



ARBORICULTURAL IMPACT ASSESSMENT

Land North and South
of National Road,
Cilfynydd

February 2025



Barton Hyett Associates
Arboricultural Consultants

Summary table		
Site Name:	National Road BESS	
Project reference:	5420	
Site Address:	Land North and South of National Road, Cilfynydd	
Nearest Postcode:	CF37 4HN	
Central Grid reference:	ST 09780 93376	
Local Planning Authority:	Rhondda Cynon Taff Borough Council (RCTBC); Caerphilly County Borough Council (CCBC)	
Relevant planning policies:	RCTBC: local development plan up to 2021 (adopted March 2011) tree & woodland strategy 2022 - 2032. CCBC: local development plan up to 2021 (adopted Nov 2010); policy CW6 - trees, woodland & hedgerow protection Supplementary Planning Guidance (SPG) LDP 4 - trees & development (Rev. 2, adopted Jan 2017)	
Statutory Controls:	Tree Preservation Order	Conservation Area
	None	No
Soil Type: (Source: BGS online soils map © NERC 2023)	Superficial/Drift	Bedrock
	Till, Devensian - Diamicton	Hughes Member - Mudstone, siltstone and sandstone
Proposed site plan:	WIN-SOL-02-DR-03-01-01 (Rev. 10), dated: 27/01/2025	
Notes:	High quality trees recorded as: T25, T28, T29, T33, T57, T59, T71, T74, T83, T85, T86, T89, W3 and G12	
Report author:	David Holmes <i>FdSc, MArborA</i>	
Checked by:	Richard Hyett <i>MSc, BSc (Hons), MICFor, MArborA</i>	
Revision:	Rev. 02	
Issue date:	18/02/2025	

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1. INTRODUCTION

- 1.1. Barton Hyett Associates Ltd has been instructed by REWE 2 Limited to survey trees located at Land North and South of National Road, Cilfynydd ('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 Battery Energy Storage System (BESS) 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 2.5 miles north east of the town of Pontypridd. It is made up of agricultural land with field boundaries being defined by a mixture of dry-stone walls, hedgerows and fences.

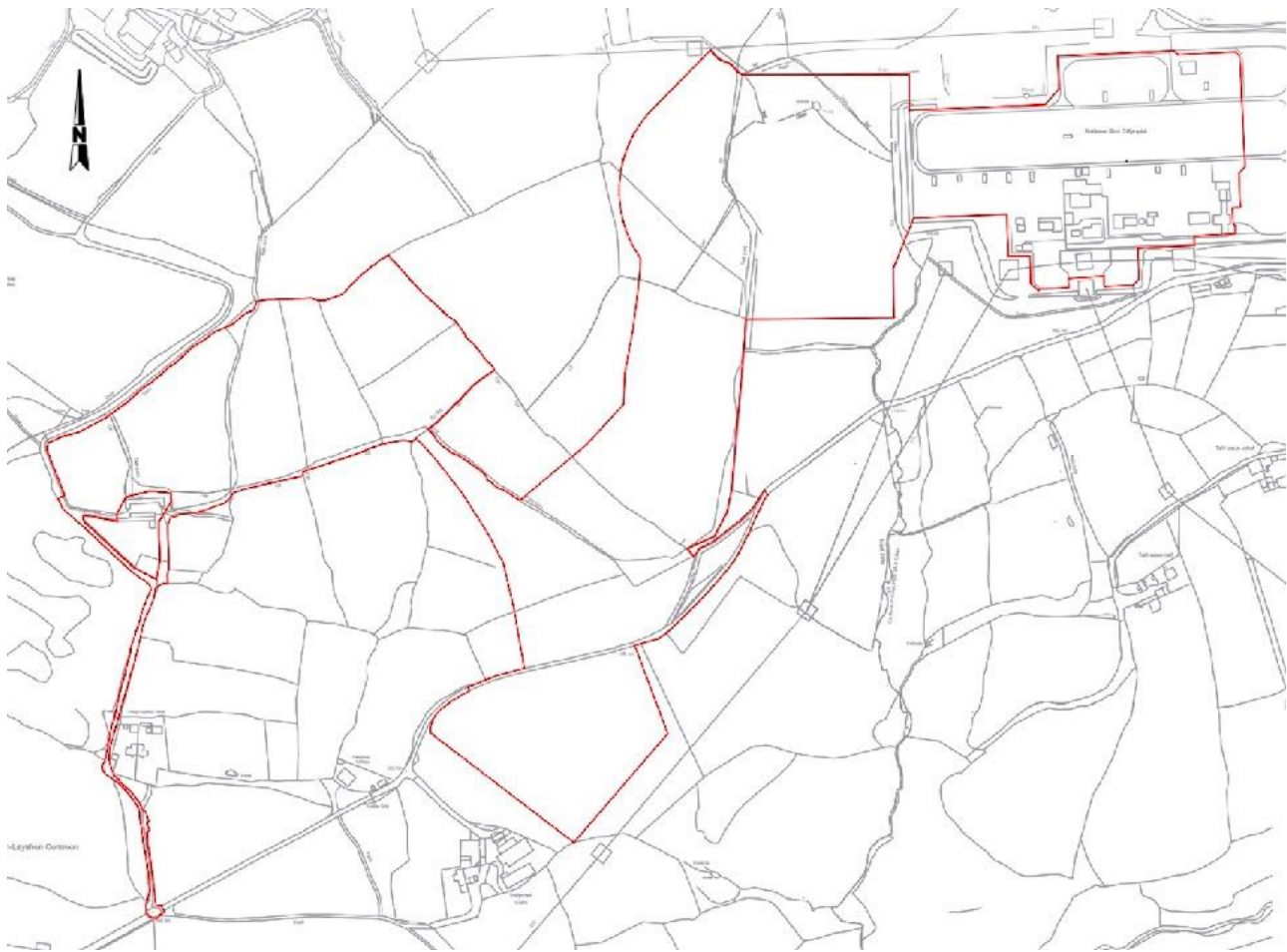


Figure 1: plan of the site with the approximate survey area shown in red.

- 2.2. The survey area measures approximately 24 hectares and is currently used for grazing cattle. The site slopes steeply to the south with the approximate height above mean sea level being 235.8m at the north and 145.4m at the south.

- 2.3. National Road runs east to west through the site. The Nant Cae Dudwg stream runs along the east of the site.
- 2.4. Access to the northern part of the site is possible from a Public Right of Way (PROW) which follows a track leading north from National Road Craig-Leyshon Villas.
- 2.5. The village of Nelson is located due north east of the survey area, approximately 1.75 miles north of the site.

3. TREE SURVEY FINDINGS

- 3.1. The survey recorded 177 arboricultural features. These are summarised in terms of quality in accordance with the recommendations of BS 5837:2012 in Table 1 below and shown in more detail on the Tree Survey and Constraints Plan (Section 2) and within the Tree Survey Schedule (Section 4).

Table 1: Summary of arboricultural features of each BS 5837:2012 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	91	12	64	15	-
Groups	19	1	15	3	-
Woodlands	3	1	2	-	-
Hedgerows	64	-	49	15	-
Total	177	14	130	33	0

4. KEY ARBORICULTURAL FEATURES

- 4.1. The high-quality trees T25, T28, T29, T33, T57, T59, T71, T74, T83, T85, T86, T89, woodland W3 and tree group G12 are the most prominent arboricultural features recorded on the site. The twelve T25, T57, T59, T71, T83, T85, T89, and G12; the two sycamore T28 and T29; two ash T74 and T86 along with the sweet chestnut T33 are considerably sized trees with a limited number of significant defects recorded.
- 4.2. The hedgerows recorded on the site have long since become outgrown due to a lack of maintenance. They are no longer stock proof and too large to be laid as hedgerow restoration.

5. PROPOSED DEVELOPMENT

- 5.1. The development proposal is for the construction of a Battery Energy Storage System (BESS) with associated infrastructure. A more detailed description can be found in the Planning Statement that accompanies the application. The proposed site layout is shown on the proposed site plan, drawing No: WIN-SOL-02-DR-03-01-01 (Rev. 10), dated: 27/01/2025 (as amended and submitted).

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 BS 5837:2012 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. Two individual trees, the understory of one woodland area and two hedgerows are proposed to be removed. The four individual removals are shown on the Tree Retention and Removal and Tree Protection Plan in **Section 3**.
- 6.3. The moderate quality trees and hedgerows T4, T15, T18, H13 and H22 along with the low quality hedgerows H12 and H14 would be removed to facilitate the internal access tracks and retaining walls.
- 6.4. To reinstate the disused road linking National Road to the proposed access route, the understory of the moderate quality group G10 would need to be removed. The mature trees within G10 could be retained with pruning carried out to increase headroom.

Impacts on retained trees

- 6.5. Sectional removals would be required from the moderate quality hedgerows H5 and H27 to permit the construction and access tracks. The moderate quality hedgerows H9 and H13, along with the low quality hedgerow H12 would need to be cut back to allow clearance for construction and use of the access tracks.
- 6.6. Depending on the size of vehicles entering the site, a crown reduction for the moderate quality group G6 would be required to increase clearance above the existing track. This would require a heavy reduction to the west of the canopy.
- 6.7. Within G10, headroom would need to be considered once the understory has been cleared. Retaining the mature stems would be paramount in considerations. Both aspects of this work would be discussed at the pre-commencement site meeting.
- 6.8. To fully ascertain the amount of pruning required to the retained trees within G10, it is recommended that the understory is first cleared so that the roadway can be walked through from beginning to end. A meeting with contractors would be necessary to assess the trees and discuss the size of vehicles expected to be visiting the site so that clearances can be finalised.
- 6.9. It would be preferable that a new wearing surface for the access track through G10 is added to the existing roadway with no excavations carried out. The project engineer would need to be consulted to inspect the condition of the existing roadway and design a suitable installation. Should the roadway need to be renewed afresh, excavations would need to be carried out under an arboricultural watching brief and with hand tools

only to prevent root damage. A new roadway would then need to be constructed using a Cellular Confinement System (CCS).

- 6.10. Within the cable route corridor is an indicative cable route. There are four trees and the respective Root Protection Areas (RPAs) which could potentially be impacted. The trees affected are the three moderate quality trees T50, T52 and T82 and the low quality tree T91. It is recommended that localised adjustments to the cable route within the corridor be carried out, to move the cable route to the west in the instance of T50 and to the northwest of T42, T91 and T82, to avoid the trees. These adjustments would locate the cable route outside of the RPAs and thus avoid an impact.
- 6.11. Where the cable route passes to the east of W3, an existing unmetalled surface track will be followed. It is recommended that the cable route excavations should follow the eastern side of the track and be carried out under an arboricultural watching brief. It is likely that the usage of the track will have contributed to localised ground compaction which would inhibit root development.
- 6.12. Regular use over the years means that there is already good tree crown clearance from the ground for access, with the average clearance being 3 - 3.5m. Depending on the size of vehicles entering the site for construction of the BESS, increasing this to a maximum of 4 - 4.5m would be acceptable and achieving this by crown-lifting in accordance with BS 3998:2010 would not be detrimental to tree health. Final pruning requirements will need to be assessed by the contractor(s) when devising the Construction and Environmental Management Plan (CEMP) and any additional pruning will be agreed and specified at a pre-commencement site meeting.
- 6.13. Level changes within the RPAs of retained trees are to be avoided. The access tracks are set away from hedgerows and have been designed to avoid RPAs. In any case, the fields have been under regular cultivation which will have severely limited the growth of tree root systems in the upper soil layer.
- 6.14. If the surfacing of an existing track is to be improved or a new track is proposed, existing levels are to be retained with no excavation taking place. The existing surfacing or levels will be retained as a sub-base with a geo-textile separation layer installed prior to making good existing or installing new tracks. The site construction and operation tracks are to be approximately 5m wide, consisting of compacted aggregate. A geo-textile should be laid down first to act as a separation layer.
- 6.15. The detailed design of underground cables should avoid the RPAs of retained trees. An assessment of the site layout indicates this should be straightforward to achieve. Should it prove unavoidable to locate a cable near, or within, a tree RPA, the project arboriculturist should be consulted so that an appropriate installation method can be devised to minimise impacts on tree roots.

Anticipated Arboricultural Impacts - Indicative Cable Connection

- 6.16. A cable corridor is shown on the plan within which an indicative cable route is proposed. It may be necessary to install the cable close to, and occasionally within, the RPAs of significant trees and tree groups, as noted above.

- 6.17. Guidance is set out within the National Joint Utilities Group (NJUG) Volume 4 (Section 4) - How to Avoid Damage to Trees which details acceptable working methods relating to 'excavations or other works occurring within the Prohibited zone or Precautionary Zone'.
- 6.18. Section 4.1 reinforces the role of the project arboriculturist and the requirement for arboricultural supervision to be necessary when working within RPAs: *'Wherever trees are present, precautions should be taken to minimise damage to their root systems. As the shape of the root system is unpredictable, there should be control and supervision of any works, particularly if this involves excavating through the surface to 600mm, where the majority of roots develop'*.
- 6.19. The preferred approach is to avoid RPAs through the realignment of apparatus. *'Whenever possible apparatus should always be diverted or re-aligned outside the Prohibited or Precautionary Zones. Under no circumstances can machinery be used to excavate open trenches within the Prohibited Zone'*.
- 6.20. If, due to the constraints of the site, the proposed cable route as identified in the Tree Retention and Removal Plan (Section 3) is not achievable, the preferred solution is to use trenchless techniques such as directional drilling. NJUG states that where necessary *'trenchless techniques should be used. The launch and receiver pits should be located outside the Prohibited or Precautionary Zones. In order to avoid damage to roots by percussive boring techniques, it is recommended that the depth of run should be below 600mm. Techniques involving external lubrication of the equipment with materials other than water (e.g., oil, bentonite, etc.) must not be used when working within the Prohibited Zone. Lubricating materials other than water may be used within the Precautionary Zone following consultation and by agreement'*.
- 6.21. As trenchless techniques may not be practical for sections of installation that are less than circa 50m in length, installation may utilise open trench excavation that will work around the RPAs of individual trees, where this is deemed to be a practical solution.
- 6.22. There are also certain factors that will have historically abated the growth of tree roots beneath the highway, such as the previous installation of services/apparatus which may have already severed tree roots and the presence of a drainage ditch or steep embankment at the highway edge.
- 6.23. The working methods, as set out above, will therefore need to be applied to the installation of the cable connection within the highway. If excavation is required to be carried out within RPAs, a schedule of arboricultural monitoring will need to be agreed upon with the project arboriculturist.

Conclusion

- 6.24. 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.

7. TREE PROTECTION MEASURES

- 7.1. Successful retention of the trees can only be achieved by preventing damage to stems and avoiding soil compaction and contamination. Temporary protective fencing installed around individual or groups of trees will prevent visible mechanical damage from occurring above ground and prevent the RPA from becoming

contaminated or compacted. The same fencing will also deter unwanted access to empty discarded machine washings or for the storage of plant, equipment and materials. The welded mesh panel fencing, commonly known as HERAS fencing, is considered fit for purpose as tree protection fencing.

- 7.2. The proposed security fence, which is to be erected around the perimeter of the site compound, will act as an effective tree protection barrier if erected before any construction works commence on site. This will mitigate the need to install BS 5837:2012 fencing along the outer perimeters of those trees close to the development area. However, trees and hedgerows within the interior of the site could be impacted during the construction phase of the development and the security fencing will only protect trees located around the periphery of the site.
- 7.3. The moderate quality trees T37, T38 and G3 are close to the site entrance. The high quality tree T75 along with the moderate quality tree T52 are respectively, close to and within the cable route corridor. Temporary protective fencing (HERAS specification) should be installed for the duration of the development as shown on the TRRPP at Section 3. The fencing would need to abut the existing fencing for the duration of construction.
- 7.4. Given the location and size of the hedgerows relative to the new tracks and taking into account the previous land usage, placing HERAS temporary protective fencing around these features is not considered necessary.

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

- 8.1. BS 5837:2012 (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 BS 5837:2012, 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 planning condition.
- 8.3. 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
 - 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 removals and facilitation pruning - as shown on the Tree Retention and Removal Plan (TRRP)
 - Assessment of access track (reinstating of disused roadway) through G10
 - 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 tree planting.



David Holmes *FdSc, MArborA*
Arboriculturist

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 trees highlighted below can be readily mitigated and the retained trees can be adequately protected during construction activities to sustain their health and longevity.
- 9.2. A total of three individual trees and four hedgerows would be removed to facilitate the layout. Two individual trees and one hedgerow are proposed to be removed to allow new access routes into the site (T4, T18 and H22). One tree and two hedgerows will need to be removed to allow construction of the retaining walls (T15 H12, H13 and H14).
- 9.3. Two sectional removals would be required from two separate hedgerows (H5 and H27) to allow for the internal access routes. One group and one hedgerow would need to be cut back for clearance around the access tracks (G6 and H9).
- 9.4. In order to reinstate a disused roadway, the understory would need to be cleared and the retained trees pruned for clearance within one group (G10). The roadway itself would need an engineer-led design to provide access for the lifetime of the scheme and this should not negatively affect the health and vigour of the retained trees.
- 9.5. Localised adjustments to the cable route are recommended and are possible to avoid the unnecessary removal of moderate and low quality trees (T50, T52 and T82 and T91).
- 9.6. The loss of trees can be mitigated by replacement planting. The retained trees can be adequately protected during construction activities to sustain their health and longevity.
- 9.7. The BESS and substation fencing should be installed as a priority which would fulfil the requirement of tree protection for the perimeter arboricultural features
- 9.8. Temporary protective fencing will be installed around four trees and one group for the duration of the construction phase (T37, T38, T75, T52 and G3).
- 9.9. 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 upon and submitted later as part of a pre-commencement planning condition (by agreement with the applicant).



IMAGE 1: View looking north at T9 on the northern most boundary of the site.



IMAGE 2: View looking north east toward Cilfynydd electrical sub-station.



IMAGE 3: View looking south east at T71.



IMAGE 4: View looking north at the lower stems of T25 & T26.



IMAGE 5: View looking south west at T23 - T26.



IMAGE 6: View looking west at H33 & H34.

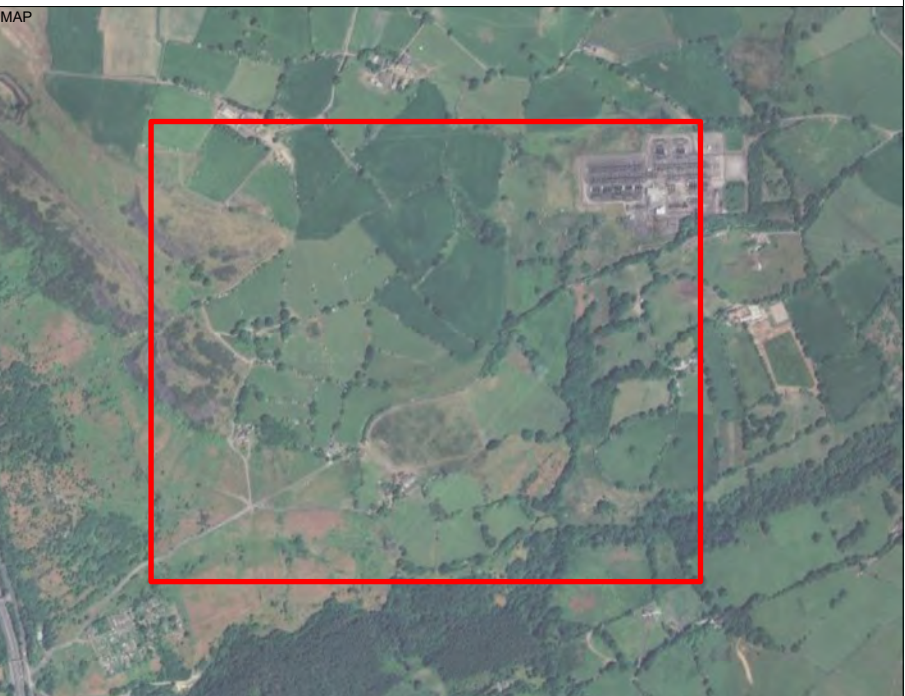


KEY					
	Category A Tree - High quality (Retention highly desirable)				
	Category A - Hedgerow, Group, Woodland - High quality (Retention highly desirable)				
	Category B Tree - Moderate quality (Retention desirable)				
	Category B - Hedgerow, Group, Woodland - Moderate quality (Retention desirable)				
	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/offsite tree/out of scope (OOS)				

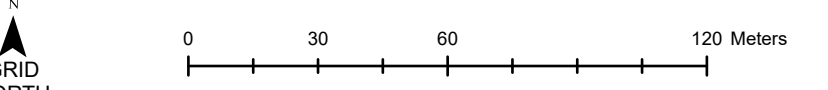
Tree/Group/Hedgerow not on topographical survey. Location given is an estimate					
Group Ref	Species	Height Range	LifeStage	RPA Radius (m)	RPA (m2)
G1	Birch	7	M	3.6	41
G2	Sycamore, ash	15	M	7.8	191
G3	Sycamore	15 - 16	M	8.4	222
G4	Holly	5	SM	1.5	7
G5	Larch	15 - 17	M	8.4	222
G6	Oak, beech, rowan, field maple, hawthorn	6-15	M	7.8	191
G7	Crank willow	7	SM	1.8	10
G8	Hawthorn, ash	6 - 8	SM	2.2	15
G9	Ash, hawthorn, hazel	4 - 16	M	8.4	222
G10	Oak, ash, hazel, hawthorn, blackthorn	2 - 15	M	7.8	191
G11	Ash, oak, hazel	8 - 10	EM	4.2	55
G12	Oak	16	M	12	452
G13	Beech, oak	16	EM	6	113
G14	Oak	10	EM	5.4	92
G15	Oak, rowan, birch, hawthorn, hazel	6-16	EM	7.2	163
G16	Oak, rowan, birch, crab apple, hawthorn	6-16	EM	7.8	191
G17	Oak	15	M	8.4	222
G18	Oak	15 - 16	M	8.4	222
G19	Ash, holly	4 - 8	SM	3	26

WoodRef	Species	Avg. Canopy	LifeStage	RPA Radius (m)	RPA (m2)
W1	Oak, beech, alder, holly	2	M	8.4	222
W2	Birch, oak, rowan, apple, holly, hazel	0	SM	2	12
W3	Oak, alder, holly, hazel, hawthorn	1	M	12.1	461

Label	Description
OOS1	Thorn on boundary - dead standing
OOS2	Rowan - failed to recruit, 5% leaf cover in canopy
OOS3	Thorn - failed to recruit, debris on ground
OOS4	Failed semi mature birch in decline
OOS5	Small thorn & goat x willow with gorse & dogrose



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
National Road BESS (5420)

DRAWING TITLE
Tree Survey Plan

SCALE	Scale: 1:1,750 @ A1	DRAWING NUMBER	BHA_5420_01
DRAWN BY	DB	APPROVED BY	DH
REVISION	A	SHEET	-
DATE	26/09/2024		

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

CLIENT
REWE 2 Limited

CREDITS
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Arboricultural Consultants
Tel: 01386 576161
Address: Office 3E, Deer Park Business Centre, Edkington, Pershore, Worcestershire, WR10 3DN



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 T 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
- Target Note
- Tree Protection Barrier
- Tree / Hedgerow / Group to be removed
- Target Note
- Tree Protection Barrier
- All weather information notices to read "Construction Exclusion Zone - No Entry" A5 in size. To be attached to tree protection barriers at regular intervals
- Site Boundary / Option Area
- Track

Target Notes

Label	Description
TN1	Crane requires western side of OS (roadside) to be cleared of holly to allow high-sided vehicle access
TN2	Sectional removal from H5 (thorn) to allow for access track
TN3	Localised adjustment of cable route (move northwards) to avoid T32 (oak)
TN4	Localised adjustment of cable route (move northwards) to avoid T31 (oak)
TN5	Fell T4, T16 & T22 (thorn) to allow clearance for internal access tracks
TN6	Sectional removal from T27 (thorn) to allow for access track
TN7	Localised adjustment of cable route (move west) to avoid T32 (thorn)

Tree Schedule

Tree Ref	Species	Height (m)	LifeStage	RPA Radius (m)	RPA (m2)	Remove
T1	Sycamore	11	M	6.4	113	
T2	Hawthorn	5	M	3	28	
T3	Sycamore	10	SM	2.4	18	
T4	Hawthorn	4	M	4.7	69	
T5	Hawthorn	4	M	3.2	33	
T6	Ash (Common)	15	EM	7.9	197	
T7	Hawthorn	4	M	2.2	15	
T8	Hawthorn	4	M	2.2	15	
T9	Oak	11	M	8.4	222	
T10	Birch (Silver)	12	M	8.4	222	
T11	Beech (Common)	12	M	7.8	191	
T12	Holly	6	EM	3.5	38	
T13	Ash (Common)	15	EM	11	383	
T14	Hawthorn	4	M	4.1	52	
T15	Hawthorn	5	M	2.2	15	
T16	Oak	15	EM	8.6	137	
T17	Ash (Common)	17	EM	10.3	265	
T18	Hawthorn	5	M	2.4	18	
T19	Oak	15	EM	7.2	163	
T20	Ash (Common)	13	EM	8.4	222	
T21	Ash (Common)	14	EM	8.4	222	
T22	Hawthorn	2	M	0.5	25	
T23	Sycamore	16	M	9	254	
T24	Sycamore	16	M	15	707	
T25	Oak	16	M	15	707	
T26	Sycamore	16	M	12	452	
T27	Sycamore	14	M	7.2	163	
T28	Sycamore	18	M	15	707	
T29	Poplar	19	M	15	707	
T30	Cherry (Wild)	6	M	6	113	
T31	New (Common)	10	EM	6	113	
T32	Ash (Common)	17	M	8.4	222	
T33	Cherry (Sweet)	15	M	8.4	222	
T34	Hawthorn	5	M	2.8	24	
T35	Beech (Common)	18	M	10.8	366	
T36	Ash (Common)	19	M	15	707	
T37	Sycamore	15	EM	6	113	
T38	Oak	13	EM	6	113	
T39	Oak	12	EM	7.2	163	
T40	Hawthorn	4	M	2.5	20	
T41	Oak	14	M	7.8	191	
T42	Oak	15	EM	7.8	191	
T43	Hawthorn	4	M	4.4	62	
T44	Hawthorn	1.5	M	2.2	15	
T45	Apple (Crab)	4	EM	3.6	41	
T46	Hawthorn	4	M	2	12	
T47	Hawthorn	5	M	3.8	46	
T48	Holly	4	EM	2.8	24	
T49	Ash (Common)	14	EM	7.8	191	
T50	Hawthorn	3.5	SM	1.3	5	
T51	Rowan	6	EM	3	28	
T52	Oak	15	EM	7.8	191	
T53	Birch (Silver)	14	M	5.9	109	
T54	Ash (Common)	18	M	12	452	
T55	Birch (Silver)	15	M	7.2	163	
T56	Ash (Common)	18	M	8.4	222	
T57	Oak	17	M	9.6	290	
T58	Hazel (Common)	8	M	9	203	
T59	Oak	16	M	13.2	547	
T60	Alder (Common)	15	M	8.4	222	
T61	Birch (Silver)	17	M	7.2	163	
T62	Oak	16	M	9	254	
T63	Ash (Common)	14	EM	6.7	142	
T64	Oak	16	M	11	383	
T65	Oak	16	M	9.6	290	
T66	Oak	18	M	14.4	651	
T67	Oak	16	M	8.4	222	
T68	Alder (Common)	18	M	10.4	342	
T69	Oak	15	EM	7.8	191	
T70	Oak	8	M	6	113	
T71	Oak	18	M	12	452	
T72	Birch (Silver)	14	M	4.8	72	
T73	Birch (Silver)	8	SM	2.8	24	
T74	Hazel (Common)	8	SM	1.6	8	
T75	Ash (Common)	18	M	12.5	489	
T76	Hawthorn	3.5	EM	2	12	
T77	Hawthorn	7	M	4.8	72	
T78	Hawthorn	6	M	3.8	46	
T79	Hawthorn	4	M	3.7	43	
T80	Hawthorn	3.5	EM	1.8	10	
T81	Maple (Field)	14	M	7.8	191	
T82	Oak	18	M	7.8	191	
T83	Oak	16	M	9	254	
T84	Oak	15	M	8	203	
T85	Oak	15	M	10.2	327	
T86	Ash (Common)	17	M	9.1	261	
T87	Hawthorn	2.5	EM	2	12	
T88	Oak	12	SM	7.3	168	
T89	Oak	15	M	9.7	297	
T90	Oak	3	EM	1.5	7	
T91	Ash (Common)	6	EM	6.4	127	

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.

Scale: 1:1,750 @ A1

Scale Bar: 0 30 60 120 Meters

PROJECT TITLE: National Road BESS (5420)

DRAWING TITLE: Tree Retention and Removal Plan

SCALE: Scale: 1:1,750 @ A1

DRAWING NUMBER: BHA_5420_02

DRAWN BY: TH

APPROVED BY: IH

REVISION: -

SHEET: -

DATE: 14/02/2025

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

CLIENT: REWE 2 Limited

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Barton Hyett Associates
Arboricultural Consultants

Te: 01386 576161
Address: Office 3E, Deer Park Business Centre, Edgington, Pershore, Worcestershire, WR10 3DN

DRAWING PRODUCED BY: SUMMIT GEO

enquiries@barton-hyett.co.uk



INDIVIDUAL TREES

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m²
T1	Sycamore	On	15.0	1	Yes	500	7.0-7.0-7.0-7.0	1.0	0.0	E	M	None	Typical for age & species; exposed site; sub-dominant limb (1st sig limb)	Good	Fair	20+	B1	6.0	113.0
T2	Hawthorn	On	5.0	1	Yes	250	2.0-2.0-2.0-2.0	0.0	0.0	None	M	None	Typical for age & species; dia. est. @1m	Good	Fair	20+	B1	3.0	28.0
T3	Sycamore	On	10.0	1	Yes	200	2.0-2.0-2.0-2.0	1.0	1.0	W	SM	None	Typical for age & species; exposed site; dia. est. @1m	Good	Fair	20+	C1	2.4	18.0
T4	Hawthorn	On	4.0	6	Yes	390	2.0-2.0-2.0-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	4.7	69.0
T5	Hawthorn	On	4.0	3	Yes	270	2.0-2.5-2.0-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	3.2	33.0
T6	Ash (Common)	On	15.0	1	Yes	660	8.0-7.0-7.0-7.0	2.0	1.5	SW	EM	None	Main stem splits @1.5m into 3x scaffold limbs; exposed site; minor twiggy to east of crown	Good	Fair	20+	B1	7.9	197.0
T7	Hawthorn	On	4.0	1	Yes	180	2.0-2.0-2.0-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	2.2	15.0
T8	Hawthorn	On	4.0	1	Yes	180	2.0-2.0-2.0-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	2.2	15.0
T9	Oak	On	11.0	1	Yes	700	7.0-8.0-7.0-8.0	2.0	0.5	SW	M	None	Wide spreading crown; sub dominant limb (1st sig. limb); exposed site	Good	Fair	40+	B1	8.4	222.0
T10	Birch (Silver)	On	12.0	1	Yes	700	7.0-7.0-6.0-7.0	2.0	2.0	E	M	None	Main stem splits @2m into 2x scaffold limbs; exposed site	Good	Fair	20+	B1	8.4	222.0
T11	Beech (Common)	On	12.0	1	Yes	650	7.0-7.0-8.0-7.0	2.0	0.25	NW	M	None	Wide spreading crown; sub dominant limbs (1st sig. limb); exposed site; remnant part of old hedge; small thorn stem to south west of root plate	Good	Fair	40+	B1	7.8	191.0
T12	Holly	On	6.0	6	Yes	290	2.0-2.0-2.0-2.0	0.0	0.0	None	EM	None	Typical for age & species	Good	Fair	20+	B1	3.5	38.0
T13	Ash (Common)	On	15.0	2	Yes	920	7.0-7.0-8.0-7.0	2.0	0.0	None	EM	None	Main stem splits @0.25m into 2x scaffold limbs; exposed site; minor twiggy dieback throughout crown; semi mature holly to south west	Fair	Fair	20+	B1	11.0	383.0
T14	Hawthorn	On	4.0	6	Yes	340	3.0-2.0-2.5-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	4.1	52.0

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m²
T15	Hawthorn	On	5.0	1	Yes	180	2.0-2.0-2.0-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	2.2	15.0
T16	Oak	On	15.0	1	Yes	550	8.0-7.0-7.0-7.0	2.0	2.0	NE	EM	None	Main stem splits @5m into 2x scaffold limbs; exposed site	Good	Fair	40+	B1	6.6	137.0
T17	Ash (Common)	On	17.0	2	Yes	860	9.0-8.0-8.0-7.0	2.0	0.0	None	EM	None	Main stem splits @0.25m & again @1.5m into 3x scaffold limbs; exposed site; minor twiggy dieback to west of crown	Good	Fair	20+	B1	10.3	335.0
T18	Hawthorn	On	3.0	1	Yes	200	2.5-2.0-3.0-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	2.4	18.0
T19	Oak	On	15.0	1	Yes	600	7.0-6.0-6.0-6.0	2.0	2.0	N	EM	None	Typical for age & species; exposed site	Good	Fair	40+	B1	7.2	163.0
T20	Ash (Common)	On	13.0	1	Yes	700	6.0-6.0-6.0-6.0	2.0	1.5	NE	EM	None	Main stem splits @1.5m into 2x scaffold limbs; exposed site; minor twiggy dieback & canker throughout crown; extensive reactionary growth around root collar	Fair	Fair	20+	B3	8.4	222.0
T21	Ash (Common)	On	14.0	1	Yes	700	7.0-5.0-6.0-6.0	3.5	1.0	None	EM	None	Main stem splits @1m into 2x scaffold limbs; exposed site; minor twiggy dieback throughout crown; extensive reactionary growth around root collar	Fair	Fair	20+	B1	8.4	222.0
T22	Hawthorn	On	2.0	2	Yes	210	2.0-2.0-2.0-2.0	0.0	0.0	None	M	None	Topped by utilities contractors	Good	Fair	20+	C1	2.5	20.0
T23	Sycamore	On	16.0	1	Yes	750	0.0-4.0-8.0-8.0	1.0	2.0	S	M	None	Heavily side pruned by utilities contractors; exposed site	Good	Fair	20+	B1	9.0	254.0
T24	Sycamore	On	16.0	6	Yes	1590	7.0-8.0-7.5-7.0	2.0	0.0	None	M	None	Historically laid as part of hedge; exposed site	Good	Fair	20+	B1	15.0	707.0
T25	Oak	On	18.0	1	None	1370	10.0-9.0-8.0-9.0	1.5	2.0	NW	M	Notable Tree	Visible basal cavity to west; main stem splits @2m into 3x scaffold limbs; wide spreading crown; exposed site	Good	Fair	40+	A1	15.0	707.0
T26	Sycamore	On	16.0	2	Yes	1000	7.0-7.0-7.0-7.0	1.0	0.0	None	M	None	Twin stemmed; exposed site	Good	Fair	40+	B1	12.0	452.0

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m²
T27	Sycamore	On	14.0	1	Yes	600	7.0-6.0-5.0-7.0	2.0	2.5	W	M	None	Basal cavity to west of root collar; exposed site	Good	Fair	20+	B1	7.2	163.0
T28	Sycamore	On	18.0	1	Yes	1400	8.5-8.0-9.0-9.0	1.5	2.0	S	M	Notable Tree	Significant tree; exposed site	Good	Fair	40+	A1	15.0	707.0
T29	Sycamore	On	19.0	1	Yes	1500	10.0-9.0-8.5-9.0	2.0	1.0	N	M	Notable Tree	Significant tree; exposed site	Good	Fair	40+	A1	15.0	707.0
T30	Cherry (Wild)	On	8.0	1	Yes	500	5.0-7.0-7.0-7.0	1.5	2.0	N	M	None	Typical for age & species; laterally suppressed by mature sycamore	Good	Fair	20+	B1	6.0	113.0
T31	Yew (Common)	On	10.0	1	Yes	500	5.0-5.0-5.0-5.0	2.0	0.0	None	EM	None	Typical for age & species	Good	Fair	20+	B1	6.0	113.0
T32	Ash (Common)	On	17.0	1	Yes	700	8.0-8.0-7.0-8.0	2.0	3.0	S	M	None	Established against old wall at point where ground levels change by approx 3m; exposed site	Good	Fair	20+	B1	8.4	222.0
T33	Chestnut (Sweet)	On	15.0	1	Yes	700	8.0-8.0-8.0-8.0	2.0	2.0	SE	M	None	Established atop of an old wall at point where ground levels change by approx 2m; visible cavity to south below main union; possibly historic storm damage giving tree appearance of old pollard; good habitat tree; not recorded on topo	Good	Fair	40+	A3	8.4	222.0
T34	Hawthorn	On	5.0	2	Yes	230	2.0-1.0-2.0-2.0	0.0	0.0	None	M	None	Established on old embankment at point where ground levels change by approx 2m; typical for age & species	Good	Fair	20+	B1	2.8	24.0
T35	Beech (Common)	On	18.0	1	Yes	900	8.0-10.0-7.0-6.0	0.0	7.0	NE	M	None	Close to outbuildings; pruning stubs around root collar & main stem from 2.5- 4.5m with associated decay; asymmetric crown due to mature ash; not recorded on topo	Good	Fair	20+	B1	10.8	366.0



Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m²
T36	Ash (Common)	On	19.0	1	None	1250	9.0-8.0-9.0-9.0	0.0	2.0	S	M	None	Close to outbuildings; pruning stubs around main stem @2.5m with associated decay; pruning pegs to north of crown @7m with visible woodpecker activity; not recorded on topo	Good	Fair	20+	B1	15.0	707.0
T37	Sycamore	On	15.0	1	Yes	500	6.0-7.0-6.0-6.0	2.5	2.0	SE	EM	None	Typical for age & species; exposed site	Good	Fair	20+	B1	6.0	113.0
T38	Oak	On	13.0	1	Yes	500	6.0-6.0-6.0-6.0	2.0	2.0	NE	EM	None	Typical for age & species; exposed site	Good	Fair	40+	B1	6.0	113.0
T39	Oak	Off	12.0	1	Yes	600	5.0-7.0-7.0-7.0	3.5	2.0	NW	EM	None	l'm decline with small to moderate deadwood throughout crown	Poor	Fair	10+	C3	7.2	163.0
T40	Hawthorn	On	4.0	2	Yes	210	3.0-3.0-2.0-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	2.5	20.0
T41	Oak	On	14.0	1	Yes	650	7.0-7.0-8.0-7.0	2.0	2.0	N	EM	None	Typical for age & species; exposed site	Good	Fair	40+	B1	7.8	191.0
T42	Oak	On	15.0	1	Yes	650	8.0-8.0-7.0-7.0	2.0	2.0	NW	EM	None	Typical for age & species; exposed site	Good	Fair	40+	B1	7.8	191.0
T43	Hawthorn	On	4.0	6	Yes	370	3.0-2.0-3.0-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	4.4	62.0
T44	Hawthorn	On	1.5	2	Yes	180	3.0-1.0-1.0-2.0	0.0	0.0	None	M	None	Early mature stems from mature root stock	Fair	Fair	20+	C1	2.2	15.0
T45	Apple (Crab)	On	4.0	4	Yes	300	2.0-2.0-2.5-3.0	0.5	0.0	None	EM	None	Typical for age & species	Good	Fair	20+	B1	3.6	41.0
T46	Hawthorn	On	4.5	1	Yes	160	1.0-1.0-1.0-1.0	0.5	0.0	None	M	None	Low vigour throughout crown	Fair	Fair	20+	C1	2.0	12.0
T47	Hawthorn	On	5.0	3	Yes	320	2.0-2.0-2.5-2.0	0.0	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	3.8	46.0
T48	Holly	On	4.0	2	Yes	230	1.0-1.0-1.0-1.0	0.5	0.0	None	EM	None	Heavily decayed main stem & low vigour throughout crown	Fair	Fair	20+	C1	2.8	24.0
T49	Ash (Common)	On	14.0	1	Yes	650	7.0-7.5-5.5-6.0	3.0	1.5	NE	M	None	Minor to moderate dieback throughout crown; water shoots triggered throughout crown; main stem heavily swathed in ivy; not	Fair	Fair	20+	C1	7.8	191.0
T50	Hawthorn	On	3.5	1	Yes	110	1.0-2.0-0.5-1.5	0.0	0.0	None	SM	None	Typical for age & species; cut back to clear road; dia. est. @0.25m	Good	Fair	20+	B1	1.3	5.0



Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m²
T51	Rowan	On	6.0	1	None	250	2.0-2.0-2.0-2.0	2.5	1.5	W	EM	None	Grown around fence post; back damage around lower stem; average vigour	Fair	Fair	10+	C1	3.0	28.0
T52	Oak	On	15.0	1	Yes	650	7.0-7.0-7.0-7.0	2.0	2.5	N	EM	None	Main stem splits @3m into 2x scaffold limbs; exposed site	Good	Fair	40+	B1	7.8	191.0
T53	Birch (Silver)	Off	14.0	2	Yes	490	5.0-3.0-3.0-4.0	1.0	0.0	None	M	None	Twin stemmed off-site tree	Good	Fair	20+	B1	5.9	109.0
T54	Ash (Common)	On	18.0	2	Yes	1000	8.0-9.0-7.0-7.0	4.0	0.0	N	M	None	Sub dominant limb to north (1st sig limb) which forms a slightly disjointed crown; main stem heavily swathed in ivy; small to moderate deadwood throughout crown	Good	Fair	20+	B1	12.0	452.0
T55	Birch (Silver)	On	15.0	1	Yes	600	7.0-6.0-6.0-6.0	1.0	3.0	N	M	None	Main stem splits @2.5m into 2x scaffold limbs	Good	Fair	20+	B1	7.2	163.0
T56	Ash (Common)	Off	18.0	1	Yes	700	7.0-7.0-7.0-8.0	9.0	5.0	S	M	None	Typical for age & species	Good	Fair	20+	B2	8.4	222.0
T57	Oak	On	17.0	1	Yes	800	8.0-8.0-8.0-8.0	1.0	2.0	NE	M	None	Main splits @2.5m into 3x scaffold limbs; moderate deadwood throughout mid crown	Good	Fair	40+	A1	9.6	290.0
T58	Hazel (Common)	Off	8.0	20	Yes	670	4.0-3.0-2.0-2.0	3.5	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B2	8.0	203.0
T59	Oak	On	16.0	1	Yes	1100	8.0-8.0-8.0-8.0	1.5	3.0	S	M	None	Main splits @4 & again @6m into several scaffold limbs; water tap & horse grooming paraphernalia affixed to stem	Good	Fair	40+	A1	13.2	547.0
T60	Alder (Common)	On	15.0	1	Yes	700	5.0-6.0-5.0-5.0	7.0	6.0	E	M	None	Burred lower stem above root collar; main stem swathed in ivy	Good	Fair	20+	B1	8.4	222.0
T61	Birch (Silver)	Off	17.0	1	Yes	600	7.0-7.0-7.0-7.0	6.0	5.0	S	M	None	Typical for age & species	Good	Fair	20+	B1	7.2	163.0
T62	Oak	On	16.0	1	Yes	750	8.0-7.0-6.0-6.0	7.0	7.0	N	M	None	Typical for age & species; heavy crown lift in past judging by pruning wounds to stem	Good	Fair	40+	B1	9.0	254.0

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m²
T63	Ash (Common)	On	14.0	2	Yes	560	2.0-4.0-6.0-5.0	3.5	0.0	None	EM	None	Northern stem istorically failed @4m; new crown to north formed by young re-gen; sub dominant limb shows canker to stem & scaffold limbs	Fair	Fair	10+	C1	6.7	142.0
T64	Oak	On	16.0	2	Yes	920	8.0-5.0-8.0-5.0	6.5	2.5	N	M	None	Typical for age & species	Good	Fair	40+	B1	11.0	383.0
T65	Oak	On	16.0	1	Yes	800	8.0-6.0-7.0-5.0	6.0	2.5	N	M	None	Typical for age & species	Good	Fair	40+	B1	9.6	290.0
T66	Oak	On	18.0	1	Yes	1200	8.0-8.0-8.0-8.0	7.0	0.0	None	M	None	Main stem splits @2m into 2x scaffold limbs	Good	Fair	40+	B1	14.4	651.0
T67	Oak	On	16.0	1	Yes	700	7.0-7.0-7.0-5.0	4.0	0.0	W	M	None	Sub dominant limb (1st sig limb); recently cut back to clear road	Good	Fair	20+	B1	8.4	222.0
T68	Alder (Common)	On	18.0	3	Yes	870	7.0-6.0-5.0-5.0	5.5	0.0	None	M	None	Typical for age & species	Good	Fair	20+	B1	10.4	342.0
T69	Oak	On	15.0	1	Yes	650	8.0-7.0-5.0-5.0	5.0	4.0	N	EM	None	Typical for age & species	Good	Fair	20+	B1	7.8	191.0
T70	Oak	On	8.0	1	Yes	500	1.0-4.0-2.0-1.0	2.0	0.0	None	M	None	Heavily cut back (beneath overhead power lines & adjacent to recently improved culvert); mature bole with crown formed by young re-gen	Fair	Fair	20+	C1	6.0	113.0
T71	Oak	On	18.0	1	Yes	1000	9.0-9.0-8.0-9.0	1.0	5.0	W	M	None	Main splits @8m into 5x scaffold limbs creating a spreading crown	Good	Fair	40+	A1	12.0	452.0
T72	Birch (Silver)	On	14.0	1	Yes	400	5.0-5.0-5.0-4.0	2.0	2.0	S	M	None	Hollowing to lower stem with visible opening to cavity @1m on north of main stem	Good	Fair	20+	B1	4.8	72.0
T73	Birch (Silver)	On	8.0	2	Yes	230	2.0-2.0-2.0-2.0	0.0	0.0	None	SM	None	Typical for age & species; beneath overhead power lines; not recorded on topo	Good	Fair	10+	C1	2.8	24.0
T74	Hazel (Common)	On	2.5	7	Yes	130	1.5-1.0-1.0-1.0	0.0	0.0	N	SM	None	Typical for age & species	Good	Good	20+	C1	1.6	8.0

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m²
T75	Ash (Common)	On	18.0	1	None	1040	10.0-10.5-13.0-11.5	2.5	4.0	N	M	None	Significant tree; main stem splits @5m into 4x scaffold limbs which form a cohesive crown; sloping site; dry-stone wall to NW of root plate; change of levels to SE of root plate with unmetalled gateway into field; small to moderate deadwood throughout	Good	Fair	40+	A1	12.5	489.0
T76	Hawthorn	On	3.5	2	Yes	160	1.5-1.0-1.5-1.0	0.3	0.0	None	EM	None	Twin stemmed tree with a cohesive crown; typical for age & species	Good	Fair	20+	B1	2.0	12.0
T77	Hawthorn	On	7	7	Yes	400	2.0-2.0-2.0-2.0	0.0	0	None	M	None	Typical for age & species; not plotted on topo	Good	Good	20+	B1	4.8	72
T78	Hawthorn	On	6	7	Yes	320	2.0-2.0-2.0-2.0	0.0	0	None	M	None	Has been in leaf this summer (2024); very limited amount of foliage (3%); not plotted on topo	Poor	Poor	10+	C1	3.8	46
T79	Hawthorn	Off	4	8	Yes	310	2.0-2.0-1.5-1.5	0.0	0	None	M	None	Typical for age & species; not plotted on topo	Good	Fair	20+	B1	3.7	43
T80	Hawthorn	Off	3.5	1	Yes	150	2.5-2.5-2.5-2.5	0.0	0	None	EM	None	Typical for age & species; not plotted on topo	Good	Fair	20+	B1	1.8	10
T81	Maple (Field)	On	14	1	Yes	650	5.0-6.0-6.0-6.0	1.5	2	E	M	None	Historical storm damage to NE of crown with localised small to moderate sized deadwood & moderate deadwood to SW of crown; moderate vigour throughout crown with foliage occurring in clusters; dry stone wall to SE of root plate; not	Fair	Fair	20+	B1	7.8	191

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m²
T82	Sycamore	On	15	1	None	630	6.0-6.0-6.0-6.0	1.5	2	S	M	None	Partly undermined stem caused by sheltering livestock with basal cavity visible to S; no evidence of final e fruiting bodies; exposed & damaged roots; exposed site; good vigour throughout crown; not plotted on topo	Good	Fair	20+	B1	7.6	180
T83	Oak	On	16	1	Yes	750	8.0-8.0-8.0-8.0	2.5	3	N	M	None	Main stem splits @3 - 4m into several scaffold limbs; wide spreading crown; good stem taper; exposed site; mature apple stem to E of stem which has historically failed @1.5m; not plotted	Good	Good	40+	A1	9	254
T84	Oak	On	15	1	Yes	670	7.0-7.0-7.0-7.0	0.0	2.5	W	M	None	Main stem splits @3m into several scaffold limbs; wide spreading crown; cracked & partially attached limbs to SE & SE of crown @6m with some debris on ground; exposed site; land slopes steeply to NW; not plotted on topo	Good	Good	40+	B1	8	203
T85	Oak	On	15	1	None	850	7.0-7.0-7.0-7.0	0.0	0	None	M	None	Main stem splits @2m into 2x scaffold limbs which form a cohesive & wide spreading crown; small cavity to NW of main union; historical occluded wound to NW of stem @0.3m; exposed site; land slopes steeply to NW; large stones to SE; not plotted on topo	Good	Good	40+	A1	10.2	327
T86	Ash (Common)	On	17	5	None	760	8.0-7.0-7.0-7.0	2.5	0	None	M	None	Significant multi stemmed tree; remnant part of old hedge line; established atop banking for dry-stone wall with an elevated root collar; recent stem removals to S; not plotted on topo	Good	Fair	40+	A1	9.1	261

Ref	Species	On/off site	Height (m)	No. of stems	Est diam?	Calc. / actual stem dia. (mm)	Crown radii (m) N-E-S-W	Av. 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)	BS 5837 Category	RPA radius (m)	RPA m²
T87	Hawthorn	On	2.5	1	Yes	160	2.0-1.5-1.0-1.0	0.0	0	None	EM	None	Suppressed by adjacent mature ash; not plotted on topo	Good	Fair	20+	B1	2	12
T88	Oak	On	12	1	None	610	5.0-5.0-5.0-4.0	2.5	0	None	SM	None	Main stem splits @0.5m into 2x stems which form a cohesive crowd; laterally suppressed by adjacent mature oak; dia. recorded @0.5m; not plotted on topo	Good	Fair	20+	B1	7.3	168
T89	Oak	On	15	1	None	810	8.0-7.0-7.0-8.0	2.5	2.5	NE	M	None	Main stem splits @2.5m into multiple scaffold limbs giving appearance of lapsed pollard; wide spreading crown; good stem taper; exposed site; not plotted on topo	Good	Good	40+	A1	9.7	297
T90	Hawthorn	On	3	1	None	120	1.0-1.0-1.0-1.0	0.3	0	None	EM	None	Partially occluded wound to root collar; exposed site; poor vigour throughout crown; exposed & damaged roots; not plotted on topo	Fair	Fair	20+	C1	1.5	7
T91	Ash (Common)	On	8	2	None	530	5.0-6.0-4.0-4.0	1.5	0	None	EM	None	Main stem splits @ground level into 2x scaffold limbs; partially occluded cavities to both stems; exposed site; minor twiggy dieback & canker throughout crown; exposed & damaged roots; good habitat value; not plotted on topo	Fair	Fair	20+	C3	6.4	127

GROUPS OF TREES

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. crown radius (m)	Av. low crown height (m)	Life stage	Special importance	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
G1	Birch	On	7	2	Yes	300.0	3.5	2.0	M	None	On boundary; exposed site	Good	Fair	20+	B2	3.6

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. crown radius (m)	Av. low crown height (m)	Life stage	Special importance	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
G2	Sycamore; ash	On	15	3	Yes	650.0	5.0	2.0	M	None	2x mature ash & 1x semi mature sycamore; ash appear to have been laid in the past as part of a hedge	Good	Fair	20+	B2	7.8
G3	Sycamore	On	15 - 16	5	Yes	700.0	7.0	2.0	M	None	Close grown trees forming a cohesive crown; established around outbuildings	Good	Fair	20+	B2	8.4
G4	Holly	On	5	5	Yes	120.0	2.0	0.0	SM	None	Close grown trees forming a cohesive crown; understory beneath mature ash & chestnut	Fair	Fair	20+	C2	1.5
G5	Larch	Off	15 - 17	3	Yes	700.0	6.0	2.0	M	None	Off-site close grown trees forming a cohesive crown	Good	Fair	20+	B2	8.4
G6	Oak; beech; rowan; field maple; hawthorn; holly; hazel	On	6 -15	25	Yes	650.0	7.0	2.0	M	None	Outgrown hedgerow flanking lane with established trees most of which are multi stemmed	Good	Fair	40+	B2	7.8
G7	Crack willow	Off	7	12	Yes	150.0	2.5	0.5	SM	None	Copse of willow; appear to be off-site	Good	Fair	20+	C2	1.8
G8	Hawthorn; ash	On	6 - 8	2	Yes	180.0	1.5	0.5	SM	None	Close grown ash & thorn; ash in decline	Fair	Fair	20+	C2	2.2
G9	Ash; hawthorn; hazel	Off	4 - 16	8	Yes	700.0	7.0	4.0	M	None	Off-site group; 5x mature ash with thorn & hazel occurring as semi / early mature understory	Good	Fair	20+	B2	8.4
G10	Oak; ash; hazel; hawthorn; blackthorn; holly; dogrose	On	2 - 15	60	None	650.0	7.0	4.0	M	None	Copse adjacent to road; approx. 8 mature oak with all other recorded species occurring as understory; mature trees show approx 4m clearance above highway; thorn & hazel on boundary with road have been cut back for clearance	Good	Fair	40+	B2	7.8
G11	Ash; oak; hazel	On	8 - 10	20	None	350.0	3.0	2.0	EM	None	Small group with ash showing minor twiggy dieback throughout crowns; 1x mature hazel to east of plot	Good	Fair	20+	B2	4.2
G12	Oak	Off	16	5	None	1000.0	8.0	4.0	M	None	Off-site group of 5x mature oak	Good	Fair	40+	A2	12.0
G13	Beech; oak	On	16	4	Yes	500.0	6.0	5.0	EM	None	2x multi stemmed beech & 2x oak; beech have been cut back to clear road	Good	Fair	20+	B2	6.0
G14	Oak	On	10	2	Yes	450.0	5.0	0.0	EM	None	Close grown trees forming a cohesive crown	Good	Fair	20+	B2	5.4
G15	Oak; rowan; birch; hawthorn; hazel	On	6 -16	10	Yes	600.0	7.0	1.0	EM	None	Outgrown hedgerow on boundary with established trees	Good	Fair	20+	B2	7.2
G16	Oak; rowan; birch; crab apple; hawthorn; holly	On	6 -16	10	Yes	650.0	7.0	1.0	EM	None	Boundary group of trees	Good	Fair	20+	B2	7.8
G17	Oak	On	15	2	Yes	700.0	7.0	1.5	M	None	Close grown trees forming a cohesive crown	Good	Fair	40+	B2	8.4
G18	Oak	On	15 - 16	3	Yes	700.0	7.0	2.0	M	None	Close grown trees forming a cohesive crown	Good	Fair	40+	B2	8.4



Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. crown radius (m)	Av. low crown height (m)	Life stage	Special importance	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
G19	Ash; holly	Off	04-Aug	4	Yes	250.0	4	0.25	SM	None	Close grown trees forming a cohesive crown; directly beneath overhead power lines; not plotted on topo	Good	Fair	20+	B2	3

WOODLANDS

Ref	Species	On/off site	Height range (m)	No. of trees	Est diam?	Max stem diam (mm)	Av. crown radius (m)	Av. low crown height (m)	Life stage	Special importance	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
W1	Oak; beech; alder; holly	Off	2 - 17	200	Yes	700.0	7.0	2.0	M	None	Predominantly oak; grazed by sheep; limited understory; sample of feature recorded where abutting survey site	Good	Fair	40+	B2	8.4
W2	Birch; oak; rowan; apple; holly; hazel; blackthorn	On	05-Dec	300	Yes	160.0	2.5	0	SM	None	Newly established woodland block; predominantly birch & oak with edges defined by hazel; watercourse to S boundary; rushes amongst developing understory indicate that ground conditions have been historically boggy	Good	Fair	40+	B2	2
W3	Oak; alder; holly; hazel; hawthorn	On	Jun-16	50	None	1010.0	7	1	M	None	Predominantly oak & alder with other species occurring as developed understory; watercourse to S boundary; mature alder & sporadic rushes amongst developing understory indicate that ground conditions have been historically boggy; good habitat stems	Good	Fair	40+	A2	12.1

HEDGEROWS

Ref	Species	On/off site	Av. height (m)	Av. width (m)	Av. stem diam (mm)	Av. low crown height (m)	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
H1	Hawthorn	On	5.0	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H2	Hawthorn	On	5.0	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H3	Hawthorn; hazel	On	5.0	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2

Ref	Species	On/off site	Av. height (m)	Av. width (m)	Av. stem diam (mm)	Av. low crown height (m)	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
H4	Hawthorn	On	2.5	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H5	Hawthorn	On	2.5	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H6	Hawthorn	On	2.5	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H7	Hawthorn; holly	On	5.0	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H8	Hawthorn; holly	On	5.0	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H9	Hawthorn; rowan	On	5.0	4.5	180	0.3	M	Outgrown hedge; partially collapsed thorn stems to approx centre of feature; exposed site	Good	Fair	20+	B2	2.2
H10	Hawthorn; crab apple; hazel	On	5.0	5	350	0.3	M	Outgrown hedge; mature apple to approx centre of feature; exposed site	Good	Fair	20+	B2	4.2
H11	Hawthorn; birch	On	4.0	4	350	0.3	M	Outgrown hedge - cut back heavily by utilities contractors; exposed site	Fair	Fair	20+	C2	4.2
H12	Hawthorn; birch	On	8.0	5	350	0.3	M	Outgrown hedge - cut back heavily & thorn coppiced by utilities contractors; exposed site	Fair	Fair	20+	C2	4.2
H13	Hawthorn	On	2.5	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H14	Hawthorn	On	0.5	1	180	0.0	M	Single thorn stem failed to west; decay to lower main stem; roots intact & crown in leaf & haws (mid-September 2023); exposed site	Good	Fair	20+	C2	2.2
H15	Hawthorn; hazel	On	5.0	4.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H16	Hawthorn	On	0.5	1	180	0.0	M	Single thorn stem failed to south; failed included union; roots intact & crown in leaf & haws (mid-September 2023); exposed site	Good	Fair	20+	C2	2.2
H17	Hawthorn; hazel	On	5.0	4.5	180	0.3	M	Outgrown hedge; partially collapsed thorn stem to west of feature; exposed site	Good	Fair	20+	B2	2.2
H18	Hawthorn	On	5.0	4.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H19	Hawthorn	On	5.0	4.5	180	0.3	M	Outgrown hedge; partially collapsed thorn stem to east of feature; exposed site	Good	Fair	20+	B2	2.2
H20	Hawthorn	On	3.0	4.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H21	Hawthorn; hazel	On	5.0	2.5	180	0.3	M	Outgrown / sporadic hedge beneath mature trees; exposed site	Good	Fair	20+	B2	2.2
H22	Hawthorn	On	3.0	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H23	Hawthorn	On	5.0	2.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H24	Hawthorn	On	4.0	2	140	0.3	M	Outgrown hedge with loss of integrity; early mature stems from mature root stock; exposed site	Fair	Fair	20+	C2	1.7

Ref	Species	On/off site	Av. height (m)	Av. width (m)	Av. stem diam (mm)	Av. low crown height (m)	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
H25	Hawthorn	On	2.5	2	120	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	1.5
H26	Hawthorn	On	3.0	2.5	150	0.3	M	Outgrown / sporadic hedge beneath mature trees; exposed site	Good	Fair	20+	B2	1.8
H27	Hawthorn	On	5.0	4.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H28	Hawthorn	On	6.0	4.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H29	Hawthorn	On	2.5	2	120	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	1.5
H30	Hawthorn; holly	On	6.0	4.5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H31	Holly	On	5.0	3	180	1.0	M	Outgrown hedge with bark damage & associated decay to lower stems; exposed site	Good	Fair	20+	C2	2.2
H32	Hawthorn; holly; ash	On	6.0	4.5	250	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	3.0
H33	Hawthorn; blackthorn	On	5.0	5	180	0.3	M	Outgrown hedge; exposed site	Good	Fair	20+	B2	2.2
H34	Hawthorn; hazel	On	6.0	6	300	1.0	M	Outgrown hedge	Good	Fair	20+	B2	3.6
H35	Hazel; hawthorn; privet	Off	5.0	4.5	150	0.0	EM	Outgrown hedge established atop old wall / embankment; appears to be off-site; cut back for clearance above road	Good	Fair	20+	B2	1.8
H36	Hawthorn; blackthorn; elder; dogrose	On	6.0	2.5	100	2.5	EM	Outgrown hedge; cut back to clear road	Good	Fair	20+	C2	1.3
H37	Hawthorn; hazel	Off	5.0	6	300	0.0	M	Outgrown hedge	Good	Fair	20+	B2	3.6
H38	Hawthorn	On	6.0	2	100	0.0	SM	Sporadic remnant section of hedge; cut back to clear road	Good	Fair	20+	C2	1.3
H39	Hawthorn; blackthorn; hazel; goat willow;	On	5.0	5	250	0.0	M	Established within verge adjacent to road; good amount of semi & early mature re-gen throughout plot; has been cut back to clear road	Good	Fair	20+	B2	3.0
H40	Hawthorn	On	6.0	2	100	0.0	SM	Sporadic remnant section of hedge; cut back to clear road	Good	Fair	20+	C2	1.3
H41	Hawthorn; dogrose	On	6.0	2	100	0.0	SM	Sporadic remnant section of hedge; cut back to clear road	Good	Fair	20+	C2	1.3
H42	Ash; hazel; hawthorn; blackthorn	On	8.0	3	170	2.5	SM	Approx 20 stems adjacent to dry-stone wall; self-seeded within a thin vegetation; ash have been previously topped at just above wall height	Good	Fair	10+	C2	2.0
H43	Hazel; rowan	On	4.5	4	160	0.3	M	Outgrown hedge	Good	Fair	20+	B2	2.0
H44	Hazel; hawthorn; rowan	On	4.5	4	160	0.3	M	Outgrown hedge	Good	Fair	20+	B2	2.0



Ref	Species	On/off site	Av. height (m)	Av. width (m)	Av. stem diam (mm)	Av. low crown height (m)	Life stage	General observations	Health & vitality	Structural condition	Estimated remaining contribution (Years)	BS 5837 Category	RPA radius (m)
H45	Hazel; holly	On	7.0	4	120	3.5	M	Outgrown hedge; cut back to clear road	Good	Fair	20+	B2	1.5
H46	Hazel	On	7.0	4	120	3.5	M	Outgrown hedge; cut back to clear road	Good	Fair	20+	B2	1.5
H47	Hazel	On	7.0	4	120	3.5	M	Outgrown hedge; cut back to clear road	Good	Fair	20+	B2	1.5
H48	Hazel	On	7.0	4	120	3.5	M	Outgrown hedge; cut back to clear road	Good	Fair	20+	B2	1.5
H49	Hazel	On	6.0	3.5	120	4.5	M	Outgrown hedge; cut back to clear road	Good	Fair	20+	B2	1.5
H50	Hazel	On	7.0	4	120	3.5	M	Outgrown hedge; cut back to clear road	Good	Fair	20+	B2	1.5
H51	Hazel; alder	On	4.5	4	120	0.0	SM	Outgrown hedge	Good	Fair	20+	C2	1.5
H52	Hazel; beech; dogrose	On	5.0	3	120	2.5	EM	Outgrown hedge; cut back to clear road; topped beneath overhead power lines	Good	Fair	20+	B2	1.5
H53	Hazel; hawthorn; dogrose	On	5.0	3	120	2.5	EM	Outgrown hedge; cut back to clear road; topped beneath overhead power lines	Good	Fair	20+	B2	1.5
H54	Hawthorn	On	4.0	3	250	1.0	M	Outgrown & neglected hedge	Fair	Fair	20+	C2	3.0
H55	Hawthorn; hazel	On	4.5	3.5	250	1.0	M	Outgrown hedge	Good	Fair	20+	B2	3.0
H56	Oak; hawthorn; hazel	On	6.0	4.5	250	0.0	EM	Outgrown hedge	Good	Fair	20+	B2	3.0
H57	Hawthorn; crab apple	Off	10	7	300	0.3	M	Outgrown hedge; exposed site; not plotted on topo	Good	Fair	20+	B2	3.6
H58	Hawthorn	Off	6	6	250	0.3	M	Outgrown hedge; exposed site; not plotted on topo	Good	Fair	20+	B2	3
H59	Holly; hawthorn	Off	10	5	300	0.3	M	Outgrown hedge; exposed site; holly dominates plot; not plotted on topo	Good	Fair	20+	B2	3.6
H60	Hazel; hawthorn	On	6	4.5	250	0.3	M	Outgrown / discounted hedge; exposed site; land slopes sharply to E; not plotted on topo	Good	Fair	20+	B2	3
H61	Holly; hazel	On	8	4.5	100	0.3	M	Outgrown hedge; exposed site; holly dominates plot; not plotted on topo	Good	Fair	20+	B2	1.3
H62	Hawthorn	On	3.25	1.75	140	0.3	EM	Outgrown hedge with poor vigour; exposed site; not plotted on topo	Poor	Fair	20+	C2	1.7
H63	Hawthorn; hazel	On	7	4.5	150	0.3	M	Outgrown hedge; exposed site; hazel dominates plot; not plotted on topo	Good	Fair	20+	B2	1.8
H64	Hawthorn	On	3	1.75	160	0.3	EM	Outgrown hedge with poor vigour; exposed site; not plotted on topo	Poor	Fair	20+	C2	2

- 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

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

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

The PPW goes on to state:

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

STATUTORY CONTROLS

Statutory tree protection

Works to trees 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

Information Stage	RIBA Stage	BS5837:2012
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.

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 - NO ENTRY

TREE PROTECTION FENCING

THIS FENCE MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED TREE PROTECTION PLANS AND ARBORICULTURAL METHOD STATEMENT FOR THIS DEVELOPMENT.

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION CAN RESULT IN BREACH OF PLANNING CONDITIONS AND/OR CRIMINAL PROSECUTION.
(TOWN AND COUNTRY PLANNING ACT 1990)

FOR ALL ENQUIRIES REGARDING TREES AT THIS DEVELOPMENT
PLEASE CALL 01386 576161 OR EMAIL ENQUIRIES@BARTON-HYETT.CO.UK

 **Barton Hyett Associates**
Arboricultural Consultants