

**ARBORICULTURAL
IMPACT
ASSESSMENT**

Varley Solar Farm

September 2022



Barton Hyett Associates
Arboricultural Consultants

Summary table		
Site Name:	Varley Solar Farm	
Project reference:	5072	
Site Address:	Cromhall, Talbots End Lane, Talbots End	
Nearest Postcode:	GL12 8AJ	
Central Grid reference:	ST 69748 90561	
Local Planning Authority:	South Gloucestershire Council	
Relevant planning policies:	South Gloucestershire Local Plan Core Strategy 2006-2027: CS1 - High quality design; CS2 - Green infrastructure; CS9 - Managing the environment and heritage. South Gloucestershire Policies, sites and places plan: PSP2 - Landscape; PSP3 - Trees and woodland.	
Statutory Controls:	Tree Preservation Order	Conservation Area
	TBC - emailed South Glos	TBC - emailed South Glos
Soil Type: (Source: BGS online soils map © NERC 2022)	Superficial/Drift	Bedrock
	Deep clayey loam to sandy loam	Mercia Mudstone Group - Mudstone, siltstone and sandstone
Topographical Survey:	Drawing No: RE4248-01 (sheets 1 - 6), dated: July 2022	
Notes:	Oak T1 recorded as high quality veteran (A3)	
Report author:	David Holmes <i>FdSc, MArborA</i>	
Revision:	Rev.01	
Date of issue:	November 2022	

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1. INTRODUCTION

- 1.1. Barton Hyett Associates Ltd have been instructed by Pegasus Group on behalf of RES to survey trees located at Varley Farm, Talbots End ('the site') in accordance with the recommendations of British Standard 5837:2012 'Trees in relation to design, demolition and construction - recommendations'.
- 1.2. 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 option. The instruction also required an assessment of the potential impact (the Arboricultural Impact Assessment) of the proposed development on the site's arboricultural resource to be undertaken.

2. SITE DESCRIPTION

- 2.1. The survey area is approximately 500m south-east of the village of Cromhall in South Gloucestershire and is presently accessed from Talbots End. There is a 4m wide concrete access track running into the site, terminating between hedgerows H1 and H74 of the survey. The surrounding area is largely arable farmland with hamlets, outlying dwellings and farms and two quarries, Cromhall Quarry to the north-east and Wickwar Quarry to the south-east. A public right of way crosses the site with associated signage and points of access.
- 2.2. The survey area consists of arable fields and is reasonably flat with a gentle uphill slope towards the north. The field boundaries are defined by hedgerows with field gates permitting access. There is a woodland compartment to the south of the site named locally as Lake Copse (recorded as W2). To the north of the site, just south of the veteran tree (recorded as T1), is a solar array test rig.

3. TREE SURVEY FINDINGS

- 3.1. A total of 79 trees, 12 group features, 75 hedgerows and 2 woodlands were surveyed. These are summarised in terms of their quality in accordance with the recommendations of BS5837 below, and shown in more detail on the Tree Survey and Constraints Plan (**Section 2**) and within the Tree Survey Schedule (**Section 3**).

	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	79	43	28	8	-
Groups	12	4	8	-	-
Hedgerows	2	2	-	-	-
Woodland	75	-	73	2	-
Total	168	49	109	10	-

Table 1: summary of arboricultural features of each BS5837 quality category

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.

4. KEY ARBORICULTURAL FEATURES

- 4.1. The oak T1 is a high-quality tree recorded as a veteran (A3). This tree has been classified as a veteran for the following reasons. The trunk diameter was recorded at 1600mm, when converted to a girth dimension this measures just over 5m. Oak as a species appears in Figure 1.3 in Lonsdale (2013)¹ and the girth of 5m places the tree as a veteran or notable tree. When T1 is assessed for veteran status it meets the criteria for characteristic features found on veteran trees (in para. 2.1.1 in Read, 2000²). With the exception of fungal fruiting bodies, T1 displays the following features; major trunk cavities, deadwood and crown retrenchment, dry crevices, bark loss, an old look (old pollard) and high aesthetic interest.
- 4.2. The 4m wide concrete access track is outside of the survey redline boundary, however, trees and arboricultural features adjacent to this track were recorded as OOS11, OOS12 and TN2 - TN5. The existing concrete will prevent further damage to the rooting zones of the adjacent trees and there is sufficient clearance at the track edge to allow agricultural machinery to pass unhindered.
- 4.3. The twelve high quality oak T2, T18, T27, T35, T37, T48, T49, T53, T57, T68, T71 and T76; the two ash T30 and T78 along with the crack willow T63 are all recorded as notable trees. The trees have a significant diameter, or in the case of T63, an interesting aesthetic. However, they do not display enough characteristics to be recorded as veteran trees (see paragraphs 4.7 and 4.8 below).
- 4.4. The ash T23 has a significant hung-up limb in the crown and this should be removed in the short term (see image 2 in **Section 3**). The tree also shows basal decay with associated bark damage and it is recommended that this tree be reduced to a habitat monolith and retained at a height of 7m.
- 4.5. The oak T73 is dead-standing and it is recommended that the scaffold limbs be reduced back to the main stem which should be retained as a habitat monolith at an approximate height of 6m. In both these instances, standing deadwood is recognised as a rare type of habitat and is an important factor in helping to increase biodiversity.
- 4.6. I have consulted DEFRA's 'Magic Map' website to check for the presence of ancient woodland (ASNW). Whilst there are no ASNW listed on the site, the feature recorded as W2 is listed as 'mixed mainly conifer' woodland on the '2014 National Forestry Inventory'. A check has been made with the LPA with regard to the protection status of any trees on site (i.e. those protected by Tree Preservation Order). A response to this enquiry is still awaited.
- 4.7. Consulting the Woodland Trust's 'Ancient Tree Inventory' (ATI) website revealed that the aforementioned T1 was recorded as a veteran along with 10 other trees, these being recorded as T19, T23, T51, T71, T73, T76, T78, TN3, TN5 and OOS9. In my professional opinion, I do not consider that these ten trees meet the criteria for being veteran trees as described above. From this list, T71 and T76 are recorded as notable trees in this survey.

- 4.8. Of these trees, two ash T19 and T23 were found to be in a poor condition; the oak T73 is dead-standing and these three stems were recorded as C3. No distinctive features have been noted with regard to the oak T51. The 2 oak T71 and T76 along with the ash T78 were recorded as notable trees. An off site oak OOS9 was not recorded in significant detail due to the proximity to the site and the presence of other boundary trees which will afford this tree protection from on-site development. At the location where the off site oak TN3 is recorded, there exists a record on the ATI website for ash which has been disregarded as this is inaccurate. The offsite ash TN5 is also recorded on the ATI website.
- 4.9. The oak T37 was recorded as high quality despite the decay noted at the root collar with *Ganoderma* fruiting bodies being present. The tree is immediately adjacent to a small drainage ditch and there are witness marks on the lower stem to denote a high water mark. During the morning of the first day of the site visit, the watercourse adjacent to T37 was observed to be dry - this was during a heatwave in mid-August. In the afternoon of the same day, the watercourse was observed to be running with water visibly in contact with the lower stem of T37. The water appeared to be discoloured, taking on a greyish colour.

5. PROPOSED DEVELOPMENT

- 5.1. The development proposal is to install a solar farm within the site, along with the associated infrastructure of access tracks, security fencing, CCTV and underground cable connections. The proposed site layout is shown on the proposed site plan, drawing no: 04886-RES-LAY-DR-PT-004, Rev. 02, dated: 04/11/2022 (as amended and submitted).

6. IMPACT ASSESSMENT

Trees to be removed

- 6.1. To facilitate the layout, 3 sections of hedgerow are proposed to be removed. These removals are summarised by quality category in the table below and shown on the Tree Retention and Removal Plan in **Section 3**.
- 6.2. In order to provide appropriate site access it will be necessary to remove 3 sections from the moderate-quality hedgerows H18, H19 and H48.
- 6.3. The removal of the sections from H18 and H19 and the section from H48 is to provide a direct connection between two different areas and avoids the Root Protection Areas (RPAs) of more significant trees.
- 6.4. Small sections of the moderate-quality category B hedgerows H9, H15, H32, H47, H51, H57, H59, H63, H64 and H69 would need to be removed in order to facilitate the security fencing. With local adjustments, it would be possible to move the fence line in order to minimise the number of stems to be removed, and convenient gaps should be exploited. It is recommended that as the fence is to pass through the hedge, strainer posts are installed at a distance of 3m on either side of the hedgerow, with a 6m fencing panel being affixed to these posts in order to make the panel easier to install.
- 6.5. The loss of these sections can be mitigated with additional planting elsewhere on-site. The creation of new or the restoration of existing hedgerows would be a suitable opportunity to increase biodiversity.

Impacts on retained trees

- 6.6. The existing tracks are to be utilised where possible with the potential for widening if required, the traffic during the construction phase of the development will be no more significant than the years of previous agricultural usage. Where the surfacing is to be improved for existing tracks or existing infrequently used tracks which pass through the RPAs of retained trees, no excavations are to take place and the existing levels will be retained as a sub-base with a geotextile separation layer installed prior to installing the wearing layer. Ground-level changes within the Root Protection Areas (RPAs) of trees are to be avoided. The instance where an access track passes through the RPA of T18 has been highlighted on the Tree Retention and Removal Plan in **Section 3**.
- 6.7. The site construction and operation tracks are to be approximately 4m wide consisting of compacted aggregate. The use of limestone for the aggregate is to be avoided; in the mid to long term, limestone leaching into the soil will restrict the availability of nutrients as the soil chemistry is altered, and this will have a detrimental effect on the vigour of the trees.
- 6.8. The width of existing tracks should be retained, particularly when running between arboricultural features. Where this is unavoidable and the track width needs to be widened to avoid run-out, the width should be added at the side furthest away from trees if possible, e.g. where a track runs to the eastern side of the woodland, the extra width should be added to the eastern side of the track.
- 6.9. Where the access track makes use of existing openings in hedgerows, there will be a requirement to increase the opening. The specific cases where this is required are at the entrances adjacent to the hedgerows H4 and H5, H12, H13, H11 and H28, H37, H57, H59 and H63. This will require the cutting back of the hedgerows and will not involve the removal of stems.
- 6.10. It was noted that across the majority of the site, where the existing access tracks pass beneath trees, the crown clearance is sufficient for agricultural traffic. It may still be necessary to crown lift trees at some points of access, depending on the type of vehicles coming into the site.
- 6.11. There are instances across the site where the existing track is routed parallel, and closely alongside, hedgerows. Where this is the case, the close proximity of the tracks in relation to the hedgerow is acceptable since this is no more significant than the previous agricultural use of the land.

Conclusion

- 6.12. The proposal is feasible from an arboricultural perspective, and if carefully implemented according to an approved Arboricultural Method Statement there would be no, or only a low, potential negative impact on the retained trees. A combined draft Tree Retention and Removal and Tree Protection Plan is included in **Section 3**.

7. TREE PROTECTION MEASURES

- 7.1. The proposed site security fence which is to be erected around the periphery of the site will act as an effective tree protection barrier if erected before any construction works commence on site. This will mitigate the need to install BS5837:2012 fencing along the outer perimeters of the site. However, the perimeter

fencing will only protect trees located around the periphery of the site. Trees and hedgerows within the interior of the site could be impacted during the construction phase of the development.

- 7.2. With this in mind, the high and moderate-quality trees T7, T8, T9, T10, T11 - T33, T38 - T40, T43, T44, T48 - T54, T58 - T61, T66, T67, T71, T72, T79, G3, G4, G7, G8, G10 and G11 would be located within the site compound. The low quality trees T23 and T73 have been shown as protected by temporary protective fencing during the development, with the fencing leaving a small portion of the RPA around T23 exposed to the western edge. The recommended works should be carried out first (see paragraph 4.4) and the habitat monoliths retained and protected during the development. During the construction phase only, temporary protective fencing (HERAS specification fencing, installed as per figure 3 of BS 5837:2012) should be erected around the RPAs of these trees, as shown on the Tree Retention and Removal Plan in **Section 3**

8. HEADS OF TERMS FOR AN ARBORICULTURAL METHOD STATEMENT (AMS)

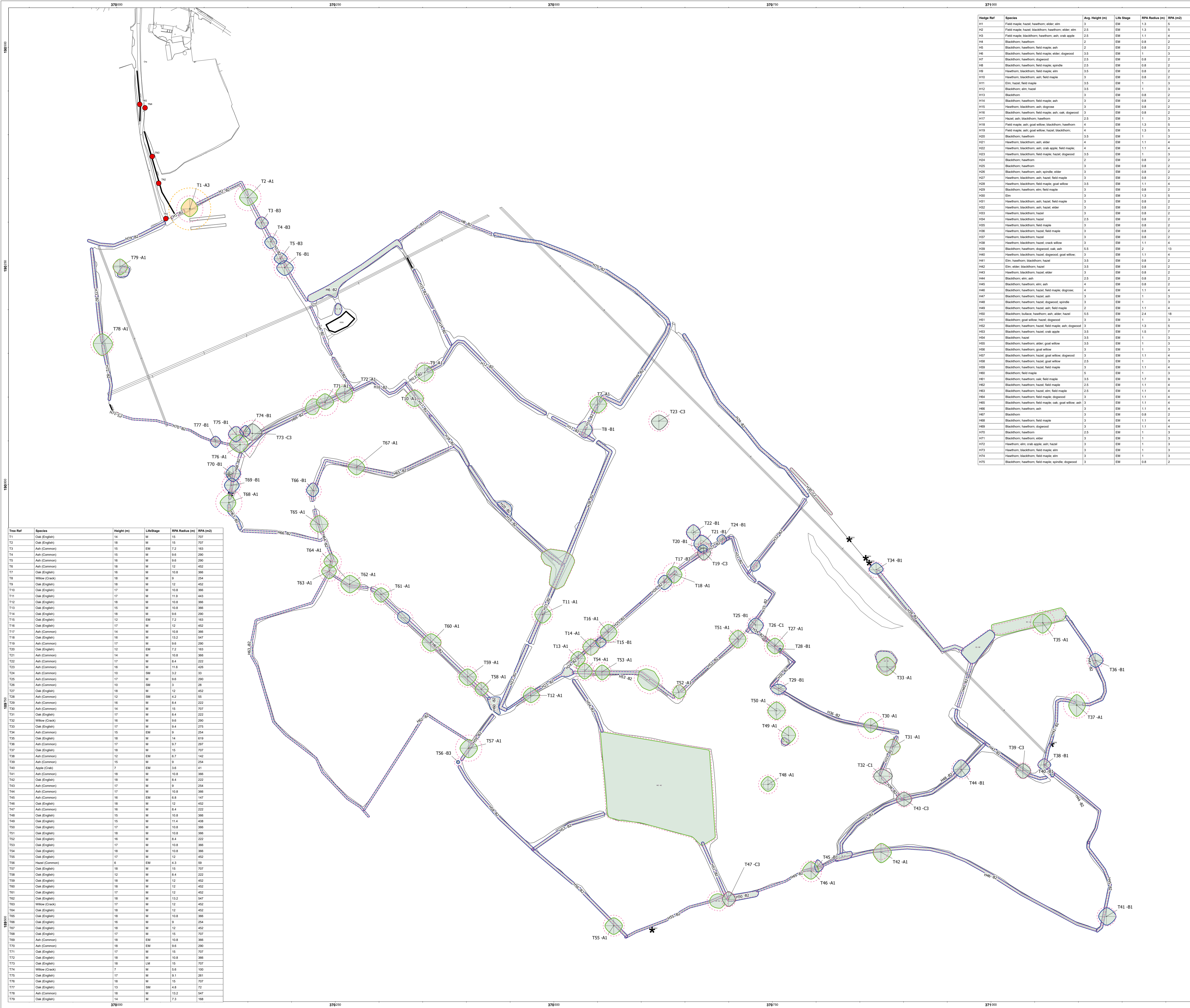
- 8.1. BS5837:2012 (Figure 1) recommends that detailed/technical design of tree protection and arboricultural methodologies should be resolved and finalised following on from the approval of the feasibility of a scheme by the Local Planning Authority.
- 8.2. Annex B and Table B.1 of BS5837:2012, an informative, advises that Arboricultural Method Statement (AMS) Heads of Terms are a sufficient level of information in order to deliver tree-related information into the planning system. The table also advises that a detailed AMS might reasonably be required as a 'reserved matter' or planning condition.
- 8.3. In relation to the site, it is anticipated that arboricultural working methods are likely to be quite straightforward. A brief summary of the principles of tree protection on development sites is included in **Section 7**.
- 8.4. A draft, 'Heads of Terms' for an AMS is set out below:
- Project arboriculturist – schedule of monitoring and supervision to be agreed with the applicant and LPA
 - Pre-commencement site meeting - to be attended by the project arboriculturist, client, site manager and other relevant parties. Project arboriculturist to ensure that all parties have copies of the tree protection plan and this report.
 - Facilitation pruning - where required this should be discussed with the project Arboriculturist
 - Erection of tree protection barriers as per the Tree Protection Plan (TPP)
 - Site preparation and ground works - no access for any machinery within the fenced tree protection areas.
 - Main construction phase - all tree protection measures shall remain in situ and intact for the duration of the construction phase
 - Removal of tree protection barriers - only to occur following approval of site conditions by the project arboriculturist.
 - Final landscaping including hedgerow planting.

9. CONCLUSIONS AND RECOMMENDATIONS

- 9.1. Subject to the implementation of the advice contained within this report the proposed development is acceptable from an arboricultural perspective. The loss of hedgerow sections can be readily mitigated and the retained trees can be adequately protected during construction activities to sustain their health and longevity.
- 9.2. Where new boundaries are to be defined, such as alongside the retained public footpaths, the establishment of new hedging would be a good opportunity to enhance the landscape and improve the long-term biodiversity value.
- 9.3. The nature of the tree stock across the site could provide a good opportunity for the proposed development to improve the long-term tree cover on the site through appropriate new hedgerow planting. Suitable planting alongside existing features or establishing new wildlife corridors to link existing ponds or woodland would help with improving biodiversity. Planning large-scale features such as wildlife corridors or shelter belts could also offer a screening of the development from outside the site and better resilience to strong winds, whilst preserving the rural context of the surroundings.
- 9.4. An AMS and finalised Tree Protection Plan will need to be produced. Where the feasibility of a scheme has been agreed upon by the Local Planning Authority, this detail can be agreed and submitted later as part of a reserved matters application or pre-commencement planning condition (by agreement with the applicant).



David Holmes
Arboriculturist



Tree Ref	Species	Height (m)	LifeStage	RPA Radius (m)	RPA (m2)
T1	Oak (English)	14	M	15	707
T2	Oak (English)	18	M	15	707
T3	Ash (Common)	15	EM	7.2	163
T4	Ash (Common)	15	M	9.6	290
T5	Ash (Common)	16	M	9.6	290
T6	Ash (Common)	18	M	12	452
T7	Oak (English)	16	M	10.8	366
T8	Willow (Crack)	18	M	9	254
T9	Oak (English)	18	M	12	452
T10	Oak (English)	17	M	10.8	366
T11	Oak (English)	17	M	11.9	443
T12	Oak (English)	18	M	10.8	366
T13	Oak (English)	15	M	10.8	366
T14	Oak (English)	18	M	9.6	290
T15	Oak (English)	12	EM	7.2	163
T16	Oak (English)	17	M	12	452
T17	Ash (Common)	14	M	10.8	366
T18	Oak (English)	16	M	13.2	547
T19	Ash (Common)	17	M	9.6	290
T20	Oak (English)	12	EM	7.2	163
T21	Ash (Common)	14	M	10.8	366
T22	Ash (Common)	17	M	8.4	222
T23	Ash (Common)	16	M	11.6	426
T24	Ash (Common)	10	SM	3.2	33
T25	Ash (Common)	17	M	9.6	290
T26	Ash (Common)	10	SM	3	28
T27	Oak (English)	18	M	12	452
T28	Ash (Common)	12	SM	4.2	56
T29	Ash (Common)	16	M	8.4	222
T30	Ash (Common)	14	M	8.4	222
T31	Oak (English)	17	M	8.4	222
T32	Willow (Crack)	16	M	9.6	290
T33	Oak (English)	17	M	9.4	275
T34	Ash (Common)	15	EM	9.6	290
T35	Oak (English)	18	M	14	619
T36	Ash (Common)	17	M	9.7	297
T37	Oak (English)	18	M	15	707
T38	Ash (Common)	12	SM	6.7	140
T39	Ash (Common)	15	M	9	254
T40	Apple (Crab)	7	EM	3.6	41
T41	Ash (Common)	18	M	10.8	366
T42	Oak (English)	18	M	8.4	222
T43	Ash (Common)	17	M	9	254
T44	Ash (Common)	17	M	10.8	366
T45	Ash (Common)	16	EM	8.8	147
T46	Oak (English)	18	M	12	452
T47	Ash (Common)	16	M	8.4	222
T48	Oak (English)	15	M	10.8	366
T49	Oak (English)	15	M	11.4	408
T50	Oak (English)	17	M	10.8	366
T51	Oak (English)	18	M	10.8	366
T52	Oak (English)	16	M	8.4	222
T53	Oak (English)	17	M	10.8	366
T54	Oak (English)	18	M	8.4	222
T55	Oak (English)	17	M	10.8	366
T56	Hazel (Common)	6	EM	4.3	59
T57	Oak (English)	18	M	15	707
T58	Oak (English)	12	M	8.4	222
T59	Oak (English)	18	M	12	452
T60	Oak (English)	18	M	12	452
T61	Oak (English)	17	M	12	452
T62	Oak (English)	18	M	19.2	547
T63	Willow (Crack)	17	M	12	452
T64	Oak (English)	18	M	12	452
T65	Oak (English)	18	M	10.8	366
T66	Oak (English)	18	M	9	254
T67	Oak (English)	18	M	15	707
T68	Oak (English)	17	M	15	707
T69	Ash (Common)	18	EM	10.8	366
T70	Ash (Common)	18	EM	9.6	290
T71	Oak (English)	17	M	15	707
T72	Oak (English)	18	M	10.8	366
T73	Oak (English)	18	M	15	707
T74	Willow (Crack)	7	M	6.6	150
T75	Oak (English)	17	M	8.1	261
T76	Oak (English)	18	M	15	707
T77	Oak (English)	13	SM	4.8	72
T78	Ash (Common)	14	M	13.2	547
T79	Oak (English)	14	M	7.2	168

Tree Ref	Species	Avg. Height (m)	Life Stage	RPA Radius (m)	RPA (m2)
H1	Field maple, hazel, hawthorn, elder, elm	2.5	EM	1.3	5
H2	Field maple, hazel, blackthorn, hawthorn, elder, elm	2.5	EM	1.3	5
H3	Field maple, blackthorn, hawthorn, ash, crab apple	2.5	EM	1.1	4
H4	Blackthorn, hawthorn	2	EM	0.8	2
H5	Blackthorn, hawthorn, field maple, ash	2	EM	0.8	2
H6	Blackthorn, hawthorn, field maple, elder, dogwood	3.5	EM	1	3
H7	Blackthorn, hawthorn, dogwood	2.5	EM	0.8	2
H8	Blackthorn, hawthorn, field maple, spindle	2.5	EM	0.8	2
H9	Hawthorn, blackthorn, field maple, elm	3	EM	0.8	2
H10	Hawthorn, blackthorn, ash, field maple	3	EM	0.8	2
H11	Elm, hazel, field maple	3.5	EM	1	3
H12	Blackthorn, elm, hazel	3.5	EM	1	3
H13	Blackthorn	3	EM	0.8	2
H14	Blackthorn, hawthorn, field maple, ash	3	EM	0.8	2
H15	Hawthorn, blackthorn, ash, dogrose	3	EM	0.8	2
H16	Blackthorn, hawthorn, field maple, ash, oak, dogwood	3	EM	0.8	2
H17	Hazel, ash, blackthorn, hawthorn	3	EM	1	3
H18	Field maple, ash, goat willow, blackthorn, hawthorn	4	EM	1.3	5
H19	Field maple, ash, goat willow, hazel, blackthorn	4	EM	1.3	5
H20	Blackthorn, hawthorn	3.5	EM	1	3
H21	Hawthorn, blackthorn, ash, elder	4	EM	1.1	4
H22	Hawthorn, blackthorn, ash, crab apple, field maple	4	EM	1.1	4
H23	Hawthorn, blackthorn, field maple, hazel, dogwood	3.5	EM	1	3
H24	Blackthorn, hawthorn	2	EM	0.8	2
H25	Blackthorn, hawthorn	3	EM	0.8	2
H26	Blackthorn, hawthorn, ash, spindle, elder	3	EM	0.8	2
H27	Hawthorn, blackthorn, ash, hazel, field maple	3	EM	0.8	2
H28	Hawthorn, blackthorn, field maple, goat willow	3.5	EM	1.1	4
H29	Blackthorn, hawthorn, elm, field maple	3	EM	0.8	2
H30	Elm	3	EM	1.3	5
H31	Hawthorn, blackthorn, ash, hazel, field maple	3	EM	0.8	2
H32	Hawthorn, blackthorn, ash, hazel, elder	3	EM	0.8	2
H33	Hawthorn, blackthorn, hazel	3	EM	0.8	2
H34	Hawthorn, blackthorn, hazel	2.5	EM	0.8	2
H35	Hawthorn, blackthorn, field maple	3	EM	0.8	2
H36	Hawthorn, blackthorn, hazel, field maple	3	EM	0.8	2
H37	Hawthorn, blackthorn, hazel, ash, field maple	3	EM	0.8	2
H38	Blackthorn, hawthorn, hazel, crab apple	3.5	EM	1.5	7
H39	Blackthorn, hawthorn, hazel, elder, hazel	5.5	EM	2.4	18
H40	Blackthorn, hawthorn, hazel, dogwood, oak, ash	3	EM	1.1	4
H41	Hawthorn, blackthorn, hazel, dogwood, oak, ash	3	EM	1.1	4
H42	Elm, elder, blackthorn, hazel	3.5	EM	0.8	2
H43	Hawthorn, blackthorn, hazel, elder	3	EM	0.8	2
H44	Blackthorn, elm, ash	2.5	EM	0.8	2
H45	Blackthorn, hawthorn, ash, ash	4	EM	0.8	2
H46	Blackthorn, hawthorn, hazel, field maple, dogrose	4	EM	1.1	4
H47	Blackthorn, hawthorn, hazel, ash	3	EM	1	3
H48	Blackthorn, hawthorn, hazel, dogwood, spindle	3	EM	1	3
H49	Blackthorn, hawthorn, hazel, ash, field maple	2	EM	1.1	4
H50	Blackthorn, hazel, ash, elder, hazel	5.5	EM	2.4	18
H51	Blackthorn, goat willow, hazel, dogwood	3	EM	1	3
H52	Blackthorn, hawthorn, hazel, field maple, ash, dogwood	3	EM	1.3	5
H53	Blackthorn, hawthorn, hazel, crab apple	3.5	EM	1.5	7
H54	Blackthorn, hazel	3.5	EM	1	3
H55	Blackthorn, hawthorn, elder, goat willow	3.5	EM	1	3
H56	Blackthorn, hawthorn, goat willow	3	EM	1	3
H57	Blackthorn, hawthorn, hazel, goat willow, dogwood	3	EM	1.1	4
H58	Blackthorn, hawthorn, hazel, goat willow	2.5	EM	1	3
H59	Blackthorn, hawthorn, hazel, field maple	3	EM	1.1	4
H60	Blackthorn, field maple	3	EM	1	3
H61	Blackthorn, hawthorn, ash, field maple	3.5	EM	1.7	9
H62	Blackthorn, hawthorn, hazel, field maple	2.5	EM	1.1	4
H63	Blackthorn, hawthorn, hazel, elm, field maple	2.5	EM	1.1	4
H64	Blackthorn, hawthorn, field maple, dogwood	3	EM	1.1	4
H65	Blackthorn, hawthorn, field maple, oak, goat willow, ash	3	EM	1.1	4
H66	Blackthorn, hawthorn, ash	3	EM	1.1	4
H67	Blackthorn	3	EM	0.8	2
H68	Blackthorn, hawthorn, field maple	3	EM	1.1	4
H69	Blackthorn, hawthorn, dogwood	3	EM	1.1	4
H70	Blackthorn, hawthorn	3	EM	1	3
H71	Blackthorn, hawthorn, elder	3	EM	1	3
H72	Hawthorn, elm, crab apple, ash, hazel	3	EM	1	3
H73	Hawthorn, blackthorn, field maple, elm	3	EM	1	3
H74	Hawthorn, blackthorn, field maple, elm	3	EM	1	3
H75	Blackthorn, hawthorn, field maple, spindle, dogwood	3	EM	0.8	2

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 tool indicating the minimum area around a tree deemed to contain sufficient roots and soil volume to maintain the tree's viability
- Shrub mass/foliage tree/out of scope (OOS)
- Tree/Group/Hedgerow not on topographical survey. Location given is an estimate
- Ancient Tree / Woodland or Veteran Trees**
 - Ancient tree/woodland or Veteran tree: Important trees that require special consideration
 - Ancient tree/woodland or Veteran tree buffer: As per published standing advice from Natural England and the Forestry Commission
- Statutory Protection**
 - Tree Preservation Order (TPO): Trees under statutory protection. No tree works to be undertaken without specific consent or by relevant exception. The site may be within a designated Conservation Area which restricts tree works. Please see attached advice and guidance.

Group Ref	Species	Height Range (m)	LifeStage	RPA Radius (m)	RPA (m2)
G1	Hawthorn, blackthorn	2-5	M	1.3	5
G2	English oak	15-17	M	8.4	222
G3	Ash	15-18	SM	3	28
G4	Field maple, hawthorn, hazel, crab apple	3-10	EM	4.5	65
G5	Crack willow, blackthorn	3-12	EM	4.8	72
G6	Field maple, ash, crab apple	8-10	SM	2.4	18
G7	Bulrush	5	SM	1	3
G8	English oak	17-18	M	12	452
G9	English oak	16-18	M	12	452
G10	English oak	17	M	9.6	290
G11	English oak	15-16	M	12	452
G12	Hawthorn, elder	5	EM	1.6	8

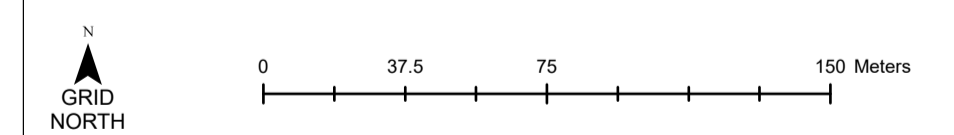
Woodland Ref	Species	Height Range (m)	LifeStage	RPA Radius (m)	RPA (m2)
W1	Ash, crab willow, hawthorn, hazel, elder	2-18	M	1.4	82
W2	Oak, ash, honey maple, hybrid black poplar, hornbeam	2-18	M	5.2	200

Label	Description
OOS1	Area of scrub, brambles with sporadic blackthorn
OOS2	Short section of blackthorn hedge
OOS3	Off-site hawthorn
OOS4	Off-site hawthorn
OOS5	Off-site hawthorn
OOS6	Off-site ash, heavily reduced by utilities contractors
OOS7	Off-site ash
OOS8	Off-site oak, approx. 1000mm dia. 4.8m in height, good habitat stem
OOS9	Off-site oak, approx. 1000mm dia. 4.12m in height
OOS10	Brambles
OOS11	Mixed broadleaf hedge, has been cut back to clear track
OOS12	Mixed broadleaf hedge, has been cut back to clear track

Label	Description
TN1	Concrete track 4m in width, runs northwards to Tubbs End
TN2	Multi-stemmed early-mature ash, approx. 4m crown clearance above track
TN3	Mature oak, approx. 4m crown clearance above track
TN4	Mature pine, approx. has been cut back to clear track
TN5	Mature ash, approx. 4m crown clearance above track



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: **Valey Solar Farm (5072)**

DRAWING TITLE: **Tree Survey Plan**

SCALE: **Scale: 1:2,000 @ A1** DRAWING NUMBER: **BHA_5072_01**

DRAWN BY: **TB** APPROVED BY: **DH** REVISION: **-** SHEET: **-** DATE: **18/08/2022**

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

CLIENT: **Pegasus Planning Group**

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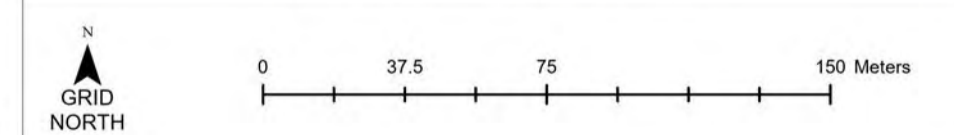
Tree Protection Areas - Construction Exclusion Zones

INSTALLING PROTECTION
 Protection barriers and ground protection (as approved), must be installed before any materials or machinery are brought onto the site and before the commencement of any demolition, general site clearance, ground or construction works of any description.
 Prior to commencement of further stages in the construction process, clear photographs of the correctly installed protection measures will be required for the attention of the Tree Officer to development_management@peghus.com or quoting reference 1800226/P/L.
 Protective barriers will be installed according to the specification shown in Figure 3. Temporary ground protection will be installed at the site access entrance over the area shown pink. The protection will consist of permeable non-woven geotextile membrane equipped to Spanex 1000. The membrane will overlap each other by 20cm and extend free beyond the edges by 20cm. Over the membrane will be laid 100mm depth well-rotted woodchips. Over the woodchips will be laid heavy-duty aluminium trackings which is suitable for heavy construction vehicles and plant.
REMOVAL OF PROTECTION
 All protective measures must remain fully intact, vertical (in the case of barriers), in their approved locations, from the outset of the development and maintained, at all times, until all works have been completed on site, including any earthworks and associated soft landscaping works. Any approved pruning of protective measures must be fully observed and copied into the project file.
 All underground services only to be installed outside of the Root Protection Areas of retained trees and hedgerows.
 All storage, handling and mixing of materials, burning and movement of people and machinery only to take place outside of the Root Protection Areas of retained trees and hedgerows (except where protected by ground protection at all times).
 These Protection Areas and Construction Exclusion Zones are to remain completely undisturbed for the duration of all development works. No construction activity of any description including but not limited to the following must occur within these areas at any time:
 - No excavation of any description.
 - No alteration to existing levels or ground conditions.
 - No storage, disposal of soil, rubble or materials of any other description.
 - No vehicular access, parking or use of any tracked or wheeled machinery of any description.
 - No tree works, without the written consent of the Council's Tree Service.
 - No application of any fertiliser or other chemicals.
 - No application of temporary structures of any description.
 - No storage, handling or use of any chemicals including cement, sealants, etc.
 - No fires or lighting of any description - security lighting, signage etc shall be attached to any part of a tree.
 - No tree shall be light struck.
 - No tree shall be cut or removed, or any part of any tree or hedge.
 - No chemicals, fuel, hazardous materials of any other description to be stored or disposed of within close proximity to or draped beneath any protection areas.

- KEY**
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 - Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)
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 - Tree / Hedgerow / Group to be removed
 - Ancient Tree / Woodland or Veteran Trees
 - Ancient tree/woodland or Veteran tree: Important trees that require special consideration
 - Ancient tree/woodland or Veteran tree buffer: As per published standing advice from Natural England and the Forestry Commission
 - Statutory Protection
 - Tree Preservation Order (TPO): Trees under statutory protection. No tree works to be undertaken without specific consent or by relevant exception. The site may be within a designated Conservation Area which restricts tree works. Please see attached advice and guidance.
 - Development / Design Guidance
 - Recommended Development Area: Area considered appropriate for development in arboricultural farms having considered all arboricultural constraints
 - Recommended buffer to development: Appropriate offset from development having considered all arboricultural constraints
 - Photo images: Images of key arboricultural features at the site
 - Protection Measures
 - Tree Protection Barrier
 - Secondary Tree Protection Barrier - location to allow works within CEZ (only in accordance with detailed AMS)
 - Cellular Confinement System (see AMS report for specification)
 - Temporary Ground Protection to BS 5837:2012
 - Permanent Ground Protection to BS 5837:2012
 - Area of No Dig Construction to BS 5837:2012
 - Construction Exclusion Zone (CEZ) - No work to occur within CEZ without prior approval of Project Arboriculturist and/or LPA. All ground levels to be maintained as existing
 - All weather information notices to read 'Construction Exclusion Zone - No Entry' A3 in size. To be attached to tree protection barriers at regular intervals
 - Target Note
 - Track
- | Label | Description |
|-------|---|
| TN1 | Concrete track 4m in width, runs northwards to Black's Edge |
| TN2 | Mast element earth resistance ash, approx. 4m crown clearance above track |
| TN3 | Mature oak, approx. 4m crown clearance above track |
| TN4 | Mature pear, approx. has been cut back to clear track |
| TN5 | Mature ash, approx. 4m crown clearance above track |



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: Varley Solar (5072)

DRAWING TITLE: Tree Protection Plan

SCALE: Scale: 1:2,000 @ A1

DRAWING NUMBER: BHA_5072_03

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

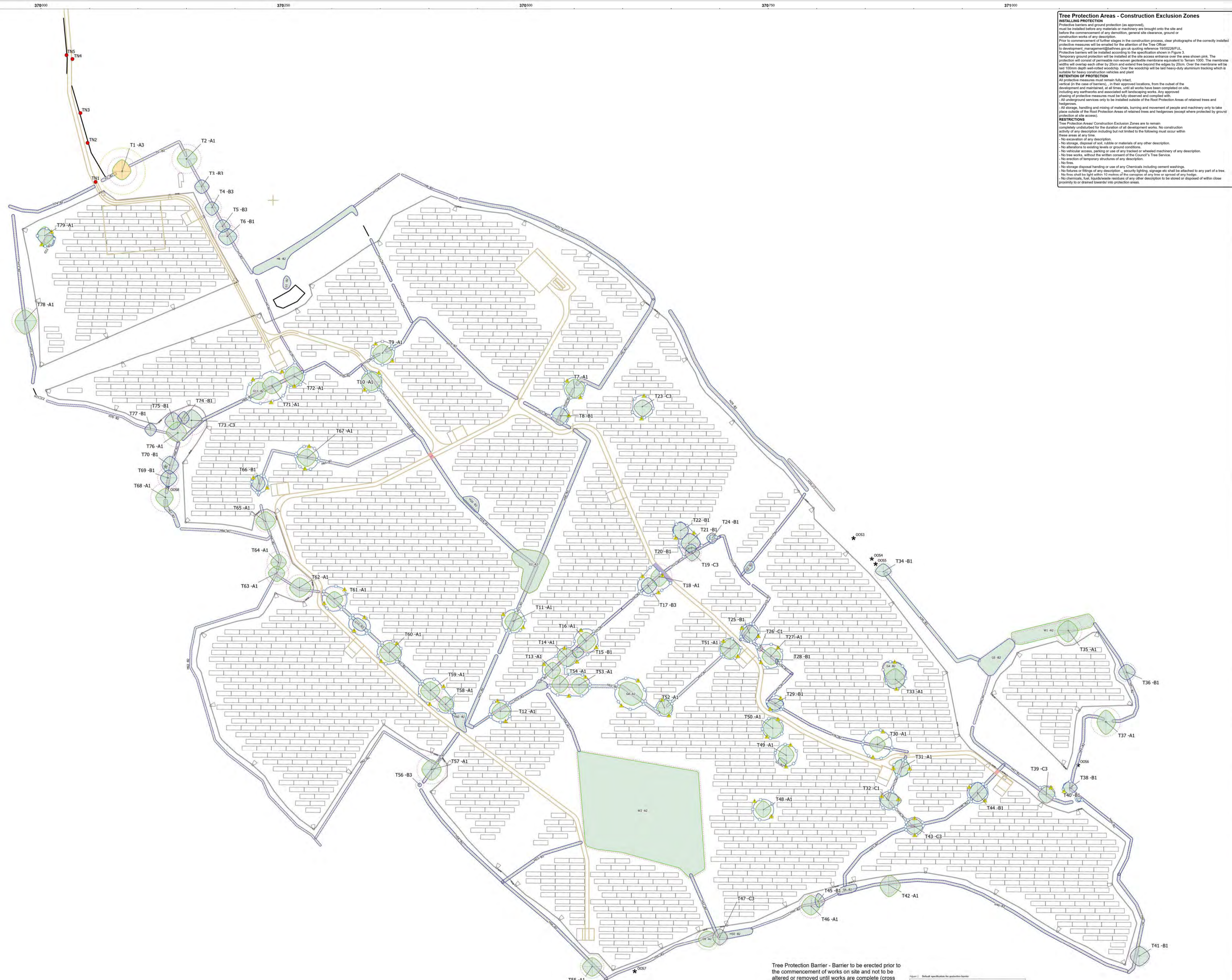
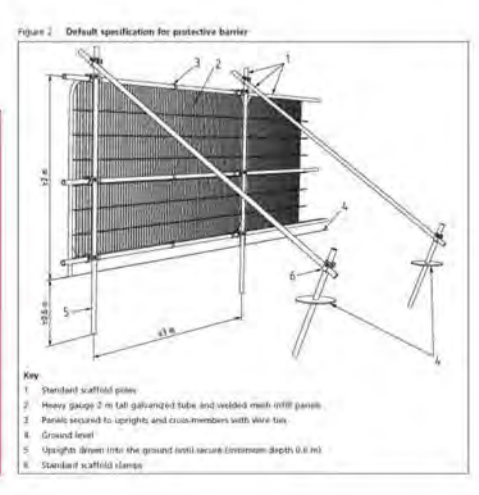
CLIENT: Pegasus Planning Group

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Barton Hyett Associates
 Arboricultural Consultants

Tel: 01386 576166
 Address: Office 05, Deer Park Business Centre, Eickington, Pershore, Worcestershire, WR10 3DN

Tree Protection Barrier - Barrier to be erected prior to the commencement of works on site and not to be altered or removed until works are complete (cross check with specific requirements of any relevant planning conditions).



376000 376250 376500 376750 377000

376000 376250 376500 376750 377000

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T1	Oak (English)	On	14	1	None	1600	12.0-9.0-9.0-10.0	2.5	3	N	M	Veteran	Bark damage with exposed heartwood; crown retrenchment with moderate sized deadwood; old tear-out wounds with multiple cavities; has appearance of old pollard; no obvious signs of fungal fruiting bodies; solar installation within 10m of stem	Good	Good	40+	A3	15	707	24	TBC
T2	Oak (English)	On	18	1	Yes	1500	10.0-11.0-9.0-9.5	2.5	3	N	M	None	Notable tree embedded in hedge; crown retrenchment with small sized deadwood; old tear-out wound to scaffold limb in east of crown @3m; no obvious signs of fungal fruiting bodies	Good	Good	40+	A1	15	707	-	TBC
T3	Ash (Common)	On	15	1	Yes	600	7.0-8.0-7.0-7.0	1.0	2	N	EM	None	Minor twiggy dieback with moderate deadwood; modest vigour; visible woodpecker activity	Fair	Fair	10+	B3	7.2	163	-	TBC
T4	Ash (Common)	On	15	1	Yes	800	6.0-7.0-8.0-7.0	1.0	2	N	M	None	Minor twiggy dieback with moderate deadwood; torn-out scaffold limb on ground to east; modest vigour	Fair	Fair	10+	B3	9.6	290	-	TBC
T5	Ash (Common)	On	16	1	Yes	800	7.0-8.0-6.0-7.0	1.0	2	N	M	None	Minor twiggy dieback with moderate deadwood; modest vigour; visible woodpecker activity	Fair	Fair	10+	B3	9.6	290	-	TBC
T6	Ash (Common)	On	18	1	Yes	1000	8.0-10.0-9.0-9.0	1.0	3	S	M	None	Minor twiggy dieback throughout crown; lower stem & scaffold limbs heavily swathed in ivy	Fair	Good	20+	B1	12	452	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T7	Oak (English)	On	16	1	Yes	900	9.0-10.0-10.0-9.0	2.5	3	NE	M	None	Embedded in hedge; main stem splits @3m into 4x scaffold limbs which form a cohesive & wide spreading crown; ivy cover to main stems & scaffold limbs	Good	Good	40+	A1	10.8	366	-	TBC
T8	Willow (Crack)	On	18	1	Yes	750	9.0-8.0-10.0-10.0	0.0	0	None	M	None	Multi-stemmed tree within hedge; failed stems in contact with ground forming parts of hedge	Fair	Fair	20+	B1	9	254	-	TBC
T9	Oak (English)	On	18	1	Yes	1000	9.0-10.0-10.0-10.0	2.5	3	E	M	None	Embedded in hedge; main stem splits @4m into 3x scaffold limbs which form a cohesive & wide spreading crown; historic storm damage to south of crown around 5m with old wound sites & associated pockets of decay; ivy cover to main stems & scaffold limbs	Good	Good	40+	A1	12	452	-	TBC
T10	Oak (English)	On	17	1	Yes	900	10.0-10.0-9.0-11.0	2.5	3	N	M	None	Embedded in hedge; moderate dieback to south of crown; ivy cover to main stems & scaffold limbs	Good	Good	40+	A1	10.8	366	-	TBC
T11	Oak (English)	On	17	2	Yes	990	9.0-10.0-10.0-8.5	2.0	2	N	M	None	Embedded in hedge; twin-stemmed with a cohesive crown; ivy cover to main stems & scaffold limbs	Good	Good	40+	A1	11.9	443	-	TBC
T12	Oak (English)	On	18	1	Yes	900	9.0-10.0-8.0-8.5	2.5	3	W	M	None	Embedded in hedge; ivy cover to main stems & scaffold limbs	Good	Good	40+	A1	10.8	366	-	TBC
T13	Oak (English)	On	15	1	Yes	900	8.0-8.0-9.0-8.5	2.5	2.5	S	M	None	Embedded in hedge; moderate deadwood to north of crown @6m; sub-dominant stem to south; ivy cover to main stems & scaffold limbs	Good	Good	40+	A1	10.8	366	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T14	Oak (English)	On	18	1	Yes	800	8.5-10.0-10.0-9.0	2.5	4	N	M	None	Embedded in hedge; ivy cover to main stems & scaffold limbs	Good	Good	40+	A1	9.6	290	-	TBC
T15	Oak (English)	On	12	1	Yes	600	5.0-7.0-6.0-5.0	0.0	0	None	EM	None	Embedded in hedge; suppressed tree; main stem & scaffold limbs swathed in ivy	Good	Fair	40+	B1	7.2	163	-	TBC
T16	Oak (English)	On	17	1	Yes	1000	9.0-10.0-10.0-9.0	2.5	3	N	M	None	Embedded in hedge; ivy cover to main stems & scaffold limbs	Good	Good	40+	A1	12	452	-	TBC
T17	Ash (Common)	On	14	1	Yes	900	8.0-9.0-8.5-7.0	1.5	7	S	M	None	Historic storm damage - loss of main leader which has failed @12m leaving 2x decayed pegs; minor twiggy dieback throughout crown; main stem & scaffold limbs heavily swathed in ivy	Fair	Fair	20+	B3	10.8	366	-	TBC
T18	Oak (English)	On	16	1	Yes	1100	9.0-9.0-10.0-8.5	2.5	3.5	W	M	None	Notable tree embedded in hedge; historic storm damage - multiple old tear-out wounds to lower crown; no obvious signs of fungal fruiting bodies	Good	Good	40+	A1	13.2	547	-	TBC
T19	Ash (Common)	On	17	1	Yes	800	5.0-8.0-9.0-7.0	5.0	6.5	W	M	None	Moderate deadwood throughout crown; visible woodpecker activity; asymmetric crown; stem leaning toward south	Fair	Fair	20+	C3	9.6	290	-	TBC
T20	Oak (English)	On	12	1	Yes	600	4.0-5.0-6.0-6.0	0.0	0	None	EM	None	Embedded in hedge; suppressed tree; main stem & scaffold limbs swathed in ivy	Good	Fair	40+	B1	7.2	163	-	TBC
T21	Ash (Common)	On	14	1	Yes	900	10.0-12.0-9.0-8.0	3.0	5	N	M	None	Wide spreading form with disjointed crown; main stem & scaffold limbs heavily swathed in ivy	Fair	Fair	20+	B1	10.8	366	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T22	Ash (Common)	On	17	1	Yes	700	9.0-8.0-9.0-8.0	3.0	5	SW	M	None	In-field tree; minor twiggy dieback throughout crown; staining to south of main stem @6m indicates Inonotus brackets	Good	Fair	20+	B1	8.4	222	-	TBC
T23	Ash (Common)	On	16	1	None	970	7.0-10.0-10.0-8.5	4.0	3	W	M	None	In-field tree; hung-up scaffold limb to north-east of crown @7m; extensive area of loose bark & decay to north of main stem from ground level to approx. 2.5m; asymmetric crown; visible woodpecker activity to scaffold limbs. Reduce to habitat stem @7m	Fair	Poor	10+	C3	11.6	426	-	TBC
T24	Ash (Common)	On	10	1	None	270	5.0-5.0-6.0-6.0	2.5	2.5	NE	SM	None	Typical for age & species	Good	Fair	20+	B1	3.2	33	-	TBC
T25	Ash (Common)	On	17	1	Yes	800	8.0-9.0-10.0-8.0	3.0	3	N	M	None	Minor twiggy dieback throughout crown; main stem & scaffold limbs heavily swathed in ivy	Fair	Fair	20+	B1	9.6	290	-	TBC
T26	Ash (Common)	On	10	1	Yes	250	3.0-3.0-3.0-3.0	0.0	0	None	SM	None	Embedded in hedge; minor twiggy dieback in upper crown	Fair	Fair	20+	C1	3	28	-	TBC
T27	Oak (English)	On	18	1	Yes	1000	9.0-10.0-9.0-9.0	2.0	7	S	M	None	Notable tree embedded in hedge; main stem & scaffold limbs swathed in ivy	Good	Good	40+	A1	12	452	-	TBC
T28	Ash (Common)	On	12	2	Yes	350	1.0-1.0-5.0-1.0	0.0	0	None	SM	None	Embedded in hedge; suppressed by adjacent mature oak	Good	Fair	20+	B1	4.2	55	-	TBC
T29	Ash (Common)	On	16	1	Yes	700	5.0-9.0-7.0-9.0	2.5	3.5	SW	M	None	Embedded in hedge; moderate dieback to upper crown	Fair	Fair	20+	B1	8.4	222	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T30	Ash (Common)	On	14	1	None	1500	8.0-8.0-8.0-8.0	2.5	0	None	M	None	Notable tree (does not show enough Veteran characteristics to be categorised as such); bark damage with exposed heartwood & cavities; no crown retrenchment; has appearance of old pollard; no obvious signs of fungal fruiting bodies	Good	Fair	40+	A1	15	707	-	TBC
T31	Oak (English)	On	17	1	Yes	700	9.0-9.0-9.0-9.0	2.0	5	S	M	None	Embedded in hedge; main stem & scaffold limbs swathed in ivy; wide spreading form	Good	Good	40+	A1	8.4	222	-	TBC
T32	Willow (Crack)	On	16	1	Yes	800	8.0-13.0-8.0-8.5	0.0	0	None	M	None	Multi-stemmed tree within hedge; failed stem (fallen to east) in contact with ground; fracture to remaining upright stem. Reduce upright stems to approx 3m in height	Fair	Fair	10+	C1	9.6	290	-	TBC
T33	Oak (English)	On	17	1	None	780	11.0-10.0-10.0-12.0	2.0	2	E	M	None	In-field tree growing to edge of sunken area - possibly old marl-pit; root-plate to south-west partly exposed due to change of levels	Good	Good	40+	A1	9.4	275	-	TBC
T34	Ash (Common)	Off	15	4	Yes	750	8.0-8.0-5.0-8.0	0.0	0	None	EM	None	Offsite multi-stemmed tree	Good	Fair	20+	B1	9	254	-	TBC
T35	Oak (English)	Off	18	1	None	1170	10.0-10.0-12.0-11.0	2.0	2.5	S	M	None	Notable tree embedded in hedge; burrs to lower stem; main stem & scaffold limbs swathed in ivy	Good	Good	40+	A1	14	619	-	TBC
T36	Ash (Common)	Off	17	4	Yes	810	8.0-9.0-8.0-8.0	0.0	0	None	M	None	Multi-stemmed offsite tree	Good	Fair	20+	B1	9.7	297	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T37	Oak (English)	Off	18	1	Yes	1500	12.0-10.0-13.0-9.0	2.0	3	E	M	None	Notable offsite tree adjacent to watercourse; Ganoderma brackets present to north of root-collar above area of decay with hollow bark; sparse crowns when compared with other oak in immediate vicinity; categorised as A due to significant size despite decay	Fair	Fair	20+	A1	15	707	-	TBC
T38	Ash (Common)	On	12	4	Yes	560	7.0-8.0-6.0-7.0	1.0	0	None	EM	None	Multi-stemmed tree adjacent to ditch	Good	Fair	20+	B1	6.7	142	-	TBC
T39	Ash (Common)	On	15	1	Yes	750	8.0-9.0-9.0-8.0	2.0	2	W	M	None	Embedded in hedge; moderate deadwood throughout crown; visible woodpecker activity; main stem & scaffold limbs swathed in ivy	Fair	Fair	20+	C3	9	254	-	TBC
T40	Apple (Crab)	On	7	1	Yes	300	2.5-3.0-3.0-2.0	0.0	0	None	EM	None	Embedded in hedge; typical for age & species	Good	Fair	20+	B1	3.6	41	-	TBC
T41	Ash (Common)	Off	18	1	Yes	900	10.0-11.0-10.0-9.0	2.0	2.5	N	M	None	Offsite tree; basal hollowing; reasonable vigour throughout crown; main stem & scaffold limbs swathed in ivy	Good	Fair	20+	B1	10.8	366	-	TBC
T42	Oak (English)	Off	18	1	Yes	700	10.0-12.0-12.0-9.0	2.0	3	W	M	None	Offsite tree embedded in hedge; good vigour throughout crown	Good	Good	40+	A1	8.4	222	-	TBC
T43	Ash (Common)	On	17	1	Yes	750	8.0-9.0-8.0-9.0	2.5	4	S	M	None	Minor twiggy dieback throughout crown with moderate deadwood; old wounds with associated decay	Fair	Fair	20+	C3	9	254	-	TBC
T44	Ash (Common)	On	17	1	Yes	900	11.0-10.0-9.0-9.0	3.0	3	S	M	None	Embedded in hedge; good occlusion around old wounds; minor twiggy dieback throughout crown	Good	Fair	20+	B1	10.8	366	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T45	Ash (Common)	On	16	2	Yes	570	8.0-7.0-6.0-3.0	1.0	0	None	EM	None	Twin-stemmed; ditch to south of root -plate	Good	Fair	20+	B1	6.8	147	-	TBC
T46	Oak (English)	Off	18	1	Yes	1000	11.0-9.0-9.0-10.0	2.0	3	E	M	None	Offsite tree embedded in hedge; good vigour throughout crown	Good	Good	40+	A1	12	452	-	TBC
T47	Ash (Common)	Off	16	1	Yes	700	9.0-8.0-8.0-7.0	2.0	0	W	M	None	Offsite tree; minor twiggy dieback throughout crown; main stem & scaffold limbs swathed in ivy	Fair	Fair	20+	C3	8.4	222	-	TBC
T48	Oak (English)	On	15	1	Yes	900	9.0-8.0-8.0-8.0	0.5	0	None	M	None	In-field notable tree; dense bullace growing around base; large sized deadwood in crown creating "Stag's horn" effect; no obvious exposed heartwood or cavities; tree beginning to take on "veteran aesthetics"	Good	Fair	40+	A1	10.8	366	-	TBC
T49	Oak (English)	On	15	1	None	950	10.0-8.0-9.0-8.0	0.5	1.5	S	M	None	In-field notable tree; multiple Ganoderma brackets to north of root -plate; large sized deadwood in crown creating "Stag's horn" effect; no obvious exposed heartwood or cavities; tree beginning to take on "veteran aesthetics"	Good	Fair	40+	A1	11.4	408	-	TBC
T50	Oak (English)	On	17	1	Yes	900	10.0-10.0-10.0-10.0	0.5	0	None	M	None	In-field tree; dense blackthorn growing around base; good vigour throughout crown; main stem & scaffold limbs swathed in ivy; small elm to north-west of stem	Good	Good	40+	A1	10.8	366	-	TBC
T51	Oak (English)	On	18	1	Yes	900	10.0-9.0-10.0-10.0	2.0	2.5	N	M	None	Embedded in hedge; main stem & scaffold limbs swathed in ivy	Good	Good	40+	A1	10.8	366	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T52	Oak (English)	On	16	1	Yes	700	9.0-8.0-7.0-7.0	0.5	3	N	M	None	Embedded in hedge; established adjacent to pond - possibly old marl-pit; visible woodpecker activity to east of main stem @2.5m	Good	Good	40+	A1	8.4	222	-	TBC
T53	Oak (English)	On	17	1	Yes	900	8.0-9.0-9.0-7.5	1.0	3.5	S	M	None	Notable tree embedded in hedge; historic storm damage - old tear-out wound to scaffold limb in west of crown @6m; crack to scaffold limb in east of crown @6m; moderate deadwood	Fair	Good	40+	A1	10.8	366	-	TBC
T54	Oak (English)	On	18	1	Yes	900	9.0-9.0-9.0-8.0	1.0	2	S	M	None	Embedded in hedge; good vigour throughout crown	Good	Good	40+	A1	10.8	366	-	TBC
T55	Oak (English)	Off	17	1	Yes	1000	9.0-10.0-10.0-10.0	2.0	3.5	E	M	None	Offsite tree embedded in hedge; slightly sparse crown when compared with other oak in the vicinity	Fair	Good	40+	A1	12	452	-	TBC
T56	Hazel	On	6	20	None	360	2.0-2.0-2.0-2.0	0.0	0	None	EM	None	Typical for age & species	Good	Good	40+	B3	4.3	59	-	TBC
T57	Oak (English)	On	18	1	Yes	1400	10.0-10.0-11.0-10.0	1.5	3	NW	M	None	Notable tree embedded in hedge; main stem splits @3m into 3x significant scaffold limbs 2 of which are crossing; no obvious signs of fungal fruiting bodies	Good	Good	40+	A1	15	707	-	TBC
T58	Oak (English)	On	12	1	Yes	700	8.0-8.0-7.0-7.0	2.5	0	None	M	None	Embedded in hedge; low spreading crown with moderate deadwood	Fair	Good	40+	A1	8.4	222	-	TBC
T59	Oak (English)	On	18	1	Yes	1000	9.0-10.0-10.0-10.0	2.5	3	N	M	None	Embedded in hedge; moderate deadwood; slightly sparse crown when compared with other trees in vicinity	Fair	Good	40+	A1	12	452	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T60	Oak (English)	On	18	1	Yes	1000	10.0-12.0-10.0-10.0	2.5	4	W	M	None	Embedded in hedge; light ivy cover to main stem	Good	Good	40+	A1	12	452	-	TBC
T61	Oak (English)	On	17	1	Yes	1000	7.5-9.0-9.0-8.0	2.5	4	W	M	None	Embedded in hedge; moderate dieback; main stem & scaffold limbs swathed in ivy	Fair	Good	40+	A1	12	452	-	TBC
T62	Oak (English)	On	18	1	Yes	1100	10.0-12.0-10.0-10.0	2.5	5	NE	M	None	Embedded in hedge; main stem & scaffold limbs swathed in ivy	Good	Good	40+	A1	13.2	547	-	TBC
T63	Willow (Crack)	On	17	1	Yes	1000	7.0-8.0-9.0-9.0	1.0	0	None	M	None	Notable tree; has appearance of old pollard; cavity to main stem; crown formed by multiple re-generated scaffold limbs; decay around failed stem above main union	Good	Fair	20+	A1	12	452	-	TBC
T64	Oak (English)	On	18	1	Yes	1000	9.0-8.0-7.0-8.0	1.5	2	N	M	None	Embedded in hedge; main stem & scaffold limbs swathed in ivy	Good	Good	40+	A1	12	452	-	TBC
T65	Oak (English)	On	18	1	Yes	900	10.0-10.0-9.0-10.0	1.5	4.5	S	M	None	Embedded in hedge; minor deadwood throughout crown	Fair	Good	40+	A1	10.8	366	-	TBC
T66	Oak (English)	On	16	1	Yes	750	9.0-6.0-7.0-8.0	5.0	5	NE	M	None	Embedded in hedge; historic storm damage; moderate dieback leaving an asymmetric crown with patchy foliage	Fair	Fair	40+	B1	9	254	-	TBC
T67	Oak (English)	On	18	1	Yes	1000	9.0-9.0-9.0-10.0	1.5	2	S	M	None	Embedded in hedge; good vigour throughout crown	Good	Good	40+	A1	12	452	-	TBC
T68	Oak (English)	On	17	1	Yes	1500	9.0-8.0-10.0-10.0	1.0	0	None	M	None	Notable tree; stem splits @1m into 2x significant scaffold limbs forming a cohesive crown; decay pockets at old wounds sites with visible woodpecker activity; good vigour throughout crown	Good	Good	40+	A1	15	707	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T69	Ash (Common)	Off	18	1	Yes	900	8.0-9.0-9.0-8.0	3.0	4	S	EM	None	Embedded in hedge; minor twiggy dieback throughout crown	Fair	Fair	20+	B1	10.8	366	-	TBC
T70	Ash (Common)	Off	18	1	Yes	800	9.0-9.0-9.0-8.0	2.0	0	None	EM	None	Off-site tree	Good	Good	20+	B1	9.6	290	-	TBC
T71	Oak (English)	On	17	1	Yes	1330	10.0-10.0-8.0-10.0	2.5	3	N	M	None	Notable tree; crown retrenchment with moderate sized deadwood folding "Stag's horn" effect in upper crown; main stem splits @2m into 3x significant scaffold limbs; significant buttresses to south of root-collar with localised decay	Good	Good	40+	A1	15	707	-	TBC
T72	Oak (English)	On	18	1	Yes	900	10.0-9.0-10.0-10.0	2.0	5.5	N	M	None	Embedded in hedge; good vigour throughout crown	Good	Good	40+	A1	10.8	366	-	TBC
T73	Oak (English)	On	18	1	None	1300	11.0-11.0-8.0-10.0	3.0	4.5	SW	LM	None	Significant dead-standing oak; visible woodpecker activity; good habitat tree; retention in the mid to long-term can be achieved by reducing scaffold limbs back to main union & retaining stem as habitat monolith	None	None	20+	C3	15	707	-	TBC
T74	Willow (Crack)	On	7	1	None	470	7.0-5.0-6.0-7.0	1.0	0	None	M	None	Cavity to main stem; crown formed by multiple re-generated scaffold limbs	Fair	Fair	20+	B1	5.6	100	-	TBC
T75	Oak (English)	On	17	2	None	760	9.0-8.0-8.5-9.0	2.0	0	None	M	None	Smaller sub-dominant stem shows limited foliage; moderate deadwood & visible woodpecker activity	Fair	Good	40+	B1	9.1	261	-	TBC

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	RPA m ²	ASN W buffer	TPO ?
T76	Oak (English)	On	18	1	None	1400	11.0-9.0-9.0-12.0	2.5	3.5	S	M	None	Notable tree which occurs at change of ground levels; crown retrenchment with moderate deadwood; old tear-out wound to scaffold limb in east of crown @9m; access track runs to west of root-plate; stones heaped; no obvious signs of fungal fruiting bodies	Fair	Good	40+	A1	15	707	-	TBC
T77	Oak (English)	On	13	1	Yes	400	6.0-6.0-7.0-6.0	1.5	1.5	N	SM	None	Embedded in hedge; typical for age & species	Good	Fair	40+	B1	4.8	72	-	TBC
T78	Ash (Common)	On	18	1	Yes	1100	11.0-12.0-14.0-10.0	2.0	4.5	S	M	None	Notable tree; moderate deadwood within crowd; historic storm damage with debris on ground; good occlusion to old wounds; Inonotus bracket to scaffold limb in north of crown @9m; visible woodpecker activity to smaller lateral limbs	Fair	Good	40+	A1	13.2	547	-	TBC
T79	Oak (English)	On	14	1	None	610	9.0-9.0-9.0-8.0	1.5	2.5	S	M	None	In-field tree; established to north of sunken area - possibly old culvert; basal damage to north with exposed heartwood; good vigour throughout crown	Good	Fair	40+	A1	7.3	168	-	TBC

GROUPS OF TREES

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. Crown radius (m)	Avg. low crown height (m)	Life Stage	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	TPO?
G1	Hawthorn; blackthorn	On	2.5	3	None	190.0	3.0	0.25	M	None	Growing to edge of sunken area - looks like an old mark-pit; 3x hawthorn with mistletoe in crowns; understory of blackthorn	Fair	Fair	20+	B2	2.3	TBC
G2	English oak	On	15 - 17	4	Yes	700.0	8.0	2.0	M	None	4x stems embedded in hedge; slightly sparse crown density when compared to other oak in immediate vicinity	Fair	Good	40+	A2	8.4	TBC
G3	Ash	On	15 - 16	2	Yes	250.0	6.0	2.5	SM	None	Typical for age & species	Good	Fair	20+	B2	3.0	TBC
G4	Field maple; hawthorn; hazel; crab apple	On	3 - 10	12	Yes	380.0	4.5	1.0	EM	None	Group established around sunken area - possibly old marl-pit	Good	Fair	20+	B2	4.5	TBC
G5	Crack willow; blackthorn	On	3 - 12	5	Yes	400.0	4.0	0.0	EM	None	Multi-stemmed willow with partially failed stems; thorn understory	Good	Fair	20+	B2	4.8	TBC
G6	Field maple; ash; crab apple	On	8 - 10	4	Yes	200.0	3.0	0.0	SM	None	Multi-stemmed hedge trees	Good	Fair	20+	B2	2.4	TBC
G7	Bullace	On	5	10	Yes	80.0	1.5	0.0	SM	None	Thicket of bullace; failed oak stems on ground	Good	Fair	20+	B2	1.0	TBC
G8	English oak	On	17 - 18	2	Yes	1000.0	8.0	2.0	M	None	2x stems embedded in hedge forming a cohesive crown; both stems show non-progressive lean to south-east	Good	Good	40+	A2	12.0	TBC
G9	English oak	On	16 - 18	2	Yes	1000.0	9.0	2.0	M	None	2x stems embedded in hedge forming a cohesive crown; stem to west dominates plot; stem to east is laterally suppressed	Good	Good	40+	A2	12.0	TBC
G10	English oak	On	17	2	Yes	800.0	6.0	4.5	M	None	2x stems embedded in hedge; both trees have low vigour with limited amount of foliage present; historic storm damage with visible wounds & decay sites; large deadwood; visible woodpecker activity; good habitat	Poor	Fair	20+	B3	9.6	TBC
G11	English oak	On	15 - 16	2	Yes	1000.0	8.0	2.0	M	None	2x stems forming a cohesive crown; large Ganoderma bracket to south-west of root-plate of northern stem; moderate deadwood throughout both crowns	Fair	Good	40+	A2	12.0	TBC
G12	Hawthorn; elder	On	5	6	None	130.0	2.5	0.0	EM	None	Growing around sunken area - possibly old culvert	Fair	Fair	20+	B2	1.6	TBC

HEDGES

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H1	Field maple; hazel; hawthorn; elder; elm	On	3	3	100	0.0	EM	Unmanaged section of hedge	Good	Fair	40+	B2	1.3
H2	Field maple; hazel; blackthorn; hawthorn; elder; elm	On	2.5	2.5	100	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.3
H3	Field maple; blackthorn; hawthorn; ash; crab apple	On	2.5	2.5	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H4	Blackthorn; hawthorn	On	2	2	60	0.0	EM	Maintained by flail; kissing-gate at approximate centre for footpath	Good	Fair	40+	B2	0.8
H5	Blackthorn; hawthorn; field maple; ash	On	2	2	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H6	Blackthorn; hawthorn; field maple; elder; dogwood	On	3.5	3	80	0.0	EM	Sides managed by flail	Good	Fair	40+	B2	1
H7	Blackthorn; hawthorn; dogwood	On	2.5	2	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H8	Blackthorn; hawthorn; field maple; spindle	On	2.5	2	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H9	Hawthorn; blackthorn; field maple; elm	On	3.5	3.5	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H10	Hawthorn; blackthorn; ash; field maple	On	3	3	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H11	Elm; hazel; field maple	On	3.5	3	80	0.0	EM	Maintained by flail; patchy hedge	Good	Fair	40+	B2	1
H12	Blackthorn; elm; hazel	On	3.5	3	80	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1
H13	Blackthorn	On	3	2.5	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H14	Blackthorn; hawthorn; field maple; ash	On	3	2.5	60	0.0	EM	Maintained by flail; single ash to south of hedge - approx. 8m in height	Good	Fair	40+	B2	0.8
H15	Hawthorn; blackthorn; ash; dogrose	On	3	2.5	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H16	Blackthorn; hawthorn; field maple; ash; oak; dogwood	On	3	2.5	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H17	Hazel; ash; blackthorn; hawthorn	On	2.5	2.5	80	0.0	EM	Maintained by flail; partially choked by brambles	Good	Fair	20+	B2	1

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H18	Field maple; ash; goat willow; blackthorn; hawthorn	On	4	3.5	110	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.3
H19	Field maple; ash; goat willow; hazel; blackthorn; hawthorn	On	4	3.5	100	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.3
H20	Blackthorn; hawthorn	On	3.5	6	80	0.0	EM	Thorn thicket around sunken area; partly choked by brambles	Good	Fair	40+	B2	1
H21	Hawthorn; blackthorn; ash; elder	On	4	3.5	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H22	Hawthorn; blackthorn; ash; crab apple; field maple; dogwood; elder	On	4	3.5	90	0.0	EM	Maintained by flail; multi-stemmed ash to south of hedge approx. 6m in height	Good	Fair	40+	B2	1.1
H23	Hawthorn; blackthorn; field maple; hazel; dogwood	On	3.5	4	80	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1
H24	Blackthorn; hawthorn	On	2	2.5	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H25	Blackthorn; hawthorn	On	3	2.5	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H26	Blackthorn; hawthorn; ash; spindle; elder	On	3	2.5	60	0.0	EM	Maintained by flail; 2x multi-stemmed ash to south of hedge @6m in height	Good	Fair	40+	B2	0.8
H27	Hawthorn; blackthorn; ash; hazel; field maple	On	3	2.5	70	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H28	Hawthorn; blackthorn; field maple; goat willow	On	3.5	3.5	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H29	Blackthorn; hawthorn; elm; field maple	On	3	3.5	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H30	Elm	On	3	3	100	0.0	EM	Elm hedge with dead stems & re-growth	Fair	Fair	20+	C2	1.3
H31	Hawthorn; blackthorn; ash; hazel; field maple	On	3	2.5	70	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H32	Hawthorn; blackthorn; ash; hazel; elder	On	3	2.5	70	0.0	EM	Maintained by flail; sporadic section to north of feature	Good	Fair	20+	B2	0.8
H33	Hawthorn; blackthorn; hazel	On	3	2.5	70	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H34	Hawthorn; blackthorn; hazel	On	2.5	2.5	70	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H35	Hawthorn; blackthorn; field maple	On	3	2.5	70	0.0	EM	Maintained by flail; 1x field maple within hedge @10m in height	Good	Fair	40+	B2	0.8
H36	Hawthorn; blackthorn; hazel; field maple	On	3	2.5	70	0.0	EM	Maintained by flail; 4x field maple within hedge @6m in height	Good	Fair	40+	B2	0.8

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H37	Hawthorn; blackthorn; hazel	On	3	2.5	70	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H38	Hawthorn; blackthorn; hazel; crack willow	On	3	2.5	90	0.0	EM	Maintained by flail	Good	Fair	20+	B2	1.1
H39	Blackthorn; hawthorn; dogwood; oak; ash	On	5.5	3.5	170	0.0	EM	Maintained by flail; sporadic in places; means of enclosure supplemented by fencing	Good	Fair	20+	B2	2
H40	Hawthorn; blackthorn; hazel; dogwood; goat willow; elder	On	3	2.5	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H41	Elm; hawthorn; blackthorn; hazel	On	3.5	3	70	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H42	Elm; elder; blackthorn; hazel	Off	3.5	3	70	0.0	EM	Maintained by flail; sporadic in places	Good	Fair	40+	B2	0.8
H43	Hawthorn; blackthorn; hazel; elder	Off	3	3	70	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H44	Blackthorn; elm; ash	On	2.5	2.5	70	0.0	EM	Maintained by flail; 3x small elm & 1x small ash @6m in height	Good	Fair	40+	B2	0.8
H45	Blackthorn; hawthorn; elm; ash	On	4	3	70	0.0	EM	Maintained by flail; 2x small multi-stemmed ash @10m & 12m in height	Good	Fair	40+	B2	0.8
H46	Blackthorn; hawthorn; hazel; field maple; dogrose; dogwood; ash	On	4	3	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H47	Blackthorn; hawthorn; hazel; ash	On	3	3	80	0.0	EM	Maintained by flail; 3x multi-stemmed ash & 2x multi-stemmed alder within hedge @10m in height	Good	Fair	40+	B2	1
H48	Blackthorn; hawthorn; hazel; dogwood; spindle	On	3	3	80	0.0	EM	Maintained by flail; 3x ash within southern section of hedge @10m in height - ash showing minor twiggy dieback	Good	Fair	40+	B2	1
H49	Blackthorn; hawthorn; hazel; ash; field maple	On	2	2	90	0.0	EM	Maintained by flail @2m with 1x hazel @3m	Good	Fair	40+	B2	1.1
H50	Blackthorn; bullace; hawthorn; ash; alder; hazel	Off	5.5	6	200	0.0	EM	Thicket around ditch; ash; alder & hazel stems appear to be offsite	Good	Fair	40+	B2	2.4
H51	Blackthorn; goat willow; hazel; dogwood	On	3	3	80	0.0	EM	Maintained by flail; choked by brambles & bindweed	Good	Fair	40+	B2	1
H52	Blackthorn; hawthorn; hazel; field maple; ash; dogwood	On	3	2.5	100	0.0	EM	Maintained by flail; 1x multi-stemmed maple; 1x ash & 1x multi-stemmed hawthorn within hedge @7 - 8m in height	Good	Fair	40+	B2	1.3
H53	Blackthorn; hawthorn; hazel; crab apple	On	3.5	3	120	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.5

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H54	Blackthorn; hazel	On	3.5	3	80	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1
H55	Blackthorn; hawthorn; alder; goat willow	On	3.5	2.5	80	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1
H56	Blackthorn; hawthorn; goat willow	On	3	3	80	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1
H57	Blackthorn; hawthorn; hazel; goat willow; dogwood	On	3	3	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H58	Blackthorn; hawthorn; hazel; goat willow	On	2.5	3	80	0.0	EM	Maintained by flail; sporadic in places	Good	Fair	40+	B2	1
H59	Blackthorn; hawthorn; hazel; field maple	On	3	3	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H60	Blackthorn; field maple	On	5	6	80	0.0	EM	Predominantly thorn thicket	Good	Fair	40+	B2	1
H61	Blackthorn; hawthorn; oak; field maple	On	3.5	3	140	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.7
H62	Blackthorn; hawthorn; hazel; field maple	On	2.5	2	90	0.0	EM	Maintained by flail; 1x multi-stemmed hawthorn & 1x ash @6m in height on south-western section	Good	Fair	40+	B2	1.1
H63	Blackthorn; hawthorn; hazel; elm; field maple	On	2.5	2	90	0.0	EM	Maintained by flail; 1x multi-stemmed field maple @6m in height on south-eastern section	Good	Fair	40+	B2	1.1
H64	Blackthorn; hawthorn; field maple; dogwood	On	3	2.5	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H65	Blackthorn; hawthorn; field maple; oak; goat willow; ash	On	3	2.5	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H66	Blackthorn; hawthorn; ash	On	3	2.5	90	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1.1
H67	Blackthorn	On	3	4	70	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8
H68	Blackthorn; hawthorn; field maple	On	3	3	90	0.0	EM	Maintained by flail; sporadic beneath trees & partly choked by brambles	Good	Fair	20+	B2	1.1
H69	Blackthorn; hawthorn; dogwood	On	3	3	90	0.0	EM	Maintained by flail	Good	Fair	20+	B2	1.1
H70	Blackthorn; hawthorn	On	2.5	2	80	0.0	EM	Maintained by flail	Good	Fair	40+	B2	1
H71	Blackthorn; hawthorn; elder	On	3	2.5	80	0.0	EM	Maintained by flail; short section of hedge partly choked by brambles	Good	Fair	10+	C2	1
H72	Hawthorn; elm; crab apple; ash; hazel	On	3	3	80	0.0	EM	Maintained by flail; sporadic in places	Good	Fair	20+	B2	1

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	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
H73	Hawthorn; blackthorn; field maple; elm	On	3	3	80	0.0	EM	Maintained by flail; occasional dead elm	Good	Fair	20+	B2	1
H74	Hawthorn; blackthorn; field maple; elm	On	3	3	80	0	EM	Maintained by flail; occasional dead elm stem; sporadic in places	Good	Fair	20+	B2	1
H75	Blackthorn; hawthorn; field maple; spindle; dogwood	On	3	3.5	60	0.0	EM	Maintained by flail	Good	Fair	40+	B2	0.8

WOODLAND

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	Special importance	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)	TPO?
W1	Ash; crack willow; hawthorn; hazel; elder	Off	2 - 18	80	None	370.0	6.0	0.5	M	None	Offsite woodland; sample of feature where plot abuts survey area which has appearance of old hedge; internal compartment of plot appears to be semi-mature & tightly spaced	Good	Good	40+	A2	4.4	TBC
W2	Oak; ash; Norway spruce; hybrid black poplar; horse chestnut; crab apple; hazel; hawthorn; blackthorn; elder; crack willow	On	2 - 18	200	None	680.0	7.0	1.0	M	None	"Lake Copse" - internal compartment of plot is mature/early-mature oak & ash with Norway spruce; understory of hawthorn; hazel & elder; sporadic hedges around plot consisting of thorn & other recorded species; willow occurs to south-west corner of plot	Good	Fair	40+	A2	8.2	TBC



IMAGE 1: A view looking north-east at T1, a high-quality oak with many veteran characteristics.



IMAGE 2: A view looking north at T23, the fractured & hung-up limb is indicated.



IMAGE 3: A view looking south at the root-collar of T37 showing the close proximity of the watercourse and the witness marks of high water.

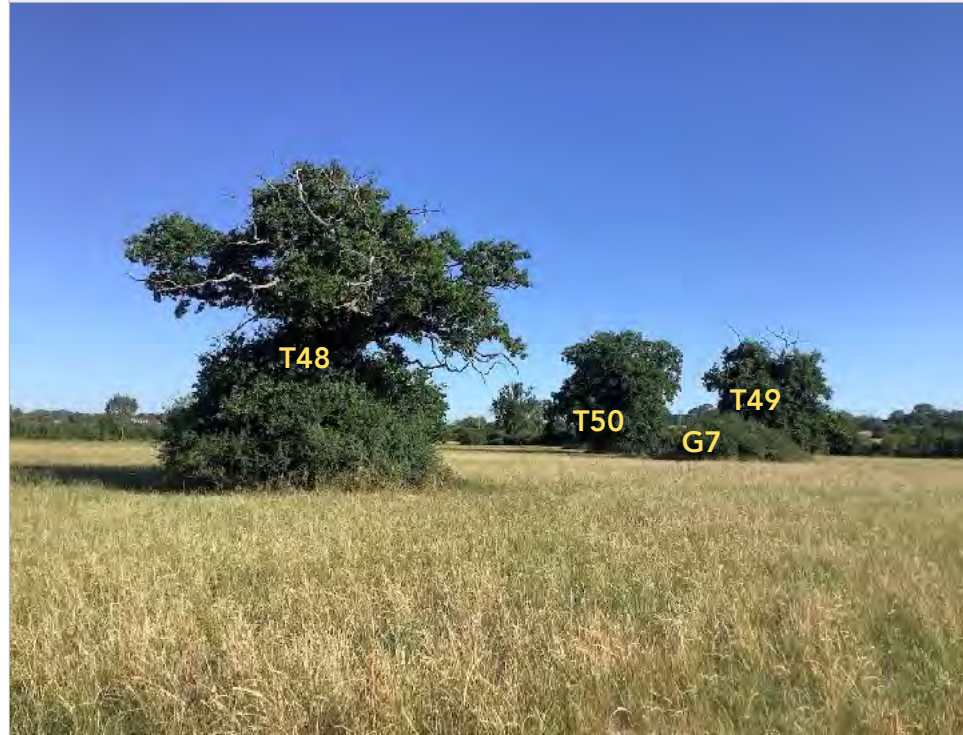


IMAGE 4: A view looking north at the in-field trees T48, T49 & T50 along with the group G7.



IMAGE 5: A view looking south-east at T76, showing the existing track and the pile of stones around the root-collar of the tree.



IMAGE 6: A general view looking south along the 4m wide concrete track (which leads to Talbots End) and the proximity of TN4 and OOS12.

- The tree survey was carried out with reference to the methodology set out in BS5837:2012 '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.
- The full tree survey findings are recorded in the following tree survey schedule.
- 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.

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 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. (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 are expressed both as existing height above ground level of 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, due to inaccessibility for example, 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 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 upon the local landscape and environment. Semi-Mature (still capable of being transplanted without preparation, up to 30cm 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 upon 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, it's 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 of epicormic shoot growth).

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

Dead: (or Moribund).

STRUCTURAL CONDITION:

Defects affecting the structural stability of the tree including decay, significant dead wood, 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 defect(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.

An 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 BS5837:2012; summary definitions as follows (see BS5837 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 numbers 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 15cm diameter.

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

- C1: Unremarkable trees of very limited merit or of 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 benefit.

CATEGORY U:

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 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 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

The National Planning Policy Framework 2021 (NPPF paragraph 180) states that, when determining planning applications, local planning authorities should apply the following principle:

c) 'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.'

In this respect the following definitions apply:

'Ancient woodland: An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS)', and

'Ancient or veteran tree: A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.'

Note: Further information from the National Planning Policy Guidance Suite and Standing Advice is provided in the design guidance section.

Other paragraphs of the NPPF 2021 of relevance to this report are:

Paragraph 131: *'Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.'*

Paragraph 174: *'Planning policies and decisions should contribute to and enhance the natural and local environment by:*

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.'

STATUTORY CONTROLS

Statutory tree protection

Works to trees which 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 at 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. Therefore, we recommend that a further check is made with the LPA before any tree works are carried out.

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 for this report.

Trees which 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 to 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 provides an indication of 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	BS5837:2012
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 in order 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 future tree growth and orientation.

Tree constraints

Root Protection Areas:

With reference to BS5837:2012, 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”.**

BS5837:2012 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:

‘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, appropriate 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 in order 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 in order 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 be needed 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 is 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 to allow them to mature.

HOW TREE DAMAGE CAN OCCUR

Above the ground

Damage can occur as a result of knocks and scuffs, breakages of branches and/or tree trunks. This is often but not always associated with machine operations, groundworks excavations, tele handlers, high sided vehicles and crane use. Other forms of above ground damage include fixings to trunk and unauthorised cutting back of branches. Wounds will harm a tree's health and shorten its life by letting in disease-causing organisms.

Below the ground

It is often not appreciated that the majority of most tree roots are generally located within the top 600mm of the ground. On this basis it needs to be understood that damage to roots can occur in three ways:

- Root severance can occur as a result of, for example, soil stripping during site clearance or excavations.
- Root dieback and death can result from compaction of the soil. Compaction can occur as a result of vehicle weight, weight of stored materials or increased pedestrian access. Compaction crushes out soil pore space and prevents tree respiration from occurring (respiration requires gas exchange between the ground and the atmosphere). Compacted soil is denser and therefore inhibits/prevents any further new root growth.
- Pollution of the soil with chemicals such as oil or cement washings can destroy the soil environment, making it inhospitable for the tree cause causing it stress.

The effects of these impacts can be disfiguring to a tree's appearance and also weaken a tree making it more liable to attack by pest and diseases. In addition, root damage or death results in corresponding decline above the ground with dieback occurring within the tree crown.

The effects of damage to trees generally take some time to become fully apparent. In many cases, damaged trees decline slowly after the completion of a new development, until they eventually need to be removed due to ill health.

Tree protection barriers and load distributing 'no-dig' paths are specified in order to prevent soil compaction from taking place.

GENERAL SITE RULES FOR TREE PROTECTION

Do not independently carry out any activity that is at odds with the site scheme of tree protection. This is contained within an approved Arboricultural Method Statement (AMS) and accompanying Tree Protection Plan.

In simple terms: do not carry out any work within any Construction Exclusion Zone (CEZ) without prior liaison with the Project Arboriculturist and written authorisation from the Local Planning Authority.

Within the CEZ:

- No mixing of cement
- No soil/turf stripping, raising/lowering of ground levels (unless advised), deposit or excavation of soil or rubble
- No excavations for services or installation of services
- No storage of materials, machinery fuel, chemicals or other materials of any other description
- No parking/use of tracked or wheeled machinery
- No siting of temporary structures including hard standing areas, portaloos, site huts
- No lighting of fires or disposal of liquids
- Fires on site should be avoided if possible. Where they are unavoidable, they must not be lit in a position where heat could damage foliage or branches. Fires must be a minimum of 20m from the trunk of any retained tree or the centre line of any hedgerow to be retained
- No signs, cables, fixtures or fittings of any other description shall be attached to any part of a retained tree