

ARBORICULTURAL IMPACT ASSESSMENT

Land South of A507,
Buntingford

June 2024

Barton Hyett Associates
Arboricultural Consultants

In association with

CSA environmental

Summary table		
Site Name:	Land South of A507, Buntingford	
Project reference:	5798	
Site Address:	Baldock Road, Buntingford, Hertfordshire.	
Nearest Postcode:	SG9 9ER	
Central Grid reference:	TL 35232 29198	
Local Planning Authority:	East Hertfordshire Council	
Relevant planning policies:	East Herts District Plan 2018: DES2 - Landscape character' DES3 - Landscaping; DES4 - Design of development; NE3 - Species & Habitats; NE4 - Green Infrastructure. East Herts Planning Obligations SPD: Nature conservation & landscape improvements.	
Statutory Controls:	**Tree Preservation Order**	**Conservation Area**
	None	No
Ancient trees/ woodlands?	3x oak (T39, T40 & T41) located within The Thicket (W1) recorded as veteran trees.	
Soil Type: (Source: BGS online soils map © NERC 2024)	**Superficial/Drift**	**Bedrock**
	Deep lime-rich loamy and clayey soil with impeded drainage over Lowestoft Formation Diamicton	Lewes Nodular Chalk Formation and Seaford Chalk Formation - Chalk
Topographical Survey:	Drawing No: HLM082/030 (Rev.C) dated: 10/06/2024	
Notes:	W1 is named locally as 'The Thicket'	
Checked by:	Ian Monger *MSc, BSc (Hons), TechCert (ArborA) MArborA*	
Revision:	Rev. 01	
Date of issue:	18/06/2024	

Barton Hyett Associates
Arboricultural Consultants

Arboricultural Association
Professional Member
PR179

Institute of Chartered Foresters
registered

CHAS
Accredited Contractor
CHAS.co.uk

CSA environmental

Landscape Institute Registered Practice

QMS ISO 9001 : 2015 REGISTERED
Certificate No:366562021

CIEEM REGISTERED PRACTICE 2022-2023

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Arboricultural Consultants

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SECTION 8:	CONSTRUCTION EXCLUSION ZONE SIGN

1. INTRODUCTION

1.1. Barton Hyett Associates Ltd have been instructed by CSA Environmental to survey trees located at Land South of A507, Buntingford ('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 an outline planning application at the site and provide written advice on how they inform feasibility and design options. 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 site lies approximately 1.4 Km west of the town of Buntingford and is made up of agricultural land with field boundaries being defined by a mixture of ditches, hedgerows and fences. The approximate site boundary is shown edged yellow in Figure 1 below.



Figure 1: aerial image (Google Maps) of the site with the approximate survey area shown in yellow.

2.2. The survey area measures approximately 13.28 hectares and is used for arable crop production. The site is relatively flat with the approximate height above mean sea level varying from 120m at the north of the site and 126m at the south.

2.3. Baldock Road runs east-to-west along the northern boundary of the site with the A10 running north-to-south at the far eastern boundary. The southern and western boundaries back onto the adjacent fields.

2.4. Access to the site is possible from entrances along Baldock Road with internal access points located between the fields.

2.5. The surrounding area is agricultural land with occasional farms and outlying dwellings and the town of Stevenage is located approximately 12.5 miles southwest of the site.

3. TREE SURVEY FINDINGS

3.1. The survey recorded 59 arboricultural features. These are summarised in terms of quality in accordance with the recommendations of BS 5837 in Table 1 below and shown in more detail on the Tree Survey and Constraints Plan (**Section 2**) and within the Tree Survey Schedule and within the Tree Survey Schedule (**Section 4**).

3.2. Only trees and hedgerows within or immediately adjacent to the site are included in this report. The tree survey was undertaken on a wider survey area and so the identification numbers are not wholly consecutive.

Table 1: arboricultural features by type and quality category.

	Total	A - High quality trees whose retention is most desirable.	B - Moderate quality trees whose retention is desirable.	C - Low quality trees which could be retained but should not significantly constrain the proposal.	U - Very poor quality trees that should be removed unless they have high conservation value.
Trees	**19**	3	9	7	-
Groups	**21**	-	15	6	-
Woodlands	**1**	1	-	-	-
Hedgerows	**18**	-	7	11	-
Total	**59**	**4**	**31**	**24**	**0**

4. KEY ARBORICULTURAL FEATURES

4.1. There is no woodland recorded as ancient in the Natural England Ancient Woodland Inventory (AWI) affecting the site. However, the AWI is provisional in nature and ecological surveys at the site, including for ground flora indicator species, are ongoing.

4.2. Woodland W1 is named locally as 'The Thicket'. Several flooded pits were noted within the north of the woodland and there is an unmetalled trackway running east-to-west. The oldest OS map available for this area (1840s - 1880s) does not record works or marl-pits to the north of the plot but does show a footpath leading through the woodland in the approximate area of the existing track.

4.3. Three lapsed oak pollards, T39, T40 and T41, are located in the west of W1 and have been identified as veteran trees (see Image 3 below). Their status is a result of their large trunk girths of 4.2m (T39 and T41) and

5.5m (T40) and veteran features[1] including extensive crown retrenchment, major trunk cavities, dry crevices, deadwood, splits, bark loss and an 'old look' with high aesthetic interest. No fungal fruiting bodies were present at the time of the survey. The three oaks have been assigned Category A3 because of their high arboricultural and conservation value.

4.4. The girth measurements classify[2] trees T39 and T41 as veterans and T40 as being on the threshold of veteran/ancient. The age of these trees may be considerably more because pollard treatment can reduce annual trunk increment growth.

4.5. To the far eastern boundary of the site is lapsed ash coppice T38 (C3). This tree originally had four stems, but one stem has failed to the north in the last few years. The remaining three stems have visible cracks between the stems and there is extensive cavitation visible at the base which together compromise the tree's structural condition. Public access is limited in this area of the site as there are no Public Rights of Way (PROWs) and the tree is not within striking distance of the road or property. With a likely change in use of the site proposed, which would see an increase in population during and post-construction, the felling (re-coppicing) of the three remaining stems of this tree should be considered to reduce the risk to site users.

5. PROPOSED DEVELOPMENT

5.1. The development proposal is for an outline planning application for development of employment land (flexible use B2, B8, E(c) and E(g)), informal open space, associated works and infrastructure including a new access from A507, with all matters reserved save for access.

5.2. The proposed site layout is shown on the Land Use Components Plan, drawing No: HHLM082/030 (Rev.C) dated: 10/06/2024. Detailed access arrangements are shown on the proposed site access arrangements, drawing No: 0010 (Rev.P2) dated: 12/06/2024.

6. IMPACT ASSESSMENT

6.1. The impact assessment considers the effects of any tree loss required to implement the proposed development as well as any reasonably foreseeable potentially damaging activities proposed in the vicinity of retained trees. This is undertaken with reference to BS5837:2012 and considering the nature of the proposed development. Actual and potential impacts can include tree removal to facilitate the development, soil compaction in close proximity to trees, and direct impact damage to the canopy and roots of retained trees from construction activities. A summary of anticipated impacts resulting from the proposed development is provided below.

Trees to be removed

6.2. The likely tree and hedgerow removals are shown on the Tree Retention and Removal Plan (TRR) in **Section 3.**

6.3. A new access from a new roundabout on Baldock Road to the north is proposed as a non-reserved matter. This would require, as a minimum, the removal of maintained field maple, hazel and blackthorn hedgerow H49 (B2), which is approximately 123m in length.

6.4. The new pedestrian footway and cycleway would be constructed to the south of roadside groups G25 to G27 but would require a section of the semi-mature trees and shrubs within G27 to be removed for the connection to the highway crossing.

6.5. The groundworks and battering usually required for highway improvement work would necessitate the removal of hedgerow H51 (C2). The work may also require the complete or partial removal of semi-mature highway verge groups G25, G26 and G27 (B2). The feasibility of any tree and shrub retention would depend on detailed design of final site and highway levels and the extent of groundworks required.

Impacts on retained trees

6.6. Paragraph 186 of the National Planning Policy Framework 2023 (NPPF) states that planning applications for development resulting in the loss or deterioration of irreplaceable habitats such as veteran trees should be refused unless there are wholly exceptional reasons, and a suitable compensation strategy exists.

6.7. Detrimental impacts from development on veteran oaks T39, T40 and T41 might include, but are not limited to, damage to roots and understorey, damage to or compaction of soil around the tree roots, and changes to the water table or drainage within the tree's soil.

6.8. The Standing Advice states that the area within a veteran tree buffer zone should consist of semi-natural habitats such as woodland or a mix of scrub, grassland, heathland and wetland planting. The area within the buffer zone should be part of the green infrastructure of the area and contribute to wider ecological networks and only be planted with local and appropriate native species. Access within a buffer should be appropriate and can be allowed if the habitat is not harmed by trampling. Sustainable drainage schemes should be avoided unless they respect the root protection area and any change to the water table does not adversely affect the ancient tree.

6.9. The Land Use Components Plan shows that woodland W1 and the three veteran oak trees would be retained and a significant area around them enhanced with structural planting. Therefore, the veteran tree buffers would be retained as semi-natural habitat and there would be no loss or deterioration of the irreplaceable veteran tree habitats.

6.10. Subject to an assessment of detailed finished ground levels and drainage schemes, there would be no other impacts on retained trees and hedgerows. No further pruning of trees would be required.

6.11. English oak is adapted to growing in the higher light levels at a woodland edge, and younger tree growth can soon out-compete oak for light within a woodland canopy, causing gradual decline. Halo thinning could be carried out around the three veteran oaks to improve light levels and invigorate their growth.

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

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

6.12. With regard to the reserved matters layout, the residential development is set well away from the site's trees and hedgerows, with a large area of open space a green buffers providing for the retention of tree and hedgerow features.

6.13. Attention is drawn to paragraph 136 of the NPPF (see Section 5) which requires streets to be 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.

6.14. Aside from the proposed structural planting, there appears to be ample scope in detailed design to provide tree-lined primary streets at the site, along with new tree planting within the open spaces, at the SuDS features and to enhance the site boundaries.

Conclusion

6.15. The proposed development is feasible from an arboricultural perspective, and if carefully implemented according to an approved AMS there would be no negative impact on the retained trees. Overall, a landscape scheme can deliver a significant net gain in tree canopy cover and species diversity at the site.

7. TREE PROTECTION MEASURES

7.1. Temporary physical barriers would be installed to protect the RPAs of retained trees during groundworks and construction phases. The barrier locations would be devised once the detailed site layout and other schemes including levels, drainage and construction access/management have been reviewed and adjusted where impacts need to be avoided.

7.2. The finalised barrier locations (as well as any temporary ground protection considered necessary) would be provided within an approved Arboricultural Method Statement (AMS), along with a scheme of arboricultural monitoring to ensure that tree protection measures and precautions are adhered to during works.

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 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 upon with the applicant and LPA
- Review of other schemes that could conflict with tree protection, including levels, drainage and construction access/management
- 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
- Tree/hedgerow removals and facilitation pruning - as shown on the Tree Retention and Removal Plan (TRR)
- Erection of tree protection barriers and temporary ground protection as may be required 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 new tree planting.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1. In conclusion, the arboricultural impacts of the detailed access and outline development proposal on trees and hedgerows at the site are low in the context of the scale of development and are acceptable. The veteran tree buffers will be retained as semi-natural habitat and connectivity with them will be enhanced with new structural planting so that there would be no loss or deterioration of the irreplaceable veteran tree habitats. The landscape scheme can deliver a significant net gain in tree canopy cover and species diversity at the site.

9.2. An assessment of the potential impacts of the detailed design will need to be prepared and submitted at the Reserved Matters stage. An AMS and finalised Tree Protection Plan will then need to be produced following approval of the Reserved Matters to ensure the optimum level of physical protection of retained trees.



Ian Monger MSc, BSc (Hons), TechCert (ArborA) MArborA
Senior Arboriculturist

IMAGES FROM THE TREE SURVEY

LAND SOUTH OF A507, BUNTINGFORD

PROJECT NO: 5798

SURVEYOR: DAVID HOLMES

CLIENT: CSA ENVIRONMENTAL

SURVEY DATE: 23/01/2024

Barton Hyett
Arboricultural Consultants



IMAGE 1: A view looking north across the site at W1 - this woodland is named locally as 'The Thicket'



IMAGE 2: An internal view of W1 looking east - note the trackway & the flooded pits to the north of this



IMAGE 3: An internal view within W1 looking west at the 3x veteran lapsed oak pollards, the central tree having the largest stem (note flooded pit)



IMAGE 4: A view looking east at the lapsed ash coppice T38, which was originally 4-stemmed



IMAGE 5: A view looking south at the root-collar of T38 showing the failure of the 4th stem & associated basal decay



IMAGE 6: A close-up view looking south at one of the cracks visible between the stems of the ash T38

SECTION 1



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/offsite 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

WoodRef	Species	Height Range (m)	LifeStage	RPA Radius (m)	RPA (m2)
W1	English oak; beech; field maple; horse chestnut;	1 - 20	EM	10.8	366
Group Ref	**Species**	**Height Range (m)**	**LifeStage**	**RPA Radius (m)**	**RPA (m2)**
G20	Field maple	2	EM	4.8	72
G21	Field maple	2	EM	4.8	72
G22	Field maple; elm; hawthorn	2	EM	4.8	72
G23	English elm; horse chestnut; ash; elder	8 - 15	EM	5.8	104
G24	Lime; English elm; horse chestnut; sycamore; hawthorn; elder	8 - 18	M	9	254
G25	Ash; English oak; cherry; field maple	2 - 12	SM	4.2	55
G26	Cherry; field maple	5 - 13	SM	5.4	92
G27	Ash; English oak; cherry; field maple; hawthorn; dogrose	2 - 12	SM	4.2	55
G28	Ash; birch; blackthorn; dogrose; elder	2 - 13	SM	3.6	41
G29	Field maple; blackthorn; dogrose; elder	2 - 6	SM	1.3	5
G30	Ash; birch; walnut; blackthorn; elder; dogrose	2 - 14	SM	4.2	55
G31	Field maple; ash; blackthorn; dogrose; elder	2 - 6	SM	1.3	5
G32	Ash; field maple; cherry; sycamore; blackthorn;; hawthorn; dogrose; elder	2 - 13	SM	3.6	41
G33	Field maple; ash	5 - 6	Y	1.6	8
G34	Ash; goat willow; hazel; hawthorn; elder; dogrose	2 - 15	M	6.6	137
G35	Sycamore; elm; Field maple; hazel; hawthorn; blackthorn; elder	3 - 14	M	4.5	65
G36	Sycamore; elm; hawthorn	3 - 14	EM	4.2	55
G37	Sycamore	10	EM	3.6	41
G38	Sycamore	10	EM	3.3	35
G39	Field maple	8 - 10	EM	3.6	41
G40	Horse chestnut; ash	13	EM	6	113

Tree Ref	Species	Height (m)	LifeStage	RPA Radius (m)	RPA (m2)
T24	Hawthorn	2	EM	5.6	100
T25	Hawthorn	1	EM	2.9	26
T26	Hawthorn	1	EM	2.9	26
T27	Hawthorn	1	EM	2.9	26
T28	Hawthorn	4	SM	4.3	59
T29	Hawthorn	5	SM	3.2	33
T30	Chestnut (Horse)	18	M	10.7	358
T31	Hawthorn	6	SM	3.8	46
T32	Hawthorn	7.5	SM	3	28
T33	Chestnut (Horse)	20	M	10.8	366
T34	Willow (Goat)	10	M	7.2	163
T35	Ash (Common)	13	EM	11.2	391
T37	Ash (Common)	16	M	9	254
T38	Ash (Common)	20	M	12.5	489
T39	Oak (English)	18	M	15	707
T40	Oak (English)	16	M	15	707
T41	Oak (English)	18	M	15	707
T42	Ash (Common)	15	M	10.6	350
T43	Ash (Common)	14	M	9.6	290

Label	Description
OOS1	New whips planted on hedge line
OOS2	New whips planted on hedge line
OOS3	Multi stemmed semi mature elder
OOS4	Dogrose clusters on boundary x3
OOS5	Dogrose cluster on boundary
OOS6	Young oak on boundary, growing through fence
OOS7	Off-site trees; cursory inspection from boundary due to limited access; establishing broadleaf developing into a thicket, predominantly thorn & elder with occasional ash visible
OOS8	Esfablishing thicket of young blackthorn

Label	Description
OOS9	Sporadic clusters of blackthorn & elder saplings
OOS10	Field maple sapling
OOS11	New whips planted on hedge line; majority of tubes appear to be full of water & have been blown over
OOS12	Failed tree; mature hawthorn stem heavily swathed in ivy (Hedera helix) & with debris on ground, approx. dia. @400m
OOS13	Bramble mass
OOS14	Bramble mass
OOS15	Small diameter hedgerow
OOS16	Small diameter cherry
OOS17	Thorn and elm small diameter scrub
OOS18	Small diameter cherry

Label	Description
OOS19	Thorn and elm small diameter scrub
OOS20	Thorn and elm small diameter scrub
OOS21	Small diameter cherry
OOS22	Newly planted small diameter trees, birch & apple
OOS23	Small diameter field maple
OOS24	Small diameter field maple
OOS25	Thorn, elm, oak & hazel small diameter scrub
OOS26	Small diameter field maple
OOS27	New whips planted on hedge line
OOS28	New whips planted on hedge line

Hedge Ref	Species	Avg. Height (m)	Life Stage	RPA Radius (m)	RPA (m2)
H39	Field maple; hazel; blackthorn; elder	2	EM	1	3
H40	Hawthorn; elm	9	SM	2.4	18
H41	Hawthorn; elder	7	M	2.4	18
H42	Hawthorn; elder	3.5	M	2.2	15
H43	Hawthorn; elder	8	EM	2.2	15
H44	Horse chestnut; sycamore; English elm; ash; field maple; hazel; hawthorn; blackthorn;; dogrose	9	EM	2.4	18
H45	Elm; field maple; goat willow; hawthorn; blackthorn; elder	5	EM	1.8	10
H47	Field maple; hazel; blackthorn	1.5	EM	1	3
H48	Blackthorn	2.5	SM	0.8	2
H51	Ash; field maple; blackthorn	8	SM	2.2	15
H52	Ash; field maple; elm; sycamore; hawthorn	3.5	EM	1.8	10
H53	Hawthorn; elm; elder	3	M	1.3	5
H54	Hawthorn; blackthorn; bullace; dogrose	3	M	1.3	5
H55	Hawthorn; elder	3	M	1.3	5
H56	Hawthorn; blackthorn; dogrose	3	EM	1.3	5
H57	Hawthorn; elm; elder; dogrose	8	EM	2.2	15
H58	Hawthorn; elder	3	M	1.3	5
H49	Field maple, hazel, dogwood, blackthorn; dogrose	2	EM	1	3

INDEX MAP



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

N
GRID NORTH

0 30 60 120 Meters

PROJECT TITLE

Land South of A507, Buntingford

DRAWING TITLE

Tree Survey Plan

SCALE				DRAWING NUMBER	
Scale: 1:1,596 @ A1				**BHA_5798_01**	
DRAWN BY	APPROVED BY	REVISION	SHEET	DATE	
TB	**DH**	**-**		**04/03/2024**	

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

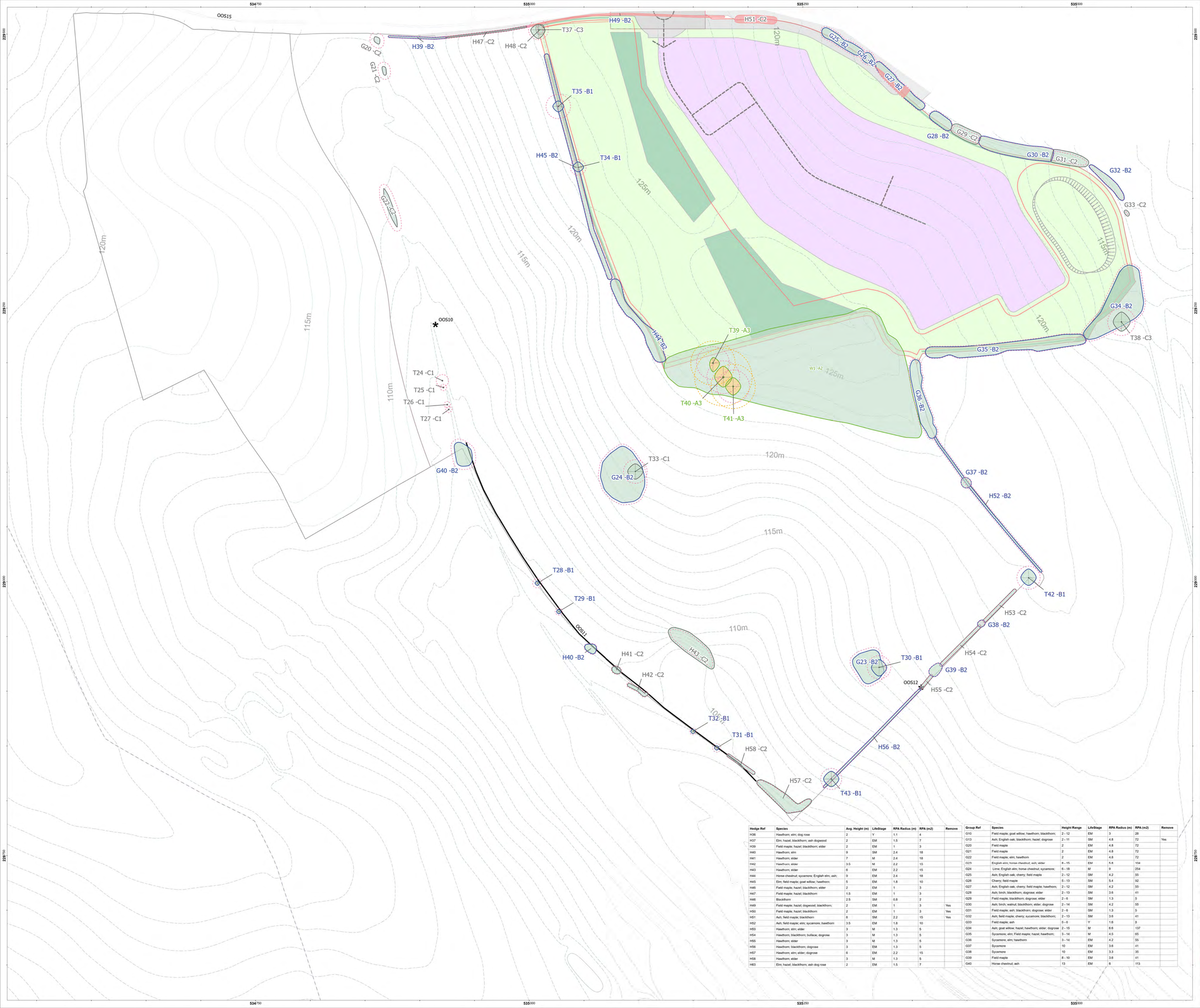
CLIENT: **CSA Environmental**

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KEY

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- Ancient tree/woodland or Veteran tree buffer: As per published standing advice from Natural England and the Forestry Commission

Tree Ref	Species	Height (m)	LifeStage	RPA Radius (m)	RPA (m2)	Remove
T24	Hawthorn	2	EM	5.6	100	
T25	Hawthorn	1	EM	2.8	26	
T26	Hawthorn	1	EM	2.8	26	
T27	Hawthorn	1	EM	2.8	26	
T28	Hawthorn	4	SM	4.3	59	
T29	Hawthorn	5	SM	3.2	33	
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OOS8	Establishing thicket of young blackthorn
OOS9	Sporadic clusters of blackthorn & elder saplings
OOS10	Field maple sapling

Label	Description
OOS11	New whips planted on hedge line; majority of tubes appear to be full of grass or have been blown over
OOS12	Failed tree; mature hawthorn stem heavily swathed in ivy has failed to NW with debris on ground, approx dia. @400m
OOS13	Bramble mass
OOS14	Bramble mass
OOS15	Small diameter hedgerow
OOS16	Small diameter cherry
OOS17	Thorn and elm small diameter scrub
OOS18	Small diameter cherry
OOS19	Thorn and elm small diameter scrub

Hedge Ref	Species	Avg. Height (m)	LifeStage	RPA Radius (m)	RPA (m2)	Remove
H36	Hawthorn; elm; dog rose	2	Y	1.1	4	
H37	Elm; hazel; blackthorn; ash dogwood	2	EM	1.5	7	
H39	Field maple; hazel; blackthorn; elder	2	EM	1	3	
H40	Hawthorn; elm	9	SM	2.4	18	
H41	Hawthorn; elder	7	M	2.4	18	
H42	Hawthorn; elder	3.5	M	2.2	15	
H43	Hawthorn; elder	6	EM	2.2	15	
H44	Horse chestnut; sycamore; English elm; ash;	9	EM	2.4	18	
H45	Elm; field maple; goat willow; hawthorn;	5	EM	1.8	10	
H46	Field maple; hazel; blackthorn; elder	2	EM	1	3	
H47	Field maple; hazel; blackthorn	1.5	EM	1	3	
H48	Blackthorn	2.5	SM	0.8	2	
H49	Field maple; hazel; dogwood; blackthorn;	2	EM	1	3	Yes
H50	Field maple; hazel; blackthorn	2	EM	1	3	Yes
H51	Ash; field maple; blackthorn	8	SM	2.2	15	Yes
H52	Ash; field maple; elm; sycamore; hawthorn	3.5	EM	1.8	10	
H53	Hawthorn; elm; elder	3	M	1.3	5	
H54	Hawthorn; blackthorn; bullace; dogrose	3	M	1.3	5	
H55	Hawthorn; elder	3	M	1.3	5	
H56	Hawthorn; blackthorn; dogrose	3	EM	1.3	5	
H57	Hawthorn; elm; elder; dogrose	6	EM	2.2	15	
H58	Hawthorn; elder	3	M	1.3	5	
H63	Elm; hazel; blackthorn; ash dog rose	2	EM	1.5	7	

Group Ref	Species	Height Range	LifeStage	RPA Radius (m)	RPA (m2)	Remove
G10	Field maple; goat willow; hawthorn; blackthorn;	2 - 12	EM	3	28	
G13	Ash; English oak; blackthorn; hazel; dogrose	2 - 11	SM	4.8	72	Yes
G20	Field maple	2	EM	4.8	72	
G21	Field maple	2	EM	4.8	72	
G22	Field maple; elm; hawthorn	2	EM	4.8	72	
G23	English elm; horse chestnut; ash; elder	8 - 15	EM	5.8	104	
G24	Lime; English elm; horse chestnut; sycamore;	6 - 18	M	9	254	
G25	Ash; English oak; cherry; field maple	2 - 12	SM	4.2	55	
G26	Cherry; field maple	5 - 13	SM	5.4	92	
G27	Ash; English oak; cherry; field maple; hawthorn;	2 - 12	SM	4.2	55	
G28	Ash; birch; blackthorn; dogrose; elder	2 - 13	SM	3.6	41	
G29	Field maple; blackthorn; dogrose; elder	2 - 6	SM	1.3	5	
G30	Ash; birch; walnut; blackthorn; elder; dogrose	2 - 14	SM	4.2	55	
G31	Field maple; ash; blackthorn; dogrose; elder	2 - 6	SM	1.3	5	
G32	Ash; field maple; cherry; sycamore; blackthorn;	2 - 13	SM	3.6	41	
G33	Field maple; ash	5 - 6	Y	1.6	8	
G34	Ash; goat willow; hazel; hawthorn; elder; dogrose	2 - 15	M	6.6	137	
G35	Sycamore; elm; Field maple; hazel; hawthorn;	3 - 14	M	4.5	65	
G36	Sycamore; elm; hawthorn	3 - 14	EM	4.2	55	
G37	Sycamore	10	EM	3.6	41	
G38	Sycamore	10	EM	3.3	35	
G39	Field maple	8 - 10	EM	3.6	41	
G40	Horse chestnut; ash	13	EM	6	113	

INDEX MAP



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

N
GRID NORTH

0 30 60 120 Meters

PROJECT TITLE

Land South of A507, Buntingford

DRAWING TITLE

Tree Retention and Removal Plan

SCALE	DRAWING NUMBER
Scale: 1:1,596 @ A1	BHA_5798_02

DRAWN BY	APPROVED BY	REVISION	SHEET	DATE
TB	DH	-	-	18/06/24

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

CLIENT: **CSA Environmental**

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TREE SURVEY SCHEDULE

LAND SOUTH OF A507, BUNTINGFORD

PROJECT NO: 5798

SURVEYOR: DAVID HOLMES

CLIENT: CSA ENVIRONMENTAL

SURVEY DATE: 23/01/2024

Barton Hyett Arboricultural Consultants

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 m²	Veteran tree buffer radius (m)
T24	Hawthorn	On	2.0	5	-	470	0.5-0.5-0.5-0.5	0.5	0.0	-	EM	-	Stump with regrowth.	Good	Fair	20+	C1	5.6	100	-
T25	Hawthorn	On	1.0	1	-	240	0.5-0.5-0.5-0.5	0.5	0.0	-	EM	-	Stump with regrowth.	Good	Fair	10+	C1	2.9	26	-
T26	Hawthorn	On	1.0	1	-	240	0.5-0.5-0.5-0.5	0.5	0.0	-	EM	-	Stump with regrowth.	Good	Fair	10+	C1	2.9	26	-
T27	Hawthorn	On	1.0	1	-	240	0.5-0.5-0.5-0.5	0.5	0.0	-	EM	-	Stump with regrowth.	Good	Fair	10+	C1	2.9	26	-
T28	Hawthorn	On	4.0	11	Yes	360	2.0-2.0-2.0-2.0	0.0	0.0	-	SM	-	Typical for age & species	Good	Fair	20+	B1	4.3	59	-
T29	Hawthorn	On	5.0	6	Yes	270	2.0-2.0-2.0-2.0	0.0	0.0	-	SM	-	Typical for age & species	Good	Fair	20+	B1	3.2	33	-
T30	Chestnut (Horse)	On	18.0	1	-	890	7.0-7.0-8.0-7.0	2.5	3.0	SW	M	-	Main stem splits @4.5m into 2x stems which form a cohesive crown; non-progressive lean to S; small visible cavity to S of stem @1m; historic storm damage to S of crown @7.5m	Good	Fair	20+	B1	10.7	358	-
T31	Hawthorn	On	6.0	6	Yes	320	2.0-2.0-2.0-2.0	0.0	0.0	-	SM	-	Typical for age & species	Good	Fair	20+	B1	3.8	46	-
T32	Hawthorn	On	7.5	2	Yes	250	2.0-2.0-2.0-2.0	0.0	0.0	-	SM	-	Typical for age & species; twin stemmed forming a cohesive crown	Good	Fair	20+	B1	3.0	28	-
T33	Chestnut (Horse)	On	20.0	1	Yes	900	7.0-7.0-7.0-7.0	1.0	30.0	E	M	-	Main stem heavily swathed in ivy; non-progressive lean to E; 1st sig limb shows extensive damage & associated decay along full length; bark loss & damage to SW of lower stem. Recommend stripping ivy & re-assessing if change of land use planned	Fair	Fair	20+	C1	10.8	366	-
T34	Willow (Goat)	On	10.0	1	Yes	600	5.0-5.0-4.0-5.0	1.5	1.0	S	M	-	Cavitation to main stem from main union @6m down to root collar; shelter location within hedge; form suggests tree was historically topped @6m & allowed to re-gen	Good	Fair	20+	B1	7.2	163	-
T35	Ash (Common)	On	13.0	7	Yes	930	5.0-5.0-5.0-5.0	3.0	0.0	-	EM	-	Multi stemmed hedgerow tree	Good	Fair	20+	B1	11.2	391	-

TREE SURVEY SCHEDULE

LAND SOUTH OF A507, BUNTINGFORD

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CLIENT: CSA ENVIRONMENTAL

SURVEY DATE: 23/01/2024

Barton Hyett Arboricultural Consultants

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 m²	Veteran tree buffer radius (m)
T37	Ash (Common)	On	16.0	1	Yes	750	5.0-6.0-8.0-7.0	3.5	6.0	N	M	-	Main stem splits @6m into 2x scaffold limbs; visible cavitation & decay @ main union; historic storm damage to main stem with debris on ground; main stem swathed in ivy. Recommend tree be reduced to habitat monolith @6m / above main union	Fair	Poor	10+	C3	9.0	254	-
T38	Ash (Common)	On	20.0	3	Yes	1040	9.0-8.0-8.5-7.5	3.0	0.0	-	M	-	Lapsed coppice; originally 4-stems - stem to N has failed with debris on ground; 2x significant cracks between 3 remaining stems; large exposed cavity to base; central stem shows extensive bark damage & cavitation. Recommend all stems be re-coppiced (*)	Fair	Fair	10+	C3	12.5	489	-
T39	Oak (English)	On	18.0	1	-	1350	5.0-6.0-8.0-3.0	8.0	0.0	-	M	Veteran	Lapsed pollard (old aesthetic); main stem splits @2.5m into 2x scaffold limbs; visible cavitation around main union & to E scaffold limb; limb to W is large sized dead snag; moderate to large sized deadwood to upper crown; no obvious decay fungi presence	Good	Fair	40+	A3	15.0	707	20.3
T40	Oak (English)	On	16.0	1	-	1750	10.0-8.0-9.0-8.0	7.0	0.0	-	M	Veteran	Lapsed pollard (old aesthetic); main stem splits @2.5m into 3x scaffold limbs; burrs to bole with visible cavitation; moderate to large sized deadwood within crown; no obvious decay fungi presence	Good	Fair	40+	A3	15.0	707	26.3
T41	Oak (English)	On	18.0	1	-	1350	8.0-7.0-8.0-7.0	6.0	0.0	-	M	Veteran	Lapsed pollard (old aesthetic); main stem splits @3m into 3x scaffold limbs; cavitation to main union & scaffold limbs to W of crown; moderate to large sized deadwood within crown; no obvious decay fungi presence	Good	Fair	40+	A3	15.0	707	20.3

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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	Veteran tree buffer radius (m)
T42	Ash (Common)	On	15.0	2	Yes	880	8.0-7.0-7.0-7.0	3.5	0.0	-	M	-	Main stem splits @0.5m into 2x stems which form a cohesive crown; evidence of mild historic storm damage to N of crown @5m	Good	Fair	20+	B1	10.6	350	-
T43	Ash (Common)	On	14.0	1	Yes	800	7.0-7.0-7.0-7.0	3.0	3.0	E	M	-	Basal cavitation with fungal frosting bodied to S; fruiting bodies to W of root collar; bark damage to E of root collar; stunted extension growth throughout crown; main stem heavily swathed in ivy. Recommend monitor in short to mid; monolith in long-term	Good	Fair	20+	B1	9.6	290	-

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	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G20	Field maple	On	2	6	-	400	1.0	0.0	EM	Regenerating cut stumps along ditch.	Good	Good	20+	C2	4.8
G21	Field maple	On	2	6	-	400	1.0	0.0	EM	Regenerating cut stumps along ditch.	Good	Good	20+	C2	4.8
G22	Field maple; elm; hawthorn	On	2	6	-	400	1.0	0.0	EM	Regenerating cut stumps along ditch.	Good	Good	20+	C2	4.8
G23	English elm; horse chestnut; ash; elder	On	8 - 15	40	-	480	3.5	0.0	EM	In-field copse; predominantly elm; large chestnut habitat monolith to N of plot; good vigour noted to elm; animal burrows to SW corner of plot	Good	Fair	20+	B2	5.8
G24	Lime; English elm; horse chestnut; sycamore; hawthorn; elder	On	6 - 18	50	-	750	7.0	0.0	M	In-field copse; thorn; elm & elder occur as understory; good vigour noted to elm; swale around boundary of plot	Good	Fair	20+	B2	9.0
G25	Ash; English oak; cherry; field maple	Off	2 - 12	25	-	350	3.0	0.0	SM	Off-site boundary trees within highways verge; lower sides have been maintained by flail; 3x semi-mature stems established on site boundary & growing through fence	Good	Fair	20+	B2	4.2
G26	Cherry; field maple	Off	5 - 13	8	-	450	4.0	0.0	SM	Off-site boundary trees within highways verge; plot dominated by 1x cherry with smaller maple & cherry	Good	Fair	20+	B2	5.4
G27	Ash; English oak; cherry; field maple; hawthorn; dogrose	Off	2 - 12	40	-	350	3.5	0.0	SM	Off-site boundary trees within highways verge; lower sides have been maintained by flail; several semi-mature ash established on site boundary & growing through fence	Good	Fair	20+	B2	4.2

TREE SURVEY SCHEDULE

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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	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G28	Ash; birch; blackthorn; dogrose; elder	Off	2 - 13	30	-	300	3.0	0.0	SM	Off-site boundary trees within highways verge; lower sides have been maintained by flail; blackthorn & dogrose suckering through fence & establishing within field margins	Good	Fair	20+	B2	3.6
G29	Field maple; blackthorn; dogrose; elder	Off	2 - 6	50	-	100	3.0	0.0	SM	Off-site boundary trees within highways verge forming a dense thicket; predominantly thorn with establishing maple; lower sides have been maintained by flail; blackthorn & dogrose suckering through fence & establishing within field margins	Good	Fair	20+	C2	1.3
G30	Ash; birch; walnut; blackthorn; elder; dogrose	Off	2 - 14	40	-	350	4.5	0.0	SM	Off-site boundary trees within highways verge; lower sides have been maintained by flail; several semi-mature ash established on site boundary & growing through fence along with blackthorn & dogrose suckering & establishing within field margins	Good	Fair	20+	B2	4.2
G31	Field maple; ash; blackthorn; dogrose; elder	Off	2 - 6	40	-	100	3.0	0.0	SM	Off-site boundary trees within highways verge forming a dense thicket; predominantly thorn with establishing maple & ash; lower sides have been maintained by flail; blackthorn & dogrose suckering through fence & establishing within field margins	Good	Fair	20+	C2	1.3
G32	Ash; field maple; cherry; sycamore; blackthorn; hawthorn; dogrose; elder	Off	2 - 13	20	-	300	4.0	0.0	SM	Sporadic off-site boundary trees within highways verge; predominantly ash	Good	Fair	20+	B2	3.6
G33	Field maple; ash	Off	5 - 6	2	-	130	3.0	0.0	Y	Off-site boundary trees within highways verge	Good	Fair	20+	C2	1.6
G34	Ash; goat willow; hazel; hawthorn; elder; dogrose	On	2 - 15	40	Yes	550	5.0	1.0	M	Copse on field boundaries; predominantly thorn; hazel & elder with EM trees to eastern edge	Fair	Fair	20+	B2	6.6
G35	Sycamore; elm; Field maple; hazel; hawthorn; blackthorn; elder	On	3 - 14	40	-	380	4.0	0.0	M	Boundary trees which appear to be outgrown hedge (multi stemmed maple); swale runs through plot (parallel with boundary) in which thorn have established to W; lower sides have been maintained by flail	Good	Fair	20+	B2	4.5
G36	Sycamore; elm; hawthorn	On	3 - 14	35	-	350	3.0	0.0	EM	Boundary trees which appear to be outgrown hedge (multi stemmed); group flanks a track to the E of woodland plot; lower sides have been maintained by flail	Good	Fair	20+	B2	4.2
G37	Sycamore	On	10	2	Yes	300	3.5	0.0	EM	2x close grown multi stemmed trees which form a cohesive crown & appear to be remnants of outgrown hedge; lower sides have been maintained by flail	Good	Fair	20+	B2	3.6
G38	Sycamore	On	10	3	Yes	280	3.5	0.0	EM	3x close grown multi stemmed trees which form a cohesive crown & appear to be remnants of outgrown hedge; lower sides have been maintained by flail	Good	Fair	20+	B2	3.3

TREE SURVEY SCHEDULE

LAND SOUTH OF A507, BUNTINGFORD

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SURVEYOR: DAVID HOLMES

CLIENT: CSA ENVIRONMENTAL

SURVEY DATE: 23/01/2024

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	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
G39	Field maple	On	8 - 10	2	Yes	300	3.5	0.0	EM	2x close grown multi stemmed trees which form a cohesive crown & appear to be remnants of outgrown hedge; lower sides have been maintained by flail	Good	Fair	20+	B2	3.6
G40	Horse chestnut; ash	On	13	2	-	500	3.0	3.0	EM	Form cohesive canopy; located behind deep drainage ditch.	Good	Good	40+	B2	6.0

WOODLANDS

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	General Observations	Health & vitality	Structural condition	Estimated Remaining Contribution (Years)	BS5837 Category	RPA Radius (m)
W1	English oak; beech; field maple; horse chestnut; sycamore; ash; elm; yew; hawthorn; holly; elder	On	1 - 20	400	-	900	6.5	1.5	EM	Mixed broadleaf plot with limited developing understory; swale to N; E & S boundaries; animal burrows to W of plot; evidence of workings to N of plot with established track & flooded pits; limited number of coppice stools present to suggest historic mgmt	Good	Fair	40	A2	10.8

HEDGEROWS

Ref	Species	On/off site	Av. Height (m)	Av. width (m)	Av. 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)
H39	Field maple; hazel; blackthorn; elder	On	2.0	1.5	80	0.0	EM	Maintained by flail	Good	Fair	20+	B2	1.0
H40	Hawthorn; elm	On	9.0	3.5	200	0.0	SM	Remnant outgrown section of hedge	Fair	Fair	20+	B2	2.4
H41	Hawthorn; elder	On	7.0	3.5	200	0.0	M	Remnant section of hedge	Fair	Fair	20+	C2	2.4
H42	Hawthorn; elder	On	3.5	3	180	0.0	M	Neglected hedge at risk of becoming derelict	Fair	Fair	10+	C2	2.2
H43	Hawthorn; elder	On	6.0	7.5	180	0.0	EM	Outgrown hedge declined into neglected thicket; established around escarpment; animal burrows to E	Fair	Poor	10+	C2	2.2
H44	Horse chestnut; sycamore; English elm; ash; field maple; hazel; hawthorn; blackthorn; dogrose	On	9.0	3.5	200	0.0	EM	Outgrown hedge; occurs along level change between 2 fields; swale runs parallel through plot; lower sides maintained by flail	Good	Fair	20+	B2	2.4
H45	Elm; field maple; goat willow; hawthorn; blackthorn; elder	On	5.0	4.5	150	0.0	EM	Maintained by flail (lower sides); brambles colonising large sections of plot	Good	Fair	20+	B2	1.8

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SURVEYOR: DAVID HOLMES

CLIENT: CSA ENVIRONMENTAL

SURVEY DATE: 23/01/2024

Barton Hyett Arboricultural Consultants

Ref	Species	On/off site	Av. Height (m)	Av. width (m)	Av. 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)
H47	Field maple; hazel; blackthorn	On	1.5	1.25	80	0.0	EM	Maintained by flail; sporadic gaps becoming colonised by brambles	Good	Fair	20+	C2	1.0
H48	Blackthorn	On	2.5	4	70	0.0	SM	Thorn & bramble thicket established around mature tree	Good	Fair	20+	C2	0.8
H49	Field maple; hazel; dogwood; blackthorn; dogrose	On	2.0	1.5	80	0.0	EM	Maintained by flail	Good	Fair	20+	B2	1.0
H51	Ash; field maple; blackthorn	On	8.0	3	180	0.0	SM	Outgrown hedge; occurs along field boundary with road; thorn thicket with establishing brambles; 3x ash & 1x maple (SM) established within plot	Good	Fair	20+	C2	2.2
H52	Ash; field maple; elm; sycamore; hawthorn	On	3.5	1.75	150	0.0	EM	Maintained by flail (lower sides & random sections have been topped); sporadic gaps <1.5m	Good	Fair	20+	B2	1.8
H53	Hawthorn; elm; elder	On	3.0	3	100	0.0	M	Neglected hedge at risk of becoming derelict; large gaps colonised by brambles; dead elm stems to S of plot	Fair	Fair	10+	C2	1.3
H54	Hawthorn; blackthorn; bullace; dogrose	On	3.0	3	100	0.0	M	Neglected hedge at risk of becoming derelict; large gaps colonised by brambles	Fair	Fair	10+	C2	1.3
H55	Hawthorn; elder	On	3.0	3	100	0.0	M	Neglected hedge at risk of becoming derelict; large gaps colonised by brambles	Fair	Fair	10+	C2	1.3
H56	Hawthorn; blackthorn; dogrose	On	3.0	2	100	0.0	EM	Maintained by flail; sporadic gaps <1m with dead stems to either side of ash @SW of plot	Good	Fair	20+	B2	1.3
H57	Hawthorn; elm; elder; dogrose	On	6.0	5.5	180	0.0	EM	Outgrown hedge declined into neglected thicket	Fair	Poor	10+	C2	2.2
H58	Hawthorn; elder	On	3.0	3	100	0.0	M	Neglected hedge at risk of becoming derelict; large gaps colonised by brambles	Fair	Fair	10+	C2	1.3

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

The **DIMENSIONS** taken are:

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

LIFE STAGE is defined as follows:

Y Young: Normally stake dependent, establishing trees. Should be growing fast, usually primarily increasing in height more than spread but as yet making a limited impact upon the landscape.

SM Semi-mature: Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact on the local landscape and environment. Semi-mature are still capable of being transplanted without preparation, up to 300mm girth and not yet sexually mature.

EM Early-mature: Not yet having reached 75% of expected mature size. Established young trees, normally of good vigour and still increasing in height but beginning to spread laterally. Beginning to make an impact on the local landscape and environment.

M Mature: Well-established trees, still growing with some vigour but tending to fill out and increase spread. Bark may be beginning to crack and fissure. In the middle half of their safe, useful life expectancies.

LM Late-mature: In full maturity but possibly beyond mature and in a state of natural decline. Still retaining some vigour but any growth is slowing.

A Ancient: A tree that has passed beyond maturity and is old/aged compared with other trees of the same species. Typically having a very wide trunk and a small canopy.

PHYSIOLOGICAL CONDITION (HEALTH & VITALITY):

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

Good: No significant health issues.

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

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

Dead: (or Moribund).

STRUCTURAL CONDITION:

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

Good: No obvious structural defects: basically sound.

Fair: Minor, potential or incipient defects.

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

Dead: (or Moribund).

ESTIMATED REMAINING CONTRIBUTION:

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

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

SPECIAL IMPORTANCE:

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

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

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

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

QUALITY CATEGORY:

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

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

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

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

CATEGORY A: HIGH QUALITY:

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

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

CATEGORY B: MODERATE QUALITY

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

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

CATEGORY C: LOW QUALITY:

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

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

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

CATEGORY U: VERY LOW QUALITY

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

ROOT PROTECTION AREA (RPA):

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

VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)

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

ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)

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

THE IMPORTANCE OF TREES

Wider benefits:

There is a growing body of evidence that trees bring a wide range of benefits to the places 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 2023 (NPPF paragraph 186) 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 2023 of relevance to this report are:

Paragraph 136: *'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 180: *'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 is the matter is determined by the Crown Court.

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

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

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

Statutory Wildlife Protection

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

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 Recommend 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.

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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

CONSTRUCTION EXCLUSION ZONE SIGN

SECTION 8