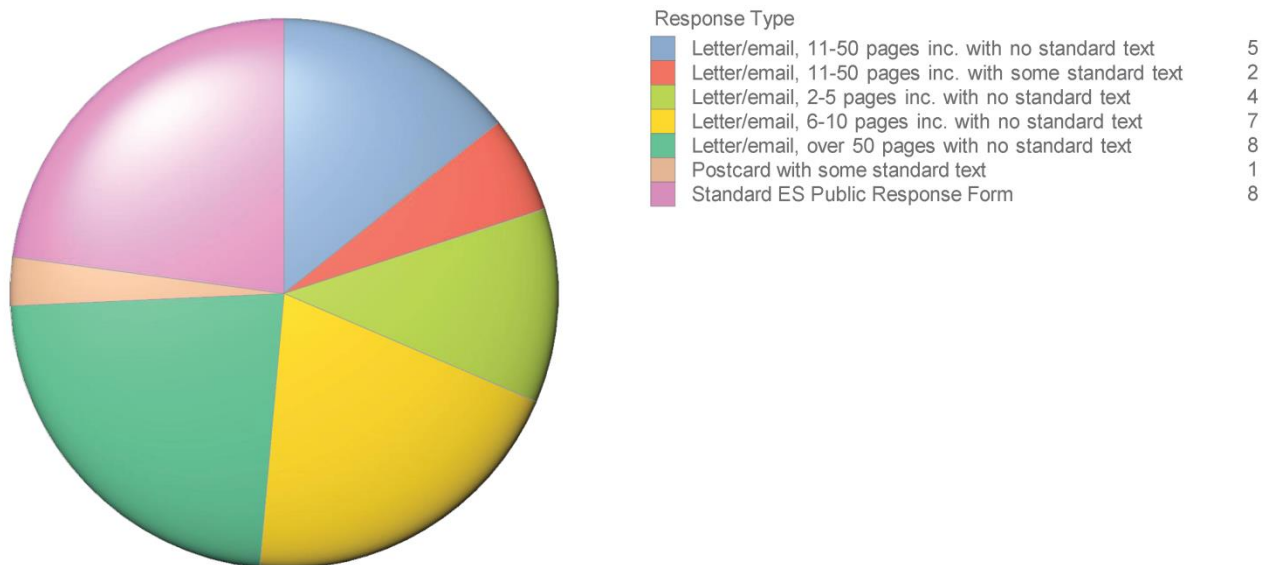


Figure 2-50: CFA25 - Response Type

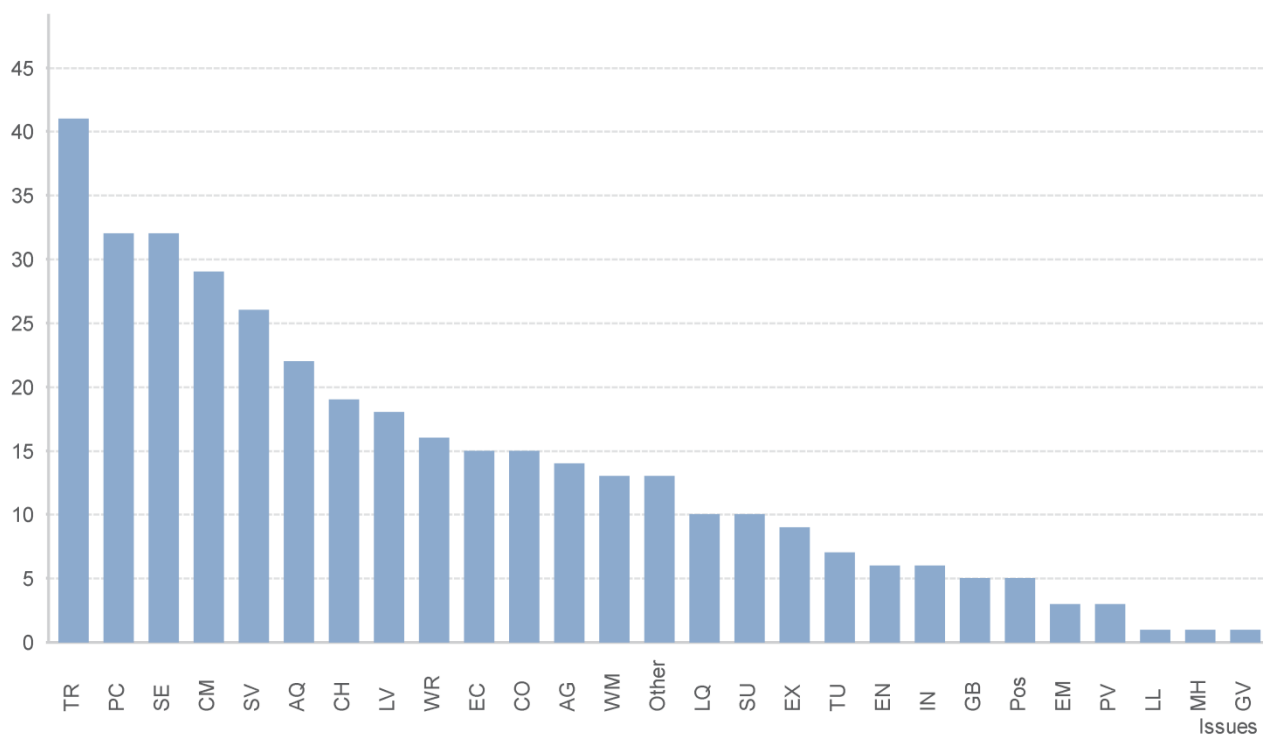


Figure 2-51: CFA25 - Environmental Issues



SUMMARY REPORT

The majority of responses in this mainly urban and industrial area are from commercial and industrial businesses which are concerned about the likely impacts of the route and disruption of construction activities on their existing operations and property. Land take and compulsory purchase of land and property are of a particular concern. Respondents cite a lack of detail in the ES on likely impacts and proposals for their holdings as a key concern, and many cite a lack of substantive responses from HS2 to previously highlighted issues.

The proposed tunnel in this CFA is a source of concern for affected respondents with the noise, vibration and dust from tunnelling works of concern for sensitive industrial processes. There is also concern at potential impacts on the groundwater. Economic impact on land and assets including proposed development revenue is also a key issue.

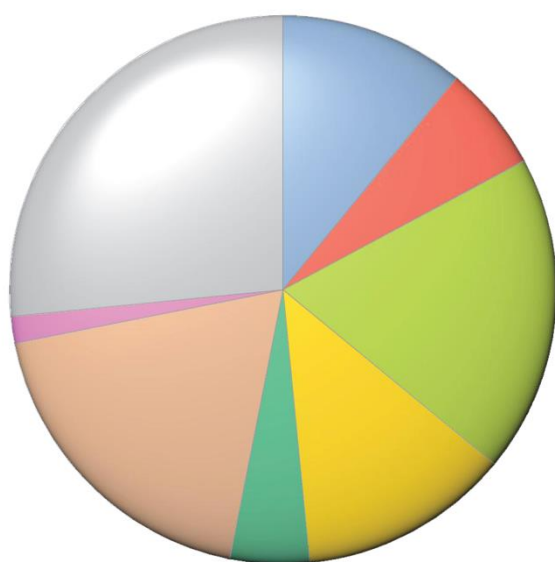


SUMMARY REPORT

2.2.26 CFA 26 – Washwood Heath to Curzon Street

ES NTS REF: Section 8.26, Page 148

There were 64 comments relating to this CFA



Response Type

Letter/email, 11-50 pages inc. with no standard text	7
Letter/email, 11-50 pages inc. with some standard text	4
Letter/email, 2-5 pages inc. with no standard text	12
Letter/email, 6-10 pages inc. with no standard text	8
Letter/email, 6-10 pages inc. with some standard text	3
Letter/email, over 50 pages with no standard text	12
Postcard with some standard text	1
Standard ES Public Response Form	17

Figure 2-52: CFA26 - Response Type

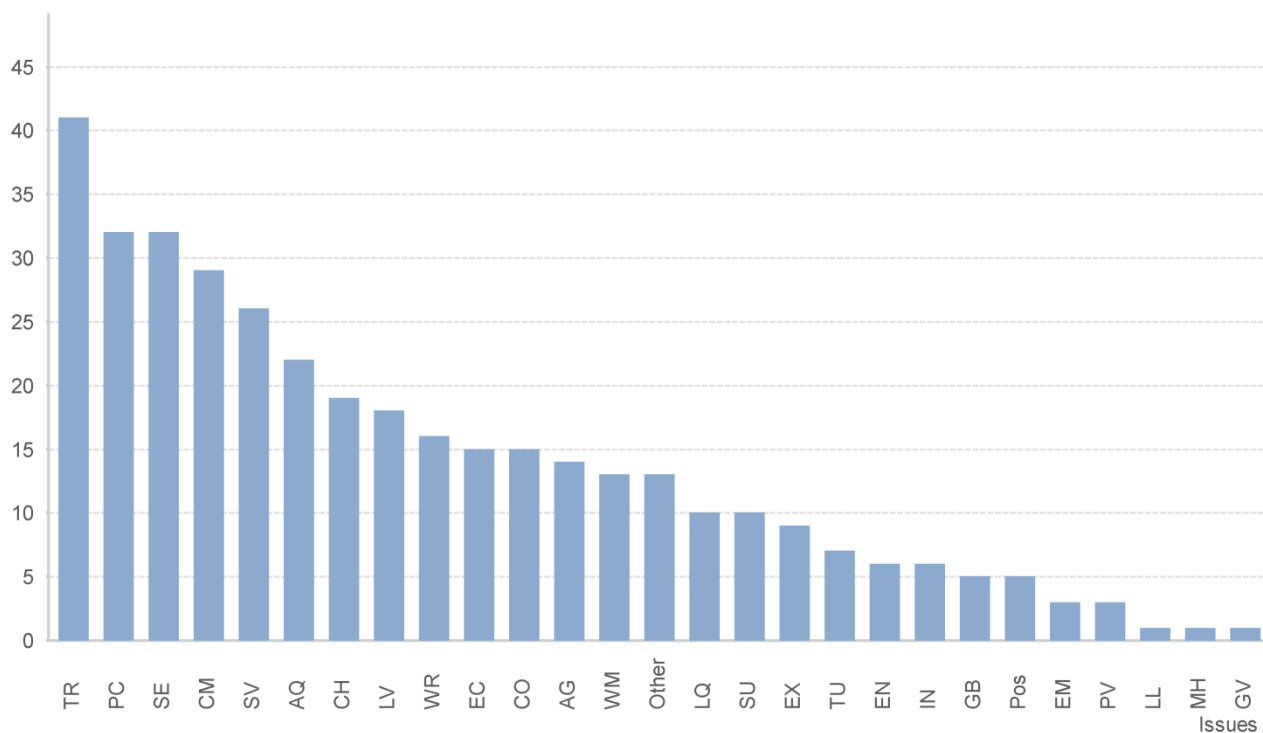


Figure 2-53: CFA26 - Environmental Issues



SUMMARY REPORT

The highest ranked issue in this CFA is the Socio-economic category, which reflects the responses from business and commercial organisations which are concerned about possible disruption, access, construction impacts and proposed land take on their businesses. For some, the proposals will mean relocation or closure and these respondents are concerned that compensation and discussions will not be forthcoming. Respondents are concerned with the lack of detail in the ES for individual premises and issues of actual land take, land use and mitigation proposals.

Impacts on the existing urban fabric other than commercial premises are also of concern for a selection of respondents. Particular issues for this category include disruption from construction activity, including nuisance, connectivity and destruction of heritage buildings. There is also concern over the potential loss of park space including the newly created Eastside City Park and Park Street Gardens in this predominantly urban area.



SUMMARY REPORT

2.2.27 Chilterns

There were 8,081 comments relating to the Chilterns Area

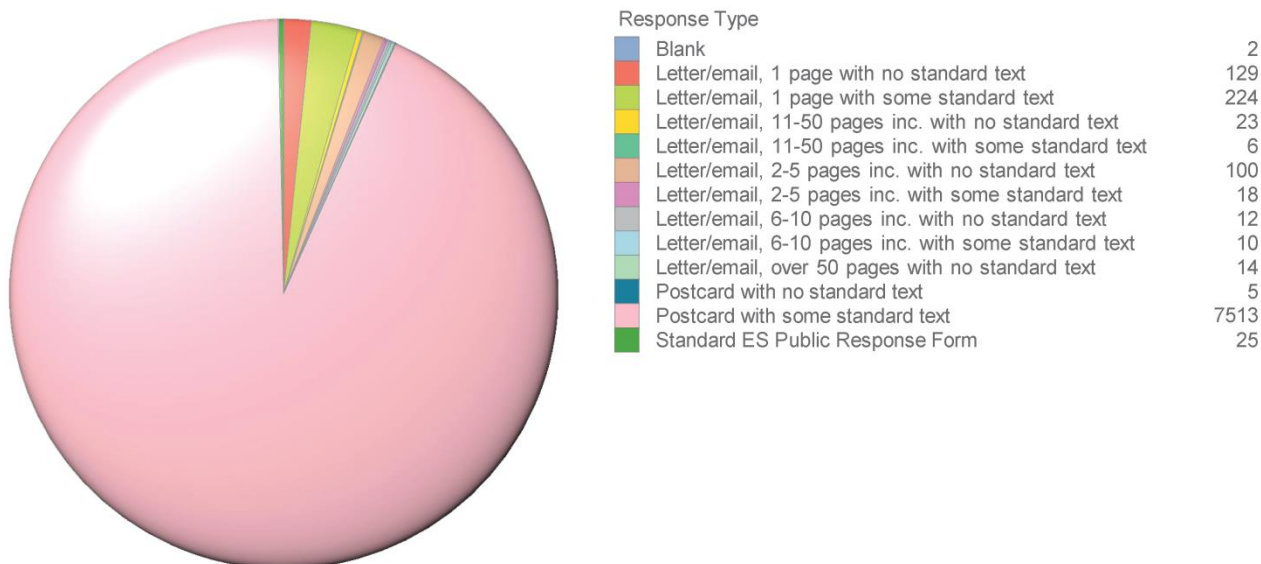


Figure 2-54: Chilterns - Response Type

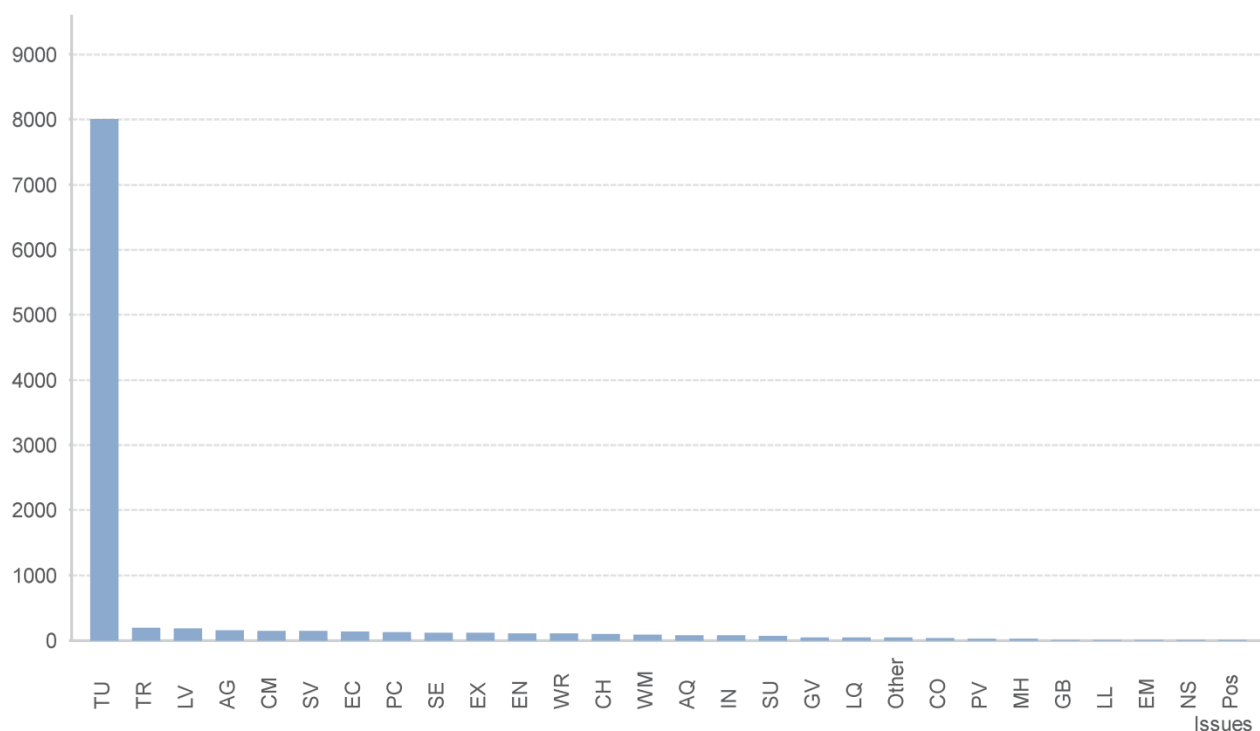


Figure 2-55: Chilterns - Environmental Issues



SUMMARY REPORT

This geographical area covers the Chilterns as a whole and is responsible for the largest volume of responses received in the ES public consultation exercise. Responses in this category are concerned with the AONB area of the Chilterns without providing any indication or content which ties the response to any of the Chiltern CFAs. Likewise, those responses which do refer to issues in a particular or multiple CFAs are logged in their relevant CFA.

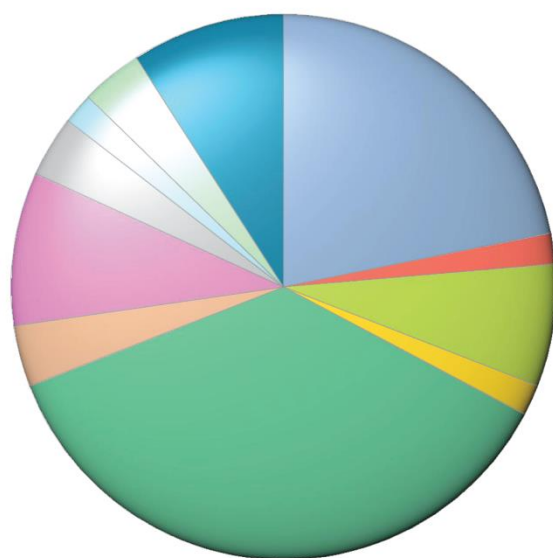
The majority of responses in this category are related to campaigns for an extended tunnel underneath the entire Chilterns AONB area. The ancillary issues on the graph reflect additional issues added to submissions by individuals to supplement the largely standard text.



SUMMARY REPORT

2.2.28 'Other' Areas

There were 55 comments relating to this category



Response Type

Letter/email, 1 page with no standard text	12
Letter/email, 1 page with some standard text	1
Letter/email, 11-50 pages inc. with no standard text	4
Letter/email, 11-50 pages inc. with some standard text	1
Letter/email, 2-5 pages inc. with no standard text	20
Letter/email, 2-5 pages inc. with some standard text	2
Letter/email, 6-10 pages inc. with no standard text	5
Letter/email, 6-10 pages inc. with some standard text	2
Letter/email, over 50 pages with no standard text	1
Postcard with some standard text	2
Standard ES Public Response Form	5

Figure 2-56: Other - Response Type

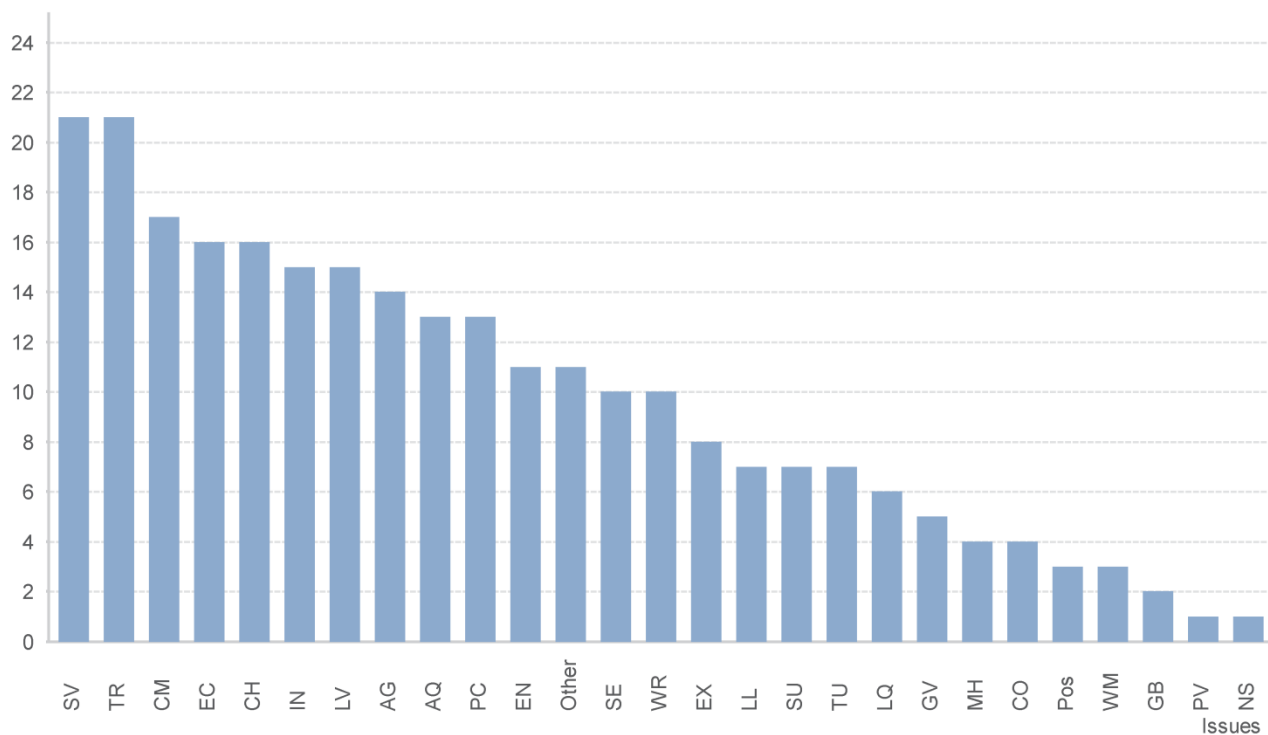


Figure 2-57: Other - Environmental Issues



SUMMARY REPORT

This category includes responses which refer to issues outside the scope of the Phase 1 HS2 consultation and do not refer to any CFA or route issue itself. Examples of responses include general questions about the upgrade of other routes and Phase 2 of HS2 north of the route covered by this consultation.



2.2.29 Area Not Specified

There were 4,667 comments relating to this category

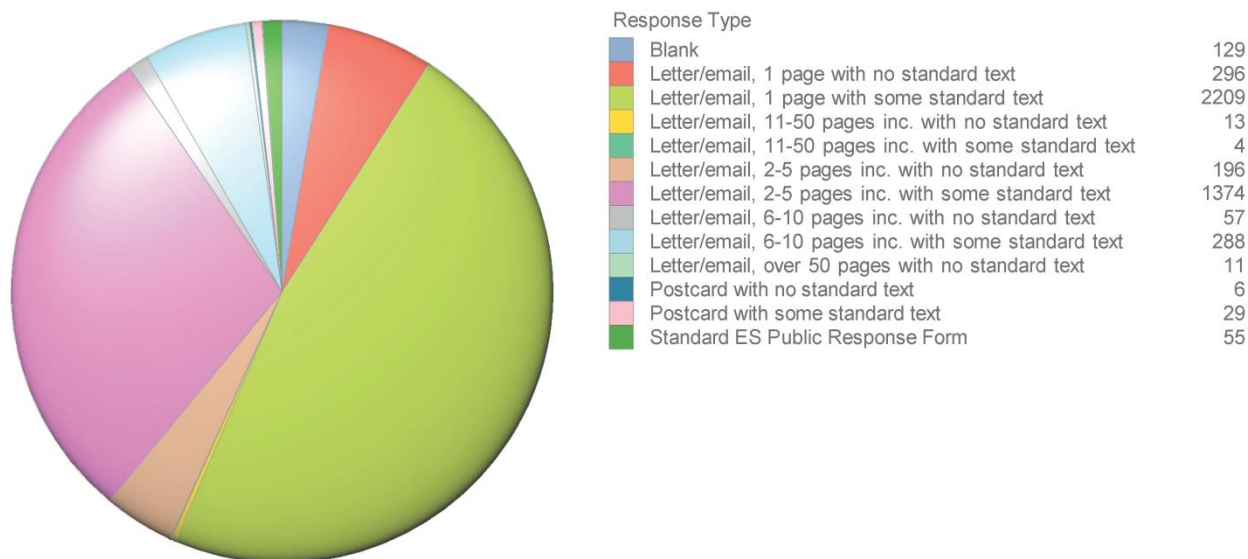


Figure 2-58: Area Not Specified - Response Type

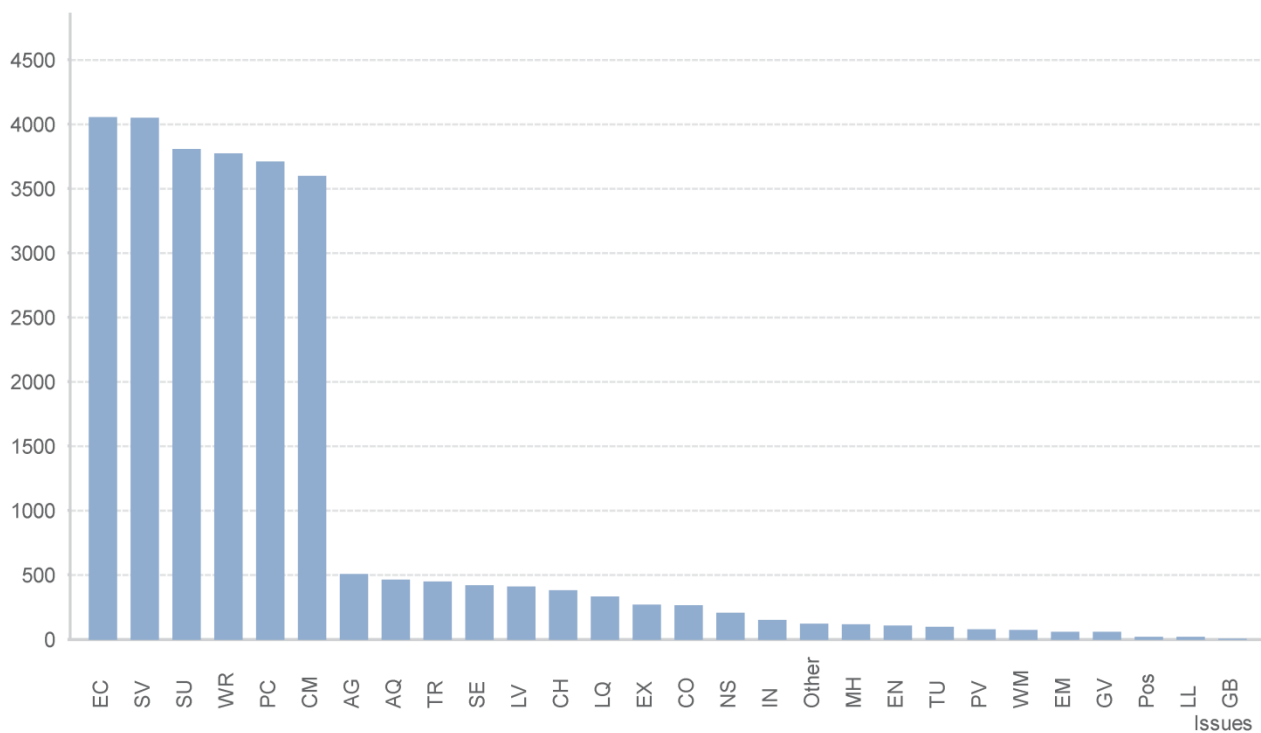


Figure 2-59: Area Not Specified - Environmental Issues



SUMMARY REPORT

This is the second largest category of responses received in this consultation exercise. This category captures responses that submit general comments on the proposed HS2 Phase 1 scheme that are applicable to the entire proposed route, the route's perceived impacts, and the respondent's opinion, without any reference to a particular CFA (notwithstanding if the respondent actually lives within one of the CFAs).

The six highest ranked issues mainly reflect a campaign. Responses in this category are concerned by and large with the national 'balance' of environmental assets and the perceived impact of the route on this heritage and legacy. Respondents frequently question the claims of the ES and its integrity and are generally sceptical about figures and assurances presented in the ES about any of the impacts from the proposed scheme.

There are a number of specific concerns within each issue and these are reflected in the commentary in Section 2.1 of this report. The issues here are usually presented as general concerns, although the Sustainability category is particularly focused on the claims of carbon balance calculations connected with the project and its cumulative effects.



SUMMARY REPORT

2.2.30 London

There were 52 comments relating to this category

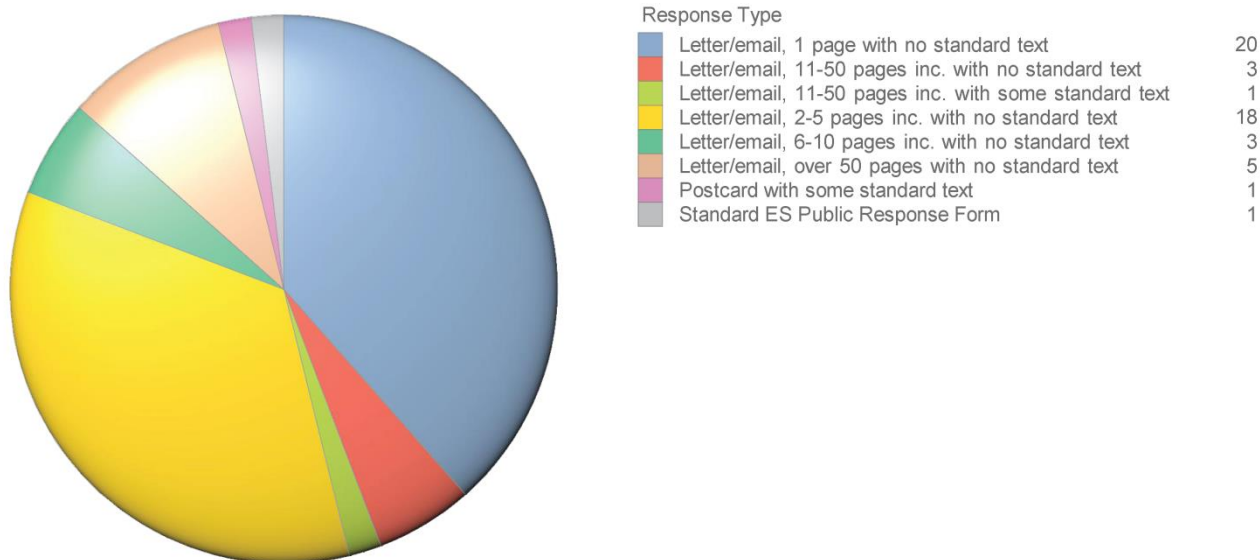


Figure 2-60: London - Response Type

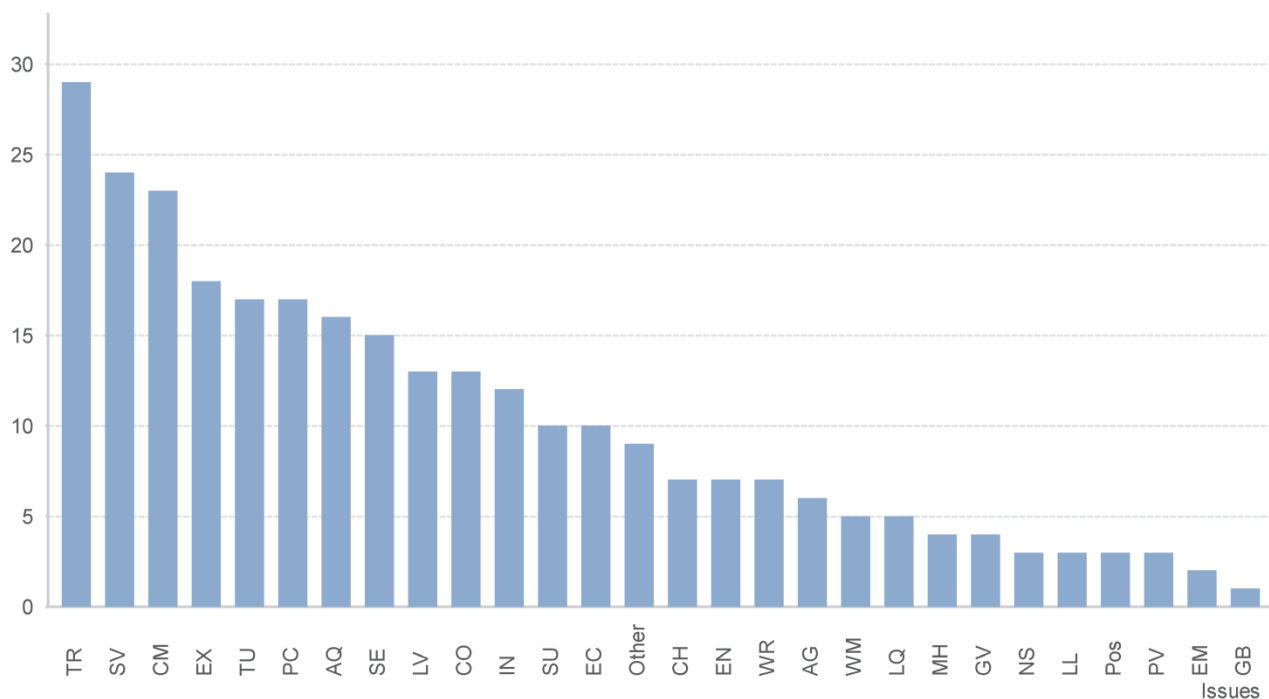


Figure 2-61: London - Environmental Issues



SUMMARY REPORT

Respondents in this category were concerned about the cumulative impacts the project may have in London, in particular for the potential disruption from construction traffic and impacts on traffic and congestion. Noise and vibration were a key concern and many respondents made general comments about the perceived cost of the scheme.



2.2.31 Off Route Rail Stations

There were 18 comments relating to this category

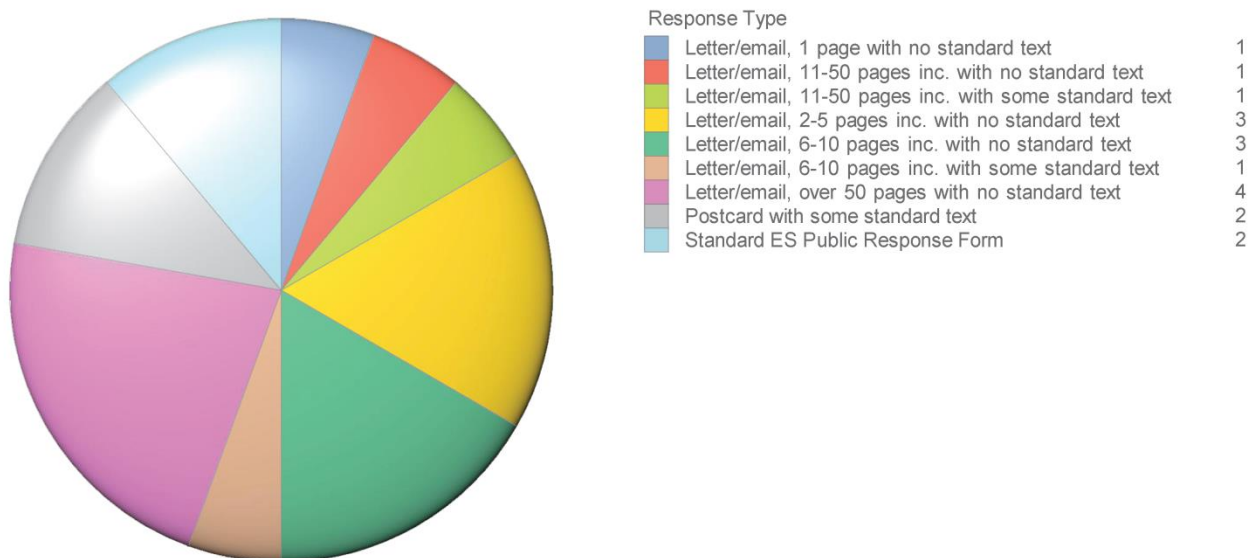


Figure 2-62: Off Route Rail Stations - Response Type

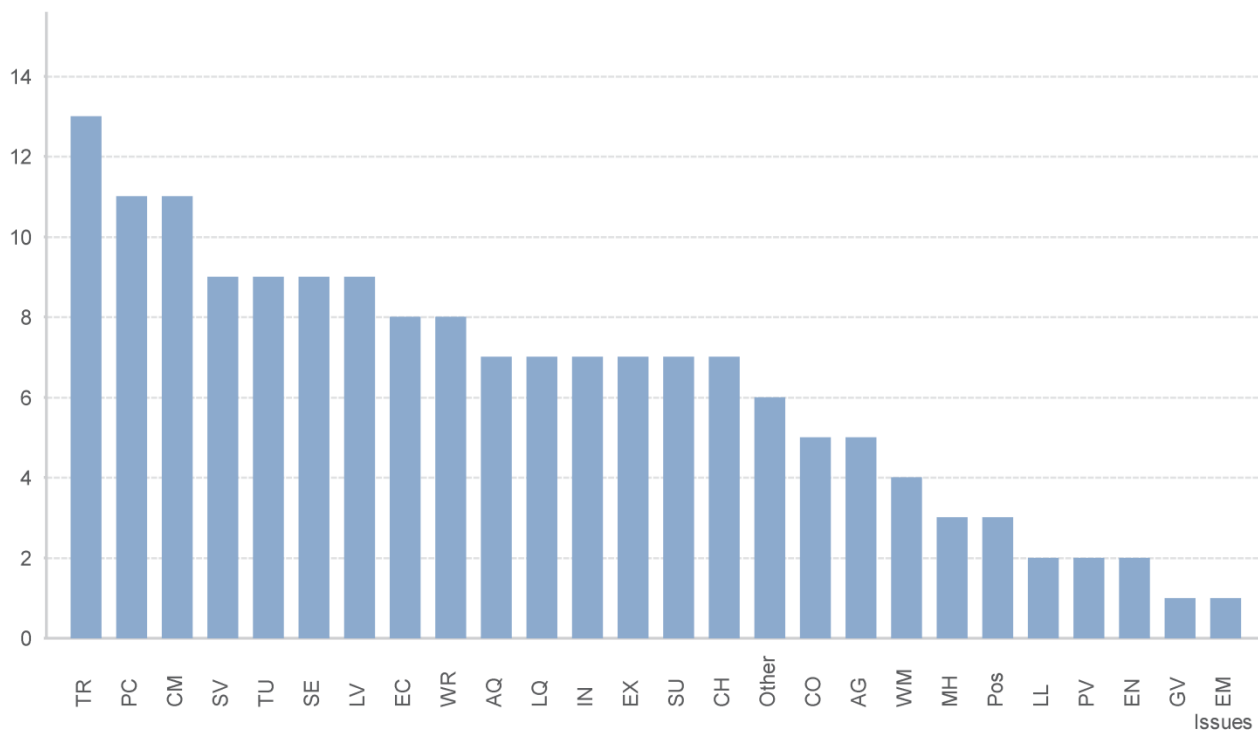


Figure 2-63: Off Route Rail Stations - Environmental Issues



SUMMARY REPORT

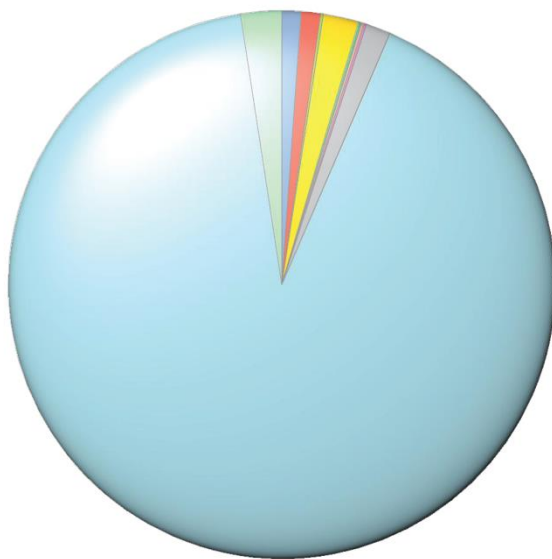
This category concerns the likely significant environmental effects of Phase 1 of HS2 expected at locations beyond the route corridor, such as rail stations, rail depots and rail lines. Respondents in this category were concerned about the potential impacts for other rail lines heading north out of London, such as the Chiltern Line, West Coast Main Line and Midlands Main Line. These impacts included the potential effect on line traffic during the construction period and potential re-allocation of investment away from the existing lines for the purpose of constructing HS2.



SUMMARY REPORT

2.2.32 West Coast Main Line

There were 617 comments relating to this category



Response Type

Letter/email, 1 page with no standard text	7
Letter/email, 11-50 pages inc. with no standard text	7
Letter/email, 11-50 pages inc. with some standard text	1
Letter/email, 2-5 pages inc. with no standard text	13
Letter/email, 2-5 pages inc. with some standard text	1
Letter/email, 6-10 pages inc. with no standard text	1
Letter/email, 6-10 pages inc. with some standard text	1
Letter/email, over 50 pages with no standard text	9
Postcard with some standard text	562
Standard ES Public Response Form	15

Figure 2-64: West Coast Main Line - Response Type

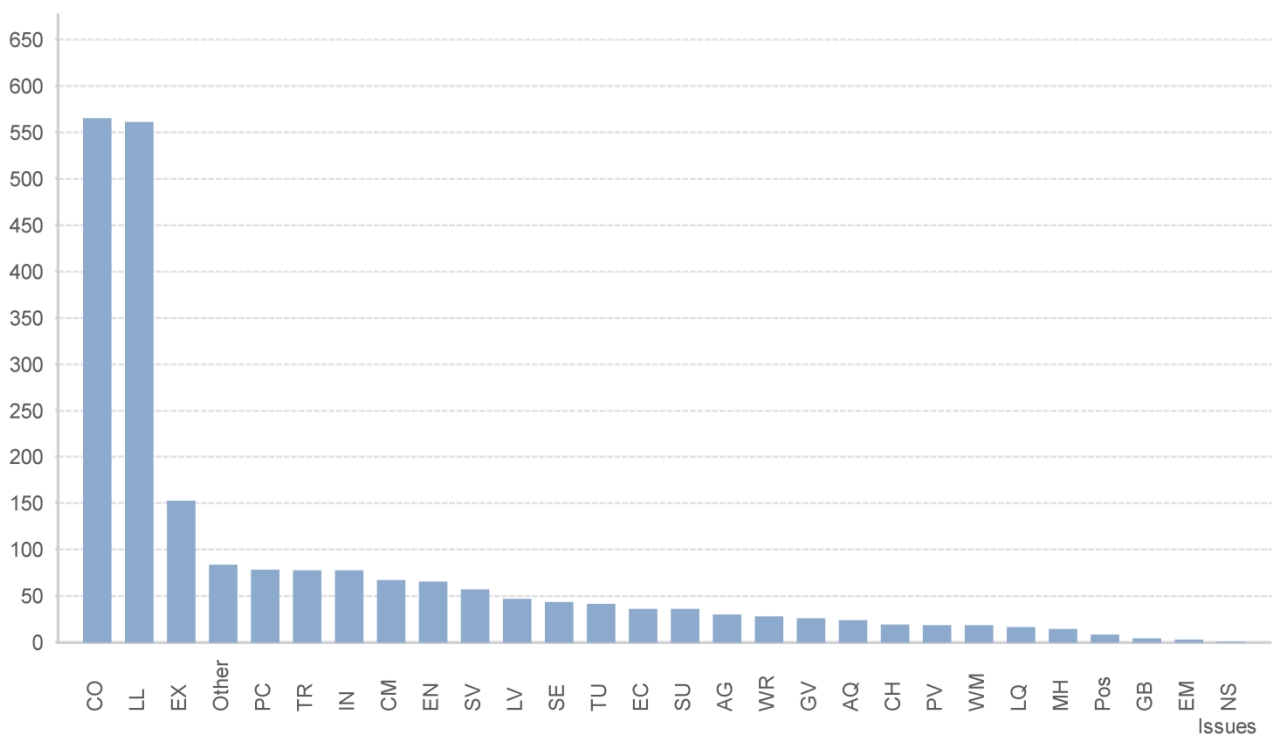


Figure 2-65: West Coast Main Line - Environmental Issues



SUMMARY REPORT

The majority of responses in this area were a campaign which objected to the principles of the HS2 project and the ES as submitted. These general issues are considered in Section 2.1 of this Report. The campaign also states that the HS2 route should be lowered between the West Coast Main Line and the A38 near Lichfield and that people impacted by the line must be properly compensated.

Other responses received also incorporated these two issues but added other concerns, making noise impacts, mainly from line operation, the third ranked issue in this area and Other the fourth ranked, with a variety of issues around the HS2 concept being raised. Many respondents commented that the trains would not stop in Lichfield and that the existing West Coast Main Line infrastructure in this area and services should be sufficient with upgrading.



2.2.33 Birmingham

There were 31 comments relating to this category

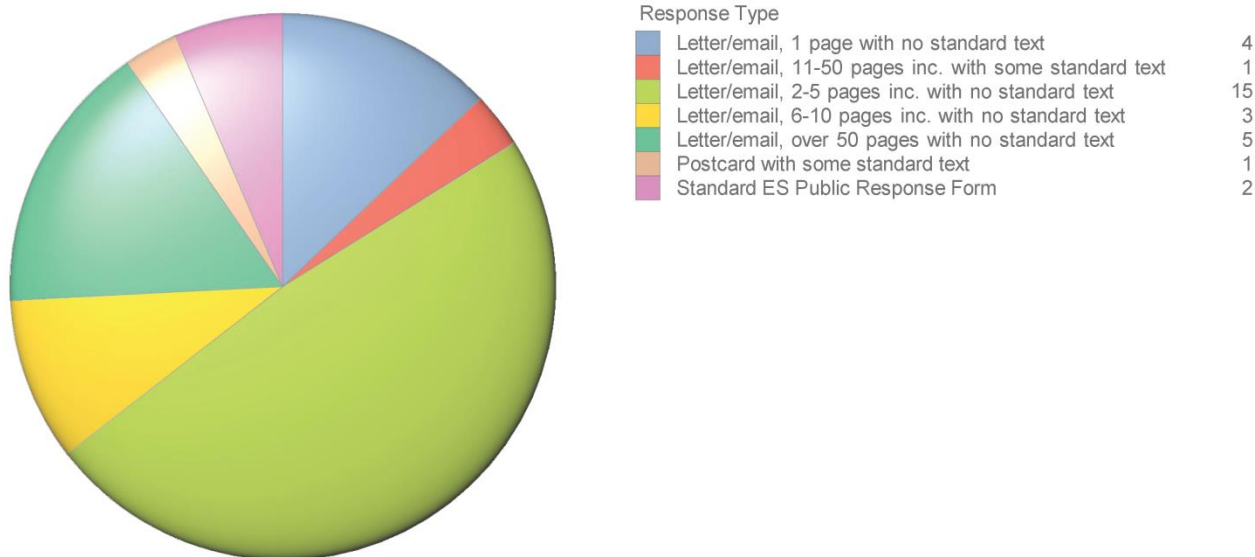


Figure 2-66: Birmingham - Response Type

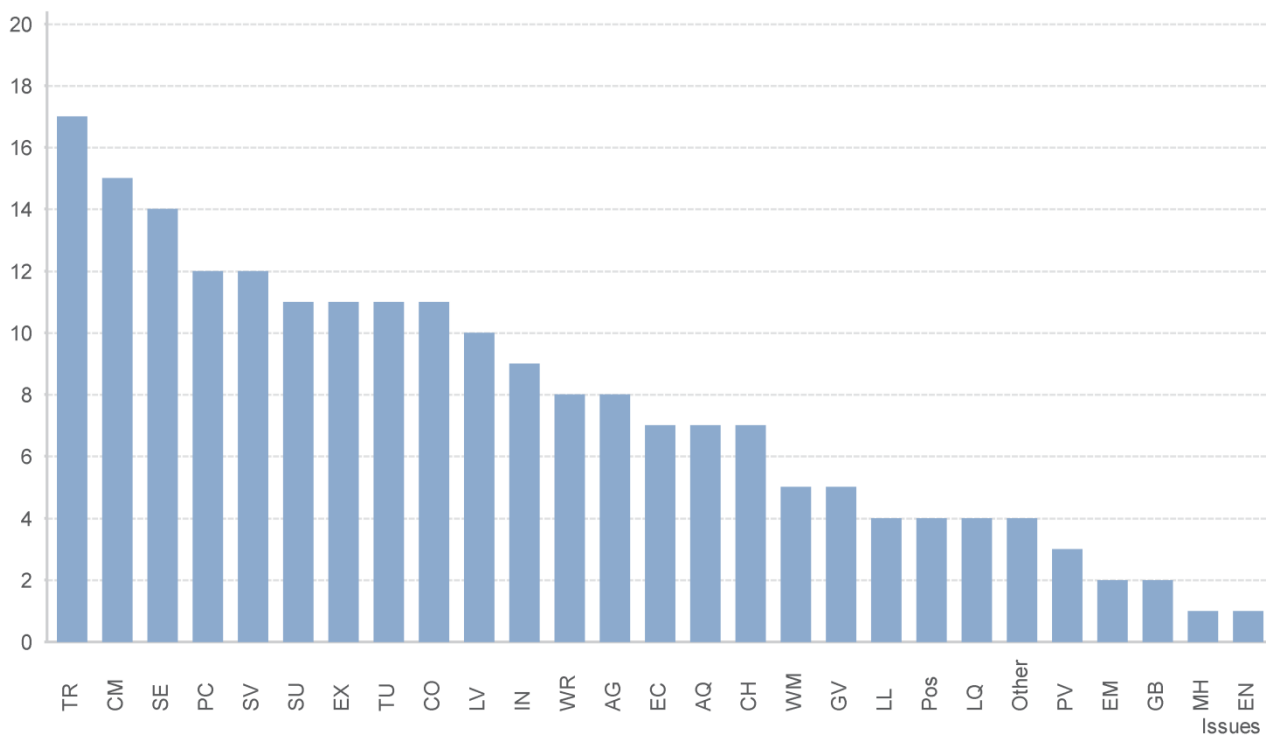


Figure 2-67: Birmingham - Environmental Issues



SUMMARY REPORT

Responses in this category refer to 'Birmingham' without specifying a particular Birmingham-related CFA. Respondents are concerned about the proposed HS2 infrastructure in the area, the purpose of HS2 and the potential impacts it may have through construction disruption across the area, in particular on the existing transport networks and services. This includes rail, road and public transport services.



Report Signature Page

GOLDER ASSOCIATES (UK) LTD

Simon D Aldrich
Project Director

L E Fisher
Project Manager

Author: Simon Aldrich/LF

Date: 7 April 2014

Company Registered in England No.1125149

At Attenborough House, Browns Lane Business Park, Stanton-on-the-Wolds, Nottinghamshire NG12 5BL

VAT No. 209 0084 92

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APPENDIX A

Examples of Campaign Postcards



Important Information

The Government is now asking for the public's views on their Environmental Statement (ES) which sets out the possible impacts of High Speed Two (HS2) on communities & the environment. The ES is part of the Hybrid Bill process which will now be considered by the Houses of Parliament.

This is your opportunity to inform Parliament about how HS2 will affect

- YOUR quality of life
- YOUR environment and
- YOUR community.

Please make the most of this opportunity to ask Parliament to make changes to the scheme to give Ickenham, Ruislip and Harefield residents the best possible protection. It is important you raise concerns now so you can seek further mitigation if the scheme progresses.

Please fill in the reverse with your details (or it won't count!) and post it.
NO STAMP IS NEEDED.

Please remember to post your postcard by the January 22nd 2014 (to arrive by the Government's January 24th deadline)

Alternatively you can also respond by emailing your comments to:
HS2PhaseOneBillES@dialoguebydesign.com

Or you can also obtain a longer response form from the government on line by visiting:
<https://www.gov.uk/government/consultations/hs2-phase-one-environmental-statement>

Anyone affected can and should respond, not just one per household but each affected resident. If you want more postcards to distribute to friends and family (because anyone affected can respond), or if you have any queries, or need some advice, please contact us at:
info@hillingdon-against-hs2.com.

No
Stamp
Required

FREEPOST RTEC-AJUT-GGHH
HS2 Phase One Bill
Environmental Statement
PO Box 70178
London
WC1A 9HS

13 JAN 2014

D2450

DEAR PRIME MINISTER AND SECRETARY OF STATE FOR TRANSPORT, THIS IS MY INITIAL RESPONSE TO THE ENVIRONMENTAL STATEMENT CONSULTATION IN PARTICULAR REGARDING CFA 6 & 7. I am deeply concerned by the rejection by the Secretary of State for Transport & HS2 Limited of an extended railway tunnel for the Ickenham & Harefield areas of west London for reasons not properly explained (so presumed to be for entirely monetary reasons). The consequences of this extremely poor environmental decision in favour of a surface rail route in this area are apparent in your Environmental Statement. Some consequences already apparent include:

- **"MAJOR ADVERSE EFFECT ON THE AMENITY OF RESIDENTS, WHICH IS SIGNIFICANT"** and absolutely no benefit or gain from **HS2** to any affected local community.
- **"MAJOR ADVERSE"** effects including visual, noise and destruction caused by the construction and use of a 3.4km concrete viaduct in Harefield.
- **"MAJOR ADVERSE"** effects from increased traffic on many important residential roads & commuter routes in Ickenham, Ruislip and Harefield. The monetary value of increased congestion & loss of time does not appear to have been evaluated.
- **"SUBSTANTIAL ADVERSE"** effects of Nitrous Dioxide (NO2) on important residential roads & school travel routes. You must be aware that increased diesel particulates and NO2 emissions are a considerable health hazard for the school children who use these routes, as well as being hazardous to people with asthma. **"TEMPORARY SIGNIFICANT EFFECTS"** of NO2 in other local areas.
- **"SIGNIFICANT"** effects from construction noise for thousands of residents for up to 10 years. As well as continuing noise for those near to the route afterwards.
- **"MAJOR ADVERSE"** effects at important community facilities such as footpaths, Blenheim Care Centre for the elderly, Ruislip & Haste Hill golf clubs, Ruislip Rifle Club and the Hillingdon Outdoor Activity Centre (used by thousands of children annually, including many disadvantaged children).
- I am concerned about your plans for sustainable placement of materials – 3m high in local fields' i.e. the permanent dumping of waste across green belt fields in Ickenham and Harefield with the associated noise and pollution issues plus despoiling and forever changing our landscapes.
- I am also concerned about the treatment of contaminated soils and storage of contaminated material in a site between Harvil Road and Breakspear Road South.
- I have concerns about impacts on properties from tunnelling and vibration both during construction and operation.
- No reassurances have been given over hours of operation / traffic and the suggestions have been that hours are flexible as and when you or your agents see fit.
- No information has been provided about the impact & length of utilities work which will exacerbate many of the construction issues and impact a wide range of roads in the area
- **The full range of local impacts likely to affect me, my environment & quality of life is not yet apparent because of the unfairly & inappropriately short length of time you have given (and over the Christmas period) to read an extraordinary number of documents amounting to over 50,000 pages. I demand the right for redress of all further concerns as they gradually become apparent after this unfairly short consultation period, the legal minimum allowed. This situation is worsened by the failure of **HS2** or the **DfT** to hold a consultation event where maps and staff were available for advice / questions.**
- **But even so it's apparent that despite the huge quantity of documents, the quality of local detail is shockingly poor and unfit for the purpose of making any important decisions which will affect the environment & quality of life in Ickenham, Ruislip & Harefield for years to come.** (For example the traffic analysis published by **HS2** Ltd is based on out of date & unsuitable data - it even ignores more recent & more suitable data gathered in 2012 by Robert West on behalf of the London Borough of Hillingdon, which showed peak traffic volumes on Ickenham High Road to be nearer 1,900 vehicles, against the 1,076 in the **HS2** report – so there's over 70% more existing traffic than has been acknowledged by **HS2** Ltd.)
- **THESE LOCAL IMPACTS, & MANY MORE ENVIRONMENTAL IMPACTS NOT YET UNCOVERED FROM THE HUGE AMOUNT OF DOCUMENTS, CAN BE AVOIDED BY EXTENDING THE NORTHOLT TUNNEL FURTHER WESTWARDS. SUCH AN ENVIRONMENTALLY SENSIBLE DECISION COULD MAKE USE OF SCALE ECONOMIES SINCE TUNNEL EQUIPMENT WOULD ALREADY BE IN PLACE, AND WOULD THEREFORE LIKELY PROVE TO BE COST EFFECTIVE AS WELL.**

My other/main concerns

Name:

[REDACTED]

Date:

11-1-14

Address:

[REDACTED]

Postcode:

[REDACTED]

D2451

From: [REDACTED]
To: [HS2PhaseOneBillES](#)
Subject: HS2 Environmental Statement
Date: 07 February 2014 11:23:58

To Rt Hon Patrick McLoughlin MP

Secretary of State for Transport

Dear Sir,

Response to Phase 1 Environmental Statement Consultation

Your Department recently published an Environmental Statement (ES), which set out the impact of Phase 1 of HS2 on the environment and is currently asking people for their views on this document.

The ES makes clear that there will be numerous highly adverse environmental consequences arising from HS2. These impacts include disruption to drinking water supplies, loss of irreplaceable wildlife species and habitats and deafening noise for thousands.

I believe these impacts are unacceptable.

Even worse, HS2 won't even succeed in reducing the UK's carbon emissions. Your own business plan for HS2 forecasts just 1% of passengers will transfer from air and 4% from cars. Most trips on HS2 will either be transferring from existing rail (which emits less carbon) or wholly new trips.

That cannot be right.

The plans set out in the Environmental Statement indicate a consistent failure across the route of Phase 1 to live up to Government promises to deliver proper mitigation.

Effective mitigation must be a priority if HS2 proceeds.

You've asked the people to give their say on the environmental impact of HS2 - my view is that for the reasons identified above HS2 is not an environmentally sustainable project.

This is my submission to the consultation.

Yours faithfully,

[REDACTED]

[REDACTED]

27 FEB 2014

FREEPOST RTEC-AJUT-GGHH



HS2 Phase One Bill Environment Statement

PO Box 70178

London

WC1A 9HS

D2453

First Name: [REDACTED]

Surname: [REDACTED]

Address: [REDACTED]

Postcode: [REDACTED] ...Email: [REDACTED]

Question 1: Non technical Summary

7.3 - Air Quality - disregards local traffic increase forecast of 2000 additional vehicle movements every day, as well as impact from Dust from the works for 6 years with Southam being in the prevailing wind direction

Question 3: Community Forum Area reports. CFA16 Ladbroke & Southam

. No impact of Light pollution on a site assessed at "Dark skies" by CPRE & Astro Soc

. 5.4.12-24 - the phrase "minor adverse effect" & "isolation effect on residents is assessed as negligible". No assessment has been carried out of the effect on the community & Business of Southam and the surrounding Villages of both the additional vehicle traffic, 2000 extra lorries every day, the majority 40Ton, and 4 roads, exits from Southam to South and West, (A423, B4451, A425 & Welsh Road West), as well as the Road closure of the Long Itchington Road & the re-alignment of the Fosse Way at the Junction of the Welsh Road West - For up to 6 years - Southam itself could become marooned, and business massively impacted, with a consequent on impact on individuals & the community.

7.4.3-9 Bascote Heath (Long Itchington) Woods - This is an SSSI, and no impact assessment has been carried out on the effects of tunnelling and construction on the woods

Flood risk assessment from the works does not appear to have been fully carried out.

03 FEB 2014

FREEPOST RTEC-AJUT-GGHH

**HS2 Phase One Bill Environmental Statement
PO Box 70178
London**

WC1A 9HS

D2455

First name [REDACTED] Family name [REDACTED]

Address [REDACTED] Postcode [REDACTED]

Regarding the HS2 Phase One Bill Environmental Statement *(Please tick all boxes applying to you.)(*Delete as applicable)*

Construction works for Euston and the Link across Camden to HS1 would cause massive disruption *(and delay to road traffic)* in Camden for a long time. There is no description of how delay might be avoided or of how inconvenience and/or loss of trade to residents and businesses will be compensated.

☒
☐

My home* / business* would be demolished. There is no explanation of how or when I will be rehoused in the Camden community and kept financially whole.

My home* / business* environment would be badly harmed by the proposed construction works. There is no indication of how the harm could be avoided or of how the harm could be comprehensively measured and compensated for.

☒

There is insufficient detail in the HS2 Phase One Bill Environmental Statement for Camden for me to have any degree of confidence that HS2 Limited is taking all reasonable measures to minimise harm to my living or working environment.

☒

HS2 Limited has failed to demonstrate why its prime London station should be at Euston rather than at Old Oak Common.

☒

There is no demonstrable business case for the tunnelled and surface link to HS1 that would justify either the construction cost or the environmental and economic damage to Camden.

☒

HS2 Limited has totally failed to openly and honestly evaluate suggested alternatives to its "own" proposals such as the Double Deck Down scheme and a fully tunnelled link to HS1. It can thus not justify the environmental consequences of its proposals.

☒

Other comments *(please describe)*.

[REDACTED]

☒

Please either Freepost this card or you might prefer to email your comments to HS2PhaseOneBillES@dialoguebydesign.com

This is my response to the principle of HS2 and the environmental Statement

- **I am opposed to the principle of HS2.**
- **If it proceeds, all blighted home owners must be properly compensated.**
- **A short cut and cover tunnel is the only means of providing minimum mitigation against the major adverse visual and noise impact on Hints village, the surrounding areas and its protected landscape including the Ancient Woodlands.**

Name: [REDACTED]

Address: [REDACTED]

Post Code: ... [REDACTED]

Please post this card by Monday 20th January 2014
Closing Date for Submissions : Friday 24th January

This is my response to the principle of HS2 and the Environmental Statement.

- I am opposed to the principle of HS2
- If it must go ahead there must be effective mitigation which must include lowering the line beneath the WCML and A38 near Lichfield (CFA 22)
- If it must go ahead affected people must be properly compensated

Further comments:

.....

.....

Name: [REDACTED]

Address: [REDACTED]

Postcode: [REDACTED] [REDACTED]

YOU MUST INCLUDE YOUR NAME, ADDRESS & POSTCODE FOR THIS TO BE VALID.

**PLEASE POST THIS CARD BY MONDAY 20TH JANUARY 2014
CLOSING DATE FOR SUBMISSIONS: FRIDAY 24TH JANUARY**

STOP HS2

www.stophs2.org

HS2 ACTION
ALLIANCE

www.hs2actionalliance.org

D2458

14 JAN 2014

NO STAMP
REQUIRED

Please deliver to:

FREEPOST RTEC-AJUT-GGHH

HS2 Phase One Bill Environmental Statement

PO Box 70178

London

WC1A 9HS

D2459

Consultation response to HS2 Phase 1
environmental statement,
Community Forum Area 2 (CFA2)

See what's proposed at
<http://tinyurl.com/HS2CamTnEnvSt>

Since I would be materially affected by
the proposed HS1/HS2 Link line above
the ground through Camden Town and
the intolerable disruption it would cause
for years of construction, I submit this
as my response:

**"IF an HS1/HS2 Link line is built across
Camden Town, it should be tunnelled."**

Name: [REDACTED]

Address: [REDACTED]
[REDACTED]

Postcode: [REDACTED]

Signature: [REDACTED]



This initiative is promoted by local
Liberal Democrat Camden Councillors:
Paul Braithwaite, Chris Naylor,
Matt Sanders, Jill Fraser, Rahel Bokth
and Tom Simon, who support Camden
Council's cross-party opposition to the
potential impact of HS2 on Camden.

**PLEASE FILL IN THIS CARD, SIGN AND
POST TO ARRIVE BY 24 JANUARY, 2014**

D2460

Royal Mail
13:01:14
08:07 pm
44002356

Greenford/Windsor

Mail Centre



FREEPOST RTEC-AJUT-GGHH
HS2 Phase One Bill
PO Box 70178
London
WC1A 9HS

14 JAN 2014

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D2461

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solutions@golder.com
www.golder.com

Golder Associates (UK) Ltd
1 Alie Street
London
E1 8DE
UK
T: [+44] (0) 20 7423 0940



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D2462

High Speed Two Phase 2b
Crewe to Manchester,
West Midlands to Leeds
Response to
HS2 Phase Two Consultation: Appraisal
of Sustainability (Question 7)



Department for Transport

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

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

Telephone: 020 7944 4908

General email enquiries: HS2enquiries@hs2.org.uk

Website: www.gov.uk/hs2

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D2464

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Executive summary

In July 2013 the Secretary of State launched a seven-month period of public consultation on proposals for Phase Two of High Speed Two (HS2), the high speed rail network from the West Midlands to Manchester, Leeds and beyond. Phase Two follows on from Phase One, the route from London to West Midlands, which is at a more advanced stage of development and approval.

Amongst other questions, the Phase Two public consultation asked for responses on the Appraisal of Sustainability (AoS) process (question 7 of the consultation questions). The findings of the AoS for the Phase Two scheme were reported in detail in the *Sustainability Statement - Volume 1: main report of the Appraisal of Sustainability, 2013*¹. The AoS process has been used to help HS2 Ltd take account of sustainability issues at each stage of Phase Two's development.

Consultation on Phase Two closed at the end of January 2014. The collation of responses to the consultation was independently carried out by Ipsos MORI, which has prepared an independent Consultation Summary Report summarising the overall response to the Phase Two consultation. The report was published as part of the route decision on the section of route between the West Midlands and Crewe, referred as Phase 2a (see www.gov.uk/hs2). The report provides an HS2 Ltd response to feedback from question 7 of the consultation, regarding the AoS. This is achieved by addressing concerns raised and providing details on the next steps. An earlier version of this report was published in support of the decision on Phase 2a in November 2015. This report has been updated in light of developments in policy and legislation.

We received a wide range of consultation responses from individuals and organisations in response to the AoS. Whilst a number of responses were supportive of HS2 and our approach to sustainability, many of the responses raise concerns regarding Phase Two, and HS2 more widely, in regard to sustainability.

We maintain that our approach to examining the impacts on the environment and communities through the AoS process remains robust and is appropriate for the purpose it was designed for.

Many of the issues raised will be appropriately addressed during the Environmental Impact Assessment (EIA) at the next stage of the project, this will include more detailed analysis of the design, environmental impact and potential mitigation options. The Environmental Impact Assessment Report (EIAR), will report the findings of the EIA and will accompany a hybrid Bill required to authorise the proposals.

¹Available online at:

http://assets.hs2.org.uk/sites/default/files/consultation_library/pdf/PC205%20Vol%201%20Sustainability%20Statement%20180713.pdf

1 Introduction

1.1 Context

- 1.1.1 HS2 is the Government's proposed high speed railway between London, Birmingham, East Midlands, South Yorkshire, Manchester and Leeds, with connections to the wider network. Proposals for Phase One of HS2, between London and the West Midlands, are well advanced. The Government deposited the Phase One hybrid Bill with Parliament in October 2013, through which it is seeking the necessary powers to construct and operate Phase One. The Phase One Bill has made good progress through Parliament and could be given Royal Assent by the end of this year.
- 1.1.2 Phase Two is at an earlier stage of development. Since 2010, HS2 Ltd and its consultants have developed, appraised and sifted several hundred options for routes, stations and depots. In July 2013, a seven-month 'High Speed Rail: Consultation on the route from the West Midlands to Manchester, Leeds and beyond' was launched, with a closing date for responses at the end of January 2014.
- 1.1.3 In November 2015 the Government announced its intention to bring forward construction of a 60km section of Phase Two between the West Midlands and Crewe (also known as 'Phase 2a'). This is part of the Government's ambition to bring benefits to the North sooner than originally planned. Phase 2a is expected to be operational by 2027. A separate hybrid Bill for Phase 2a is currently being developed, and is expected to be deposited with Parliament in 2017.
- 1.1.4 The remainder of the Phase Two route (referred to as 'Phase 2b') – from Crewe to Manchester and the West Coast Main Line on the west, and from the West Midlands to Leeds and the East Coast Main Line via the East Midlands and South Yorkshire on the east – is due to be announced by the Government this autumn. A post-consultation sustainability statement, which reports on the sustainability considerations of the Phase 2b route, has been produced².
- 1.1.5 The purpose of the Phase Two consultation was to give individuals and organisations the opportunity to put forward their views and comments on the Government's proposed scheme for consultation (referred to in this report as the 'proposed scheme'). As part of the suite of documents published for consultation, the Sustainability Statement reported on the findings of the Appraisal of Sustainability (AoS). The AoS is the process that allows for the appraisal of the performance of different route options by reporting the impacts on people and the environment at a high level, in order to aid early decision making.
- 1.1.6 The consultation asked a number of questions, of which question 7 pertained to the AoS as follows:

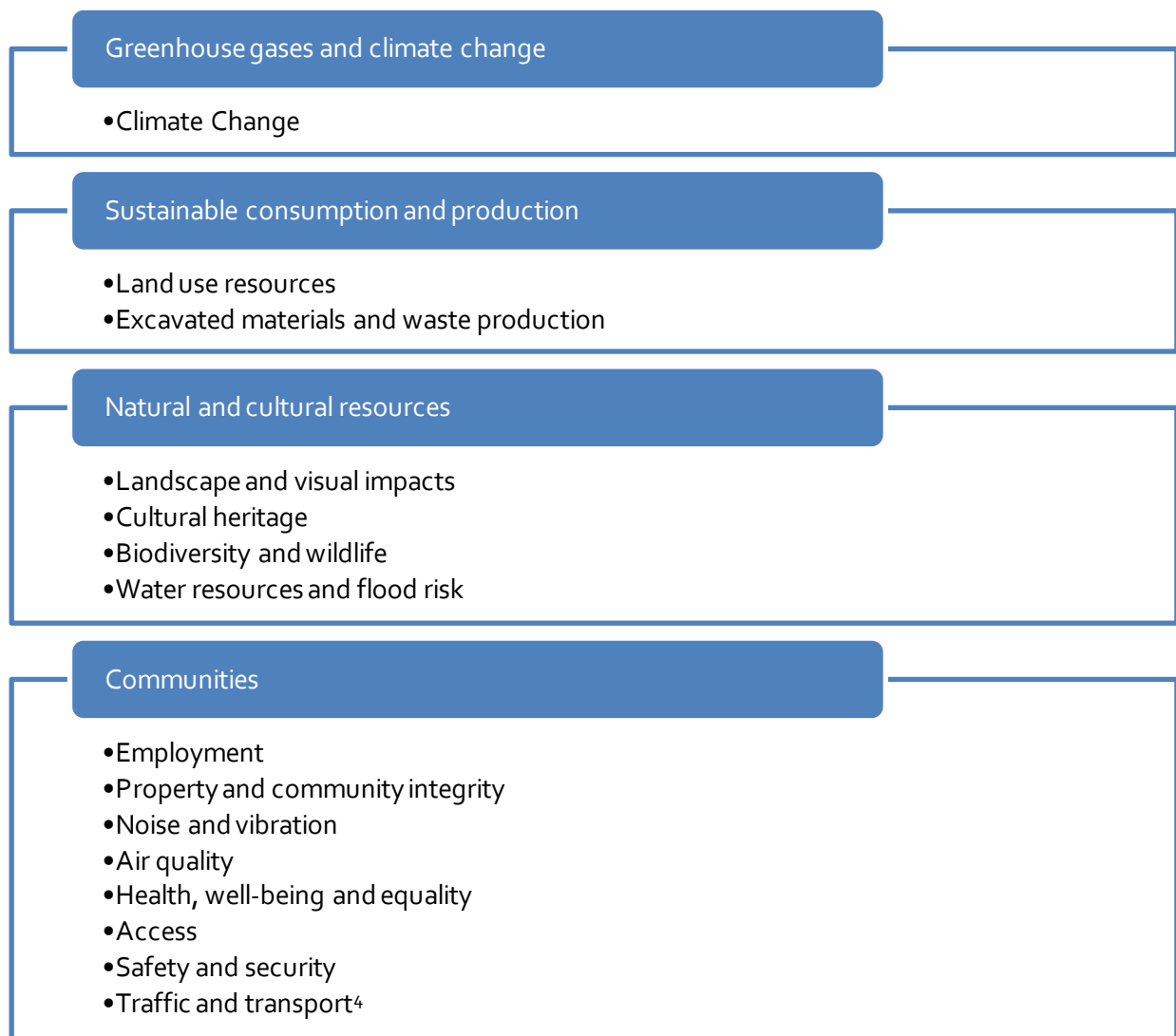
Please let us know your comments on the Appraisal of Sustainability (as reported in the Sustainability Statement) of the Government's proposed Phase Two route, including the alternatives.

² Further information about the announcement can be found at: <https://www.gov.uk/government/collections/hs2-phase-two-from-the-west-midlands-to-leeds-and-manchester>

- 1.1.7 Just over 10,000 responses were received during the consultation period, with around 1,400 responses relating to question 7. Responses were received via a number of different response channels, including online, hard copy, letters and emails, organised campaign responses and petitions. The responses were examined by Ipsos MORI, an independent response analysis company, and presented in a Consultation Summary Report.³ This report provides a HS2 Ltd response to feedback from consultation regarding question 7.

1.2 Structure of this report

- 1.2.1 The AoS addressed 18 sustainability topics derived from Government sustainability priorities. In responding to the comments raised on question 7, this report follows a similar approach to the AoS. Responses have been assigned to a sustainability topic and categorised under one of four headings, shown below.⁴



³ Ipsos MORI Consultation Summary Report, available online at: <https://www.gov.uk/government/consultations/hs2-phase-two-proposed-line-of-route-from-west-midlands-to-manchester-and-leeds>.

⁴ Not all topics covered in the Sustainability Statement are referenced in this report. This is due to lack of sufficient consultation feedback on that particular topic.

- 1.2.2 Each sustainability topic is presented in two parts in Sections 2 to 5 of this report. The first part sets out a 'summary of consultation views', where the main issues arising from consultation for each sustainability topic are presented, as per the Ipsos MORI Consultation Summary Report. The second part provides 'HS2 Ltd's response'.
- 1.2.3 Prior to Sections 2 to 5, the report briefly summarises how sustainability is considered as part of route development (section 1.3). Section 1.4 also reflects on how far the HS2 project has developed as a result of the more advanced Phase One.

1.3 HS2 and sustainability

- 1.3.1 The development of a new high speed rail network will undoubtedly have an impact on the environment and communities it passes. Sustainability considerations have therefore been at the forefront of the route development process. This is demonstrated in HS2 Ltd's Sustainability Policy,⁵ which sets out our approach to such issues.
- 1.3.2 The policy stresses HS2 Ltd's commitment to develop "an exemplar project", and to "limit [the project's] negative impacts through design, mitigation and by challenging industry standards, [while looking] for environmental enhancements and benefits". The policy uses seven themes as a focus for realising HS2's ambitions for promoting high speed rail and balancing community, environmental and economic issues.
- 1.3.3 The AoS is the process that allows for the appraisal of the performance of different route options by reporting the impacts on people and the environment at a high level in order to aid early decision making. It is important to note that the AoS process is applied by independent specialist consultants who work closely with the engineering consultants in developing and appraising options.
- 1.3.4 Once a preferred route is selected, the Environmental Impact Assessment (EIA) process will be used to help assess the likely significant impacts and identify relevant mitigation measures. The EIA would be presented as the project's Environmental Impact Assessment Report (EIAR) which is equivalent to the Environmental Statement (ES) produced for Phase One, and brought before legislators through the Parliamentary process.

Phase Two development

- 1.3.5 In developing Phase Two, a number of different factors and criteria have been taken into account. These include not only sustainability issues (as considered as part of the AoS process) but also engineering complexity, cost and benefits. In developing route options, HS2 Ltd has aimed to avoid key environmental features whilst also attempting to avoid communities. The proposed scheme presented at consultation in July 2013 was, on balance, considered to provide the best fit against the various criteria and the project remit.

1.4 Scheme development

- 1.4.1 HS2 Ltd policies and procedures in relation to the design, construction and operation of HS2 have further developed since consultation on Phase Two was undertaken in July 2013. Much of this information has naturally developed as a result of the more advanced Phase One of HS2.

⁵ Sustainability Policy, available online at: http://assets.hs2.org.uk/sites/default/files/pdf/es_maps_docs/Sustainability%20Policy.pdf

The Phase One Bill included a number of documents, not least a comprehensive ES. In addition, a number of other documents have been prepared which provide information on how HS2 Ltd would manage the environment in relation to design, construction and operation. The following list includes some of the documents produced for Phase One, all of which can be found online using the below links:

- Phase One Draft Code of Construction Practice (CoCP);⁶
- Phase One Draft Environmental Minimum Requirements (EMRs);⁷ and
- Phase One Information Papers⁸.

1.4.2 Additionally, as described in the Draft CoCP, Local Environmental Management Plans (LEMPs) will be prepared for each local authority area for Phase One. These will apply the generic measures set out in the Draft CoCP, to each local authority area.

1.4.3 It is likely that equivalent documents (to those described above) would be developed for Phase 2b to support the next stage of design.

⁶ The Draft CoCP is one of the EMRs. The CoCP was appended to the Phase One ES and deposited with the Bill; the EMRs were published as draft, but not deposited.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/259617/Vol5_draft_code_of_construction_practice_CT-003-000.pdf

⁷ The EMRs set out the high-level environmental and sustainability commitments that the Government will enter into through the hybrid Bill process. <https://www.gov.uk/government/publications/environmental-minimum-requirements>

⁸ The information papers explain the commitments made in the Phase One hybrid Bill and the EMRs and how they will be applied to the design and construction of the proposed scheme. They also provide information about the proposed scheme itself, the powers contained in the Bill and how particular decisions about the project have been reached. <https://www.gov.uk/government/collections/high-speed-rail-london-west-midlands-bill>

2 Greenhouse gases and climate change

2.1 Climate change

Summary of consultation views

- 2.1.1 A range of views were expressed on the carbon emission implications of HS2. Some people expressed views that HS2 would help to reduce carbon emissions, while others raised concerns that the proposed scheme would lead to a net increase in carbon emissions. Others expressed views that the carbon emissions from HS2 had not been examined in enough detail and some questioned how HS2 Ltd could claim net carbon savings from building and operating HS2 whilst the UK's energy system is reliant on fossil fuel as the primary source for generating electricity. There were also criticisms that the construction carbon footprint is very high for HS2 and that the AoS does not account properly for emissions relating to construction materials.

HS2 Ltd response

- 2.1.2 HS2 Ltd is committed (as set out in the Sustainability Policy, Carbon Minimisation Policy⁹ and as demonstrated by the endorsement of the Infrastructure Carbon Review) to minimising carbon emissions. The Sustainability Policy also sets out the objective to build a network which is resilient for the long term and which seeks to minimise the combined effect of the project and climate change on the environment.
- 2.1.3 The carbon assessment,¹⁰ published alongside the Economic Case in October 2013, provided information on the potential carbon impacts of HS2. The assessment included estimates of carbon emissions from a number of sources, each directly or indirectly related to the construction and operation of the railway.
- 2.1.4 We recognise that a number of the concerns raised through consultation were in regard to the uncertainty surrounding the carbon emission implications of HS2. To address uncertainty, the carbon assessment used two scenarios to illustrate two possible futures, with each accommodating a number of different assumptions about the way carbon emissions may change over time.
- 2.1.5 The assessment involved calculating the potential carbon emissions resulting from HS2's construction and operation, and potential reductions in carbon emissions (for example, as a result of people switching to high speed rail services in preference to other transport modes with higher carbon emissions) over the first 60 years (in line with the Economic Case for HS2 and standard methodology used by the Department for Transport) of operation of the full scheme.

⁹ Information Paper E10: Carbon (section 7), available online at: http://assets.hs2.org.uk/sites/default/files/hb_pdf/E10%20-%20Carbon%20v1.1.pdf

¹⁰ Sustainability Statement (2013) Appendix F – 'HS2 and Carbon', available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/400836/hs2ml-carbon_assessment_and_narrative-25thoct13_wed_tagged_version_-_updated_o.pdf

- 2.1.6 The assessment identified that high speed rail offers some of the lowest carbon emissions per passenger kilometre when compared with other transport modes, such as road, conventional rail and aviation. In addition, key carbon benefits will derive from the shift of passengers from these other modes onto HS2. Potential secondary carbon benefits may also arise by increasing the total carrying capacity of the rail transport system; HS2 would provide a means to free up capacity on existing rail networks. If this 'released capacity' can then be used to transfer freight or passenger traffic from higher-carbon modes such as road or aviation to the existing rail network, a further carbon benefit arises.
- 2.1.7 Benchmarking exercises illustrated that HS2's annualised construction and operation carbon emissions in 2030 against the UK's projected carbon footprint in 2030 represents a very small proportion (0.25%) of the UK's transport emissions and an even smaller portion (0.06%) of the UK's total carbon footprint (note that emissions projections are subject to frequent change). Furthermore, the carbon assessment identified that most of the carbon emissions associated with the construction and operation of HS2 will fall within the European Union Emissions Trading System (EU ETS) - a 'cap and trade' system with a decreasing cap over time. This means that, overall, most of HS2's carbon emissions will not contribute to an increase in Europe-wide carbon emissions.¹¹
- 2.1.8 Climate change is an important issue that we are addressing, and we will continue to do this as part of the more detailed assessments in the next stage of the project. At this stage of Phase Two, our approach is based on current guidance and best practice and is considered appropriate for the strategic-level nature of the AoS.
- 2.1.9 As part of an EIA, at the next stage of design, we will undertake further assessment of the carbon implications of HS2 and identify opportunities to minimise the carbon footprint as far as practicable in accordance with HS2 Ltd's Sustainability Policy and Carbon Minimisation Policy.

¹¹ The EU referendum decision is not expected to preclude ongoing negotiation on the EU ETS. The UK will continue to take part in such negotiations to ensure the best outcome.

3 Sustainable consumption and production

3.1 Land use resources

Summary of consultation views

3.1.1 Comments raised through consultation expressed concern over the destruction and loss of green belt land, with suggestions that the status of the green belt had not been given due consideration. Others took the view that building on green belt land could undermine the sustainability of HS2.

3.1.2 Similarly, concern was raised over the impacts on agricultural land, with comments suggesting HS2 may disrupt, destroy or lead to the severance of farms. Linked to this, there were also concerns raised over the impact that lost productive land may have on food security.

HS2 Ltd response

3.1.3 Through the design of Phase Two, HS2 Ltd has considered the impact on green belt land. The AoS considered potential impacts on green belt in terms of length crossed by the route as well as areas of potential landtake at stations and depots. Green belt is designated in the UK for controlling urban growth and preventing the coalescence of main urban areas. A railway through green belt may create pockets of land that are susceptible to development infill and that may conflict with the open and contiguous character for which green belt is designated. However, such infill development pressure would be subject to normal planning requirements, controlled by Local Authorities.

3.1.4 Agricultural land is the most common land use crossed by HS2; therefore, a loss of agricultural land is inevitable in the construction of a new railway. We aim to design a high speed railway that meets modern standards of design, environmental and community protection and makes the most sustainable use of agricultural land disturbed by the construction of HS2. This means that, in most cases, agricultural land will be restored to the same quality, but in some cases the design of the proposed scheme necessarily involves the conversion of land from agriculture to landscape planting and habitat creation to make it environmentally acceptable.

3.1.5 As part of the AoS process, in selecting the proposed route HS2 Ltd has been mindful of the highest quality agricultural land, balanced against a number of other environmental and engineering considerations. The National Farmers Union said in their consultation response that they were concerned that the AoS methodology only addressed Grades 1 and 2 agricultural land and not Grade 3a, which is also classed as 'best and most versatile'. At the AoS stage, HS2 Ltd could only rely on available information which provided complete coverage at the national scale. This information was restricted to the published series of reconnaissance Agricultural Land Classification (ALC) maps, showing five grades of land, but not subgrades 3a and 3b.

3.1.6 Consistent with the approach being taken on Phase One, where land is not required for operational purposes, HS2 Ltd will aim to ensure that agricultural land is restored and put back to agriculture following construction, where possible and appropriate. Where this occurs, topsoil (and subsoil where appropriate) would be stripped from the land prior to construction

and stored separately. Land restoration would be followed by an aftercare period of generally up to five years, during which the land would be managed to achieve the appropriate level of agricultural productivity.

- 3.1.7 At the EIA stage, agricultural specialists would aim to undertake a detailed survey of the quality of all land affected by the proposed scheme, including land taken temporarily for construction as well as land taken permanently out of production (where possible). We will also consider how construction of the proposed scheme may affect land access, severance and field patterns, drainage schemes and water supplies used for livestock and irrigation.
- 3.1.8 We will seek to reduce potential disruption on farmland from the loss of land, demolition of buildings, severance and loss of access. Owners and operators of affected holdings will be entitled to compensation under existing statutory compensation arrangements. In addition, we will aim to engage with relevant farm owners to understand the impacts the route may have on their holdings and examine steps that can be taken to mitigate these impacts.
- 3.1.9 HS2 Ltd has also published the HS2 Guide for Farmers and Growers¹² for Phase One as a means of achieving more effective engagement with this group. The guide sets out HS2 on agricultural property matters including land acquisition, compensation, land management during construction and land restoration.

3.2 Excavated materials and waste production

Summary of consultation views

- 3.2.1 Comments raised through consultation included concerns that building the route would consume a large quantity of resources. Others mentioned that the material resources estimated for the construction of the proposed scheme were inaccurate. Concerns were also raised in regard to excavation activities causing negative localised impacts during the construction phase, with a handful of people raising concerns over the disposal of excess material and waste.

HS2 Ltd response

- 3.2.2 HS2 Ltd aims to be an exemplar project. The HS2 Ltd Sustainability Policy makes a commitment to source and make efficient use of sustainable materials, minimise the proportion of material diverted from landfill and reduce waste.
- 3.2.3 In accordance with the HS2 Excavated Materials Policy, excavated material will only be classified as waste if it is surplus to the design requirements of the proposed scheme. Where surplus excavated material arises, HS2 Ltd would explore opportunities to make beneficial use of this off-site in environmental improvement projects and other developments (where appropriate) before considering landfill as a last resort.
- 3.2.4 The AoS estimated quantities of excavated material likely to be produced based on preliminary designs in advance of any potential mitigation (environmental mitigation earthworks such as noise bunds alongside the route). This is in line with best practice and is considered appropriate for the strategic-level nature of the AoS. The EIAR will consider the

¹² HS2 Guide for Farmers and Growers, available online at: <https://www.gov.uk/government/publications/hs2-guide-for-farmers-and-growers>

use and management of excavated material in more detail, including the transport of excavated material.

- 3.2.5 The AoS also appraised environmental impacts related to land designated for waste disposal, including active and historic landfill sites. Impacts related to these represent both an environmental risk, in terms of the potential contamination pathways created, and a loss of key municipal services.
- 3.2.6 The general principle for HS2 Ltd would be to balance materials taken from cuttings and tunnelling with those required for embankments and environmental mitigation earthworks. Where surplus excavated material arises, HS2 Ltd would explore opportunities to make beneficial use of this off-site in environmental improvement projects and other developments (where appropriate) before considering landfill as a last resort. Phase One is forecast to re-use 86% of excavated material within the proposed scheme (although this figure is subject to change as the design development is ongoing). Similarly, we would seek to ensure that Phase 2b is able to achieve the highest practicable re-use figure.
- 3.2.7 As set out in the HS2 Waste Management Policy, HS2 Ltd will apply the waste hierarchy (see below) in relation to the reduction and sustainable management of solid waste generated from the design, construction and operation of the proposed scheme. The waste hierarchy places waste prevention as the preferred option at the top of the hierarchy followed by re-use, recycling and other recovery with landfill disposal at the bottom, seen as the last resort.

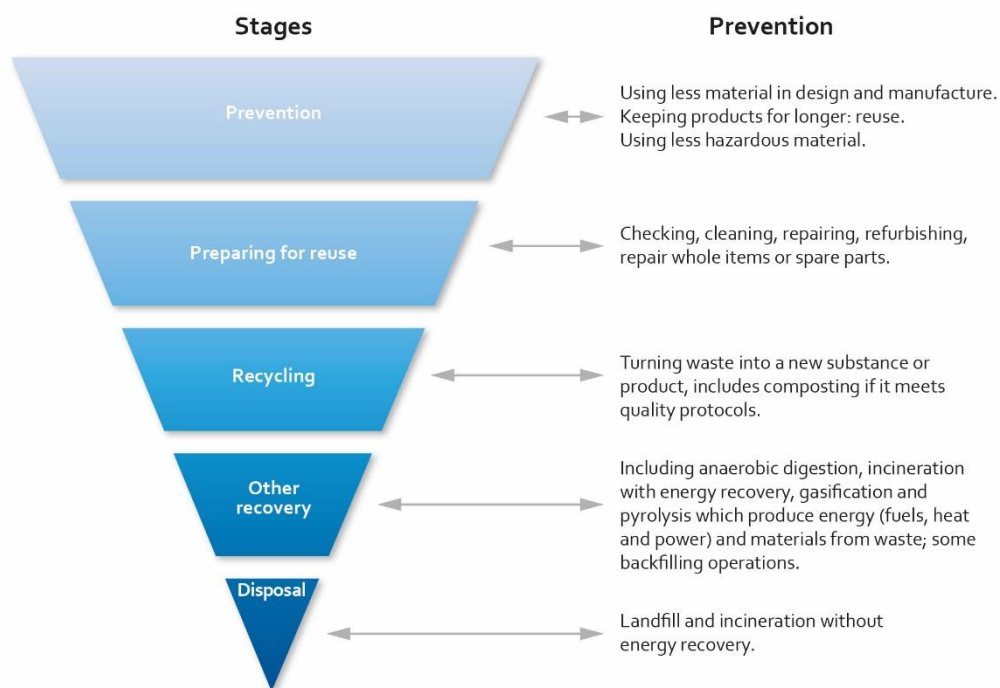


Figure 1 - waste hierarchy

- 3.2.8 HS2 Ltd will seek to avoid impacts on contaminated land, but where it is unavoidable - for example where excavation through landfill is required - HS2 would implement best practice measures to minimise risks to the environment and avoid disposal off-site. These measures would be set out within the CoCP and the LEMPs

4 Natural and cultural resources

4.1 Landscape and visual impacts

Summary of consultation views

- 4.1.1 A number of respondents raised concerns over the impact HS2 may have on the landscape, citing that the route would damage or destroy the countryside. Others noted that the AoS had understated the landscape and visual impacts. Some comments suggested that viaducts would be especially damaging to the landscape and that tunnels ought to have been more widely used to reduce visual impacts.

HS2 Ltd response

- 4.1.2 The AoS has been instrumental in ensuring landscape and visual impacts have been considered throughout the development of Phase Two. This means that, where reasonably practicable, the line of route has been kept deliberately low (as possible) to avoid or reduce landscape and visual impacts.
- 4.1.3 The AoS appraised impacts based on a scheme design without additional mitigation included (e.g. artificial cuttings, earth bunds or landscaped planting to help conceal the railway). With continuing design development, proposals for mitigating impacts will be considered, including possible refinements to the route.
- 4.1.4 HS2 Ltd has produced a Landscape Design Approach (LDA)¹³ which shows the emerging approach to the development of landscape design along the HS2 line of route. The LDA has been produced to guide and direct professionals in the development of all landscape areas, with the aim of achieving an integrated and contextually driven landscape design. The LDA takes into account good practice and has been subject to review by the HS2 Ltd Design Panel.
- 4.1.5 The Government and HS2 Ltd are determined that HS2 builds on Britain's railway engineering heritage, creating impressive stations, viaducts and bridges; and that it should also be sympathetic to the landscape through which it is built. To deliver on that commitment in March 2015, the Government set out the remit for an independent HS2 Design Panel which will be responsible for ensuring design is at the centre of a strategy for making HS2 a world-class railway. The HS2 Design Vision, the first published output of the Design Panel, sets out HS2 Ltd's aspiration for designing the UK's new national high-speed rail network and is based on three core design principles of people, place and time.¹⁴
- 4.1.6 As part of the Phase One hybrid Bill process, a number of information papers have been produced which relate to landscape design, namely, The HS2 Design Policy¹⁵, Green Infrastructure and the Green Corridor,¹⁶ and Maintenance of Landscaped Areas¹⁷. It is likely

¹³ HS2 Landscape Design Approach, available online at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/550791/HS2_Landscape_Design_Approach_July_2016.pdf

¹⁴ HS2 Design Vision, available online at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/475052/HS2_Design_Vision_2015.pdf

¹⁵ Information Paper D1: Design Policy, available online at: http://assets.hs2.org.uk/sites/default/files/hb_pdf/D1%20Design%20Policy_o.pdf

¹⁶ Information Paper E11: Green Infrastructure and the Green Corridor, available online at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/509513/E11_-_Green_Infrastructure_and_the_Green_Corridor_v1.3.pdf

that a similar approach and documentation will be provided for Phase 2b as part of the EIA and hybrid Bill process. In addition, the Draft CoCP for Phase One has stated the general provisions for landscape management. This sets out the appropriate controls to be put in place to help protect the visual amenity in rural and urban areas from construction activities, including designated landscape areas, parks and open spaces and smaller green spaces in urban areas. It is likely that a similar approach will be taken for the CoCP for Phase 2b.

- 4.1.7 At the EIA stage, a landscape and visual impact assessment (LVIA) would be undertaken as part of the EIA; the findings will be detailed in the EIAR and submitted as part of the hybrid Bill that will be scrutinised by Parliament. Further information on the LVIA methodology is contained in the Phase 2a Scope and Methodology Report (SMR)¹⁸. A similar approach would be considered for Phase 2b. Similar to the Phase One EIA, a zone of theoretical visibility (ZTV) may also be produced to assist with determining a study area for the assessment. A ZTV, in accordance with guidance provided by the Landscape Institute, is a computer-generated tool used by specialists to identify the likely (or theoretical) extent of visibility of a development. Therefore, the ZTV would provide an indication of where the proposed scheme could be viewed within a given landscape. This would then inform further stages of design until the project reaches the highest standard possible for protecting the landscape and its amenity.

4.2 Cultural heritage

Summary of consultation views

- 4.2.1 A number of consultation responses raised issues around the impact on heritage assets, including concerns that HS2 may damage or destroy listed buildings. It was also said that the route could pass close to or through heritage sites and local areas of historical significance, which could lead to them being spoiled. Some respondents commented that not enough detail on mitigation was provided for the AoS, with suggestions made that tunnels or cuttings should be used to minimise the impacts.

HS2 Ltd response

- 4.2.2 HS2 Ltd has sought to develop an alignment that would limit impacts upon heritage assets throughout the development of the Phase Two proposals. Potential effects on designated assets – listed buildings, registered parks and gardens, battlefields, scheduled monuments and conservation areas – have been considered throughout as part of the AoS process. This process has included consideration of physical impacts (for example, the removal of archaeological remains due to construction) and the effects upon the settings of heritage asset (for example, on a listed building). Discussions during the AoS process have been undertaken with stakeholders including Historic England and the National Trust to understand their views.
- 4.2.3 Route development has sought to balance a number of factors, such as the impact on communities, business and other environmental aspects. It has also balanced engineering

¹⁷ Information Paper E16: Maintenance of Landscaped Areas, available online at:

[https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/437393/E16 - Maintenance of Landscaped Areas v1.2.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/437393/E16_-_Maintenance_of_Landscaped_Areas_v1.2.pdf)

¹⁸ HS2 Phase Two West Midlands to Crewe: EIA Scope and Methodology Report, available online at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/506111/HS2_Phase_2a_EIA_Scope_and_Methodology_Report_Final_for_Comms_08-03-2016_WEB_1400.pdf

complexity and cost. It has not been possible to design the route without impacts on heritage assets.

- 4.2.4 As in the Phase One EIA, research during the EIA for Phase 2b will be undertaken to assess known non-designated assets, and evaluation and survey to identify currently unrecorded heritage assets. This research will inform the development of the design, both for further historic environment investigation and proposals for design to reduce the impact in the setting of heritage assets.
- 4.2.5 We are committed to a best practice approach, building on the measures that are being developed for Phase One and similar schemes (e.g. Crossrail, High Speed One (HS1) and highway schemes). Where heritage assets are affected, HS2 Ltd will seek to use the opportunities presented to deepen our understanding of the history of England. This includes, as appropriate, the investigation and recording, preservation in situ and/or the mitigation of the impact on the setting of heritage assets through good design. Engagement with Historic England and local authority archaeologists and conservation officers will be undertaken as part of the EIA, as well as other stakeholders such as the National Trust.

4.3 Biodiversity and wildlife

Summary of views

- 4.3.1 A range of views were expressed on biodiversity and wildlife, including that the route would cause damage to ecological habitats, protected species and biodiversity, and that Sites of Special Scientific Interest (SSSIs) may be put at risk. There were specific concerns related to ancient woodland and national forests, with suggestions that HS2 Ltd would not properly compensate for the loss of these sites. There was concern from some respondents over the use of the mitigation hierarchy, with potential confusion over the terminology used. Concerns were also raised regarding the absence of Local Wildlife Sites in the AoS methodology. A number of responses mention that the initial proposals for HS2 have the potential for delivering biodiversity enhancements.

HS2 Ltd response

- 4.3.2 HS2 Ltd has sought to develop an alignment that would limit the impact on biodiversity and wildlife sites. The HS2 Sustainability Policy makes a commitment to seek no net loss to biodiversity. Through the AoS process, we have sought to balance the need to avoid a range of important environmental features as well as existing communities. This has been balanced alongside engineering complexity, cost and other factors.
- 4.3.3 HS2 Ltd has sought to avoid impacts on internationally designated sites. Where it has been agreed with Natural England that there is potential for significant effects on such sites, we have undertaken assessments as required under the Habitats Regulations, where necessary. For example, a Habitats Regulations Screening Assessment was undertaken for the Manchester Meres and Mosses Special Area of Conservation (SAC). This assessment determined that some route options could result in a 'likely significant effect' on some of the sites that comprise the SAC. By following the screening process and taking the findings into account, an option was chosen that would have no likely significant effect.

- 4.3.4 There was only one SSSI identified as being potentially directly affected by the proposed scheme. Measures to mitigate the impact on this feature will be considered as the scheme develops. Local Wildlife Sites (non-statutory sites of local importance for nature conservation) were not included in the methodology at the AoS stage. This was due to the high-level nature of the AoS and the difficulty in sourcing up-to-date datasets across the entire Phase Two route. As per the Phase One EIA, Local Wildlife Sites will be considered and assessed during the EIA for Phase 2b.
- 4.3.5 Route development seeks to avoid communities and a wide range of environmental features; the outcome is a balance, taking account of all relevant considerations. For this reason it is not practicable to avoid all ancient woodlands. Through the AoS process, we have sought to initially avoid ancient woodlands and where this is not possible, we have sought to reduce the scale of the effect. We recognise that ancient woodland is irreplaceable and we will continue to consider ways in which such loss can be reduced as the design progresses.
- 4.3.6 We are committed to a best practice approach, building on the measures that are being developed for Phase One. This includes use of recovered ancient woodland soils from the affected areas to assist woodland creation in receptor areas that will be identified during the EIA process. Other measures that will be adopted, where appropriate, to enhance woodland creation will include planting native tree and shrub species of local provenance and translocation of coppice stools and dead wood. Opportunities to create links between existing areas of ancient woodland will also be considered.
- 4.3.7 Our approach to mitigation follows the mitigation hierarchy, as set out in the AoS (see figure 2, below) and is consistent with the National Planning Policy Framework and is supported by Natural England. The mitigation hierarchy puts measures in place to 'avoid' any adverse impacts in the first instance. Where ecological impacts cannot be avoided, we would strive to adequately 'reduce', 'abate' and 'repair'. As a last resort, we would aim to 'compensate', ideally at a site connected to where the ecological damage has occurred.

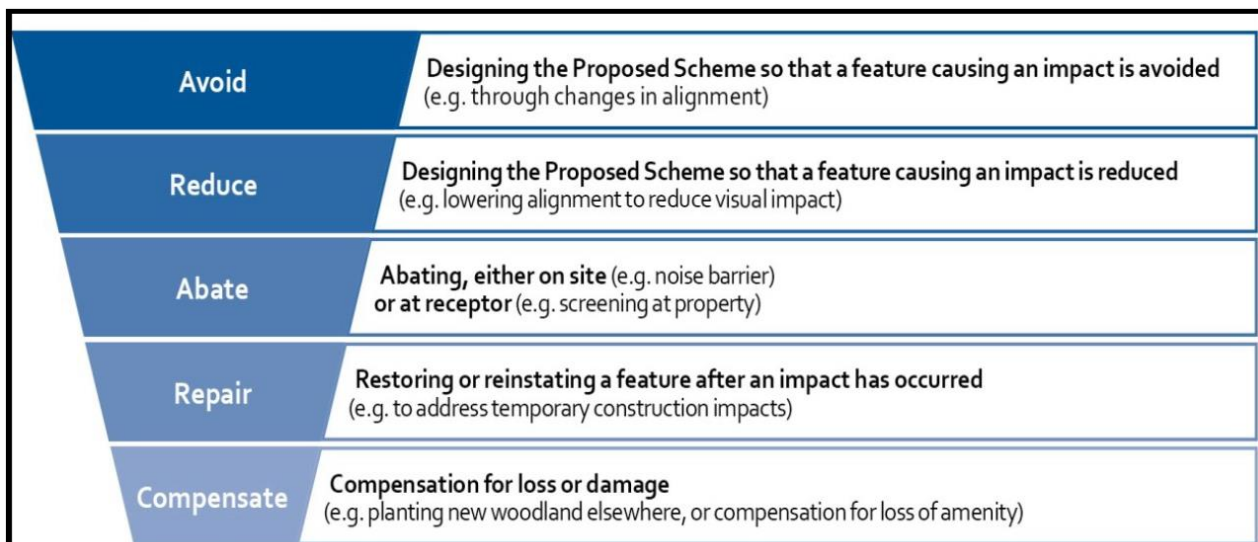


Figure 2 - mitigation hierarchy

4.4 Water resources and flood risk

Summary of views

- 4.4.1 There was concern from some that HS2 would lead to an increased risk of flooding. Other comments suggested that HS2 would be built on areas prone to flooding or on flood plains. A number of concerns were also raised that HS2 would give rise to pollution of watercourses and other waterbodies.

HS2 Ltd response

- 4.4.2 HS2 Ltd is committed to ensuring that our proposals do not put water resources at risk, whether from increased surface or groundwater abstraction, or from contamination. HS2 Ltd has a design aim that there will be no increased risk of flooding on more/highly vulnerable receptors (as defined in the National Planning Policy Guidelines) for the lifetime of the development, taking projected climate change impacts into account. If required, HS2 Ltd would mitigate for the loss of floodplain by creating replacement floodplain storage areas.
- 4.4.3 The AoS used Environment Agency mapping to identify areas of flood risk alongside watercourses with a catchment size of 4km² or more and for smaller catchments with a history of flooding. The AoS also examined impacts on groundwater according to the strategic importance of aquifers, how vulnerable they are to pollution and proximity to major groundwater abstractions (larger than 1,000 m³/day).
- 4.4.4 At the next stage of design, the impacts on surface water, groundwater flows and quality would be assessed and, if required, a strategy to manage potential adverse effects would be agreed with the appropriate regulatory authority, such as the Environment Agency or Lead Local Flood Authority, and where appropriate, statutory water undertakers. The design of the proposed scheme would seek to ensure the protection of controlled waters from pollution.
- 4.4.5 Similar to Phase One, Phase 2b would develop a Draft CoCP which would set out control measures and standards to be implemented throughout the construction of HS2. The Draft Phase One CoCP sets out how the nominated undertaker will require its contractors to manage their site activities and working methods to protect the quality of surface water and groundwater resources from adverse effects and avoid increases in flood risk.
- 4.4.6 As the plans for Phase 2b develop, design opportunities to improve the waterbodies to meet the Water Framework Directive (WFD) objectives will be sought, where reasonably practicable. The WFD is European Union legislation (2000) brought into UK law in 2003 with a requirement on the Government to first assess the chemical and ecological status of waterbodies across the UK and then to prepare River Basin Management plans to achieve good ecological and chemical status for all water bodies. WFD assessments will be undertaken for the proposed scheme, the aim of which will be to ensure that it complies with the requirements of the WFD.
- 4.4.7 At the EIA stage, HS2 Ltd will continue to engage with the Environment Agency, Lead Local Flood Authorities, Internal Drainage Boards, the Canal & River Trust and any other relevant stakeholder, such as water companies, to ensure that significant effects can be managed and mitigated appropriately. We will seek to ensure proposals for permanent structures and temporary works over watercourses, drainage layout, and mitigation plans are designed in the

most suitable way. This will include WFD assessments including local and cumulative impacts, wider ecological appraisal and appropriate mitigation.

5 Communities

5.1 Employment

Summary of views

- 5.1.1 There was a mixed response to this topic, with respondents suggesting that HS2 would have a positive influence on employment and would create opportunities during the construction phase, particularly by bringing employment to the North. However, concerns were also raised that the route would not create enough stable employment or long-term job security, with the majority of the jobs being created during the construction phase. There were also concerns that figures used in the AoS for estimated numbers of jobs supported could not be substantiated. There was concern that the proposals would benefit London at the expense of other city regions. It was noted among some respondents that there would be no benefit to communities along the line of route.

HS2 Ltd response

- 5.1.2 The AoS reported that the full HS2 scheme (Phase One and Phase Two combined) could support up to some 100,300 jobs (including up to 43,600 for Manchester and 26,700 for Leeds). This number is based on the anticipated additional floorspace of commercial and retail development calculated for scenarios both with and without HS2 to determine the net difference. It should be noted that these figures are relatively conservative and it is acknowledged that the actual estimate could be significantly higher. This is because the appraisal cannot predict the extent to which a high speed rail station could itself affect transformation in and around stations by unlocking significant development opportunities providing additional jobs and economic activity. The Core Cities group estimates the total number of jobs supported by the full HS2 route could be as many as 400,000 jobs¹⁹.
- 5.1.3 Estimates of direct employment for Phase Two were reported in the Sustainability Statement. Based on experience of previous large infrastructure projects, it is predicted up to 10,000 jobs would be required at the peak of construction. The operational scheme is expected to require an estimated 1,400 permanent jobs in operations and maintenance activities.
- 5.1.4 HS2 would benefit far more than London alone. There has been much debate about the scale of the potential economic benefits of HS2 and their distribution between North and South. An initial analysis, carried out by KPMG²⁰ on behalf of HS2 Ltd, looked at the potential benefits of HS2 by examining how improvements in connectivity would increase regional competitiveness (London included) and change the future pattern of growth. These effects are expressed in two ways:
- Businesses becoming better connected to one another – businesses are better able to connect with potential suppliers, enabling them to access higher quality and/or lower cost inputs; closer to competitors, with opportunities to learn from each other and

¹⁹ HS2: an engine for growth, available online at: <https://www.gov.uk/government/publications/high-speed-two-an-engine-for-growth/high-speed-two-an-engine-for-growth>

²⁰ 'HS2 Regional Economic Impacts', KPMG (2013) available online at: <http://assets.hs2.org.uk/sites/default/files/inserts/HS2%20Regional%20Economic%20Impacts.pdf>

pressure for increased efficiency; and better able to connect with potential customers, enabling them to supply markets further afield.

- Businesses becoming better connected to labour – individuals are able to access more jobs, whilst businesses are able to draw on a wider and deeper pool of potential workers.

- 5.1.5 The results from the KPMG analysis suggest that while all regions benefit, the city regions in the Midlands and the North that will host HS2 stations do particularly well. For example, it suggests that in 2037 HS2 could provide a boost to the Birmingham city region equivalent to between 2.1% and 4.2% of its Gross Domestic Product (GDP). For the Manchester city region the figure is 0.8%-1.7%, for the Leeds city region 1.6% and for Greater London 0.5%. This contradicts suggestions that London will benefit from HS2 at the expense of regions in the Midlands and the North. It should be noted that this analysis is a first attempt to tackle the challenging issue of how HS2 will affect the economic geography of the UK.
- 5.1.6 HS2 Ltd is undertaking a programme of work to understand more fully the mechanisms by which HS2 could increase productivity, and ultimately sustainable economic growth, and how the benefits of HS2 might be spread across the country.

5.2 Property and community integrity

Summary of views

- 5.2.1 There was unease expressed at the negative effects that the proposed scheme could have on property, with concern that HS2 could lead to a large number of demolitions with further properties rendered uninhabitable due to the proximity to the line of route, depots and stations.
- 5.2.2 There were a wide range of comments about the perceived negative impact that the route could have on communities, including that HS2 might disrupt, destroy and isolate communities. Others stated that the proposed line of route was already having a negative impact upon communities.

HS2 Ltd response

- 5.2.3 The AoS considered the physical impacts of HS2 on property in terms of potential demolitions. We have sought to limit the impacts to property and communities by designing the railway to avoid, insofar as possible, existing settlement and communities (residential and commercial).
- 5.2.4 The AoS also sought to appraise the impact HS2 may have on severance and/or isolation of residential communities. Severance could occur when settlements are divided by the route, leaving some people separated from certain community facilities. Isolation could occur where areas become enclosed between the route and other existing infrastructure (such as motorways or railways) or large linear features, such as rivers. In most cases, wherever roads would be crossed by the proposed scheme or its construction, access would be maintained, where appropriate.
- 5.2.5 In order to help alleviate some of the concern residents may have over property blight, particularly given the long timescale for developing HS2, the Government has introduced a discretionary Exceptional Hardship Scheme (EHS) for Phase Two. Under the EHS, residential,

agricultural and small business owner-occupiers whose properties may be affected by the construction or operation of the proposed route, and who can demonstrate that they satisfy the criteria of the proposed scheme, are able to apply to have their properties bought by the Government at their full un-blighted value.

- 5.2.6 As Phase One is at a more advanced stage of scheme development, the Government has introduced a range of additional discretionary compensation provisions, on offer to residents affected by the scheme. These include the Express Purchase Scheme, whereby the Government will accept Blight Notices from eligible property owners whose properties are substantially within the safeguarded area, even if it is not yet clear whether the property would actually be needed for the construction or operation of the railway. These provisions are in addition to statutory provisions for people whose property is within the safeguarded zone.
- 5.2.7 Following a route announcement, the Government would introduce a property compensation consultation which would seek the public's views on the measures available to property owners near the route of Phase 2b. At the EIA stage, we will provide further detail on the likely effects of the Phase 2b route on properties and communities potentially affected, and will provide further information on the compensatory provisions likely to be offered to residents affected by the proposed scheme.
- 5.2.8 At the EIA stage, further details will be provided on the types and likely locations of mitigation that will be used to help avoid significant adverse effects on communities, business and the natural, historic and built environment. Mitigation plans will be informed by the EIA process, and detailed in the EIAR, submitted alongside the Bill. This will involve local stakeholders throughout the process.

5.3 Noise and vibration

Summary of views

- 5.3.1 Respondents expressed concern that the railway would cause impacts to residents of nearby properties as well as the local environment. Concerns were raised that the AoS had underestimated the impact that noise would have on the environment. Several respondents believed that there would be a negative impact of noise/vibrations during the construction phase. Some expressed a view that the assumption made by the AoS that a three decibel (dB) reduction in train noise level could be achieved compared with today's high speed trains was not reasonable. There were specific concerns that the impact of vibration in tunnels would lead to significant disturbance.

HS2 Ltd response

- 5.3.2 Noise is a known concern with railways in general and high speed railways are no exception. The Government has a clear noise policy²¹ which commits HS2 to control and manage noise impacts from the construction and operation of the railway.

²¹ Noise Policy Statement for England (NPSE), available online at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf

- 5.3.3 The AoS used a computer-based noise model to predict potential airborne noise impacts on residential dwellings due to noise from the operation of the railway. Construction noise and vibration (including ground-borne noise), and airborne noise at other sensitive locations were described at a commentary level only. The AoS was commensurate with the level of design information available at the time and provided a good indication of where noise impacts might be expected, and what those impacts might be. Following a route announcement, a more detailed assessment will take place as part of the EIA.
- 5.3.4 The AoS predicted potential impacts from the operation of HS2. A more detailed consideration of existing sources of noise could make HS2 less noticeable, which could reduce the potential impacts identified in the Sustainability Statement. This will be considered as part of an EIA, using information obtained from baseline noise surveys.
- 5.3.5 Potential noise and vibration impacts during construction have not been appraised at this stage. Measures to control noise and vibration from construction would be implemented as part of a wider environmental management system, including adherence to measures that will be set out in the CoCP for Phase 2b. The CoCP will set out the provisions that will be adopted to control construction impacts. The construction methodology and phasing will be considered in more detail for the EIA.
- 5.3.6 We believe that the assumption that a 3dB reduction in train noise from advancements in train technology is valid. Trains currently operating on HS1 achieve an exterior noise that is 3dB below the Technical Specifications for Interoperability (TSI) limit at 225 km/h. At higher speeds, existing aerodynamic noise control measures, such as design features developed in Japan for their latest generation of high speed trains, can control exterior noise levels to levels that are 3dB below the TSI limits. In common with all assumptions, the train noise level will be revisited and checked for suitability for the EIA.
- 5.3.7 The potential impacts from vibration and ground-borne noise, particularly in relation to tunnels, is something which will be controlled through the design and maintenance of the trains and track system. Over the past 20 years or so, tunnelled rail schemes have been successfully delivered and now operate with no ground-borne noise or vibration impact or a minimised level of impact.²² In part, this is due to the introduction of the EIA Directive and the associated UK regulations. Experience from HS1 and international guidance suggest that potentially significant effects from ground-borne noise and vibration can be mitigated. With mitigation similar to the resilient track forms developed for HS1, significant ground-borne noise and vibration effects could be avoided; HS2 Ltd is committed to ensuring that no significant residual ground-borne noise or vibration effects arise.
- 5.3.8 At the EIA stage, we would provide a more comprehensive noise assessment, giving a more detailed description of the likely noise impacts and identifying the envisaged mitigation to control significant noise effects, such as noise barriers, earth bunds and noise insulation for buildings.

²² Impacts on Tunnelling in the UK, available online at:
<http://assets.hs2.org.uk/sites/default/files/inserts/Impacts%20of%20tunnels%20in%20the%20UK.pdf>

5.4 Air quality

Summary of views

- 5.4.1 Concerns were expressed during consultation about the impacts the construction of HS2 could have on air quality. There was concern that construction traffic would pose a significant health risk due to dust and air pollution.

HS2 Ltd response

- 5.4.2 HS2 Ltd will operate efficient, non-polluting (at source) electrically powered trains. However, during construction the potential exists for adverse impacts from associated traffic and site activities.
- 5.4.3 Potential impacts from construction, such as from dust or emissions from construction traffic, were not considered as part of the AoS. This is because the AoS was strategic in scope and did not take into account the impacts from construction. Once a preferred route is announced by Government, construction planning will commence which will allow for the proper assessment of the likely impacts on air quality.
- 5.4.4 Mechanisms to control the potential impacts on air quality would be set out and rigorously applied through the CoCP. The Phase 2b CoCP will contain strategic control measures and standards to be implemented throughout the construction process to control construction impacts.
- 5.4.5 The Phase One EIA concluded that dust and emissions from construction activities will not cause significant effects at any locations along Phase One. This is in part due to the rigorous control measures set out in the draft CoCP for Phase One.
- 5.4.6 At the EIA stage, the construction methodology and phasing will be considered in more detail. The CoCP for Phase 2b will evolve so that it can remain responsive to the changing design and to the requirements of stakeholders. Additional local provisions may be made in Local Environmental Management Plans (LEMPs), which would be produced with input from the relevant local authority and statutory bodies.

5.5 Health, well-being and equality

Summary of views

- 5.5.1 A number of respondents stated that the route would have a negative impact on people and local communities. There were also concerns that the route would cause people distress or adversely affect health and well-being. Some respondents stated that the negative effects of the proposed scheme are already hampering the quality of life of those who would live close to the line. Others were concerned that the uncertainty surrounding the proposed scheme is causing stress to individuals and/or impacting on people's ability to plan their future.

HS2 Ltd response

- 5.5.2 The AoS considered, through separate analyses, the potential impacts on health and well-being, and on equality. Consideration of potential health and well-being impacts involved making a qualitative assessment of the potential health effects and vulnerabilities along the route of the proposed scheme. In the absence of a single agreed method, the approach

followed guidance and methods set out by the National Institute of Clinical Excellence and the World Health Organisation as internationally recognised standards.

- 5.5.3 The analysis used local authority and counties 2012 health profiles and drew on mapped Indices of Multiple Deprivation health data along the route. Against this baseline, the health appraisal took AoS conclusions on the potential impacts of noise, visual impact, air quality and employment to identify where these could have secondary implications for health. Potential impacts were validated where possible through recourse to publicly available data on the health impacts of other rail projects, e.g. HS1.
- 5.5.4 A separate Equality Analysis (EqA) was published as part of the Sustainability Statement in July 2013. This analysis provided an initial view on the extent to which people with protected characteristics, as defined by the Equality Act 2010, may be disproportionately or differentially affected by the proposed route. Two updates to the Phase One Equality Impact Assessment (EqIA) were consulted upon in 2015 to take account of design changes to the proposed scheme. HS2 Ltd published a response to these consultations in March 2016.
- 5.5.5 Equality impacts may result from a greater sensitivity to impacts such as changes in access, noise, property demolition, isolation and severance, employment and job displacement, or because people sharing a protected characteristic make up a greater proportion of the affected resident population than their representation in the wider study area. The equality analysis therefore drew on the wider findings of the AoS in order to determine where equality impacts might occur. This includes impacts relating to changes in access to affordable housing, access to community and healthcare facilities, access to faith-related facilities, access to public transport, play space provision, noise impacts on learning, isolation and marginalisation, unemployment, and shortage of accessible housing.
- 5.5.6 An assessment of health impacts will be undertaken as part of the EIAR for Phase 2b. This will consider the potential for impacts on a range of environmental and socio-economic 'health determinants' which would result in adverse or beneficial effects on the health of communities. An EqIA will be submitted alongside the Phase 2b EIAR.

5.6 Access issues

Summary of views

- 5.6.1 There were some comments regarding public rights of way, with a few general comments on the need to make provisions for public footpaths and bridleways and the need to minimise impacts on rights of way. Several local councils argued that all public rights of way should be included in surveys and that HS2 Ltd should discuss impacts on public rights of way with local access forums.

HS2 Ltd response

- 5.6.2 The AoS process involved reviewing the potential crossing of certain public rights of way by the proposed scheme. At this stage, only promoted recreational routes were included.
- 5.6.3 Where practicable, HS2 Ltd would aim to avoid stopping up existing rights of way (not just promoted recreational routes), and maintain access across the railway through the ongoing

design of the scheme. This would involve working with local people, local authorities and relevant organisations to determine the best way of achieving this, where feasible.

- 5.6.4 At the EIA stage, an assessment of impacts on the road and rail networks, including potential changes in local road traffic (especially during construction) and all public rights of way potentially impacted by the scheme will be addressed. Throughout the development of the Phase 2b scheme we will engage with the relevant stakeholders, including local authorities, local interest groups and access forums, to ensure that suitable solutions are found, where reasonably practicable, for potential alterations to access provisions.

5.7 Safety and security

Summary of views

- 5.7.1 There were a few consultation responses received regarding safety and security along the proposed route. Several respondents argued that high speed rail itself is unsafe and there were also concerns, raised by a handful of respondents, that consideration had not been given to how to protect the line from security threats.

HS2 Ltd response

- 5.7.2 HS2 Ltd plans to build a safe network that matches the excellent safety record of other high speed rail systems, such as HS1. This will be achieved by using proven standards and practice, and by running only high speed trains on the line. HS2 will be a dedicated high speed passenger service – it will not transport freight or dangerous goods. We will also aim to prevent accidents by mitigating risks and isolating HS2 from hazards, e.g. locating system equipment away from the line for maintenance activities.
- 5.7.3 Unlike most existing UK railways, HS2 will have no level crossings for vehicles or people; roads and footpaths will go either over or under the railway. Any road bridges going over the railway will be designed so that vehicles cannot fall onto the tracks below. Where railway lines join at junctions, only grade-separated junctions will be provided so that trains do not cross in front of each other when travelling in opposite directions.
- 5.7.4 HS2 Ltd will take steps to prevent unauthorised people and vehicles from accessing the railway. Fencing of various heights will be used along the route. The type of fencing to be used will depend on the risk of trespassing and the specific location. We will monitor the railway boundary, where applicable, using measures such as fibre-optic cabling adjacent to fencing, a technique already being used on other rail networks. This alerts the operator to trespassers and allows action to be taken immediately.

5.8 Traffic and transport

Summary of views

- 5.8.1 There were a number of consultation responses received regarding the impacts on local communities from construction traffic. These comments were made largely in relation to the noise, dust, emissions and congestion that construction traffic would cause.

HS2 Ltd response

- 5.8.2 Traffic and transport was not specifically covered by the AoS as an individual topic. This is because the effects on traffic and transport from the construction and operation of HS2 are dependent on detailed information that is not available at the early strategic stage of the AoS (similar to any other large project considering several hundred potential options). Detailed construction and transport plans are also best undertaken once a scheme is at a more detailed stage of design.
- 5.8.3 At the next stage of design, a Transport Assessment (TA) will be undertaken to consider the potential construction and operation impacts of the preferred scheme as part of the EIA. The TA will examine the potential traffic and transport impacts of the construction and operation of Phase 2b on all relevant modes of transport. In the development of the TA, consideration will be given to appropriate mitigation measures to reduce adverse traffic and transport effects.
- 5.8.4 The TA will subsequently be used to:
- assess and report on the significant traffic and transport effects of the preferred scheme within the EIAR;
 - report the proposals for potential mitigation to address the more significant effects; and
 - report on residual traffic and transport effects.
- 5.8.5 The Phase One Draft CoCP provides details on the requirements of the nominated undertaker to minimise impacts on local communities from construction traffic by its contractors, ensuring that public access is maintained, where reasonably practicable. In accordance with the current draft of the Phase One CoCP, a route-wide Traffic Management Plan (RTMP) has been prepared by HS2 Ltd. The RTMP sets out how the nominated undertaker will manage traffic, transport and highways during the delivery of Phase One. The impact of road-based construction traffic will be managed by identifying clear controls on vehicle types, hours of site operation and routes for large goods vehicles implemented through the development of Local Traffic Management Plans along the route. Construction workforce travel plans will be prepared by the lead contractors with the aim of encouraging the use of sustainable modes of transport to reduce the impact of workforce travel on local residents and businesses. Phase 2b will likely adopt a similar approach; this will be detailed in the Draft CoCP for Phase 2b, which will accompany the hybrid Bill for Phase Two.

6 Conclusion

- 6.1.1 As part of our commitment to be an exemplary project, we have embedded sustainability at each phase of the project. The Phase Two consultation was instrumental in this vision: helping to engage local communities, key stakeholders and the wider public on the proposals for Phase Two.
- 6.1.2 We received a wide range of consultation responses from individuals and organisations in response to the consultation question on the AoS. Whilst a number of responses were supportive of HS2 and our approach to sustainability, many of the responses raise concerns regarding Phase Two, and HS2 more widely, in regard to sustainability. Many of the issues raised will be appropriately addressed during the EIA at the next stage of the project, when a more detailed analysis of the environmental impacts of Phase 2b would be made, together with further route design.
- 6.1.3 An EIA would build on the consultation comments received, and be subject to further stakeholder engagement and consultation with local people and relevant authorities. The EIA (including a health appraisal as part of the EIA), EqIA, and TA will all help inform the design and our understanding of the potential impacts (positive and negative) of Phase 2b. Where the consultation identified useful local information and issues that HS2 Ltd has considered post consultation, this will be used to inform the EIA at the next stage of design, where relevant and appropriate.
- 6.1.4 We maintain that our approach to examining the impacts on the environment and communities through the AoS process remains robust and is appropriate for the purpose it was designed for. The AoS process supported the development and sifting of numerous route options, and considered a wide range of features and increasing levels of detail as the design progressed. The Sustainability Statement (2013), which reported the outputs from the AoS, was a crucial component of the Phase Two consultation. It documented how sustainability has been integral to the development of the proposed scheme and provided a benchmark for the sustainability performance for HS2 Phase Two based on an appraisal appropriate for the level of design.
- 6.1.5 This document provides a response to the issues raised and hopefully helps address concerns by either dealing with them directly or providing reassurance that ongoing design and assessment will provide further detail. Reference to Phase One (which is more advanced than Phase Two) should also provide guidance on what may be expected for Phase 2b.

List of acronyms

ALC	Agricultural Land Classification
AoS	Appraisal of Sustainability
CoCP	Code of Construction Practice
dB	Decibel
EHS	Exceptional Hardship Scheme
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMR	Environmental Minimum Requirements
EqA	Equality Analysis
EqIA	Equality Impact Assessment
ES	Environmental Statement
EU ETS	European Union Emissions Trading System
GDP	Gross Domestic Product
HS1	High Speed One
LDA	Landscape Design Approach
LVIA	Landscape and Visual Impact Assessment
LEMP	Local Environmental Management Plan
RTMP	Route-Wide Traffic Management Plan
SAC	Special Area of Conservation
SMR	Scope and Methodology Report
SSSI	Site of Special Scientific Interest
TA	Transport Assessment
TSI	Technical Specifications for Interoperability
WFD	Water Framework Directive
ZTV	Zone of Theoretical Visibility

This statement is in support of the Defence against the Claim Q8-2022-BHM-00044, HS2 Lts & Sos for Transport v Persons Unknown and Ors.

My name is Val Saunders of 10 Central Road, Stroud GL5 4HQ

I am a semi retired illustrator and support worker working with young people with autism.

I believe the following to be a true and honest account to be best of my knowledge

I have been involved with the protest against HS2 since 2019 as I felt I couldn't stand by and watch this massively destructive and ill conceived project damage our countryside when so many other better and cheaper options were available! I felt no railway could justify the upheaval of so many people. Seizing properties and land with inadequate and sometimes non existent recompense!

I have donated and visited some of the protection camps along the route of HS2 and see the same bad working practices, inadequate ecology surveys, cutting trees and hedgerows during spring and nesting time, netting of setts and disturbing birds and bats with strong lights at night!

I was walking alongside one of the HS2 compounds watching red kites visit their nest nearby when I saw a large flat loader truck at the compound gate.

It was carrying a large chipper used by HS2 to chip the wood as soon as it is cut which is considered bad practice and I thought was illegal as wildlife can still be caught up in the foliage and bark and need time to escape!

We were aware that Natural England issue licences in order for work like cutting woodland can continue but only when the correct surveys have been done to check on bat roosts, possibly maternity roots, active badger setts etc.

Natural England had refused a licence to cut Jones Hill Wood back in 2020 because a rare barbastelle bat had been identified living in the wood!!

My friend Sally Brooks and I decided to climb onto the chipper on the truck as this would stop it delivering its load and we stayed on board for around 4hrs!

The police were called and we asked for a wildlife officer to be present but were told no one was available! The police were dismissive of our attempts for them to question the work which continued even though we had evidence it was illegal!

We told the Police that we were in the possession of a letter from Natural England confirming no bat licences had been granted to cut trees at Grims Ditch which was an ancient woodland by the HS2 compound in Kings Lane, Wendover.

We could see HS2 workers up in the trees cutting illegally as we were of the believe these trees contained many bat roosts and no licence had been issued to HS2 to do this work! The police didn't think this was important and so we felt powerless to do anything but slow the whole process down!

We were arrested and charged with a trade union law and were fined £350 each and given a 12 month conditional discharge!

An appeal was lodged by Sally Brooks and on 11th May 2022 she won the appeal because HS2 failed to get the survey submitted to the court in time and it was found that the survey produced by Stuart Pankhurst working for Southern Ecological Solutions Ltd. (*who will be pursued through the professional body CIEEM for misleading the court in his first witness statement!*) showed there was a potential bat roost in one of the trees that needed further investigation before felling! However the tree was felled before this investigation took place.

Inadequate ecology like this example with no monitoring or policing is very likely to have happened throughout the HS2 route.

HS2 seem to be ignoring any surveys and continuing with the work anyway.

On the basis of this information I will also now appeal against my charge!

This is why protest is so valid and valuable in order to prove wrong doing by corporations and bring them to account as they are not above the law. It is also important that justice is seen to be done and that police should take note that protest is necessary to bring attention to illegal activity by government backed projects like HS2!

We were supported by the camp and tree protectors from Jones Hill Wood throughout and I commend every one of them that stand to lose a great deal by protesting and trying to protect what they value and to stand up against this insanely expensive project! This will be seen in the future as a project full of greenwash and lies which wont be carbon neutral in our life time and which only a few can afford to travel on!!!

Val Saunders

Statement of Witness

Statement of: Stuart Pankhurst on behalf of Southern Ecological Solutions Ltd, Sudbury Stables, Sudbury Road, Downham, Essex CM11 1LB

Age of witness: Over 18

Occupation of witness: Qualified Ecologist, BSC (Hons), MS, DipIC, MCIEEM

This statement consisting of 3 pages, each signed by me, together with accompanying Exhibits SP1 and SP2 consisting of 7 pages is true to the best of my knowledge and belief and I make it knowing that, if it is tendered in evidence, I shall be liable to prosecution if I have wilfully stated in it anything which I know to be false or do not believe to be true.

Signature



Dated the 3rd day of May 2022

-
1. I am Stuart Pankhurst, Managing Director of Southern Ecological Solutions Ltd (**SES**). I make this second witness statement further to my first witness statement dated 16 March 2022 (in so doing, where I refer to my first witness statement I will refer to the references and paragraph numbers contained therein).

Bat surveys

2. In my first witness statement, at paragraph 8 (a), I referred to the different type of bat surveys referred to as BT1, BT2, and BT3, which are codes used by HS2. HS2 assign different types of bat survey with specific codes which relate to the type of survey undertaken, details of which are provided below.
- BT1 refers to "Bat - Initial assessment of trees" within the BT1_BT2_Bat Tree Proforma (as supplied to SES by HS2 / Fusion). This type of survey is referred to as a '*preliminary ground level roost assessment*' within the BCT Guidelines.
 - Stage 1 (preliminary ground level roost assessment of trees / BT1 survey) - Ecologists identify and record any trees that could be suitable for bats to roost in from the ground level. If suitability is assessed at this stage, the scheme presented the BCT Guidelines should be used (each tree is assigned a level of suitability ranging from negligible, through low, moderate and high suitability) (see table below).
 - BT2 refers to "Bat - Tree Climbing Inspection" within the BT1_BT2_Bat Tree Proforma (as supplied to SES by HS2 / Fusion). This type of survey is referred to as a '*PRF inspection*' within the BCT Guidelines.
 - Stage 2 (PRF inspection / BT2 survey) - PRF inspection / BT2 surveys are only required for trees identified as having moderate or high suitability during Stage 1 as detailed in the BCT Guidelines. A potential roosting feature (**PRF**) inspection survey involves the use of tree-climbing or access equipment such as cherry pickers, MEWPs or scaffold towers to gain access to PRFs to assess in more detail their likely suitability for bats and to look for evidence of bats such as live or dead bats, droppings, staining or odour. PRF inspection / BT2 surveys are valuable to prevent unnecessary emergence / dawn work where features appear to be of high / moderate suitability from the ground but are actually of limited or no suitability. During each BT2 assessment, a thorough inspection is made of the entire tree as natural features can change / develop over time (e.g. additional PRFs can be recorded during a second climbing inspection which were not previously present). For further information, refer to the BCT Guidelines.
 - BT3 refers to "Bat – Tree Emergence Survey - Dusk and Dawn" within the BS3_BT3_Bat Emergence Proforma (as supplied to SES by HS2 / Fusion). This type of survey is referred to as '*presence / absence surveys*' within the BCT Guidelines.

Signed



Dated the 3rd day of May 2022

D2496

- Stage 3 (presence / absence surveys / BT3 surveys) - Where a tree has been verified as moderate or high suitability for bats or evidence of bats is found (through Stage 2 above), further surveys are likely to be necessary to confirm the presence / absence of roosting bats and / or characterise the roost. BT3 surveys include dusk and/or dawn visits to watch, listen for and record bats exiting or entering bat roosts. If the presence of bats has been confirmed, then roost characterisation surveys (see the BCT Guidelines for further detail) may be required (depending on how much information on species, numbers, access points, roosting locations, timing of use and type of roost has already been collected). The recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result is provided in the BCT Guidelines, relevant sections of which are provided below for reference.

Negligible roost suitability	Low roost suitability	Moderate roost suitability	High roost suitability
Negligible habitat features on site likely to be used by roosting bats (no further surveys required for trees).	No further surveys required for trees.	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn.

3. I attach to this statement at Exhibit SP1 underlying data together with a summary sheet relating to surveys carried out at Grim's ditch. The FeatureID (see Column B of the BT2 Raw Data sheet at Exhibit SP1, pages 2 – 3 inclusive) is the reference code for each tree, with each tree subject to different surveys (see Column C of the BT2 Raw Data sheet at Exhibit SP1, at pages 2 – 3 inclusive). Trees may have more than one PRF (see Column I of the BT2 Raw Data Sheet at Exhibit SP1, at pages 2 – 3 inclusive) and the suitability of each PRF is assessed and assigned a level of suitability (see Column I of the BT2 Raw Data Sheet at Exhibit SP1, at pages 2 – 3 inclusive (RoostPoten)) via BT1 (initial assessment / ground level assessment) and BT2 (climbing inspection / PRF inspection). Survey dates are provided (see Column A of the BT2 Raw Data Sheet at Exhibit SP1, at pages 2 – 3 inclusive (Survey Extent Date)). Some trees can be difficult to survey from the ground, and PRFs are often obscured by vegetation / branches (especially if the BT1 survey is carried out during spring / summer), therefore it is usual for additional / different PRFs to be recorded when carrying out a BT2 / tree climbing inspection survey. Evidence of roosting bats is also recorded if any is found, however not all evidence is conclusive (for example, evidence of scratching or a smooth surface could be a result of other animals such as edible dormice *Glis glis* rather than a bat) and therefore 'evidence' of roosting bats must be considered within the context of other survey data (see Columns L and P of the BT2 Raw Data Sheet at Exhibit SP1, pages 2 – 3 inclusive, for data on droppings and scratchings respectively). It should be noted however, that no physical evidence of bats was detected in any of the trees (see Column N of the BT2 Raw Data Sheet at Exhibit SP1, pages 2 – 3 inclusive).
4. During 2020, HS2 and Natural England agreed an approach to facilitate greater flexibility in bat survey methods in the 2020 survey season *"to respond to a number of issues in relation to the associated restrictions and constraints on operations and acknowledge hotel closures and travel restrictions resulting from the same"*. Correspondence relating to this is provided at Exhibit SP2, at pages 6 – 7 inclusive, the second response letter dated 20 May 2020, which states that *"taking into account the current limitations during the Covid-19 situation when undertaking surveys, it is considered appropriate at this time that BT2 surveys can replace BT3 surveys until the situation is resolved"*. This approach was therefore adopted for the surveys at Grim's Ditch where required.
5. Initially surveys were undertaken and recorded on paper by the ecologists in the field, but during April/May 2020, SES moved from a paper system (e.g. recording information on HS2 proformas) to an online GIS system. This meant that the data was accessible by both Fusion and HS2. This data recording system was built from scratch by SES and implemented extremely quickly. The use of this system had no effect on the methodology of the surveys, as all surveys were carried out diligently by suitability qualified and licensed ecologists using the survey methodology outlined above. When bat roosts were recorded, the SES project manager was informed immediately and the record was sent to Fusion/HS2 separately and additionally to Fusion to ensure that the appropriate 'next steps' were carried out. For example, making

Signed

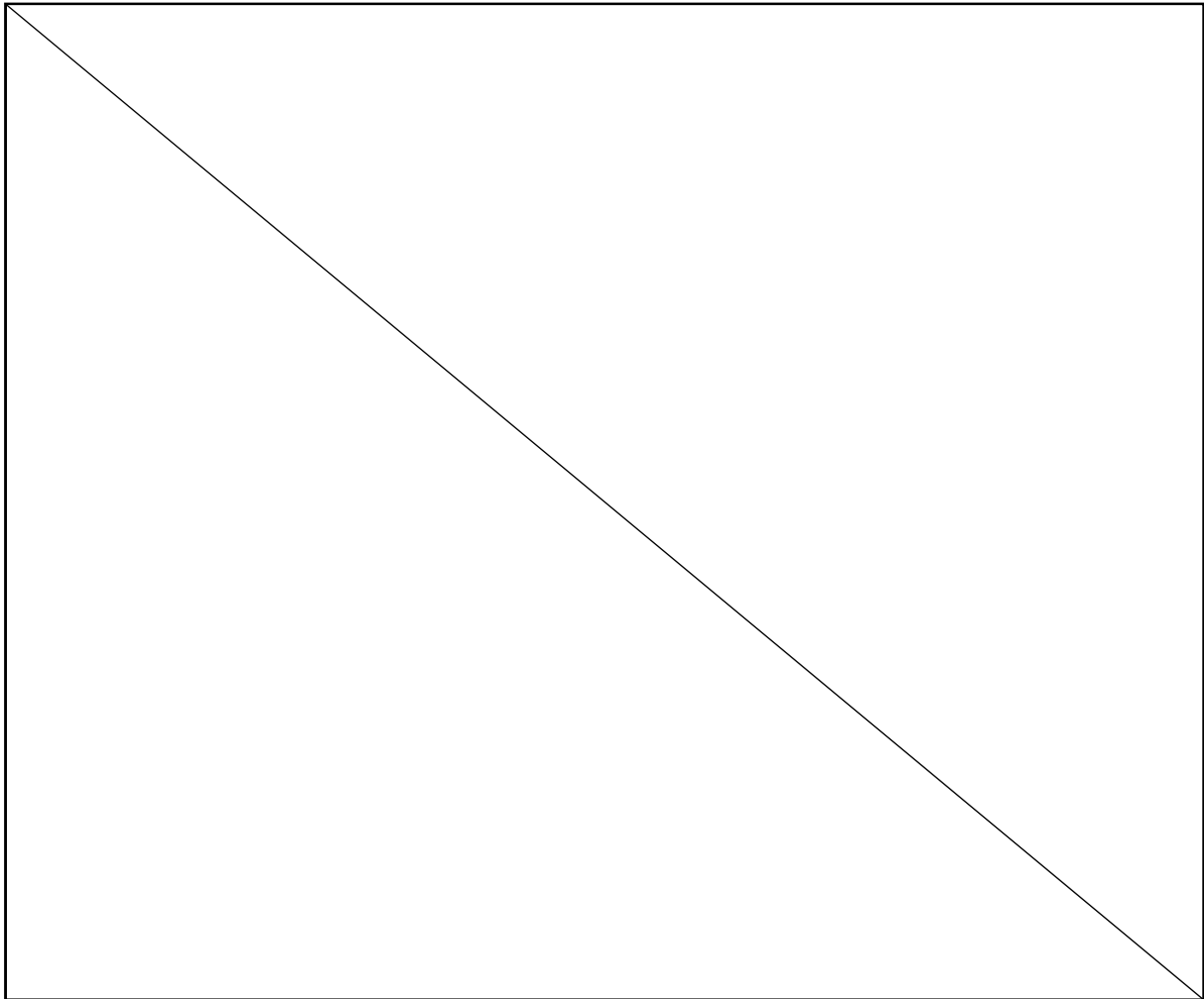


Dated the 3rd day of May 2022

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sure the roost location was known throughout the site teams and implementation of protective measures as necessary, e.g. putting protective buffers around the tree pending issuance of a licence if required.

6. As stated in paragraph 2 above, a suite of surveys were carried out at Grim's Ditch in accordance with BCT Guidelines with refinements made where necessary to take into account the agreement between HS2 and Natural England regarding COVID-19 (see paragraph 4 above and Exhibit SP2, at pages 6 – 7 inclusive). Chapter 6 and 7 of the BCT Guidelines describe how to undertake bat roost inspection surveys and emergence / re-entry surveys of trees.
7. As shown at Exhibit SP1, at pages 2-3 inclusive, one tree identified with Feature ID '1EW03-SOE-BF002316' (see Cells 68 and 69 of the BT2 Raw Data Sheet at Exhibit SP1, at page 3 inclusive) (a tree with moderate suitability for roosting bats), was reported as felled on 05 August 2021 when SES' surveyors returned to carry out the second (and final) BT2 survey. The BT1 survey and first BT2 survey were undertaken on 26 August 2020. This tree was considered to have moderate roost potential during the BT1 survey, so was subject to a climb on the same day. SES' surveyors returned to the tree to carry out the second (and final) BT2 survey in August 2021, and at this time, discovered that the tree had been felled. This was then reported to SES.
8. This tree was subject to a BT1 survey and a single BT2 survey in 2020 with no evidence of roosting bats recorded. However, the SES ecologist who returned to carry out a further survey was unable to do so as the tree had already been felled. In my experience, this is a rare and an extremely unusual occurrence. Usually, where a tree has been notified as having moderate suitability, protective measures are put in place (see paragraph 5 above). I do not know why or how the tree came to be felled on this occasion. However, I would note that notwithstanding the moderate classification of individual tree, there had been no sightings or any physical evidence of bats at Grim's ditch.



Signed

Handwritten signature of the ecologist.

Dated the 3rd day of May 2022

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Exhibit SP1 to Statement of Witness of Stuart Pankhurst

I, Stuart Pankhurst, Managing Director of Southern Ecological Solutions Ltd, declare that the documents attached comprising 5 pages is Exhibit SP1 referred to in my witness statement dated 03 May 2022.

Signed



Dated the 3rd day of May 2022

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	FeatureID	Big_Shape	Species	BT1 Result	BT2 Date [1]	BT2 Result [1]	BT2 Date [2]	BT2 Result [2]	BT3 Date [1]	BT3 Result [1]	BT3 Date [2]	BT3 Result [2]	BT3 Date [3]	BT3 Result [3]	X	Y	Relevant notes
2	1EW03-SOE-BF000634	8	Carpinus betulus	Low											489118	203542	
3	1EW03-SOE-BF001281	8	Fagus sylvatica	Moderate	20/06/2020	Moderate			03/09/2020, Dusk	No emergence					489131	203549	
4	1EW03-SOE-BF001282	8	Fagus sylvatica	Moderate	05/06/2020	Low									489123	203564	
5	1EW03-SOE-BF001283	8	Fagus sylvatica	Moderate	20/06/2020	Moderate			14/08/2020, Dawn	No re-entry	03/09/2020, Dusk	No emergence			489136	203565	
6	1EW03-SOE-BF001284	8	Fagus sylvatica	Moderate	05/06/2020	Moderate	26/08/2020	Moderate							489145	203563	
7	1EW03-SOE-BF001285	8	Fagus sylvatica	Moderate	20/06/2020	Moderate			10/08/2020, Dusk	No emergence	03/09/2020, Dawn	No re-entry			489133	203573	
8	1EW03-SOE-BF001287	8	Fagus sylvatica	Moderate	04/06/2020	Moderate	26/08/2020	Moderate							489164.1229	203639.7788	
9	1EW03-SOE-BF001288	8	Fagus sylvatica	Moderate	04/06/2020	Moderate	26/08/2020	Moderate							489166	203656	
10	1EW03-SOE-BF001389	8	Fagus sylvatica	High	03/06/2020	Moderate			28/07/2020, Dusk	No emergence	11/08/2020, Dawn	No re-entry			489143	203551	
11	1EW03-SOE-BF001390	8	Fagus sylvatica	Moderate	05/06/2020	Moderate	27/08/2020	Moderate							489127	203560	
12	1EW03-SOE-BF001391	8	Quercus	Moderate	05/06/2020	Negligible									489120	203571	
13	1EW03-SOE-BF001392	8	Fagus sylvatica	High	05/06/2020	High			21/07/2020, Dawn	No re-entry	04/08/2020, Dusk	No emergence	26/08/2020, Dusk	No emergence	489138	203585	
14	1EW03-SOE-BF001393	8	Fagus sylvatica	Moderate	05/06/2020	Negligible									489136	203580	
15	1EW03-SOE-BF001394	8	Fagus sylvatica	High	05/06/2020	Moderate			21/07/2020, Dawn	No re-entry	31/08/2020, Dusk	No emergence			489143	203592	
16	1EW03-SOE-BF001395	8	Fagus sylvatica	Moderate	05/06/2020	Moderate	26/08/2020	Moderate							489148	203592	
17	1EW03-SOE-BF001396	8	Quercus robur	Moderate	05/06/2020	Moderate	27/08/2020	Moderate							489141	203614	
18	1EW03-SOE-BF001397	8	Fagus sylvatica	Moderate	04/06/2020	Moderate	26/08/2020	Moderate							489159	203630	
19	1EW03-SOE-BF001398	8	Fagus sylvatica	High	03/06/2020	Moderate	27/08/2020	Moderate	27/07/2020, Dawn	No re-entry	10/08/2020, Dusk	No emergence			489162	203632	
20	1EW03-SOE-BF001399	8	Fagus sylvatica	Moderate	03/06/2020	Low									489160	203633	
21	1EW03-SOE-BF002316	8	Prunus	Moderate	26/08/2020	Moderate									489166	203640	Reported as felled
22	1EW03-SOE-BF003000	8	Fagus sylvatica	Moderate	05/06/2020	Moderate	26/08/2020	Moderate							489142.1649	203622.4568	
23	1EW03-SOE-BF003001	8	Fagus sylvatica	Moderate	05/06/2020	Moderate			24/07/2020, Dawn	No re-entry	09/09/2020, Dusk	No emergence			489139.7996	203554.4416	
24	1EW03-SOE-BF003928	8	Fagus sylvatica	Moderate	04/06/2020	Moderate	27/08/2020	Moderate							489140.8346	203624.4758	

1	Survey Date	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
		FeatureID of Tree	AssesType	TreeFeature	TreeSpecies	Height	AccessSize	DropZone	RoostPoten	Hibernation	Orientation	EvidDropping	EvidFeeding	EvidBats	EvidUrine	EvidScratch	EvidSmoothSurf	DNA Sample	EvidNone	EvidOther	BarRoostType	
2	12/05/2020	1EW03-SOE-BF000634	Tree initial assessment	Trunk Cavity	Carpinus betulus	3	4 Yes		Low	N/A	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
3	12/05/2020	1EW03-SOE-BF001281	Tree initial assessment	Woodpecker Hole	Fagus sylvatica	12	5 Yes		Moderate	Yes	SE	No	No	No	No	No	No	No	Yes	N/A	N/A	
4	20/06/2020	1EW03-SOE-BF001281	Tree climbing inspection	Woodpecker Hole	Fagus sylvatica	14	5 N/A		Moderate	N/A	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
5	12/05/2020	1EW03-SOE-BF001282	Tree initial assessment	Branch Cavity	Fagus sylvatica	15	5 Yes		Moderate	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A	
6	05/06/2020	1EW03-SOE-BF001282	Tree climbing inspection	Branch Cavity	Fagus sylvatica	12	10 N/A		Low	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A	
7	12/05/2020	1EW03-SOE-BF001283	Tree initial assessment	Woodpecker Hole	Fagus sylvatica	14	8 Yes		Moderate	Yes	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
8	20/06/2020	1EW03-SOE-BF001283	Tree climbing inspection	Woodpecker Hole	Fagus sylvatica	12	5 N/A		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
9	12/05/2020	1EW03-SOE-BF001284	Tree initial assessment	Other	Fagus sylvatica	5	2 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
10	05/06/2020	1EW03-SOE-BF001284	Tree climbing inspection	Branch Cavity	Fagus sylvatica	12	10 N/A		Low	N/A	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
11	05/06/2020	1EW03-SOE-BF001284	Tree climbing inspection	Branch Cavity	Fagus sylvatica	7	10 N/A		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
12	05/06/2020	1EW03-SOE-BF001284	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	0	10 N/A		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
13	26/08/2020	1EW03-SOE-BF001284	Tree climbing inspection	Branch Cavity	Fagus sylvatica	7	3 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	no	N/A	
14	12/05/2020	1EW03-SOE-BF001285	Tree initial assessment	Branch Cavity	Fagus sylvatica	16	5 Yes		Moderate	Yes	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
15	20/06/2020	1EW03-SOE-BF001285	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	9	5 N/A		Moderate	N/A	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
16	20/06/2020	1EW03-SOE-BF001285	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	10	8 N/A		Moderate	N/A	SW	No	No	No	No	No	No	No	Yes	N/A	N/A	
17	12/05/2020	1EW03-SOE-BF001287	Tree initial assessment	Branch Cavity	Fagus sylvatica	13	40 Yes		Moderate	Yes	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
18	26/08/2020	1EW03-SOE-BF001287	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	8	5 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	no	N/A	
19	04/06/2020	1EW03-SOE-BF001287	Tree climbing inspection	Callus Roll	Fagus sylvatica	6	10 Yes		Low	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A	
20	04/06/2020	1EW03-SOE-BF001287	Tree climbing inspection	Callus Roll	Fagus sylvatica	5	10 Yes		Low	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A	
21	04/06/2020	1EW03-SOE-BF001287	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	8	5 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
22	12/05/2020	1EW03-SOE-BF001288	Tree initial assessment	Trunk Cavity	Fagus sylvatica	9	3 Yes		Moderate	Yes	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
23	12/05/2020	1EW03-SOE-BF001288	Tree initial assessment	Branch Cavity	Fagus sylvatica	13	10 No		Moderate	N/A	NE	No	No	No	No	No	No	No	Yes	N/A	N/A	
24	26/08/2020	1EW03-SOE-BF001288	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	10	10 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	no	N/A	
25	04/06/2020	1EW03-SOE-BF001288	Tree climbing inspection	Branch Cavity	Fagus sylvatica	10	10 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	N/A	N/A	
26	04/06/2020	1EW03-SOE-BF001288	Tree climbing inspection	Other	Fagus sylvatica	6	4 Yes		Negligible	N/A	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
27	12/05/2020	1EW03-SOE-BF001389	Tree initial assessment	Trunk Cavity	Fagus sylvatica	7	15 Yes		High	Yes	E	No	No	No	No	No	Yes	No	No	N/A	N/A	
28	03/06/2020	1EW03-SOE-BF001389	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	12	3 N/A		Low	N/A	NE	No	No	No	No	No	No	No	Yes	N/A	N/A	
29	03/06/2020	1EW03-SOE-BF001389	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	7	4 N/A		Moderate	N/A	SE	No	No	No	No	No	No	No	Yes	N/A	N/A	
30	12/05/2020	1EW03-SOE-BF001390	Tree initial assessment	Branch Cavity	Fagus sylvatica	9	5 Yes		Moderate	Yes	W	No	No	No	No	No	No	No	Yes	N/A	N/A	
31	05/06/2020	1EW03-SOE-BF001390	Tree climbing inspection	Branch Cavity	Fagus sylvatica	3	10 N/A		Moderate	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A	
32	27/08/2020	1EW03-SOE-BF001390	Tree climbing inspection	Branch Cavity	Fagus sylvatica	13	10 Yes		Moderate	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A	
33	12/05/2020	1EW03-SOE-BF001391	Tree initial assessment	Callus Roll	Quercus	5	3 Yes		Moderate	N/A	W	No	No	No	No	No	Yes	No	No	N/A	N/A	
34	05/06/2020	1EW03-SOE-BF001391	Tree climbing inspection	Callus Roll	Quercus	5	5 N/A		Negligible	N/A	W	No	No	No	No	No	No	No	Yes	N/A	N/A	
35	12/05/2020	1EW03-SOE-BF001392	Tree initial assessment	Trunk Cavity	Fraxinus excelsior	3	3 Yes		High	Yes	S	No	No	No	No	No	Yes	No	No	N/A	N/A	
36	05/06/2020	1EW03-SOE-BF001392	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	3	10 N/A		High	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A	
37	12/05/2020	1EW03-SOE-BF001393	Tree initial assessment	Trunk Cavity	Fagus sylvatica	0	5 Yes		Moderate	N/A	S	No	No	No	No	No	Yes	No	No	N/A	N/A	
38	05/06/2020	1EW03-SOE-BF001393	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	0	2 N/A		Negligible	N/A	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
39	12/05/2020	1EW03-SOE-BF001394	Tree initial assessment	Trunk Cavity	Fagus sylvatica	5	5 Yes		High	Yes	SE	No	No	No	No	Yes	Yes	No	No	N/A	N/A	
40	05/06/2020	1EW03-SOE-BF001394	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	5	10 N/A		Moderate	N/A	SW	No	No	No	No	No	No	No	Yes	N/A	N/A	
41	12/05/2020	1EW03-SOE-BF001395	Tree initial assessment	Trunk Cavity	Fagus sylvatica	5	10 Yes		Moderate	Yes	SW	No	No	No	No	Yes	No	No	No	N/A	N/A	
42	05/06/2020	1EW03-SOE-BF001395	Tree climbing inspection	Branch Cavity	Fagus sylvatica	3	10 N/A		Moderate	N/A	SW	No	No	No	No	No	No	No	Yes	N/A	N/A	
43	05/06/2020	1EW03-SOE-BF001395	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	5	20 N/A		Moderate	N/A	SW	No	No	No	No	No	No	No	No	N/A	N/A	
44	26/08/2020	1EW03-SOE-BF001395	Tree climbing inspection	Branch Cavity	Fagus sylvatica	5	20 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	no	N/A	
45	26/08/2020	1EW03-SOE-BF001395	Tree climbing inspection	Branch Cavity	Fagus sylvatica	5	6 Yes		Moderate	N/A	S	No	No	No	No	No	No	No	Yes	no	N/A	
46	12/05/2020	1EW03-SOE-BF001396	Tree initial assessment	Callus Roll	Quercus	5	3 Yes		Moderate	Yes	W	No	No	No	No	Yes	No	No	No	N/A	N/A	
47	05/06/2020	1EW03-SOE-BF001396	Tree climbing inspection	Trunk Cavity	Quercus	7	5 N/A		Moderate	N/A	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
48	27/08/2020	1EW03-SOE-BF001396	Tree climbing inspection	Trunk Cavity	Quercus robur	7	5 Yes		Moderate	N/A	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
49	12/05/2020	1EW03-SOE-BF001397	Tree initial assessment	Trunk Cavity	Fagus sylvatica	6	10 Yes		Moderate	Yes	S	No	No	No	No	No	No	No	No	N/A	N/A	
50	26/08/2020	1EW03-SOE-BF001397	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	6	10 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	no	N/A	
51	04/06/2020	1EW03-SOE-BF001397	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	6	20 Yes		Moderate	N/A	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
52	12/05/2020	1EW03-SOE-BF001398	Tree initial assessment	Trunk Cavity	Fagus sylvatica	4	5 Yes		High	Yes	S	No	No	No	No	No	Yes	No	No	N/A	N/A	
53	12/05/2020	1EW03-SOE-BF001398	Tree initial assessment	Branch Cavity	Fagus sylvatica	8	5 Yes		Moderate	N/A	S	No	No	No	No	No	No	No	Yes	N/A	N/A	
54	27/08/2020	1EW03-SOE-BF001398	Tree climbing inspection	Callus Roll	Fagus sylvatica	12	4 Yes		Moderate	N/A	NW	No	No	No	No	No	No	No	Yes	N/A	N/A	
55	27/08/2020	1EW03-SOE-BF001398	Tree climbing inspection	Callus Roll	Fagus sylvatica	10	7 Yes		Moderate	N/A	NW	No	No	No	No	No	No	No	Yes	N/A	N/A	
56	27/08/2020	1EW03-SOE-BF001398	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	3	5 Yes		Moderate	N/A	NE	No	No	No	No	No	No	No	Yes	N/A	N/A	
57	27/08/2020	1EW03-SOE-BF001398	Tree climbing inspection	Callus Roll	Fagus sylvatica	12	2 Yes		Moderate	N/A	NW	No	No	No	No	No	No	No	Yes	N/A	N/A	
58	03/06/2020	1EW03-SOE-BF001398	Tree climbing inspection	Callus Roll	Fagus sylvatica	12	3 N/A		Low	N/A	NW	No	No	No	No	No	No	No	Yes	N/A	N/A	
59	03/06/2020	1EW03-SOE-BF001398	Tree climbing inspection	Callus Roll	Fagus sylvatica	10	3 N/A		Low	N/A	SE	No	No	No	No	No	No	No	Yes	N/A	N/A	
60	03/06/2020	1EW03-SOE-BF001398	Tree climbing inspection	Callus Roll	Fagus sylvatica	12	5 N/A		Moderate	N/A	NW	No	No	No	No	No	No	No	Yes	N/A	N/A	
61	03/06/2020	1EW03-SOE-BF001398	Tree climbing inspection	Callus Roll	Fagus sylvatica	12	4 N/A		Moderate	N/A	NW	No	No	No	No	No	No	No	Yes	N/A	N/A	

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	Survey Date	FeatureID of Tree	AssesType	TreeFeature	TreeSpecies	Height	AccessSize	DropZone	RootPoten	Hibernation	Orientation	EvidDropping	EvidFeeding	EvidBats	EvidUrine	EvidScratch	EvidSmoothSurf	DNA Sample	EvidNone	EvidOther	BarRoostType
62	03/06/2020	1EW03-SOE-BF001398	Tree climbing inspection	Callus Roll	Fagus sylvatica	10	5 N/A	5 N/A	Moderate	N/A	NW	No	No	No	No	No	No	No	Yes	N/A	N/A
63	12/05/2020	1EW03-SOE-BF001399	Tree initial assessment	Branch Cavity	Fagus sylvatica	10	5 Yes		Moderate	N/A	SE	No	No	No	No	No	No	No	Yes	N/A	N/A
64	12/05/2020	1EW03-SOE-BF001399	Tree initial assessment	Branch Cavity	Fagus sylvatica	3	4 Yes		Moderate	Yes	SE	No	No	No	No	No	Yes	No	No	N/A	N/A
65	03/06/2020	1EW03-SOE-BF001399	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	10	2 N/A	2 N/A	Low	N/A	SE	No	No	No	No	No	No	No	Yes	N/A	N/A
66	03/06/2020	1EW03-SOE-BF001399	Tree climbing inspection	Other	Fagus sylvatica	6	4 N/A	4 N/A	Low	N/A	SE	No	No	No	No	No	No	No	Yes	N/A	N/A
67	03/06/2020	1EW03-SOE-BF001399	Tree climbing inspection	Other	Fagus sylvatica	3	5 N/A	5 N/A	Low	N/A	SE	No	No	No	No	No	No	No	Yes	N/A	N/A
68	26/08/2020	1EW03-SOE-BF002316	Tree climbing inspection	Trunk Cavity	Prunus	3	10 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	no	N/A
69	26/08/2020	1EW03-SOE-BF002316	Tree initial assessment	Trunk Cavity	Prunus	3	10 Yes		Moderate	N/A	E	No	No	No	No	No	No	No	Yes	no	N/A
70	05/06/2020	1EW03-SOE-BF003000	Tree climbing inspection	Callus Roll	Fagus sylvatica	10	10 N/A	10 N/A	Low	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A
71	05/06/2020	1EW03-SOE-BF003000	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	10	10 N/A	10 N/A	Moderate	N/A	W	No	No	No	No	No	No	No	Yes	N/A	N/A
72	05/06/2020	1EW03-SOE-BF003000	Tree initial assessment	Trunk Cavity	Fagus sylvatica	10	20 N/A		Moderate	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A
73	26/08/2020	1EW03-SOE-BF003000	Tree climbing inspection	Branch Cavity	Fagus sylvatica	10	8 Yes		Moderate	N/A	W	No	No	No	No	No	No	No	Yes	no	N/A
74	05/06/2020	1EW03-SOE-BF003001	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	14	10 N/A	10 N/A	Moderate	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A
75	05/06/2020	1EW03-SOE-BF003001	Tree initial assessment	Branch Cavity	Fagus sylvatica	8	10 N/A	10 N/A	Moderate	N/A	N	No	No	No	No	No	No	No	Yes	N/A	N/A
76	27/08/2020	1EW03-SOE-BF003928	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	2	3 Yes		Moderate	N/A	S	No	No	No	No	No	Yes	No	No	N/A	N/A
77	04/06/2020	1EW03-SOE-BF003928	Tree initial assessment	Trunk Cavity	Fagus sylvatica	2	5 N/A	5 N/A	Moderate	N/A	SE	No	No	No	No	No	No	No	Yes	N/A	N/A
78	04/06/2020	1EW03-SOE-BF003928	Tree climbing inspection	Trunk Cavity	Fagus sylvatica	2	5 N/A	5 N/A	Moderate	N/A	SE	No	No	No	No	No	No	No	Yes	N/A	N/A

BT3 Raw Data

	A	B	C	D	E	F	G	H	I
1	FeatureID of Tree	Date	Species	# Bats	Observed?	Behaviour	Direction	Sound analysis	Roost type
2	1EW03-SOE-BF001283	03/09/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
3	1EW03-SOE-BF001283	03/09/2020	Nyctalus sp.	1 Y		Commuting	N	Nyctalus sp.	N/A
4	1EW03-SOE-BF001283	03/09/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
5	1EW03-SOE-BF001283	03/09/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
6	1EW03-SOE-BF001283	14/08/2020			No bat activity				
7	1EW03-SOE-BF001394	31/08/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
8	1EW03-SOE-BF001394	31/08/2020	P. pip	2 Y		Foraging	N	P. pip	N/A
9	1EW03-SOE-BF001394	31/08/2020	P. pyg	1 Y		Foraging	N	P. pyg	N/A
10	1EW03-SOE-BF001394	31/08/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
11	1EW03-SOE-BF001394	31/08/2020	P. pip	2 Y		Foraging	N	P. pip	N/A
12	1EW03-SOE-BF001394	31/08/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
13	1EW03-SOE-BF001394	21/07/2020			No bat activity				N/A
14	1EW03-SOE-BF001389	11/08/2020			No bat activity				N/A
15	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
16	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
17	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
18	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
19	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
20	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
21	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
22	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
23	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
24	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
25	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
26	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
27	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
28	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
29	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
30	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
31	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A
32	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Commuting	N	P. pip	N/A

BT3 Raw Data

	A	B	C	D	E	F	G	H	I
1	FeatureID of Tree	Date	Species	# Bats	Observed?	Behaviour	Direction	Sound analysis	Roost type
33	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Communting	N	P. pip	N/A
34	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Communting	N	P. pip	N/A
35	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Communting	N	P. pip	N/A
36	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Communting	N	P. pip	N/A
37	1EW03-SOE-BF001389	28/07/2020	P. pip	1 Y		Communting	N	P. pip	N/A
38	1EW03-SOE-BF001392	04/08/2020			No bat activity				N/A
39	1EW03-SOE-BF001392	26/08/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
40	1EW03-SOE-BF001392	26/08/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
41	1EW03-SOE-BF001392	26/08/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
42	1EW03-SOE-BF001392	21/07/2020			No bat activity				N/A
43	1EW03-SOE-BF001398	27/07/2020			No bat activity				N/A
44	1EW03-SOE-BF001398	10/08/2020			No bat activity				N/A
45	1EW03-SOE-BF001398	10/08/2020			No bat activity				N/A
46	1EW03-SOE-BF001285	10/08/2020			No bat activity				N/A
47	1EW03-SOE-BF001285	03/09/2020			No bat activity				N/A
48	1EW03-SOE-BF003001	24/07/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
49	1EW03-SOE-BF003001	24/07/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
50	1EW03-SOE-BF003001	24/07/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
51	1EW03-SOE-BF003001	24/07/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
52	1EW03-SOE-BF003001	24/07/2020	P. pip	1 Y		Foraging	N	P. pip	N/A
53	1EW03-SOE-BF003001	09/09/2020			No bat activity				N/A
54	1EW03-SOE-BF001281	03/09/2020			No bat activity				N/A

Exhibit SP2 to Statement of Witness of Stuart Pankhurst

I, Stuart Pankhurst, Managing Director of Southern Ecological Solutions Ltd, declare that the documents attached comprising 2 pages is Exhibit SP2 referred to in my witness statement dated 03 May 2022.

Signed



Dated the 3rd day of May 2022

20 May 2020

Our ref: n/a

Your ref: n/a



BY EMAIL ONLY

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

0300 060 3900

Dear Hannah Broughton,

Second response to the Memo regarding HS2 Phase 1 North 2020 Bat Tree Survey protocols note, prepared 08 April 2020, to facilitate greater flexibility in bat survey methods in the 2020 season.

The COVID-19 pandemic has been unprecedented and Natural England has had to respond to a number of issues in relation to the associated restrictions and constraints on operations and acknowledge hotel closures and travel restrictions resulting from the same.

The NE HS2 Protected Species Licensing Team have carefully considered our second response to the memo regarding the Bat Tree Survey Protocols and respond with comments as follows.

Please also refer to the Defra Guidance on COVID-19 and interacting with wildlife for the purposes of surveying and mitigation works which will be published imminently.

Survey Effort

The level of survey effort and justification as to why it is deemed appropriate lies with the consultant. We cannot specify the survey coverage required in terms of percentage nor the rationale implemented.

We have considered the scale of the project and how we can appropriately provide a steer on what is proportionate. Regarding the scale of the project it is considered appropriate that assessments are undertaken which consider woodland habitat as a resource for bats in terms of roosting, foraging and socialising, so that that the cumulative impacts and loss of individual roost trees can be fully assessed in context.

Constrained Surveys

It is considered appropriate that supplementary or advanced survey methods should be implemented in cases where trees and individual features cannot be fully inspected and survey results are inconclusive, or confidence in a negative result is low. If the same are considered to be ineffective then this must be fully justified and a precautionary approach or non-licensable methods statement approach may be considered as appropriate to assess the impacts so that proportionate mitigation and compensation can be provided.

If it is not possible to fully inspect a tree and the method is constrained, repeating the same method is considered inappropriate. The survey effort and the principles of surveys as specified in the current best

practice survey guidelines shall remain as standard and we will consider what is appropriate and the proportionality tested on a case by case basis.

However, taking into account the current limitations during the Covid-19 situation when undertaking surveys, it is considered appropriate at this time that BT2 surveys can replace BT3 surveys until the situation is resolved.

Licence Assessments

Wildlife Advisers undertaking assessments need to have confidence when considering the proportionality of compensation and whether it is appropriate to the species affected. If the information provided is constrained and the roost type and/or the species is unknown the risk that we will not be able to determine the application is high, and we would need to be fully satisfied with any justification.

In addition, the same assessments undertaken to inform licence applications are also used to inform tree works; and therefore, the risk of committing an offence is high if a roost is not identified and subsequent bat evidence is found following the felling of a tree.

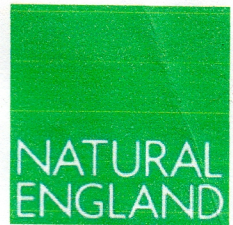
☒ The comments and advice provided in this letter have been through Natural England's Quality Assurance process. The comment and advice provided within this response is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely



Colin Bonfield
Natural England Protected Species Lead Adviser
HS2 Advice Team

22 October 2020



Ms E Robley

request-699551-ebe11064@whatdotheyknow.com

Legal Services
County Hall
Spetchley Road
Worcester
WR5 2NP

Dear Ms Robley

Access to Information Request – Request no 5279

Thank you for your request for information set out below, which we received on 16 October 2020. Your request has been considered under the Environmental Information Regulations 2004 (EIRs).

You asked for:

Can you please advise if Grim's Ditch (NGR: SP 89153 03604) has been registered under class licence WML-CL40, or if any other licence has been granted at this location?

Natural England can confirm that Grim's Ditch has not been registered under WML-CL40. HS2 hold organisational licenses for activities affecting Great Crested Newts (WML-OR25) and Badgers (WML-OR24) route wide (Phase 1).

If you have any queries about this letter, please contact me. As you may be aware, under the legislation should you have any concerns with the service you have received in relation to your requests and wish to make a complaint or request a review of our decision, please contact me and I'll arrange for a colleague to conduct an internal review. Under Regulation 11(2) this needs to be done no later than 40 working days after the date of this letter.

If you are not content with the outcome of that complaint or the internal review, you may apply directly to the Information Commissioner for a decision. Generally, the Commissioner cannot make a decision unless you have exhausted the internal review procedure provided by Natural England. The Information Commissioner can be contacted at: <https://ico.org.uk/global/contact-us/> or call on 0303 123 1113 (local rate), www.ico.org.uk.

Yours sincerely

Darren Green
Senior Adviser – Access to Information

0208 026 0936
darren.green@naturalengland.org.uk

D2508

Witness statement: Leo Smith - May, 2022 - Claim QB-2022-BHM-00044

See also Additional information included with this submission

Statement in support of the Defence against the Claim QB-2022-BHM-00044, HS2 Ltd & SoS for Transport V Persons Unknown and Ors.

Witness Name and Address:

Leo Smith, 223b Brecknock Road, London N19 5AA

Date of Statement 14th May 2022

I believe the following to be a true and honest account to the best of my knowledge.

Personal background

1. I am an artist and teacher, and have worked across the UK and internationally since 1985. I'm also the Creative Director of CSKX Studios, a small arts and education charity, which I co-founded in 1990 - working across community, education and healthcare in Camden, North London. And I am also a parent.
2. Living in Camden I have been aware of HS2 for some years, because it starts from here, and also through my awareness and living through HS1, which also is located in Camden, starting from St Pancras Station.
3. Camden Council, as well as many other local council's in England, have been against HS2 from the beginning, and this also goes for the majority of the Camden population. Unfortunately the concerns of the population have never been listened to, and no full and proper consultation with regard HS2 has ever been undertaken by Government. We in Camden are loosing green space, trees, playgrounds, homes and businesses unnecessarily to HS2. We are also loosing our health. In the last weeks it has been reported that HS2 will now transport all construction waste from the work sites at Euston using lorries rather than rail, for the reasons of cost. This is a change of plan and will add thousands more vehicles to the streets of Camden.
4. **This Witness Statement is made in support of those concerned about the dangers of HS2, who this Injunction has been brought against. It states reasons for this injunction should not be allowed, and aims to put those raising concerns about the actions of HS2 into context, through relevant and background information - why those raising concerns and protesting HS2 should not be restricted. This includes-**
5. HS2's negative impact on climate change, and HS2's direct and negative impact on:
 6. • The communities and businesses it comes into contact with;
 7. • The disastrous impact on wildlife and the natural environment;
 8. • Its danger to water sources, including chalk streams, aquifers and drinking water; and

9. • Its actions against those that raise serious concerns and protest the HS2 project, including those who this injunction is being brought against.
10. My intention is to help to give a more complete picture of HS2's impact, but it has to be said that what is included here is only a small selection of the negative impacts, and the dangerous and unnecessary acts that HS2 have undertaken so far, at this early stage of its construction, which is set, if allowed, to continue for 20 years and more.

Intro: the work of the protestors

11. Leading up to and during the recent HS2 Consultation (HS2-2B Crewe-Manchester Consultation, March/April 2022) HS2 failed to notify many of those to be affected by HS2. 100's of groups and organisations, and thousands of people were unaware at the time of the Consultation – either of the Consultation, or how they would be directly impacted by it.
12. Those involved in the StopHS2 campaign, including those included in this Injunction, have been using their knowledge and experience to try to help inform and raise awareness in these communities between Crewe and Manchester of how HS2 will impact on their homes, lives and their communities.
13. If it wasn't for those trying to have some oversight of the impact of HS2 along the line, and how this is already negatively impacting and will affect individuals and communities as the project ploughs on, then knowledge and awareness would be minimal.
14. This Injunction will limit the understanding of this project and how it will affect the public, including the communicating and sharing of information with those along the route.
15. If it wasn't for those who are concerned about the serious dangers of HS2 (climate/health/jobs/homes/natural environment & environmental cost/carbon/ financial cost/corruption/national heritage) - which includes the protestors on the streets, protecting trees and living in tunnels - trying to keep HS2 in the spotlight, and discussed in Parliament and the media, then there would be little information regarding the dangers of, and the damage being done by this project. And in many cases, it is only when those protesting HS2 are covered by the media, that information is revealed and discussion develops regarding the negative impacts of this project. I believe this is one of the main reasons why HS2 and the Department for Transport (DfT) want to remove all protest and external eyes from the whole length of the HS2 project.

As noted recently by the IPCC Director General - Antonio Guterres,

16. *Climate activists are sometimes depicted as dangerous radicals. But the truly dangerous radicals are the countries that are increasing the production of fossil fuels.*

17. In our case, the dangerous radicals are those pushing on with a project, HS2 and the Government, that has serious negative impact on climate and the environment, and includes the excess use of fossil fuels and concrete – two of the major creators of the climate crisis.
18. It needs to be highlighted that protestors, those who are protesting for the benefit and wellbeing of the nation, risking their own health, lives and careers in the process, should not be restricted, they should be enabled, supported and encouraged.

Limiting knowledge - HS2

19. Re: knowledge and awareness of the impact of HS2 – HS2 have created hundreds of Non-disclosure Agreements (NDA's) or *gagging orders*, with local councils, universities, companies and individuals, restricting the sharing and access to information about HS2. With regard individuals, such as those who are forced into compulsory purchase orders, this restricts their ability to be able to discuss their often fraught and unsatisfactory dealings with HS2.
20. (I have recently asked, as a Freedom of Information Request, for a list of those who responded to the 2018 Crewe-Manchester Consultation and agreed for their responses to be made public at the time of submitting the information – this is information that should have already been disaggregated and be in the public domain. HS2, now on 2 occasions, have said that my request is too demanding. This is not only a withholding of information, but also a delay/time-wasting tactic.)
21. The recent Policing Bill that has passed through Parliament already goes too far in restricting the public's voice and the public's right to protest. Injunctions such as this, only build on the power of large companies and over-reaching government to restrict the Human and Civil Rights of the population.
22. This is not a game.
23. The IPCC climate warning - we are at *Code:Red* - must be taken seriously.

Re: HS2's submissions to court

24. Much of the information that HS2 is presenting to Court for this Injunction is either misleading or raises more questions about the honesty and viability of HS2.
25. I would also like to note that information HS2 has brought together (which is actually extremely helpful in building a case against HS2), much of the visual and screen information has been sourced from social media and is publicly available on the internet. This, unlike the gagging orders created by HS2, is encouraging freedom and sharing of information.

26. Many of the images illustrate protestors trying to stop environmental and wildlife crimes and highlighting the unnecessary work of HS2. I will refer to a few here.

River Colne/Denham

27. It is known, and it has been raised on many occasions, that the work in Denham Country Park by HS2 was and is unnecessary. The initial work at this site was to dismantle and realign electric pylons. The pylons were initially installed many years ago using access to the field where they are located using the nearby canal, thus removing any need for destroying the trees and woodland, and polluting the river. It is also widely known that the pylon could have also been accessed via the road that leads to the field, again removing the need for building a bridge across the river and destroying the woodland. Why, one might ask, did they not take one of these two options?
28. During the initial process of building the bridge they cut down one particular tree – thought to be between 400-600 years old. They had been told by the Environment Agency (EA) not to cut the tree down, but they went ahead and did it anyway. Why?
29. Protestors set up a camp at this site in Denham and climbed the trees to try high-light this situation. And as we can see in images supplied by HS2, they also created a structure in the river to highlight and raise awareness of this unnecessary destruction, and the unnecessary construction of a *temporary* bridge. (See Additional information)

The Colne Valley Aquifer – Hillingdon, Buckinghamshire and London water.

30. One of the first camps set up to highlight the dangers of HS2 was at Harvil Road in Hillingdon (circa 2017). One central issue of concern at this camp was - by constructing a viaduct from this site across the river Colne and over a number of lakes - the dangers that HS2 was creating for the Colne Valley aquifer and the water supply to millions of people in and around London. The construction process requires drilling down into the aquifer hundreds of piles to be able to support the bridge. This in itself is dangerous for the water supply, but this is exacerbated by the nearby landfill site, which is already known to be leeching poison into the aquifer, and it is recognised the HS2 construction risks worsening the situation.
31. After many years of asking and taking HS2 to court, as well as those protesting HS2 having professional research undertaken on their behalf, HS2 admitted that they had not done any tests in advance to look into the dangers this construction posed. This work on the viaduct has already begun. We will not know if HS2 has a negative impact on the water supply until it happens, though this may take years to come to light, at which point it will be too late - because they haven't undertaken any tests or research. The local water authority we know is insured against these dangers, but this doesn't help those who drink the water.

32. As stated, this research has been undertaken not by the local council, HS2, or the water authority, but by a local individual trying to highlight the dangers of HS2 and its basic failures to follow due diligence. It is a good example of HS2's wilful neglect and lack of concern for the public, the environment and our natural resources.

Destroyed protest sites and rubbish

33. There are a selection of photographs in HS2's submission to court, of piles of rubbish and constructed shelters in states of collapse. It must be remembered that these photographs have been taken after those protesting HS2 have been violently evicted, possibly arrested, and their homes destroyed and possessions dumped, with no possibility to return to these sites.

Non-violent protest

34. What also needs to be pointed out regarding the images included by HS2, is that those protesting HS2 are non-violent protestors. That the use of language/text in some of the posts has been highlighted, because the protestors are extremely angry about what HS2 is doing to this country. But unlike HS2 and its contractors, the protestors are non-violent. The protestors use actions which are proportionate to the situation we currently find ourselves in:
35. Unblocking badger sets – aimed at making homeless and separating adults from their cubs (helping to kill them), and protecting nature – is proportionate;
36. Halting the destruction of trees and ancient woodland, along with trying to safeguard wildlife and ecosystems that exist within these places, and which we are dependant upon, is proportionate;
37. Slowing the project, through climbing on machinery and vehicles, in the hope that Government will finally see sense and take climate change and the Paris Agreement seriously, is proportionate;
38. Blocking access to work sites to: stop work, halt the destruction of the natural environment, damage the aquifer and water supply, slow the destruction of parks and public space (in the case of Euston Square Gardens, to create a temporary taxi rank) - these are all proportionate to the destruction and negative impact this project is having on our lives and our futures.
39. I would also like to mention that some of the information/images supplied to you is not from HS2 protests. And I would also like to recommend that for every act of violence that HS2 says protestors have perpetrated, you insist on proof, otherwise it should not be accepted.

Danger to those highlighting the negative impact of HS2:

40. You may also want to ensure you have information from those protesting HS2 – including: documentation/statements of violence by HS2 contractors, false imprisonment, removal and non-return of property, evictions without the right to do so (Notices), attacks, injuries, risk-taking

and endangering life, abuse of protestors Rights, withholding food and water, removing shelter (including at night and during the winter), wrongful arrest, keeping protestors awake through the night by intentionally shining bright lights and using machinery...

41. The people raising concerns about HS2 are constantly put in situations of danger, because of HS2 and its contractor's neglect of the rule of law, and who regularly infringe Civil and Human Rights. The visual documentation supplied with this information will give an introduction to the abuses faced by those opposing HS2. See also the Witness Statement by Peter Faulding, relating his concerns regarding the treatment of protestors at Euston Square Gardens (2021) and the risk to life through HS2's disregard for the protestor's wellbeing.¹
42. If you would like to see more examples of the violence that those protesting HS2 have faced, I am happy to supply more, though hopefully others responding to this Injunction will have included their own. (See also Additional Information)

Climate

43. HS2, although it says it is taking climate change into consideration, it does not, if this were the case it would have rethought the project in 2016 after the signing of the Paris Agreement.
44. HS2 says it will be net zero by 2050, but unfortunately, based on its own calculations, it will not be carbon neutral in its proposed 120 year lifetime (See doc: V. 7 Arguments against HS2²). This calculation also fails to take into account:
 45. • The use of concrete in its construction. (Concrete use worldwide is believed to be 11% of carbon emissions – IPCC Report 2022). Building a railway on concrete, as HS2 is, for the sake of being able to go fast, is reckless and irresponsible.
 46. • The destruction of woodlands, the trees lining city streets, roads and country lanes, and the hundreds of miles of hedgerows – 62% of which (HS2's figure – so, unreliable) are sent to Drax power station to be burnt as *bio-fuel* – this is also not included in HS2's carbon emissions.
 47. • Scope 3 emissions are not taken into consideration in HS2's Carbon calculations - those emissions generated by the construction of machinery, vehicles and materials constructed and created outside of HS2's immediate sites. Given the expected work period for this project is 20+years, and the expectation that at some point in the near future (dependant on Defra) Scope 3 emissions will be calculated into carbon calculations – as a supposedly forward thinking project, these ought to be

¹ WITNESS STATEMENT OF PETER FAULDING – (Tunnel specialist – Euston Tunnel report) 2021 See included additional information.

<https://docs.google.com/document/d/1VEh5YT9OTWV2Eiotd3ZlstKrBLkbAxSF/edit>

² 7 Arguments against HS2, included with the submission and also:

<https://docs.google.com/document/d/1FuExP4CNEGe5BV0NsuGKC2rflLuAuvxd1/edit?rtpof=true>

included now, to give a real and accurate picture of the current and on-going dangerous impact of HS2.

48. If the UK Government and HS2 are to take climate change seriously then they have to stop playing around and act seriously.

Airport Expansion

49. HS2 can be seen from the places it stops at and the construction of airport stations/hubs (Birmingham and Manchester) is supporting airport expansion – helping to facilitate air travel and helping to increase carbon emissions. If the Government was serious about climate change and reducing carbon emissions it would be first investing in the electrification of existing railways and the rolling stock to go with this, it is not.

Financial Disaster

50. HS2 is rated: *Red (Gov)* – *The benefit-to-cost ratio could be as low as 0.4.* Economically it is a financial black hole. *There is significant uncertainty around the future demand for travel* – although we should be encouraging rail travel, HS2 is not the rail travel people require - it is not local, it does not improve on existing inter-city networks, and it will not be cheap. Currently, it seems, one leg (Leeds) and one arm (Goldborn Spur) have now been chopped from the body of HS2. The Government is also saying Crewe and Manchester have to pay for their own train stations – to everyone's surprise. Who is directing this insane, mis-managed project that we are all paying for, and why is it allowed to continue?
51. Taking into consideration Covid-19 and the increased working from home, which is expected to continue both as work and lifestyle choices, there can be seen a real and continuing impact on rail travel. The calculation for increased capacity of travel between certain cities was always flawed. Currently rail companies are running around 30% less trains between London and Birmingham/Manchester/ Leeds.
52. At what point will the Government act in a responsive and responsible manner? We can not expect the construction industry to act responsibly, they are making too much money – concreting over our natural environments and destroying heritage.

Danger to Water sources

53. HS2 is a recognised threat to the pollution and potential disappearance of water sources in the Colne Valley (rivers Colne, Misbourne and Chess.³);

³ As the EA state in their questions "Agree that presence of tunnel will cause permanent changes to groundwater movement. Changes to groundwater movement around boundaries between chalk units could be significant." so the larger the area impacted by grout the more "significant" the risk. This is a new tone from the EA. In the past they have always downplayed the risk. This is duplicitous behaviour on behalf of the EA and HS2.

River Chess Assoc-HS2 Press release June 2021.pdf

See also River Chess Association online discussion:

<https://www.facebook.com/672722274/videos/10159811148027275/>

and through the construction of the viaduct at Hillingdon, it is a potential danger to the aquifer and 22% of London's drinking water, as noted above.⁴

Cheshire brinefields

54. On an equally large scale, HS2 has also failed to undertake research into a long stretch of proposed construction area in Cheshire, where it intends to build on an area where there are known to be many disused salt mines beneath the route. The only research, it seems, that they have used in discussions around the topic is that undertaken by local people - those highlighting the dangers of the project. For a concise description of this and the dangers involved, see, Drew James' Briefing for Parliament.⁵

HS2 is our very own Amazon destruction

55. HS2 is the largest deforestation in the UK in over 100 years, not since WWI has the UK cut down so many trees. What is particularly alarming is it is cutting down ancient woodland, mature trees and hedgerows; as well as destroying important and environmentally significant wildlife sites, wetlands, habitats and wildlife corridors; polluting rivers and lakes, undermining ecosystems, and endangering rare species. The Wildlife Trust, along with every nature, wildlife, woodland, wetland, etc. group and conservation agency has been raising serious concerns about the impact of HS2 for many years, to little or no effect. (See: Wildlife Trusts report: *What's the Damage*, included.⁶)

56. *The two most important concepts in wildlife conservation are continuity and diversity. Continuity is more important in long established woodland, especially ancient woodland, where wildlife features of value already exist and need to be conserved and where sudden and extreme change can drastically alter ecosystems which have taken centuries to develop.*

Paul Jennings: Sheep farmer & Chairman River Chess Assoc.

"River Chess and Misbourne face a red alert risk from HS2 tunneling and drilling. ... the risk of pollution has been established and accepted by Government back in 2016 but it would appear two chalk streams are a small price to pay for getting to Birmingham 20 minutes quicker"

⁴ For a detailed overview of this see Sarah Green's of Hillingdon's research and related court case documents – information included – Additional Information - with this and also accessible at: Defence Statement Sarah Green extracted.pdf and other documents
<https://drive.google.com/drive/folders/12vRBBC4cTkuWw9YpNU3i8LdAA4lWoqiT>

⁵ A. BRIEFING NOTE TO PARLIAMENT - Cheshire Brinefields - HS2 – Environmental Statement 2b – Included with Additional Information and accessible here:
<https://drive.google.com/drive/folders/12vRBBC4cTkuWw9YpNU3i8LdAA4lWoqiT>
See also: <https://mid-cheshire-against-hs2.co.uk/>

⁶ Wildlife Trusts report: *What's the Damage? Why HS2 will cost nature too much*. 2020. Included and accessible:
<https://drive.google.com/drive/folders/12vRBBC4cTkuWw9YpNU3i8LdAA4lWoqiT>
https://www.wildlifetrusts.org/sites/default/files/2020-01/What%27s%20the%20damage%20-%20Full%20Report%20digital2_0.pdf

57. (Forestry practice – 11th Edition. 1991)

58. *Why the UK's Ancient Woodland Is Still Under Threat -*

59. *Increasingly, there is a much greater awareness of the value of ancient woods: as a finite resource they can never be replaced and what little remains is very precious. Not only do they contribute to the existence of life on our planet, these few remaining islands of ancient woodland contain a wealth of wildlife, dependent on the continuity of this unique habitat.*

60. Mike Townsend - Chief Executive, The Woodland Trust, 2000

61. Many report from around the UK, and the world, stress the importance of safeguarding the woodlands, forests and natural habitats that we have – it is not possible to replace trees that are hundreds of years old with new ones by 2050! The UK, and in particular England, is one of the most forest depleted areas on the planet, we can't afford to lose more trees. We also know that monoculture forests – forests created to be managed and cut-down, are not *natural systems* and do not encourage or support the wildlife that would exist in a natural woodland. The trees planted by HS2 are mostly monoculture and are unfortunately badly managed – it has been highlighted that many of the trees planted by HS2 have died because they have not been watered!

62. Another concern raised, are the figures given by HS2 for the amount of trees they have planted. HS2 have said they have planted something like 700,000 saplings, but they have been unwilling to give the exact figure, which has been requested through FOI requests (Mark Keir), but even after a number of these requests HS2 has not yet been willing to respond. The estimate, based upon areas where saplings have been planted and an average taken along the line, is believed to be closer to 87,000, and as noted, many of these are believed to have died through not been taken care of.

Crimes against wildlife

63. Crimes against wildlife and the failure to undertake proper surveys have been constant since the project began. This includes:

64. felling trees, removing hedgerows and undergrowth along river banks, and also undertaking this during nesting and breeding season;

65. failure to undertake bat surveys;

66. blocking sets and warrens;

67. destroying wildlife corridors;

68. failure, when informed by ecologists, to act on professional advice; and this also includes the failure of the police to act on advice from professionals and those documenting the illegal activities of HS2.

69. The documents included – supporting documentation and additional visual information⁷ – have a selection of reference relating to this. See

⁷ See: *Documents relating to Colne Valley...*, and, *Supporting information-Images and Video Ref-Protestors v HS2 Related issues1* and, *Additional supporting material 2* – access: <https://drive.google.com/drive/folders/12vRBBC4cTkuWw9YpNU3i8LdAA4IWogjT>

also the information relating to the destruction of habitats and wildlife crimes in Denham Country Park, where an ecologist highlighted the presence of voles but HS2 and the police took no action to halt the work destroying the habitats.⁸

70. Although little has been done to hold HS2 to account, other than that highlighted by locals and tree protectors, and concerns raised in Court by protestors in their own defence, the High Court has stated that contractors are not immune from prosecution for wildlife offences.⁹ Again, another reason why HS2 would like to have any oversight removed.

Negative impact on communities and businesses along the line

71. The thousands of lives and businesses that are to be impacted, directly and negatively by HS2, in the recently published Environmental Statement (ES) – Crewe-Manchester 2b phase alone, are mostly marked, *“No mitigation proposed”* - how can this be?
72. • *“Significance rating – Moderate adverse in combination effect which is significant... – No mitigation proposed.”*
73. • *“Major adverse effect which is significant – No mitigation proposed”*
74. These 2 notes/quotes from the recent ES Consultation Documents (2022), repeated across all of the area specific Technical Appendices, are a good example of how out of touch HS2 is, and its unwillingness to seriously consider its impact on the lives of individuals and communities. As an unnecessary and unwanted project, one would think HS2 would want to tread lightly when planning and consulting, but obviously they have no interest in anyone or anything but themselves.
75. HS2 fails to give the real impact of its work on those affected by it. It fails to give real and specific information relating to the length of disturbance for all areas impacted, underplaying the length of the disturbance, but as we know this could continue for 5, 10 or even 20+ years. And the Statements and Consultation do not mention work beyond HS2, work that will continue through commercial and other developments facilitated by HS2, such as the repurposing of land acquired, not to mention living next door to a high speed railway, that passes, probably nearly empty, every five minutes.
76. HS2 fails to raise awareness of the concerns, regarding the negative impact on the health and wellbeing of the communities to be impacted, or

⁸ B.1 Contents – Water Vole-wildlife crimes – Denham Country Park, Buckinghamshire. Nov.2020
<https://drive.google.com/drive/folders/12vRBBc4cTkuWw9YpNU3i8LdAA4lWoqjT>

⁹ Law Gazette (19.11.2021) - *Contractors working on the construction of the HS2 rail line are not immune from prosecution for wildlife offences, the High Court has ruled in acquitting a protester who climbed into a tree to prevent workers from cutting it down.*
<https://www.lawgazette.co.uk/hs2-contractors-not-immune-from-wildlife-prosecutions-court-rules/5110570.article>

those who are already being affected. HS2 reduce the lives and livelihoods to numbers and percentage points –

- 77. • The destruction of a farm, for example, should be calculated based upon its total impact, not only the farmers that live there, but also its national and local community significance, including employment and farm production.
- 78. • The health and wellbeing of those impacted should be calculated to include also the long- term cost to the NHS, the impact on family and the wider community, and on employment and the working population.

Alternatives and where investment is really needed

- 79. This area is outside of the scope of this Statement, but for information relating to alternatives to HS2, see the papers produced by Lord Tony Berkeley, including his original response to the Oakervee Review (2019), and the recent updates/additions presented to Parliament and DfT. It is widely recognised that where improvements are needed, these should begin with the electrification of the existing rail network and improvements to connections in the North of England from East to West. London, it is known, is already well facilitated by rail networks to the North.

Frustration and Anger


- 80. For those highlighting the dangers posed by HS2 to the natural environment, water resources and the planet by HS2; along with the waste of money and materials, and particularly the waste of time when we should be investing our energies elsewhere; and when these are added to the failure of Government to respond to what is a recognised climate emergency – what is amazing is even though the amount of frustration and anger that must be felt by those who are involved in highlighting this disaster, that they:
 - 81. Continue to work to raise concerns;
 - 82. Continue to find creative ways to achieve this;
 - 83. Are willing to risk their own health, wellbeing, careers, and freedom
 - 84. for the benefit of the nation as a whole, because it must not be forgotten that they are not doing this for any selfish ends – they, unlike the construction industry and those funding and supporting this work, are not invested in and financially benefiting from the destruction of England and the planet.

p.1 – extracts from Glasgow Climate Pact – Cop26 (2021):

- 85. *Acknowledging that climate change is a common concern of humankind, Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity,*

86. Noting the importance of ensuring the integrity of all ecosystems, including in forests, the ocean and the cryosphere, and the protection of biodiversity, recognized by some cultures as Mother Earth, and also noting the importance for some of the concept of 'climate justice', when taking action to address climate change.

Signed

A handwritten signature in blue ink, appearing to be 'Leo Smith', with a stylized, cursive script.

Leo Smith
14th May 2022

WHAT'S THE **DAMAGE?**

Why HS2 will cost nature too much



REPORT

D2521



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1. EXECUTIVE SUMMARY

Our natural world is in crisis. Over the past 70 years, UK wildlife and wild landscapes have experienced huge loss and sharp declines, with the reduction and fragmentation of habitat a significant cause. There is an urgent need to reverse these declines and restore nature, and it is not too late. The Government is committed to a national Nature Recovery Network – a joined up network of wild habitats that would allow nature and people to thrive – by identifying and connecting new and existing wild places to create more, bigger, better and joined up wild areas.

Given this and that HS2 is a major infrastructure development, The Wildlife Trusts have commissioned the first comprehensive assessment of the environmental damage that HS2 will cause, assessing the broad range of impacts across all phases of development focusing on protected sites, landscape initiatives and a number of important habitats and species. The data which underpins this report has been gathered from 14 Wildlife Trusts and a number of conservation and landowning organisations along the full route of HS2. The report reveals that the construction of HS2 will destroy and fragment large swathes of natural habitat and important protected wildlife sites, resulting in the loss of irreplaceable habitats, the increased fragmentation of remaining habitats, and the local extinction of endangered species.

1.1 Protected/designated/important wildlife sites at risk

The proposed route of HS2 presents a significant risk to five internationally designated protected wildlife sites, including three Special Areas of Conservation and two Ramsar sites (wetland sites designated to be of international importance), which support internationally significant habitats and species assemblages. The proposed route also presents significant risk to many other wildlife sites protected by law, comprising 33 Sites of Special Scientific Interest (of which two are also designated as National Nature Reserves) and 21 Local Nature Reserves.

Additionally, 693 Local Wildlife Sites (LWS) covering 9,696 hectares (ha) are at risk of being significantly affected or destroyed under current plans for HS2. Local Wildlife Sites are core wildlife-rich habitats which play a critical conservation role by providing wildlife refuges, acting as stepping-stones (in line with Article 10 of the Habitats Directive), corridors and buffer zones to link and protect nationally and internationally designated sites. LWS are crucial for improving ecological coherence and connectivity and contributing to a climate resilient landscape, and may also be of national wildlife value, despite their 'local' designation.

1.2 Habitats at risk

The current proposed route of HS2 will severely impact four Nature Improvement Areas – landscape-scale conservation initiatives, three of which have been funded by Defra at a cost of more than £1.7 million. The route will sever ecological connectivity and fragment habitat within them. The proposed route will further fragment 22 Living Landscapes: landscape-scale partnership schemes for nature's recovery, championed by The Wildlife Trusts. These large initiatives aim to embody the principles set out in the Lawton Review *Making Space for Nature*, creating joined-up and resilient ecological networks. Despite HS2 stating they would take these principles into account, the proposed plans will create physical barriers to the movement of species and interruption of natural processes, further fragmenting natural habitats and making the restoration of resilient, wildlife-rich landscapes more difficult.

HS2 will result in the loss of irreplaceable habitats, including ancient woodlands, veteran trees, wood pasture, old meadows, mires and wetlands. A total of 108 ancient woodlands are known to be threatened with loss or damage under current plans. Many other important wildlife habitats will be negatively impacted by the construction of HS2 and will not recover their existing biodiversity value, under the timescales used in HS2's calculations.

1.3 Species at risk

It is anticipated that HS2 will impact a wide range of wildlife significantly, including a number of scarce and protected species at risk from permanently adverse impacts on their conservation status¹. These include barn owl, Bechstein's bat, white-clawed crayfish, and the dingy skipper butterfly. This threat is not only contrary to Government biodiversity policies and international obligations, but also to European Law.

Fragmentation of habitats as a result of design proposals will have complex and wide-reaching impacts on populations, meta-populations and dispersal routes.

The current proposals for HS2 are so damaging that they put certain species at risk of becoming locally extinct, greatly reducing the chance that these species can ever recover to their former ranges. For example, the dingy skipper may become locally extinct in Derbyshire. A number of other protected species that are currently the focus of restoration projects, such as otters in the Trent and Erewash, will have their future survival jeopardised as a result of the current design plans for HS2.

1.4 Inappropriate mitigation proposals

Analysis of HS2 Ltd's Environmental Statement (ES) Phase 2a and Working Draft Environmental Statement (WDES) Phase 2b has identified multiple examples of inappropriate mitigation, such as tree planting on habitats that would suffer as a result e.g. vulnerable species-rich grassland, important wetland habitats, or within areas of existing semi-natural woodland. Many of the mitigation areas have been ill thought-through and instead of creating a 'green corridor', may actually destroy important existing habitats.

HS2 Ltd's current Environment Statements do not fully account for impacts to Local Wildlife Sites, local species populations, or wider ecological networks. Nor do they recognise landscape-scale projects for nature's recovery. As a result, current plans for HS2 provide inadequate mitigation and compensation while at the same time damaging habitats and projects, which themselves could offer mitigation and compensation opportunities for HS2 Ltd to invest in significant landscape-scale habitat restoration.

Furthermore, the ES and WDES were found to be inconsistent and inadequate, based on out-of-date and incomplete Local Wildlife Site data. There was also insufficient information on survey methodologies, results and impact assessments within the ES resulting in an incomplete picture of the likely impacts. In addition, in some areas, 47% of sites at risk from HS2 had not been surveyed.

1.5 Net loss of biodiversity

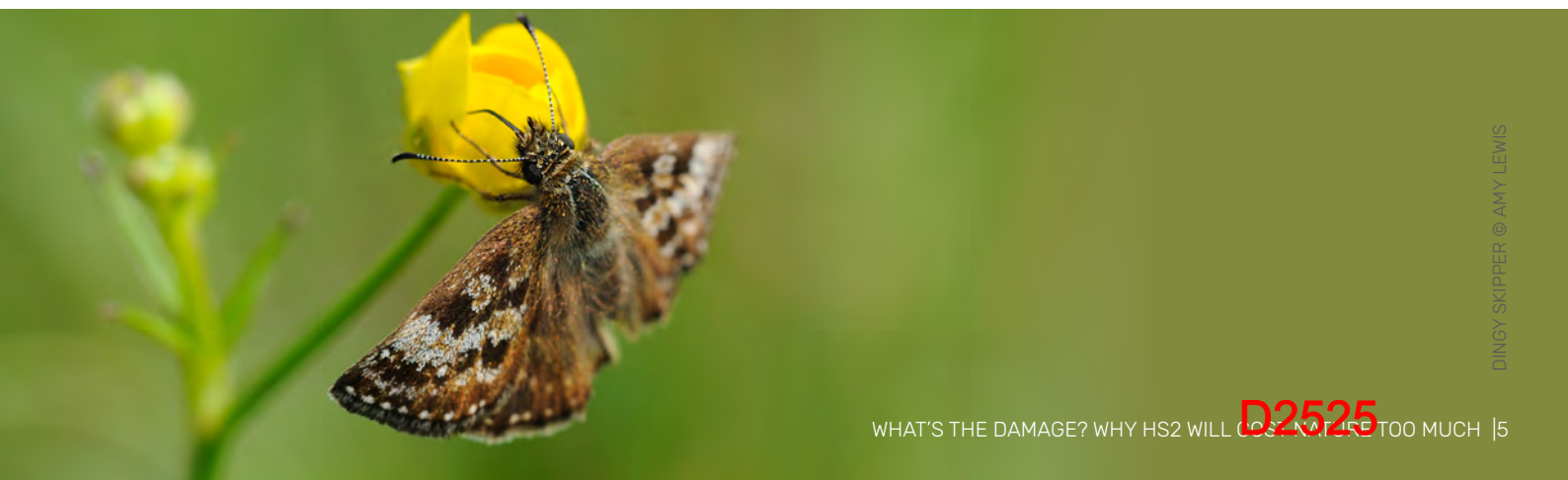
HS2 Ltd made a commitment to no net loss in biodiversity at a route-wide level (an overall no net loss along the whole route of HS2). The findings of this report show unequivocally that 'no net loss' of biodiversity by HS2 is unachievable under current plans.

1.6 Conclusion

This report concludes that the proposed HS2 scheme will be devastating to the natural environment by:

- placing too many protected sites (and the species that depend on them) under potential risk of significant impact;
- frequently failing to propose adequate and appropriate mitigation and compensation for the impacts on these wild places; and
- failing to achieve the commitment to 'no net loss' for biodiversity, let alone Government's wider commitment in the 25 Year Environment Plan².

At a time of continued and devastating wildlife declines and climate emergency, this damage will push nature to the brink, cause local extinctions, destroy carbon-storing habitats, and irreversibly damage local biodiversity. **It is time to Stop and Rethink.** Ongoing works to HS2 need to stop immediately, the impact on the natural environment must be fully assessed, and the proposals reviewed in the light of this assessment. Any future solution must deliver a net gain for nature.



2. INTRODUCTION

For nearly a decade, The Wildlife Trusts have petitioned HS2 Ltd for changes to the planned High Speed 2 railway route. The current proposed approach will devastate and fragment large swathes of natural habitat and protected sites, including many of the wild places cared for by The Wildlife Trusts and other environmental organisations.

HS2 is a huge infrastructure project, which will cut and divide England's natural habitats in two, from London to Manchester and Leeds. Despite this, the UK Government did not undertake a Strategic Environmental Assessment, which would have required a thorough investigation of the environmental impacts of the HS2 route and consideration of viable alternatives. Furthermore, it is evident from this study that the Environmental Statements for HS2 have fallen considerably short in terms of information, surveys, impact assessment and proposed mitigation and compensation. It is not clear why a project of this scale should have different rules to smaller projects when it comes to providing adequate impact assessment and to ensuring that all necessary environmental data is available in time to inform good decision-making. A scheme that impacts huge areas of the country should not be rushed. Issues missed at an early stage will cause problems, potential delays, and almost certainly increased costs during construction and operation. And critically, with inadequate and inappropriate mitigation and compensation proposals, losses to biodiversity will be unavoidable. This is unacceptable at a time when nature is in crisis.

This is why The Wildlife Trusts commissioned this research – to produce the most comprehensive report on the threats posed to the environment by the current route and plans for HS2. This report, underpinned by data gathered from 14 Wildlife Trusts and a number of conservation and landowning organisations along the full route of HS2, focuses on internationally, nationally and locally protected sites that are at risk. Many thousands of hectares of semi-natural habitat outside of these sites also lie in the path of HS2, including large areas of Section 41 Habitats of Principal Importance, for which there are national Government targets for protection and restoration. All will be lost or significantly reduced in extent, increasing the fragmentation and isolation of species and habitats over a wide area.

Over recent decades, UK wildlife and habitats have declined on an unprecedented scale, with the reduction and fragmentation of habitat a significant cause. We urgently need to reverse these declines

and restore nature, and this can be done. But it is no longer enough to merely minimise negative impacts. All developments should support nature's recovery by avoiding impacts in the first place and by helping to restore, improve, expand and increase habitats and wildlife.

The Government has committed to bring about a national Nature Recovery Network – a joined up network of habitats that would allow wildlife and people to thrive – by identifying and connecting new and existing wild places to create more, bigger, better and joined up wild habitats. HS2 will cut right through the heart of England, slashing a large part of the countryside in two, destroying and fragmenting natural areas and species populations; and posing a genuine threat to establishing and maintaining a Nature Recovery Network.

The full extent of the losses to our natural world that will come as a result of HS2 is still unknown, but this report draws together the known and potential threats to arrive at an assessment based on the current route proposed.

This report gathers evidence of the loss to wildlife, wildlife sites and important habitats along the route of HS2. It outlines from available data, the:

- extent of the potential damage to wildlife from the current approach;
- mitigation and compensation that would need to be addressed to ensure there is no net loss as a bare minimum.

It presents a summary of information gathered from each of the Wildlife Trusts affected by HS2, and other environmental stakeholders including the Woodland Trust, Royal Society for the Protection of Birds (RSPB), National Trust and Chilterns Conservation Board.

A Freedom of Information request on habitats affected by each phase for the main route of HS2 as well as access roads and temporary construction and enabling sites was submitted to HS2 by The Wildlife Trusts on 31 October 2019. A response was due by 29 November 2019, but is still pending.

This report offers reasonable due confidence about the sites affected by HS2, but may underestimate the full potential impacts. Lack of detailed survey data, information and potential changes to the route all mean that some affected sites may not have been included. It was therefore not possible to calculate overall totals for the different habitats that will be lost or significantly affected by HS2.

3. BACKGROUND

3.1 HS2 route & map

HS2 Phase 1 (London to West Midlands) is underway.

HS2 Phase Two is being delivered in two stages:

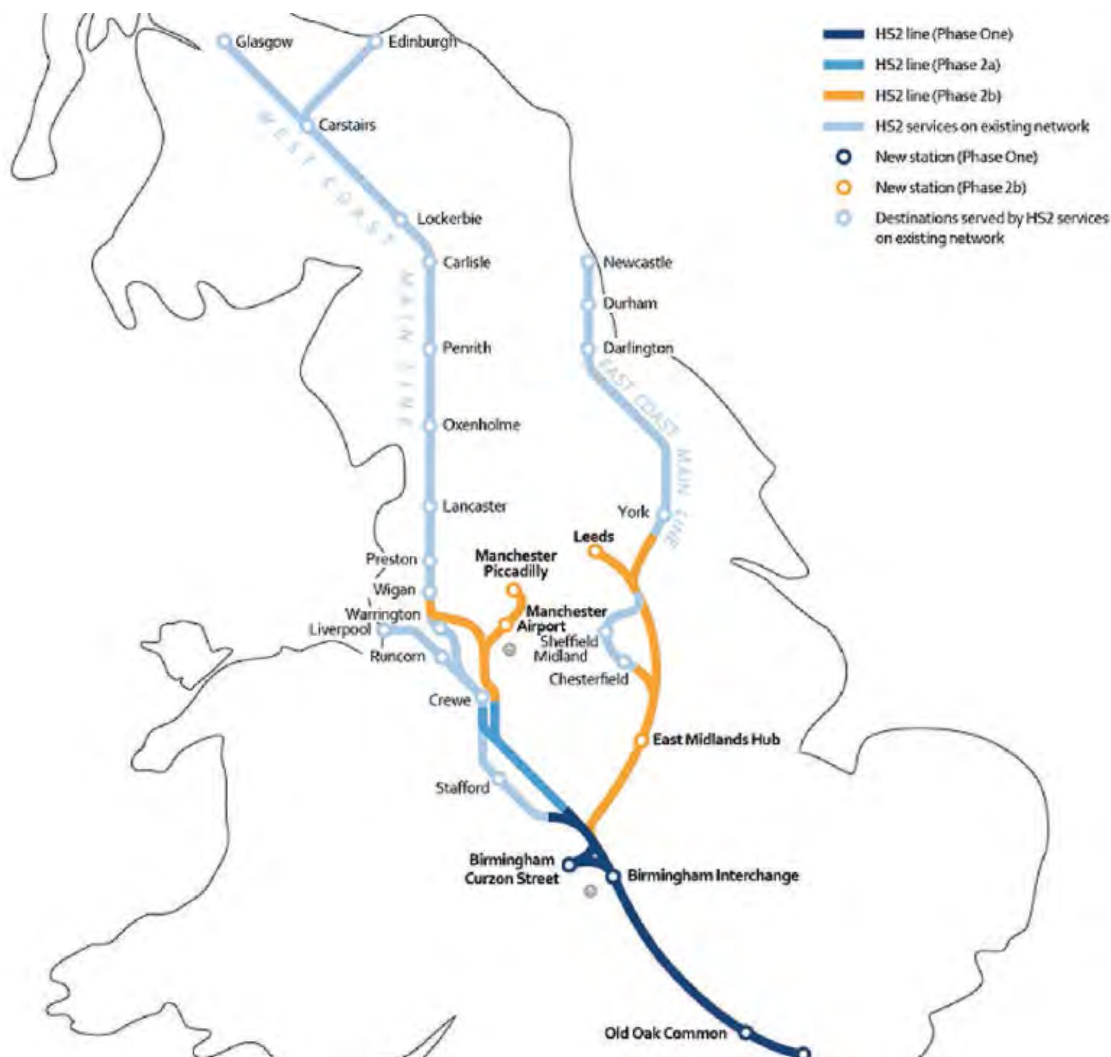
- HS2 Phase 2a (West Midlands to Crewe)
- HS2 Phase 2b (Crewe to Manchester, and the West Midlands to Leeds)

On 23 February 2017, Royal Assent was granted for the hybrid bill 'High Speed Rail (London – West Midlands) Bill'³. This grants the powers to construct Phase 1 of the HS2 network and to:

- build and maintain HS2 and its associated works

- compulsorily acquire interests in the land required
- affect or change rights of way, including the stopping-up (removal of rights of way) or diversion of highways and waterways (permanently or temporarily)
- modify infrastructure belonging to statutory undertakers (e.g. utility companies)
- carry out work on listed buildings and demolish buildings in conservation areas; and
- carry out protective works to buildings and third-party infrastructure.

It also grants the necessary changes to existing legislation to facilitate construction and operation of Phase 1 of HS2. Changes to the bill are covered by Additional Provisions⁴.



Route of HS2 (Image source: <https://www.placenorthwest.co.uk/news/hs2-route-onfirmed-details-reactions/>)

3.2 Trusts affected

14 Wildlife Trusts are affected by the route of HS2:

- Phase 1 (London to West Midlands)
 - London Wildlife Trust
 - Hertfordshire and Middlesex Wildlife Trust (HMWT)
 - Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT)
 - The Wildlife Trust of Bedfordshire, Cambridgeshire and Northamptonshire (WT BCN)
 - Warwickshire Wildlife Trust
 - Staffordshire Wildlife Trust
 - Birmingham and Black Country Wildlife Trust.
- Phase 2a (West Midlands to Crewe)
 - Staffordshire Wildlife Trust
 - Cheshire Wildlife Trust.
- Phase 2b (Crewe to Manchester and West Midlands to Leeds)
 - Cheshire Wildlife Trust
 - The Wildlife Trust for Lancashire, Manchester and North Merseyside
 - Leicestershire and Rutland Wildlife Trust
 - Derbyshire Wildlife Trust
 - Nottinghamshire Wildlife Trust
 - Sheffield and Rotherham Wildlife Trust
 - Staffordshire Wildlife Trust
 - Warwickshire Wildlife Trust
 - Yorkshire Wildlife Trust.

3.3 Policy context

Biodiversity 2020⁵, the Government's strategy for England's wildlife and ecosystem services, states as its mission: "to halt overall biodiversity loss, support healthy and well-functioning ecosystems, and establish coherent networks, with more and better places for nature for the benefit for wildlife and people".

The Government's 25 Year Plan for the Environment⁶ includes a commitment to embed environmental net gain in infrastructure projects and to ensure that the requirement for net gain is strengthened.

The 2018 update to the National Planning Policy Framework⁷, paragraph 170 states that "Planning policies and decisions should contribute to and enhance the natural and local environment by... minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures."

The draft 2019 Environment Bill introduced to Parliament in October 2019 included a net gain target of 10% for development, though currently allows exclusions for projects such as HS2.

HS2 Ltd commits to an objective of seeking to achieve no net loss in biodiversity at a route-wide level, but does not aim to achieve a net gain. The destruction of ancient woodland, as an irreplaceable habitat, is no longer included in this calculation.

The HS2 Environmental Policy, states HS2's commitment to "developing an exemplar project, and to limiting negative impacts through design, mitigation and by challenging industry standards whilst seeking environmental enhancements".



4. FINDINGS

4.1 Introduction to findings

The findings of this report cover the route-wide impacts, based on the known route at the time of writing. It considers the impacts on internationally, nationally and locally protected sites, Nature Improvement Areas (NIAs), Living Landscapes, Wildlife Trust Nature

Reserves, irreplaceable habitats, and the general impacts on habitats that fall outside of these designations. It also reports on some of the impacts of HS2 on scarce and protected species along the route, covering birds, mammals, reptiles and rare invertebrates, like white-clawed crayfish, the dingy skipper and small heath butterflies.

Internationally, Nationally and Locally Protected Wildlife Sites

These include: Special Areas of Conservation (SACs); Ramsar Sites; Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs); Local Nature Reserves (LNRs); and Local Wildlife Sites (LWSs).

Sites of Special Scientific Interest (SSSIs): Sites of Special Scientific Interest are protected through the Countryside & Rights of Way Act (2000), designated nationally for their special interest due to their flora, fauna, geological, geomorphological or physiographical features. SSSIs form a national network of sites that also underpin sites designated to meet international obligations (e.g. Ramsar Sites and Special Areas of Conservation). All National Nature Reserves (NNRs) are notified as SSSIs. In England, NNRs are designated by Natural England under the Wildlife and Countryside Act 1981, as amended.

Special Areas of Conservation (SACs): Special Areas of Conservation are statutory sites, designated to protect one or more special habitat(s) and/or species. They are internationally important areas that are given special protection under the European Union's Habitat Directive, which is transposed into UK law by the Habitats and Conservation of Species Regulations 1994 (as amended). All UK SACs are also designated as SSSIs (although SSSIs cannot extend beyond low tide, whereas SACs can).

Ramsar Sites: Ramsar sites are statutory wetland sites of international importance. They are designated under the criteria of the 1971 Ramsar Convention on Wetlands for containing representative, rare or unique wetland types or for their importance in conserving biological diversity. The designation of UK Ramsar sites has generally been underpinned through prior notification of these areas as Sites of Special Scientific Interest (SSSIs). Accordingly, these receive statutory protection under the Wildlife & Countryside Act 1981 (as amended). Government has also issued policy statements relating to Ramsar sites which extend to them the same protection at a policy level as Special Areas of Conservation and Special Protection Areas.

National Nature Reserves (NNRs): National Nature Reserves were established to protect some of our best examples of important habitats, species and geology, and to provide 'outdoor laboratories' for research. Most NNRs offer great opportunities for schools, specialist interest groups and the public to experience wildlife at first hand and to learn more about nature conservation. All NNRs are notified as SSSIs.

Local Nature Reserves (LNRs): Local Nature Reserves are statutory sites containing special interest within the administrative area of a local authority for their flora, fauna, geological or physiographical features, and which are managed for the purpose of their preservation or for providing opportunities for related study and research. They are also recognised as an important places for the public enjoyment of nature.

Local Wildlife Sites (LWSs): Local Wildlife Sites are defined areas, identified and selected locally for their substantive nature conservation value, based on important, distinctive and threatened habitats and species with a national, regional and local context. Together with the statutory sites (SSSIs), they form the essential building blocks of a Nature Recovery Network. Local Wildlife Sites are recognised in national planning policy, which sets out requirements for their protection through local policy and plans. LWS may contain habitats of national value which have not been designated as SSSIs, as the SSSI suite is representative, but not comprehensive.

4.2 Route-wide impacts

4.2.1 Statutory designated wildlife sites within 500m radius of proposed scheme⁸

Number of sites at potential risk of significant harm

(no.)	Total	Phase 1	Phase 2a	Phase 2b
SACs⁽ⁱ⁾	3	0	1	2
SSSIs⁽ⁱⁱ⁾	28	11	3	14
Ramsar⁽ⁱⁱⁱ⁾	2	0	1	1
NNRs^(iv)	2	1	0	1
LNRs^(v)	18	7	4	7

Note: Some sites have more than one designation.

(i) SACs Pasturefields Salt Marsh SAC, Staffordshire (HS2 Phase 2a)
Manchester Mosses SAC (HS2 Phase 2b)
River Mease SAC (HS2 Phase 2b)

(ii) SSSIs See table below

Phase 1	Phase 2a	Phase 2b
Denham Lock Wood	Rawbones Meadow	Rostherne Mere
Frays Farm Meadows	Betley Mere	Wimboldsley Wood
Mid Colne Valley	Sandbach Flashes	Plumley Lime Beds
Ruislip Woods		Holcroft Moss
Finemere Wood		Long Lane Willows
Sheephouse Wood		River Mease
Berkswell Marsh		Breedon Cloud Wood & Quarry
Coleshill & Bannerly Pools		Lockington Marshes
Middleton Pool		Lount Meadows
River Blythe		Pasture & Asplin Woods
Ufton & Long Itchington		Bogs Farm Quarry
		Annesley Woodhouse Quarries
		Bulwell Wood
		Sellers Wood

(iii) Ramsar Midlands Meres & Mosses Phase 1 Ramsar (HS2 Phase 2a)
Rostherne Mere Ramsar (HS2 Phase 2b)

(iv) NNRs Ruislip Woods NNR (HS2 Phase 1)
Rostherne Mere NNR

(v) LNRs See table below

Phase 1	Phase 2a	Phase 2b
Denham Country Park	Christian Fields	Forbes Hole
Fray's Valley	Crown Meadow	Stanton Gate
Wormwood Scrubs	Kingston Pool Covert	Nottingham Canal
Perivale Wood (risk to hydrology of the site)	Stone Meadows	Sellers Wood
Northmoorhill Wood		Toton Fields
Crackley Wood		Firsby Reservoir
Lavender Hall		Pit Lane

4.2.2 Statutory designated sites beyond the 500m radius of proposed scheme

Number of sites considered potentially subject to significant effect

(no.)	Total	Phase 1	Phase 2a	Phase 2b
SACs	0	0	0	0
SSSIs^(vi)	5	3	0	2
Ramsar	0	0	0	0
NNRs	0	0	0	0
LNRs^(vii)	3	3	0	0

Note: Some sites have more than one designation.

- (vi) SSSI
- Bacombe & Coombe Hills SSSI (HS2 Phase 1)
 - Froghall Brickworks SSSI (HS2 Phase 1)
 - Helmdon Disused Railway SSSI (HS2 Phase 1)
 - Astley & Bedford Moss (HS2 Phase 2b)
 - Attenborough Gravel Pits SSSI (HS2 Phase 2b)*

**Effects on bird assemblages which use Attenborough SSSI, from habitat loss nearby in the Trent and Soar Valleys.*

- (vii) LNR
- Bacombe Hill LNR (HS2 Phase 1)
 - Ferndown LNR (HS2 Phase 1)
 - Kettlebrook LNR (HS2 Phase 1)

4.2.3 Local Wildlife Sites (including potential and candidate Local Wildlife Sites)

Number of Local Wildlife Sites at risk of significant impact

(no.)	Total	Phase 1	Phase 2a	Phase 2b
Within the proposed scheme*	304	127	57	123
Adjacent to proposed scheme**	147	33	5	109
Sites neither within nor adjacent to the proposed scheme (which are also considered to be at risk)***	242	56	7	169
Total	693	216	69	401

Area of sites (indicative)

(hectares)	Total	Phase 1	Phase 2a	Phase 2b
Within the proposed scheme*	3,446	1,463	805	1,187
Adjacent to proposed scheme**	4,001	584	115	3,312
Sites neither within nor adjacent to the proposed scheme (which are also considered to be at risk)***	2,239	871	49	1,319
Total	9,696	2,918	969	5,818

Note: The area figures should be treated with a margin of error due to the different methodologies used to present the areas affected.

Key:

***Within the proposed scheme:** sites within HS2's 'red line' route boundary, plus any known sites for compounds, access roads, ancillary works that are potentially at risk of significant effects.

****Adjacent to the proposed scheme:** sites bordering the outside of the 'red line' route boundary that are potentially at risk of significant effects.

*****Sites neither within or adjacent to the proposed scheme:** any sites that do not fall within the above categories, but were considered to be potentially at risk of significant effects (e.g. hydrological & air quality impacts).

Potential and candidate Local Wildlife Sites: different terms are used by different partnerships. But collectively these sites include those that have potential to be LWS. Either they do not meet the criteria but have potential to do so; or potential sites that have not yet been surveyed or assessed against the criteria.

Local Wildlife Sites (LWS) (also known by other terms e.g. Sites of Importance for Nature Conservation, County Wildlife Site, Site of Nature Conservation Importance) are of great significance and core wildlife-rich habitats of substantive nature conservation value. Taken together with Sites of Special Scientific Interest (SSSI) they represent a major national asset. LWS play a critical conservation role by providing wildlife refuges, acting as stepping-stones (in line with Article 10 of the Habitat Directive), corridors and buffer zones to link and protect nationally and internationally designated sites. They improving ecological coherence and connectivity and contributing to a climate resilient landscape. LWSs are protected through good planning policy and decisions, underpinned by Local Plan policies as directed by the National Planning Policy Framework.

For a long time, it has been recognised that, while important, SSSIs are insufficient to protect and conserve biodiversity in England. So, together with SSSIs, LWS support locally and nationally threatened species and habitats and are the essential building blocks of a Nature Recovery Network and the core from which we can achieve nature's recovery. Unlike SSSIs, which for some habitats are a representative sample of the sites that meet national standards, LWS systems are more comprehensive and select all sites that meet the criteria. As a result, many LWS are of SSSI quality and together with the statutorily protected sites, contain most of the country's remaining high-quality natural habitat and threatened species.

Regardless of statutory status, it is paramount that the country's core sites for biodiversity are protected from developmental loss and damage, if we are to avoid a net loss in biodiversity.

4.3 Nature Improvement Areas and Living Landscapes

4.3.1 Nature Improvement Areas bisected and fragmented by HS2

Nature Improvement Areas (NIAs) are areas of the country where partnerships have been set up to restore and enhance the natural environment, creating joined-up and resilient ecological networks at a landscape-scale. Initially, twelve NIAs were recognised and funded by Defra between 2012 and 2015 at the collective cost of £1,724,200. Other NIAs were locally designated.

Developing a Nature Recovery Network to reconnect wildlife habitats is at the heart of the Government 25-Year Environment Plan⁹. Yet the proposals for HS2 cut through four NIAs, severing ecological connectivity and fragmenting habitats. This undermines publicly-funded work and goes against the principles set out in the Lawton Review - *Making Space for Nature*¹⁰ (which HS2 Ltd stated it would take into account¹¹), and government's commitment to leave the environment in a better state than it found it.

Birmingham and Black Country NIA (Nationally-designated. Defra-funded. NIA grant awarded **£595,750**) HS2 Phase 1

This partnership of over 50 organisations works towards a vision of an urban landscape permeated by a network of high-quality greenspace rich in wildlife and enjoyed by the people who live and work there. The proposed route will slice through the NIA and destroy 80-90% of the Birmingham and Black Country Wildlife Trust's Park Hall Nature Reserve.

Meres and Mosses of the Marches NIA (Nationally-designated. Defra-funded. NIA grant awarded **£568,470**) HS2 Phase 2a

The Meres and Mosses NIA is a partnership of 12 organisations making better places for nature, people and communities, improving and protecting core sites and connecting them by restoring the wetland habitats in and around them. It includes Blakenhall Moss, a Cheshire Wildlife Trust nature reserve that is being returned to lowland raised bog. The proposed route runs straight through the NIA, cutting a swathe 500–780m wide (min and max width using GIS data published by HS2 in 2017). With multiple tracks, this is one of the widest sections in Phase 2a. It will result in the loss of up to 61 ha of the 105 ha Randilow Farm and Bunker Hill LWS, which is an integral part of the NIA. The partial loss of this core site would increase ecological fragmentation within the NIA. The loss of habitat for breeding and overwintering farmland birds at this site is unmitigated and losses of potential ancient woodland, hedgerows and other habitat for bats are not adequately compensated and mitigated.

Great Manchester Wetlands NIA (locally-designated) HS2 Phase 2b

The proposed route of HS2 Phase 2b severs the east-west connectivity of the whole of the Great Manchester Wetlands NIA and the wider Manchester Mosses Special Area of Conservation (Community Area MA05). This is an essential network of wildlife corridors and stepping stones to connect wetland habitats. It is already split by the M62 and the Liverpool to Manchester Railway. HS2 will fragment it further. This NIA was locally-determined by two Local Nature Partnerships and is recognised by local planning frameworks and strategies, but it is not included in the Working Draft Environmental Statement (WDES) for Phase 2b.

This means the importance of the area in terms of ecological connectivity and restoration potential are not considered, and the significance of the peatland and wetland habitats present at designated sites is missed. Holcroft Moss is not limited to the Site of Special Scientific Interest (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 hares and could be rewetted to recreate peatland habitats. The M62 bisected Holcroft Moss east-west in the 1970s and HS2 is set to further fragment it on

a north-south axis, leaving the SSSI isolated from the rest of Holcroft Moss and the wider Manchester Mosses area. This will impact species movement, and fragment existing habitats into more, smaller, isolated spaces, making future restoration on a landscape-scale harder to achieve. Sufficient and appropriate compensation should be made across the NIA for this massive impact on biodiversity and ecological functionality.

The current plans for the WDES show that the scheme will run along an embankment next to Holcroft Moss SSSI/SAC, owned and managed by Cheshire Wildlife Trust. If HS2 Ltd were to opt for a viaduct as it passes close to the SSSI it would help retain ecological and hydrological connectivity between the SSSI and Pestfurlong Moss LWS / Risley Moss SSSI to the west and south. By contrast, the embankment option will sever connectivity for a number of UK Priority Species including brown hares and common lizards, and will alter the hydrology of the wider peat body.

Current compensation measures are not aligned with the aims and objectives of the Great Manchester Wetlands NIA; for example, woodland planting is not the best option for the open habitats and specialised species associated with the NIA. Cheshire Wildlife Trust has urged HS2 Ltd to mitigate for the impacts in this sensitive area by helping to reconnect Holcroft Moss following the damage that occurred as a result of the M62 construction. This includes:

- creating a green bridge to aid species movement across the motorway; and
- creating and providing long-term management of wetland buffer habitats in the vicinity of Holcroft moss.



WETLAND © MATTHEW ROBERTS

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Dearne Valley Green Heart NIA

(Nationally-designated. Defra-funded. NIA grant awarded **£559,980**) HS2 Phase 2b

The aim for this NIA in Yorkshire is to help restore and enhance the ecological networks of the river and its floodplain, linking it to habitats on surrounding slopes and hills. At its core will be 1,300 ha of reedbed, wet grassland, wet woodland and woodland, with a 2,690 ha buffer of farmland, amenity grassland and reclaimed industrial areas (which are hotspots for riparian mammals in south Yorkshire, but fast declining). The route of HS2 will result in loss of habitat and fragmentation, together with indirect effects from construction and ongoing disturbance.

4.3.2 Living Landscapes impacted by HS2

A Living Landscape is a recovery plan for nature, championed by The Wildlife Trusts since 2006 to create a resilient and healthy environment rich in wildlife for everyone. The vision can only be achieved by connecting up wildlife-rich areas throughout the urban and rural landscape, so that wildlife is able to move between them, respond to changes in conditions and colonise new areas. The Wildlife Trusts are involved in more than 100 Living Landscape schemes around the UK, where they work in partnership at a landscape-scale to create more, bigger, better and joined up habitat networks, allowing nature to recover and people to thrive.

There are 22 Living Landscapes that will be adversely affected by the route of HS2. These landscape areas are vital to the future recovery of nature:

- **Colne Valley Living Landscape** (London Wildlife Trust / Herts & Middlesex Wildlife Trust)
- **Yeading Valley Living Landscape** (London Wildlife Trust)
- **Bernwood Forest and Ray Valley Living Landscape** (BBOWT)
- **Feldon Living Landscape** (Warwickshire Wildlife Trust)
- **Dunsmore Living Landscape** (Warwickshire Wildlife Trust)
- **Avon Valley Living Landscape** (Warwickshire Wildlife Trust)
- **Tame Valley Living Landscape** (Warwickshire Wildlife Trust)
- **Great Manchester Wetlands Living Landscape** (The Wildlife Trust for Lancashire, Manchester and North Merseyside / Cheshire Wildlife Trust)
- **Soar and Wreake Living Landscape** (Leicestershire & Rutland Wildlife Trust)

- **Doe Lea & Rother Coalfields Living Landscape** (Derbyshire Wildlife Trust)
- **Erewash Valley Living Landscape** (Derbyshire Wildlife Trust / Nottinghamshire Wildlife Trust)
- **Trent Valley Living Landscape** (Nottinghamshire Wildlife Trust)
- **Nottingham City Living Landscape** (Nottinghamshire Wildlife Trust)
- **Nottinghamshire Magnesian Limestone Living Landscape** (Nottinghamshire Wildlife Trust)
- **West Leeds Green Corridor Living Landscape** (Yorkshire Wildlife Trust)
- **River Went Corridor Living Landscape** (Yorkshire Wildlife Trust)
- **Lower Aire Valley** (Yorkshire Wildlife Trust)
- **Elmet Magnesian Limestone Living Landscape** (Yorkshire Wildlife Trust)
- **Dearne Valley Living Landscape** (Yorkshire Wildlife Trust)
- **Ouse Wharfe Corridor Living Landscape** (Yorkshire Wildlife Trust)
- **Lower Calder Valley Living Landscape** (Yorkshire Wildlife Trust)
- **South Yorkshire Magnesian Limestone Living Landscape** (Yorkshire Wildlife Trust)

Beyond direct habitat destruction, the main impact to these landscape initiatives is the barrier effect – HS2 could act as a physical barrier to the movement of species and interruption of natural processes such as hydrology. This would make the restoration of resilient, wildlife-rich landscapes more difficult.



4.4 Wildlife Trust nature reserves will be impacted

Wildlife Trust nature reserves are cherished sites that have been cared for over the years by staff and volunteers, and represent considerable investment of charitable time and resources. Based on information from Wildlife Trusts along the route, 18 Wildlife Trust nature reserves will be affected:

A total of 13 sites within a 500m radius of the proposed scheme

- **Frays Farm Meadows SSSI** (London Wildlife Trust), London Wildlife Trust faces uncertainty over the future of Frays Farm Meadows, a nature reserve in the Colne Valley, which may be affected by a proposed haulage road that will be in place for nine years.
- **Denham Lock Wood** (London Wildlife Trust), part of Frays Valley LNR.
- **Dew's Farm Sand Pits**, part of Dew's Dell Site of Important Nature Conservation (London Wildlife Trust).
- **Broadwater Lake**, part of mid-Colne Valley SSSI (Herts & Middlesex Wildlife Trust). A proposed viaduct cuts through the nature reserve.
- **Finemere Wood SSSI** (Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust), where paths were closed from 7 January 2019 to 30 November 2019 to allow National Grid to carry out works for HS2.
- **Calvert Jubilee Nature Reserves** (BBOWT)
- **Crackley Wood LNR** (Warwickshire Wildlife Trust)
- **Cloud Wood Nature Reserve** (Leicestershire & Rutland Wildlife Trust)
- **Bogs Farm Quarry SSSI** (Nottinghamshire Wildlife Trust)

- **Holcroft Moss SSSI** (Cheshire Wildlife Trust), part of the Manchester Mosses SAC which is discussed in statutory sites affected by Phase 2b.
- **Rothwell Country Park** (Yorkshire Wildlife Trust managed on behalf of Leeds City Council)
- **Water Haigh Woodland Park** (Yorkshire Wildlife Trust managed on behalf of Leeds City Council)
- **Park Hall Nature Reserve** (Birmingham and Black Country Wildlife Trust)

A further five sites outside the 500m radius but still considered potentially subject to significant effects

- **Bacombe Hill Nature Reserve** (BBOWT), designated as a SSSI and LNR.
- **Astley Moss**, part of the Astley and Bedford Moss SSSI matrix and the Manchester Mosses SAC (Wildlife Trust for Lancashire, Manchester and North Merseyside)
- **Park Hall Nature Reserve** (Birmingham and Black Country Wildlife Trust)
- **Carr Vale Flash LWS** (Derbyshire Wildlife Trust)
- **Sean Hawkins Meadow Nature Reserve** and potential LWS (Cheshire Wildlife Trust), which contains potential ancient woodland that appears on the tythe maps for Millington, Cheshire in 1848 and is located immediately adjacent to the Phase 2b scheme.

Some Wildlife Trust nature reserves are also SSSIs, LWS and/or LNRs so are also referenced under section 4.2.1 and 4.2.2 and some are also ancient woodlands (see more on ancient woodlands under section 4.6.1).

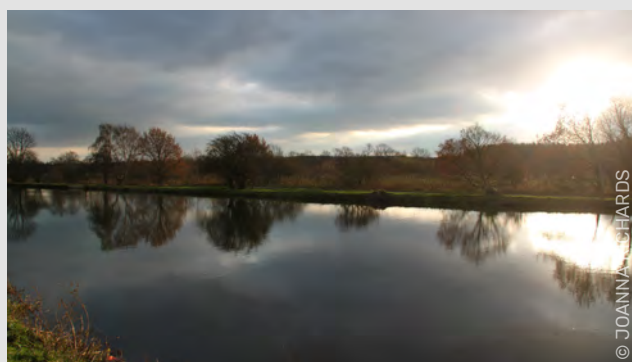


Park Hall Nature Reserve (Birmingham and Black Country Wildlife Trust) is affected by HS2 Phase 1. HS2 has taken possession of this site, a 40-hectare area of remnant farmland on the edge of Birmingham. The Trust anticipates that 80-90% of the site will be destroyed. Commitments made by HS2 Ltd in 2014 include preserving some areas of ancient woodland and improving public access in the future.



Rothwell Country Park (Yorkshire Wildlife Trust managed on behalf of Leeds City Council) is affected by HS2 Phase 2b. Designated a LWS in 2019, this is a hub for creating a connected environment to support nature's recovery and the Leeds Wildlife Habitat Network and it has been invested in over decades. The route refinement brings the route further south into Rothwell Country Park, through the most valuable part of the site for biodiversity, an area less disturbed by the public and with the highest species diversity on the site. In addition to this habitat loss, during the construction phase a greater area of the site will be damaged. The proposed viaduct is less likely to fragment the site in the long-term but will still require extensive time and resources to recover the site from the works. Non-native invasive species Japanese knotweed and giant hogweed have been eradicated from the site but are present along boundaries and could recolonise. The inability to secure external funding to support ongoing management is restricting the Wildlife Trust's ability to maintain the quality of the site and improve the ecological value or visitor experience.

Calvert Jubilee Nature Reserve (Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust) is affected by HS2 Phase 1. This unique 20 hectare open-water habitat is a haven for large numbers of overwintering waterfowl and wading birds. It supports a range of species including mallard, tufted duck, pochard and bittern and all five UK hairstreak butterfly species. In February 2019, the Wildlife Trust received notice from HS2 Ltd about its intentions to carry out clearance works (for Phase 1) at Calvert Jubilee. The Trust objected on the basis that the works would cause unnecessary and unwarranted destruction of important breeding and feeding habitats for a range of species; and it denied access to HS2 contractors a few months later on account of there being no scheme of works and no adequate mitigation plans. In December 2019 (during the review of the HS2 scheme¹²), contractors entered the nature reserve and began irreversible clearance of wildlife habitat, without advance warning to the Wildlife Trust.



Water Haigh Woodland Park (Yorkshire Wildlife Trust managed on behalf of Leeds City Council) is affected by HS2 Phase 2b. The WDES Phase 2b estimates that 70% of this 97-hectare site will be lost. This site is significant for local wildlife as it represents one of the final natural sites south of Leeds. The Wildlife Trust has created a 'Coronation Meadow' on the flood plain and plan to expand the wildflower areas over the coming year but are unable to fund this due to the risk posed by HS2.

4.5 National Trust sites

The National Trust identifies impacts from both construction and operation of HS2 Phase 2b at their properties:

- **Hardwick Hall**, Derbyshire – significant adverse impacts
- **Nostell Priory**, West Yorkshire – significant adverse impacts
- **Dunham Massey**, Cheshire – significant adverse impacts
- **Tatton Park**, Cheshire (operated under lease by Cheshire East Council) – some adverse impacts.

4.6 Irreplaceable habitats will be lost

Planning guidance requires impacts on irreplaceable habitats to be avoided, but currently the HS2 scheme does not consider siting temporary works such as compounds and access tracks in a way that avoids these habitats.

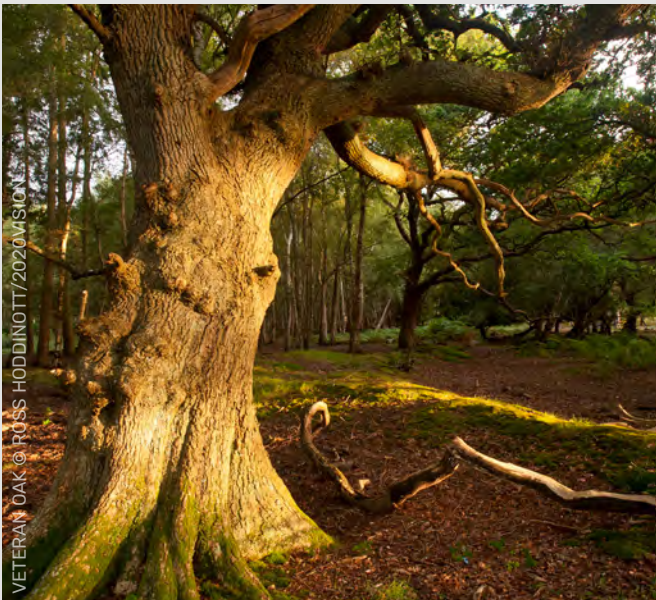
4.6.1 Ancient woodland

HS2 is the biggest single threat from development to ancient woodland in this country. At least 108 ancient woods are threatened with loss or damage (see table below). Natural England is responsible for recording ancient woodland on the Ancient Woodland Inventory, but not all of it is currently mapped, particularly areas less than 2 ha in size, so this number is likely to be higher.

Ancient woodland sites affected			
	Direct	Indirect	Total
HS2 Phase 1	34	27	61
HS2 Phase 2a	10	7	17
HS2 Phase 2b	19	11	30
Total	63	45	108

Source: TWT spreadsheet of data from the Woodland Trust’s map of ‘Woods under threat from HS2’¹³

Whitmore Wood (HS2 Phase 2a, Staffordshire) would currently be the single biggest loss of ancient woodland on the entire HS2 scheme with the loss of 5.5 ha, around half the wood. The wood could be saved by tunnelling, but this option has so far been dismissed on the grounds of cost.



Nor Wood (HS2 Phase 2b, Yorkshire) ancient woodland is part of a much bigger Local Wildlife Site. 18 ha of the Local Wildlife Site would be lost and of that, 4.1 ha is ancient woodland. In Phase 2b this is currently the single biggest potential loss of ancient woodland.



Much of the proposed loss of ancient and semi-natural woodland is due to land being used during construction that could be avoided with design amendments and route refinements.

The extent of proposed impacts on ancient woodland in Phase 2 of the route, as set out in the Environmental Statement for Phase 2a and Working Draft Environmental Statement for Phase 2b shows that measures to avoid impacts on ancient woodland are inadequate and risk setting a precedent for accepted levels of loss which may increase as the project progresses. Any loss of ancient woodland is unacceptable as ancient woodland is irreplaceable. HS2 Ltd has produced Ancient Woodland Strategies¹⁴ for Phase 1 and Phase 2a. They propose the following compensation measures:

- translocation of ancient woodland soils
- translocation of coppice stools
- new woodland creation
- enhancement and/or restoration of existing woodlands (ancient and non-ancient).

However, it is important to note that: translocation is a method of last resort and will never replace what has been lost; no set ratios of losses to gains have been set; and compensation planting has been based on 'professional judgement.'

4.6.2 Ancient and veteran trees

Ancient and veteran trees are irreplaceable¹⁵ and their loss should be avoided. HS2 Ltd has written a veteran tree report for Phase 2a (and one is expected to be produced for Phase 2b). There are at least 27 ancient veteran trees being lost to Phase 2a, and 24 of these are on the Ancient Tree Inventory. Of the 27, Six are being lost to temporary works.

4.6.3 Wood pasture

Wood pasture is an irreplaceable historic habitat. Areas of wood pasture will be lost in Yorkshire and Nottinghamshire, and it is also present at the National Trust's Hardwick Park where it is also at risk of severe adverse impacts.

4.6.4 Other significant habitats

Habitats such as mires and wetlands will take a very significant time to recreate, restore and manage back to anything approaching their current ecological value. They should therefore be considered irreplaceable, but are not currently.

Unimproved grassland has not been "improved" for agriculture through the addition of artificial fertilisers. It is rich in species, which would otherwise be crowded out by the few

fast-growing grasses that respond to high soil fertility. The WDES Phase 2b, makes an unjustifiable assumption that grassland lost outside of designated areas is not unimproved. Unimproved grassland is a Priority Habitat that is difficult to identify without a field survey. Ancient unimproved grasslands should be considered irreplaceable as they cannot be recreated in the 32 years used in HS2 Ltd's calculations. Unimproved grassland areas are likely to be understated.

4.7 Undesignated habitats

The assessment for HS2 Phase 2b does not fully account for loss of habitats along the proposed route, including potential and candidate Local Wildlife Sites. Experience with Phase 1 showed that the scale of loss was not apparent until late in the process, so the same can be reasonably expected in Phase 2. The net biodiversity loss calculation for Phase 1 (see Section 7) shows that HS2 estimate almost 6,600 ha of habitat will be directly lost or affected by Phase 1. This figure includes designated sites. A Phase 1 habitat survey of the whole route is urgently required to properly assess priority but undesignated habitat. Much more work is therefore needed for Phase 2 to understand impacts and to develop satisfactory mitigation and compensation that complies with the policies of Biodiversity 2020¹⁶ and the Government's 25 Year Environment Plan¹⁷.

4.8 Off-route effect

A number of off-route effects cause concern:

- Adverse impacts of further works required to the conventional rail network to accommodate growing demand for passenger and freight services, and HS2;
- Biodiversity impact of replacement dwellings for those destroyed along the route of HS2; and
- Land-take and habitat loss for power units, compounds and access roads.

The WDES for Phase 2b states that the ecological assessment of off-route effects will be based "largely on information available from existing sources, recognising the constraints of such an approach". This will inevitably result in an under-estimation of the likely impacts, as much of that existing information will be incomplete or out of date. For example, the WDES does not calculate the potential habitat loss from the new development that would be required to replace the 220+ houses that would be destroyed in Nottinghamshire and Derbyshire by the proposed route.

4.9 Wildlife impact

It is likely that this scheme will significantly affect a wide range of scarce and protected species, in some cases this could be at a level as to permanently adversely impact their conservation status. This is not only contrary to Government biodiversity policies and international obligations, but also to European Law. Understanding the impacts on species populations and meta-populations, dispersal routes and use of habitats is crucial for effective mitigation. Further assessments are needed (Phase 2) on the direct impacts for legally protected and Biodiversity Action Plan/Section 41 species¹⁸. These need to consider direct loss of habitat, habitat fragmentation and isolation, lighting, noise, and air pollution. Concerns relating to specific species impacts are set out below.

4.9.1 Birds

Many impacts to birds, especially assemblages of farmland and wetland birds, are not specifically mitigated in current proposals for HS2 Phases 2a and 2b. Data is missing from areas where surveys for birds on the Schedule 1 list of the Birds Directive¹⁹ were required, so the Precautionary Principle has not been applied.

Barn owls (see Section 4.9.3) are singled out as a Schedule 1 bird species that may suffer from risk of colliding with trains. Other species, including other Schedule 1 bird species, such as Bewick's swan, bittern, brambling, Cetti's warbler, fieldfare, hobby, kingfisher, peregrine, redwing and whooper swan are not included in the ES. Ground-nesting birds could also be at risk. There are also potential impacts upon roosting locations for red kite. Furthermore, known significant impacts to farmland birds in Cheshire were omitted from the Phase 2a ES.

4.9.2 Wetland, farmland, breeding and overwintering birds

Large areas of wetland and farmland habitats will be lost, impacting breeding and overwintering birds, especially conservation priority birds that forage or nest in open habitats. Lapwing and skylark populations have more than halved between 1970 and 2017²⁰ and most species of farmland and wetland birds are in decline. The loss of habitat on declining farmland and wetland bird species (all of which are listed on the Red List of Birds of Conservation Concern) could be of notable impact, including on: grey partridge, lapwing, curlew, cuckoo, willow tit, skylark, grasshopper warbler, starling, spotted flycatcher, tree sparrow, yellow wagtail, linnet and yellowhammer.

In Nottinghamshire, the loss and fragmentation of the floodplain grasslands of the Soar and Trent is likely to impact resident wildfowl and wading birds who use this extensive ecological network for feeding, loafing and roosting. The fragmentation of this nationally important migratory flyway is also likely to have significant adverse effects. Both of these effects may also impact the bird populations in Attenborough Gravel Pits SSSI.

At present, Phase 2 plans do not include specific mitigation for many impacts to birds, particularly farmland and wetland bird assemblages, despite identification by HS2 Ltd of county-scale impacts. The most recent population data available from the British Trust for Ornithology (BTO) should be taken into consideration to value populations correctly. Where the proposed scheme is likely to impact >1% of the county population there will be significant impacts at a county level. This has not been considered adequately for Phase 2a, nor Phase 2b. Off-site (off-route) compensation habitat will be required as it is unlikely that sufficiently large areas of land for mitigation for impacts to ground-nesting farmland birds or overwintering birds can be secured within the confines of the route.

4.9.3 Barn owls

HS2 represents a national level risk to barn owls. The BTO recommends that new high-quality habitat aimed at mitigating the impacts of HS2 should be located 3-15 km away from the route to reduce the likelihood of fatal collisions²¹. This is reflected in the emerging Phase 1 Barn Owl Strategy, but mitigation proposals for Phase 2 are not in line with this. Proposals are currently to fence the line to prevent bird strikes, which is inadequate as barn owls fly down over the other side of fences, hence why strikes are still common on roads. The proposed mitigation is for boxes erected away from the line, but this does not consider current territories or loss of habitat.

4.9.4 Willow tit

Willow tits are the UK's most threatened resident bird with a 94% decline since the 1970s²². The route of HS2 Phase 2b passes through several significant areas of willow tit habitat in Yorkshire and Greater Manchester. Loss of habitat and fragmentation of known territories will lead to genetic isolation and possible local extinction. Yorkshire Wildlife Trust, in partnership with RSPB and funded by the Heritage Lottery Fund, has a Back from the Brink project working in the Dearne Valley.

The location of a proposed compound at Abram Flashes SSSI in Lancashire includes willow tit habitat. If constructed in this location, this habitat could take many years to recover after the compound's later removal, by which time the population would be locally extinct; a case of temporary works leading to permanent loss.

4.9.5 Bats

HS2 Ltd has asserted an assumption that "impacts will result in a permanent adverse effect on the conservation status of the bat populations that will be significant at up to the regional level" and during operation at the county / metropolitan level due to collision with trains and loss of foraging and roosting habitat. There is insufficient information about how these impacts will be mitigated or compensated for. Where hedgerows are removed, this may impact the breeding success of local bat populations unless additional habitat is created ahead of losses to compensate for them. The net loss calculation for Phase 1 shows a net loss in length and biodiversity units for hedgerows. Substantial mitigation and compensation would be needed for bats to address the loss of suitable roosting opportunities and foraging grounds and routes, and would need to include structures to enable safe crossing or to dissuade bats from crossing the route. As species protected under EU and national law, this failure to adequately address the impacts on bats is unacceptable. One protected species at risk is the Bechstein's bat, which is listed as Near Threatened on the global IUCN Red List.

4.9.6 Badgers

We assume that references to badgers have been omitted from Community Area reports due to the sensitivities surrounding this species. We expect HS2 Ltd to fully assess the impact of proposed work on this species and provide appropriate mitigation.

4.9.7 Water voles

Water voles are one of the fastest disappearing mammals in the UK due to habitat loss and degradation, as well as mink predation. Most Wildlife Trusts have worked hard and invested significant sums of grant funding to restore habitat, manage mink and in some cases re-introduce water voles. HS2 Ltd fails to offer mitigation for water voles where significant county-scale impacts have been identified²³ or proposes inappropriate mitigation that does not address the impacts, unless water voles are trapped and re-located to suitable mitigation habitat.

As an example, water voles in Cheshire have experienced a rapid decline with only four meta-populations remaining and 62% of previously active water vole sites empty. 300m of habitat is due to be lost or directly impacted on Swill Brook in south Cheshire leaving water voles with no where to go. HS2 Ltd has given assurances to Cheshire Wildlife Trust that it will work with them and Natural England to secure this population. This is essential to ensure the proposed post-construction mitigation habitat does not physically isolate water voles from existing populations by poor habitat downstream and inhospitable land use upstream, leading to likely permanent loss from this area. There are also likely to be significant adverse impacts on water vole in the Erewash floodplain, at Doe Hill Community Park, within Toton Fields LNR and along parts of the Doe Lea in Derbyshire as a result of fragmentation and habitat loss.

4.9.8 Other mammals

In addition to bats, badgers and water voles noted above, there are likely to be adverse impacts on other species of mammal including otter and Section 41 species as listed in the Natural Environment and Rural Communities (NERC) Act 2006, such as brown hares, hedgehogs, and harvest mice. The impact on these species have not been included in HS2 Ltd's mitigation proposals.

The re-colonisation of the Trent and Erewash by otters in recent years has been a positive news story, reflecting the results of a range of measures for their conservation. The proposed route would adversely impact the Trent and Erewash floodplains in a number of places; in effect, turning large swathes into a construction corridor with new barriers to movement. This is likely to be damaging to otter populations, which are also a species protected under EU and UK Law

4.9.9 Reptiles and amphibians

Grass snake and common lizard will be adversely affected as key breeding sites are lost and habitats become fragmented. HS2 Ltd identified grass snake during its surveys in Cheshire and this area is now flagged as a potential Local Wildlife Site. East Derbyshire is particularly important for grass snake and supports some of the most significant populations still remaining in Derbyshire. These will be impacted by HS2. A wide swathe of floodplain habitats in the Erewash Valley would be devastated by the proposed route, including areas of high importance for grass snakes in Nottinghamshire and Derbyshire.

The loss of so many ponds will impact on common toads and other amphibians, as well as great crested newts (see below).

4.9.10 Great crested newt

Mitigation proposals for great crested newts do not appear to be strategically thought through or combined with other proposed developments along HS2 that will impact the same populations. Numerous ponds will be lost along the route of HS2. One-to-one replacement is proposed, and in some areas, where there are important populations of great crested newt, two will be created for each pond lost. This is in contrast to the new District Level Licensing approach being rolled out by Natural England, which proposes four compensation ponds for every pond that is lost where great crested newts are present (4:1 ratio) – twice the existing metric (2:1 ratio) under traditional mitigation licensing. There is little ecological evidence that the proposals for HS2 will be sufficient, as the replacement habitat will not be of an equivalent quality nor have the same level or type of prey found in the existing ponds. Great crested newt mitigation has a poor history of monitoring to show long term success, so substantive evidence and information is needed to show how this will be overcome.

Great crested newt meta-populations face fragmentation by HS2 in both Derbyshire (16 sites) and Wakefield, Yorkshire, with further habitats in Nottinghamshire under threat (19 great crested newt water bodies). Specifically, plans are expected to have a critical impact on the important amphibian populations in Strelley, Nottinghamshire, where breeding ponds and associated habitat for great crested newts are at risk.

4.9.11 Invertebrates

40% of insects have been lost since 1970 and 40% of insect species face extinction²⁴. Yet insufficient invertebrate surveys have been carried out or planned along the route of HS2 and there are no records of terrestrial invertebrates along some stretches of the route, e.g. LA12²⁵. The impacts on invertebrates have not been quantified but are likely to be substantial.

4.9.12 White-clawed crayfish

Globally endangered and European-protected white-clawed crayfish is present in watercourses and ponds along the route (noted in Cheshire, Nottinghamshire and Yorkshire). Changes in water quality and quantity, and possible pollution events, could have a serious adverse effect and cause loss of sites designated for this species, but this

has not been properly assessed. For example in Cheshire, tributaries to Mere Gutter and Basford Brook LWS have not been surveyed.

4.9.13 Butterflies

The impact of HS2 on several conservation priority butterfly species is a concern. In Derbyshire, the dingy skipper occurs on several sites that will be significantly affected by HS2. On land at Stavely, one of the largest remaining populations of dingy skipper in lowland Derbyshire could be lost or significantly reduced due to habitat loss. Small heath and white-letter hairstreak are also likely to be adversely affected, potentially enough to reduce distribution of these species across eastern Derbyshire.

4.9.14 Lizard orchid

The design refinement (route-change) for HS2 Phase 2b will destroy a nationally rare plant: the second most northerly lizard orchid site in the world. This species is protected under Schedule 8 of the Wildlife and Countryside Act 1981, which prevents intentional picking, uprooting or destruction. HS2 Ltd has not set out how its loss would be mitigated.

4.9.15 Indirect impacts on species

Volume 3 of WDES Phase 2b refers to the need to undertake assessment of impacts on species from noise and lighting disturbance, air emissions and fragmentation, but no information has been provided on how this will be done, i.e. what modelling/methodology will be used. It is essential that this assessment is undertaken in a robust and transparent way following a scientifically rigorous methodology. For example, noise can have different effects between taxonomic groups, e.g. bats compared to birds, and species, e.g. owls versus passerines.

4.10 Habitats

A greater emphasis is needed on the avoidance of impacts by the HS2 route on habitat. At a minimum, every effort should be made to reduce the land potentially needed for construction or by changing the proposed location of access roads and storage compounds. Many impacts are wholly avoidable, for example, access roads could be diverted to avoid impacts on woodlands and veteran trees.

It will be essential to have robust assessments of the impacts of changes in hydrology and hydrogeology on sensitive habitats, which properly consider both short- and long-term effects.



5. MITIGATION AND COMPENSATION

The mitigation hierarchy expects avoidance to be undertaken first. This has not been adequate, with failure to make route amendments to avoid SSSIs. Throughout ES Phase 2a and WDES Phase 2b, a number of examples of inappropriate mitigation being proposed and inadequate mitigation and compensation and been identified.

Mitigation for loss of land of value to wildlife across the scheme should be implemented and proven to be effective, prior to the commencement of construction. This will help ensure there are no significant temporary impacts upon populations which would result in substantial biodiversity loss, in line with good practice.

Due to the scale of the scheme, in terms of size and timescale, it is important that there is flexibility within the project to include retrospective compensation opportunities if mitigation and compensation does not achieve its original objectives.

5.1 Inappropriate mitigation

There are numerous examples identified by Wildlife Trusts of inappropriate mitigation being proposed. Examples include:

- In Cheshire, there are proposals for tree-planting in traditional orchards (which are recognised as conservation priority habitats in their own right) or on species-rich grassland, and wetland mitigation habitat on areas of existing high value wetland/reedbed. There are also numerous examples where woodland habitat creation is proposed on existing semi-natural woodland, particularly in Community Area MA02.
- In Derbyshire, there are proposals for planting trees and shrubs on semi-improved neutral grassland that already has nature conservation interest, and proposals for tree-planting on an area where wetlands have been created.
- In Nottinghamshire, wetland and grassland habitat creation are proposed as mitigation in the areas of remaining LWS where those habitats already exist, and therefore deliver no additional mitigation or compensation. Areas of woodland creation are proposed on existing grasslands of high biodiversity value. A large area of habitat creation next to the proposed East Midlands Hub Station would be undertaken on an area of existing

high-quality habitat resulting in further biodiversity losses.

- In Lancashire, plantation woodland is proposed for restoration adjacent to Abram Flash SSSI, where wet grassland habitat would be more appropriate given the wider ecological landscape's characteristic habitats and species.
- In Staffordshire, wetland creation is proposed on an area that is dry and improved.
- There are numerous examples where woodland habitat creation has been mapped over existing semi-natural woodland.
- In some areas, plantation woodland habitat creation is proposed; this type of woodland provides little landscape or biodiversity value.

Mitigation measures need to be tailored to the needs of local habitats and species. In areas of willow tit corridors, tree-planting should be appropriate to and tailored for the needs of this nationally rare species, and suitable intermediate layer tree and shrub species such as hawthorn, birch and willow should be used rather than canopy species such as oak, beech and ash. An ecologist should be consulted where scrub planting is proposed on new embankments and regular areas of clear space created up to the railway line to benefit reptiles such as slow worm, and help increase the ecological network for these animals.

Many of the mitigation areas risk destroying important habitats instead of creating a 'green corridor'.

5.2 Inadequate mitigation

The HS2 scheme will have a landscape-scale impact on ecological connectivity, although this has not been properly assessed. For example, ecological connectivity analysis using LIDAR and aerial data could be provided to assess locations to recreate it through appropriate habitat creation and green bridges. This is particularly important within NIAs and Living Landscape schemes in which project work is increasing ecological connectivity to create a Nature Recovery Network.

The ES for HS2 focuses on the red-line boundary of the proposed route for each phase, ignoring wider ecological networks. They do not recognise landscape-scale projects such as The Wildlife Trusts' Living Landscapes. As noted earlier, the route cuts through 22 Living

Landscapes. These could offer mitigation and compensation opportunities for HS2 Ltd to invest in significant landscape-scale habitat restoration, connecting ecological networks and creating a Nature Recovery Network. Conversely their fragmentation will result in a significant loss of habitats and wildlife.

In general, there needs to be a far better understanding of habitats and species connectivity using local and national biodiversity data to set out appropriate mitigation for the damage HS2 will cause the natural world.

For example, in Cheshire, the ES for Phase 2a fails to acknowledge and address the impacts of the partial loss of Randilow and Bunker Hill LWS, a 105-hectare site at the heart of the Meres and Mosses NIA. Extensive losses of habitat at this site will increase ecological fragmentation within the NIA. The LWS supports a farmland breeding bird assemblage of county importance, areas of habitat of county importance and an assemblage of bat species of county importance. It meets the LWS criteria for lowland mixed deciduous woodland, birds, mammals and possibly high value hedges. The residual impacts of the loss of this site are of county and/or regional significance, and the loss of habitat for breeding and overwintering farmland birds is unmitigated. The loss of woodland, hedgerows and other habitat for bats is not adequately mitigated due to significant shortfalls in the amount of compensatory habitat provided at a local level according to HS2 Ltd's own methodology. Phase 2a Additional Provision still has shortfalls in compensatory habitat in Cheshire with no additional provision of compensatory habitat for additional land-take of woodland (0.8 ha semi-natural broad-leaved woodland and 1.7 ha plantation woodland), and grassland (6 ha). There are further unmitigated losses of Randilow and Bunker Hill LWS, bringing the total loss to 61 ha (58 ha + 3 ha in AP2).

In Nottinghamshire, new woodland planting, ponds, hedgerows and grassland are proposed. Whilst these are welcomed, it is clear that the creation of new habitats does not outweigh the loss of highly complex, species-rich habitats that have developed over thousands of years in most cases. These habitats cannot be replaced in a short time span and may never achieve the quality and diversity of the original habitats. It is essential that following the quantification of biodiversity losses, it is recognised that substantively larger areas of new habitat are required for adequate mitigation (and even

then, over a long timescale). There are extensive areas of land-take with small areas of habitat creation proposed.

The WDES Phase 2b falls short in respect of the mitigation and compensation measures presented to address the likely impacts. For many impacts, there are insufficient or no details about the type and extent of habitat creation, restoration and/or enhancement. In some cases, compensatory habitats are different to those being lost and are of lower value for wildlife or at least support different wildlife. There is little detailed assessment of the impacts on protected species and no specific details for how species impacts will be mitigated.

Much of the proposed mitigation and compensation habitats are fragments 'left over' within the boundary of the proposed route. These will be difficult to manage in the future and risk falling out of conservation management with subsequent failure of the mitigation. This approach is misaligned with the Lawton principles of 'more, bigger, better and joined sites'. There are some examples where landowners of large areas have made more opportunities available further away from the route; this approach could be applied more widely as long as it meets criteria for connectivity and habitat-type.

Cheshire Wildlife Trust notes in response to WDES Phase 2b that riparian habitat losses are not adequately mitigated, compounding issues 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 affected.

There is no mitigation of the negative impacts on habitats of local importance. This will lead to net loss of local biodiversity.

Overall, there is a lack of commitment to the large-scale restoration of nature that is necessary given the level of damage and degradation of habitats, and destruction of ecological networks that is proposed as a result of this scheme.

The Wildlife Trusts highlight a number of issues that should be considered in the proposals to mitigate the impacts of HS2:

- A full regional assessment of the impact of ecological fragmentation. There is a risk that a project level focus may not fully consider how structures fit into the wider landscape.
- A 1km wildlife habitat buffer either side of the proposed scheme, as standard, to help

retain and enhance connectivity. It should incorporate green bridges, underpasses and tunnels throughout to protect fragmentation and impacts to local species, as well as benefitting people by reconnecting fragmented communities. Any areas where the 1km cannot be achieved, should be offset elsewhere to achieve the HS2 proposed minimum of 'no net loss'.

- More and better green bridges. While some green bridges are considered in the proposals, there is little detail about their design, structure and location. A landscape-wide approach should be taken to the planning of green bridges, tunnels and underpasses. The proposed 'green' bridges within the scheme are not sufficient to allow species recolonisation and migration, especially given rapid climate change; at best the proposals meet the "grey bridge" standards set by Natural England and Landscape Institute standards²⁶. The designs of green bridges: natural bridges, wildlife bridges and mixed-use bridges, need to meet the appropriate standards. Further green bridges should be considered where there are significant bat populations or to connect valuable disconnected habitats. We recommend that green bridges be considered as the standard design for crossings. Research has found that the use of bridges by wildlife increases with the width of the bridge, so in sensitive areas these should be made as large as possible within the scope of the project. More crossings should be adapted and 'greened' so they can serve multiple functions of reconnecting communities with each other, providing benefits of access to nature as well as connectivity for wildlife itself.
- Lengthening viaducts to reduce direct habitat losses and impact on important species assemblages. Innovative design of viaducts could reconnect and enhance ecological networks.
- Tunnels should be bored, not constructed through cut and cover, to protect the habitats above them.
- All structures within the scheme should include features for wildlife in consultation with an ecologist.
- Noise barriers proposed in South Yorkshire are ugly, intrusive, making landscaping difficult and acting as a barrier to wildlife. Using earth works or false cuttings, where this would not result in loss of quality habitat, could be effective. If barrier fences are used, natural habitat (e.g. trees, shrubs or hedgerows) should be used outside the fences to mask them visually and to provide linear habitat for species such as bats and hedgehogs.

- Consideration should be given to the protection of small mammals, reptiles and amphibians that may use cable troughing, sleepers and ballast, and vegetation management to support wildlife.
- New trees and shrubs (of local provenance) need to be suited to National Character areas and any locally recommended tree species for planting.
- Measures to reduce fragmentation along water courses could ensure that 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. Where possible, watercourses should be bridged with structures that are large enough to allow wildlife to pass through and with light penetration for fish. Marginal wetland habitat should also be created upstream or downstream.

5.3 Inadequate compensation

Where loss of wider habitat has an impact on the ability of species to forage, breed and find shelter, the proposed compensatory habitats need to be improved:

- Bats: shortfall in areas of grassland, waterbodies, woodland and hedgerows to be provided (currently not fully compensating for impacts on bat foraging).
- Amphibians: shortfall in area of ponds, species-rich neutral grassland and woodland provided (so impacts on amphibian breeding and foraging are not fully compensated for).
- Reptiles: shortfall in area of ponds and grassland to be provided (so impacts on reptile breeding, foraging and places of shelter are not fully compensated for).
- Birds (Farmland and Wetland): no mitigation for impacted species provided so known significant impacts on breeding birds not compensated for.
- Aquatic invertebrates: survey data is missing and there is a shortfall in compensatory habitat provided so the Precautionary Principle has not been applied.
- Water vole: no mitigation for impacts were provided and survey data missing for several water courses in 'Local Key Area' for water voles (National Water Vole Steering Group 2013), so known impacts on water vole habitat have not been compensated for and the Precautionary Principle has not been applied. Similar concerns were also identified for otters.

Colne Valley Regional Park Additional Mitigation Plan The Colne Valley Regional Park Panel (CVRPP), on which Hertfordshire and Middlesex Wildlife Trust, London Wildlife Trust and Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust sit, produced the Colne Valley Regional Park Additional Mitigation Plan. The proposals set out in the plan identified additional mitigation and enhancements beyond the mitigation proposed within the HS2 scheme. This may encompass proposals both within and outside the present HS2 Bill limits. It was published²⁷ in 2017. HS2 Ltd has made an assurance to work with the CVRPP to deliver the key proposals in the additional mitigation plan.

5.4 Monitoring and management

There is little detail about the plans for monitoring and management for Phase 2. Without this, it is difficult to have any confidence in the proposals for mitigation and compensation or ongoing monitoring of 'no net loss of biodiversity'.

- All mitigation, compensation and enhancement proposals put forward as part of the scheme must be subject to ongoing management, including control of invasive species, appropriate habitat and species management and protection from future development. This should last for the lifetime of the scheme (construction and operation) and be achieved through S106 agreements and landowner consent.
- Access for management and monitoring of areas of habitat creation must be secured.
- The monitoring plans should be long enough for the establishment of the habitat in question. For example, creating new habitat for species requires several years of monitoring and the creation of a new woodland will need to be monitored over several decades.
- Along with management of the habitats created for mitigation and compensation,

details of regular ongoing maintenance and management of the proposed rail corridor must be provided. It is expected that the long-term management of the scheme would minimise the impact to wildlife and would not, for example, result in the removal of large areas of woodland or other features, as has happened on land managed by Network Rail throughout the country.

5.5 HS2: The case for a greener vision

Early on in the planning stages of HS2, The Wildlife Trusts developed "A Greener Vision for HS2"²⁸. This report provided the large-scale thinking lacking from HS2 Ltd plans and showed how HS2 could provide the net gain for wildlife – so vital for allowing our natural world to recover – at a fraction of the total cost of the scheme.

As the HS2 process has developed, the extent of the damage to nature has become clearer. As set out above, HS2 Ltd has failed to provide or implement adequate proposals to avoid, mitigate or compensate for this damage. The Wildlife Trusts are not confident that a greener vision is possible for HS2, which is why we are calling for the proposals to be fully reviewed.

Our vision - a wild green ribbon from London to the north

The Wildlife Trusts' vision is for a ribbon of wildlife-rich landscape designed around HS2 and connected via green bridges (and potentially tunnels) to enable habitats and species to thrive and to improve access to nature for people. There are places along the route where areas of woodland, wetland, and grassland can be created to increase the size, or improve the quality, of existing habitat patches or re-establish links between them. This would create a strip of wild landscape for wildlife and people, stretching from London to Birmingham and north to Leeds and Manchester in Phase 2. The plans are focussed around a 1km buffer strip either side of the corridor where the tracks are laid. Provisional habitat opportunity mapping has identified around 15,000 hectares of new habitat that could help to more than replace hectares lost, ensuring that HS2 truly delivers a 'net gain' for wildlife.

The approach can be broadly summarised as combining habitat creation, for example creating new areas of woodland and grassland, by letting nature regenerate and naturally colonise areas of land along the line. This would provide a large-scale and high-profile demonstration of the Government recognising the value of nature and its benefits for people. This green corridor could also reconnect local communities currently bisected by the proposed line via an ambitious programme of green bridges, pathways and cycle tracks ('Low Speed 2'), helping to spread the benefits of HS2 to all communities along the route rather than just those located near the few stations HS2 will serve.

If a large-scale infrastructure project like HS2 is to go ahead, it must have a large-scale commitment to the communities, landscapes and wildlife that it fragments.

From HS2: The case for a greener vision



6. ENVIRONMENTAL STATEMENTS

6.1 Missing baseline data

The HS2 Phase 2a ES and Phase 2b WDES used out-of-date and incomplete Local Wildlife Site (LWS) data, rendering them inadequate:

- They do not include all of the candidate and potential LWS.
- They do not recognise landscape-scale projects such as The Wildlife Trusts' Living Landscapes or locally-designated Nature Improvement Areas.

6.2 Phase 2a Environmental Statement

There is insufficient information on survey methodologies, results and impact assessments. The ES does not represent an accurate picture of the likely impacts. Adequate surveys are required for the entire area with re-visits/in-depth surveys where necessary, to allow an iterative design process to respond to environmental and engineering constraints/opportunities.

The ES details that between 21% and 47% of sites along the route (dependent on community area) have not been surveyed. No net loss is impossible to assess without adequate survey information.

There is a failure to acknowledge or address the multiple county and regional-scale impacts that will result from the partial loss (up to 60.95 hectares) of Randilow and Bunker Hill LWS, a 105-hectare core site of the Meres and Mosses NIA designated in 2012 to 'create joined-up and resilient ecological networks at a landscape-scale'.

There is little evidence of impacts being avoided. Many of the significant habitat losses reported should be avoidable, such as proposed compensatory habitats causing loss of existing valuable habitats, or proposing temporary or flexible infrastructure in inappropriate locations, e.g. balancing ponds and temporary road or path diversions causing losses of veteran trees. Once any losses have been permitted, there is no guarantee they will be avoided in the future.

There are inconsistencies between the Phase 2a ES documents:

- Phase 1 habitat maps appear to be inaccurate and need to be updated to reflect all data collected, areas that have been mapped via other data sources, and those not visited on foot. The locations of many areas of valued habitat and species populations are not provided on maps. There

should be maps showing any features/ populations that are of county or district value.

- There are major inconsistencies with baseline habitat area values and overviews provided in some Community Area reports, e.g. CA5: South Cheshire.
- The non-technical summary does not give an accurate reflection of ecological impacts and exaggerates the value and certainty of mitigation / compensation measures.
- Habitats are categorised and described in a variety of ways using Phase 1 definitions, priority habitats and NVC habitat types and proposed compensation habitats are not specific enough to enable biodiversity metric calculations to be carried out.

It is clear from the ES Phase 2a that there will be shortfalls in the amount of compensatory habitat provided: Cheshire Wildlife Trust identifies a shortfall of approximately 58 ha of compensatory habitat for the loss of priority and high value habitats and a shortfall of 31.1 km of hedgerows (according to HS2 Ltd's own no net loss methodology). This could lead to significant impacts to many groups of species, making them more vulnerable to local extinctions.

6.3 Phase 2b Working Draft Environmental Statement (WDES)

As noted for ES Phase 2a, there is a lack of information about sites, surveys, mitigation and compensation, and significant omissions. For example, the National Trust identifies impacts relating to Nostell Priory in Wakefield are missing from the WDES. In addition, the WDES does not contain any impact assessment for species, as species surveys had not been completed when it was produced. It is therefore clear that impacts on protected and Section 41 species was not factored into the design of the scheme. The WDES for Phase 2b fails to consider impacts on the UK BAP priority habitat 'open mosaic habitats on previously developed land', a habitat that is found on some of the sites that will be lost. There are significant gaps regarding the impacts on other sites and habitats and species in the wider countryside.

The final ES, when published, should avoid assertions that the new habitats will be comparable to existing LWS and SSSIs unless substantive and rigorously assessed evidence can be provided. In most cases any assertions of this kind are likely to be false. (See rationale in section 7 for calculation of biodiversity loss and gain.)

The level and scale of detail of mitigation and compensation measures falls short for a project of this magnitude. Far smaller projects provide a greater level of detail. The loss of LWS and / or priority habitat types requires a more bespoke approach in terms of mitigation and compensation that provides a net gain for biodiversity and is, as far as possible, based on a like-for-like approach in terms of habitat types lost and replaced (area provided should be greater than like for like under 'no net loss').



REED WARBLER © JON HAWKINS SURREY HILLS PHOTOGRAPHY

7. NET LOSS OF BIODIVERSITY

Despite HS2 Ltd’s commitment to seeking no net loss in biodiversity at a route-wide level, on their current trajectory they are unlikely to achieve this. Net loss or gain of biodiversity is measured using a modified version of Defra’s biodiversity offsetting metric, developed in consultation with Defra and Natural England.

In 2015, HS2 Ltd published a no net loss in biodiversity calculation²⁹ for Phase 1 of the

scheme and Phase 2a. The summary of the no net loss calculation for habitat polygons (area-based units) found that there was a net reduction in biodiversity units of 1,066.19 comparing estimated units post-construction with pre-construction, taking into account habitat category and distinctiveness. The habitat categories include woodland, woodland and scrub, grassland and other habitats.

Pre-construction			Post-construction			
Habitat	Area (ha)	Biodiversity units generated	Area (ha)	Biodiversity units generated	Net change in area (ha)	Net change in biodiversity units
Total	6,596	33,249	6,599	32,183	3	-1,066

Table: Phase 1 summary of biodiversity units generated pre- and post- construction (area-based features) Source: HS2

For linear features: hedgerows and watercourses, there was a net reduction in biodiversity units for hedgerows and an increase for watercourses.

Pre-construction			Post-construction			
Habitat	Length (m)	Biodiversity units generated	Length (m)	Biodiversity units generated	Net change in length (m)	Net change in biodiversity units
Hedgerow	444,190	2,201,764	397,847	1,926,041	-46,343	-275,724
Watercourse	74,517	136,040	92,516	144,684	8,999	8,645

Table: Phase 1 summary of biodiversity units generated pre- and post- construction (linear features) Source: HS2

There is no guarantee that the post-construction ‘biodiversity units’ will be achieved. Habitats that have been in existence for decades, in some cases millennia, cannot simply be ‘recreated’. HS2’s ES and WDES assume that habitats created as mitigation or ecological compensation will adequately replace those that would be lost. There is little evidence of high quality, diverse habitats of LWS-quality having been created for mitigation or compensation for major infrastructure projects, certainly not within a reasonable time-frame. It will take decades for some of these habitats to reach an equivalent quality to that which is lost. This temporal gap means that species depending on the habitat

may not be able to find similar habitats nearby to which they could move, leading to their local extinction. Furthermore, habitat creation will require ongoing management and monitoring and the financial resources to ensure this. Fragmentation and loss of habitats at the scale of HS2 is likely to have damaging effects for years to come, some of which will be irreparable.

Yet, no such calculations have been published for HS2 Phase 2b. Phase 2a has no net loss (NNL) calculations which show a 17% loss in biodiversity. These have not been done according to the agreed methodology and the actual loss is estimated as being at least 20%.

Given the increased number of designated sites affected by Phase 2 (see section 4.2), it seems most unlikely that no net loss can be demonstrated by HS2, let alone a net gain for biodiversity. This is in direct conflict with Biodiversity 2020, the National Planning Policy Framework and the Government's 25 Year Environment Plan.

There needs to be a transparent and credible method used for quantifying the biodiversity loss and any proposed habitat creation, restoration or enhancement so that a rigorous comparison can be made. This should be done at a Community Area level so that it is clear where losses and any potential gains are occurring. It is important that loss of green infrastructure at a local level is fully addressed. Once biodiversity losses and gains are understood spatially at a local level, and mitigation opportunities have been maximised, plans can be made to compensate for these at a regional and / or national level. This would benefit local wildlife networks and local communities and avoid disproportionate localised negative impacts, allowing wildlife to recover and thrive along the length of the route.

Cheshire Wildlife Trust used HS2's previous 2015 methodology to do the calculation at a local level for notable habitats and habitats of principal importance. This found significant shortfalls in the area of habitat provided to compensate for the loss of these in the local area. It falls far short of the stated aim of "achieving no net loss of biodiversity". These calculations do not include the loss of habitats of district or local importance so the actual 'net loss of biodiversity' is likely to be higher than the figures for loss of notable habitats and habitats of principal importance. Failure to provide enough compensatory habitat in the local area means that residual impacts on protected and notable species, such as bats, amphibians and reptiles, in the local area are not adequately addressed.

Biodiversity loss calculations need to be provided for 2b, using the correct risk multipliers when determining the amount of compensation required.

At present, it is clear that 'no net loss' of biodiversity by HS2 is unachievable under current plans. Habitat is likely to be downgraded, exacerbating the ongoing decline of England's wildlife.



8. CONCLUSION

The purpose of this research was to look at the threats to the natural environment posed by the current route and plans for HS2, drawing together the known evidence from 14 Wildlife Trusts and several conservation and landowning organisations along the full route of HS2. It focuses on the internationally, nationally and locally protected sites and the landscape-scale initiatives which are at risk of significant impact and fragmentation, and the effects these impacts are likely to have on species populations. But it should be recognised that there will be many thousands of hectares of semi-natural habitat outside of these protected sites, areas and initiatives not captured by this report, but which also lie in the path of HS2. These too, will be directly impacted and reduced in extent, increasing the fragmentation and isolation of species and habitats over a wide area.

The findings clearly show that the proposed plans for HS2 are ecologically devastating. It places many of our most precious wild places and the wildlife they support at an unacceptable risk of loss and damage. It will fragment vital landscape initiatives that have been the focus of reconnecting and restoring our natural environment, reversing current efforts and ultimately impacting future plans for nature's recovery.

Specifically, the evidence shows that the development presents significant risk of impact to:

- **5 sites of international importance** which are statutory protected and support internationally significant habitats and species assemblages (including three Special Areas of Conservation and two Ramsar sites (wetland sites designated to be of international importance)).
- **33 Sites of Special Scientific Interest** (including two National Nature Reserves) which are protected by law. Some SSSIs underpin/comprise the component habitats of internationally important sites of nature conservation but many account for independent sites which form vital refuges for wildlife in an increasingly fragmented landscape.
- **693 (9,696 hectares) Local Wildlife Sites** which are selected for their substantive nature conservation value, based on important, distinctive and threatened habitats and species with a national, regional and local context. They are core wildlife-rich habitats which play a critical conservation role by providing wildlife refuges, acting as stepping-

stones, corridors and buffer zones to link and protect nationally and internationally protected sites.

- **21 Local Nature Reserves** which are designated for their special interest within the administrative area of a local authority for their flora, fauna, geological or physiographical features, and which are managed for the purpose of their preservation or for providing opportunities for related study and research and public enjoyment.
- **26 Landscape scale initiatives**, including:
 - **4 Nature Improvement Areas** which were established to restore and enhance the natural environment, creating joined-up and resilient ecological networks at a landscape-scale. All involve investment and action from multiple partners and three have been funded by Defra at a cost of more than £1.7 million.
 - **22 Living Landscapes** which similarly to NIAs are large-scale landscape initiatives, championed by The Wildlife Trusts, aimed at creating joined-up and resilient ecological networks. Like NIAs, these involve years of investment and action from multiple partners.
- **18 Wildlife Trust Nature Reserves** many of which are also designated as protected sites (SSSI, LWS, and/or LNR)
- **108 Ancient woodlands**, which are irreplaceable habitats and defined in national planning policy³⁰ as an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites.
- **Other irreplaceable and significant habitats** such as veteran trees, wood pasture, old meadows/unimproved grassland, mires and wetlands will be impacted, but were not specifically quantified by this report. Irreplaceable habitats are defined in national planning policy as habitat which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity.
- **Extensive areas of unquantified wider habitat.** Many thousands of hectares of semi-natural habitat outside of these protected sites, areas and initiatives also lie in the path of HS2, which will be lost or significantly reduced in extent, increasing the fragmentation and isolation of species and habitats over a wide area.

The significant risk to sites and habitats posed by HS2 will in turn seriously impact a wide range of scarce and protected species from birds, mammals, insects, reptiles and amphibians to rare plants like the lizard orchid. Species will be affected directly and indirectly from impacts ranging from habitat loss, reduction, change, fragmentation and isolation; to noise, lighting, air pollution and collision. The extent of which could be enough to permanently adversely impact the conservation status of some, including barn owl, white-clawed crayfish, the dingy skipper butterfly, and the willow tit.

Not only will the proposed route fragment and reduce the functionality and biodiversity of ecosystems, it will reduce people's access to wildlife-rich spaces along the length of the route, negatively impacting on health and wellbeing.

The findings also reveal that proposals for mitigating and compensating these losses are generally inadequate and inappropriate. For example, they do not appear to be spatially planned or tailored to the needs of local habitats and species, resulting in proposals like tree planting on existing areas of wildlife-rich semi-improved neutral grassland; wetland mitigation on areas of existing high value wetland; or mitigation proposals on isolated, unconnected sites.

The proposed scheme has the objective of seeking 'no net loss' in biodiversity at a route-wide level, measured using a modified version of Defra's biodiversity offsetting metric, developed in consultation with Defra and Natural England. The evidence presented through this study shows the potential risk of habitat loss and fragmentation at the scale of HS2 is likely to have damaging effects for years to come, some of which will be irreparable. There is:

- no transparent and credible method used for quantifying the biodiversity loss and any proposed gains through habitat creation, restoration or enhancement so that a

rigorous comparison can be made between pre- and post-development and therefore no guarantee that 'biodiversity units' and 'no net loss' will be achieved;

- no recognition of the temporal gaps for newly created habitat proposals to attain the same quality as the habitats they are replacing (which for some habitats could be years);
- often a 'downgrading' of distinctiveness for proposed habitat creation;
- a potentially significant loss of hedgerows; and
- no biodiversity loss calculation for Phase 2b to determine the correct amount of mitigation and compensation.

The research therefore concludes that the proposed HS2 scheme will be unacceptably devastating to the natural environment because it:

- places too many protected sites (and the species that depend on them) under potential risk of significant impact.
- frequently fails to propose adequate and appropriate mitigation and compensation for the impacts on these wild places.
- will fail to achieve the commitment to 'no net loss' for biodiversity, let alone Government's wider commitment in the 25 Year Environment Plan for infrastructure to achieve a biodiversity net gain.

The policy and proposed legislative context for securing nature's recovery has changed dramatically since HS2 was first proposed in 2009. Government has committed to securing nature's recovery and development has a key role to play in this. We face a climate and biodiversity crisis and it is no longer acceptable to destruct any of our valuable wild places that are crucial to nature's recovery and pivotal to climate solutions, let alone the potential scale of impact that HS2 risks. This damage will push nature to the brink, cause local extinctions, decimate carbon-storing habitats, and irreversibly damage local biodiversity. This cannot be allowed to happen.

The time has come for Government to STOP and RETHINK the proposals. Ongoing works to HS2 need to stop immediately, the impact on the natural environment must be fully assessed, and the proposals reviewed in the light of this assessment. Any future solution must deliver a net gain for nature. We recommend that HS2 reconsider The Wildlife Trusts' A Greener Vision for HS2 proposals as part of this rethink.

9. REFERENCES

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4. <https://www.gov.uk/government/collections/additional-provisions-for-the-high-speed-rail-london-to-west-midlands-bill> (Accessed 18 November 2019)
5. Defra, (2011) *Biodiversity 2020: A strategy for England's wildlife and ecosystem services*
6. HM Government, (2018) *A Green Future: Our 25 Year Plan to Improve the Environment*, sets out what we will do to improve the environment, within a generation.
7. MHCLG, (2018) *National Planning Policy Framework*
8. Proposed scheme is defined here as the Bill Limits (red line route boundary). This is not a defined width, as it changes throughout the route, but it is effectively the area of land that HS2 Ltd has (for P1 following the Act) and will (for P2a and P2b once the Hybrid Bills are passed) the right to use for the purposes of the HS2 development, this includes compulsory purchase of land – see section 3.1 for further powers received as a result of Royal Assent. The sites we have identified are those both within and beyond the Bill limits and so present the worse-case scenario of what is at risk.
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25. Sheffield & Rotherham Wildlife Trust response to WDES P2b.
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27. <https://www.gov.uk/government/publications/hs2-additional-mitigation-plan-for-colne-valley>
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30. MHCLG (2019) *National Planning Policy Framework (NPPF)*



With special thanks to Jane Durney, the consultant who compiled the evidence and content for this report on behalf of The Wildlife Trusts; and to everyone that contributed facts and figures to inform this report:

- Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT)
- Birmingham and Black Country Wildlife Trust
- Cheshire Wildlife Trust
- Derbyshire Wildlife Trust
- Hertfordshire and Middlesex Wildlife Trust (HMWT)
- Leicestershire and Rutland Wildlife Trust
- London Wildlife Trust
- Nottinghamshire Wildlife Trust
- Sheffield and Rotherham Wildlife Trust
- Staffordshire Wildlife Trust
- The Wildlife Trust of Bedfordshire, Cambridgeshire and Northamptonshire (WTBCN)
- The Wildlife Trust for Lancashire, Manchester and North Merseyside
- Warwickshire Wildlife Trust
- Yorkshire Wildlife Trust
- Chilterns Conservation Board
- The National Trust
- Royal Society for the Protection of Birds (RSPB)
- The Woodland Trust

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The Wildlife Trusts
The Kiln, Mather Road
Newark
Nottinghamshire
NG24 1WT

t: 01696 670000
e: enquiries@wildlifetrusts.org

Registered Charity No. 207238

D2556

WITNESS STATEMENT OF PETER FAULDING

1. I, Peter Faulding, of Specialist Group International, Units 4-9 Havenbury Industrial Estate, Dorking, Surrey, RH4 1ES do say as follows:

2. I am the Chief Executive of Specialist International Group Ltd, a world-renowned provider of 24/7 Specialist Rescue, Underwater Search and Protester Management response to Police, Fire and other Government Agencies. The company provides specialist protester response to Critical National Infrastructure sites along with specialist underwater search to a number of police forces in the UK. SGI provide 24/7 response for specialist rescue from height and confined space rescue. I am a world-leading expert in confined space rescue. I have trained United Kingdom fire & rescue teams in confined space and soft ground shoring for earthquake response. I have also trained doctors and paramedics from London's Helicopter Emergency Medical Service (HEMS) along with oil refinery rescue teams and a number of police forces and HM Customs search teams. I have carried out all of the major protester removal operations since the Newbury Bypass in 1995 without incident or accident. I have also worked as an advisor to the Home Office "Policing of Environmental Protest" working group. I am a registered expert with the National Crime Agency – Specialist Operations Centre and registered expert witness on confined spaces and I have given evidence in coroners courts. I have been a visiting guest of the United States and the Federal Bureau of Investigation FBI in the USA. I have also advised the Dutch & Swedish police on protester action and presented extensively on the Policing of Environmental Policing course. During the planning phase of HS2, I acted as an advisor to various people in HS2 and the Department of Transport regarding protester issues which HS2 were likely to face.

3. I became aware of the operation to remove protesters from the tunnel at Euston on Tuesday 26th January 2021. I was contacted by the BBC and ask to provide an expert opinion on the protester's tunnel in Euston Square.

4. Upon reviewing photographic and video evidence of the complexity of the tunnel I became concerned about how this would be dealt with. I felt, given my experience, I had a duty to convey my concerns to those who had regulatory responsibility for the safety of the operation.

5. I raised my concerns about the safety of the operation with Mark Thurston, the CEO of HS2, via LinkedIn. At 14.43 on 26th January 2021, I advised that there is a serious risk of injury or death in the tunnel. I made it clear that I was not looking for work. Mark replied at 17.21 saying "Thanks Peter, we have a team mobilised and I've made them aware of your potential support. Appreciate you getting in touch". I then received a call from Richard Jordan from HS2 at 17.33 from mobile number 07388 850948. Richard

confirmed that HS2 had no prior knowledge of the existence of the tunnel but advised that they had Control Risks Group and the National Eviction Team (NET) onboard and are going proceed with an eviction in the morning. I stated that the NET has very limited knowledge of tunnelling operations of this complexity. This means they have no relevant specialist experience or the vast range of specialist equipment to conduct such a complex and dangerous operation including being able to conduct an emergency rescue should the tunnel collapse. I advised that a full rescue contingency, a full rescue plan, risk assessments, method statements and all vital equipment including air compressors must be in place prior to the eviction. The emergency services i.e. London Fire Brigade will not enter a protest tunnel. After the call was ended, I sent Mark another couple of messages summarising my discussion with Richard.

6. I wrote to the HSE on 28th January 2021, using photographs from my archives to illustrate the type of shoring that would be needed to be put in place in order to safely evict the tunnel. I further stated:

“These photographs were taken on projects that I carried out in the 90’s. Protesters will construct hidden chambers in tunnels and hide. If the tunnel is not searched thoroughly a protester may be buried alive. Whilst I appreciate that protesters do not come under the Health & Safety at Work Act, others have a duty of care. I fear that people will enter the tunnels without shoring it up properly. Shoring, as you know, is a highly specialist task and not taught on confined space courses.”

7. In the same email, I set out a non-exhaustive list of factors that should be considered in such operations:

- Is the compressor being used onsite in date & tested to ensure clean air delivery?
- Have air lines been provided to the protesters in the tunnel in case of collapse? This would prevent suffocation prior to rescue.
- Have hard wire communications been provided to the protesters in the tunnel in case of tunnel collapse?
- Is there a full rescue contingency plan in place?

8. I was aware that the Health & Safety Executive visited the HS2 site and temporarily stopped worked due to safety concerns. It was clear that there were issues as work stopped and Mines Rescue were brought in by the HSE to act as an emergency back-up team. The videos I provided to the protester’s legal team were quite shocking:

- Fingers being stamped on by bailiffs.
- A woman who was attached by her ankle with a chain being dragged out screaming

- Protesters being denied oxygen monitoring and many more that show a poor quality operation that was clearly was putting people's lives at risk.

9. I would also like to draw attention to the timescales involved. HS2 admit they only found out about the tunnel on 26th January 2021 (as a result of footage from the BBC of the tunnel being leaked). However, they began the operation to remove the protesters from the tunnel on 27th January 2021. An operation of this scale would normally take six weeks to plan along with detailed method statements and risks assessments.

10. Protesters will have embedded themselves in the tunnels and locked themselves in so that they would be unable to get themselves out. I believe that the risk of suffocation/tunnel collapse was significant. Every inch of the tunnel requires full shoring before anyone can enter. Food and water along with hard wire communications systems and airlines need to be lowered into the tunnel to keep the oxygen levels at 21%. Protester welfare must be planned and considered in detail.

11. I was concerned about the qualifications and experience of the bailiff team to conduct such a complicated and difficult operation. I had seen no evidence that they have planned the operation to remove the protesters adequately or at all.

12. One of the key things that would normally be carried out at the beginning of an operation to evict protesters from a tunnel of this size and complexity would be to pinpoint the exact location of the tunnel. This would normally be done through the use of ground-penetrating radar. The tunnel would be marked on the ground in yellow marker spray. This is vital during an emergency rescue operation to allow rapid intervention to the tunnel. As far as I am aware, this was not done. As such, they cannot know where exactly the tunnel runs. An exclusion zone should be established a distance from the tunnel that represents the likely length of the tunnel. Within this exclusion zone it is best practise and basic common sense that no activities should be carried out that have the potential to cause tunnel collapse. This would include the use of vehicles or heavy machinery, felling trees, or the diversion of rainwater that could soften the ground.

13. Shoring is detailed and complex and can be only carried out by a specialist if it is going to support extreme ground pressure of already unstable ground. The techniques that were used were dropping soil on protesters heads at the bottom of the tunnel and was highly likely to induce a collapse that could ultimately lead to a fatality.

14. In my professional opinion, based on decades of experience in complex and specialised operations removing protesters from tunnels, I identified the following concerns with the operation:

- The protesters were not being provided a multigas detector which should be provided 24/7 to the protesters to monitor for oxygen depletion/carbon monoxide/hydrogen sulphide and methane gas.
- The oxygen levels in the living area were not being monitored. Bailiffs refusing to provide and leave a monitor with the tunnel occupiers. This will ensure oxygen levels are kept above 20%.
- The bailiffs used the existing shoring in the shaft (built by protesters) and attached their shoring to it creating a smaller unsafe access shaft that would hinder any rescue attempt. This shaft should have been opened out to at least two metres square with new shoring to prevent collapse in already unstable ground.
- There were additional protester living accommodation in existence above the tunnel with four persons occupying the roof at the same time as the eviction operation in the tunnel was going on underneath. The existence of this building would drastically slow down any emergency rescue attempt as the structure would need to be removed first. The bailiffs were working in the tunnels whilst simultaneously removing protesters from the structure above. The protesters were concerned this might increase risk of collapse and want work underground to halt whilst work above ground takes place.
- The air compressor supplying the protesters air broke down leaving the protesters without a fresh air supply. There was no backup compressor available.
- The protesters were not provided with any hard-wired communications in the tunnel for a number of days. Communications should have been provided immediately, if there was a tunnel collapse, there would be no way of communicating underground to assist any rescue operation.
- Without establishing the location of the tunnel, the bailiffs had carried out a number of operations in the potential location of the tunnel that could have induce tunnel collapse. This includes felling large trees onto the area and using vehicles and machinery in the area.
- Heavy machinery (including cherry pickers) continued to be used in the vicinity of the tunnel whilst persons were in the tunnel, this may have induced a collapse in already wet and unstable ground.
- I have seen a video showing which appeared to show a protester having his hand stamped on by a bailiff in an already unstable tunnel.
- There was a water drainage system put in place by the protesters which involved gutters that drained from the structure above the tunnel entrance into five wheelie bins. These bins have now been knocked over leaving a pool of water directly above one of the tunnels. This, along with constant rain over the past days and no water drainage system now in place, has caused leakage and a collapse in one of the tunnels. Water leakage and penetration had not been a problem whilst the protester's structure was in place and so

the protesters felt that either their own system should be reinstated, or an alternative water drainage system should have been provided. They also wanted to be able to send up buckets full of the slushy, watery mud to be emptied by bailiffs in order to keep the earth in the tunnel as dry as possible.

- The bailiffs were not allowing the protesters to have a liaison contact. As the bailiffs took possession of the down shaft and the protesters lost phone signal, they were concerned the situation would become dangerous as it is clear the bailiffs were not acting in the interests of the safety of the protesters.

15. I am willing to attend court to give evidence on the matters as outlined above.

Statement of Truth

I believe that the facts stated in this witness statement are true

Signed.....
(Peter Faulding)

DATED this 30th day of March 2021

Accessed:

<https://docs.google.com/document/d/1VEh5YT9OTWV2Eiotd3ZIstKrBLkbAxSF/edit>

Supporting Document 3

Documents relating to Colne Valley Aquifer re: Sarah Green (2020); and wildlife crimes in Denham Country Park – vole habitats (2020); with additional notes relating to the EIA

Additional documents in support of the Defence against the Claim QB-2022-BHM-00044, HS2 Ltd & SoS for Transport V Persons Unknown and Ors.

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Record of the Determination that the Land known as 'New Years Green Lane Landfill Site' is Contaminated Land. 2011

P.19-31

ASSESSMENT OF THE REPORT "HYDROGEOLOGICAL AND SURFACE WATER RISK ASSESSMENT FOR LOAD TEST PILING LOCATION 2" IN THE CONTEXT OF THE SITE OF SPECIAL CONTAMINATION

A REPORT BY JAMES D. R. TALBOT, PhD, MSc, BSc, ARCS, MRSC, CChem
July, 2020

p.33-36

IN THE FIRST-TIER TRIBUNAL Appeal No: EA/2020/0088 GENERAL REGULATORY CHAMBER (INFORMATION RIGHTS)

ON APPEAL FROM:

The Information Commissioner's Decision Notice No: FER0848129 Dated: 6 January 2020

Appellant: First Respondent:

Sarah Green The Information Commissioner

Before HH Judge Shanks and Suzanne Cosgrave and Paul Taylor

p.37-45

APPELLANT'S REPLY TO SECOND RESPONDENT'S RESPONSE (EA/2020/0088)

09 December 2020

1. This document constitutes a reply to the Response and previously Withheld Information released on 27 November 2020 by Eversheds Sutherland on behalf of HS2 Ltd.

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Contents – Water Vole/wildlife crimes – Denham Country Park, Bucks. Nov.2020

p.47-73 Contents:

Ecological Survey – Water Voles, undertaken by Robert Mileto – 6.9.2020

Denham Country Park Water Voles 6.9.20.pdf

Ecologist response to DC Heffernan - 23.10.2020

Denham Country Park Water Voles Response 23.10.20.pdf

Correspondence with police, Sarah Green and ecologist Robert Mileto – 29.10.2020

Gmail - Fwd_ Crime reference 6021993_20 URGENT - Water vole - HS2 29.10.20.pdf

Concerns raised by ecologist Robert Mileto – 5.11.2020

HS2 Ltd and Protected Species, a Statement of Concern 5.11.20.pdf

Letter to Grant Shapps from Lord Hague – 6.11.2020

LordHague to GrantShapps 6.11.20.jpeg

Denham Country Park – Water Vole Update - 10th November 2020

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APPENDIX 3 –

A selection of notes relevant and referred to in the Planning Application from the Environmental Impact Assessment – these were originally selected for Denham Country Park specifically but also refer to the Colne River and surrounding area generally/



Environmental Protection Act 1990 Section 78B

Record of the Determination that the Land known as 'New Years Green Lane Landfill Site' is Contaminated Land

In accordance with Part 2A of the Environmental Protection Act 1990 the London Borough of Hillingdon has determined that the land at: The former '**New Years Green Lane Landfill Site**'

National Grid Reference: 506286 E and 188274 N:

Is Contaminated Land as defined by Section 78A (2) of the Environmental Protection Act 1990, because:

The London Borough of Hillingdon has identified the presence of a contamination source, a pathway and receptor with respect to the current use of the land. The London Borough of Hillingdon is satisfied that the pollution of controlled waters is being caused. The London Borough of Hillingdon is also satisfied there is a significant possibility of significant harm being caused from landfill gas with no suitable and sufficient risk management arrangements in place to prevent such harm (as defined in Table B2 of the Statutory Guidance to Part 2A).

A summary of the basis on which this determination has been made is set out in the following schedule to this record

Signed

Dated

26th May 2011

Peggy Law
Consumer Protection Manager
Planning, Environment, Education and Community Services



INVESTOR IN PEOPLE

Environmental Protection Unit
Planning, Environment, Education and Community
Services
T.01895 250155 F.01895 277443
London Borough of Hillingdon,
3S/02, Civic Centre, High Street, Uxbridge, UB8 1UW

D2563

Schedule of Determination

London Borough of Hillingdon

Environmental Protection Act 1990, Part 2A – Section 78B

Record of Determination of the Land at the Former Landfill Site at New Years Green Lane, Harefield, Middlesex

1. Introduction and Site Location

Paragraph B.52 of the Statutory Guidance (DEFRA Circular 01/2006) requires local authorities to prepare a written record of determination that particular land is contaminated land for the purposes of Part 2A of the Environmental Protection Act 1990. This document outlines why the London Borough of Hillingdon, 'the Council' has determined that the land at the New Years Green Lane Former Landfill site is 'Contaminated Land'.

The Council owned site now known as New Years Green Landfill is located at Grid Ref 506286 E and 188274 N approximately 2 km south east of Harefield as shown edged red on the attached plan, Figure 1. The site extends for an area of over 70 Ha and is currently used for rough grazing. Formerly the site was used as a sand and gravel quarry which was in-filled with domestic waste during the 1960s and 1970s. Following tipping by the Greater London Council the site was capped to make it suitable for its current use. There are three residential buildings and a Civic Amenity Centre situated at the site boundary and three farms surround it. The waste appears to extend under the Civic Amenity Centre land. Highway Farm is also partially tipped. The site geology identified through the various investigation boreholes comprises of a clay topsoil cover over the waste. Under the waste lie the sands, gravels and clays of the Reading Formation and below this is the Upper Chalk. Although no details of the construction and previous operation of the site are available, it is understood that the chalk was not to be exposed during the mineral extraction and a 6ft thickness of overburden was to be placed prior to tipping. The Reading formation contains clay but is not generally regarded as a competent geological barrier. It is described as a Secondary Aquifer by the Environment Agency, 'EA'. It may retard but is unlikely to completely prevent the passage of contaminated liquids into the chalk aquifer beneath. There is evidence of perched waters within the fill material above the Reading formation and a known principal aquifer is in the underlying chalk. The majority of the site overlies the outer source protection zone for the Ickenham Public Water Supply with a small part of the site overlying the inner source protection zone. It is assumed that there is a potential for contamination to overly the inner source protection zone because there is little information regarding the nature and location of tipped material. The New Years Green Bourne runs through the site in a culvert from an ephemeral pond to the north of the site entering the Colne/Grand Union system to the West at Dews Farm. The River Pinn and River Colne are over 700m from the site and there is no indication of a connection between contamination on site and of these two rivers.

2. Description of the Significant Pollutant Linkages

Table 1 Significant Pollutant Linkages

Linkage ID ¹	Contaminant	Migration and Exposure pathways	Receptor	Comment
1	Ammonia (NH ₃ as N)	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(a) linkage
2	Ammonium (as NH ₄)	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(a) linkage
3	Benzene	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
4	Calcium	Leaching from contaminated fill	Groundwater (SPZ 1)	
5	Chlorobenzene	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
6	1,1-Dichloroethane (1,1-DCE)	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
7	Iron	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(a) linkage
8	Magnesium	Leaching from contaminated fill	Groundwater (SPZ 1)	
9	Mecoprop	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
10	Potassium	Leaching from contaminated fill	Groundwater (SPZ 1)	
11	Sulphate	Leaching from contaminated fill	Groundwater (SPZ 1)	
12	TPH >C6-C40	Leaching from contaminated fill	Groundwater (SPZ 1)	Regulation 3(c) linkage
13	Ammonia (NH ₃ as N)	Migration of leachate into Culvert	Surface Waters	
14	Ammonium (as NH ₄)	Migration of leachate into Culvert	Surface Waters	
15	Chloride	Migration of leachate into Culvert	Surface Waters	
16	Sodium	Migration of leachate into Culvert	Surface Waters	
17	Sulphate	Migration of leachate into Culvert	Surface Waters	
18	TPH C6 – C40	Migration of leachate into Culvert	Surface Waters	
19	Methane	Migration to buildings (inhalation)	Humans (asphyxiant)	
20	Carbon Dioxide	Migration to buildings (inhalation)	Humans (asphyxiant)	
21	Methane	Migration to buildings and ignition of gas	Buildings (explosion hazard)	

¹ There are different numbers referenced in the original Conceptual Model in the Atkins Report (2006)

Table 1 – Twenty one significant pollutant linkages (SPLs) have been identified by the Council. The SPLs which form the basis of this determination have been grouped according to the exposure pathway as shown in the Table 1 as required by paragraph B52(a) of the statutory Guidance to Part 2A. The linkages specific to Regulations 3(a) and 3(c) are indicated because they are required for designation as a Special Site. The other linkages part of the evidence to determine the site as Contaminated Land.

3. Physical Extent of the Land

The extent of the 'Contaminated Land' has been decided upon by the Council as the area marked as Red on Figure 1 as appended to this record of determination (following Page 17).

Guidance on the considerations that are relevant to determining the extent of contaminated land can be found in paragraphs B32 – B36 of DEFRA Circular 01/2006. Highway Farm and the Civic Amenity Site have not been included in the area of determination. The greater part of any contamination source is thought to be located at New Years Green Landfill Site as shown on Figure 1. Highway Farm was a lesser part of the old landfill area and was remediated to a suitable for use standard under the planning regime in 2006. Investigations by consultants to the owners of Highway Farm in 2003 and subsequent groundwater monitoring from 2006 to 2010 confirmed that the ammonia concentrations were higher in the monitoring boreholes outside of Highway Farm next to New Years Green Landfill. This indicated that the predominant source of groundwater contamination was most likely New Years Green Landfill to the immediate north of Highway Farm. The Civic Amenity Site is currently subject to a planning permission for redevelopment. The three residential properties surrounding the landfill are not included as they do not appear to be located on landfill although the landfill extends to the edge of their gardens.

The area of determination is defined as recommended by the Environment Agency in their Detailed Advice of 2008. The land determined is the area of land where it is established that there is the presence of significant pollutants in the landfill leachate and high levels of landfill gas (B32(a)).

4. Summary of the evidence on which the determination is based (B.52 (b))

The landfill was considered as a potential source of ammonia pollution at the public water supply borehole as far back as 1985. Pollution by ammonia in the New Years Bourne was first brought to the Council's attention by the National Rivers Authority on 15 June 1995. The Council was informed by the Environment Agency, 'EA' of the closure of the Ickenham Public Water Supply Borehole by the Three Valleys Water Company, 'TVWC' due to pollution levels on 21 May 1997. The ammonia had been treated at the public supply but

the treatment system failed due to iron concentrations within the groundwater. The EA also again indicated that the landfill was known to cause pollution in the watercourse which runs in a culvert below the site. The Council also found high ammonia levels in the watercourse, part of the New Years Green Bourne Stream. The landfill was seen by the EA as the main potential source of water contamination. The site was forthwith investigated by the EA and the Council, and an assessment was made under Part IIA.

Since 1997 the EA and the Council have carried out contamination investigations and monitoring work on the landfill site, and within the groundwater regime in the area. There is only a little recent information on water quality at the public supply, 'PWS' when the boreholes were pumped for a short period. A number of site investigation reports are available for the landfill site assessing both gas and water issues. The determination is based on a number of reports that are listed below (references 1 to 10).

The EA agreed with the Council to carry out a detailed inspection of the site following the Council's request under B28-B29 of the Statutory Guidance. There are two Part IIA reviews of the site dated May 2004 (Enviros Consulting Limited) and December 2006 (Atkins). These reports were followed by formal detailed advice from the EA received on 6 August 2008. The views of the Agency provided in the detailed advice were confirmed in a letter to the council dated 15 December 2010.

As a separate matter landfill gas has been monitored at the site from 2005 by SLR Consultants for health and safety reasons rather than as a Part IIA investigation. The site investigations and reviews are listed below with brief summaries.

Site Investigation Reports by Consultants for the Council and Environment Agency (EA)

- Symonds Travers Morgan for the National Rivers Authority (now the EA) – Investigation of Ammonia pollution at Ickenham Public Water Supply Source, Hillingdon – November, 1997 (ref1).
- Aspinwall & Co for the EA – Investigation of Water Pollution from New Years Green Lane Landfill Site, Ickenham – March 1999 (ref 2).
- Enviros for LBH - Environmental Monitoring at New Years Green Lane Landfill Site, Ickenham March, 2001 (ref 3).
- Enviros for LBH - Environmental Monitoring at New Years Green Lane Landfill Site, Ickenham, June, 2002 (ref 4).
- Site Investigation (November 2003) and Groundwater Monitoring (2003 to 2010) carried out by Waterman Environmental for the Dogs Trust at Highway Farm (ref 5).

- Envirosearch for LBH - New Years Green Lane Landfill Site – Gas Risk Assessment – July, 2002 / SLR Consultants for LBH - Yearly Landfill Gas Monitoring Reports for New Years Green Landfill (2005 to 2009) (ref 6).

Part 2A Assessment Reports for the Environment Agency

- Envirosearch for the EA – Critical Review of New Years Green Landfill - May 2004 (ref 7).
- Atkins for the EA – Final Interpretative Report, New Years Green Landfill, Hillingdon - B20 (a) and B20 (b) Part IIA Detailed Inspection 2006 (ref 8).

Site Specific Advice of the Environment Agency

- Detailed Advice to the London Borough of Hillingdon with a covering letter dated 6 August 2008 (Groundwater & Contaminated Land Team, Environment Agency) (ref 9).

Remediation Options Report for the Council

- Atkins for LBH - New Years Green Landfill - Outline Remediation Options Appraisal February 2011 (ref 10)

Summary of the Site Investigation Reports

Initial Investigation (ref 1)

Investigation of Ammonia Pollution at Ickenham Public Supply Source 1995

The NRA commissioned the report due to concerns about ammonia levels at Ickenham. Correspondence from 1977 to 1988 with the Three Valleys Water Company on the ammonia pollution at Ickenham was summarised in the report. The report collated background information on the Ickenham PWS including borehole logs, adits, pumping rates and water quality. Data was presented on a regional hydro-geological setting. This report was the first report on the groundwater contamination in the area and involved the drilling of 2 deep groundwater boreholes south of the site. Water samples were taken from these boreholes and at the 3 pumped PWS boreholes, and 7 surface water sites including the landfill culvert and a nearby ditch. The hydrogeology and hydrochemistry were assessed in detail. The hydro-chemical interpretation of the surface waters and groundwater was concluded to consistently suggest the landfill to be the main source of pollution to the Ickenham Public Water Supply. Concerns were that rising groundwater

levels might increase the ammonia levels by mixing with the landfill leachate. The report suggested the landfill as the most significant source of groundwater pollution but also mentioned other potential sources. It was indicated that there may be other landfill sites up-gradient of the supply and a ditch that may be contributing to the problem. The report made recommendations regarding appropriate actions to protect groundwater resources, including the investigation of the design and extent of the waste in the New Years Green Landfill Site, and the extent of the groundwater contaminated plume. The report outlined remediation options and gave recommendations for further investigations including more intrusive work as there were only 2 monitoring boreholes.

The Main Intrusive Site Investigation (ref 2)
Investigation of Water Pollution from New Years Green Lane Landfill Site, Ickenham 1999

The investigation involved the completion of the drilling and sampling of 12 leachate monitoring boreholes in the waste and five groundwater monitoring boreholes in the chalk. The report provided an interpretation of the waste thickness, and levels and quality of leachate, groundwater, surface water and landfill gas. No solid soil samples were tested for contamination, the contamination and water quality tests were specifically of leachate and groundwater samples.

The testing of the leachate samples showed high levels of ammoniacal nitrogen up to 509 mg/l. The results of the groundwater testing confirmed that ammoniacal nitrogen concentrations in the groundwater were at concentrations up to 37 mg/l (as N). A tritium analysis of the leachate and groundwater was carried out and confirmed that landfill leachate was affecting the groundwater as obtained from boreholes adjacent and to the south of the site.

The role of the culvert and surface water contamination in the Bourne Stream were considered in more detail in this report. It appeared that low flow conditions produced high levels of ammonia in the stream with a peak of 170 mg/l in 1995. When the flow is high there appeared to be no impact. Landfill gas levels were found to be high at most of the monitoring boreholes. Methane and Carbon Dioxide levels were found up to 61% and 30% respectively.

A 'Groundwater Impact Assessment' was provided which gave a refinement of the existing Gerrard's Cross GPZ model in the area of the source, and a risk assessment for the Ickenham PWS. The risk assessment gave predictions for future groundwater quality. The public water supply was only pumped for a short period and no conclusions were drawn on the groundwater monitoring at the supply boreholes.

Eleven remedial options were provided including actions at the landfill site, and treatment at the water supply boreholes. A period of two years further monitoring was recommended for the site to identify the most beneficial of the above remedial options for the landfill site

including the culvert and New Years Bourne. There was now an established monitoring network for landfill leachate, surface water, groundwater and landfill gas.

Monitoring Work 1 (ref 3 and 4)

Environmental Monitoring at New Years Green Lane Landfill Site (Years 2000-2001 and 2001-2002)

The monitoring over a two year period used the existing network. The results obtained over a two year period indicated that there had been little overall change since the 1998 investigations as reported in 1999. The landfill continued to have an effect on groundwater and surface water quality. Data from a CCTV survey of the culvert was provided and some data from test pumping at the Ickenham PWS was also carried out. The culvert survey indicated that there were no blockages or impediments to flow and no leachate ingress was confirmed. It was noted that the weather conditions were dry with little flow in or out of the culvert. The pumping at the PWS boreholes was only 3 weeks and the volume pumped was low compared to the operation in 1995. Therefore although no contamination was found the conclusions were viewed with caution. The report also concluded that the groundwater flow regime had been modified with groundwater flowing in a south westerly rather than southerly direction now.

Landfill gas was still found to be at high levels and the risk to local properties was as a consequence deemed high with no off site monitoring wells and control measures in place.

Monitoring Work 2 (refs 7 and 8)

Part 2A Assessment Reports for the Environment Agency dated 2004 (Enviros and 2006 (Atkins) / Additional monitoring at groundwater boreholes on Highway Farm

The reports by Enviros and Atkins both contain monitoring information that is used in the assessment below of the evidence upon which the determination is based. The monitoring work is limited but includes groundwater, surface water, leachate and gas monitoring. It was undertaken with regard to the B29 request for the Agency to inspect the site. The reports are essentially a B20 (a) and B20 (b) Part 2A detailed inspection. The leachate and groundwater were analysed for a range of compounds including some List 1 and List 2 compounds.

The monitoring at 8 wells by Enviros in 2004 confirmed that the leachate was still significantly contaminated and ammonia levels remained high. The leachate was found to contain some list 1 compounds including organhalogen compounds (including 1,1 dichloroethane, chlorobenzene and Mecoprop), cadmium and hydrocarbons. Seven groundwater boreholes were monitored. The groundwater in the chalk was found to contain organhalogen compounds (including 1,1 dichloroethane, chlorobenzene and Mecoprop) and some TPH compounds. Three surface water samples and landfill gas levels were monitored during the site work.

Groundwater monitoring has been carried out by the Waterman Environmental for the Dogs Trusts at Highway Farm, as the Trust own the land and are required by agreement

with the Council to monitor groundwater boreholes within their land. Data is available from 2006 to 2010 and the results were assessed against the Water Supply (Water Quality) Regulations 2000, 'WSR'. The WSR are exceeded for a number of compounds. Of particular relevance to the determination is the presence of ammonia (as NH₄) in the groundwater during most monitoring rounds. The levels are significant varying considerably with a maximum of 31.9 mg/l. Levels in 2010 were from 2.15 mg/l up to 16.7 mg/l. All of the boreholes are south of the New Years Green Landfill Site. This data again supports the formal determination of the site as 'Contaminated Land'. Prior to this monitoring work a site investigation was undertaken by the Waterman Environmental at Highway Farm. This established the monitoring boreholes and provided a ground investigation. It was concluded that the landfill in the area did not pose a risk to the underlying aquifer or other receptors. However some gasworks waste was indicated to be an exception to this and remediation work involving the removal of these hydrocarbon hotspots was undertaken during the redevelopment works. The ammonia levels found in the groundwater were thought to be from the larger part of New Years Green Lane Landfill to the north. After considering the information on Highway Farm (ref 5) including details of the remediation works to make the land suitable for use it was decided not to include this land in the area of determination as shown on Figure 1.

Landfill Gas - Intrusive Investigations and Risk Assessment

Gas Risk Assessment (Enviros 2002) / Yearly Landfill Gas Monitoring (SLR Consultants 2005 to 2011) (ref 6)

The work for the 2002 report involved two phases of intrusive investigation. Phase 1 involved soil probing and the installation of 8 gas monitoring standpipes to 3 metres depth near sensitive properties. Landfill gas levels were significant when monitored. A second phase of investigation involved soil probing, trial pitting and the installation of a further 8 standpipes. The trial pitting confirmed that waste extended to the edge of three residential properties and the 'Civic Amenity Site'. The standpipes were monitored for landfill gas and the results used to inform the risk assessment for the site. Subject to on-going monitoring the category of risk was reduced at some of the receptors after the Phase 2 work. Consultants advised the Council to monitor the site to enable any worsening trends to be identified. An action plan was advised in the event of rising gas concentrations. With continued monitoring the risks remained moderate at two properties and high at the Civic Amenity Centre. The work has established a network of 16 monitoring standpipes near to properties deemed to be at risk from landfill gas migration. In 2011 there are currently 14 of these standpipes left on the site

From 2005 to 2011 the site has been monitored quarterly for landfill gas by the Council. There are a series of yearly reports for this work. There are now a total of 36 monitoring standpipes on the site as two further phases of installing standpipes were undertaken in 2006 and 2009. The network is mainly surrounding or within the grounds of the Civic Amenity Site and the two nearest Bungalows. High landfill gas readings are found on a regular basis at the Civic Amenity Site. Limited site investigations at the Civic Amenity Site confirm that there is landfill beneath the site. The risk assessment as of 2011 has not

deteriorated from the initial 2002 risk assessment by Enviro prior to the monitoring by SLR Consultants (ref 6). However the risk does remain significant and monitoring continues at the site in 2011 for health and safety reasons.

Additional Information - Summary of the Outline Remediation Options Report for the Council dated 2011 (ref 10)

The options report provided an assessment of the remediation options for the site currently available and updated the remediation options assessment by Aspinwall & Co in 1999. The report provided an initial screen of the options and then followed the guidance in CLR11 for scoring remediation options to give total scores for the preferred options. The preferred remediation options are listed and scored. It is indicated that no one solution will provide sufficient management of all the high risk PPLs to controlled waters. Further monitoring and risk assessment is recommended. Following the determination of the site this is proposed to be carried out prior to the implementation of the necessary remediation measures.

The report also provided a screening of the contaminants present in controlled waters using the revised Water Framework Directive Environmental Quality Standards (Directive 2008/105/EC) as incorporated into the Environment Agency guidelines in 2010.

5. Summary of assessment of the evidence on which the determination is based (B.52 (c))

Part 2A Assessment Reports for the Environment Agency dated 2004 (Enviro) and 2006 (Atkins) and Detailed Advice of the Environment Agency to the Council dated 2008 (ref 7, 8 and 9)

Detailed Advice of the EA - Following the site investigations from 1995 to 2002 it was decided by the Council to inspect the site under Part IIA. As a consequence of the site being a potential 'Special Site' the Council wrote to the Environment Agency, 'EA' on 30 October 2002 requesting the EA to inspect the site on the Council's behalf. The EA duly agreed to inspect the site on 11 November 2002.

Enviro carried out the first assessment for the EA and provided a 'B20 Detailed Inspection' report in May 2004. The EA confirmed by a letter of 21 July 2004 that it considered the site a 'Special Site' should it be determined as 'Contaminated Land'. It was recommended by the EA that the site should be designated under Regulations 3(a) and 3(c) of the Contaminated Land (England) Regulations 2006 (SI 2006 No 1380), 'the Regulations'. It was indicated that the site may also fall under Regulation 3(b).

The EA considered that some further characterisation of the site was required to establish all of the potential pollutant linkages and confirm the significant linkages. As a consequence the Atkins carried out a second detailed inspection of the site for the EA. A report was provided in December 2006. An initial potential pollutant linkage table was

drawn up on the basis of the previous investigations and sufficient additional work to confirm these within the context of the contaminated land legislation was undertaken. A description of the work undertaken may be found in the final interpretive report (Atkins, 2006).

The EA confirmed 21 pollutant linkages at the site to the Council by a letter dated 6 August 2008 and summary document, 'Detailed advice to the London Borough of Hillingdon New Years Green Landfill'. The detailed advice recommended that the site should be determined 'Contaminated Land' under Paragraph 78A (2) (b) (Pollution of Controlled Waters) of Part IIA, and designated a 'Special Site' under Regulations 3(a) and 3(c) of the Regulations. It was also advised that determination under Paragraph 78A (2) (a) due to risks from landfill gas may be appropriate although monitoring did not indicate that critical concentrations had been reached. This Council continues to monitor the site and may need to specify remediation actions in the form of monitoring or otherwise in the future.

The Council has now considered the detailed advice of the Environment Agency dated August 2008 and reconfirmed in December 2010 in addition to the two detailed inspection reports by the Agency's consultants from 2004 and 2006.

6. Contaminated Land Determination

(i) Pollution of Controlled Waters

The evidence for the pollution of controlled waters is within the site investigations and monitoring reports listed above. The data has undergone a Level 1 analysis using generic guidelines advised by the EA. These include drinking Water Standards, Environmental Quality Standards and substances limited by Groundwater Directive 80/68/EEC and Groundwater Regulations 1998.

Source (Landfill Leachate)

The source of contamination has been confirmed in the landfill leachate. Although the solid waste was not assessed in the reports there is sufficient monitoring data for the landfill leachate to confirm that there is a source of contamination in the leachate head within the solid waste of the landfill. There is a high probability that these contaminants are still present in the landfill leachate. Contamination in the leachate includes:

The investigations confirm the presence, in the leachate, of the following substances defined in List 1 of the List of substances determined for the purpose of the EC Groundwater Directive (80/68/EEC).

- Organohalogens; dichloroethane, dichlorobenzene, chlorobenzene and Mecoprop,
- Mercury,

- Cadmium,
- Mineral oils and hydrocarbons; TPH in the C6 to C40 range, Benzene, xylene, acenaphthrene, naphthalene, phenanthrene, dibenzofuran, flourene, isopropylbenzene, methylnaphthalene and trimethylbenzene,

The following substances are defined in List 2 of the Groundwater Directive

- Nitrosodiphenylamine,
- Dimethylphenol,
- Ammoniacal nitrogen

The Groundwater Directive 80/68/EEC and Groundwater Regulations 1998 state that we must prevent discharges of List 1 substances into groundwater and limit the discharge of List 2 substances to avoid pollution.

Concentrations of the following substances are limited by the Drinking Water and Environmental Quality Standards and deterioration of baseline groundwater quality to those standards is unacceptable.

- Metals; iron, calcium, magnesium, sodium
- Sulphate,
- Chloride,

Pathways

The main controlled water receptor under consideration is the principal chalk aquifer which is used by the public water supply borehole at Ickenham. Also considered are the secondary A aquifer and the Bourne Stream.

The exposure pathways to the secondary and principal aquifers include migration of landfill leachate vertically down to the major chalk aquifer through the sandy, gravely and clayey horizons of the Reading Beds (Secondary Aquifer) after leaching from the waste. Although an overburden was due to be placed over the chalk prior to tipping this cannot be confirmed. There also may be preferential pathways created by the drains and culverts. Due to the presence of contamination in the major aquifer including ammonia which is consistently found it appears that this is a pathway is present.

Receptors (Groundwater)

In the groundwater of the Principal Aquifer contaminants have been found. The presence in the groundwater of the following substances below exceeding the groundwater requirements and standards is confirmed:

- Ammoniacal nitrogen
- Dichloroethene
- Chlorobenzene
- Mecoprop
- TPH (C10-C40)
- Benzene
- Iron, magnesium, sodium, calcium,
- Sulphate
- Chloride

Conclusion - The work done by Atkins and earlier consultants (as referenced below) has provided sufficient evidence to demonstrate that contamination within the landfill site is adversely affecting controlled waters.

A source pathway receptor pollutant linkage has been established for controlled waters specifically the groundwater in the chalk aquifer below the site. This comprises pollutant linkages 1 to 12 in Table 1 above.

As regards surface waters ammonia has been identified intermittently at high levels within the Bourne Stream. The linkages 13 to 18 in Table 1 above have been included as part of the determination as they should be included in the remediation work. This may include works to the culvert which could be affecting the stream and shallow aquifer.

Note: If there are changes to assessment standards such as the Environmental Quality Standards then the chemical data for the site will be screened against the new standards. Of note are the recently published revised Water Framework Directive Environmental Quality Standards (Directive 2008/105/EC).

(ii) Significant Possibility of Significant Harm

Source

Carbon dioxide and methane in the body of the landfill have both been identified in gas monitoring results from all of the site investigation and monitoring reports.

Pathway

Migration from the landfill mass via; the made ground, sand and gravels or chalk below the base of the landfill; man made pathways such as the culvert buried services, drains, sewers.

Receptors

On the boundary of the landfill there are three residential properties and a Civic Amenity Site. The Civic Amenity site is upon land that appears to been built on made ground or even the landfill, and a pathway is likely from the bulk of the landfill. The residential properties are not on landfill. There are two farm properties adjacent to the site, one being Highway Farm is on landfill.

The main danger from methane and carbon dioxide is once they have collected in any of the buildings around the site. There they pose a threat either via asphyxiation of residents or via the ignition of methane. The gas risk assessment from 2002 confirmed moderate to high risks to surrounding properties. The site has been monitored and risk assessed for landfill gas from 2005 to 2011. This is the way the landfill gas risk has been managed to identify trends in gas production in order to take early remedial actions as necessary.

Conclusion - Due to the evidence of consistently high levels of gas still present in the landfill it is considered that the site represents a significant possibility of significant harm from landfill gas as defined in Table B (2) of Annex 3 to the Statutory Guidance. This comprises 3 significant pollutant linkages numbered 19, 20 and 21 in Table 1 above. Monitoring is continuing to manage the risk and the Council may continue to specify remediation action in the form of the ongoing 'monitoring actions' to keep the situation under review.

7. Proposed Special Site Designation following Contaminated land Determination

The Council has considered the evidence of the pollution of controlled waters with respect to Regulation 3 Contaminated Land (England) Regulations 2006 taking into account the detailed advice of the Environment Agency dated August 2008. It is considered by the Council that New Years Green Landfill Site is a Special Site under Regulations 3(a) and 3(c) as advised by the Agency. This is explained below.

1. Regulation 3 (a) – Under regulation 3(a), controlled waters which are, or are intended to be, used for the supply of drinking water for human consumption are being affected by the land to the extent that changes in the treatment process are required. New Years Green lies up-gradient of several such abstractions and overlies part of the inner and outer source protection zones for Ickenham, a borehole that has long had problems with contamination and is at present out of use due to a change in the nature of the contamination in the local aquifer. After changing the treatment process to cope with increasing levels of ammonia, the increased concentration of iron in the groundwater will require additional treatment to make it suitable for supply. It is this subsequent change in the treatment process that causes the failure under Regulation 3(a). The contamination emanating from New Years Green Landfill site is considered to be substantially responsible for this failure. The Ickenham abstraction is still licensed and intended to be used for supply.

2. Regulation 3(c) of the Regulations requires a particular type of contamination in a specified aquifer (underground strata comprised of specified formations of rocks). The chalk aquifer below the site is listed in paragraph 2 of schedule 1 of the regulations. Of the contaminants identified, only a few contaminants found in both the landfill leachate and the chalk groundwater samples are listed in paragraph 1 of schedule 1. These are Hydrocarbons (TPH C6 to C40) and Benzene, and Organohalogens (Chlorobenzene, Dichloroethene DCE and Mecoprop).

Contaminant	Family or group as defined for paragraph 1 of schedule 1 of Regulation 3(c).
TPH C6 to C40	Hydrocarbon
Benzene	Hydrocarbon
DCE (Dichloroethene)	Organohalogen
Mecoprop	Organohalogen
Chlorobenzene	Organohalogen

8. Summary of how the relevant requirements of Chapters A and B of the Statutory Guidance have been met (B52 (d))

Risk Assessment

Paragraph A.11 Contaminants, pathways and receptors have been identified for the site.

Paragraphs A.17 and A.19 Twenty one significant pollutant linkages have been identified at the site resulting in the pollution of controlled waters and the significant possibility of significant harm from landfill gas to nearby residential properties.

Pollution of controlled waters

Paragraphs A.36, A.37 and A.39. Monitoring data shows that contaminants are present in the landfill leachate at high concentrations and continue to enter the aquifer below the site. This is the source that continues to enter controlled waters. Contaminants have been found to be dissolved in the groundwater of the chalk aquifer.

Significant possibility of significant harm

Paragraphs A.27 to A30. A gas risk assessment was undertaken in 2002 and identified high risks to residential and commercial sites. High levels of gas within the adjacent landfill indicate a significant source and potential degree of harm to the receptors. The receptors are susceptible as they are not protected by any gas mitigation measures. It is not

considered that the current use of the land will cease and residential properties will remain at the boundary.

Determining whether the land appears to be contaminated land

Paragraph B.31. The London Borough of Hillingdon has determined the land to be contaminated land. This decision relies on the detailed advice regarding controlled waters by the Environment Agency as based on their Critical Review and subsequent 'B20(a) and B20(b) Part IIA Detailed Inspection'.

Physical extent of the Land

Paragraph B.32 to B36. The land has been determined in extent as the area advised by the Environment Agency and justified above in the text to this record of determination.

Making the Determination

Paragraph B.38. The site is determined on the grounds that

1. The pollution of controlled waters is being caused, and;
2. There is a significant possibility of significant harm from landfill gas

Paragraph B.39. The London Borough of Hillingdon have taken all relevant and available information into account from the initial investigations in November 1995 to the final detailed advice from the Agency in 2008 and latest landfill gas and groundwater monitoring in 2010.

Paragraph B40. The significant pollutant linkages are detailed above in Table 1.

Paragraph B41. Additive/synergistic effects are not thought relevant in this case.

Para B.43. The Environment Agency has been involved with the investigations at the site since 1995. The London Borough of Hillingdon has consulted with the Agency at the site since 1997. A formal request was made to the Agency to inspect the site on the Council's behalf under Part IIA as a potential Special Site and agreed in November 2002. The Agency provided their final detailed advice in August 2008 and the Council has had regard to their advice in the final determination.

Paragraph B.45. The site has been assessed for landfill gas levels from 1999 to 2011. A scientific and technical assessment of the risks arising from this pollutant linkage has been carried out by the Council. The assessment work in 2002 and in subsequent yearly monitoring reports indicates a risk from landfill gas. No risk management measures are in place such as gas protection on buildings, barriers or venting trenches. Perimeter monitoring is used to manage the risk by identifying trends and necessary actions however it is considered on the balance of probabilities that there remains a significant possibility of significant harm due to the high levels of gas within the landfill site.

Paragraph B.50. A scientific and technical assessment of all of the relevant and available evidence from 1995 to 2011 has been carried out by the Council having regard to the detailed advice of the Environment Agency. The Council is satisfied that, on the balance of probabilities potential pollutants are present in the landfill site (contaminated fill and leachate) and these potential pollutants are entering controlled waters (groundwater) by the pathways identified in the pollutant linkages.

References

The Site Investigation Reports and Site Assessment Reports from 1995 to 2011 are listed in Paragraph 4 above.

Detailed Advice to the London Borough of Hillingdon with a covering letter dated 6 August 2008 (Groundwater & Contaminated Land Team, Environment Agency) (ref 9).

Part 2A of the Environmental Protection Act 1990

The Contaminated Land (England) Regulations 2006

Statutory Guidance (DEFRA) - Circular 01/2006 Environmental Protection Act 1990: Part 2A Contaminated Land September 2006

Contaminated Land Inspection Strategy for the London Borough of Hillingdon (July 2001) and Contaminated Land Inspection Strategy Review (November 2007)

CIEH – Local authority Guide to the Application of Part 2A of the Environmental Protection act 1990 (July 2001)

The following appended map known as Figure 1 shows the area of the land at New Years Green Lane Landfill Site that has been determined by the London Borough of Hillingdon to be Contaminated Land.

**ASSESSMENT OF THE REPORT “HYDROGEOLOGICAL AND
SURFACE WATER RISK ASSESSMENT FOR LOAD TEST PILING
LOCATION 2” IN THE CONTEXT OF THE SITE OF SPECIAL
CONTAMINATION**

A REPORT BY

JAMES D. R. TALBOT, PhD, MSc, BSc, ARCS, MRSC, CChem

July, 2020

Executive Summary

This assessment addresses the question if there is reasonable cause to believe whether the report issued by ALIGN on behalf of HS2 for installation of piles (LTP2) has omitted consideration of the proximity of the Special Site of Contamination known as the Newyears Green Landfill Site. The fact that this remit was to consider whether an *omission* occurred that was relevant to the granting of consent of the work to be carried out makes this a slightly different question than the more standard one regarding prediction of the future environmental impact (i.e. water quality) of the Special Site of Contamination concerning the load test piling location, LTP2. To this end, systems tools have been used extensively to critique the assessment process and it is concluded is that it is desirable and should have been possible to include an initial assessment of the risk of pollution and mitigation of risk from the Special Site of Contamination without adversely affecting the delivery of the work package involved in the task. It is the personal opinion of the author that this ought have been done before consent was sought for the work.

Furthermore there are concerns in some of the assumptions given in the assessment concerning long-term structural health of the piles, particularly those of Section 5.4.3 which unless supported with considerable documented evidence might reasonably cause alarm to both expert personnel and the layperson when considering transport of pollutants over the long term. Finally a suggestion has been made as to what knowledge-based mitigation could be made to mitigate the risk of the task without affecting the work involved and with minimal cost.

1.1 Scope

This report was commissioned by Mr Shahid Khan of Advice Wise Solicitors, 24 Cameron Road, Ilford, Essex, on behalf of Mrs Sarah Green. The remit given was to assess the report “Hydrogeological and Surface Water Risk Assessment for Load Test Piling Location 2, document 1MC05-ALJ-EV-NOT-CS01_CLO1-100368”. This report (called “the report” in this work) was submitted by ALIGN, working on behalf of HS2 and approved for issue on 22/01/19. The brief given by Mr Khan for this assessment was

“to consider whether there is an omission of the Special Site of Contamination which means that the presence of leachate is not being assessed.....(and) consider the assessment of corrosion prediction especially in an area where there is leachate”.

1.2 Source Texts

The following source texts have been used as source material for this assessment

Document for Review

“The Report”

Hydrogeological and Surface Water Risk Assessment for Load Test Piling Location 2, Author, ALIGN (for HS2), Reference 1MC05-ALJ-EV-NOT-CS01_CLO1-100368, (2019)

Water Chemistry Prediction and Hydrogeology

“Drever”

J. I. Drever, “The Geochemistry of Natural Waters; Surface and Groundwater Environments, Third Edition”, Prentice-Hall Inc, New Jersey, USA. (1997)

“Snoeyink”

V. L. Snoeyink and D. Jenkins, “Water Chemistry”, John Wiley and Sons, New York. (1980)

Corrosion Prediction

“Tretherway”

K. R. Tretherway and J. Chamberlain, “Corrosion for Science and Engineering, Second Edition, Longman Publishing, Harlow, UK. (1995)

“Ahmad”

Z. Ahmad, “Principles of Corrosion Engineering and Corrosion Control”, Butterworth-Heinemann, Amsterdam, Netherlands. (2006)

“Fontana”

M. G. Fontana and N. D. Greene, “Corrosion Engineering”, McGraw-Hill Book Company, New York, USA. (1967)

“Talbot”

D. E. J. Talbot and J. D. R. Talbot, “Corrosion Science and Technology, Third Edition”, CRC Press, Boca Raton, USA. (2018)

Geology

“Bailey”

H. W. Bailey, “The Geology of the Newyears Green Area, Hillingdon, London, Commissioned Report. (March 2019)

1.3 Principles

The guiding principles of assessment of risk to water quality are laid out in the DEFRA guidelines, conveniently quoted in Section 3.8 of Appendix D of the report when referring to the use of polyacrylamide gel in the installation of the piles. These are (from “Defra, 2010, Environmental Permitting Environmental Permitting Guidance Groundwater Activities for the Environmental Permitting (England and Wales) Regulations 2010”).

“4.20 A reasonable measure would be one where the necessary technical precautions to prevent inputs to groundwater are technically feasible, not disproportionately costly and are within the control of the operator. Such measures could include; source control, alteration of discharge mechanism, treatment of the discharge, interception or diversion of contaminated groundwater, and diversion of the discharge to another disposal route. For new developments this could include simply not conducting the activity in a location where valuable groundwater resources would be particularly vulnerable to inputs of hazardous substances”

“4.27 It is the clear objective of the GWDD to prevent the input of all hazardous substances into groundwater. Clearly the interpretation of “prevent” is important in this context and is to be interpreted having regard to the Common Implementation Strategy guidance issued by the European Commission... This recognises that, whilst the aim is to avoid the introduction of hazardous substances into groundwater, it may not be technically feasible to stop all inputs of hazardous substances. Moreover some inputs are environmentally insignificant and in such instances the exemption noted in paragraph 3(3)(b) of Schedule 22 may be applied”

“(Additional note) For example, an environmentally insignificant input into groundwater would be one that could not have any effect in (i) any of the receptors noted in the Water Framework/GWDD definition of pollution (ii) the chemical status of a groundwater body; or

(iii) could give rise to a significant and sustained rising trend in the concentrations of pollutants in groundwater as noted in those directives”

It should also be noted that the underlying principle is governed by the statement “*It is the clear objective of the GWDD to prevent the input of all hazardous substances into groundwater*” and therefore if the issue of leachate from the Special Site of Contamination as a potential pollutant is to be discounted as insignificant that this comes under the condition. “*Moreover some inputs are environmentally insignificant and in such instances the exemption noted in paragraph 3(3)(b) of Schedule 22 may be applied.*” Thus the remit of this work effectively becomes to consider whether this exemption was correctly applied to a source of leachate from the Special Site of Contamination, or whether its omission was an oversight.

For a pollutant - leachate or otherwise - to be environmentally insignificant one of three primary conditions must be satisfied and shown in an assessment beyond reasonable doubt. There is also a secondary condition in case there is a negative reinforcement between B & C, for example if containment were to cause a change in chemical composition. These conditions are given in Table 1.

It should be noted that there is a hierarchy in these conditions. Thus if condition A for a particular pollutant is satisfied then conditions B, C and D do not apply. Similarly if condition B applies, then only condition D need also be considered. Finally it should be noted that if conditions A and B do not apply then a risk assessment for condition C must be done to determinate that exemption via the application of *paragraph 3(3)(b) of Schedule 22* is justified as quoted above. It should be noted here that the position stated as laid out in section 5.4 of the report issued by ALIGN for HS2 is that transport of pollutants is not possible since there are no vertical pathways after piling. This is condition B in Table 1.

2.1. Systems Review

The process whereby it can be determined whether the potential for leachate from the Special Site of Contamination should have been considered, is to apply the constraints of Table 1 in turn.

Condition A There is no source of environmental hazard

A full overview of the hydrogeological aspects of the Newyears Green Area is given by Bailey. The locations are given by document number, 1MC05-ALJ-TP-MAP-CS01_CL01-000002. The Special Site of Contamination (the Newyears Green Landfill site) is approximately 500 meters from the test piles. The report states

“3.4.3 The NYGB.....skirts the former Newyears Green landfill site in a culvert..... The NYGB is also fed by groundwater, giving high base flows in winter.....”

“4.2.9 There is the potential for the piles to introduce vertical pathways that could provide a route for contamination of the Chalk aquifer from surface/shallow sources of pollution derived from historical pollution within the wider area. Although the superficial sands and gravels may naturally be in hydraulic continuity with the Chalk, the degree of water movement may be limited by the presence of silts in the sand and gravels, in addition to the presence of putty chalk at the top of the weathered horizons. Any construction activity that could result in a preferential pathway between the sand and gravel and the chalk aquifer, particularly where the latter is well fissured, could result in greater water movement than is currently the case.” This could result in the introduction of pollutants into the chalk aquifer.”

The likely cause is that the Special Site of Contamination is the source of leachate pollution into the aquifer. Leachate is caused by the anaerobic digestion of organic material in buried covered-in domestic refuse sites and contains low-chain fatty acids, especially acetic acid together with mobilised toxic metals, micro-organic species and a high bioflux of anaerobic bacteria. As such it is a potential hazard to water courses and also a potential risk to corrosion of steels due to the presence of acidic material and stimulated microbially induced corrosion (MIC) of buried steel.

If an environmental pollution source is remote from the site of environmental assessment then condition A may still apply. It is noted here that the closure of Ickenham Pumphouse (approximately 1000 metres from the Special Site of Contamination) in 1997 was due to hydrogeological contamination arising from leached material attributed to the Newyears Green landfill site and this implies considerable mobility of leachate products over distance. The hydrogeological aspects are discussed in detail by Bailey. When considered alongside the potential (Section 3.4.3 in the report) for groundwater exchange of the Newyears Green Bourne (NYGB) with groundwater believed to be contaminated with leachate products, in the absence

of other evidence, this raises a possibility of faster transport of contaminants than simply by subsurface percolation. Interestingly the report also states.

“4.3.5 Indirect effects could occur if pollutants (particles or chemicals) migrate within groundwater which subsequently discharges at one of the water features listed above. This is not considered to be a significant risk due to the fact there are no major springs feeding the watercourses in this area, indicating that baseflow supporting these features is largely diffuse and from superficial deposits as much as from the Chalk and so less sensitive to any increased turbidity carried within it. In addition, the proposed works are largely to be undertaken in the chalk, with casing installed through the superficial deposits. As most interaction with surface water features will be via the superficial deposits, primarily the sand and gravel, no significant adverse effects via the diffuse flow pathway to surface water are anticipated.”

This specifically does not mention the Site of Special Contamination and might be an oversight.

Provisional Assessment: Condition A does not apply

Condition B There is no transport process available

The report states

“5.4.3 Literature review of the degradation (rusting) of steel pipes below the water table indicated a loss of steel thickness of the order of 1mm from both the inside and outside of the steel tubes over a 100 year period. Generation of rust would serve to reduce the rate of loss beyond that as the rust forms a protective layer that seals off the steel from the environment and also expands into the already compressed natural deposit to reduce the space available to form a preferential pathway.”

Since condition A (from above) is not satisfied, the assessment regarding the impact of leachate products and the effect of LTP2 relies entirely on the assumed permanent structural integrity of installations preventing vertical transport (Section 5.4) of the report. Section 5.4.3 raises considerable concerns. Namely

- (a) no record of the evidence (the literature relied upon is not quoted and thus cannot be independently reviewed)
- (b) corrosion prediction is essentially a time dependent phenomenon. The layperson can appreciate that a steel pipe in the ground will not rust in five minutes but is probably

not likely to survive one million years. It is thus obvious that corrosion prediction ultimately depends on the intended lifetime of the structure. In the report no lifetime description is given and although one could be implied (100 years) from the corrosion rate quoted, it must be noted here that the pollution source (Special Site of Contamination) has an infinite life as it is impractical for it to be removed, and the piles have no stated lifetime before removal or repair.

(c) the materials specifications (grade of steel etc.) are not given at all. It is impossible to assume a rate of corrosion rate without knowing the composition and processing history of the installed materials.

(d) the corrosion rate is given in Section 5.4.3 of the report as a steady state rate (one millimetre over a 100 year period) with no attribution. The phases of the corrosion product varies with the partial pressure of carbon dioxide which can vary within an aquifer and can occur as either iron oxides (for example magnetite) or iron carbonate (siderite) (see Drever, p144-148.). Thus to quote a single steady state corrosion rate seems simplistic. The rate of corrosion and the nature of the scale formed is notoriously vulnerable to varying local surface factors; very often heterogeneity of the metal-surface condition in terms of species supply stimulates electrochemical cells to accelerate corrosion. Bailey notes that the geological strata of the aquifers underlying the Newyears Green area exhibit heterogeneity, both in terms of solution features and in lithological barriers within the chalk. Thus even if a single value for steady state corrosion were applicable, to have a uniform corrosion rate at each point of the steel is very unlikely.

(f) mechanical integrity of corrosion products to fill space cannot not be assumed. When a metal transforms into a corrosion product it replaces the metal. Since the product almost always has a different relative density to the metal it means that there are internal stresses within the corrosion product. The parameter which describes this is the *Pilling-Bedworth Ratio*, (Fontana and Greene pp 347-349) originally conceived for metals and their oxides, but can be used for other corrosion products. When the Pilling-Bedworth Ratio (PB) is 1.0, the corrosion product occupies the same volume as the metal. If it is much less than 1.0 or greater than 1.0 the product is under internal stress and likely to spall from the metal surface leaving it unprotected and prone to corrosion. This effect

is progressively more likely the thicker is the corrosion layer. For magnetite the PB ratio is 2.1, and for siderite it is 4.3.

(g) corrosion lifecycle analysis takes into account the role of human factors - misdesign (giving rise differential aeration or local action cells), change of economic circumstances over the years (deferred maintenance, interruption of supply chain etc.), misoperation, in-service modification, and other factors over the lifetime of the product. Corrosion prediction is thus far too complicated to assume a steady state of corrosion over 100 years, even if the chemical kinetics of the system were constant. For more information on corrosion prediction and human factors the reader is referred to Chapter 11, "Corrosion Management", in Tretherway (pp 240-255) and Chapter 30, "Prediction of Corrosion Failures", in Talbot (pp 473-536). In situations where the confidence of lifecycle assessment due to corrosion is in doubt it is advisable to maintain a Masterfile with the information required (metal specifications, environmental assays and monitoring during installation, maintenance reports, modifications, change of circumstances, etc.) and review it periodically.

"5.4.5 It is therefore concluded that there is very limited potential for creation of such pathways in either the short or long term from piling activities. Mitigation is therefore not required....."

From the foregoing discussions, the statement "Mitigation is not required" cannot be justified

Provisional Assessment: Condition B for exemption cannot be not applied as it stands

Condition C The potential environmental damage is within prescribed limits

Since condition B does not apply, an assessment for the potential environmental damage of leachate in the aquifer should be done. An initial one can be carried out by modelling the chemical interactions of leachate with water chemistry using standard software designed for this (for example PHREEQC, freeware issued by the US Geological Survey). A more detailed description is given in Drever, Chapter 16 "Transport and Reaction Modelling", pp 353-378

Provisional Assessment: Task not yet done

Condition D There is no destructive synergy between B and C

Since leachate is of microbiological origin, there is always the possibility that the steel in the piles might exhibit accelerated corrosion due to stimulated Microbially Induced Corrosion (MIC). This needs to be assessed.

Provisional Assessment: Ongoing Issue to be Reviewed Regularly

3.0 Mitigation

As mentioned previously, from the regulations

“4.27 It is the clear objective of the GWDD to prevent the input of all hazardous substances into groundwater. Clearly the interpretation of “prevent” is important in this context and is to be interpreted having regard to the Common Implementation Strategy guidance issued by the European Commission... This recognises that, whilst the aim is to avoid the introduction of hazardous substances into groundwater, it may not be technically feasible to stop all inputs of hazardous substances. Moreover some inputs are environmentally insignificant and in such instances the exemption noted in paragraph 3(3)(b) of Schedule 22 may be applied”

Thus where the cost and disruptions to operations are minimal all reasonable steps should be taken to mitigate the risk. Deciding the optimal procedures that need to be implemented is beyond the scope of this present document. However it is sometimes prudent to deliberately construct a knowledge-based scheme to ensure that the issue is not (a) overlooked or omitted (the remit of this assessment) in the future and (b) that impact assessments are kept as up to date as possible. This type of tool is often of minimum cost as an exercise as it is largely desk-based and takes little time. A suggested example knowledge-based scheme for considering the impact of leachate ingress from the Special Site of Contamination and the effect of test piles LTP2 is given in Table 2.

Tables

Table 1. Systems Condition Hierarchy of Assessment of Environmental Hazard.

Primary

- A There is no source of environmental hazard
- B There is no transport process available
- C The potential environmental damage is within prescribed limits according to the “additional note” quoted above in Section 1.3 of this report

Secondary

- D There is no destructive synergy between B and C

Table 2. Suggested Knowledge-Based Mitigation.

<i>Structural Health Assessment and Prediction</i>		<i>Task</i>
1	Corrosion	Creation of a Masterfile
2	Cementitious Material	<i>Add to Masterfile if required</i>
<i>Geochemical Assessment</i>		
3	Initial Modelling	Use of PHREEQC or equivalent
4	Risk Assessment	Assessment of geochemical impact of leachate from model
5	Fate Modelling and Monitoring	<i>As required</i>
<i>Periodic Review</i>		
6	Assignment of Risk Lifetime (example 100 years)	From risk assessment
7	Review period (example every 10 years)	Notification of stakeholders of “state of play” of risk (no change/change etc.)

The Author

Dr Talbot has published on freshwater chemistry and on corrosion science and also on water quality with an emphasis of long term prediction of complicated systems. Corrosion expertise is best illustrated by the book “Corrosion Science and Technology, Third edition, D. E. J. Talbot and J. D. R. Talbot, CRC Press (550 pages), 2018. The author synopsis from this work reads

“James D R Talbot, PhD, graduated with a BSc ARCS from Imperial College London, and earned an MSc from Brunel University. He earned a PhD from the University of Reading for research on the physical chemistry of aqueous solutions and its application to natural waters. Dr Talbot worked at the River Laboratory of the Institute of Freshwater Ecology, Dorset, United Kingdom, where he assessed and predicted physical chemical changes occurring in river management. He has written papers on the speciation of solutes in natural waters. From 2000 to 2006 he was a lecturer in materials research chemistry at Cranfield University in the United Kingdom, where he specialized in the physicochemical aspects of corrosion, polymer science and process science. He is presently a chemist with interests in species-specific corrosion mechanisms. Dr Talbot is a current member of the Structure and Properties of Materials Committee of the Institute of Metals, Minerals and Mining. He has published in the fields of corrosion, polymer chemistry, solution chemistry and the chemistry of natural waters”

Water quality prediction experience is best illustrated by two reports where Dr Talbot was principal author for water quality assessment whilst employed at the NERC Institute of Freshwater Ecology. These are

“The NRA Severn-Thames Transfer Project: An Assessment of the Effect of Mixing of Source Waters on the Chemical Composition”, W. A. House, J. D. R. Talbot, J. T. Smith, R. Sadak and A. J. Lawlor, NERC Report RL/T0407307/1, (July 1996)

“The Severn-Thames Transfer Project: Phase II. Chemical Interactions of Transferred Sediment with the Host Water”, J. D. R. Talbot, W. A. House, G. P. Irons, K. J. Clarke and A. J. Lawlor, NERC Final Report. (July 1997).

These reports were commissioned by the Environment Agency and represent multi-parameter assessment and prediction of water quality for the proposed Severn to Thames transfer pipeline.



IN THE FIRST-TIER TRIBUNAL
GENERAL REGULATORY CHAMBER
(INFORMATION RIGHTS)

Appeal No: EA/2020/0088

ON APPEAL FROM:

The Information Commissioner's Decision Notice No: FER0848129

Dated: 6 January 2020

Appellant: Sarah Green

First Respondent: The Information Commissioner

Before
HH Judge Shanks
and
Suzanne Cosgrave and Paul Taylor

On the papers

Panel deliberations by video-conference on 14 October 2020

Subject matter:

Environmental Information Regulations 2004 (EIR)

Regulation 12(4)(d) (incomplete data)

DECISION

D2594

1. The Panel reviewed the papers and met by video-conference to determine this appeal on 14 October 2020.
2. Unfortunately, we did not feel that we have a full or clear enough picture to decide the case and in particular we were not clear whether the closed material supplied to us in fact includes the requested information or, if so, all of it. Given the case's clear importance and sensitivity, we consider that we should seek further information and, notwithstanding that the parties have consented to the matter being determined without one, hold a hearing at which we would be greatly assisted by the attendance of a member of the HS2 team with direct knowledge of the issues who could appear as a witness.
3. Further, and in any event, if reliance is to be placed on regs 12(5)(a) and/or 13 the Tribunal must be so informed at an early stage and details of the case given; it is not satisfactory for this to be left "hanging in the air".
4. We have therefore decided to adjourn further consideration of the case, to join HS2 Ltd as Second Respondent to the appeal and to issue the following directions. Such directions can be reviewed at any stage on application by any party (including HS2) or on the Tribunal's initiative.

HH Judge Shanks

16 October 2020

CASE MANAGEMENT DIRECTIONS

The Tribunal issues the following directions under the Tribunal Procedure Rules (First-tier Tribunal) (General Regulatory Chamber) Rules 2009 (in particular rules 5(3)(d) and (f), 9(1) and 15(1)(c), (d) and (g)):

- (1) Further consideration of this appeal is adjourned on the following basis.**
- (2) HS2 Ltd (HS2) is joined to the appeal as Second Respondent. A copy of the papers in the case and this order are to be served on them electronically by the Tribunal as soon as possible.**
- (3) HS2 shall provide the following information/documents to the Tribunal and the other parties in writing by 1600 on 27 November 2020:**
 - (a) the “risk assessment” documents referred to by the Environment Agency in its letter to Ms Green dated 1 June 2020 attached to her representations dated 12 October 2020;**
 - (b) an explanation of their understanding of the “imminent works” referred to in her request of 21 January 2019 (in particular whether they consider she was referring to imminent trial piling and details of such work)**
 - (c) a copy of what appears to be a blank document at p49 of the Closed Bundle or an explanation for the fact the page is blank;**
 - (d) a “time-line” in relation to piling and trial piling in the general area relevant to this appeal;**
 - (e) a legible map or plan showing the area involved in this appeal and the site of proposed piling or trial piling;**
 - (f) a copy of the letter answering the Commissioner’s letter of 16 December 2019 at D293 or, if it was not answered, the answer to the questions posed.**

In so far as HS2 considers that any such information/documents should be supplied on a “closed basis” it shall supply them only to the Commissioner and the Tribunal with a suitable application for a direction under rule 14(6).

- (4) HS2 may also serve a Response document provided it does so by 1600 on 20 November 2020 and, in any event, if it intends to rely on EIR regulation 12(5)(a) and/or 13, it shall so indicate and set out its case in a Response by that date.**

(5) Ms Green may reply to HS2's Response (if any) in writing by 1600 on 11 December 2020.

(6) A hearing is to be held in order to properly determine the appeal on a date to be arranged by the Tribunal office. It shall be listed by video link on the earliest suitable date after 11 January 2021. Ms Green and the Commissioner may attend such hearing. HS2 must attend the hearing by a representative and is to organise a witness with suitable knowledge of the issues who is able to provide oral evidence to the Tribunal in response to questions.

(7) The Commissioner shall liaise with the Tribunal in relation to the provision of bundles of documents for the hearing.

(8) The Tribunal may vary these directions in the light of developments on its own initiative and the parties (including HS2) may apply on notice to each other in writing to the Tribunal to vary them at any time.

HH Judge Shanks

16 October 2020

**IN THE FIRST TIER TRIBUNAL GENERAL REGULATORY CHAMBER
(INFORMATION RIGHTS)**

BETWEEN

SARAH GREEN

Appellant

And

(1) THE INFORMATION COMMISSIONER

First Respondent

(1) HIGH SPEED TWO (HS2) LIMITED

Second Respondent

**APPELLANT'S REPLY TO SECOND RESPONDENT'S
RESPONSE (EA/2020/0088)**

09 December 2020

Introduction

1. This document constitutes a reply to the Response and previously Withheld Information released on 27 November 2020 by Eversheds Sutherland on behalf of HS2 Ltd. The location of concern in this appeal is identified on map (**SG2 Ex1**). The base map is provided by the Options document page 8, part of the Withheld Information. The location of the large landfill site and proximity to the Load Test Pile Site (LTP site) have been added to the map which illustrates the HS2 Colne Valley Viaduct. The Load Test Pile location 2 (LTP2) works are at the eastern end of the viaduct. Viaduct Pier 1 and the southern embankment are planned for this location.

1. The LTP2 site is situated between two inner source protection zones SPZ(1)s for public

drinking water, the Ickenham source to the east being already contaminated by the landfill and the Blackford source to the north west (currently) producing good quality water. See **(SG2 Ex2)**.

1. The Appellant recognises the recent efforts made by the Second Respondent in providing the Updated Information. This has informed the Appellant in this reply to state the reasons why non-disclosure of some of the Updated Information at the time of First Request was not in the public interest.

Risk Assessments

1. The Second Respondent's response in paragraph 2 restates the primary questions to be answered in the request :
 - a. "what risk assessments have taken place, of the potential increased risk to controlled waters as a result of imminent works by HS2 contractors along the Newyears Green Bourne and surrounding wetland?"
 - b. "Are any of the risk assessments independent from the developers (HS2) and where are the risk assessment accessible to the public?"

§ Essentially the issues are a) risk assessment (both the methodology and the individual site circumstances) in the vicinity of the Newyears Green Bourne, and b) independent peer review to satisfy due process.

1. In the submission 12 October 2020 (Appeal reference: EA2020:0088) the grounds of the Appeal are set out in the last paragraph. Specifically:

§ *In conclusion it would be helpful for the three documents supplied to the Commissioner in December 2019 to be released. These documents can then be given to an independent water expert who can see whether any information regarding the landfill site, the leachate or corrosion predictions can help inform the public debate.....Sufficient information is needed from HS2 to show how the aquifer and water supplies will be protected.....*

1. This case centres on concerns upon the risk of contamination travelling from the landfill vertically into the aquifer. The relevant extract covering this in the Original Withheld Information, is in the Options for mitigation of the effects of piling on groundwater; Align working for HS2 (first issued 30 April 2018),(The

Options document). Of particular interest is the literature review of data to assess the implications of long term pile decay on the creation of preferential vertical pathways. This can be found in paragraphs 7.2.11 to 7.2.14 and are the main criteria for the assessment methodology to determine if a long term containment, to prevent breach of the aquifer due to piling, is achieved.

1. This assessment is of concern in the vicinity of the Newyears Green Bourne for the following reasons:

1. Clean natural water. In the above mentioned assessment, 7.2.11 there is a presupposition that predictions of structural integrity for the vertical pathway is for natural soils and clean freshwater. This is not necessarily the case for the LTP2 site, at Harvil Road. It is known that contamination from the landfill site has entered the main water bodies in this vicinity, as evidenced by the closure of the Ickenham Pumping Station. This does not appear to be factored into the risk assessment.

1. Extrapolation. The life cycle analysis data of Oshsaki referenced in 7.2.12 is extrapolated by NASSPA over 90 years: The risk assessment (paragraph 7.2.13) then performs another extrapolation of this extrapolation to another 900 years. This must be regarded as an inherently risky strategy in underwriting structural integrity and is not a basis for a proper risk assessment.

1. Other matters relating to the Risk Assessment. These include but are not limited to the issues described in paragraph 7.2.12 such as pitting corrosion with relation to containment (perforation) and issues described in paragraph 7.2.11 stagnant conditions (as relating to proximity of the piles to leachate in the future). These can be inherently self-accelerating and life-limiting matters for containment breach.

1. Lack of Priority of Ickenham Public water supply. The public water supply boreholes at the Ickenham pumping station are licensed to abstract 12.5 million litres per day however they have been closed since 1997 due to the contamination from the New Years Green Landfill site. The Align Options document appears to consider the Ickenham source as a closed source and not in need to prioritising for groundwater protection for the future.

1. Unhelpful redactions. 5.1.5 and 5.1.6 on page 12 of the Align Options document appears to be talking about the Ickenham supply but this cannot be confirmed due to redaction of phrases.

- 5.1.5The SPZs will also change as abstraction rates change, and in the case of those in the area of the viaduct, are considerably different as the

.....although it is still licensed.

- 5.1.6It is possible that the very eastern end of the viaduct is just insideSPZ1, although as

1. **(SG2 Ex2)** This map compiled from official source protection mapping and HS2 maps, shows that the LTP2 site is partly within the contaminated Ickenham SPZ(1) which is still licensed and is the area of concern of this Appeal.

1. Unhelpful redactions continue 7.2.4 (page 20 of the Options document) states:

- The assessment has been completed for theabstraction and assumes thatis shut down andThis will affect the current mapped SPZs (shown in Figure 4) and for the purposes of the assessment it is assumed that the SPZs for andchange such that SPZ1 becomes SPZ2 becomes SPZ3.

1. The HS2 released (redacted) documents appear to minimise concern for groundwater at the Ickenham source and in the Ickenham source protection zone. The diagram on page 39 of the Options document; Viaduct Permanent Piling – Mitigation Options, appears to describe Ickenham as ‘no longer in use due to contamination’.

1. This is not the assumption of others including the London Borough of Hillingdon, in their Contaminated Land Inspection Strategy 2013-2018, page 48, reproduced at **(SG2 Ex3)**. This states that LBH are engaged in voluntary remedial works, monitoring water quality in a wide borehole network (around the New Years Green Landfill). An objective of the work is to reopen a closed public water resource in collaboration with Affinity Water Ltd. The UK Government has made a commitment to bring the Mid Chilterns Chalk aquifer to good water quality by 2027 and this includes the Ickenham source. This is evidenced at **(SG2 Ex4)**.

Restriction of public debate

1. Affinity Water Limited are the Water Undertaker. They have received an unlimited financial indemnity from the Department of Transport to cover financial losses for impacts on the Mid Chilterns Chalk aquifer. Affinity Water Limited and HS2 Limited have signed a Non-Disclosure-Agreement as evidenced in **(SG2 Ex5)**. This does not help public debate.

Local concern

1. Hillingdon residents appreciate the clean aquifer water supplied to our taps by Affinity Water Limited and are concerned for the long term quality of the drinking water due to HS2. LBH remain the responsible authority for the landfill,

and pollution of controlled waters from landfill leachate. LBH has raised these issues with HS2 periodically over the last 7 years.

2. The New Years Green Landfill, the contaminated groundwater plume and LBH Determination as Special Site of Contamination are mentioned in HS2 2013 LONDON-WEST MIDLANDS ENVIRONMENTAL STATEMENT: Volume 5 – Technical Appendix CFA7 – Colne Valley; Water resources assessment (WR-002-007). Link at **(SG2 Ex6)**.

- 3.3.9 According to the LBH report (2011)¹ there is an area of groundwater contamination in the Chalk aquifer associated with a closed landfill north of the route near Ickenham. A contaminated groundwater plume that has elevated concentrations of ammonium is present to the north of the Proposed Scheme.
- 1. Although the LBH Report on the New Years Green Landfill Site is mentioned in the above 2013 HS2 Environmental Statement, no further action is advised or taken with regard to this.
- 1. Evidence of the oversight of the groundwater contamination from the landfill is found in the Originally Withheld Information; Align: Groundwater Assessment for Construction Tasks – Piling at the Colne Valley Viaduct.
- at: 4.2.13 page 6, the document reads:
- ‘The only known area of significant groundwater contamination along the route of the viaduct is associated with an historical spill of chlorinated solvents at Denham laboratories which is currently being remediated with a pump and treat system.’
- This is incorrect

Conclusion

1. It must be concluded, that the fitness for purpose of the released risk assessment (for example in assessing environmental damage in the event of a future significant flux of leachate from the landfill site) is of concern. It is also likely that the general methodology of assessment (rather than the site specific issues), Options document paragraphs 7.2.11 to 7.2.14 ought to have been completed at the time of the original request and certainly at the time the Options document was given to the Information Commissioner, when the Information Commissioner made his decision. In this case this part of the information was not subject to exemption by Regulation 12(4) (d) of EIR and could have been released. Withholding the methodology for piling at LTP2 site, Harvil Road, meant that the Appellant or other citizens did not have timely possession of it and the Environment Agency and/or other regulators could not be made aware of

deficiencies in sections 7.2.11 to 7.2.14 before the work was started.

2. It is noted that in the **Directions** of 16 October 2020 that the Second Respondent is ordered (Case Management Direction (6)) *“to provide a witness with suitable knowledge of the issues who is able to provide oral evidence to the Tribunal in response to questions.”*
3. This affords the opportunity to independently peer review the technical matters of the case in open court. This contributes significantly to satisfaction of the issue of paragraph 4, item (b) of this submission, and is welcomed by the Appellant.
4. The questions that should be put to the witness include, but are not confined to
 - (a) To justify the assertion (paragraph’s 7.2.11 to 7.2.14) that structural integrity of piles over an indeterminate lifetime can be inferred from data on clean natural waters in all cases, including where there is a known source of pollution (the landfill site).
 - (b) To justify the application of an extrapolation to 1000 years over and above an existing extrapolation to 100 years.
 - (c) To answer whether the proximity of the landfill site as potential risk in the piling future integrity was ever raised with the regulators.
 - (d) In the knowledge of the closeness of the piling operations (LTP2) to the New Years Green Landfill site, whether there are any plans for long-term monitoring or review of legacy matters.
 - (e) To explain how the company’s Environmental Management System (EMS), (14001) manages any potential destructive synergy between new HS2 installations and existing contamination sites in proximity.

Sarah Green response to HS2 response (SG2)

Exhibits

Ex1 HS2 map of viaduct with locations of New Years Green Landfill and the LTP Site

Ex2 map of inner source protections zones in relation to the LTP2 site.

Ex3 London Borough of Hillingdon, Contaminated Land Inspection Strategy 2013-2018, page 48; New Years Green Landfill Site.

Ex4 [Pollution of drinking water: the Mid-Chilterns Chalk groundwater body \(Thames River Basin District, UK06\) and the UK's obligations under EU drinking water legislation](#)

europa.eu)

Ex5 Evidence of Affinity Water Limited – HS2 Limited: NDA

Ex6 Link to

[Vol5 CFA7 water resources and flood risk assessment Data appendix WR-002-007](#)
nationalarchives.gov.uk page 16 Appendix WR-002-007 3.3.9 the LBH report.

Contents – Water Vole/wildlife crimes – Denham Country Park, Bucks. Nov.2020

The documents in this pdf relate to the current work by HS2 in Denham Country Park and accompany the most recent report sent as a separate document – *Denham Country Park Water Voles Update 10.11.20 (1).pdf*

Contents:

Ecological Survey – Water Voles, undertaken by Robert Mileto – 6.9.2020

Denham Country Park Water Voles 6.9.20.pdf

Ecologist response to DC Heffernan - 23.10.2020

Denham Country Park Water Voles Response 23.10.20.pdf

Correspondence with police, Sarah Green and ecologist Robert Mileto – 29.10.2020

Gmail - Fwd_ Crime reference 6021993_20 URGENT - Water vole - HS2
29.10.20.pdf

Concerns raised by ecologist Robert Mileto – 5.11.2020

HS2 Ltd and Protected Species, a Statement of Concern 5.11.20.pdf

Letter to Grant Shapps from Lord Hague – 6.11.2020

LordHague toGrantShapps 6.11.20.jpeg



SPECIALISTS IN: HABITAT AND SPECIES SURVEY ECOLOGICAL IMPACT ASSESSMENT MANAGEMENT PLANNING AND ADVICE

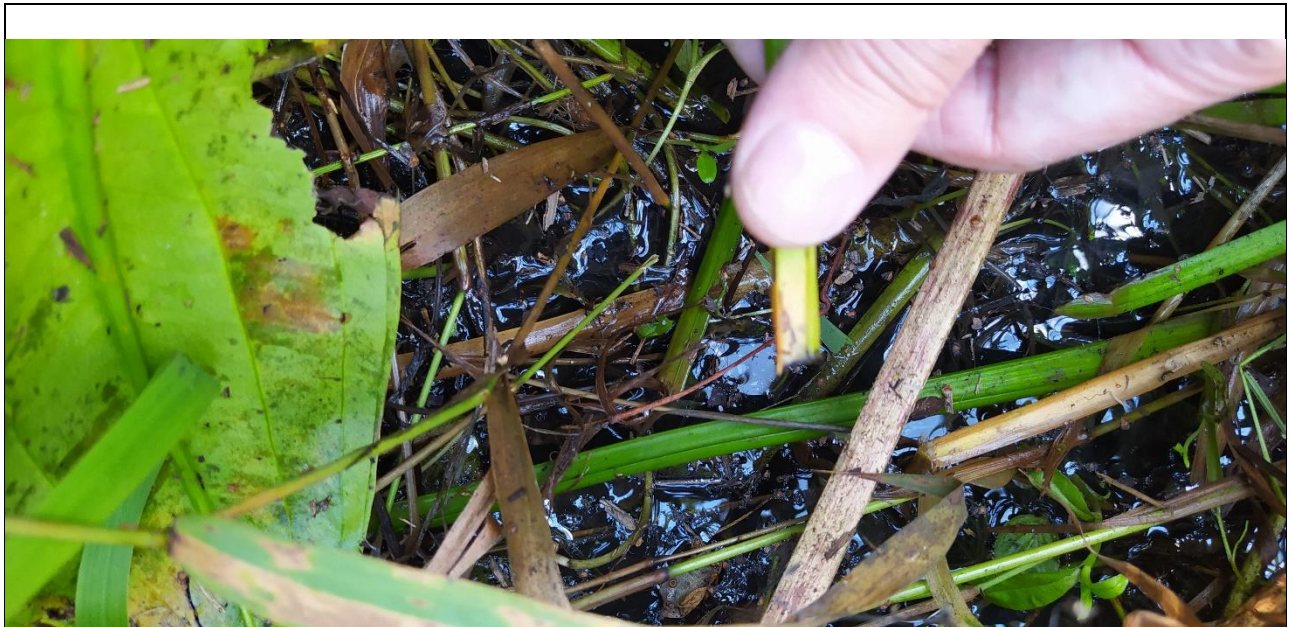
Introduction

There are various generic records for water vole at Denham County Park and the wider Colne Valley Regional Park (eg: <https://canalrivertrust.org.uk/places-to-visit/denham> and <https://www.colnevalleypark.org.uk/preventing-water-voles-from-being-extinct-project/> both accessed September 2020). However, records for specific localities do not appear to be readily available. In order to gather site/location specific data on water vole presence in the County Park a survey for characteristic signs of presence was undertaken by Robert Mileto on the 5th September 2020. Robert has been an independent ecological consultant for nearly 30 years and has undertaken many such surveys. The survey methodology essentially followed the Water Vole Conservation Handbook (Strachan et al., 2011).

Results

Evidence of water vole presence found included faeces, feeding stations, burrows and runs. Of these, all four were found in a wet ditch at TQ0525386964 (mapped [here](#)). Photos of the faeces and distinctively chewed vegetation are presented below. These are considered to be definitive of water vole presence at this location. Burrows and runs were also present around TQ0527086926. Whilst such evidence cannot be taken as definitive, it is considered highly likely water voles are also present at this latter location and also likely elsewhere in suitable habitat within the Country Park.

Photos



Distinctively chewed vegetation (water-plantain stem) in situ

Photos (cont.)



Several distinctively chewed pieces of vegetation (water-plantain stem) collected from the locality



Distinctively shaped and coloured faeces placed on leaf for better contrast

Legal protection afforded to water vole

This is detailed in plain English at <https://www.gov.uk/guidance/water-voles-protection-surveys-and-licences>, accessed September 2020. In brief, this government guidance states: "The water vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 and is a priority conservation species.

You're breaking the law if you:

- intentionally capture, kill or injure water voles
- damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care)
- disturb them in a place of shelter or protection (on purpose or by not taking enough care)."

Recommendations

In line with the gov.uk guidance signposted above, since water voles have been shown to be present, works to areas where there are water voles should be avoided or an offence is highly likely. Mitigation is possible, but will require a conservation licence from Natural England which would need to be informed by detailed survey following the latest guidance (Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London).

Since water voles have now been shown to be present in the locality, works in nearby areas of suitable habitat should be avoided until survey (or re-survey) to guidance (as cited above) has been carried out. To do otherwise is considered to be negligent and so an offence "by not taking enough care" as noted above is considered likely.

Robert Mileto
6th September 2020.

ECO TECH
ECOLOGICAL CONSULTANCY



SPECIALISTS IN: HABITAT AND SPECIES SURVEY ECOLOGICAL IMPACT ASSESSMENT MANAGEMENT PLANNING AND ADVICE

Dear DC Heffernan

Thank you for your response to Ms Green which has been passed to me for comment.

I am pleased to hear the allegations have been investigated. However, please be aware that you appear to have been misadvised or misled. The law in this context is complex but a reasonable summary is given at <https://www.gov.uk/guidance/water-voles-protection-surveys-and-licences>.

You will note the following from that guidance:

- a) The guidance is from Natural England and Defra on behalf of the Government.
- b) The guidance is primarily for planning authorities but the law applies to any development.

It states: "The water vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 and is a priority conservation species."

You're breaking the law if you:

- intentionally capture, kill or injure water voles
- damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care)
- disturb them in a place of shelter or protection (on purpose or by not taking enough care)

On that same webpage, detailed survey is advised is if "distribution and historical records suggest they may be present", as we know is the case at this Denham Country Park and nearby.

Therefore, to not follow this government guidance but instead rely on a method statement, toolbox talk and ecologist being present is surely "not taking enough care" which is an offence should any damage or disturbance occur.

Below is photographic evidence (geolocated using 'what three words') of such damage and destruction of the same place of shelter where water vole evidence was definitively recorded on the 5th September (as per my report of the 6th September) and in which disturbance and damage has clearly occurred. Water vole evidence is never far from a water vole burrow (=place of shelter).

In summary, I maintain that HS2 have clearly not taken enough care as they have not even come close to following the government guidance in relation to the detailed survey required before any potentially damaging or disturbing works commence. This was also the conclusion of my September report. I have no personal axe to grind here, it's just that, as a professional ecologist, I wish to see due diligence followed and the law adhered to, just as I do so in my own licenced and licenseable work.

Please feel free to send this to the specialist at Natural England (NE - although the guidance signposted is from them). I am also willing to meet the Police, NE and any representative from HS2 online or on site to discuss the issue.

Regards

Rob Mileto

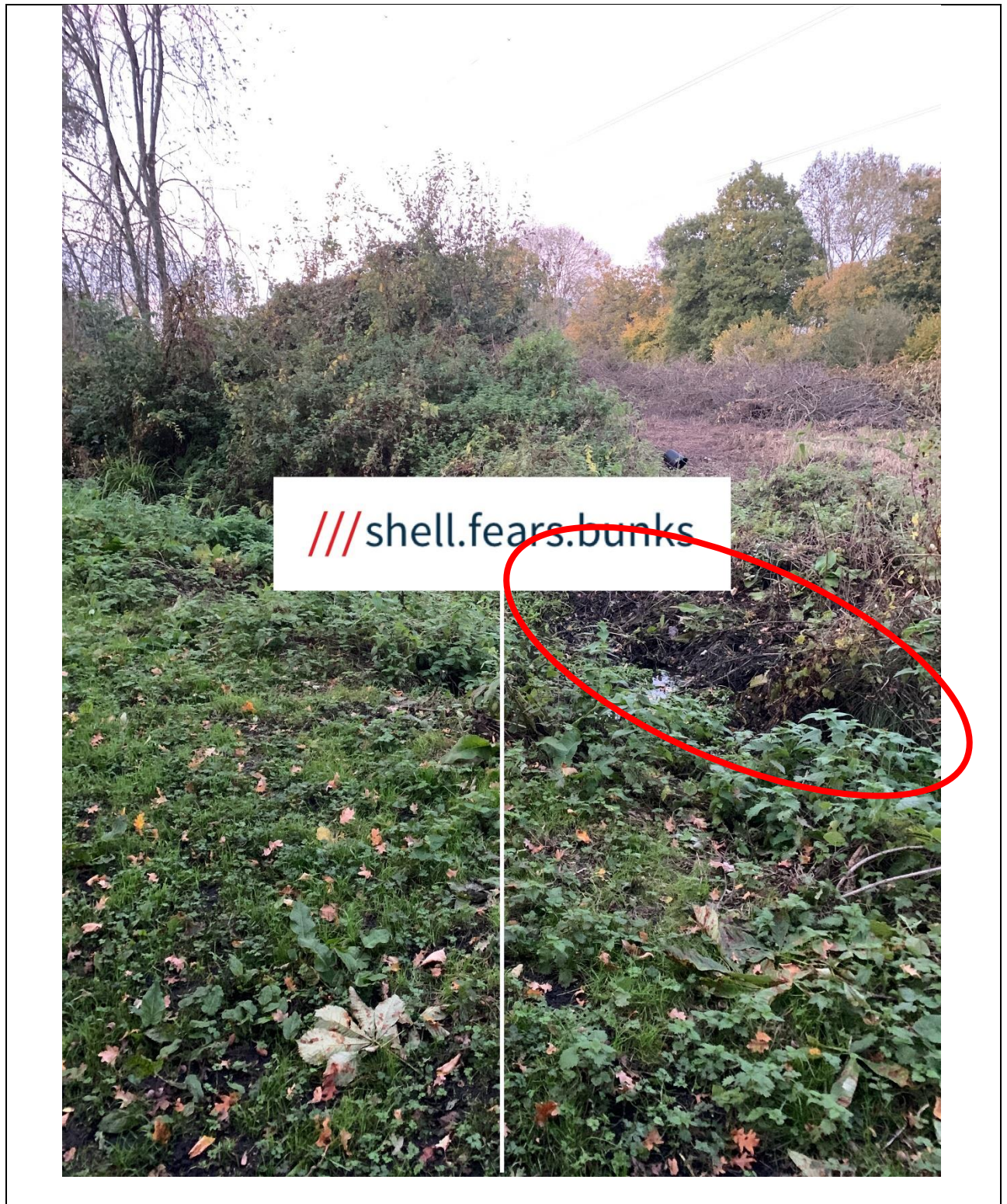
CONSULTANT: ROBERT MILETO BSc MSc
61 COPTHORNE ROAD SHREWSBURY SHROPSHIRE SY3 8NW TEL. (01743) 236096
robm@eco-tech.co.uk

D2611

Photos

The what 3 words in the photo (shell fears bunks) correspond exactly to the grid reference given in my September report (TQ0525386964). This can be checked at <https://gridreferencefinder.com/>. So, in short, where I found water vole evidence recently and where this damage and disturbance has occurred are exactly the same place.

The area ringed in red is where the water vole signs were found. It was thickly vegetated when I visited with vegetation to some 2m beyond it also intact. The removal of vegetation and the trampling of where the water vole evidence was has happened since my first visit.









Robert Mileto <comprm@googlemail.com>

Fwd: Crime reference 6021993/20 URGENT - Water vole - HS2

Rob <robm@eco-tech.co.uk>

29 October 2020 at 17:03

To: Claire.Heffernan@met.police.uk, Andrew.Mchugh@met.police.uk, Sarah Green - Denham <arthurdailytrips@gmail.com>

[illegible]

<XXXXXXXXXXXXXXXXXXXXXZ

Dear Clare

I was forwarded your response to Sarah Green for comment.

I hope my comments in green below are self-explanatory. However, I am acutely aware that some specialist knowledge is required, so feel free to call if needs be and I will try hard to clarify.

In summary, HS2/NG/their ecologists appear to have provided a lot of words, but I see inadequate detail of three key things:

- a) Was the latest survey guidance followed which would be required as due diligence to minimise the risk of an offence. To do otherwise would appear to be reckless (not taking enough care)
- b) Where exactly were any water vole signs found (and thus burrows would be nearby – see why below) despite inadequate survey.
- c) What works have subsequently occurred in those known water vole locations and nearby, and exactly what substantial measures were taken to avoid damage or destruction of burrows.

I happen to be working in the area next week sometime, so a site visit of interested parties would be beneficial I think.

Regards

Rob Mileto

ECO TECH

Ecological Consultancy

01743 236096

07929 037409

Dear Ms Green,

Please rest assured that the allegations of crimes against wildlife made by you and others are investigated by the Metropolitan Police.

Enquiries take time and although this may not be the response desired we have to evaluate all the evidence available to us.

I have consulted again with Natural England and it is noted that there is no water vole licence in place. However if HS2/National Grid feel that they can continue under a non-licenced method statement under the supervision of on-site ecologists then that is their decision.

Mr Mileto's report states that there was the presence of droppings, latrines and burrows at the location indicating the presence of water vole. He provides photos of the nibbled grass and droppings. A photo of any burrows could have been helpful. This is not conclusive proof of the

proof of the D2615

water voles.

National Grid's and HS2 ecologist surveys showed the possible presence of water vole in the form of droppings, nibbled foliage, latrines but no burrows.

I trust the two quotations below demonstrate that where there are signs of water voles, then burrows are present in the near vicinity, whether they are found or not. This is common knowledge amongst ecologists

"Male voles live along about 130 metres of water bank, while females have ranges about 70 metres long. They deposit distinctive black, shiny faeces in latrines. Latrines occur throughout and at the edges of their range during the breeding season."

(from the authoritative Mammal Society website at <https://www.mammal.org.uk/species-hub/full-species-hub/discover-mammals/species-water-vole/>

And

"Water voles form colonies during the breeding season with females setting up non-overlapping territories, ranging from 30-150m in length along a watercourse, marked by latrine sites."

From the Joint Nature Conservation Committee website at <https://data.jncc.gov.uk/data/485b119e-ccb9-479f-b181-0904e212b434/CSM-Mammals-2004.pdf> {pg11}), .

HS2 and National Grid have worked to the EcoW statement, conducting frequent surveys in order to ascertain the actual physical presence of water vole or their burrows. To date none of these surveys have offered conclusive proof that water vole or their habitat are located or in the vicinity, therefore the work has proceeded lawfully. An ecologist is on-site at all times and surveys are continually carried out to look for water vole. To date none have been sighted. There is no evidence of the destruction, damage or obstruction of access of any burrow, disturbance of any water vole while they are using such a place or of any harm water vole.

Below is a brief timeline of the measures that have been taken:

In all cases the statements in quotation marks from the following standard references:

(1) <https://www.gov.uk/guidance/water-voles-protection-surveys-and-licences>

(2) The Water Vole Mitigation Handbook <https://assets.sussexwildlifetrust.org.uk/water-vole-mitigation-guidance-2016.pdf>

In 2019 independent ecologists undertook an assessment of ecological constraints for the HS2/National Grid ZC overhead line realignment scheme, including a desk study and assessment of habitats and species based on pre-existing data from the HS2 Environmental Statement/the EWC. The ecologist subsequently provided an assessment of known or potential ecological constraints to the ZC scheme. The draft report was issued to National Grid in June 2019, at which point the existing data from HS2/the EWC identified no records of water vole within the vicinity of the ZC scheme, but the presence of suitable habitat was noted by the ecologists.

From (1) "Survey for water voles if:

distribution and historical records suggest they may be present"

The assessment was supplemented by the results of an ecological walkover survey during February 2019 to inform ground investigation (GI) works associated with the ZC scheme. This included a habitat assessment/search for evidence of water voles on accessible watercourses/waterbodies within or close to working areas for the ZC scheme GI or main works. No evidence of water voles, burrows or other evidence of their presence was recorded, but suitable habitat for water voles was identified.

A single survey in February 2019 is inadequate as below:

From (1) "Surveys should be done between April and October by an ecologist experienced in water vole ecology."

Please note the plural. The latest guidance on adequate survey states:

(2) "In most cases, water vole field sign surveys should include searches for field signs undertaken over at least two separate visits conducted sufficiently far apart to account for variations in habitat suitability across the season. One survey should be undertaken in the first half of the season

(between mid-April/early May and the end of June) and one in the second half of the season (between July and September); the survey visits should be undertaken at least two months apart.” (pg 2)

And

“The likely absence of water voles from a site should not be concluded unless two survey visits have been completed at appropriate times of year (as above)...” (pg 18)

A further walkover survey for evidence of water vole at the ZC scheme watercourse crossing locations along the haul road route took place in June 2019. No evidence of water vole was recorded, but the survey was partially constrained by very tall/dense bankside vegetation.

As single survey in June 2019 is inadequate as below (especially if “partially constrained” which is not further quantified):

(2) “In most cases, water vole field sign surveys should include searches for field signs undertaken over at least two separate visits conducted sufficiently far apart to account for variations in habitat suitability across the season. One survey should be undertaken in the first half of the season (between mid-April/early May and the end of June) and one in the second half of the season (between July and September); the survey visits should be undertaken at least two months apart.”

(pg 2)

And

“The likely absence of water voles from a site should not be concluded unless two survey visits have been completed at appropriate times of year (as above)...” (pg 18)

Please also note that “Very tall/dense bankside vegetation” is ideal water vole habitat and best practice is to apply the precautionary principle and assume presence, if adequate survey cannot be carried out

Records of water vole evidence in the area were added to the EWC’s online GIS database in July 2019, namely on watercourses/waterbodies south of tower ZC047. The report was updated to reflect this and was issued to National Grid in July 2019.

This appears to contradict what is said above about no water vole evidence being found in 2019. Can the nature and location of the evidence added to the database in July 2019 please be clarified.

A general ecological method statement for the ZC scheme was issued to National Grid in October 2019, which identified known or potential ecological constraints at National Grid tower locations and other working areas, along with associated mitigation requirements (i.e. pre-works checks, supervision of works by an ecologist, and sensitive working methods). The method statement reflected the known presence of water vole close to tower ZC047 and associated haul road access, and the potential presence of water vole at other working areas closer to suitable habitat.

This appears to contradict what is said above about no water vole evidence being found in 2019. Can the nature and location of the evidence added to the database in July 2019 please be clarified.

During October 2019, in advance of the vegetation clearance and other works being undertaken in the area in autumn/winter 2019, another survey of aquatic habitats and fauna along a 500m stretch of the River Colne centred on the location of a proposed bridge (approximate grid reference TQ0513386582) to enable haul road access. This survey was expanded to include a search for evidence of water vole at all water course crossing points (including an appropriate buffer) along the remainder of the haul road route, including the stretch between towers ZC047-049. No evidence of water vole was recorded during this survey.

It is not clear if this survey included the area where water vole signs were found in September 2020 or the area for “Records of water vole evidence in the area were added to the EWC’s online GIS database in July 2019”. If not, then the survey undertaken could be considered inadequate – moreover:

(2) “In most cases, water vole field sign surveys should include searches for field signs undertaken over at least two separate visits conducted sufficiently far apart to account for variations in habitat suitability across the season. One survey should be undertaken in the first half of the season (between mid-April/early May and the end of June) and one in the second half of the season

(between July and September); the survey visits should be undertaken at least two months apart.” (pg 2)

And

“The likely absence of water voles from a site should not be concluded unless two survey visits have been completed at appropriate times of year (as above)...” (pg 18)

Can the precise location and extent of this survey please be clarified.

The vegetation clearance works in autumn/winter 2019 were undertaken following the aforementioned general ecological method statement, under the supervision of ecologists acting as ‘ecological clerk of works (ECoW)’. In accordance with the method statement, the ecologist supervising the works made site personnel aware of the potential ecological constraints, undertook a search of the working area for evidence of any legally protected/notable/invasive species prior to works commencing, and supervised works as they progressed. The supervising ecologists maintained an ECoW diary. No evidence of water vole was recorded during works in areas of suitable habitat, which is reflected in entries in the ECoW diary.

It is not clear if this survey included the area where water vole signs were found in September 2020. If not, then the survey undertaken could be considered inadequate

Can the precise location and extent of this work please be clarified and if water vole evidence had previously been found within it

Should water voles be present in the vicinity of the working area, they would be most vulnerable to harm/disturbance during works to install bridges and other watercourse crossings. When watercourse crossing points are due to be installed in 2020, the works will be supervised by an ecologist, who will undertake a pre-works check of bankside habitats (including phased clearance of dense vegetation where necessary to aid visual inspections). If a water vole burrow or other evidence of their presence is identified at or close to the working area, works would halt and the project ecologist would advise on appropriate mitigation (either non-licensed or licensed, as appropriate)."

Without a map showing the location and extent of the various surveys undertaken before the start of works, it is not possible to assess if the surveys were adequate or indeed undertaken at all the working areas. If not, then I suggest likely recklessness (not taking enough care).

An ecological walkover survey undertaken in January 2020 identified evidence of water vole activity at a pond south of tower ZC047 (central grid reference approximately TQ 05186 87447); where the EWC identified evidence of water vole in 2019 (as noted above). As far as I can see, no detail of the evidence is 'noted above' for the EWC identifying evidence in 2019 is given – Can the extent and nature of the evidence found in 2019 please be fully clarified along with any subsequent works and survey that has occurred in that same area or within some 50m of it.

The walkover survey found evidence of water vole droppings/latrines/runs/footprints around the margins of the pond, and a potential dropping at the edge of an adjoining ditch ~30m west of the pond. No evidence of water vole burrows was recorded. The walkover survey encompassed the aforementioned pond and adjoining ditches, the nearby Flagmoor ditch which runs parallel to the existing OHL, and an ~5m buffer surrounding waterbodies/watercourses. The existing Ecological Method Statement for the scheme was reviewed following the results of the walkover survey; to confirm that the existing control measures pertaining to water voles remained relevant and appropriate. The results of the ecological walkover survey prompted a detailed water vole survey to be undertaken 'in season' during April 2020.

Subsequently an 'in season' detailed water vole survey was conducted in April 2020. The evidence recorded consisted of droppings/latrines/runs/footprints, but no burrows were found.

I am concerned that no detail is given as to the location of the evidence found and the subsequent suggested actions. Can these please be requested as there is no detailed evidence given here that appropriate avoidance measures were either documented or acted on.

Moreover (2) "In most cases, water vole field sign surveys should include searches for field signs undertaken over at least two separate visits conducted sufficiently far apart to account for variations in habitat suitability across the season. One survey should be undertaken in the first half of the season (between mid-April/early May and the end of June) and one in the second half of the

season (between July and September); the survey visits should be undertaken at least two months apart.” (pg 2)

And

“The likely absence of water voles from a site should not be concluded unless two survey visits have been completed at appropriate times of year (as above)...” (pg 18)

An updated water vole survey of habitats associated with ZC047-049 will be undertaken in October 2020. Results will be reported and working methods/mitigation amended if/where required. It should be noted that as previous survey work by other EWCs has shown evidence of water vole in this area, Wood are regularly undertaking updating surveys and proceeding on a precautionary basis under a method statement that reflects the known presence of water vole.

Can the method statement please be requested as there is no detailed evidence given here that appropriate avoidance measures are included within it or that they have been appropriately acted upon

Also it is unclear if this October 2020 survey is in the same or a different location to that of (the out of season) January 2020

I have emailed HS2 requesting the outcome of the survey mentioned that was due to be conducted in October 2020 and still await this.

I also intend to contact Mr Mileto to see if he is available to accompany on a visit to show exactly where he found the burrows and other evidence.

However, as mentioned, there is no evidence of the destruction, damage or obstruction of access of any burrow, disturbance of any water vole while they are using such a place or of any harm water vole and therefore no offences are apparent.

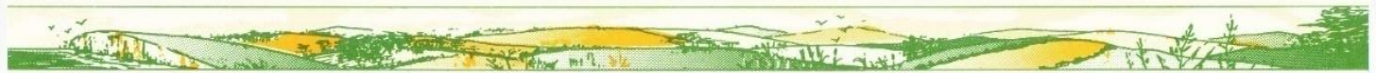
As mentioned above, but bears repeating:

a) Where definite evidence is found (= droppings/latrine sites) burrows are invariably close by even if not found.

And

b) You are better placed to know the validity of this, but my understanding is that the evidence of a crime does not always have to be completely definitive. If, on the balance of probabilities (or beyond reasonable doubt) an offence was highly likely to have been committed, then a prosecution can still be progressed. In this case, my concern was that survey work and the method statement was inadequate and so works may have been “reckless” (not taken enough care). This is why I feel there are still key questions to be adequately answered.

[Quoted text hidden]



Personal Statement of Concern

This statement details the apparent failure of due diligence by HS2 Ltd* in their approach to the clearance of woodlands and other habitats that harbour protected species. As a result, offences under various wildlife protection Acts are likely to have been committed. Furthermore, such offences are likely to continue to be committed without corrective action by HS2 Ltd. A lack of transparency from HS2 Ltd is hindering prompt investigation of such likely offences.

The concerns expressed within this statement are shared by three major conservation organisations and their own statement is appended to the end of my own. I have also discussed the matter with professional experts at the ecological consultancy Bioscan UK Limited and Nevis Eco Services and can confirm a position of common concern.

Rob Mileto
5th November 2020

*For clarity HS2 Ltd is used throughout, but includes other associated contactors that are involved in enabling works, such as National Grid in relation to Denham Country Park

Summary

I present two examples of where, as a consequence of inadequate survey effort by HS2 Ltd contrary to industry standards and Government advice, HS2 Ltd's actions have resulted in likely or actual wildlife crimes being committed. HS2 Ltd has, despite requests, to date not provided substantive evidence to the contrary. Both cases are being investigated by the police.

In order to bring clarity to this issue and assist the police, wider Government and the concerned public in coming to a view as to whether offences are being committed, there is a need for transparency and full disclosure of survey information. Currently, FOI requests are the only route to obtain information on which sites have or have not been surveyed in accordance with Government advice or which protected species licences have been obtained. This is significantly hindering the concerned public, the police and in some instances Natural England from identifying where actions may be illegal, or where they are being carried out in accordance with properly evidenced and enacted licences.

I find it inconceivable that the first two sites researched and presented here are the only ones along the HS2 Phase 1 route where these issues are pertinent. HS2 Ltd is actively clearing other sites where the same or similar apparent failures are highly likely to apply.

This strongly suggests a clear disregard by HS2 Ltd for due diligence (as represented by Government advice) and for the efforts and measures required to avoid, or at least minimise, the risk of breaching wildlife legislation throughout enabling and construction works. It would surely be expected that a Government-backed scheme of this magnitude would use 'gold standard' survey for each and every site where protected species may be present.

Desired outcomes

In order to prevent or minimise the risk of a wildlife crime, it is considered essential that, as matter of urgency, HS2 Ltd:

- Makes public all survey information relating to protected species along the Phase 1 route in a timely manner (as is required during the planning process for far less potentially damaging schemes).
Providing such information will alleviate the concerns of the public and wildlife conservation organisations about strongly suspected wildlife crimes and lack of due diligence taken to prevent these. It will also save police time and resources investigating likely offences.
- Pauses all works on or near habitats that commonly support protected species (including woodland, mature trees, wetland, within 50m of ponds, caves and buildings) until such information has been issued, independently audited and found to be in order.
Until there has been a thorough and transparent independent audit of the adequacy of surveys and how these have informed the construction of Phase One and enabling works, continuation may constitute deliberate, intentional or reckless breaches of applicable laws.

Government advice on protected species

The law for each species or species group is complex, but is adequately summarised in the Government standing advice at [here](#)

It includes the statement:

“Protected species standing advice:

tells you which survey methods need to be used to detect whether a protected species is present and how they use the site”

Whilst this standing advice is aimed at local authorities, it is pertinent to all work (including enabling work) undertaken for HS2 Ltd, as the High Speed Rail (London - West Midlands) Act 2017 has not provided any exemption for HS2 in relation to wildlife legislation pertaining to protected species.

Below, for two protected species/species group I provide evidence of:

- a) Where survey is either clearly lacking and/or has not been undertaken to the levels required by the Government advice to detect likely presence/likely absence of protected species.
- b) A clear lack of transparency to make public all post-2014 survey reports used to detect likely presence/likely absence of protected species. For planning applications all such information is made public as and when it is produced. Comments on, and concerns about wildlife crimes, can thus be addressed. It is therefore in the public interest that HS2 Ltd also do this. This would alleviate the concerns of the public and many conservation bodies about alleged wildlife crimes and lack of due diligence. Currently, this is leading to use of police time in investigating possible offences, many of which are being reported or are expected.

Below I highlight key elements of the Government’s advice, and where it has not been followed:

Bats

[here](#)

Some key statements are:

“You can only use some methods at certain times of year - timings are explained in this guide. Read the [bat surveys guidance](#) by The Bat Conservation Trust.

The local planning authority will need to see the survey reports and mitigation plans to check they meet the standards required.

You may be asked for more surveys if:

- habitats or other information (such as local records) show that it's very likely that bats are present
- the bats' use of the habitat varies between seasons
- your survey was done outside of the bats' active season (May to September)
- your survey was done in unusual weather conditions like a particularly bad storm
- your planning or licence applications are based on poor data, unless you can show the area is not very important to bats

You should assess how likely it is that concentrations of bats will be present at the site and how they'll use it."

At Jones' Hill Wood (grid reference SP8872 0444) and nearby, the HS2 Ltd project EIA (available at [here](#)) states:

"2.3.4 Access was not possible to all sites and accessibility was also intermittent. This resulted in inconsistent and incomplete survey sets of some features which required emergence surveys. In addition, where landowners did not permit trees to be climbed or tagged, this prevented trees being fully assessed and/or identified as requiring further surveys.

2.3.5 The hybrid Bill programme imposed a time constraint on these already seasonally confined and weather-dependent surveys, which meant that a full set of emergence surveys (which can involve up to three visits) on all 2,000 identified tree features was not possible."

And for the general area (note that Jones' Hill Wood is not mentioned by name, so it is reasonable to conclude that none of the surveys below relate specifically to trees within Jones' Hill Wood. Nevertheless, they are provided as examples of serious inadequacy):

2.4.97 Of the 54 trees assessed as having moderate or high potential to support roosting bats:

- 19 were subject to climbing surveys;
- as a result, no trees were re-assessed as having of low or negligible potential to support roosting bats;
- the remaining trees were not climbed owing to the constraints listed in sections 1.41 and 1.42.

This means 61% of trees (33 trees) were not subject to a climbing survey

2.4.98 Six trees of the 19 trees climbed were subject to a total of six emergence surveys resulting in four confirmed roosts being identified. The remaining 12 trees could not be climbed due to access restrictions at some sites and trees which were not safe to be climbed as discussed in sections 1.4.1 to 1.4.5 in the constraints and limitations section.

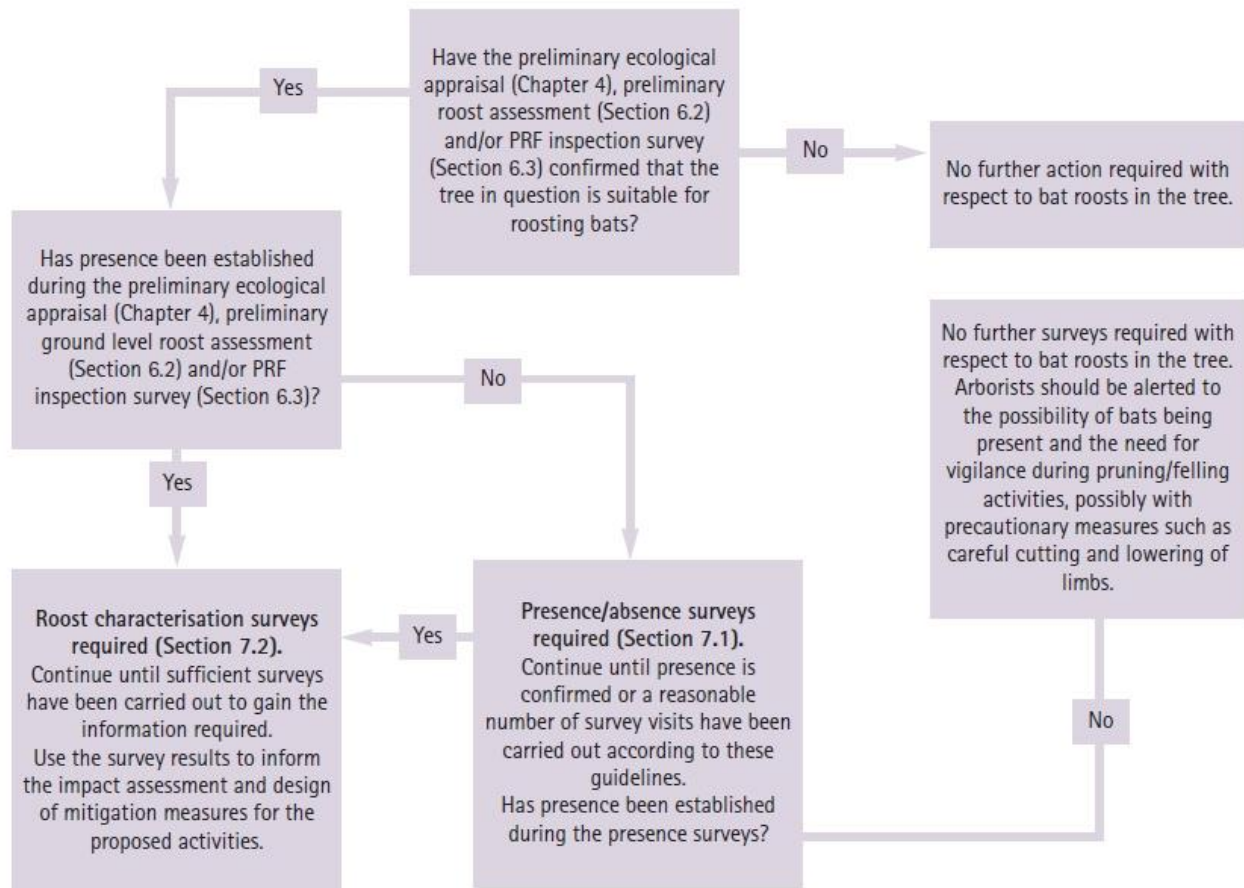
This means that 68% of high potential trees (13 trees) were not subject to emergence surveys, where the advice requires 2 such surveys and one re-entry survey. Moreover, given 4 of the 6 trees that were subject to emergence surveys were confirmed as roosts it is highly likely that some 9 high potential trees held protected roost that were not identified. I believe this is clear evidence of negligence and seems effectively acknowledged as such [here](#).

2.4.99 No backtracking surveys were undertaken in this area."

Given other survey methods fell well short of the advice standards, I believe failure to not undertake any backtracking surveys is clear evidence of negligence and seems effectively acknowledged as such [here](#).

It should be noted that this site is known to have significant numbers of trees with high roosting potential and the Government signposted guidance for such circumstances is copied below for ease of reference.

Figure 6.1 Flow chart illustrating the process used to establish which types of survey are necessary for roosts in trees.



Moreover, the felling was, I believe, due to commence in October 2020 (given the presence of a large machine used to clear trees) and was only stopped by prompt public action and the timely intervention of the police.

I also remain very concerned that very bright security lighting has been put in place since the 1st October 2020, which on the balance of probabilities has already caused reckless disturbance to bats at roost, which is an offence. Photos of this are included below.



Water vole

The Government advice is [here](#)

Some key statements are:

“Survey for water voles if...:

- distribution and historical records suggest they may be present

Surveys should be done between April and October by an ecologist experienced in water vole ecology.

Aim to avoid negative effects by:

- avoiding works to areas where there are water voles
- avoiding habitat fragmentation and isolation by ensuring connectivity of habitat
- limiting damage to water vole habitat

If a protected species licence is needed the application needs to follow the above standing advice and this additional licensing information.”

At Denham Country Park (grid reference TQ0525 8696) and surrounding areas, the project EIA (available [here](#)) states:

“...due to limitations on land access within the available survey timeframe, it was not possible to carry out two survey visits to each site between April and September or to allow a two month interval between surveys at all sites. This resulted in a restricted survey season with consequently fewer opportunities for encountering water vole field signs.”

This seems clear evidence of negligence. Correspondence with the Metropolitan Police is on-going, but it would appear that more recent surveys are equally lacking. Moreover, work is continuing unlicensed despite water vole evidence being found by the enabling development's own ecologists.

“Areas suitable for water vole were also identified along a section of the River Colne (020-WV1-027006) where the habitat provided areas of good food availability, low disturbance and good connectivity.”

Given the previously quoted statement, this seems clear evidence of negligence.

“4.4.6 BBOWT reported water vole activity on the River Misbourne in 2010 at Denham. No specific locations for activity were provided, but the stretch of the River Misbourne at Denham is approximately 0.3km away from land required for construction of the Proposed Scheme at its closest point. Water vole has also been recorded over 75 times along the Grand Union Canal and the connecting habitats of lakes, ponds and ditches further south of the A40. The most recent records were from 2009 and range between 7m and 0.96km from land required for the construction of the Proposed Scheme. Mink (Neovision vision) has been recorded on 15 occasions, most recently in 2009, within 0.6km south-west of land required for construction of the Proposed Scheme. It is possible that a small number of water voles from nearby colonies are infrequently using the land that will be required for the construction of the Proposed Scheme. There remains the possibility that in future, water voles may disperse into this area and colonise the watercourses and water bodies if this habitat remains suitable, but it would require mink to be eradicated.”

The presence of mink does not preclude the presence of water vole, as has been demonstrated by the independent September 2020 survey where water vole evidence was found within 10 minutes of the survey commencing (see below). This seems clear evidence of negligence and misdirection.

It should be noted that this site, despite having historical records of water vole and a publicly available independent survey report dated 6th September 2020 (available [here](#)) showing clear signs of water vole presence, was subject to unlicensed works soon after that caused

significant damage to the same location where water vole were recorded. This likely offence was reported to the Metropolitan Police via an additional statement dated 23rd October 2020 (available [here](#)). More clear evidence of water vole presence was recorded on the 4th November within some 10m of ongoing clearance for enabling works. These will be submitted to the police in due course.

Since wholly inadequate survey appears to have been undertaken (even though it is a requirement under Government advice), I remain very concerned that, on the balance of probabilities:

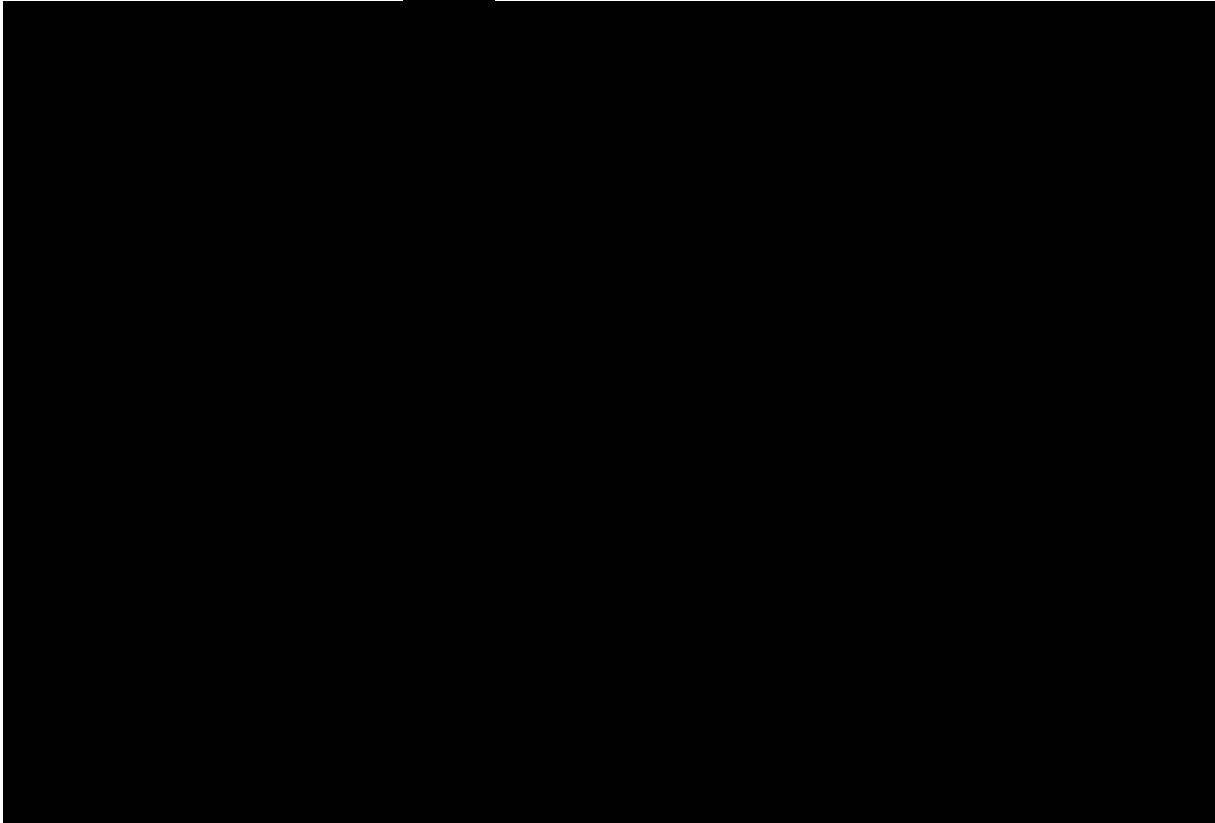
- ongoing works will cause reckless disturbance to water voles in their places of shelter (burrows).
- ongoing works will cause reckless damage, destruction or blocking of access to water vole

places of shelter (burrows).

These are both offences under the Wildlife and Countryside Act 1981 (as amended).



giving
nature
a home



The Rt. Hon. the Lord Hague of Richmond



6th November 2020

Dear Grant,

Due to my interest in wildlife issues I have been approached with evidence of relevant laws not necessarily being applied in the construction of HS2. This particularly relates to an apparent failure of due diligence in the clearing of woodlands and other habitats that harbour protected species. I am sure you will agree that the law should be upheld and that there should be sufficient transparency for that to be ascertained. Please see the attached document from Rob Mileto, of Eco Tech Ecological Consultancy, whose concerns are shared as you can see by the RSPB, the Wildlife Trusts, and the Woodland Trust.

I would be most grateful for your assurance that all relevant conservation and wildlife laws will be observed and that HS2 Ltd will be required to demonstrate best practice in environmental management.

Yours ever,
William

Rt Hon Grant Schapps

House of Lords · London · SW1A 0PW

D2628



SPECIALISTS IN: HABITAT AND SPECIES SURVEY ECOLOGICAL IMPACT ASSESSMENT MANAGEMENT PLANNING AND ADVICE

Denham Country Park – Water Vole Update
10th November 2020

Further to my report dated 6th September 2020 (the “report”) and my letter response to DC Heffernan dated 23rd October 2020 (the “letter”), this short update details my findings of a site visit undertaken on the 4th November 2020.

The report detailed water vole signs at grid reference TQ0525386964. The letter detailed evidence of damage at that same site (what 3 words shell.fears.bunks) related to enabling works for HS2 Ltd.

This update provides further evidence of water vole presence within some 10m of the (original) report evidence and also within some 10m of on-going enabling works. This further evidence includes a burrow.

Given that water vole live in colonies (see for example [here](#)), on the balance of probabilities, it is considered inconceivable that the clearance works that are also photographed in this update have not:

- damaged, destroyed or blocked access to their places of shelter or protection (on purpose or by not taking enough care);
- disturbed them in a place of shelter or protection (on purpose or by not taking enough care);

Both of which are offences under the Wildlife and Countryside Act 1981.

In summary, this is further evidence that the ongoing works have clearly not taken enough care, as fully detailed in my original report and letter.

Photos

Photos 1 to 3 were taken at grid reference TQ0524786975. This corresponds to some 10m from the grid reference given in my September (original) report (TQ0525386964). This can be checked at <https://gridreferencefinder.com/> .

Photo 4 show the clearance works very nearby. It is understood that additional clearance work is planned north of this, where the habitat is still intact and water vole signs have already been identified (as per information supplied to the Metropolitan Police by ecologists working for the contactors). As noted above, it is considered inconceivable that existing and planned clearance and construction works have not caused, or will not cause, offences under the Wildlife and Countryside Act 1981, as detailed in the original report and letter.



Photo 1 Water vole droppings



Photo 2 Distinctively chewed vegetation (characteristic of water vole feeding)



Photo 3 Run and burrow within 1m of photos 1 and 2



Photo 4 Clearance work example – red arrow indicates the approximate location of water vole evidence in the original report; blue arrow indicates the approximate location of water vole evidence in this update

Email sent to HS2 Ltd from Ecologist Robert Mileto – Friday 19th February 2021

From: Rob <robm@eco-tech.co.uk>

Sent: 19 February 2021 17:09

To: HS2enquiries@hs2.org.uk <HS2enquiries@hs2.org.uk>

Subject: Fwd: HS2-Bucks-planning application:realignment of the River Colne.

Dear HS2

In relation to the Earthworks associated with the realignment of the River Colne. | The River Colne Commencing at A Point 640 Metres North-west Of The Bridge Carrying Moorfield Road Over That River and Terminating at A Point 160 Metres North Of Its Commencement.

<https://pa.chilternandsouthbucks.gov.uk/online-applications/applicationDetails.do?activeTab=documents&keyVal=QNUDO1ESHD900>

Please advise:

a) If you are legally obliged to prepare an Environmental Impact Assessment (EIA) or an Ecological Impact Assessment (EcIA), as would normally be required by a development of this scale at such a location.

b) If not, please advise how you will ensure

- i) Protected species legislation is adhered to (given there appear to have been no surveys) and
- ii) how net gain will be achieved (again given no survey of the current biodiversity value) and
- iii) Under precisely what legislation the need for an EIA or EcIA is removed as a requirement for this proposal?

Thanks

Rob Mileto

ECO TECH

Ecological Consultancy

01743 236096

07929 037409

D2634

APPENDIX 3

A selection of notes relevant and referred to in the Planning Application from the Environmental Impact Assessment – these were originally selected for Denham Country Park specifically but also refer to the Colne River and surrounding area generally/

Environmental Impact Assessment – HS2 phase 1:

London-West Midland Environmental Assessment

Volume 2 - Community Forum Area report CFA7 - Colne Valley

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/397888/Vol_2_CFA_7_Colne_Valley.pdf

(Notes include reference or page number.)

7.3.4 Denham Country Park LNR (19ha) – is partly within the land required for construction of the Proposed Scheme (...).

7.3.17 There is an area of grassland that was not surveyed to the south of the Chiltern Main Line, between the River Colne and Grand Union Canal. This habitat is in both the Mid Colne Valley SMI and Denham Country Park LNR but is not mentioned in the citation of either site. However, as part of the precautionary assessment, it is assumed the grassland is species-rich and thus a habitat of principal importance. It is considered to be of up to district/borough value.

7.4.4 There will be loss of breeding bird habitat and disturbance of breeding birds in the Mid Colne Valley SSSI. Loss of habitat will lead to a reduction of suitable nesting sites and therefore, over the five year construction period, a reduction in the abundance of birds within the SSSI, such as BoCC – red or amber list species such as song thrush, bullfinch and reed bunting, and also reed warbler, sedge warbler and garden warbler. Breeding birds using woodland and wetland in the SSSI will also be disturbed during construction by an increase in noise, vibration, light, and the increased presence of people and movement within land required for construction of the Proposed Scheme.

7.4.6 The combined effects of woodland and wetland loss and decrease in numbers of breeding birds will result in a permanent adverse impact on the integrity of the Mid Colne Valley SSSI that will be significant at the national level.

7.4.12 About 0.9ha (19%) of the River Colne east of Denham BNS is within land required for construction of the Proposed Scheme where National Grid overhead power lines will be realigned. This will result in a permanent adverse effect on the integrity of site that is significant at the county/metropolitan level.

7.4.13 Denham Country Park LNR will also be affected during construction. Approximately 10ha (52%) of this site is within land required for construction of the Proposed Scheme where National Grid overhead power lines will be realigned. This extent of habitat loss is a high proportion of the LNR and it will result in a permanent adverse effect on site integrity that is significant at the district/borough level.

Colne River Valley LCA

9.3.5 (...) This LCA is located within green belt and contains a number of conservation areas, namely South Harefield (Widewater Lock Conservation Area) and Denham Country Park LNR (Denham Lock Conservation Area). These factors contribute to make this a regionally valued LCA. Therefore, this area has a high sensitivity to change.

9.3.7 The two main settlements within this LCA are Denham Green and Denham which take up a large proportion of the landscape. Woodland cover is found between the urban fringe of Denham Green and the Colne Valley water bodies, creating a sense of localised seclusion.

(...) The LCA is located within green belt and includes part of Denham Country Park LNR and Conservation Area. These factors contribute to make this a regionally valued landscape character. Therefore, this area has a high sensitivity to change.

p.105 - Designated sites of National and local importance

- The River Colne east of Denham BNS (4.6ha) – designated for river habitat including aquatic plants and fauna. This site lies partly in land required for construction of the Proposed Scheme, south of the Chiltern Main Line where National Grid overhead power lines will be realigned;

p.110

Birds –

importance:National.

Breeding birds associated with habitats in the Mid Colne Valley SSSI (includes Broadwater Lake, Korda Lake, Harefield Moor Lake, Tilehouse South Lake and a stretch of the River Colne)

Field surveys recorded 82 bird species during the breeding season.

Bats

Daubenton's bat population associated with the River Colne Valley (including commuting routes along the River Colne, foraging and roosts).

High levels of activity for Daubenton's bat were recorded along the River Colne that indicates that the river is an important foraging site and commuting route for this bat species. The high numbers and timing of the activity and direction of flight indicate there is likely to be a large maternity roost(s) close by, mostly likely to the south- east.

((There have, I believe, been at least 8 species of bats recognised roosting in the area))

CFA Report – Colne Valley/No7 | Ecology

7.4.29 The viaduct and overhead power line diversion will cross habitats known to be used by otters along the River Colne and at several of the lakes. (...) As part of the precautionary assessment, it is assumed that a breeding holt may be present within land

required for construction of the Proposed Scheme. Loss of an otter holt could result in an adverse effect on conservation status that would be significant at up to the county/metropolitan level.

7.4.30 The viaduct and overhead power line diversion will cross habitats that may be used by water vole. As part of the precautionary assessment, it is assumed that loss of these habitats could result in a permanent adverse effect on conservation status that is significant up to the county/metropolitan level.

7.4.31 If present, construction could remove habitat suitable for great crested newt from two locations:

- • the realignment of the National Grid overhead power lines may remove ponds and ditches in the vicinity of Uxbridge Golf Course and Buckinghamshire Golf Course; and
- • the proposed sustainable placement area will remove four ponds and surrounding grassland east of South Harefield.

7.4.32 The conservation status of great crested newt depends on the availability of breeding ponds, foraging habitat and features for hibernating in close proximity to each other. The loss of possible breeding ponds and surrounding terrestrial habitat could reduce the viability of the breeding population or fragment a metapopulation, if present, resulting in reduced genetic diversity. These impacts could result in a permanent adverse effect on the conservation status of each population that would be significant at up to the county/metropolitan level.

7.4.33 If present, common reptile species could be affected in three locations:

- the Colne valley viaduct satellite compounds may remove grassland with scrub in the vicinity of Moorhall Road;
- the realignment of the National Grid overhead power lines may remove grassland with scrub within Uxbridge Golf Course; and
- temporary material stockpiling along woodland edge habitats between Harvil Road and Harefield No. 2 Lake may remove grassland with scrub.

7.4.34 Habitat loss may reduce foraging and sheltering opportunities below that which is required to maintain viable populations in both locations. These impacts could, therefore, result in a permanent adverse effect on the conservation status of reptiles that is significant at up to the county/metropolitan level at each location.

7.4.35 The removal or disturbance of habitat features that are utilised by bats during breeding, hibernation or migrating between roosts is considered to have the potential to result in adverse effects on the bat populations or assemblages during construction.

7.4.37 The mosaic of woodland, wet woodland, flowing water and open water that will be lost is an optimal foraging resource and the River Colne is an important commuting feature.

BRIEFING NOTE TO PARLIAMENT - PARLIAMENT WAS MISLED BY HS2 LTD IN 2017

These notes have been researched and prepared by Drew James

HS2 – Environmental Statement - accompanying the High Speed (Crewe – Manchester) Bill for the Phase 2b Western Leg

SUMMARY

HS2's Environmental Statement (the "ES") for phase 2b (Crewe to Manchester) is **not fit for purpose**

On 6th September 2017 the Under Secretary of State for Transport (Paul Maynard) advised the House of Commons that light detection and ranging surveys had been completed by HS2 Ltd for phase 2b. He promised the Commons that **"there is more work to be done to further assess geological risks and to provide suitable mitigations for them. HS2 Ltd plans to carry out early geotechnical investigation work in the mid-Cheshire area to gather more advanced survey information"**

A rail track, not least a high speed rail track, cannot be constructed unless there is ground stability. The tolerance for movement is low. This is obvious. It beggars belief that after four years of waiting the ES does not address this, the most important pre-condition for the project to proceed.

In September 2021 HS2 announced it was **to start searching for a team of specialist ground investigation contractors** for phase 2b. The £300 million contract will include the appointment of a lead ground investigation partner, supported by up to ten specialist ground investigation contractors. **This is the work that Mr Maynard promised four years earlier in 2017.** This geotechnical investigation work was supposed to be done "early", i.e. before the Hybrid Bill was debated in Parliament. **To pass the Phase 2b Hybrid Bill now will place the cart before the horse.**

The planned route for HS2 north of Crewe passes through 22.5 km of geologically unstable land known as the Cheshire Brinefields. It is an area prone to subsidence, with a history of salt mining and brine extraction dating back to Roman times. Parliament has patiently waited for the outcome of the geotechnical investigation work promised by Mr Maynard. It cannot now sanction the eye-watering expense of construction north of Crewe because there is a total absence of reliable independently sourced geophysical data within the ES.

HS2 Ltd is unable to present Parliament with a cost/risk analysis. Without hard data on ground stability Parliament cannot determine the true cost of construction or make a judgment on whether or not HS2 will operate free of track subsidence and expensive service interruptions.

The ES makes cursory mention of subsidence and proposes mitigation by way of raising the track onto embankments. This high-cost solution has been promoted in the hope that it'll do. Mr Maynard's "advanced survey information" is absent from the ES. Now, in 2022 Parliament is being asked to write HS2 a blank cheque to cover whatever subsidence hazard is encountered in the construction phase.

Given the tight squeeze on budgets, the changing geo-political situation and the looming cost of climate change transition to green energy Parliament must exercise its fiduciary duty and place a hold on Phase 2b until HS2 has done its homework and costings properly.

This briefing Note has 8 Parts:

1 – Introduction - The Parliamentary Debate of 6 th September 2017	PAGE 2 & 3
2 – The Wardell Armstrong Report	PAGE 4
3 - HS2 Ltd advice to Government of July 2017	PAGE 4
4 - HS2 announces geotechnical investigation will not commence until late in 2022	PAGE 5 - 7
5 – Are any specific salt dissolution risks considered in the ES?	PAGE 8
6 – What does the Environment Statement say with reference to salt mining?	PAGE 9 – 11
7 – Background Note : The Holford Brinefield	PAGE 12 - 15
8 – Background Note : Three Viaducts over River Dane and Trent & Mersey Canal	PAGE 16 - 22

1 – Introduction - The Parliamentary Debate of 6th September 2017 – HS2 Phase 2b

Antionette Sandbach M.P. (Eddisbury . Con) opened the Commons debate with these words:

“The proposed route of HS2 through my constituency of Eddisbury will not only cause significant environmental damage and noise disruption to many areas, but come at a particularly high cost to the taxpayer because of the **unique geotechnical challenges of routing HS2 through an area of current and historical salt mining and across land with a long history of significant subsidence risk.**” and said later:

“TerraConsult Ltd produced an independent geotechnical report on the proposed (2016) change of route and concluded that there would be an increase of 11% in the route length over wet rockhead. **HS2’s lead ground engineer has called the ground conditions in the Cheshire salt area “spicy”**, referring to the engineering challenges of building a high-speed railway line in that area, and HS2’s own consultant, Wardell Armstrong, recognises the risks of building HS2 through Eddisbury in its report on salt-related ground instability”

“Alarminglly, before making route choice proposals, HS2 had not done any detailed ground surveys for use as a baseline to track ground movement. As far as I am aware, those surveys have still not been carried out.”

“A deep worry is that HS2 does not seem to be disclosing the appropriate level of technical reports to experts who are meant to be giving expert opinion highlighting proper concerns which are right to express at this stage in advance of a serious engineering project. One such expert is one of the most eminent professors in the field of salt subsidence, who wrote to the Secretary of State more than 18 months ago to emphasise that ground-level surveys ought to be started now, so that HS2 can identify subsidence and problem areas.”

Esther McVey M.P. (Tatton. Con) said:

“My constituency, too, is full of brine fields and wells where salt has dissolved and been pumped out, which creates craters underground. Ros Todhunter, a geologist who lives in Lostock Green in my constituency, has also discussed land movement. **Railway engineers talk about permitted movement of 5 mm, but we could be looking at 0.5 metres.** As my hon. Friend has said, there should be discussions with people who know the land well—their families have farmed this land for hundreds of years and they know about problems under the earth that, I am afraid, the Government have so far not looked into.”

The (then) Under-Secretary of State for Transport Paul Maynard M.P. replied:

“As someone born and bred in Northwich I have been brought up on photos of houses that have collapsed because of subsidence, and have suddenly disappeared into the Bull Ring in the town centre. I am more than aware of those issues; but I reassure hon. Members that we are seeking to manage them actively”

“HS2 has commissioned a specialist mining engineer, in consultation with the Cheshire Brine Subsidence Compensation Board, to undertake a study on the consultation route using available data such as those from the British Geological Survey, the salt industry and local authorities. Those light detection and ranging surveys have been completed by HS2 Ltd, identifying the wet rockhead features to which my Hon. Friend referred near to the route, and will be considered with other LIDAR surveys”

“I recognise that this is a sensitive and complex section of the route. There is more work to be done to further assess geological risks and to provide suitable mitigations for them. HS2 Ltd plans to carry out early geotechnical investigation work in the mid-Cheshire area to gather more advanced survey information.”

Note: Mr Maynard was no doubt relying on misleading statements in the HS2 report published two months earlier – see Part 3 below

2 – The Wardell Armstrong Report

Wardell Armstrong are HS2's mineral and engineering consultants. The Sunday Times newspaper saw a copy of their report concerning "salt-related ground stability" and noted in an article of 29th January 2017 that **it says HS2 will be at "high risk" of ground collapse**. This is the report referred to by Mr Maynard in the Commons debate of September 2017 (above)

The report noted the line will cross Britain's biggest active salt mine, at Winsford, where digging is planned to extend its workings, and **warns of "the potential for the rapid development of significant movement" in this area under the weight and vibration of trains, "with a consequent risk rating as high"**. It identifies five more salt-mining or brine extraction sites near the town.

3 –HS2 Ltd's advice to Government : July 2017

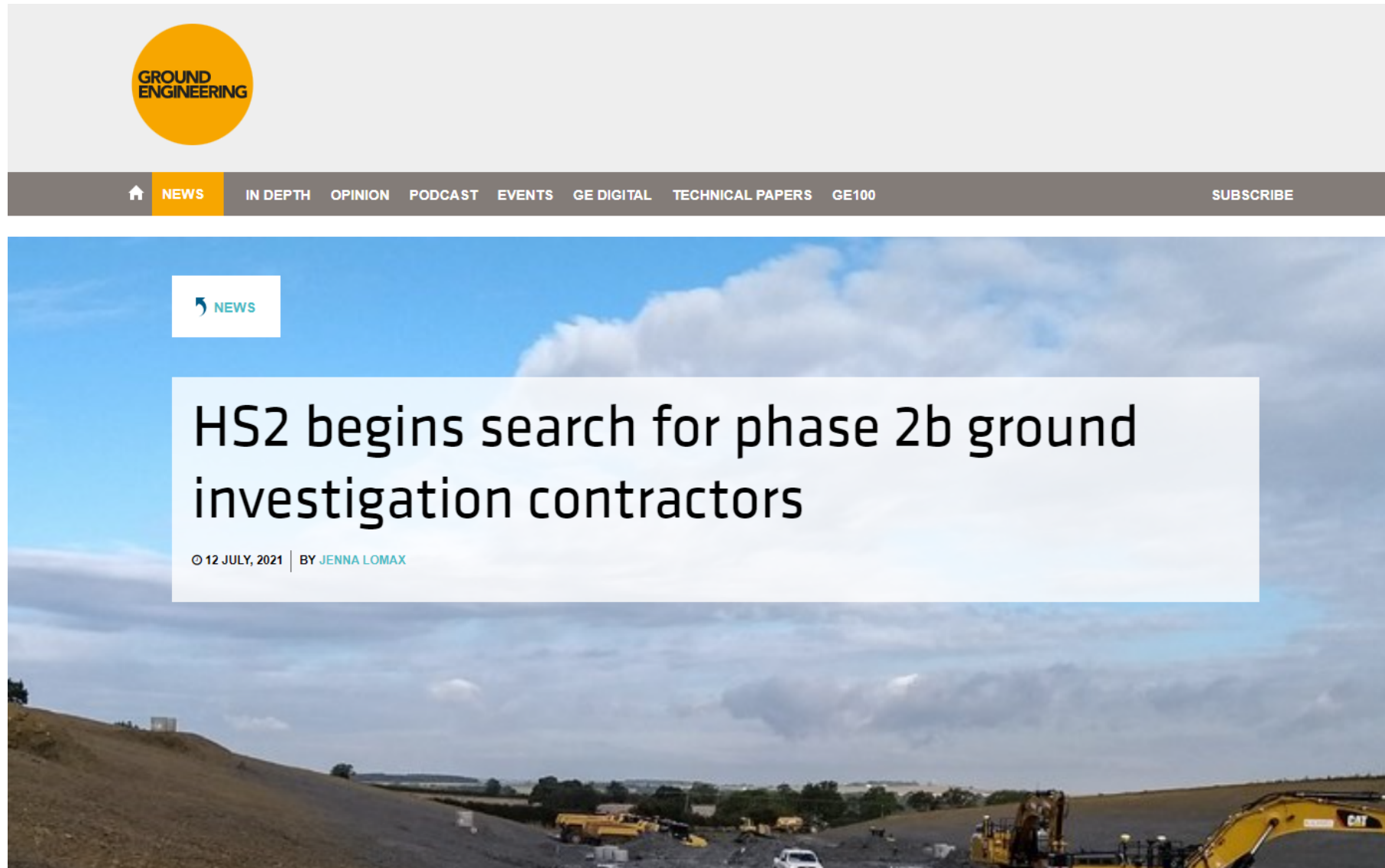
HS2 Ltd advised the Government of proposed route changes in July 2017 in the document "High Speed Two Phase 2b Crewe to Manchester West Midlands to Leeds Route refinements". Below are extracts concerning the salt mining area north of Crewe:

9.3.9 "A raised route is considered less likely to result in drainage path changes in the area and thus reduce risk. **However, it may be possible to mitigate some of the drainage concerns by other means that would emerge during further design work undertaken as part of hybrid Bill preparation. We will therefore undertake more detailed consideration of the specific salt dissolution risks and the possible range of alternative risk mitigation measures,** with a view to developing a design solution where the HS2 route can be lowered in the vicinity of local communities."

"9.3.11 We do, however, recognise that this is a sensitive and complex section of the route and that **there is more work to be done before the hybrid Bill is deposited to further understand the geological risks and provide suitable mitigation solutions. We are looking into carrying out early geotechnical investigation work in the mid-Cheshire area and gathering more advanced survey information (for example, by using Interferometric Synthetic Aperture Radar (InSAR) technology and analysis tools).**"

THE ASSURANCES HERE ARE WHAT MR MAYNARD RELIED UPON IN THE DEBATE TWO MONTHS LATER. HS2'S ADVICE TO GOVERNMENT WAS MISLEADING . THE GEOTECHNICAL WORK REFERRED TO HAS NOT BEEN DONE. HS2 NOW EXPECTS PARLIAMENT TO RUBBER STAMP THE PHASE 2B HYBRID BILL

4 – HS2 announces geotechnical investigation will not commence until late in 2022



HS2 Ltd is to start searching for a team of specialist ground investigation contractors for phase 2b of High Speed 2 (HS2), which aims to extend Britain's new high speed railway from the Midlands to the North.

The single framework contract – worth a total of £300M – will include the appointment of a lead ground investigation partner, supported by up to ten specialist ground investigation contractors to deliver HS2 Ltd's desired programme of work.

The procurement will be split in to two parts, one to find the ground investigation partner – a contract worth up to £85M, and the second: to find additional ground investigation partners – a contract worth up to £215M.

The ground investigation partner will be responsible for managing and coordinating the packaging of ground investigation works as well as the planning and the implementation of ground investigation site enabling works.

The additional ground investigation partners will be responsible for the acquisition and formal reporting of geotechnical, hydrogeological and geo-environmental data through surveys, the excavation and detailed logging of exploratory holes, and high-quality in-situ and laboratory testing.

In total, the ground investigation programme will enable a model of the ground beneath the whole route to be developed.

This geotechnical data has a vital role to play in informing the design and construction of the railway and will allow ground hazards to be addressed and managed effectively, HS2 Ltd said.

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Australia's largest tunnelling machine starts work on delayed West Gate Tunnel

will allow ground hazards to be addressed and managed effectively, HS2 Ltd said.

The procurement is for an initial eight-year framework, with the option to extend for a further two years.

The chosen teams will be dependent on design needs and the outcome of the government's Integrated Rail Plan, expected to be published later this year.

The UK Government has instructed HS2 Ltd to proceed with legislation for the western leg of phase 2b – from Crewe to Manchester as a priority in an effort to deliver economic benefits and improve transport links to the North.

It is hoped this will create thousands of new jobs and business opportunities for economic growth through vastly improving connectivity between and around the two cities.

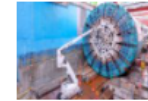
HS2 Ltd procurement and supply chain director, Andrew Cubitt, said: "This framework agreement is an important step in our plans to bring HS2 to the North. It will enable us to procure a comprehensive body of ground investigation data to inform our future civil engineering works.

"The structure of the framework agreement means that more than ten contractors could benefit from the opportunities we are creating, which comes at a vital time for UK businesses seeking stability and growth as we strive to recover from the effects of the pandemic."

Bidders will be shortlisted towards the end of the year with the contract award expected in 2022.



Diaphragm walls: Constructing HS2's Old Oak Common station



Australia's largest tunnelling machine starts work on delayed West Gate Tunnel

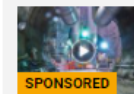


Shortlist for Rest and Be Thankful design contract announced

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Watch: Cloud technology

This online article needs no explanation. It is the smoking gun. Hs2 ltd have not yet done the work promised in July 2017

5 – Are any specific salt dissolution risks considered in the ES?

The short answer is No.

The ES makes reference to salt mining but only cursory reference is made to salt mining as a subsidence hazard . **HS2 Ltd have produced no evidence that they have made site specific surveys for subsidence, or monitored movement.** Construction on ground that is susceptible to salt dissolution requires the avoidance of actively subsiding areas and mitigation measures similar to those adopted for coal mining regions. Large structures may be particularly susceptible to unwanted movement and it is important to understand the local geology, faulting and collapse mechanisms. **Below are examples of what HS2 Ltd could and should have done within the ES and before bringing the Hybrid Bill to Parliament.** (Source – “Geological hazards from salt mining, brine extraction and natural salt dissolution in the UK” by Anthony H Cooper published in 2020 by the Geological Society of London)

Microgravity geophysics is a useful tool for monitoring cavity growth and subsidence owing to salt dissolution. This has been used to image a subsiding area to the east of Penny’s Lane Mine in Northwich and showed that it was not related to undermining. Subsidence was linked to salt dissolution at shallow depths owing to wild brine extraction that was being undertaken from a factory located to the east. This was drawing in brine from a considerable distance away. The microgravity signature indicated less density over time and the development of brecciated rock associated with brine dissolution and subsidence.

Long-term monitoring of the Trent–Mersey Canal where it crosses former salt workings has showed microgravity and topographical changes related to upward migrating cavities and subsiding areas.

Other geophysics such as **ground-probing radar** and **electrical resistivity tomography** also have the potential to image cavities and collapsing ground in similar circumstances.

The historical salt mines in the Northwich area have continued to cause problems for development of the town and have threatened some modern constructions. Instability of the old mine workings was aggravated by wild brine pumping, but even after this ceased in 2005 there was still concern about the stability of the mines. In 2002, £32 million was pledged by the government agency of English Partnerships to stabilize the salt mines of Barons Quay, Witton Bank, Neumanns and Penny’s Lane. Where possible these mines were **ultrasonically scanned** to establish their condition and dimensions. They were modelled using this information and historical mine plans. The mines were stabilized using a grout of saturated brine, pulverized fuel ash and cement. A large void volume of at depths of 90 m was successfully filled and 32 ha of ground stabilized. The exercise was a logistical challenge, bringing in cement and about 1 million tonnes of pulverized fuel ash by rail to Winnington and pumping it down a pipeline that included a 470 m horizontally bored section beneath a river and Site of Biological Interest to the grouting.

6 – What does the Environment Statement (“ES”) say with reference to salt mining?

Volume 1 - This is the Introduction to the ES and Methodology

Paragraph 5.2.11 says:

“Ground stability and the potential for managing subsidence as a result of mine workings, for example for the extraction of salt, brine, coal and limestone has been considered in the development of the design”.

In other words, Hs2 are aware that ground stability and subsidence are potential hazards, and their response has been to raise the track onto embankments. They have not carried out the geotechnical investigation work promised in 2017. This leaves them ignorant of the impact that construction and train operations will have on the underlying geology

Paragraph 8.10.5 says:

“The route of the Proposed Scheme will intercept mining and mineral resources, including salt extraction, sand and gravel extraction, coal mining and aggregate production from quarries, and the exploitation of other identified resources (e.g. hydrocarbons and coal bed methane). Where these resources will be impacted by the Proposed Scheme, they have been dealt with in the context of their value as an asset”

In other words, the ES does not address salt mining as a hazard that may cause subsidence to HS2 track or viaducts. It focuses instead on the impact HS2 may have on commercial mining and storage operations.

Table 6 says:

“Middlewich to Pickmere (routes through salt mining areas) ...The route would avoid direct interfaces with brining and gas storage infrastructure and would be raised to allow for management of drainage and geological risk. There would also be more flexibility for ground stability mitigation options.”

The reference to “infrastructure” is an obfuscation. The proposed route narrowly avoids brine well-heads and surface installations, but in the absence of a comprehensive study of underground caverns, watercourses and brine runs, the impact of HS2 on those geological features is completely unknown. Raising the track on an embankment and the driving of piles for viaducts will alter and/or create new underground watercourses/brine runs, with an unknown impact on salt dissolution leading to subsidence. Hs2’s reference to “flexibility for ground stability mitigation options” is a coded admission that HS2 Ltd are stepping into the dark and seeking Parliamentary consent to proceed without having completed their geology homework.

Volume 2 - This comprises “Community Area Reports”, each with a prefix of “MA”

They acknowledge “geological complexities relating to the crossing of brinefield and areas associated with gas storage” but go no further.

MA01 (Hough to Whalleys Green) acknowledges the potential for subsidence but there is no analysis of whether or not HS2 rail operations will be impacted by subsidence, or whether construction will be causative of subsidence in future:

“10.3.46 Areas of natural dissolution of the salt rockhead may be present in the study area as soluble rocks are present.

10.3.47 The study area is located in a brine compensation area which indicates there is the potential for subsidence resulting from the historical pumping of brine.”

This Community Area Report considers Hs2’s potential for causing land contamination and its impact on commercial mining, but there is no evidence of any site-specific investigation to consider the impact of construction and train operations on the local geology

MA02 (Wimboldsley to Lostock Gralam) acknowledges there is the potential for subsidence resulting from the historical pumping of brine, but then focusses on risks of land contamination and impacts on commercial mining. There is no analysis of whether or not Hs2 rail operations will be impacted by subsidence, or whether construction will be causative of subsidence in the future.

Damage to gas storage facilities is considered, but is then dismissed without acknowledging that deep gas storage cavities are only stable so long as pressure is maintained within. UK reliance on natural gas for heating will diminish in the next decade, and so will the need for strategic gas storage:

“10.3.31 The Holford Brinefield site is registered as a Control of Major Accident Hazards (COMAH) site in relation to gas storage, although it is understood that the wellheads associated with the site are not located within in the study area”

No reference is made to what exactly is a safe “minimum vertical distance” above a cavity, and relies upon an assumption that cavities are permanently stable structures. Some brine cavities can be as little as 60 metres below the surface.

“10.4.31 The Winsford Rock Salt Mine and Holford Brinefield, are very high value receptors. However, the Proposed Scheme would be required to maintain a minimum vertical distance from these resources in order for their continued extraction and a lateral offset from existing caverns. The effects on the Winsford Rock Salt Mine and Holford Brinefield would be negligible and therefore not significant.”

MA03 – Pickmere to Agden and Hulseheath

The omissions in MA01 and MA02 are repeated in MA03.

Volume 3 - This concerns Route-wide effects of the construction and operation of HS2 on the environment.

It deals with these under the following headings: :

- Agriculture, forestry and soils (Section 2);
- Air quality (Section 3);
- Climate change (Section 4);
- Community (Section 5);
- Ecology and biodiversity (Section 6);
- Health (Section 7);
- Historic environment (Section 8);
- **Land quality** (Section 9);
- Landscape and visual (Section 10);
- Major accidents and disasters (Section 11);
- Socio-economics (Section 12);
- Sound, noise and vibration (Section 13);
- Traffic and transport (Section 14);
- Waste and material resources (Section 15);
- Water resources and flood risk (Section 16)

There is no section dedicated to Subsidence and no evidence of the “**more work to be done to further assess geological risks and to provide suitable mitigations for them**” promised by the Under Secretary of State for Transport in 2017. The “**Land Quality**” section deals primarily with contamination. Paragraph 9.5.4 says (with my emphasis in bold): “*It should be noted that the Holford Brinefield landfill site and Winsford Rock Salt Mine Waste Disposal Facility are of national importance, **but as the facilities are located at depth and the Proposed Scheme is at surface level at these locations the impact on these ‘landfills’ is expected to be negligible.***”

Background information on Land Quality is within Hs2’s document BID LQ-002-0MA02. **With regard to salt mining the focus of this document is the impact of HS2 on commercial activity**

7 – Background Note : The Holford Brinefield

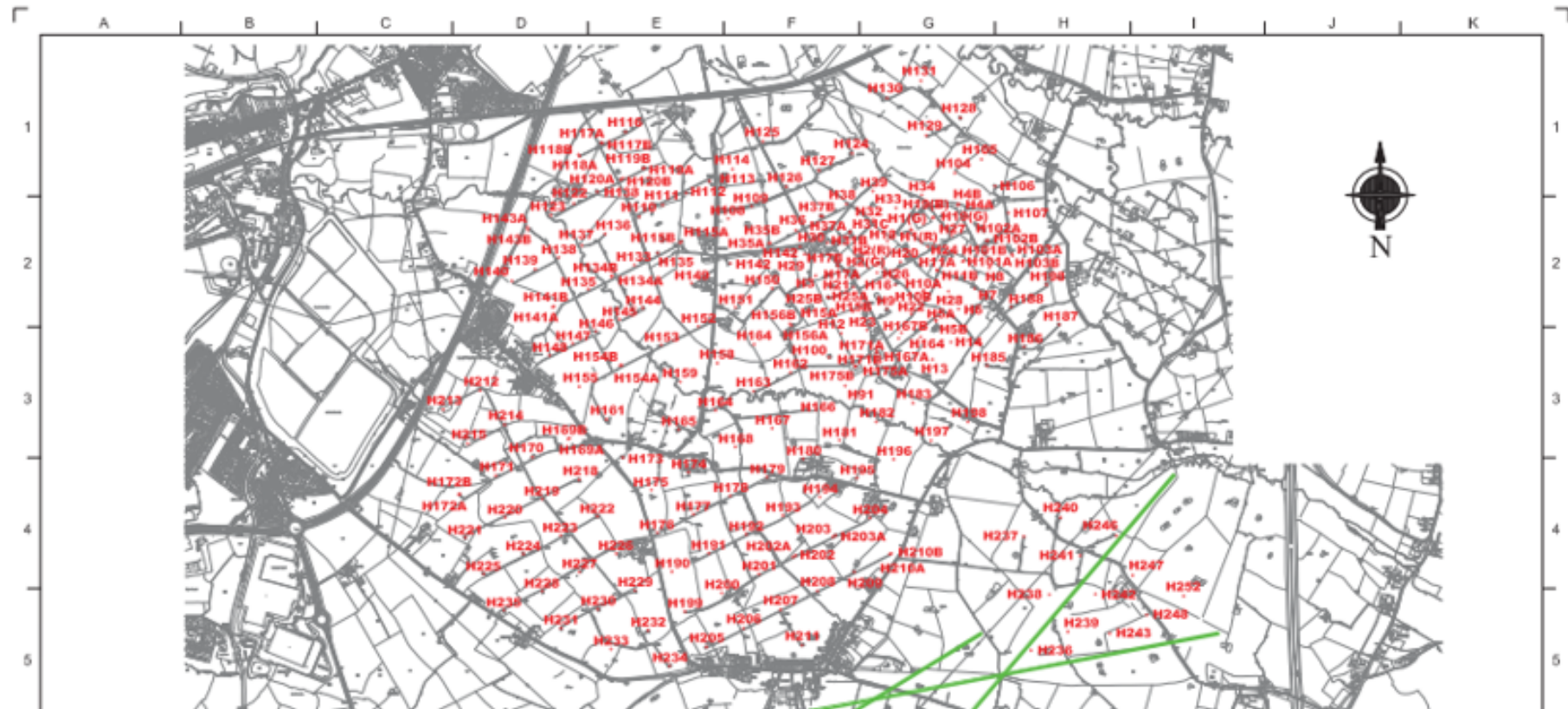
The Keuper Gas Storage Project map on page 13 marks the location of brine cavities on the Holford Brinefield, south east of Lostock Gralam. The route currently proposed for HS2 enters from the south and then swings north-north east on a route immediately adjacent to the A556 Shurlach Road. Hs2 will be on the south east side of that road. The locations marked in red depict the site of pumping equipment for each cavity. Those numbered H213, H140, H143A, and H143B are approximately 100 metres from where HS2 track will run



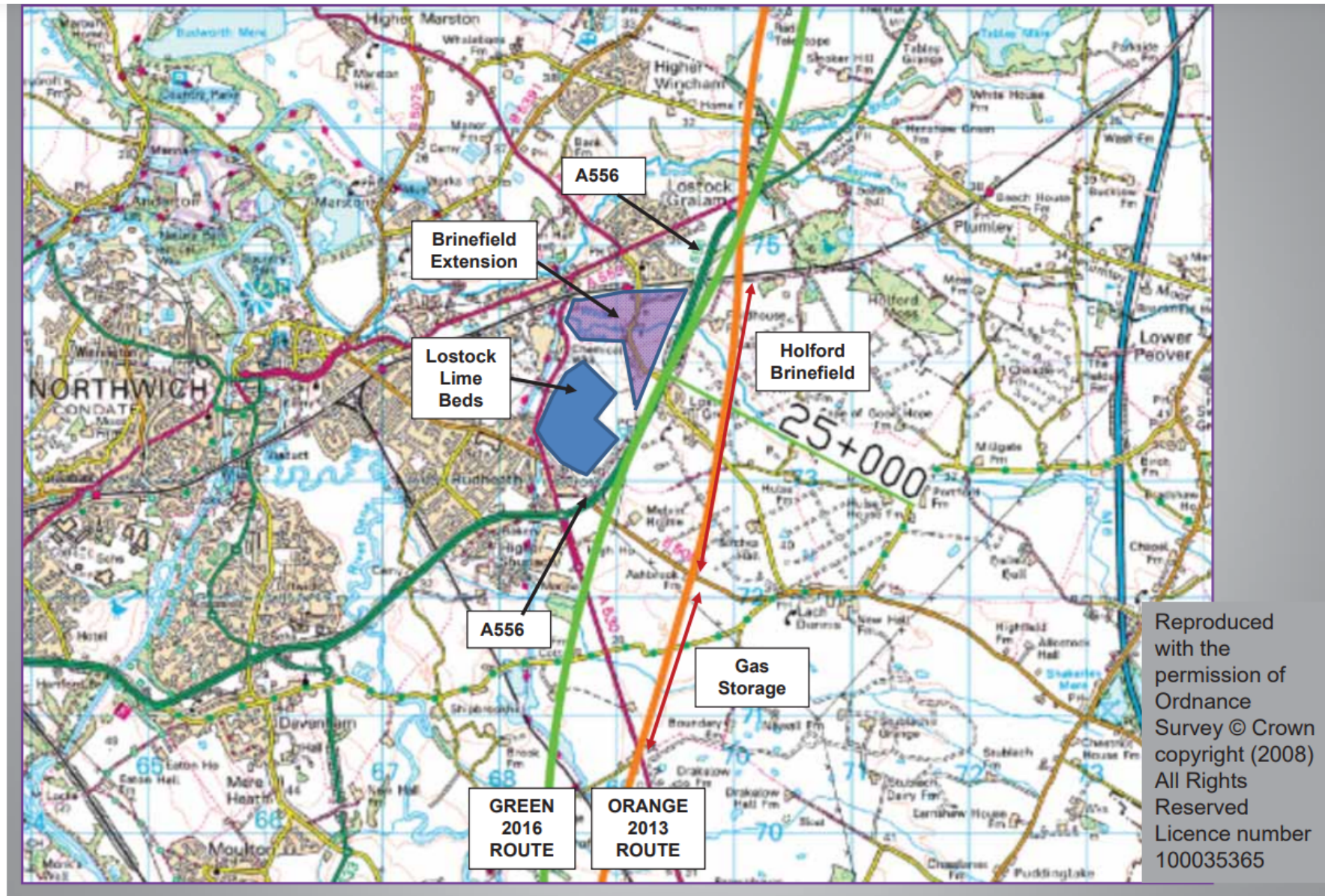
Existing brine wellhead at Holford Brinefield

The extent of cavities below ground is not shown anywhere on the maps produced by HS2 Ltd. It is however obvious that the proximity of cavities to HS2 construction works and track will be much closer than the points marked on the Keuper Gas Storage Project map

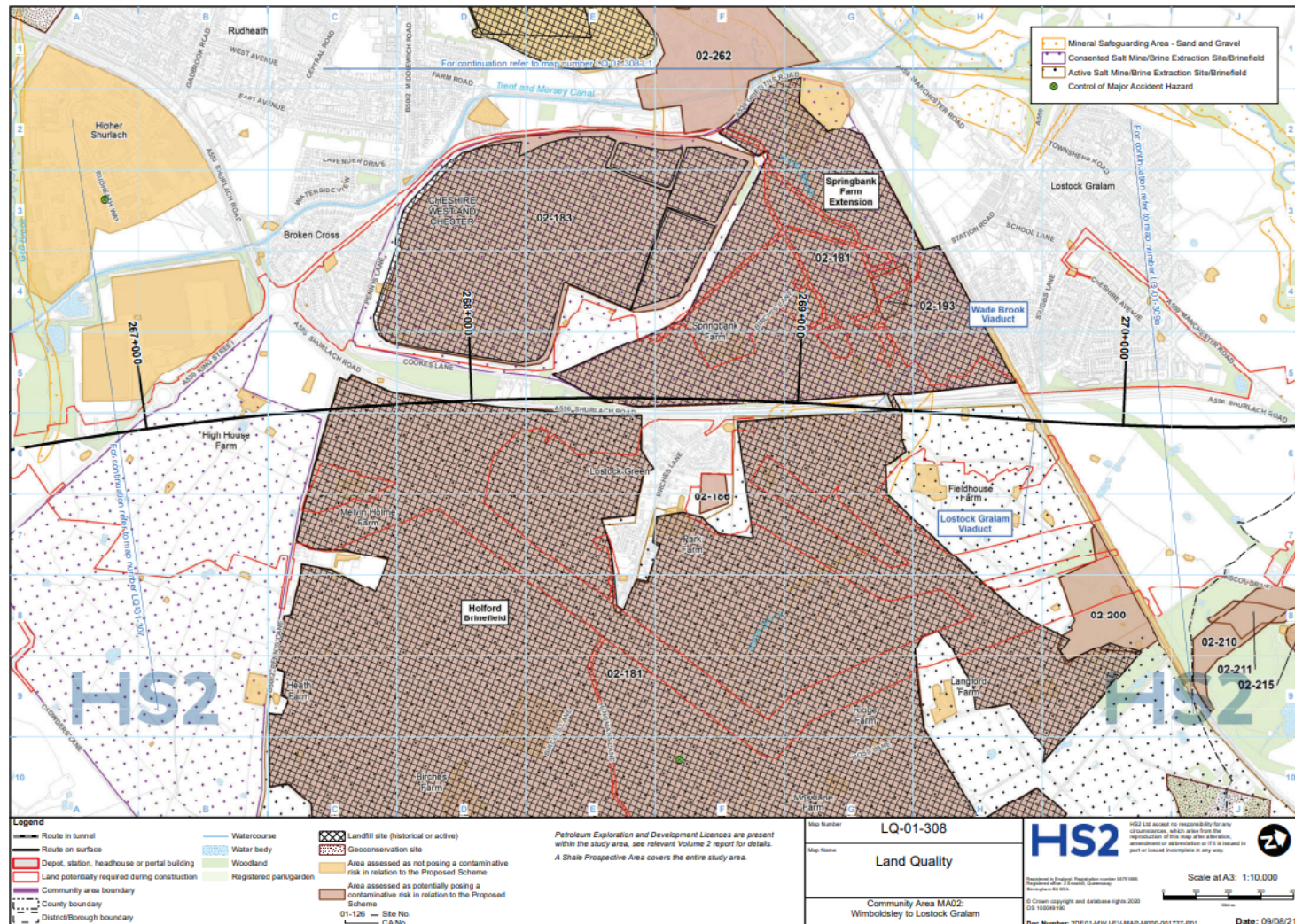
In a Geological Society article of 2018 “Geology and HS2” Chris Eccles and Simon Ferley state this: *Cavities may be up to 170m across and are as little as 30m (or less!) apart, the shallowest being only 60m below surface (in the north of the brinefield). Some cavities at Holford are being used to store solvent waste. In a number of locations at Holford there has been break-through between adjacent cavities. In Cheshire, no solution-mined cavities have collapsed; but near Preesall in Lancashire similar solution mining was carried out in the Northwich Halite to shallower depth, resulting in a series of collapses that created lakes. It is the nature of rock salt to creep over time, and the ground above the Holford Brinefield is slowly settling by three or four millimetres a year. The settlement bowl extends to a wider area than the actual plan extent of the cavities.* [The Geological Society \(geolsoc.org.uk\)](http://geolsoc.org.uk)



This is the northerly part of the Keuper Gas Storage Project map of 2014 found at Annex 1 in : [IEL F J 0001_KGSP_subsurface_safety_assessment.pdf](#)



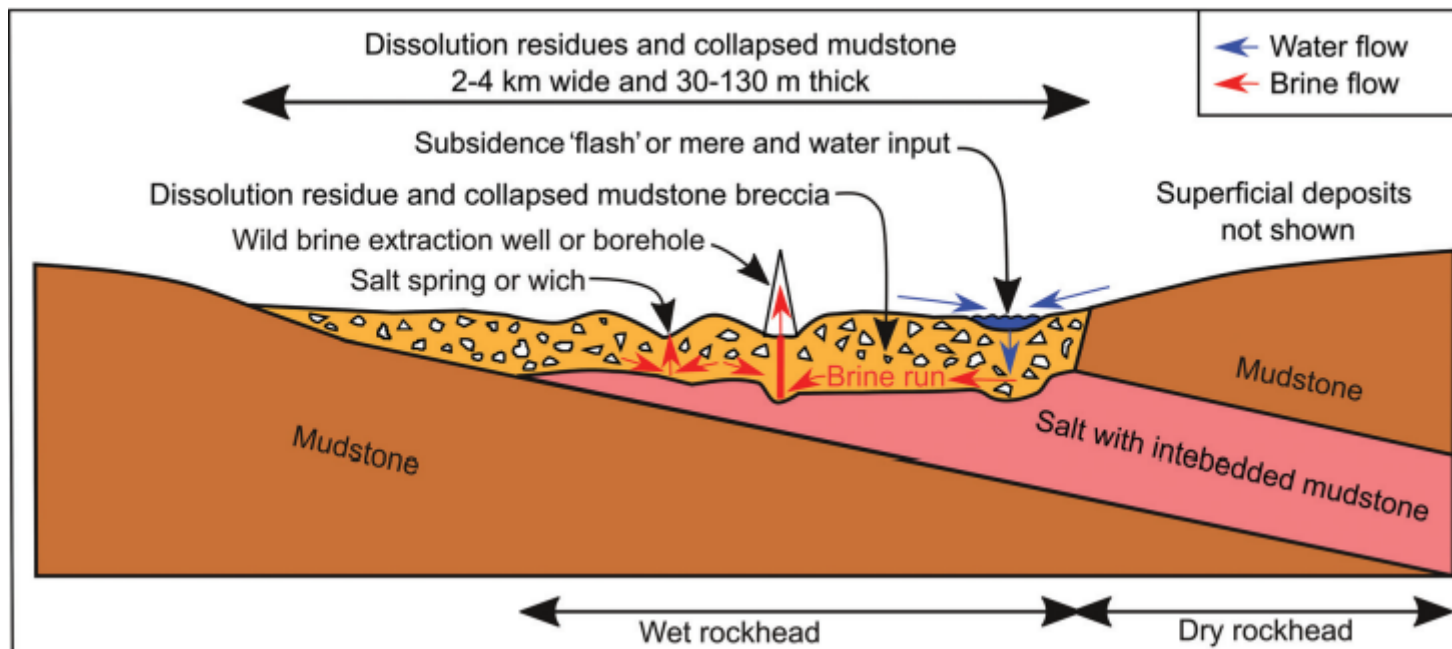
This is Hs2's Land Quality map (with compass point North to the right side). It shows brinefields shaded brown, the HS2 track, and the Shurlach Road in its current position. Construction works will entail moving that road to the western side of the HS2 track



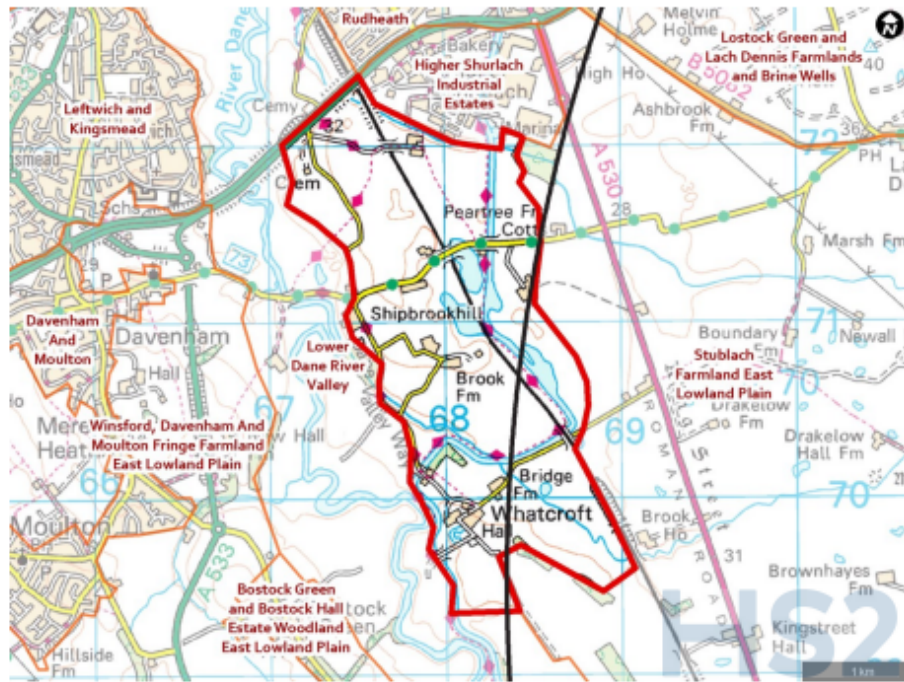
8 – Background Note : Three Viaducts over River Dane and Trent & Mersey Canal

The maps and images (below) on pages 20 - 22 appear on HS2's Map References LQ-01-307 & LQ-01-306 and on page 147 of Volume 2 : MA02. They show where Hs2 viaducts will cross the River Dane and Trent and Mersey Canal.

Salt mining/brinefields are marked on pages 20 and 21 with green dots for proposed mining, and with brown dots for active extraction. They illustrate the extent of the underground salt levels. The ES makes no risk assessment for the driving of piles to support viaducts in these locations. Piles to depths of 100 or 120 metres have been mooted. This is an area where sunken glacial till overlies salt levels that have collapsed following brine extraction. The subsided landscape is sprinkled with bodies of water known as meres or flashes. **Hs2 have produced no assessment of how the driving of such piles will disrupt the migration of water underground, and accelerate salt dissolution by the introduction of unsalinated water to saline saturated cavities.** The graphic below is taken from "Geological hazards from salt mining, brine extraction and natural salt dissolution in the UK" by Anthony H Cooper published in 2020 by the Geological Society of London



Whatcroft and Billinge Green Flashes Lower Dane



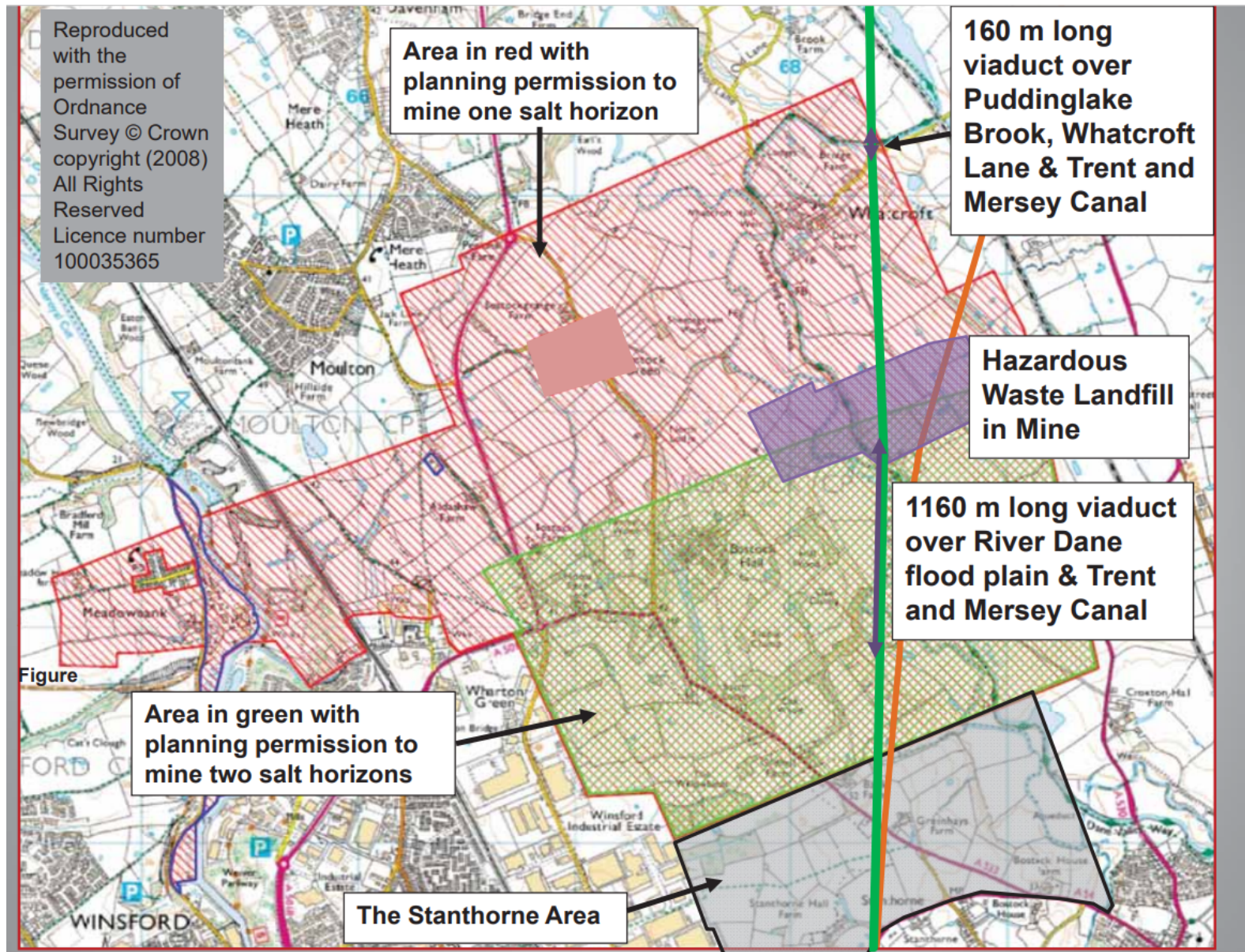
The Trent and Mersey Canal corridor north of Whatcroft.

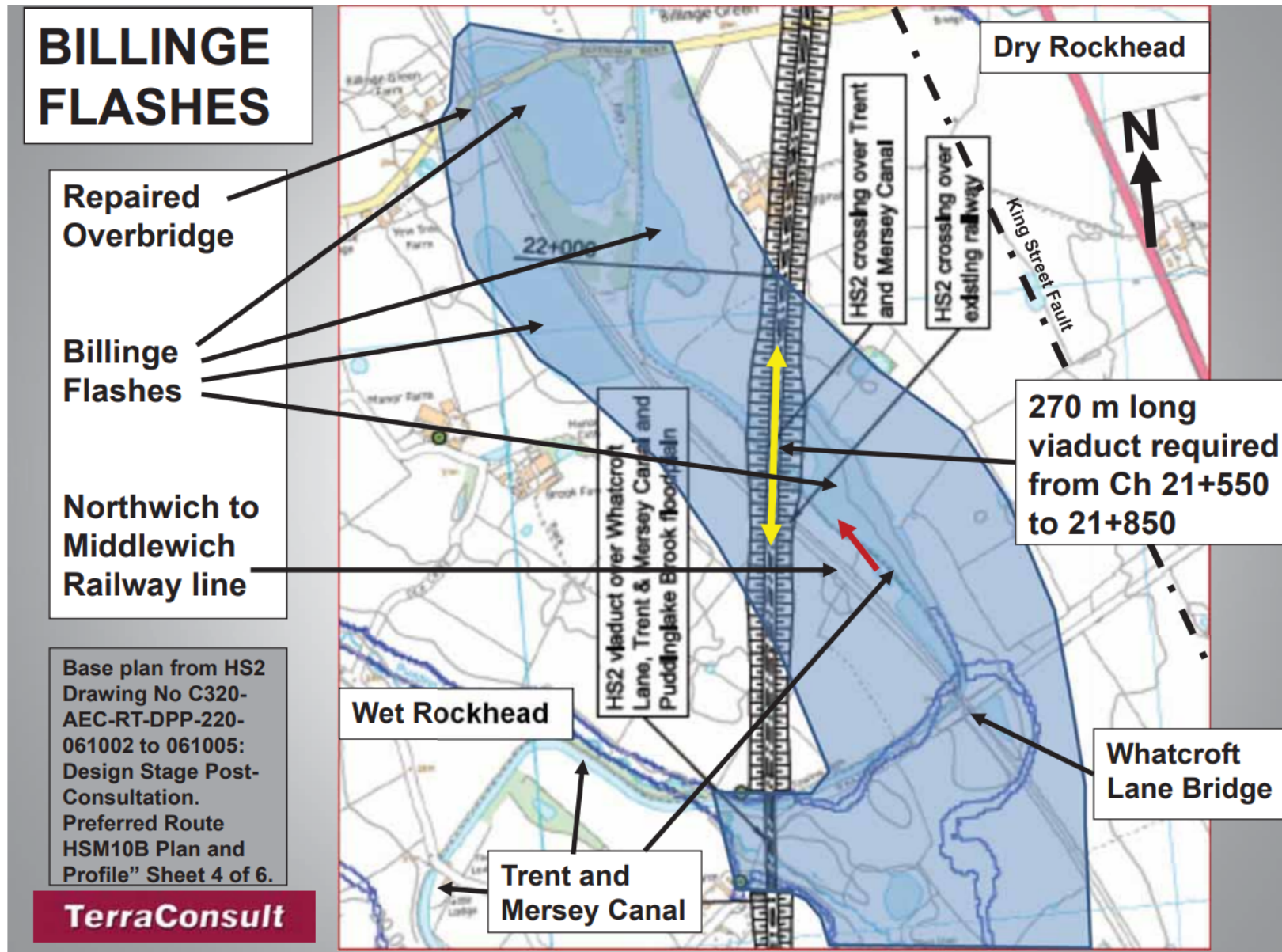


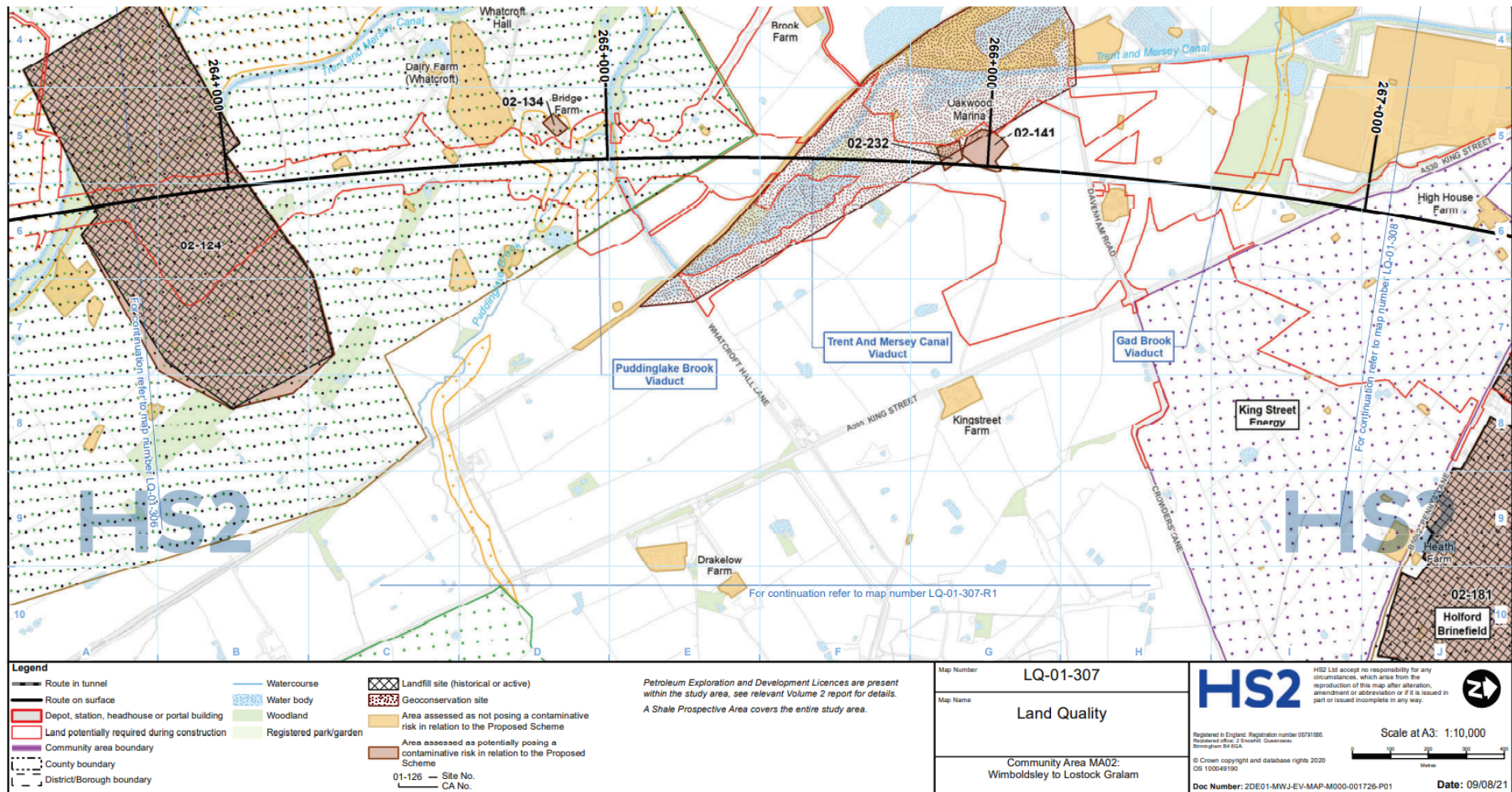
Flashes near Billinge Green.

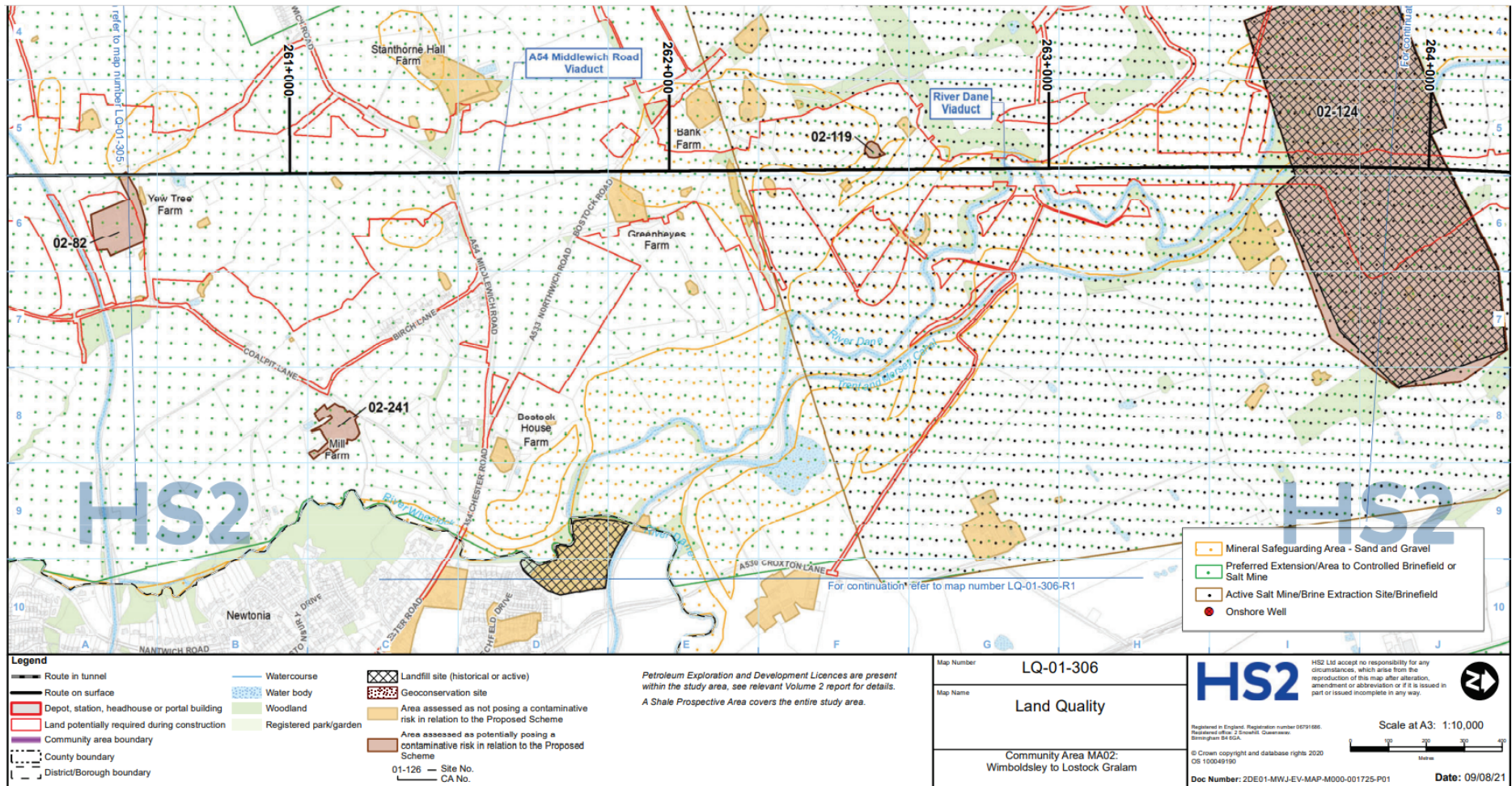


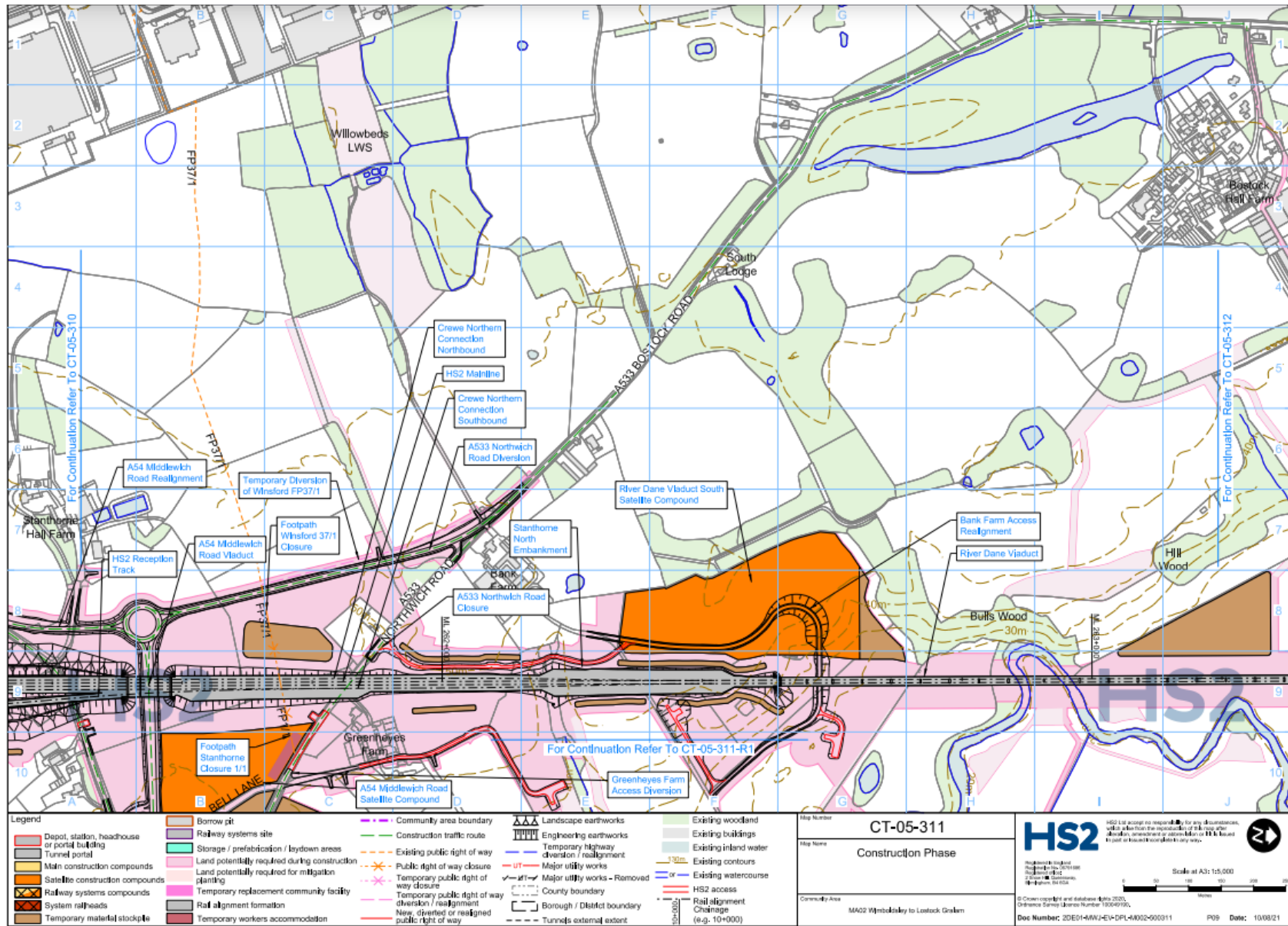
The Whatcroft and Billinge Green Flashes Lower Dane LCA is a distinctive rural landscape bordering the River Dane valley. It is an area largely characterised by the canal, with its linked open water bodies and nearby open flashes created by subsidence following salt extraction.











Statement in support of the Defence against the Claim QB-2022-BHM-00044, HS2 Ltd & SoS for Transport V Persons Unknown and Ors.

HS2 – visual reference - images and video stills including web-links

The issues highlighted in this document, in support of Stop HS2 protestors, relate to and are relevant to the issues raised in this Injunction case and potentially other related cases against HS2 Ltd. This information is to be considered with other supporting statements and the Relevant Reports.

Events illustrated:

Illegal evictions.

Destruction of bat nesting sites without a licence and during nesting season.

Destruction of birds nest and birds while destroying hedgerows during nesting season.

Covering of animal burrows.

Arrests when protestors were trying to stop illegal activities.

Destruction of woodlands and the unnecessary shredding of timber to possibly destroy evidence of illegal activities.

Pollution of water through digging or drilling into the aquifer in the Colne Valley.

Attacking and unnecessarily restraining protestors.

Endangering protestors lives through illegal and reckless behavior.

Concerns and serious worries raised by those living and working in the shadow of HS2 – including a local farmer, worried about its impact on his water supply.

8th July 2020 images 8.7.20-1-/2-



“More devastation by the hands of HS2 workers. They have totally now torn down a large number of mature Ash Trees just outside the Denham Rebellion Camp”

Question: Why would HS2 want to shred good timber if they weren't trying to hide something?

<https://www.facebook.com/HS2rebellion/photos/pcb.205498664479807/205498557813151/>

more tree shredding – 17 June 2020



<https://www.facebook.com/HS2rebellion/photos/pcb.195833985446275/195833908779616/>

“HS2 filling in fox/badger holes with travis Perkins bags then chain link fencing over the top nailed into the ground at Denham site. Poor poor animals all whilst they [HS2] claim there is no crimes to wildlife these poor animals”



<https://www.facebook.com/groups/278249462657115/>

<https://www.facebook.com/photo/?fbid=1543848915793758&set=pcb.700353790763563>

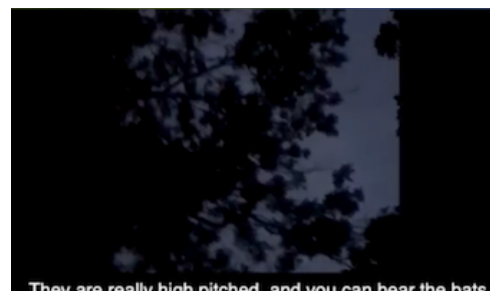
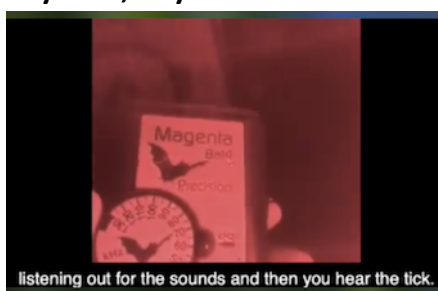
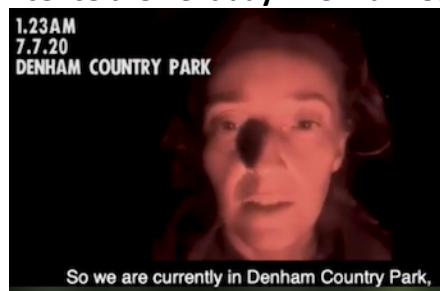


Aquifer Pollution - Discoloured water from HS2 drilling a small well in Misbourne Valley (Colne Valley) is now appearing in Shardlowes Lake. As it says on the link below, 'If this can happen when they drill a small well imagine what it is going to be like when they stick two large tunnels under the lake', or thousands of holes, 100's of meters down into the aquifer for the viaduct.)

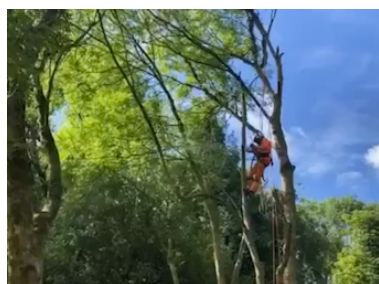
The impact that HS2 will have on the London water supply, (22% of London water) through its bridge building and tunneling is a very serious concern, though one which HS2 seems to have little concern for.

<https://www.facebook.com/photo/?fbid=4203638546320460&set=pcb.4203675802983401>

Recognising presence of bats at night, and the destruction of bat habitats without a bat licence the next day. Denham Country Park, July 2020. Video stills.



The HS2 worker pictured, supposedly their ecologist, has no bat licence and has not been into the trees to check for habitats.



Trees here being cut down and completely shredded to destroy all 'evidence'.

<https://www.facebook.com/HS2rebellion/videos/2618841195049637>

2000 bat roosts recognised and bats found. Natural England failing to comply and implement its own laws. “Possibly worst wildlife crimes committed in Warwickshire”.



HS2's own recognised sites of bats nesting.



Stills from video:

<https://vimeo.com/428761147?fbclid=IwAR0Phlj5GnTx0yOeHSxLA-aVjnF91HDrWLaSkIJ8p4cpd4SrfRi4XZCzLs0>

Further video reference relating to this issue can be found at: <https://youtu.be/CrZ-ydC6bcc>

July 9th 2020 - Birds nests destroyed and birds killed as HS2 destroys hedgerows during nesting season.

“As they were vandalising the trees, a Wood Pigeon nest and a Mistle Thrush nest were literally cut in half, leaving the baby birds rolling around hopelessly on the road. I immediately pointed them out to one of the staff who instantly told me ‘they’re better off in a f*****g pie’ and then threw the baby pigeons into the field next to the road.”

<https://www.facebook.com/photo?fbid=10220268890986896&set=pcb.10220268896307029>



Police stopping legal protest at Denham Country Park, 11.07.2020, while HS2 prepare to cut down a tree outside of their remit/area of work – without permission and without a bat licence.



<https://www.facebook.com/HS2rebellion/photos/a.122352206127787/206457867717220/>

A resident on the HS2 route talks about the stress and impact on his and his neighbours lives and health.

5 July 2020.



<https://www.facebook.com/HS2rebellion/videos/218716255916687>

[Penny McGregor](#) – Talks to a local farmer about HS2 and his concerns about its impact on Water. 1 June 2020

There are so many complications and potential adverse impacts of HS2 construction. To build this through climate emergency is to play with fire. We don't turn the soil over on our farm therefore we pull in and store carbon. HS2 took some of this precious land for a road and 'mitigation'. Now there are fears the cutting could affect our water and dry up the land.

<https://www.facebook.com/penny.mcgregor.73/videos/10163420325035570>