



THE
ENVIRONMENT
PARTNERSHIP



OLD HALL, ERBISTOCK WREXHAM ARBORICULTURAL IMPACT ASSESSMENT

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CONTENTS	PAGE
Executive Summary	1
1.0 Introduction	2
2.0 The Site and Surroundings.....	3
3.0 Statutory Protection and Guidance.....	4
4.0 Tree Population.....	7
5.0 Impacts of the Proposed Development.....	10
6.0 Tree Protection Requirements.....	12
7.0 Recommendations	14

TABLES	PAGE
Table 1 Features protected by TPO or Conservation Area designation.....	5
Table 2 Features of possible interest to bats.....	5
Table 3 Summary of BS 5837 tree quality categorisation criteria	9
Table 4 Arboricultural impacts by quality category	10

FIGURES	PAGE
Figure 1 Site location and approximate boundary (OS Street View ® 1:10 000 scale)	3
Figure 2 View south-west at T2.....	7
Figure 3 View south-west at G1 and T5	8
Figure 4 View south at tree T9	9

APPENDICES

- APPENDIX A: Arboricultural Survey Data
APPENDIX B: Survey Method

DRAWINGS

- Drawing 1 – Tree Constraints Plan
Drawing 2 – Tree Removal and Impact Plan
Drawing 3 – Recommended Tree Protection Fencing

Executive Summary

1. TEP has been commissioned to conduct an arboricultural survey of land at Old Hall in Erbistock, Wrexham. This report details the arboricultural impact of developing the site, subsequent mitigation recommendations and protective measures.
2. Trees are located along the boundaries of the existing Hall garden delineated by a shallow ditch that runs along the east, south and west; as well as two specimens located within the field to the west of the garden and also two groups of trees which border this field on its southeast and west.
3. Based on an objective assessment made in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations, there is 1 Category A, 6 Category B, 10 Category C and 1 Category U trees and groups on or within influencing distance of the site.
4. A site survey and desktop searches identified no trees subject to Tree Preservation Order; no trees within a Conservation Area; and no ancient woodland. 1 tree (T2) is a veteran and as such has increased value and protection in local and national policy.
5. The capacity of trees to support roosting bats should be confirmed by an ecologist prior to works. Arboricultural observations to inform this process are provided in Section 3.
6. No trees would be removed to facilitate the proposed development. One dead tree has collapsed and is recommended for removal on safety grounds. It will be possible to retain all other trees throughout the construction in accordance with BS5837:2012.
7. Protective fencing will be required to demarcate a Construction Exclusion Zone around retained trees prior to commencement. The alignment of the fencing is shown on Drawing 2 and a recommended fence specification is shown on Drawing 3. The installation of fencing will restrict site movements, which should be considered early in the demolition and construction processes.
8. Special controls are recommended where demolition and construction works are proposed within the rooting area of retained trees. Methods for tree root pruning and controlled demolition necessary to reduce potential impacts to a tolerable level are described in Section 7 of this report.
9. A scheme of new planting has not been considered by this assessment. No trees would be removed as a direct result of development therefore any tree planting that takes place around the new dwelling will result in a net gain in tree canopy cover and associated benefits.
10. This report constitutes a valid basis for the evaluation of impacts on trees resulting from the proposed development for a period not exceeding 2 years. After this, it may be necessary to review survey data and conclusions to ensure reliability. Where the recommendations of this report have been followed, any future deterioration in tree condition may not be attributed to the development.

1.0 Introduction

- 1.1 TEP has been commissioned by Nigel Lloyd to conduct an arboricultural survey of land at Old Hall in Erbistock, Wrexham. This report details the arboricultural impact of developing the site, subsequent mitigation recommendations and protective measures.
- 1.2 The survey was carried out in March 2018 by means of inspection from ground level by a qualified Arboricultural Consultant. Trees were assessed in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.
- 1.3 Under the British Standard the assessment of trees is made objectively. The categorisation method identifies the quality and value of the existing tree stock.
- 1.4 A topographical survey was not made available therefore all tree and group locations have been approximated using a combination of on-site observations and aerial imagery. Where the age distribution and species mix of tree cover was relatively uniform, trees were plotted as groups.
- 1.5 The nature of the soils on site was not assessed during the survey. The possibility of minor soil movement due to tree root activity cannot be discounted. Prior to the undertaking of foundation depth calculations any estimated tree locations should be resolved. Any apparent discrepancy in tree location or queries relating to the location of species within groups should be discussed with TEP prior to submission.
- 1.6 A total of 13 individual trees (T1-T13) and 5 groups of trees (G1-G5) were surveyed and mapped¹. All arboricultural information recorded during the survey is presented at Appendix A.
- 1.7 This report provides the results of the survey and includes the following:
 - A schedule of all trees located on, or within influencing distance of the proposed development site (Appendix A);
 - An assessment based on BS 5837:2012, of trees in terms of their potential value within any future development. On the basis of this assessment trees have been categorised into one of four categories: A, B, C or U (Appendices A & B);
 - An assessment, based on BS 5837:2012, of the requirement for protection of trees during the construction phase (Section 6);
 - Advice on removal, retention and management of trees (Sections 5 & 7);
 - A Tree Constraints Plan detailing tree quality categories, canopy spreads and Root Protection Areas (RPA) for all trees surveyed (Drawing 1); and
 - A Tree Removal and Impact Plan detailing the development proposals alongside trees to be retained and removed; temporary tree protection measures and areas requiring a special construction methodology (Drawing 2).

¹ See Drawing 1: Tree Constraints Plan

2.0 The Site and Surroundings

- 2.1 The site is located at the western end of an unnamed access track off the A528 in Erbistock, Wrexham. It is approximately 1.5 miles north of the village of Erbistock and 2 miles west of Overton. The approximate extents of the survey area are shown in Figure 1.
- 2.2 The topography of the survey area is predominantly flat.
- 2.3 At the time of the survey, the site contained a derelict house with an associated out building. The former gardens have become overgrown and a ditch runs around the southern, eastern and western perimeters. The field to the west is rough grassland used for grazing.
- 2.4 Weather conditions during the survey were wet.
- 2.5 Inspection of trees was restricted in some cases by dense vegetation. These trees were surveyed insofar as was possible from accessible areas of the site.



Figure 1 Site location and approximate boundary (OS Street View @ 1:10 000 scale)

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Development Proposals

- 2.6 The proposed development includes the demolition of the existing house and out building and the construction of a single detached house and separate garages in the field to the west.
- 2.7 Detail of the proposals is shown on Drawing 2 and is based on the Block Plan Proposed (drawing reference: 395/05) supplied by John Pugh, Chartered Building Surveyor and Conservation Consultant.

3.0 Statutory Protection and Guidance

Planning Policy Wales (PPW)

- 3.1 PPW assumes protection of trees, groups of trees and areas of woodland where they have natural heritage value or contribute to the character or amenity of a particular locality. Ancient and semi-natural woodlands are acknowledged as irreplaceable habitats of high biodiversity value which should be protected from development that would result in significant damage.
- 3.2 On this site there are no semi-natural woodland or ancient trees.
- 3.3 A large woodland that runs along Old Hall Dingle is located to the south of the development but does not lie within influencing distance.

Veteran Trees

- 3.4 Tree T2 has been noted as a veteran tree. Due to its age and condition has local natural heritage value and contributes to the character of the area.
- 3.5 Veteran is a term describing a tree that is of increased interest biologically, aesthetically or culturally because of its age, size or condition. Key habitat features of a veteran tree can be evidence of decay processes, such as hollowing in the trunk; fruit bodies of fungi known to cause wood decay and cavities or rot holes (e.g. where limbs have broken off or bark is damaged); significant amounts of dead wood or many dead limbs and branches. Veteran trees often provide a range of rich but scarce habitats supporting many rare and endangered species, and are an irreplaceable part of the landscape and biological heritage.

Tree Preservation Orders & Conservation Area Designations

- 3.6 Where it is considered expedient to do so, local authorities can create Tree Preservation Orders (TPO) to protect the amenity value conferred to a location by a tree or group of trees. Where a TPO is in force, lopping, topping, felling, uprooting or wilful damage caused to a tree is prohibited and such actions may be prosecuted and incur an unlimited fine. Works to TPO protected trees must only be undertaken with the written consent of the local authority.
- 3.7 Section 211 of The Town and Country Planning Act 1990 (TCPA) relates to the preservation of trees in Conservation Areas. Under Section 211 anyone proposing to remove, uproot or destroy any tree within a Conservation Area is required to give the local planning authority six weeks' prior notice (a "section 211 notice"). During this period the Council may consider serving a Tree Preservation Order to prevent the proposed work from being undertaken.
- 3.8 Exceptions from the requirement to give a Section 211 notice are set out in The Town and Country Planning (Tree Preservation) (England) Regulations 2012. A person does not have to give the local planning authority six weeks' prior notice for, amongst other reasons, work to trees so far as such work is necessary to implement a planning permission (other than an outline planning permission).

- 3.9 A check was undertaken with Wrexham County Borough Council on 20th March 2018 but they failed to respond. It is known from information provided by the council in February 2017 that no trees on or immediately adjacent to the site were subject to Tree Preservation Orders or within a Conservation Area at that time.

Table 1 Features protected by TPO or Conservation Area designation

Tree survey reference	TPO reference	Conservation Area
N/A	None	None

Protected Species – Bats

- 3.10 Mature trees often contain cavities, crevices and hollows, which are a potential habitat for roosting bats. Bats are afforded protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), as well as under Schedule 2 of the Conservation of Species and Habitats Regulations 2010, and as such causing damage to a bat roost constitutes an offence.
- 3.11 A preliminary ground level appraisal of the wildlife habitat value of each tree was undertaken by a trained layperson as part of the arboricultural survey. Where observations incidental to the primary purpose of tree surveying have a possible interest to bats they are recorded below. This information should not be treated as comprehensive bat survey. However, an arboricultural view on the likely internal structure of any cavity or crevice may usefully inform a ground based bat habitat assessment. The extent of any bat roost potential in trees should be determined by the project ecologist.

Table 2 Features of possible interest to bats

Tree survey reference	Feature/s of note
T2	Splits, crevices.

- 3.12 If any works are to be carried out to trees identified in the table above, reference should be made to the results and recommendations of a competent bat assessment prior to commencement.
- 3.13 If the presence of a bat roost is suspected whilst undertaking works on any other trees on site, operations must be halted until a licensed bat handler or ecologist can provide advice.

Protected Species - Birds

- 3.14 Trees are a potential habitat for nesting birds, which (as well as their nests and eggs) are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to intentionally or recklessly, damage or destroy an active nest or any part thereof.

- 3.15 Due to the suitability of the trees within the survey boundary for nesting birds, all tree work should ideally be undertaken outside the bird nesting season (March to August, inclusive).
- 3.16 If this is not possible then a detailed inspection of each tree should be undertaken by a qualified ecologist immediately prior to the arboricultural works. Should an active nest be found (being built, containing eggs or chicks), any work likely to affect the nest must be halted until the nest becomes inactive.

4.0 Tree Population

- 4.1 13 individual trees (T1-T13) and 5 groups of trees (G1-G5) were recorded within influencing distance of the site. A schedule of all trees and groups in terms of species, condition, age, management recommendations and BS 5837:2012 quality categories is provided at Appendix A.
- 4.2 The tree stock is mainly concentrated around the boundaries of the former garden with most located along the either side of the ditch that runs along the south, west and east. Two individual trees (T12 and T13) are located within the field to the west of the garden. There are two groups of trees (G4 and G5) bordering this field along its south-eastern and western boundaries.
- 4.3 The most significant tree on the site is a mature English oak (T2). It displays a number of features that mark it out as a veteran tree including numerous large wounds, splits and limb failures as well as a large stem diameter. It has heavy burring to the lower trunk that contributes to the sheer size of the stem diameter. Although in structurally poor condition it has good vigour and is expected to have a long continued life-span.



Figure 2 View south-west at T2

- 4.4 6 hazels (G1 and T5) are in a row along the western and southern boundary of the garden. They have previously been coppiced but have long since been left to grow. With the exception of one small failed stem they are in fair condition and could easily be re-manged into a coppicing regime.



Figure 3 View south-west at G1 and T5

- 4.5 A dense, shrubby group of hazel, crack willow, hawthorn and wild cherry (G3) runs along the eastern boundary. Within this group a mature crack willow (T10) has recently failed and is laying horizontally.
- 4.6 A mature apple tree is located to the west of the out building (T1). It is bifurcate at 1.5m and has many crossing branches. Decay is evident within both stems from old wounds on the trunk but overall it is in fair condition and has good vigour.
- 4.7 To the south of the ditch along the southern boundary are trees T6 to T9 comprising wych elm, common walnut and two common ash. Both wych elm (T4 and T6) are in poor condition with multiple bark wounds and failed branches. The walnut and ash (T7, T8 and T9) are middle aged to mature trees in generally good condition despite a few minor defects. They form the start of a much larger woodland belt of trees to the south that run along Old Hall Dingle. These trees along with the woodland behind are a significant feature bordering the garden and survey area.
- 4.8 G2 comprises a dense and shrubby boundary group including hazel, crack willow, hawthorn and wild cherry. It forms a small, but dense screen for the house to the east. Within G2, a large crack willow is dead and has fallen over (T10).



Figure 4 View south at tree T9

- 4.9 Tree and group locations, their quality categories and canopy spreads are shown on Drawing 1.

Tree Quality Categorisation

- 4.10 Under BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations, trees and groups are objectively assigned a quality category to quantify their value within any future development. The table below contains a summary of the categories presented in the British Standard. The full table has been reproduced at Appendix B.

Table 3 Summary of BS 5837 tree quality categorisation criteria

Category A	Trees of high value including those that are particularly good examples of their species and/or those that have visual importance or significant conservation or other value
Category B	Trees of moderate value including those that do not qualify as Category A due to impaired condition and/or those that collectively have higher value than they would as individuals; also trees with material conservation or other value
Category C	Trees of low value including those with very limited merit or impaired condition; trees offering transient or temporary landscape benefits
Category U	Trees with irremediable defects and anticipated early loss due to collapse; dead trees or those in immediate decline and those with infectious pathogens that threaten other trees

5.0 Impacts of the Proposed Development

- 5.1 This section describes the number and quality of trees that would be removed in order to facilitate the development proposals, and those that can be retained. This is the result of an assessment based on the proposed site plan and discussions with the client regarding their application strategy.

Table 4 Arboricultural impacts by quality category²

	Category A	Category B	Category C	Category U
Features that would be retained	T2	T3, T13, G4	T1, T4, T5, T11, T12, G1, G3, G5	-
Total	1	3	8	0
Features that would be removed	-	-	-	T10
Total	0	0	0	1
Features outside the application boundary	-	T7, T8, T9	T6, G2	-
Total	0	3	2	0

- 5.2 No trees or groups would need to be felled to facilitate the development proposals. One dead tree (T10) has already fallen and will require removing from its current location as it is currently hung-up and leaning towards the garden. As a minimum the tree should be lowered to ground level and ideally retained on site as deadwood habitat. This could either be within the tree belt or as a habitat pile in one corner of the garden.
- 5.3 Construction of a new hard-surfaced driveway over approximately 5% of the primary rooting area of tree T13 is proposed, however this is based on an approximation of the tree's location and as such may vary slightly. The proposals are considered to be tolerable due to the large remaining rooting area of the tree which will be left undisturbed during and post construction. In order to minimise root damage and disturbance, the foundations of the driveway in this location should be excavated by hand and any tree roots encountered should be pruned back neatly to the trench face. A more detailed method is provided in section 7.0.

² See Appendix 1, Arboricultural Survey Data for sub-categories

- 5.4 Tree T2 is a veteran and should be afforded a minimum 15m buffer from the canopy edge for all construction elements due to its mature age class and heightened sensitivity to root disturbance. Proposed demolition works within this area and any future landscaping should be undertaken in a sensitive and controlled manner that avoid damage or deterioration to this valuable tree. Guidance is provided in section 7.0.
- 5.5 Fencing to protect all retained trees will be necessary. The location of temporary protective fencing has been detailed on Drawing 2 and incorporates as much as the 15m buffer around T2 as is reasonably practicable whilst allowing for the demolition of existing buildings. This will reduce the useable area for both demolition and construction works and storage of materials during development.
- 5.6 Where planning permission is granted, the retention schedule shown above and on Drawing 2 would normally form a part of that permission. Any change to this schedule may therefore require an application to vary the consent.

6.0 Tree Protection Requirements

- 6.1 The following information sets out the primary considerations in determining the requirement for tree protective measures and in the assessment of development impact.

Root Protection Areas

- 6.2 As per BS 5837:2012, the Root Protection Area (RPA) is calculated using each tree's diameter at 1.5 metres³ and represents the minimum area around each tree that must be left undisturbed to ensure its survival.
- 6.3 Tree roots typically spread two times the width of the crown, although this figure may be significantly increased for certain species and where specific ground conditions are present. The majority of tree roots are found in the top 600mm of soil and most of the fine roots that absorb water and nutrients are found close to the surface.
- 6.4 The morphology of roots is influenced by past and present site conditions (including roads, buried structures and underground services), soil type, topography and drainage. This means that a tree's roots may not be uniform in extent and the RPA may not be a circular area centred on the tree stem.
- 6.5 On this site, likely barriers to root growth include the ditch. Roots are unlikely to be absent in all these areas but where unfavourable conditions exist, growth will certainly be impeded.
- 6.6 The RPA has been adjusted or offset where appropriate to most accurately represent the likely spread of roots for each individual tree⁴.

Ground Contamination

- 6.7 Storage areas for liquids such as fuels, oil or paint should not be located within 10m of any tree due to the risk of soil contamination caused by accidental spillage.
- 6.8 Particular care must be taken when working on or close to sloping ground to avoid unintentional runoff into the rooting area of retained trees.

Underground Utility Issues

- 6.9 No utility drawings were provided and no assessment has been made of the juxtaposition of tree roots and the likely location of new services. It has been presumed for the purposes of this report that all utilities will be installed outside of the root protection area shown on Drawing 2.
- 6.10 Where the installation of services within the Construction Exclusion Zone of retained trees is unavoidable, appropriate work methods will be required to ensure the safe long-term survival of those trees. This process will require additional consultation with a qualified Arboricultural Consultant and is likely to be more expensive than conventional trench installation.

³ Refer to Appendix A for RPA area calculations

⁴ See Drawing 1 for RPA shapes

Ground Level Changes

- 6.11 A rise or reduction in soil level can have major implications on the longevity and health of the trees. Minor changes (up to 100mm) can be tolerated in some cases but is heavily dependent on tree species, condition and growing environment.
- 6.12 Existing ground levels within the Construction Exclusion Zone should be maintained. The advice of a qualified Arboricultural Consultant should be sought if level changes are required.

Drainage & Storm Water Run-off Issues

- 6.13 Drainage and storm water run-off requires due consideration to prevent excessive and/or polluted run-off into the rooting area of trees to be retained.
- 6.14 The maintenance of existing water bodies and hydrology patterns will also be required where this relationship is important to tree health.

7.0 Recommendations

Tree Work

- 7.1 No further tree works are required in addition to the proposed removal of dead tree T10.
- 7.2 All tree removal work should be carried out by a qualified contractor in accordance with British Standard 3998:2010 Tree work – Recommendations.

Protective Fencing and Exclusion Zones

- 7.3 Site-wide tree protection measures will be required during construction to deliver the tree retention schedule presented in this report. This will include temporary protective barrier fencing to demarcate a Construction Exclusion Zone (CEZ) around retained trees. This must be put in place prior to the commencement of any development works, including bringing machinery or materials onto site, the erection of site huts or demolition.
- 7.4 The CEZ should protect both tree roots and branches and should be designed to incorporate canopy spread where appropriate. All of the CEZ should be protected throughout the construction process by either an approved working methodology, ground protection, or protective fencing.
- 7.5 Protective fencing alignment is shown on Drawing 2 and assumes that all trees identified for removal have been felled prior to installation.
- 7.6 The fencing must be fixed into the ground to withstand accidental impact from machinery and to ensure that a sufficient protective area is maintained. Details of the recommended protective fencing are shown on Drawing 3.
- 7.7 A weatherproof notice identifying the Construction Exclusion Zone must be fixed to each fencing panel. An example notice is shown on Drawing 3.
- 7.8 Any alteration to the fencing alignment to allow for approved activities should only be made in agreement with the council's Arboricultural Officer.
- 7.9 The protective fencing must not be removed until the physical construction phase has been completed and all vehicles have been removed from site, to the satisfaction of the council's Arboricultural Officer.

Demolition adjacent to trees T1 and T2

- 7.10 The demolition of existing structures within the Root Protection Area (RPA) of trees T1 and T2 is proposed. This operation must be done in a controlled manner in order to avoid or reduce damage to a tolerable level.
- 7.11 The areas of controlled demolition are shown on Drawing 2.

- 7.12 The extent of demolition work should be limited to that necessary to remove the buildings, with as much of the soil surrounding their foundations left undisturbed as possible. This premise extends to the depth of excavation as well as surface disturbance.
- 7.13 Any plant required for excavation will be positioned outside the RPA or on currently hard-surfaced ground. The tracking of vehicles across existing or exposed soils should be avoided.
- 7.14 Buildings should be collapsed using the top down approach keeping all falling rubble within the footprint of the structure.
- 7.15 Where foundations, footings and kerbs must be removed close to tree protection areas. This should be undertaken by excavating around the structure on the nearside (furthest from the tree) and pulling the structure into the created hole, thereby leaving soil volumes that are adjacent to the tree relatively undisturbed.
- 7.16 If tree roots are encountered with the building foundations, these should be severed neatly back to the soil interface or retained intact where possible and incorporated back into the backfill.
- 7.17 Any soil voids created by the removal of foundations should be back-filled with clean topsoil and manually tampered.

Hand-dig and Root Pruning Adjacent to Tree T13

- 7.18 Excavation for the creation of a new drive within the RPA of tree T13 should be done by hand with any roots encountered severed neatly back to the trench face. The purpose of this controlled method is to avoid tree roots being pulled and snapped by an excavator bucket which will result in more widespread damage along the length of the root and outside the footprint of the drive itself. The aim is to disconnect the area being subject to direct damage so that indirect damage cannot occur.
- 7.19 The alignment of root pruning is shown on Drawing 2.
- 7.20 As soon as practicable (ideally at the same time as the installation of tree protection fencing) the site manager should arrange root pruning.
- 7.21 A trench should be excavated by hand to the depth of the driveway foundations but no deeper.
- 7.22 Where roots are encountered, they should be severed neatly back to the trench face. Roots smaller than 10mm in diameter will be severed using a sharp spade. Larger roots will be severed using bypass secateurs or a pruning saw as appropriate.
- 7.23 Once the hand-dig trench has been completed excavation of the remaining driveway foundations can proceed using an excavator. The driveway should ideally be excavated and the sub-base installed within 48 hours to avoid desiccation of exposed roots or those underlying the driveway footprint.
- 7.24 A photographic record of the work, including the number and location of tree roots and those that are severed should be retained for inspection by the local authority.

Post Construction Tree Care

- 7.25 Hazard recommendations are based on observations at the time of survey. Trees are dynamic living organisms whose structure is constantly changing. Even those in good condition can suffer from damage or stress. Following site development, regular (annual or biennial) inspections of all retained trees should be undertaken by a qualified Arboricultural Consultant.

APPENDIX A: Arboricultural Survey Data

APPENDIX A: Arboricultural Survey Data Sheets



Surveyor [Mark Levitt](#)
 Date [16.03.18](#)
 Town [Erbistock, Wrexham](#)
 Site [Old Hall](#)
 Dwg Ref [D6936.001](#)

Ref	Species	Height	Stem Dia.	No. of stems/ individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Height of Lowest Branch	Direction of Lowest Branch	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	Radius of RPA guide circle	BS5837 RPA Area	Management Recommendations	Estimated Remaining Contribution	TPO
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)		Young, Middle Age, Mature	Good, Fair, Poor, Veteran		A,B,C,U (1,2,3)	(m)	(m2)		Long, Medium, Short	Y/N
Trees																			
T1	Apple sp.	8.0	417	2.0	3.0	3.0	2.5	4.0	2.0	E	Middle Age	Fair	Bifurcate at 1.5m; many crossing and rubbing branches; previously reduced; bark loss and decay in both stems	C,1	5.0	78.8		Long	N
T2	English oak	9.0	1730	1.0	5.0	4.5	3.5	4.0	2.0	N	Mature	Veteran	Heavy burring on lower trunk; large wounds from failed branches; decay in wounds; splits and crevices; bat potential; large dead branch to west; wounds from failed and removed branches; epicormics shoots on trunk	A,3	15.0	707.0		Long	N
T3	Common ash	11.0	570	1.0	3.0	3.0	3.0	3.0	3.0	S	Middle Age	Fair	Bifurcate at 3m; growing on edge of dry ditch; wound at union	B,1	6.8	147.0		Long	N
T4	Wych elm	7.0	220	1.0	1.0	1.0	2.0	3.0	3.0	S	Middle Age	Poor	Stem lean east; bark wound from base to 2m with decay; metal embedded into back of trunk to west side; bifurcate at 4m.	C,1	2.6	21.9		Medium	N
T5	Hazel	7.0	192	30.0	4.0	3.0	3.0	3.0	0.0	N	Middle Age	Fair	Multi-stemmed at base; previously coppiced; crossing stems and branches	C,1	2.3	16.6		Long	N
T6	Wych elm	6.0	230	1.0	2.0	2.0	2.5	2.0	4.0	E	Middle Age	Poor	Bark wounds; wounds from failed branches; suppressed	C,1	2.8	23.9		Medium	N
T7	Walnut	12.0	560	1.0	5.0	5.0	5.0	5.0	4.0	N	Middle Age	Good	Slight stem lean south; good balanced crown; one broken branch	B,1	6.7	141.9		Long	N
T8	Common ash	12.0	350	1.0	1.5	2.0	1.5	2.5	3.0	S	Middle Age	Fair	Bifurcate at 2.5m; quite slender form; bark wound to south side	B,1	4.2	55.4		Long	N
T9	Common ash	14.0	919	2.0	7.0	8.0	7.0	7.0	4.0	N	Mature	Good	Bifurcate at 1m; wounds from failed branches; moderate deadwood	B,1	11.0	382.4		Long	N
T10	Crack willow	12.0	500	1.0	1.0	1.0	1.0	1.0	0.0	W	Mature	Dead	Mature willow; fallen	U	0.0	0.0		Short	N
T11	Holly	8.0	285	10.0	1.5	1.5	1.5	1.5	1.5	NE	Middle Age	Fair	Dense shooting at base; crossing stems and branches; multi-stemmed at base; bark wounds	C,1	3.4	36.6		Long	N
T12	Hawthorn	8.0	300	9.0	3.0	3.0	3.0	3.0	0.0	N	Middle Age	Fair	Growing adjacent to well; upright form, good vigour; multi-stemmed at base; no significant defects	C,1	3.6	40.7		Long	N
T13	English oak	10.0	550	1.0	6.0	6.0	5.0	8.0	2.5	W	Middle Age	Good	Good form and vigour; no significant defects; exposed roots at base.	B,1	6.6	136.8		Long	N

APPENDIX A: Arboricultural Survey Data Sheets

Ref	Species	Height	Stem Dia.	No. of stems/ individuals	Crown Spread North	Crown Spread South	Crown Spread East	Crown Spread West	Height of Lowest Branch	Direction of Lowest Branch	Maturity	Condition	Comments on form, condition, health and significant defects	BS5837 Tree Quality Assess.	Radius of RPA guide circle	BS5837 RPA Area	Management Recommendations	Estimated Remaining Contribution	TPO
		(m)	(mm)	arising below 1.5m	(m)	(m)	(m)	(m)	(m)		Young, Middle Age, Mature	Good, Fair, Poor, Veteran		A,B,C,U (1,2,3)	(m)	(m2)		Long, Medium, Short	Y/N
Groups																			
G1	Hazel	to 6	10-100	c.100							Middle Age	Fair	Multi-stemmed at base; crossing stems and branches; 5 trees all with 20+ stems; rubbing branches; one with failed branch to east end of group; previously coppiced; one small hazel at northern end of group	C,2	Refer to Drawing	n/a		Long	N
G2	Hazel, hawthorn	to 7	10-100	c.20							Middle Age	Fair	Multi-stemmed at base; crossing stems and branches many broken branches	C,2	Refer to Drawing	n/a		Long	N
G3	Hazel, crack willow, hawthorn, wild cherry	to 7	10-100	n/a							Young to Middle Age	Fair	Shrubby boundary group; a few fallen and broken stems to north end of group.	C,1	Refer to Drawing	n/a		Long	N
G4	Common alder; hazel; hawthorn; wild cherry; common beech	to 15	to c. 400	c. 40							Middle Age	Good	Linear boundary group adjacent field; no significant defects	B,2	Refer to Drawing	n/a		Long	N
G5	Hazel; holly; sycamore	to 8	to c. 200	c. 10							Young to Middle Age	Good	Linear boundary group adjacent field; no significant defects	C,2	Refer to Drawing	n/a		Long	N

APPENDIX B: Survey Method

APPENDIX B: SURVEY METHOD

The survey of trees is conducted from ground level only. The nature of the soils on site is not assessed.

Trees are dynamic living organisms with a constantly changing structure; even trees in good condition can suffer from damage or stress. The information recorded is presented as being correct at the time of survey.

The following features of each tree, group of trees or wood may have been recorded in the Arboricultural Survey Data Sheets at Appendix 1.

Species	The common name is given. The Latin name may also be given if further clarification is required.	
Height	Top height of tree recorded in metres.	
Stem Diameter	For single-stemmed trees the measurement is taken at 1.5 metres above ground level and recorded in millimetres. For multi-stemmed trees an average all stems measured at 1.5m above ground level is used. For tree groups a range from minimum to maximum diameters is provided based on measurements taken using one of the aforementioned methods.	
No. of Stems	A count of stems arising below a height of 1.5 metres.	
Crown Spread	The N, S, E and W branch spreads are recorded in metres to provide a representative crown shape.	
Height of Lowest Branch	Crown clearance above ground level recorded in metres.	
Direction of Lowest Branch	The direction of growth of the first significant branch from the point of attachment.	
Maturity	Young	Trees that can reasonably be relocated or replaced like for like, without undue cost;
	Middle Age	Trees in the established growth stage of their life with the potential to continue increasing in size;
	Mature	Trees that have reached their ultimate size, given their location and surroundings;
Condition	Good, Fair, Poor. An overall assessment of a tree's physiological and structural state in which factors that may increase its susceptibility to the effects of development are taken into account. Veteran. Trees that are in such a condition as to significantly increase their biological, cultural or aesthetic value. This is characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.	
Comments	A brief evaluation and description of the tree with comments on form, vitality, health and any significant defects or symptoms of ill-health.	

BS 5837 Tree Quality Assessment

The tree quality assessment is based on Table 1 of BS 5837:2012 (See below). Four categories (A, B, C and U) are used to denote tree quality (A= High, B = Moderate, C = Low, U= Unsuitable for retention). Subcategories (1-3) denote the specific function value of the trees and the reasoning behind the allocation of a specific category (the subcategories may be used in combination but do not accumulate collective weight).

Root Protection Area (RPA)

The RPA is allocated to ensure that a sufficient area is left undisturbed during development. It is provided as an area (m²) and as the radius of a circle (m) typically plotted from the centre of the stem.

The RPA is calculated using a mathematical equation included in BS 5837:2012 (Section 4.6 and Table D.1) and is based on a tree's stem diameter. In some cases the RPA may need to be adapted to best reflect the likely area and position of roots required to ensure survival; this may be based on criteria such as the tree's condition, species, crown spread and any barriers to growth. Any alteration must be justifiable but is made at the Arboricultural Consultants discretion.

Recommendations

Recommendations for arboricultural works, etc. are based on the **current** land use, and take into account the tree or group attributes without bias to the proposed development.

Estimated Remaining Contribution

An estimation of the life expectancy as healthy functioning tree. This will be influenced by species and the condition of the tree at the time of survey.

Long	> 40 years
Medium	20 – 40 years
Short	less than 20 years

APPENDIX B: SURVEY METHOD

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

British Standards Institute (2012) BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.
p.9

NOTES:

All young trees are assessed as quality category 'C' but this does not preclude their retention within a development.

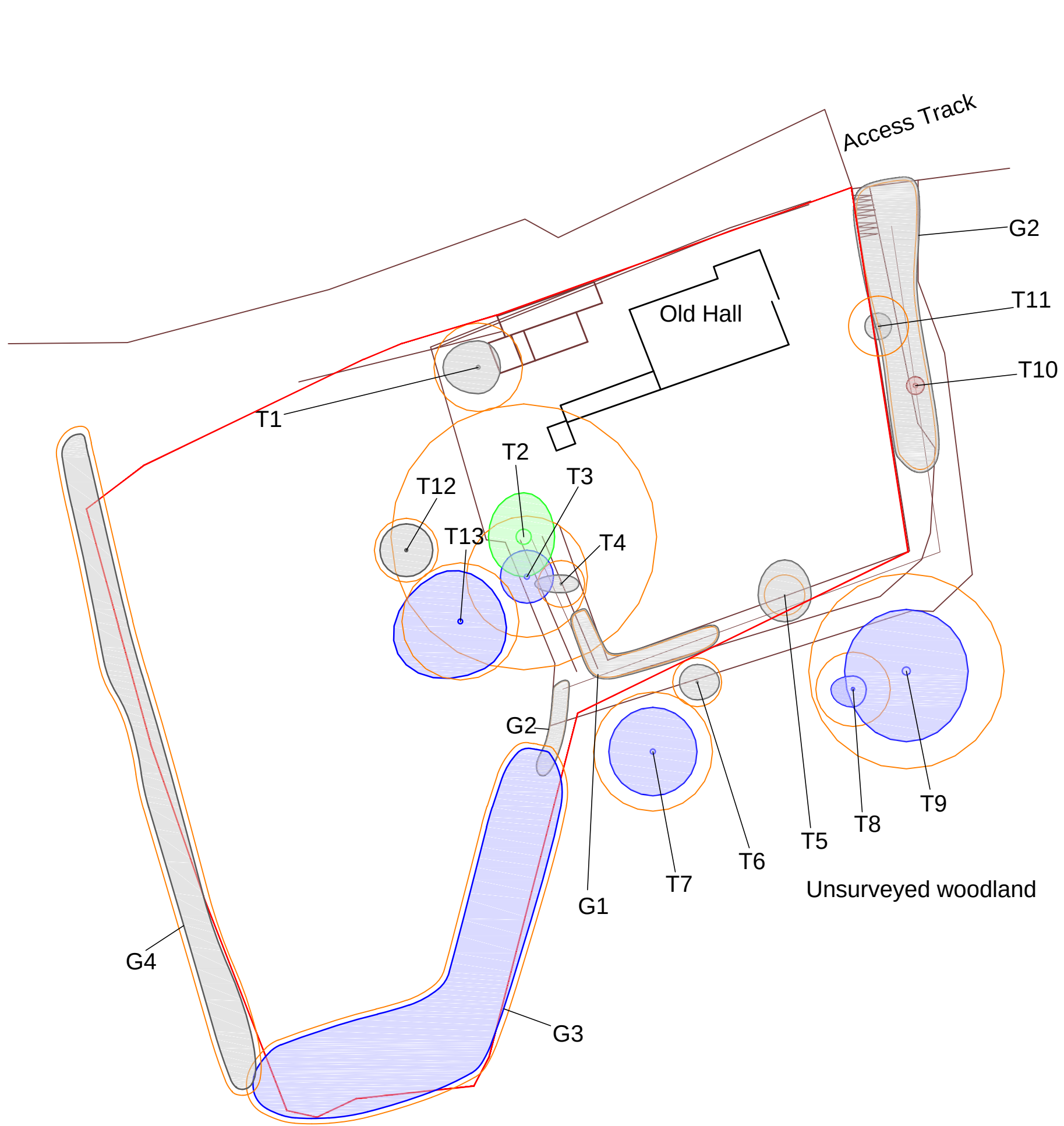
For hedges the height, canopy spread and number of stems is recorded but they are not assigned a quality category.

DRAWINGS

Drawing 1 – Tree Constraints Plan

Drawing 2 – Tree Removal and Impact Plan

Drawing 3 – Recommended Tree Protection Fencing



KEY

[This drawing must be reproduced in colour]

- T1 Individual trees
- G1 Groups of trees
- Root Protection Area (RPA)
- Survey Boundary

Tree Quality Categorisation

(Based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations)

- Category A (High quality)
- Category B (Moderate quality)
- Category C (Low quality)
- Category U (Unsuitable for retention)

NOTE: This drawing should be read in conjunction with the respective Arboricultural Survey Data (Appendix A).

NOTE: All tree stems and group locations have been estimated



Rev	Description	Drawn	Approved	Date
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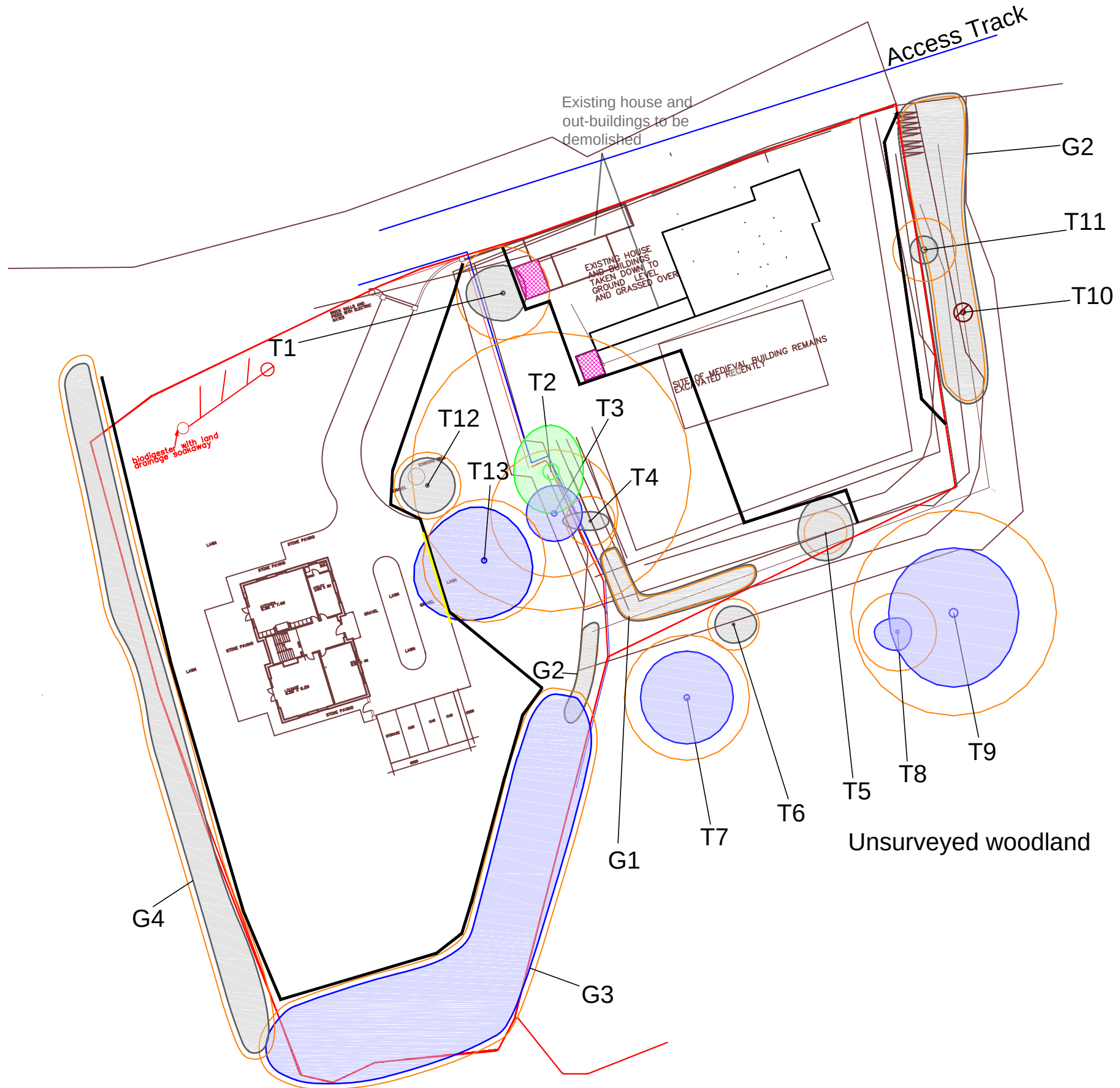
Project
Old Hall, Erbistock
Arboricultural Impact Assessment

Title
Drawing 1: Tree Constraints Plan

Drawing Number
D6936.001

Drawn	Checked	Approved	Scale	Date
ML	RMG	JGS	1:500 @ A3	20/03/2018

A528 →



KEY

[This drawing must be reproduced in colour]

- T1 Individual trees
- G1 Groups of trees
- Root Protection Area (RPA)
- Survey Boundary
- Tree Protection Fencing (c. 273m or 78 Heras panels)
(Must be installed prior to works commencement)
- Area of controlled demolition
(See Sections 7.10 - 7.17 of the AIA)
- Alignment of hand-dig and root pruning
(See Sections 7.18 - 7.24 of the AIA)

Trees to be retained

- Category A (High quality)
- Category B (Moderate quality)
- Category C (Low quality)
- Category U (Trees with existing or potential conservation value)

Trees to be removed

- Category A (High quality)
- Category B (Moderate quality)
- Category C (Low quality)
- Category U (Unsuitable for retention)

NOTE: Tree quality assessment based on BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations.

NOTE: This drawing should be read in conjunction with the respective Arboricultural Data Sheets (Appendix A).

NOTE: All tree and group locations have been approximated using a combination of on-site observations and aerial imagery



Rev	Description	Drawn	Approved	Date

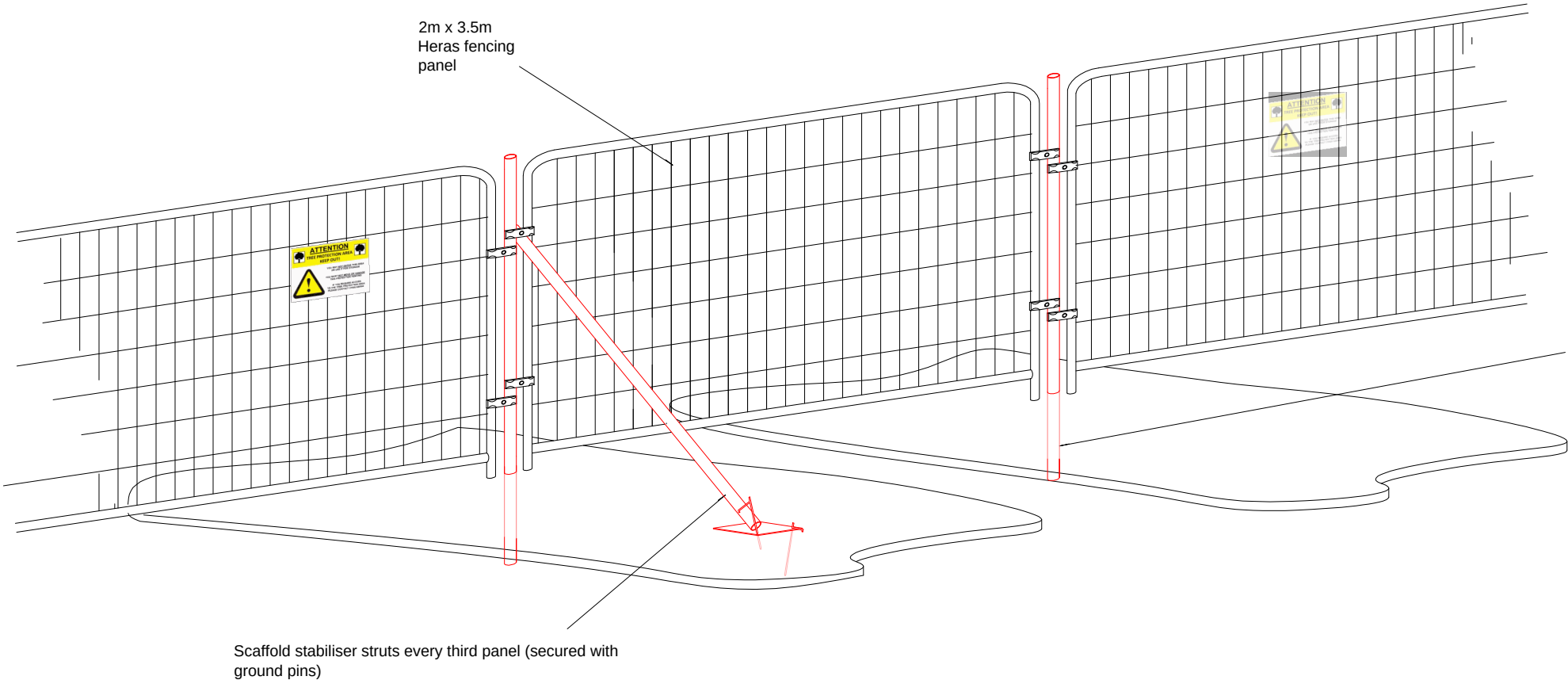


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Project
Old Hall, Erbistock
Arboricultural Impact Assessment
Title
Drawing 2: Tree Removal and Protection Plan [PROPOSED]

Drawing Number
D6936.002

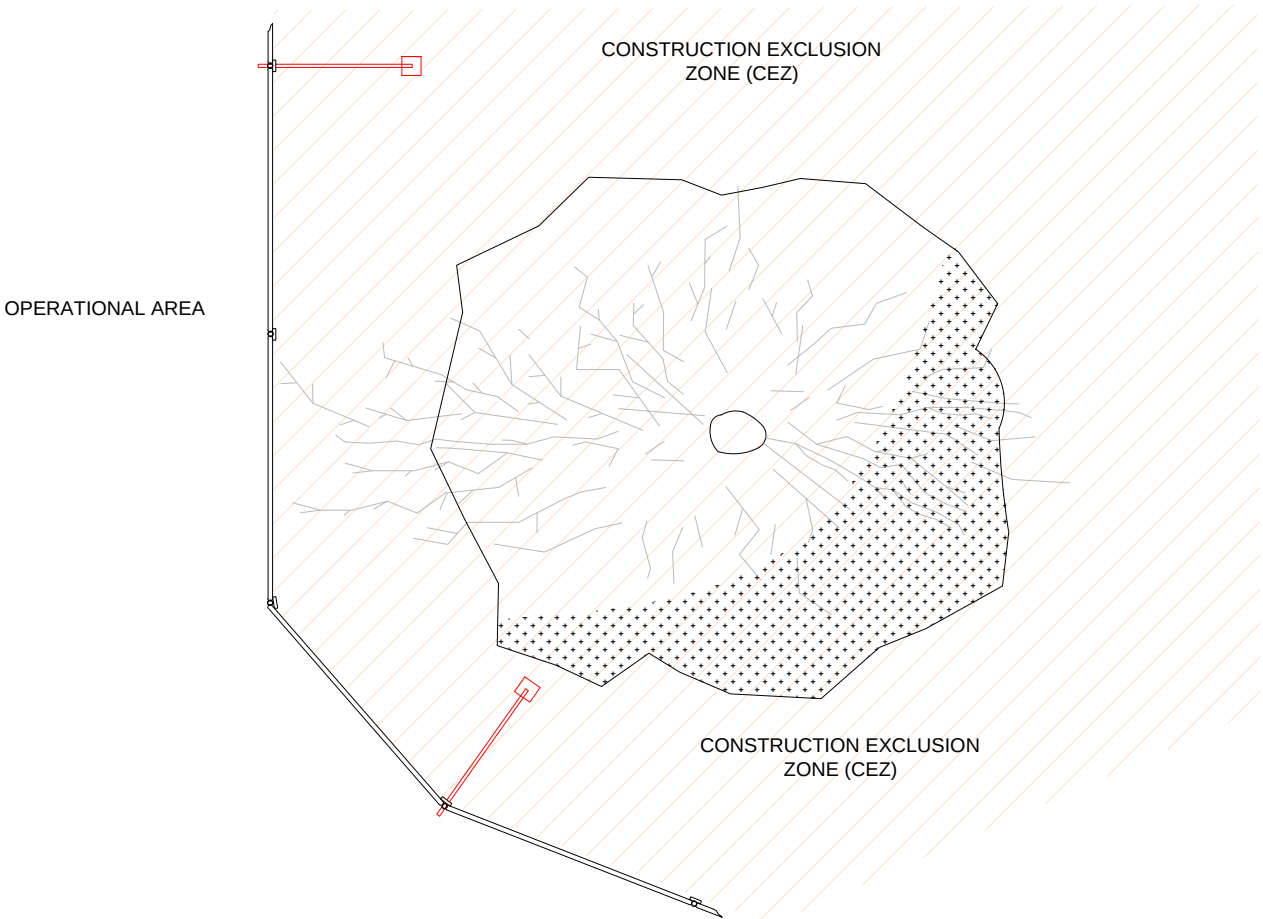
Drawn	Checked	Approved	Scale	Date
ML	RMG	JGS	1:500 @ A3	20/03/2018



Per 3No. Heras panels (10.5m)	
Component	Quantity
2m x 3.5m Standard Heras panels	3
3m Galvenised steel scaffold pole	3
Heras security fence clip	12
Heras stabilising support bar	1
Stabilising pin	2
Tree protection notice	2

Notes:

Vertical scaffold pole driven 0.6m into the ground between each Heras panel





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Rev	Description	Drawn	Approved	Date



THE ENVIRONMENT PARTNERSHIP

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Project

Title

Tree Protection Fencing Specification

Drawing Number

D.TREE_FENCING.001

Drawn	Checked	Approved	Scale	Date
RMG	TDP	JGS	Not to scale @ A3	16/06/2016



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