

Leather Lane - Biodiversity

Leather Lane is a typical Chiltern sunken lane, connecting Great Missenden and The Lee. It is distinguished by a line of 90 oak trees, planted on the south side of the lane by Arthur Lazenby, founder of the Liberty store, and at the time, Lord of the Manor at The Lee.

Although the trees were planted in the 1900s, they were semi-mature at the time, and so over 100 years old. While the trees are a valuable resource in their own right, local residents have discovered that they also form a wildlife corridor, notably for bats, linking the woods on the plateau with the valley below.

The HS2 biodiversity assessment makes no reference to these trees, although around a dozen have already been felled. Nor is there any biodiversity loss ascribed to the severance of connections between the two sides of the line.



Leather Lane, looking East towards
Potter Row

HS2 Assessment



Figure 1 Hedgerows, Pre-construction



Figure 2 Hedgerows, Post construction

	Habitat	Length			Biodiversity		
		Pre	Post	%	Pre	Post	%
154	J2 - Hedges	331	188	57%	2976	1201	40%
157	J2.1.2 - Intact hedge - species-poor	330	80	24%	1981	514	26%
162	J2.3.1 - Hedge with trees - native species-rich	405	139	34%	2428	890	37%
183	K2.5 - Hedgerow habitat creation	0	179		0	1144	

Table 1 – Total Habitat Length and Biodiversity, Pre and Post Construction

An overview of the habitat before and after construction shows losses of between 1/3rd and 3/4 of the different hedgerow classifications, and corresponding losses of calculated

biodiversity. The maps show the fragmented nature of the hedges remaining after construction.

Pre and Post Construction

Pre/Post	Habitat Description	Habitat Condition	Length, m	Ecological Position	Biodiversity Units
South side, East of trace					
1	154 J2 - Hedges	3	331	3	2976
2	154 J2 - Hedges	3	125	3	801
2	154 J2 - Hedges	3	56	3	359
2	154 J2 - Hedges	3	13	3	86
2	154 J2 - Hedges	3	6	3	41
2	157 J2.1.2 - Intact hedge - species-poor	3	17	3	112
2	157 J2.1.2 - Intact hedge - species-poor	3	11	3	68
2	183 K2.5 - Hedgerow habitat creation	3	96	3	612
	Total Post-construction		325		2078
	% of Pre-construction		98%		70%
South side, West of trace					
1	157 J2.1.2 - Intact hedge - species-poor	2	220	3	1321
1	157 J2.1.2 - Intact hedge - species-poor	2	110	3	661
2	157 J2.1.2 - Intact hedge - species-poor	3	35	3	225
2	157 J2.1.2 - Intact hedge - species-poor	3	29	3	184
2	157 J2.1.2 - Intact hedge - species-poor	3	5	3	32
2	157 J2.1.2 - Intact hedge - species-poor	3	3	3	18
2	183 K2.5 - Hedgerow habitat creation	3	83	3	533
	Total Post-construction		155		991
	% of Pre-construction		47%		50%
North side, East of trace					
1	162 J2.3.1 - Hedge with trees - native species-rich	2	391	3	2345
2	162 J2.3.1 - Hedge with trees - native species-rich	3	120	3	770
2	162 J2.3.1 - Hedge with trees - native species-rich	3	9	3	55
2	162 J2.3.1 - Hedge with trees - native species-rich	3	7	3	47
2	162 J2.3.1 - Hedge with trees - native species-rich	3	7	3	42
2	162 J2.3.1 - Hedge with trees - native species-rich	3	5	3	32
	Total Post-construction		148		946
	% of Pre-construction		38%		40%
N-S hedge, West of trace					
1	162 J2.3.1 - Hedge with trees - native species-rich	2	14	3	83
2	162 J2.3.1 - Hedge with trees - native species-rich	3	7	3	47

Table 2 Pre Construction hedges (bold), and post construction remnants.

Biodiversity units are calculated by multiplying hedge length by Habitat condition and 'Ecological position'. Post construction biodiversity is additionally multiplied by a 'Time to completion' factor, which is 0.71 in all cases, corresponding to 10 years. Several anomalies are apparent –

- Post construction habitat condition is given as 3 (high), even if the hedge is a fragment of a hedge originally rated

- as 2 (medium). It is not clear what measures are planned which will effect this improvement.
- Newly planted hedgerows (code 183) are also rated as condition 3. It seems unlikely that a 10 year old hedge will reach the same condition (or better), than preconstruction hedges which have survived for centuries.
 - Ecological position is recorded as 3 (high) throughout. This is related to proximity to other hedges and woodlands, and has clearly failed to capture the difference between the original extended hedges, and the collection of small fragments, some less than 20m in length, which remain after construction.

Reasonable corrections for these factors may reduce the post construction biodiversity by around 5% of the original biodiversity; a minor change, given the fairly crude parameters used in assessing biodiversity.

Pre	Post	Post(New)
7385	4062	1144
100%	55%	15%

Biodiversity – Pre & Post construction, which includes newly create habitat (3rd Column)

More significant is the 45% loss of biodiversity, post construction. However, 15% of the post construction biodiversity is attributed to new planting; only 40% of the original biodiversity will remain, and this level will persist while the new habitat becomes established.

The trees



Figure 3 Hedge, species poor ? The trees, several now removed, where HS2 crosses the lane. The trees are on the far side of the (sunken) lane

The hedges to the south side of the lane are classified as 'Hedges', 154, or 'Hedges, species poor', 157. 'Hedges with Trees', 162 would be more accurate, but still fail to capture the character of the feature.

A tree survey was conducted for HS2 by Temple Lt on 13th May 2021, by which time 4 trees had been felled for construction of the haul road. 102 trees were surveyed, of which 74 were to be removed for the works –

Tree Class	Surveyed	Lost	Remaining	
A	54	39	15	28%
B	26	20	6	23%
C	17	13	4	24%
U	5	2	3	60%
Total	102	74	28	27%

Trees to be removed (at time of the survey)

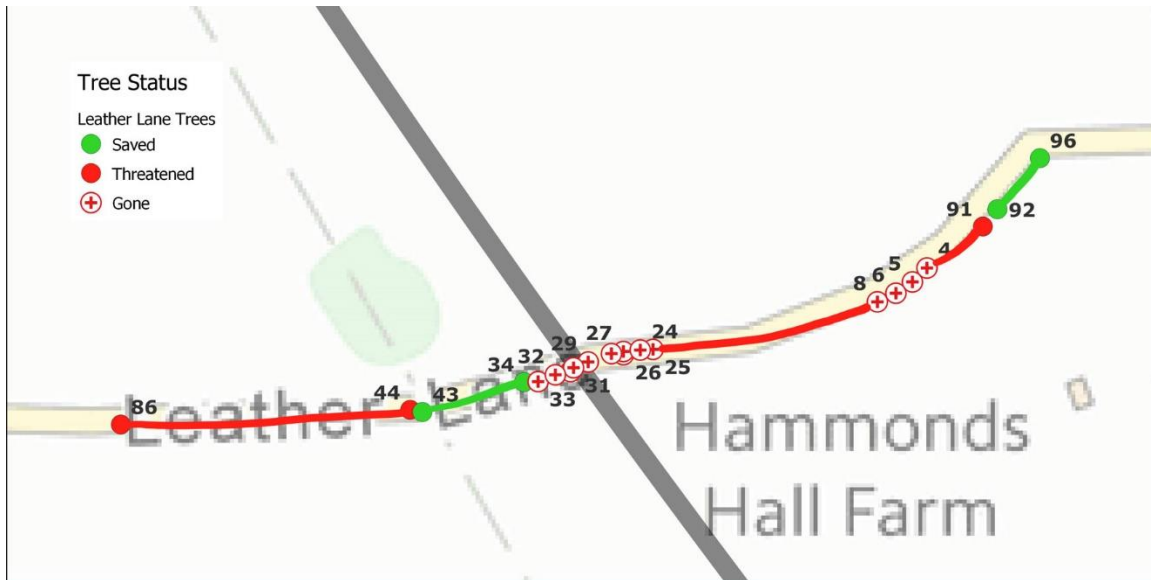


Figure 4 Trees to be preserved (Green), and originally to be removed (Red). Red crosses are trees which have already been removed (as of April 2023)

This clearly represents a considerable (but unaccounted) loss of biodiversity, which should be estimated. As the HS2 metric has no category for individual or groups of trees (which surely makes it unfit for purpose), the closest match would be to an area of woodland. This requires several parameters as input –

The area

The length of the oak line within the act limits is 607m. The width of the 'hedge' at ground level is approximately 10m, but the tree canopy width is at least double that, as is the width of the RPZ

Alternatively, the Natural England Biodiversity Metric assigns the area of the root protection zone to each tree, without any reductions to account for overlaps. This gives a larger area, and a biodiversity out of proportion to other areas estimated using the HS2 metric.

Distinctiveness

Clearly a line of category A or B oaks 'cannot be adequately re-created' and so should be rated 'very high' – 8

Condition

Over half the trees were assigned to category A or B, which suggests overall good condition – rated 3

Position in Network

A score based on the importance of the habitat lost for the surrounding ecological network. This would be 3 – habitat of

principle importance – except that the metric restricts areas under 1 ha to a maximum score of 2. We interpret this to mean that portions of the woodland/hedge which extend beyond the act limits form part of a larger area and are rated 3, while remaining isolated sections of less than 1ha are rated 2

Area calculation - 10m width	# Trees	Length	Area	Distinctive ness	Condition	Position	Biodiversity Units
Pre-Construction	102	607	0.607	8	3	3	43.7
T34-43	10	71	0.071	8	3	2	3.4
T92-96	5	56	0.056	8	3	2	2.7
Post- Planned	15	127	0.127				6.1

Biodiversity calculations for pre-construction, and for the trees remaining as originally planned.

T86-34	53	251	0.251	8	3	3	18.1
T24-9	16	144	0.144	8	3	2	6.9
T96-3	9	95	0.095	8	3	3	6.8
Present	78	490	0.49				31.8

Biodiversity calculation – trees remaining, April 2023

The total pre-construction Biodiversity for CFA9 areas is 381 units, so the additional 44 units attributable to the oaks represents a 11% increase. The original proposal (to fell 75 trees) leaves only 6 units remaining (lines 2 & 3). As reported in the survey,

“Due to the number of category A and category B trees identified for removal it is recommended that the proposed works be re-aligned to allow a significant number of these trees to be retained. The loss of category A and category B trees is considered a significant impact to the landscape and loss of visual amenity.”

Despite this recommendation, in March 2021 HS2 contractors were on site, with the apparent intention of removing all 75 trees. They were prevented from doing this by Lawyers for Nature, who obtained an injunction to halt the felling since HS2 did not hold the appropriate bat licenses. However, trees in the gap for the haul road (T005-8) and for the track (T025-33) were removed. This leaves 78 trees remaining.

While 38 biodiversity units were to be lost under the original proposals, at present only 12 units have been lost. However, the alignment of the new bridge is under review, and no Schedule 17 application has been submitted. If the new realignment is to the south of the existing lane, then further trees will be removed to the west of the track, and the 250m run from trees 86 to 34 will

be reduced in length, and disconnected from the area to the west of the act limits. A campaign is underway¹ to have the new alignment on the north side of the existing lane – this would preserve all the remaining trees, and reduce the adverse impact on the local bat populations.

It should be noted that work has yet to start on the track corridor where it will cross the lane, so the trees felled to create the gap could have been preserved for the past two years.

Summary

The HS2 biodiversity calculation did not take account of the oak trees on the south side of Leather Lane, and their biodiversity metric does not define a calculation method applicable to trees in hedgerows, or isolated trees. If the trees are considered as a small wooded area, then the pre-existing biodiversity (for areas in CFA9) is increased by around 10%, most of which would be lost if the original plans were implemented.

Interventions to preserve the trees have resulted in 70% of the additional biodiversity remaining at present, but it is unclear whether further losses will occur.

In addition to the deficiencies of the HS2 biodiversity metric, and the inadequacies of its application as described above, there are wider implications which this methodology fails to address –

- The role of the trees in providing a wildlife corridor, particularly for bats, has not been considered;
- The complete severance of all such corridors over a considerable distance, exacerbated by the lack of any 'green' bridges, has not been accounted for.

Any claim regarding lack of biodiversity loss based on these flawed calculations cannot be taken seriously.

¹ Save Leather Lane Oaks - <http://saveleatherlane.org.uk/>