

ARBORICULTURAL SURVEY REPORT

Brogan Solar Farm,
Llanfyllin

January 2026



Barton Hyett Associates
Arboricultural Consultants

Summary table		
Site Name:	Brogan Solar Farm, Llanfyllin	
Project reference:	7109	
Site Address:	Llanfechain, Powys, Wales	
Nearest Postcode:	SY22 6XB	
Central Grid reference:	SJ 17637 18918	
Local Planning Authority:	Powys County Council (PCC)	
Relevant planning policies:	PCC Local Development Plan 2011 - 2026 (adopted April 2018) Policy DM2 - The Natural Environment; Policy DM4 - Landscape PCC Supplementary Planning Guidance (SPG) Historic Environment (adopted July 2021) PCC SPG Landscape (adopted April 2019) PCC SPG Biodiversity & Geodiversity (adopted October 2018)	
Statutory Controls:	Tree Preservation Order	Conservation Area
	None	No
Ancient trees/ woodlands?	T13, recorded as ancient lapsed pollard	
Soil Type: (Source: BGS online soils map © NERC 2026)	Superficial/Drift	Bedrock
	NE & SE fields: Slowly permeable seasonally wet acid loamy & clayey soils SW field: Freely draining floodplain soils	Allt-Tair-Ffynnon Formation-Siltstone and mudstone, interbedded
Topographical Survey:	Drawing No: 83595CVLS-01; dated: 09/12/2025 (sheets 1 & 2)	
Notes:	Waterlogged ground to north of site at time of survey (late December 2025)	
Report author:	David Holmes <i>FdSc, MArborA</i>	
Checked by:	Richard Hyett <i>MSc, BSc (Hons), MICFor, MArborA</i>	
Date of issue:	16/01/2026	

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THIS REPORT HAS BEEN PREPARED TO PROVIDE ADVICE AND GUIDANCE ON THE POTENTIAL FOR DEVELOPMENT OF LAND IN RELATION TO TREES. IT IS THEREFORE INTENDED FOR 'INTERNAL USE' ONLY BY THE NAMED CLIENT AND DESIGN TEAM. IT MAY NOT THEREFORE BE SUITABLE FOR SUBMISSION TO A PLANNING AUTHORITY WITH A PLANNING APPLICATION.

1. INSTRUCTION

- 1.1. I am David Holmes, an arboriculturist with 17 years of experience and a professional member of the Arboricultural Association.
- 1.2. Barton Hyett Associates Ltd have been instructed by Pegasus Group on behalf of Fuse Energy to survey trees located at Llanfyllin in mid-Wales ('the site') in accordance with the recommendations of British Standard 5837:2012 'Trees in relation to design, demolition and construction - recommendations'.
- 1.3. The scope of the instruction was to inspect trees relevant to a planning application for a solar farm at the site and provide written advice on how they inform feasibility and design options. This report is intended for use by the applicant and design team only and is not for submission to the Local Planning Authority (LPA).

2. SITE DESCRIPTION

- 2.1. The site consists of three agricultural fields which lie to the north east, south east and south west of the approximate centre of the survey area shown in Figure 1. The location is approximately 2km to the south west of Llanfechain village.



Figure 1: aerial image (Google Maps 2025) showing approximate site area in red

- 2.2. The site is relatively flat throughout with boundaries defined by fences, ditches, embankments and hedgerows with occasional mature trees. The surrounding area is agricultural land with blocks of woodland, small copses and outlying rural dwellings. The B4393 runs north east-to-south west at the west of the site. Access into the north east and south west fields is possible via two gated access points from the B4393.
- 2.3. There is a disused railway line* embankment which forms part of the boundary to the south east and separates the south east field from the north east and south west sections (* the Llanfyllin branch of the Oswestry and Newtown Railway). The disused railway has an unmetalled surface which has been used for agricultural access into the adjoining fields, with access onto the track bed being possible from the B4393 at the southern tip of the site.
- 2.4. The recorded Out Of Scope (OOS) trees and features refer to either a stump; dead standing trees or hedgerows; where trees are inaccessible or located off-site and unlikely to be affected by the development; an empty planting enclosure; small shrubs or, it is found that the trees are undersized according to BS 5837:2012, which stipulates a minimum recordable diameter of 75mm.
- 2.5. At the time of the survey (late December 2025), two water logged areas were present to the far north of the site; these are shown on the Tree Survey and Constraints Plan (**Section 2**) as OOS27 and OOS29. The drain along the northern edge of the site (flanking the access road) was full of standing water. Late November and early December 2025 was exceptionally wet in England and Wales.

Table 1: arboricultural features by type and quality category.

	Total	A - High quality trees whose retention is most desirable.	B - Moderate quality trees whose retention is desirable.	C - Low quality trees which could be retained but should not significantly constrain the proposal.	U - Very poor quality trees that should be removed unless they have high conservation value.
Trees	21	3	9	9	-
Groups	6	-	4	2	-
Hedgerows	28	-	20	8	-
Total	55	3	33	19	0

3. TREE SURVEY FINDINGS

- 3.1. A total of 55 arboricultural features were surveyed. These are summarised in terms of their quality in accordance with the recommendations of BS5837 above, and shown in more detail in the Tree Survey and Constraints Plan (**Section 2**) and within the Tree Survey Schedule (**Section 3**).
- 3.2. Where it has not been possible to fully access the trees at the site, for example due to them being off-site or within dense vegetation, dimensions may have been estimated. Where this is the case, it has been highlighted within the tree survey schedules.

- 3.3. During the survey, a judgement has been made as to whether a tree is located within, or outside the site boundary. Again, this is highlighted within the survey schedules. Where this is the case, the judgement has been made on the presence of site features such as boundary fences, ditches and hedges, and it does not confirm definitive ownership or otherwise.
- 3.4. Occasionally, trees will not have been plotted within the topographical survey but may have been plotted during the tree survey. The location of these trees will not be as accurate as those plotted in a topographic survey and should therefore not be fully relied upon - especially where precise tree location is imperative for layout design. Where this is the case, the relevant trees are highlighted within the tree survey schedule and also on the tree survey plan.

4. KEY ARBORICULTURAL FEATURES

- 4.1. None of the trees recorded on site are protected by a Tree Preservation Order (TPO) nor is the site located within a Conservation Area (C/A). There is no Ancient Semi Natural Woodland (ASNW) associated with the site.
- 4.2. The high-quality (category A) oak T13 is an ancient tree. This is a noteworthy tree with a very large stem diameter and appears to be a lapsed pollard. The oak has been assigned category A3 and is of high arboricultural and conservation value. A significant trunk diameter of 1810mm was recorded along with historical storm damage and a tear-out wound with associated decay, a visible basal cavity to and several cavities throughout the crown at historical wound sites.
- 4.3. Oak as a species is listed in Figure 1.3 in Lonsdale (2013)¹, T13 has a recorded trunk girth of a little over 5.6m which is large for the species and indicates significant age. The age of this tree may be considerably more than indicated by the girth due to being pollarded. The tree has also been assessed as being a veteran using the characteristic features found on veteran trees (in para. 2.1.1 in Read, 2000)², exhibited by the trunk cavity, dry crevices, having an old look and a high aesthetic interest. The presence of deadwood or crown retrenchment is another feature of note although with a re-pollarded tree, finding these features in great quantity is unlikely. The cordwood resulting from the historical storm damage is piled beneath the crown of the tree, directly beneath the wound site to the north-west.
- 4.4. Along with the aforementioned T13, two oak (T12 and T17) are high-quality trees with large stem diameters. These latter two trees and the moderate-quality (category B) oak T2* are notable trees. In particular, the two high-quality oak (T13 and T17) and the moderate-quality oak (T2) show deadwood, cavities, and associated pockets of decay that increase the habitat value. (* Note that T2 shows historical & recent storm damage that has left the tree with a disjointed crown, hence the lower quality).
- 4.5. The term 'notable' carries no weight within the Planning Policy Wales (Edition 12, Feb 2024) (PPW), but is a term that recognises a mature tree which may stand out in the local environment because it is large in comparison with other trees around it.

- 4.6. The storm damage noted within T2 discussed earlier has left the tree with a disjointed crown shape. There are two distinct eastern and western areas of the crown. This could be a developing pattern of failures, as the tree has lost some capacity for 'mass damping'. This is a natural phenomenon where smaller diameter, flexible inner branches contribute to the overall dampening effect. This allows the necessary oscillations to dissipate energy (from the wind) in a range of weather conditions, from light wind to extreme. The larger remaining branches are less flexible and this increases the likelihood of further branch failures.
- 4.7. The following advice is offered as discretionary and should be followed regardless of whether the development goes ahead or not, since this is not critical to the delivery of the project. Given the age of the tree and the location, adjacent to the highway, a cautious approach to future management is recommended. A heavy crown reduction would result in more pruning wounds, and this leads to latent fungal pathogens colonising these areas, causing pockets of decay and potential points of failure. A mid to long-term management strategy for the tree would be to provide a dynamic bracing system to ensure the longevity of the tree along with low-level pruning. The latter aspect would need to be time-tabled over several years to provide a phased reduction of the crown. If regeneration occurs around the wounds, selective pruning should be undertaken to ensure a new inner crown develops. Phased works such as this would certainly span the lifetime of the scheme.
- 4.8. The hedgerows at the site are predominantly recorded as moderate with a few low-quality features. Where hedgerows are maintained, this has been done so by brushing with flail. The predominant species are hawthorn and blackthorn, with elm and hazel occurring frequently. These hedgerows provide good screening features from outside the site. One mature moderate-quality hedgerow (H14) shows historical signs that this was laid as part of the general management of this rural site. Two low-quality semi-mature hedgerows (H24 and H25) have been laid recently, and the latter is showing limited success at the time of survey.
- 4.9. Where hedgerows have been identified as low quality, this is largely due to becoming choked by bramble or fern, which results in an inconsistent and patchy appearance of the feature as a whole.

5. CONSTRAINTS AND OPPORTUNITIES

- 5.1. The ancient oak T13 is a prominent feature and, although located outside the developable area of the site, the tree will therefore require special consideration where a proposed layout abuts the Root Protection Area (RPA) and ancient tree buffer.
- 5.2. It will therefore be necessary to consider paragraphs from section 6 of the Planning Policy Wales - Edition 12, February 2024 (PPW). In relation to Ancient Woodland, the PPW states at paragraph 6.4.43:
'Ancient woodland, semi-natural woodlands, individual ancient, veteran and heritage trees and ancient hedgerows are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees, woodlands and hedgerows are to be afforded protection from development which would result in their loss or deterioration unless very exceptionally there are significant and clearly defined public benefits; this protection must prevent potentially damaging operations and their unnecessary loss. In the

¹ Lonsdale, D. (ed.) 2013. *Ancient and other veteran trees: further guidance on management*. London: The Tree Council

² Read, H. 2000. *Veteran Trees: A guide to good management*. London: English Nature.

case of a site recorded on the Ancient Woodland Inventory, authorities should consider the advice of Natural Resources Wales (NRW). Planning authorities should also have regard to the Ancient Tree Inventory, work to improve its completeness and use it to ensure the protection of trees and woodland and identify opportunities for more planting as part of the Green Infrastructure Assessment, particularly in terms of canopy cover.'

- 5.3. The PPW goes on to state: 'The protection and planting of trees and hedgerows should be delivered, where appropriate, through locally-specific strategies and policies, through imposing conditions when granting planning permission, and/or by making Tree Preservation Orders (TPOs). They should also be incorporated into Green Infrastructure Assessments and plans.'
- 5.4. Within the Powys County Council (PCC) Local Development Plan 2011 - 2026 (adopted April 2018), Policy DM2 'The Natural Environment' states:
'4.2.13 **Ancient woodlands and hedgerows and veteran trees are irreplaceable habitats of high biodiversity value that cannot be recreated once lost.** This policy will protect them from development that would result in significant damage and developments will be expected to retain them. Where appropriate, Tree Preservation Orders (TPOs) will be served to protect significant trees from removal or harm. The amenity value of trees will be assessed in accordance with government guidance and nationally recognised systems of amenity evaluation.'
- 5.5. This policy is also referenced in the PCC Supplementary Planning Guidance (SPG) document, 'Biodiversity and Geodiversity' (adopted October 2018).
- 5.6. In the absence of any specific guidance for Wales on the incorporation of veteran or ancient trees and woodland within a proposed development and taking into account the PCC policy quoted above, an additional ancient tree buffer has been shown around T13. The RPA shown is the maximum of 15m. The ancient tree buffer shown around the stem of T13 on the Tree Survey and Constraints Plan (**Section 2**) is just over 27m and has been calculated from the stem measurement (15 x the trunk diameter).
- 5.7. The constraint posed by the ancient tree buffer is an important design consideration for the site. In this case, the proposed development must be designed to avoid the required buffer zone.
- 5.8. As the site is currently used for agriculture, the majority of the recorded arboricultural resource is located along or close to the site and field boundaries, leaving the developable area of the site relatively free from arboricultural constraints.
- 5.9. There are existing gateways providing points around the main site along with the disused railway track bed, and these could be utilised to provide access. Where access is located adjacent to established trees and within the RPA, the amount of traffic entering the site would be more significant than present usage. The ground conditions within the RPA would need to be improved to prevent localised ground compaction. A proprietary system such as 'eco-grid' or similar is recommended. This uses self-supporting, interlocking cellular containment panels which are backfilled with stone chippings to provide a wearing surface that will resist ground compaction.

- 5.10. Detrimental impacts from development might include but are not limited to damage to roots and lower branches, damage to or compaction of soil around the tree roots, and changes to the water table or drainage within the surrounding soil.
- 5.11. There is a good opportunity to improve the long-term tree cover through appropriate new tree, hedgerow or woodland planting, or supplementary planting to improve low and moderate-quality hedgerows. Laying older hedgerows to bring them back into good management is an option. Suitable planting alongside existing features, new boundary or infrastructure features (e.g. attenuation ponds), and establishing new wildlife corridors to link existing features would help with improving biodiversity and connectivity. Creation of green buffers alongside the site boundaries would help to minimise the impact of development on the site.

6. RECOMMENDATIONS AND CONCLUSION

- 6.1. The information contained within this report should be used in the preparation of design proposals for the site, in order to minimise negative arboricultural impacts.
- 6.2. The RPAs and buffer zones associated with the notable trees T2, T12, T17 and the ancient tree T13 should be considered sacrosanct and proposed development (e.g. infrastructure for the short to long-term construction) should be planned to avoid these areas.
7. The site contains high, moderate, and low arboricultural features both on and off-site. It will be important for these trees to be carefully considered in the preparation of design proposals for future development of the land, to minimise negative arboricultural impacts.
 - 7.1. Where existing gateways within an RPA are to be used for access, the tracks should be constructed using self-supporting cellular containment panels.
 - 7.2. Given the historical and recent limb failures noted within the crown of the moderate-quality oak T2, an informed management strategy is advised as discretionary works to ensure the tree can be safely retained.
 - 7.3. The developable area of the site is focussed within the interior of existing agricultural fields and is therefore relatively free from arboricultural constraints. On this basis, the development of the site to provide a solar farm is feasible from an arboricultural perspective. There is ample opportunity across the site to establish new trees and establish new or restore existing hedgerows.
- 7.4. In arboricultural terms, the development of the site is feasible subject to detailed design. The information contained within this report should be used in the preparation of the emerging design proposals for the site, in order to minimise negative arboricultural impacts.
- 7.5. I would be pleased to provide comments and advice on the emerging design proposals before drafts are finalised.



David Holmes FdSc,
MArborA, Arboriculturist



KEY

- Category A Tree - High quality (Retention highly desirable)
- Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)
- Category B Tree - Moderate quality (Retention desirable)
- Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
- Category C Tree - Low quality (May be retained but should not constrain development)
- Category C - Hedgerow, Group, Woodland - Low quality (May be retained but should not constrain development)
- Category U Tree - Very low quality (Mostly unsuitable for retention)
- Category U - Hedgerow, Group, Woodland - Very low quality (Mostly unsuitable for retention)
- Root Protection Area (RPA) - Layout design foot indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
- Shrub mass/offside tree/out of scope (OOS)
- Tree/Group/Hedgerow not on topographical survey. Location given is an estimate
- Target Note
- Ancient Tree / Woodland or Veteran Trees
 - Ancient tree or Veteran tree: Important trees that require special consideration
 - Ancient and Semi-Natural Woodland
 - Ancient tree/woodland or Veteran tree buffer: As per published standing advice from Natural England and the Forestry Commission

Tree Ref	Species	Height (m)	Life Stage	RPA Radius (m)	RPA (m ²)
T1	Willow (Goat)	16	EM	11.2	391
T2	Oak (English)	21	LM	15	707
T3	Oak (English)	6.5	SM	2	12
T4	Oak (English)	5.5	SM	1.8	10
T5	Oak (English)	6	SM	2.2	15
T6	Oak (English)	7	SM	2.4	18
T7	Oak (English)	5.5	SM	2	12
T8	Oak (English)	7	SM	3	28
T9	Oak (English)	6.5	SM	1.7	9
T10	Oak (English)	16	EM	6.1	118
T11	Oak (English)	19	EM	8.8	241
T12	Oak (English)	24	LM	15	707
T13	Oak (English)	22	LM	15	707
T14	Oak (English)	18	M	11.9	443
T15	Elm (English)	18	EM	7.1	157
T16	Oak (English)	18	EM	6.3	215
T17	Oak (English)	25	LM	15	707
T18	Oak (English)	13	SM	4.9	76
T19	Oak (English)	18	EM	8.4	222
T20*	Ash (Common)	8	SM	2.2	15
T21	Alder	12	SM	3.3	35

Group Ref	Species	Height Range (m)	Life Stage	RPA Radius (m)	RPA (m ²)
G1	English oak, field maple	8 - 14	EM	3.8	46
G2	English oak, ash, hawthorn, willow	5 - 18	EM	4.9	76
G3	English elm, ash, hawthorn	3 - 18	EM	4.8	72
G4	English elm, ash, hawthorn	3 - 18	EM	6	113
G5	Hybrid black poplar, blackthorn	3.5 - 10	SM	1.7	9
G6	Cypress	14	SM	3.2	33

Label	Description
OOS 1	Dead standing multi stemmed elm, established on road side embankment, estimated max. height 4.5m @ 15m & 500mm (d)
OOS 2	Dead standing multi stemmed elm, established on road side embankment, estimated max. height 4.5m @ 15m & 300mm (d)
OOS 3	Mature poplar stump
OOS 4	Mature poplar stump
OOS 5	Mature poplar stump
OOS 6	Mature poplar stump
OOS 7	Mature poplar stump
OOS 8	Mature poplar stump
OOS 9	Mature poplar stump
OOS 10	Mature poplar stump
OOS 11	Mature poplar stump
OOS 12	Mature poplar stump
OOS 13	Mature poplar stump
OOS 14	Mature poplar stump
OOS 15	Mature poplar stump
OOS 16	Mature poplar stump
OOS 17	Mature poplar stump
OOS 18	Mature poplar stump
OOS 19	Mature poplar stump
OOS 20	Mature poplar stump
OOS 21	Mature poplar stump
OOS 22	Mature poplar stump
OOS 23	Mature poplar stump
OOS 24	Mature poplar stump
OOS 25	Mature poplar stump
OOS 26	Mature poplar stump
OOS 27	Waterlogged at time of survey (mid December 2025)
OOS 28	Mature oak stump
OOS 29	Waterlogged at time of survey (mid December 2025)
OOS 30	Empty fenced tree enclosure
OOS 31	Stand of close green trees (oak, ash, hawthorn), established on SE of disused railway line embankment, estimated max. height 4.5m @ 15m & 400mm
OOS 32	Cluster of dogrose, not recorded on topo
OOS 33	Off-site thicket of thorn, birch, yew, goat willow, elder, estimated max. height & dia. @ 15m & 150mm, not plotted on topo
OOS 34	Old-growth Elm & hazel hedge, estimated max. height & dia. @ 15m & 150mm, not plotted on topo
OOS 35	Mature ash stump
OOS 36	Dead standing elm stem, estimated max. height & dia. @ 15m & 600mm
OOS 37	Dead standing elm stem non-progressive lean to NW, estimated max. height & dia. @ 15m & 500mm
OOS 38	Dead elm hedge, sides historically brushed by fall & top growth left unchecked, estimated max. height & dia. @ 7m & 100mm
OOS 39	Dead standing elm stem, estimated max. height & dia. @ 15m & 300mm
OOS 40	Dead standing elm stem, estimated max. height & dia. @ 15m & 250mm
OOS 41	Dead elm hedge, sides historically brushed by fall & top growth left unchecked, estimated max. height & dia. @ 15m & 140mm

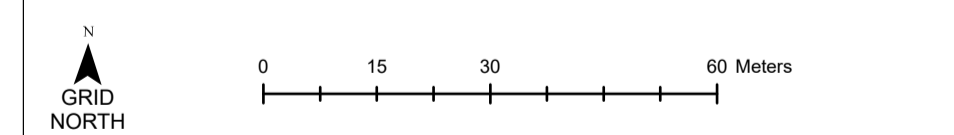
Target Notes

Label	Description
TN 1	Disused gate in hedge
TN 2	Gap in hedge made good using hurdles
TN 3	Disused railway line, used for agricultural access, either not well established lower slope surfaces, good headroom 4.5m+

Tree Canopy Area	Tree Group Canopy Area	Hedgerow Canopy Area			
Category	Total SCOM	Category	Total SCOM	Category	Total SCOM
A	520.2	A	2345.2	B	6514.4
B	1202.2	C	356.8	C	1399.9
C	169.5				



Note: The original of this drawing was produced in colour - a monochrome copy should not be relied upon. This drawing should be interpreted with reference to the accompanying tree schedule and written advice.



PROJECT TITLE: **Brogan Solar Farm (7109)**

DRAWING TITLE: **Tree Survey and Constraints Plan**

SCALE: **1:1,000 @ A1** DRAWING NUMBER: **BHA_7109_01**

DRAWN BY: **AT** APPROVED BY: **DH** REVISION: **-** SHEET: **-** DATE: **05/01/2026**

COORDINATE SYSTEM / DATUM: **British National Grid / Newlyn Datum (AOD)**

CLIENT: **Pegasus Planning Group**

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DRAWING PRODUCED BY: **SUMMIT GEO**

Hedge Ref	Species	Avg. Height (m)	Life Stage	RPA Radius (m)	RPA (m ²)
H1*	Hawthorn, hazel, beech, ash, oak, elm	10	EM	3	28
H2	Hazel, blackthorn, elm, dogrose	3.5	SM	1.3	5
H3	Hawthorn, hazel, blackthorn, ash, elm, dogrose	3.5	SM	1.3	5
H4	Blackthorn, elm	3	SM	1	3
H5	Blackthorn, elm, hazel, field maple, dogrose	3	SM	1	3
H6	Blackthorn, beech, elm, hazel, field maple, dogrose	2.5	SM	1	3
H7	Blackthorn, beech, hazel, field maple, elm, dogrose	2	SM	1.1	4
H8	Blackthorn, elm, dogrose	2.5	SM	0.8	2
H9	Blackthorn, field maple, hazel, ash, holly, dogrose	2.75	SM	1	3
H10	Hazel, holly, blackthorn, elder	2	SM	1.1	4
H11	Hawthorn, elm, ash, sycamore, dogrose	3.5	SM	2	13
H12	Hawthorn, ash	4	SM	2	12
H13	Hawthorn, blackthorn, dogrose	3	SM	1	3
H14	Hawthorn, blackthorn, ash, dogrose	3.5	M	1.3	5
H15*	Field maple, blackthorn, elder	3	SM	1.7	9
H16*	Hawthorn, blackthorn, field maple, hazel, oak, guelder rose	4	EM	1.8	10
H17*	Blackthorn	3.5	SM	0.6	1
H18*	Ash	7.5	EM	1.3	5
H19	Hawthorn, ash, oak	4.5	SM	2	12
H20	Hawthorn, ash	6.5	SM	2	12
H21	Hawthorn, blackthorn, ash, elm, dogrose	5	SM	2.3	16
H22	Hawthorn, ash, elm, dogrose	4.5	SM	1.3	5
H23*	Hawthorn, ash	10	EM	3	28
H24	Hawthorn, ash, elm, dogrose, elder	3	SM	1	3
H25	Hawthorn, ash, elder	2.5	SM	1	3
H26*	Hawthorn, ash, elder	11	EM	2.6	22
H27	Hawthorn, hazel, ash, oak, sycamore, elder	5.5	SM	1.6	8
H28*	Hawthorn, ash	8.5	EM	2	12



IMAGE 1: A view looking north at the moderate quality oak T2. NOTE: historical & recent storm damage have left the tree with a disjointed crown.

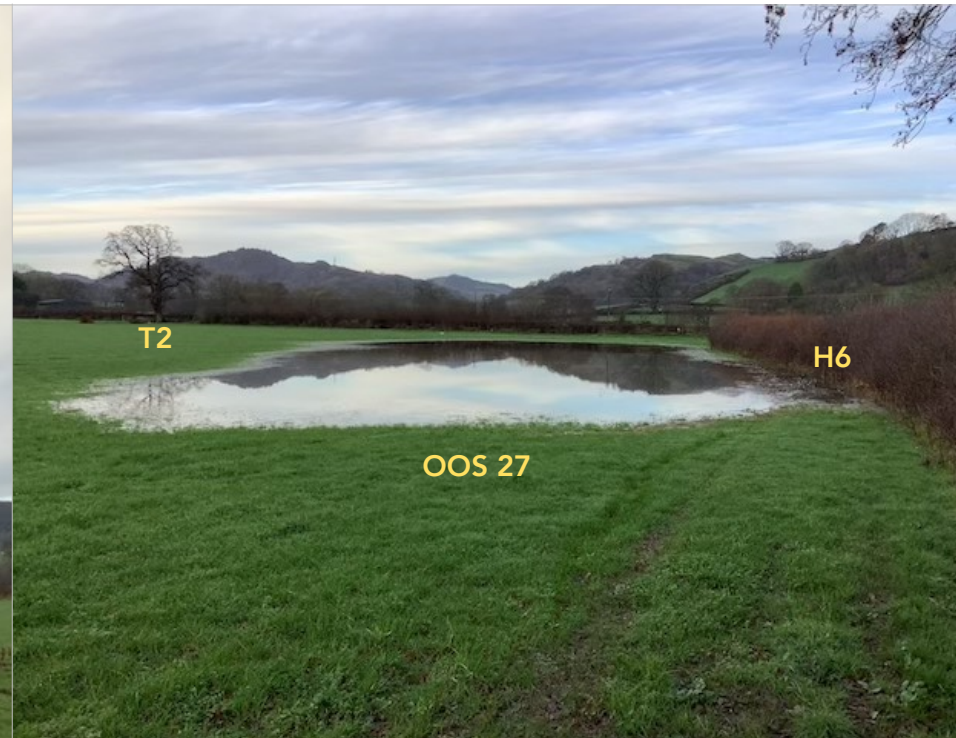


IMAGE 2: A view looking west, taken close to the northern boundary of the site. NOTE: heavy water logging (see OOS 27 & 29 on the plan in Section 2).

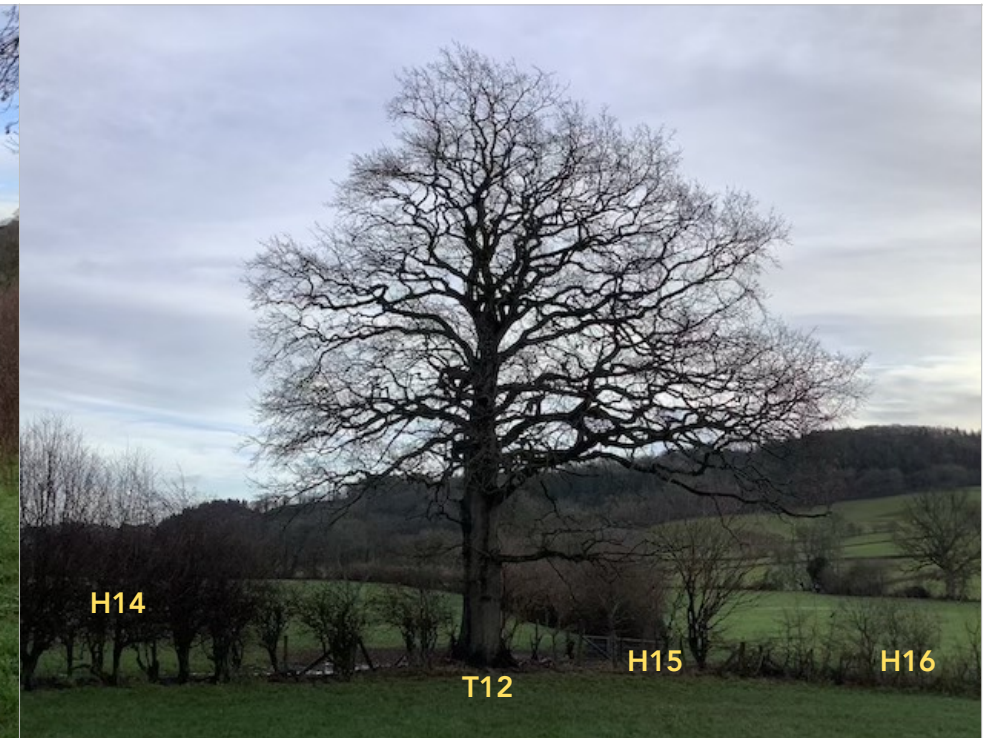


IMAGE 3: A view looking east at the high quality oak T12. The tree has a wide spreading crown

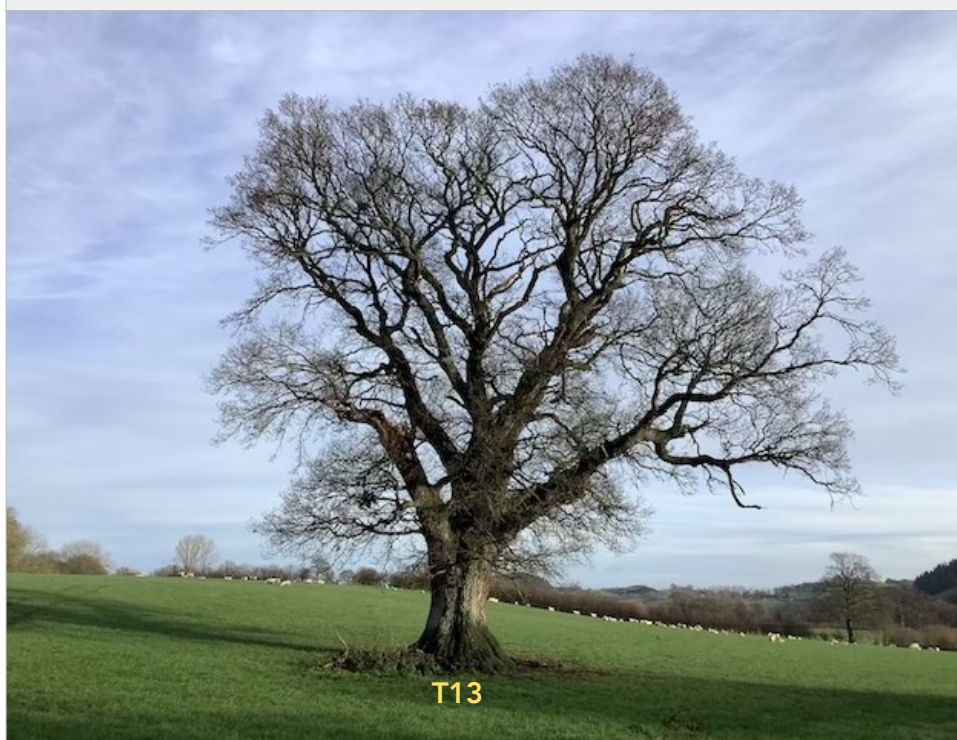


IMAGE 4: A view looking north east at the high quality ancient oak T13. The tree has the appearance of lapsed pollard.



IMAGE 5: A view looking west at the moderate quality oak T14 in relation to the existing gateway (taken from atop the disused railway embankment).

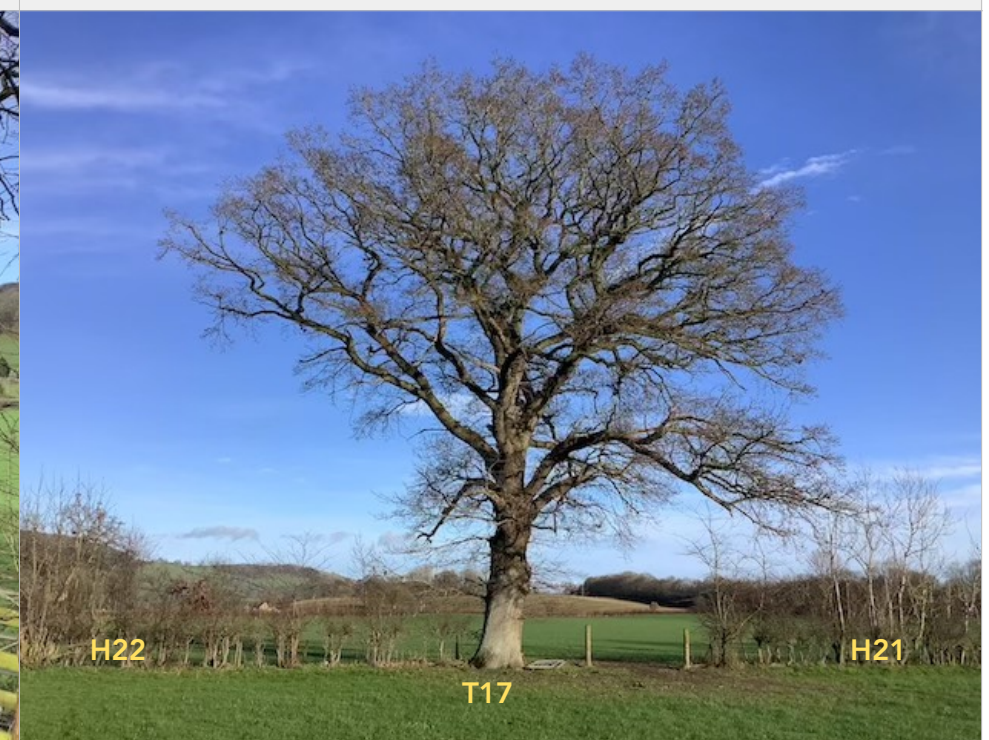


IMAGE 6: A view looking north at the high quality oak T17. The tree shows wound sites from historical storm damage & a wide spreading crown.

INDIVIDUAL TREES

Ref	Species	On / off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Est remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	Veteran / Ancient Tree buffer radius (m)
T1	Willow (Goat)	Off	16.0	6	Yes	930	7.0-7.0-6.0-5.5	4.0	0.0	-	EM	-	Established on road side embankment; typical for age & species; crown swathed in ivy	Good	Fair	20+	B1	11.2	391.0	-
T2	Oak (English)	On	21.0	1	-	1360	8.0-9.0-8.5-9.0	3.0	0.0	-	LM	Notable tree	Adjacent to field gate; road side lay-by to N; historical crown lift above highway; historical storm damage to N of central stem @10m with tear out wound & associated decay; recent storm damage to S of crown @3.5m with most debris cleared leaving only brash; crown is disjointed with a clear E & W divide	Good	Fair	20+	B3	15.0	707.0	-
T3	Oak (English)	On	6.5	1	Yes	160	2.0-3.5-1.0-0.5	2.0	2.0	SE	SM	-	Formally established hedgerow tree; stake & tube in situ; protected by fence enclosure; suppressed by stand of trees to SW causing an asymmetric crown	Good	Fair	20+	C1	2.0	12.0	-
T4	Oak (English)	On	5.5	1	Yes	150	2.0-2.0-2.0-2.0	3.0	2.5	E	SM	-	Formally established hedgerow tree; stake & tube in situ; protected by fence enclosure; suppressed by outgrown hazel stems within enclosure	Good	Fair	20+	C1	1.8	10.0	-
T5	Oak (English)	On	6.0	1	Yes	180	3.0-3.0-3.0-3.0	2.5	2.5	S	SM	-	Formally established hedgerow tree; stake & tube in situ; protected by fence enclosure; suppressed by outgrown hazel stems within enclosure	Good	Fair	20+	C1	2.2	15.0	-
T6	Oak (English)	On	7.0	1	Yes	200	3.0-3.0-3.0-3.0	3.0	2.5	S	SM	-	Formally established hedgerow tree; stake & tube in situ; protected by fence enclosure; suppressed by outgrown maple & thorn stems within enclosure	Good	Fair	20+	C1	2.4	18.0	-
T7	Oak (English)	On	5.5	1	Yes	160	2.0-2.5-2.0-2.5	3.0	1.5	SW	SM	-	Formally established hedgerow tree; stake & tube in situ; protected by fence enclosure	Good	Fair	20+	C1	2.0	12.0	-
T8	Oak (English)	On	7.0	1	Yes	250	3.0-3.5-3.0-3.0	3.0	2.0	S	SM	-	Formally established hedgerow tree; stake & tube in situ; protected by fence enclosure	Good	Fair	20+	C1	3.0	28.0	-
T9	Oak (English)	On	6.5	1	Yes	140	2.0-2.5-1.5-2.0	3.5	3.0	S	SM	-	Formally established hedgerow tree; stake & tube in situ; protected by fence enclosure; mildly suppressed by outgrown maple stems within enclosure	Good	Fair	20+	C1	1.7	9.0	-
T10	Oak (English)	On	16.0	1	-	510	7.0-4.0-8.0-7.0	4.0	4.5	NW	EM	-	Adjacent to hedge; recent crown lift above field; laterally suppressed by adjacent oak	Good	Fair	20+	B1	6.1	118.0	-
T11	Oak (English)	On	19.0	3	Yes	730	7.5-8.0-8.0-7.5	4.5	0.0	-	EM	-	Established on hedge bank; triple stemmed forming a cohesive crown; lite ivy cover to stems	Good	Fair	20+	B1	8.8	241.0	-
T12	Oak (English)	On	24.0	1	-	1290	10.0-10.0-10.0-10.0	3.0	3.5	W	LM	Notable tree	Adjacent to offsite gateway & boundaries; historical storm damage to E of stem @4.5m with tear out wound & associated decay; wide spreading crown; good lower stem taper	Good	Good	40+	A1	15.0	707.0	-

Ref	Species	On / off site	Top Height (m)	No. of Stems	Est diam?	Calc. / Actual Stem Dia. (mm)	Crown radii (m) N-E-S-W	Avg low crown height (m)	1st branch ht (m)	1st branch dir.	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Est remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	Veteran / Ancient Tree buffer radius (m)
T13	Oak (English)	On	22.0	1	-	1810	10.0-10.5-12.5-10.5	3.0	0.0	-	LM	Ancient	In field tree; lapsed pollard; historical storm damage to NW of crown @4.5m with tear out wound & associated decay; debris piled on ground beneath wound site; wide spreading crown with small to moderate sized deadwood throughout; wide root collar / stem taper; visible basal cavity to E; cavities throughout crown at wound sites	Good	Good	40+	A3	15.0	707.0	27.15
T14	Oak (English)	On	18.0	1	-	990	9.0-9.0-8.0-8.5	3.5	3.5	SW	M	-	Adjacent to field gate; established on NW of disused railway line embankment; historical crown lift to E for clearance above gateway; upper crown contains many contorted limbs	Good	Fair	40+	B1	11.9	443.0	-
T15	Elm (English)	On	18.0	1	-	590	6.0-5.0-7.0-7.0	2.5	2.0	S	EM	-	Laterally suppressed by adjacent trees; good vigour throughout crown with only minor twiggy deadwood	Good	Fair	20+	B1	7.1	157.0	-
T16	Oak (English)	On	16.0	1	-	690	7.0-7.0-8.0-7.0	3.0	3.0	SW	EM	-	Typical for age & species; upper crown contains many contorted limbs	Good	Fair	20+	B1	8.3	215.0	-
T17	Oak (English)	On	25.0	1	-	1430	10.0-11.0-11.5-11.0	3.5	2.0	NW	LM	Notable tree	Adjacent to field gate; historical storm damage to E & S of stem @6m with damaged branch stubs & associated decay; wide spreading crown with small to moderate sized deadwood throughout; historical crown lift wounds @3m to E of stem	Good	Good	40+	A3	15.0	707.0	-
T18	Oak (English)	On	13.0	1	-	410	6.0-5.0-6.0-5.0	3.5	2.5	S	SM	-	Established on SE of disused railway line embankment; upper crown contains many contorted limbs	Good	Fair	20+	B1	4.9	76.0	-
T19	Oak (English)	On	18.0	1	Yes	700	8.0-8.0-8.0-7.0	3.5	0.0	-	EM	-	Established on SE of disused railway line embankment; twin stemmed from 1.5m (dia. est. @0.5m); crown swathed in ivy	Good	Fair	20+	B1	8.4	222.0	-
T20*	Ash (Common)	On	8.0	1	Yes	180	2.5-2.5-2.5-2.0	3.5	0.0	-	SM	-	Typical for age & species; flail damage to lower stem	Fair	Fair	20+	C1	2.2	15.0	-
T21	Aspen	On	12.0	1	Yes	280	4.0-4.0-3.0-3.0	3.5	2.5	W	SM	-	Typical for age & species; impact damage to lower stem	Good	Fair	20+	C1	3.3	35.0	-

GROUPS OF TREES

Ref	Species	On / off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Avg crown radius (m)	Avg low crown height (m)	Life Stage	General Observations	Health & vitality	Structural condition	Est remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G1	English oak; field maple	On	8 - 14	4	-	320.0	4.5	3.0	EM	Stand of close grown trees forming a cohesive crown; lower sides of crown brushed by flail for clearance	Good	Fair	20+	B2	3.8
G2	English oak; ash; hawthorn; willow	On	5 - 18	45	-	410.0	5.0	3.0	EM	Stand of close grown multi stemmed trees; established on NE of disused railway line embankment; localised crown lift to several stems on NW for clearance	Good	Fair	20+	B2	4.9

Ref	Species	On / off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Avg crown radius (m)	Avg low crown height (m)	Life Stage	General Observations	Health & vitality	Structural condition	Est remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G3	English elm; ash; hawthorn	On	3 - 18	10	-	400.0	6.0	3.5	EM	Stand of close grown multi stemmed trees; established on SE of disused railway line embankment; localised crown lift to several stems on NW for clearance; 2x dead elm stems (see OOS points)	Good	Fair	20+	B2	4.8
G4	English elm; ash; hawthorn	On	3 - 18	12	Yes	500.0	6.5	3.5	EM	Stand of close grown multi stemmed trees; established on field boundary; 4x ash stems show flail damage to SW of lower stems; presenting as occluding wounds with exposed heartwood & associated decay	Fair	Fair	20+	B2	6.0
G5	Hybrid black poplar; blackthorn	On	3.5 - 10	2	-	140.0	6.0	3.5	SM	Close grown multi stemmed trees; established on NW of disused railway line embankment; localised crown lift for clearance	Good	Fair	20+	C2	1.7
G6	Cypress	On	14	20	-	270.0	3.0	0.5	SM	Close grown multi stemmed trees; possibly established as a windbreak / screening	Good	Fair	20+	C2	3.2

HEDGEROWS

Ref	Species	On / off site	Avg Height (m)	Avg width (m)	Avg stem diam (mm)	Avg low crown height (m)	Life Stage	General Observations	Health & vitality	Structural condition	Est remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H1*	Hawthorn; hazel; beech; ash; oak; elm	On	10.0	5.5	250	0.0	EM	Maintained patchy hedge on road side embankment; sides brushed by flail & top growth left unchecked; predominantly thorn with established ash stems; several stems topped @2 - 3m beneath overhead power lines	Fair	Fair	20+	C2	3.0
H2	Hazel; blackthorn; elm; dogrose	On	3.5	2.75	100	0.0	SM	Sporadically maintained hedge; sides brushed by flail & top growth left unchecked	Good	Fair	20+	B2	1.3
H3	Hawthorn; hazel; blackthorn; ash; elm; dogrose	On	3.5	2.75	100	0.0	SM	Sporadically maintained hedge; sides brushed by flail & top growth left unchecked; suckers to E in field margin (thorn)	Good	Fair	20+	B2	1.3
H4	Blackthorn; elm	On	3.0	2.75	80	0.0	SM	Sporadically maintained hedge; brushed by flail; orphan section; patchy beneath mature tree	Fair	Fair	20+	B2	1.0
H5	Blackthorn; elm; hazel; field maple; dogrose	On	3.0	2.75	80	0.0	SM	Sporadically maintained hedge; brushed by flail to N around junction; suckers to E in field margin (mostly thorn; elm & regen from poplar stumps); patchy to N	Good	Fair	20+	B2	1.0
H6	Blackthorn; beech; elm; hazel; field maple; dogrose	On	2.5	2.5	80	0.0	SM	Sporadically maintained hedge; brushed by flail to W around junction; waterlogged ground to S; flooded ditch to N; suckers to S in field margin (mostly thorn & dogrose)	Good	Fair	20+	B2	1.0
H7	Blackthorn; hawthorn; hazel; field maple; elm; dogrose	Off	2.0	2	90	0.0	EM	Maintained hedge; sides brushed by flail	Good	Fair	20+	B2	1.1
H8	Blackthorn; elm; dogrose	On	2.5	1.5	70	0.0	SM	Sporadically maintained hedge; brushed by flail; shaded out by stand of trees to S	Fair	Fair	20+	C2	0.8
H9	Blackthorn; field maple; hazel; ash; holly; dogrose	On	2.75	2	80	0.0	SM	Sporadically maintained hedge; brushed by flail; suckers to S in field margin (mostly thorn)	Good	Fair	20+	B2	1.0
H10	Hazel; holly; blackthorn; elder	Off	2.0	2	90	0.0	EM	Maintained hedge; sides brushed by flail	Good	Fair	20+	B2	1.1
H11	Hawthorn; elm; ash; sycamore; dogrose	On	3.5	2.5	170	0.0	SM	Boundary hedge at foot of disused railway line embankment; losing integrity as shaded out by established trees to SE; brushed by flail to NW; occasional evidence (to approximate middle of hedge) of older ash stems which have been historically laid	Fair	Fair	20+	C2	2.0
H12	Hawthorn; ash	On	4.0	3	160	0.0	SM	Boundary hedge at foot of disused railway line embankment; sides brushed by flail & top growth left unchecked; predominantly thorn; sample recorded where feature abuts survey area	Good	Good	20+	B2	2.0

Ref	Species	On / off site	Avg Height (m)	Avg width (m)	Avg stem diam (mm)	Avg low crown height (m)	Life Stage	General Observations	Health & vitality	Structural condition	Est remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H13	Hawthorn; blackthorn; dogrose	On	3.0	2.5	80	0.0	SM	Maintained hedge; brushed by flail; sides brushed by flail & top growth left unchecked	Good	Good	20+	B2	1.0
H14	Hawthorn; blackthorn; ash; dogrose	On	3.5	2.5	100	0.0	M	Maintained hedge; brushed by flail; sides brushed by flail & top growth left unchecked; historical evidence that hedge was once laid; predominantly thorn	Good	Good	20+	B2	1.3
H15*	Field maple; hawthorn; elder	On	3.0	3.5	140	0.5	SM	Outgrown / sporadic section of neglected hedge; established beneath mature tree	Fair	Fair	20+	C2	1.7
H16*	Hawthorn; blackthorn; field maple; hazel; oak; guelder rose	On	4.0	3.5	150	0.0	EM	Maintained hedge; brushed by flail; sides brushed by flail & top growth left unchecked; historically laid; becomes patchy to E beneath mature tree; predominantly thorn; fence to N	Good	Good	20+	B2	1.8
H17*	Blackthorn	On	3.5	3.5	50	0.0	SM	Double width orphan section of hedge; sides brushed by flail & top growth left unchecked	Good	Fair	20+	C2	0.6
H18*	Ash	On	7.5	3.5	100	0.0	EM	Outgrown sporadically maintained hedge; sides brushed by flail & top growth left unchecked	Good	Fair	20+	C2	1.3
H19	Hawthorn; ash; oak	On	4.5	3	160	0.0	SM	Maintained hedge; sides brushed by flail with top growth left unchecked; predominantly thorn	Good	Good	20+	B2	2.0
H20	Hawthorn; ash	On	6.5	3.5	160	0.0	SM	Maintained hedge; sides brushed by flail with top growth left unchecked; predominantly thorn	Good	Fair	20+	B2	2.0
H21	Hawthorn; blackthorn; ash; elm; dogrose	On	5.0	3	190	0.0	SM	Maintained patchy hedge; sides brushed by flail & top growth left unchecked; predominantly thorn with established ash & elm stems arising from old stumps; sporadic gaps to middle <3m where elm stems have died off; means of enclosure made good with fencing	Fair	Fair	20+	B2	2.3
H22	Hawthorn; ash; elm; dogrose	On	4.5	3	100	0.0	SM	Maintained patchy hedge; sides brushed by flail & top growth left unchecked; predominantly thorn with established ash stems arising from old stumps	Good	Fair	20+	B2	1.3
H23*	Hawthorn; ash	On	10.0	5.5	250	0.0	EM	Maintained hedge on disused railway embankment; sides brushed by flail & top growth left unchecked; predominantly thorn with established ash stems arising from old stumps	Good	Fair	20+	B2	3.0
H24	Hawthorn; ash; elm; dogrose; elder	On	3.0	2.5	80	0.0	SM	Boundary hedge at foot of disused railway line embankment; has been laid with limited success; many stocks at opposing ends appear to have failed; mid section has a much better success rate; predominantly thorn	Fair	Good	20+	C2	1.0
H25	Hawthorn; ash; elder	On	2.5	2	80	0.0	SM	Boundary hedge at foot of disused railway line embankment; has been laid with limited success; many stocks appear to have failed & the plot is becoming colonised by ferns; predominantly thorn	Fair	Fair	<10	C2	1.0
H26*	Hawthorn; ash; elder	On	11.0	5.5	220	0.0	EM	Maintained hedge on disused railway embankment; sides brushed by flail & top growth left unchecked; predominantly thorn with established ash stems arising from old stumps	Good	Fair	20+	B2	2.6
H27	Hawthorn; hazel; ash; oak; sycamore; elder	On	5.5	3	130	0.0	SM	Boundary hedge at foot of disused railway line embankment; track side brushed by flail & top growth left unchecked; predominantly thorn	Good	Good	20+	B2	1.6
H28*	Hawthorn; ash	On	8.5	4.5	160	0.0	EM	Maintained hedge on disused railway embankment; sides brushed by flail & top growth left unchecked; predominantly thorn with established ash stems arising from old stumps	Good	Fair	20+	B2	2.0

- The tree survey was carried out with reference to the methodology set out in BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (e.g. avenues or screens) or culturally (including for biodiversity). However, where it was considered that there was an arboricultural need to differentiate between attributes trees within groups and/or woodlands were also surveyed as individuals.
- Within the tree survey schedule, each surveyed TREE (T), GROUP (G), HEDGEROW (H), WOODLAND (W) or SHRUB MASS on or adjacent to the site is given a reference number which refers to its position on the tree survey and constraints plan.
- TREE SPECIES are listed by common name.
- OOS: The recorded Out Of Scope trees and features refer to either a dead-standing or failed tree; a stump or minor shrubs; where trees are inaccessible or located off-site and unlikely to be affected by the development or, it is found that the trees are undersized according to BS 5837:2012, which stipulates a minimum recordable diameter of 75mm.

The **DIMENSIONS** taken are:

- STEM-No. indicates the number of main stems (i.e. whether the trunk divides at or below 1.5m; (used in the calculation of root protection area (RPA)) "m-s" = Multi-stemmed.
- STEM DIAMETER (measured in millimetres), obtained from the girth measured at approx. 1.5m. For trees with 2 to 5 sub-stems, a notional figure is derived from the sum of their cross-sectional areas. For multi-stemmed trees, the notional diameter may be estimated on the basis of the average stem size x the number of stems. Note: a notional diameter may be estimated where measurement is not possible.
- HEIGHT (measured in metres), recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- The CROWN SPREAD, taken at the four cardinal points to derive an accurate representation of the tree crown, recorded up to the nearest half metre for dimensions up to 10m and to up the nearest whole metre for dimensions over 10m.
- CROWN CLEARANCES, expressed both as the existing height above ground level of the first significant branch along with its direction of growth (e.g., 2.5m-N) and also in terms of the overall crown e.g., the average height of the crown above ground level. Measurements are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m.
- ESTIMATES: where any measurement has had to be estimated, e.g., due to inaccessibility, this is indicated by a "#" suffix to the measurement as shown in the Tree Survey Schedule.

LIFE STAGE is defined as follows:

- Y Young: Normally stake dependent, establishing trees. Should be growing fast, usually primarily increasing in height more than spread but as yet making a limited impact upon the landscape.
- SM Semi-mature: Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact on the local landscape and environment. Semi-mature are still capable of being transplanted without preparation, up to 300mm girth and not yet sexually mature.

- EM Early-mature: Not yet having reached 75% of expected mature size. Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact on the local landscape and environment.
- M Mature: Well-established trees, still growing with some vigour but tending to fill out and increase spread. Bark may be beginning to crack and fissure. In the middle half of their safe, useful life expectancies.
- LM Late-mature: In full maturity but possibly beyond mature and in a state of natural decline. Still retaining some vigour but any growth is slowing.
- A Ancient: A tree that has passed beyond maturity and is old/aged compared with other trees of the same species. Typically having a very wide trunk and a small canopy.

PHYSIOLOGICAL CONDITION (HEALTH & VITALITY):

Essentially a snapshot of the general health of the tree based upon its general appearance, its apparent vigour and the presence or absence of symptoms associated with poor health, physiological stress etc. (fungal infections may be recorded here but decay giving rise to structural weakness would be recorded under 'Structural Condition' – see next parameter):

Good: No significant health issues.

Fair: Indications of slight stress or minor disease (e.g., the presence of minor dieback/deadwood or epicormic shoot growth).

Poor: Significant stress or disease noted; larger areas of dieback than above.

Dead: (or Moribund).

STRUCTURAL CONDITION:

Features affecting the structural stability of the tree include decay, significant deadwood, root-plate instability or significant damage to structural roots, weak forks (e.g. those where bark is included between the members) etc.

Classified as:

Good: No obvious structural defects: basically sound.

Fair: Minor, potential or incipient defects.

Poor: Significant feature(s) likely to lead to actual failure in the medium- to long-term.

Dead: (or Moribund).

ESTIMATED REMAINING CONTRIBUTION:

An estimate of the length of time in years that a tree might be expected to continue to make a useful contribution to the locality at an acceptable level of risk (based on an assumption of continued routine maintenance):

- Less than 10 years
- 10+ years
- 20+ years
- 40+ years

SPECIAL IMPORTANCE:

Trees that are particularly notable as high-value trees such as ancient trees/woodland or veteran trees. Such trees may be regarded as the principal arboricultural features of a site and pose a significant constraint to potential development.

An **ancient** tree is one that has passed beyond maturity and is very old compared with other trees of the same species. Very few trees reach the ancient life stage. **Veteran** trees are often very old but not necessarily so; they may be regarded as 'survivors' that have developed some of the characteristic features of an ancient tree but have not necessarily lived as long. All ancient trees are veterans but not all veteran trees are ancient.

The term '*notable*' carries no weight within the National Planning Policy Framework (NPPF), but is a term that recognises a mature tree which may stand out in the local environment because it is large in comparison with other trees around it.

Ancient woodland is an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS) and ancient replanted woodland (ARW).

QUALITY CATEGORY:

Trees are classed as category U, A, B or C, based on criteria given in BS 5837:2012; summary definitions as follows (see BS 5837 for further details). Categories A, B and C are further characterised by the use of sub-categories, which attempt to identify what aspect of the tree is the main source of its perceived value. These are:

- (1) arboricultural qualities
- (2) landscape qualities, and
- (3) cultural, historic or ecological/conservation qualities.

Examples of these qualities for each of the three categories are given below, although these are indicative only.

Note: This is NOT a health and safety classification; the classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.

CATEGORY A: HIGH QUALITY

Trees or groups whose retention should be given a particularly high priority within the design process. Normally with an expected useful life expectancy of at least 40 years.

- A1: Notably fine specimens; rare or unusual specimens; essential component trees within groups, semi-formal or formal plantings (e.g., dominant trees within an avenue etc.).
- A2: Trees, groups or woodlands of particular visual importance as landscape features.
- A3: Trees, groups or woodlands of particular significance by virtue of their conservation, historical, commemorative or other value (e.g., veteran trees or wood pasture).

CATEGORY B: MODERATE QUALITY

Trees or groups of some importance with a likely useful life expectancy in excess of 20 years. Their retention would be desirable; selective removal of certain individuals may be acceptable but only after full consideration of all alternative courses of action.

- B1: Fair quality but not exceptional; good specimens showing some impairment (e.g., remediable defects, minor storm damage or poor past management).
- B2: Acceptable trees situated such as to have little visual impact within the wider locality. Also the number of trees, perhaps in groups or woodlands, whose value as landscape features is greater collectively than would warrant as individuals (such that the selective removal of an individual would not impact greatly upon the trees' overall, collective value).
- B3: Trees, groups or woodlands with clearly identifiable conservation or other cultural benefits.

CATEGORY C: LOW QUALITY

Trees or groups of rather low quality, although potentially capable of retention for at least approx. 10 years. Also small trees with stems below 150mm diameter.

Potentially retainable, but not of sufficient value to be regarded as a significant planning constraint.

- C1: Unremarkable trees of very limited merit or significantly impaired condition.
- C2: Trees offering only low- or short-term landscape benefits; also secondary specimens within groups or woodlands whose loss would not significantly diminish their landscape value.
- C3: Trees with extremely limited conservation or other cultural benefits.

CATEGORY U: VERY LOW QUALITY

Trees likely to prove to be unsuitable for retention for longer than 10 years should any significant increase in site usage arise as a result of development. E.g., dead or moribund trees; those at risk of collapse or in terminal decline; trees that will be left unstable by other essential works such as the removal of nearby category U trees; trees infected by pathogens that could materially affect other trees; low-quality trees that are suppressing better specimens. (Category U trees may have conservation values that it might be desirable to preserve. This category may also include trees that should be removed irrespective of any development proposals.)

ROOT PROTECTION AREA (RPA):

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times the stem diameter, measured at 1.5m above ground level. The shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.

VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)

In line with the Standing Advice produced by the Forestry Commission and Natural England, this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's stem diameter.

ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)

In line with the Standing Advice produced by the Forestry Commission and Natural England, this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required.

THE IMPORTANCE OF TREES

Wider benefits:

There is a growing body of evidence that trees bring a wide range of benefits to the places where people live.

Some *economic* benefits of trees include:

- Trees can increase property values
- As trees grow larger, the lift they give to property values grows proportionately
- They can improve the environmental performance of buildings by reducing heating and cooling costs, thereby cutting bills
- Mature landscapes with trees can be worth more as development sites
- Trees create a positive perception of a place for potential property buyers
- Urban trees improve the health of local populations, reducing healthcare costs

Some *social* benefits of trees include:

- Trees help create a sense of place and local identity
- They benefit communities by increasing pride in the local area
- They can create focal points and landmarks
- They have a positive impact on people's physical and mental health
- They can have a positive impact on crime reduction

Some *environmental* benefits of trees include:

- Urban trees reduce the 'urban heat island effect' of localised temperature extremes
- They provide shade, making streets and buildings cooler in summer
- They help remove dust and particulates from the air
- They help to reduce traffic noise by absorbing and deflecting sound
- They help to reduce wind speeds
- By providing food and shelter for wildlife, they help increase biodiversity
- They can reduce the **effects** of flash flooding by slowing the rate at which rainfall reaches the ground
- They can help remediate contaminated soil

On new development sites:

Trees bring many benefits to new development. Where retained successfully they can form important and sustainable elements of green infrastructure, contribute to urban cooling and reduce energy demands in buildings. Their importance is acknowledged in relation to adaptation to the effects of climate change. Other benefits brought by trees include:

- Increasing property values
- Visual amenity
- Softening, complementing and adding maturity to built form
- Displaying seasonal change
- Increasing wildlife opportunities in built-up areas
- Contributing to screening and shade
- Reducing wind speed and turbulence

NATIONAL PLANNING POLICY

Paragraph 6.4.43 of the Planning Policy Wales - Edition 12, February 2024 (PPW) states in relation to Ancient Woodland:

'Ancient woodland, semi-natural woodlands, individual ancient, veteran and heritage trees and ancient hedgerows are irreplaceable natural resources, and have significant landscape, biodiversity and cultural value. Such trees, woodlands and hedgerows are to be afforded protection from development which would result in their loss or deterioration unless very exceptionally there are significant and clearly defined public benefits; this protection must prevent potentially damaging operations and their unnecessary loss¹³⁹. In the case of a site recorded on the Ancient Woodland Inventory, authorities should consider the advice of NRW. Planning authorities should also have regard to the Ancient Tree Inventory, work to improve its completeness and use it to ensure the protection of trees and woodland and identify opportunities for more planting as part of the Green Infrastructure Assessment, particularly in terms of canopy cover'.

The PPW goes on to state:

'The protection and planting of trees and hedgerows should be delivered, where appropriate, through locally-specific strategies and policies, through imposing conditions when granting planning permission, and/or by making Tree Preservation Orders (TPOs)¹⁴⁰. They should also be incorporated into Green Infrastructure Assessments and plans'.

STATUTORY CONTROLS

Statutory tree protection

Works to trees that are covered by Tree Preservation Orders (TPOs) or are within a Conservation Area (CA) require permission or consent from the Local Planning Authority. Where information is available on any Statutory designations such as this they are identified within the summary table in Section 1 and on the Tree Survey and Constraints Plan in Section 2.

Notwithstanding specific exceptions and in general terms, a TPO prevents the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of protected trees or woodlands without the prior written consent of the LPA.

Penalties for contravention of a TPO tend to reflect the extent of damage caused but can, in the event of a tree being destroyed, result in a fine of up to £20,000 if convicted in a Magistrates' Court, or an unlimited fine if the matter is determined by the Crown Court.

Similarly, and again notwithstanding specific exceptions, it is an offence to carry out any works to a tree in a Conservation Area with a trunk diameter greater than 75mm diameter at 1.5 height without having first provided the LPA with 6 weeks written notification of intent to carry out the works.

On many non-residential sites (excluding specific exemptions) there is also a statutory restriction relating to tree felling that relates to quantities of timber that can be removed within set time periods. In basic terms, it is an offence to remove more than 5 cubic metres of timber in any one calendar quarter without having first obtained a felling licence from the Forestry Commission.

Any proposed tree works that are planned to be carried out on-site must be carried out in accordance with the statutory controls outlined.

Statutory Wildlife Protection

Although preliminary visual checks from ground level of likely wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturist and fall outside of the scope of this report.

Trees that contain holes, splits, cracks and cavities could potentially provide a habitat for protected species such as bats in addition to birds and small mammals. It is advised that in some instances specialist ecological advice may be required. This may result in tree works being carried out following a detailed climbing inspection of the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the site manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by the appointed

Ecologist or the relevant Statutory Nature Conservation Organisation (SNCO): Natural England, Scottish Natural Heritage or Natural Resources Wales.

It is advised that tree/hedgerow works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. This time period only indicates likely nesting times and as such diligence is required when undertaking tree works at all times.

Irrespective of the time of year and other than any actions approved under General Licence, it is an offence to intentionally kill, injure or take any wild bird or to intentionally take, damage or destroy the nest or eggs of any wild bird. Ideally, tree operations should be avoided during the likely bird nesting period. However, any tree works should always only be carried out following a preliminary visual check of the vegetation.

For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in England and Wales. A different legislative framework applies in Scotland and Northern Ireland.

Any proposed tree works that are planned to be carried out on site must be carried out in accordance with any relevant statutory controls, outlined above.

DESIGN GUIDANCE

Approach

The approach adopts the guidelines set out in the British Standard BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. The process is broken down to coordinate with the key elements within both the RIBA Plan of Work (2013) and British Standard 5837:2012 as set out in the table below:

Information Stage	RIBA Stage	BS 5837:2012
Stage A – Tree Survey	2: Concept	4: Feasibility
Stage B – Arboricultural Impact Assessment	3: Developed design	5: Proposals
Stage C – Arboricultural Method Statement	4: Technical design	6: Technical Design
Stage D – Arboricultural Site Supervision	5: Construction	7: Demolition and construction

A hierarchical approach is adopted to achieve optimum use of the site and location of built structures. This is set out below:

Avoid

The starting point of Site layout design should be to avoid the RPA of retained trees and provide suitable clearance from above ground constraints [tree canopies]. Where possible building lines should be at least 2m outside the RPA to provide working space for construction. However, protection measures can be taken if such clearance is not achievable.

Mitigate

Where intrusion within the RPA is unavoidable then its impact on the tree can be mitigated by specialist measures:

Foundations that avoid trenching e.g., screw piles, suspended floor slabs or casting at ground level for lightweight structures such as bin and cycle stores.

Limited use may be made for parking, drives or hard surfaces within the root protection areas, subject to advice from a qualified arboriculturist. Cellular confinement systems that enable hard surfaces to be built above existing soil levels are acceptable methods subject to site-specific soil conditions.

Service runs that cannot be routed outside the RPA(s) can be installed by, for example, thrust boring, directional drilling, air excavation or hand digging. These operations often require supervision by the project arboriculturist.

Compensate

Replacement planting can ensure the continuity of tree cover where tree removal is unavoidable or desirable. Off-site provision may be considered in some circumstances but this will require negotiation with the local planning authority.

Considerations:

For proposed residential developments, consideration must be given to numerous factors relating to future tree growth and orientation.

Tree constraints

Root Protection Areas:

With reference to BS 5837:2012, a root protection area (RPA) is defined as “a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure should be treated as a priority”. **“The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained”**.

BS 5837:2012 states (4.6.2) that, “where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced.” The BS goes on to state that, “modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution,” and that any deviation from the original circular plot should take into account:

- Morphology and disposition of roots;
- topography and drainage;
- soil type and structure;
- the likely tolerance of the tree to root damage/disturbance.

Additional buffer zones beyond the RPA:

The following text is taken from the Standing Advice produced by the Forestry Commission and Natural England as included in the National Planning Policy Guidance for England (included here as it is regarded as good practice):

‘A buffer zone’s purpose is to protect ancient woodland and individual ancient or veteran trees. The size and type of buffer zone should vary depending on the scale, type and impact of the development’.

Ancient woodland buffer:

‘For ancient woodlands, you should have a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, you’re likely to need a larger buffer zone. For example, the effect of air pollution from development that results in a significant increase in traffic’.

Ancient and veteran tree buffer:

'A buffer zone around an ancient or veteran tree should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's diameter'.

Above ground:

Above-ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post-occupancy. Typical above-ground constraints include a number or combination of inconveniences including shading, branch spread, movement of trees during strong winds and so on. If not adequately considered, above-ground constraints can lead to repeated requests to fell or heavily prune retained and protected trees.

Shade:

Adverse shading and blocked views from windows raise concerns for incoming residents, which may lead to pressure to fell or remove trees in the future. Wherever possible it is advisable to arrange fenestration away from tree canopies to lessen the conflict or increase window size to accommodate ambient light.

Conversely, appropriately designed development can use existing or new trees to create necessary and welcome shade and screening.

As part of the adopted approach the above considerations and constraints are assessed cumulatively to provide clear and site-specific advice on the areas of a site most suitable for the location of development.

Dependent on the site and nature of the proposed development, the Tree Survey and Constraints Plans may show the following:

Recommended Developable area - an advisory area defined to minimise arboricultural impacts using standard approaches to construction. Restricting proposed development to this area will limit the risk of harm to retained trees and of the Local Planning Authority objecting to the proposed development. It may be possible to propose development outside of this area but specific 'low impact' construction techniques may need to be recommended.

Recommended Buffer to development - similar to the Recommended Developable Area but defined as a line marking a suitable buffer to retained trees. More commonly used on large sites or sites where the presence of trees is localised.

Tree Opportunities

Depending on the scale of developments existing trees can often provide opportunities to enhance the existing arboricultural resource of a site by bringing it into good management or by putting in place remedial measures e.g., soil amelioration.

Appropriately designed new tree planting is extremely important in maintaining healthy and sustainable tree populations. For the reasons highlighted, new trees can bring many benefits to new developments. It is critical to the establishment of new tree planting that the locations, species and specification of new trees are appropriate. Subsequently, the sourcing of high-quality stock, suitable planting and the provision of post-planting maintenance are essential to allow new trees to establish and mature over time.