THE ENVIRONMENT PARTNERSHIP

WADDOW VIEW

CLITHEROE

ARBORICULTURAL IMPACT ASSESSMENT

MARCH 2018

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Executive Summary

1. TEP has been commissioned to conduct a survey of the trees at Waddow View in Clitheroe. This report details the arboricultural impact of developing the site for residential use, subsequent mitigation recommendations and protective measures.

2. Tree cover is largely native broadleaved species, dominated by common ash, and in a condition commensurate with the sites farming heritage. Many of the mature ash are in varying stages of decline due to their age, but exacerbated by their agricultural setting and ash dieback disease.

3. Based on an objective assessment made in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations, there are 3 high quality (Category A), 12 moderate quality (Category B), 22 low quality (Category C) and 9 unsuitable (Category U) trees and groups on or within influencing distance of the site. 9 hedges were also recorded but not assigned a quality category.

4. A site survey and desktop searches identified no trees on or immediately adjacent to the site subject to a Tree Preservation Order. No part of the site lies within a Conservation Area and no veteran trees or ancient woodland are present. 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.

5. Approximately 80 trees recorded as 19 individuals and 4 groups would be removed to facilitate the development proposals. In addition, just over 200m of hedgerow would also be removed.

6. The greatest arboricultural impact of development on this site would be the loss of the mature hawthorn trees (G1) within the southern section and high value common alder (T7). Their removal will result in a reduction of ecological values that cannot be replaced in the short to medium term.

7. New landscaping proposals are shown on the Landscape Masterplan (not appended to this report) and indicate a substantial amount of new planting both in the open areas and within new back gardens. No detailed planting plans were made available for consideration during this assessment. Provided tree planting occurs in broad accordance with the Landscape Masterplan it is the recommendation of this report that mitigation in this form has the potential to result in a temporary reduction in mature tree cover (estimated at 40 years post-construction) but a long term increase in both tree quality and diversity.

8. 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 Barratt & David Wilson Homes North West to conduct an arboricultural survey of land at Waddow View in Clitheroe. This report details the arboricultural impact of developing the site, subsequent mitigation recommendations and protective measures.

1.2 The survey was carried out in February 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 used to record the position of trees and vegetation was provided by the client (drawing reference: 0911-2D_Rev_B). Where the age distribution and species mix of tree cover was relatively uniform, trees were plotted as groups. For the purposes of this report it is assumed that the detail on the drawing is accurate.

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 39 individual trees (T1-T39), 7 groups of trees (G1-G7) and 9 hedgerows (H1-H9) were surveyed and mapped. 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 and hedges 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 Protection Plan detailing the development proposals alongside trees to be retained and removed and temporary tree protection measures.

2.0 The Site and Surroundings

2.1 The site is located on the north-western perimeter of the town of Clitheroe in Lancashire. It consists of several pastoral fields divided by ditches, hedgerows and fences, with individual trees and groups of trees present in various locations. Vehicular access is possible via two gated farm tracks off Waddington Road to the north and Back Commons to the south-east.

2.2 The site is bordered to the north by Clitheroe Cemetery, residential properties off Waddington Road and further fields; to the east by a single field beyond which lies the exiting built edge of Clitheroe Town; to the south by further residential properties, Back Commons, and field; and to the west by agricultural land (see Figure 1).

2.3 A public footpath runs through the southern section of the site from Back Commons to the fields to the west, in a north-west/south-east direction. A connecting public footpath runs along the western boundary on neighbouring land.

2.4 Weather conditions during the survey were clear skies, bright sun and high winds. Inspection of trees was restricted in some cases by dense vegetation or their location on third party land. These trees were surveyed insofar as was possible from accessible areas of the site and from the public highway[1].

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

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Development Proposals

2.5 The proposed development includes the construction of 241 new homes with associated infrastructure comprising new roads, footpaths; public open space and areas of soft landscaping. The new road network will be fed from Waddington Road in the north-east corner at the site of an existing agricultural gated entrance. The public footpath that runs through the site at present will be maintained along the same alignment.

2.6 Detail of the proposals is shown on Drawing 2 and is based on the Proposed Layout Plan (drawing reference: DWH063 PL01) supplied by APD Limited.

[1] Survey restrictions are noted in Appendix A

3.0 Statutory Protection and Guidance

National Planning Policy Framework (NPPF)

3.1 The National Planning Policy Framework (NPPF) is a material consideration in the planning process and promotes a presumption in favour of sustainable development. In terms of the natural environment, development should minimise impacts on biodiversity and provide a net gain in biodiversity where possible.

3.2 The NPPF assumes protection of all ancient woodland and veteran trees unless it can be clearly demonstrated that the need for, or benefits of, development outweigh the loss. In this respect ancient woodland is defined as an area which has been wooded continuously since at least 1600 AD and a veteran as a tree of exceptional value for wildlife, in the landscape, or culturally because of its great age, size or condition.

3.3 On this site there are no ancient woodland or veteran trees. Hawthorn trees forming group G1 are very old and contain features commonly associated with veteran trees. Based on their overall condition however, they fail to meet the full criteria required to designate them as true veterans, although they do poses increased ecological value due to the niche deadwood habitats they provide.

Tree Preservation Orders & Conservation Area Designations

3.4 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.

3.5 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.

3.6 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).

3.7 A check was undertaken with Ribble Valley Borough Council on 2nd March 2018. David Hewitt confirmed that no trees and tree groups on or immediately adjacent to the site were subject to Tree Preservation Orders and that the site does not lie within a Conservation Area.

Protected Species – Bats

3.8 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.

3.9 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 1 Features of possible interest to bats

Tree survey reference	Feature/s of note
T4	Large branch failure at 4.5m with open wound, large decay pockets

3.10 If any works are to be carried out to the tree identified in the table above, reference should be made to the results and recommendations of a competent bat assessment prior to commencement.

3.11 If the presence of a bat roost is suspected whilst undertaking works on any trees on site, operations must be halted until a licensed bat handler or ecologist can provide advice.

Protected Species - Birds

3.12 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.

3.13 Due to the suitability of the trees within the survey boundary for nesting birds, all tree work should ideally avoid the bird nesting season (March to August, inclusive).

3.14 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 an ecologist can provide advice.

4.0 Tree Population

4.1 39 individual trees (T1-T39), 7 groups of trees (G1-G7) and 9 hedgerows (H1-H9) 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 Tree cover is largely native broadleaved species, dominated by common ash, and in a condition commensurate with the sites farming heritage. Many of the mature ash are in varying stages of decline due to their age and prevalence of ash dieback in the local area, but exacerbated by ground compaction and physical abrasion from cattle.

Figure 2 View north at T14, T15 and T16

4.3 Across the southern half of the site and forming the boundary of one of the fields is a lapsed hedgerow that now forms a linear group of very old hawthorn trees in varying condition. They are all mature trees, some with very large stem diameters for this species. A high proportion of trees in the group are multi-stemmed with a gnarly form and snapped out limbs, have evidence of brown rot decay and dead wood, features typical of veteran trees. However, some of the trees are in decline and some have failed stems with the crowns lying in the adjacent fields. This arboricultural feature no longer functions as hedgerow as it is not stock proof and it would be difficult to bring back into hedgerow management without extensive new planting but it does provide valuable niche habitat and connectivity across the wider site.

4.4 In the southwest corner of the site, a row of trees (T7 to T11) are located along the edge of Back Commons which lies at a slightly elevated level. T7 and T9 are both mature common alder and particularly good examples of their species. T8 and T10 are also alder; T8 has a large stem cavity running from the base up into the main stem and has a limited safe useful life expectancy; T10 has failed and is lying in the field to the north.

Figure 3 Lapsed hawthorn hedgerow group G1

Figure 4 Deadwood habitat on failed hawthorn in group G1

4.5 A ditch runs across the site from the north-west to the south-east. At the southernmost end, trees include mature ash (T1 and T4) and self-set ash and horse chestnut (T2, T3 and T5). T1 is one of the largest trees on the site with a broad spreading crown and 3 large limbs; T4 is also an ash but has a large open cavity on the northern stem which is in danger of collapse.

4.6 At the northernmost end of the ditch a large goat willow (T26) spreads out with long horizontal stems that have layered. It provides good habitat and although has a spreading and unkempt form, still has a long life expectancy.

Figure 5 View south at layered stems of T26

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

Tree Quality Categorisation

4.8 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 2 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

4.9 The table below contains a summary of the results of the categorisation process. Hedgerows have not been assigned a quality category as they fall outside the scope of BS 5837.

Table 3 Arboricultural impacts by quality category[2]

	Category A	Category B	Category C	Category U
Trees	3	10	18	8
Groups	0	2	4	1
Total	**3**	**12**	**22**	**9**

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

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.

5.2 The table below shown the effects of the proposals on trees in terms of their BS 5837 quality categorisation. Features shown with a (*) are located on or beyond the site boundary and are likely to be under full or part third party ownership.

Table 4 Arboricultural impacts by quality category[3]

	Category A	Category B	Category C	Category U	Hedges
Features that would be removed	T7	T17*; T20; T25; T38; G1	T18*; T29; T34; T35; T36; T37; T38; T39; G6; G7	T8; T10; T15*; T16*; T19; T30; G3	H6(62m); H7(114m); H9(26m)
Total	**1 tree 0 groups**	**4 trees 1 group**	**8 trees 2 groups**	**6 trees 1 group**	**3 hedges (202m)**
Features that would be retained	T9; T28	T1; T2; T5; T12; T13; T23*; G2	T3; T11; T21; T22; T24; T26; T27; T31; T32*; G4; G5	T4; T14	H1(95m); H2(50m); H3(233m); H4(78m); H5(427m); H8(212m)
Total	**2 trees 0 groups**	**6 trees 1 group**	**9 trees 2 groups**	**2 trees 0 groups**	**6 hedges (1095m)**

5.3 Approximately 80 trees recorded as 19 individuals and 4 groups would be removed to facilitate the development proposals. In addition, just over 200m of hedgerow would also be removed.

5.4 The majority of tree removals are associated with the outgrown hedgerow, group G1, estimated to contain around 50 individual hawthorn trees.

5.5 1 Category A tree would be removed (T7). This is due to the proximity of the unit to the north and the amount of ground remodelling that would be required within the rooting area. Tree T8 (U Category) would also require removing on safety reasons due to the proximity of the house and its large basal cavity.

[3] See Appendix 1, Arboricultural Survey Data for sub-categories

5.6 Along the western boundary 7 trees within the field boundary hedgerow would require removal due to the incursion of new roads or hard surfacing and proximity to new buildings due to their poor condition. 4 of these (T15, T16, T17 and T18) are thought to be located on third party land and the applicant would need to demonstrate control over these trees before tree removal occurs.

5.7 In order to upgrade current access into the site from Waddington Road, all 8 trees and both groups in this location would require removal (T33 to T39, G6 and G7). This would be to facilitate the road widening and visibility splays.

5.8 Ash trees T1 and T4 will require some crown management to ensure their long term contribution to the development. T1 will require a crown reduction by up to 2m to reduce the end weight of the long limbs. T4 should be reduced back to a 4m habitat pole to avoid large stem failure at the existing decay cavity.

5.9 A high proportion of ash trees are also in decline. This is possibly due to the prevalence of ash dieback in the area. Any ash trees retained as part of the development should be monitored every 2 years to ensure their current condition is suitable for the context of new development. No new ash trees should be planted.

5.10 Fencing to protect the retained trees will be necessary. This will reduce the useable area for works and storage of materials during development.

5.11 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 metres[4] 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 and limitations to root growth include roads and hard surfacing which have been constructed within the lifetime of adjacent trees. It is likely, although unknown for certain, that previous hard surfacing instillation resulted in some degree of root severance. 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 tree[5].

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 detailed utility drawings were provided and no assessment has been made of the juxtaposition of tree roots and the likely location of new services.

6.10 Where the installation of services within the Root Protection Area 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.

[4] Refer to Appendix A for RPA area calculations
[5] 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 Root Protection Area 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.

7.0 Recommendations

Tree Work

7.1 In addition to the tree removals proposed, the tree surgery operations presented below are recommended.

Table 5 Recommended tree surgery works

Tree survey reference	Tree works description
T4	Reduce tree to habitat pole for safety reasons
T1, T12, T13, T14, T27, T28	Monitor for ash dieback on a biennial basis

7.2 All tree surgery 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 should 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.

Mitigation for the removal of trees

7.10 The National Planning Policy Framework (NPPF) is a material consideration in the planning process and promotes a presumption in favour of sustainable development. In terms of the natural environment, development should minimise impacts on biodiversity and provide a net gain in biodiversity where possible.

7.11 In respect of trees, a sustainable development will be one whereby the total number, value or function provided by trees is maintained or increased or where the long-term prospects of the existing tree stock can be substantially improved. Net gains in biodiversity may be demonstrated where the number of tree species, variety of tree ages or range of niche habitats can be increased. Native, old, large or dead trees are likely to have a relatively significant impact on a scheme's environmental credentials, as will the connectivity of trees, hedges and woodland.

7.12 Approximately 80 trees would be removed to as part of the development proposal, 1 of which is a large mature tree with good quality.

7.13 New landscaping proposals are shown on the Landscape Masterplan (not appended to this report) and indicate a substantial amount of new planting will be accommodated both in the open areas and within new back gardens. No detailed planting plans were made available for consideration in this assessment.

7.14 The majority of larger tree that would be removed are ash and alder species. Suitable replacements for these include other medium to large growing natives such as small-leaved lime *(Tilia cordata)*, English oak *(Quercus robur)*, sessile oak (*Quercus petraea*), common beech *(Fagus sylvatica)* and hornbeam *(Carpinus betulus)* which could be planted in the larger areas of open space. Smaller ornamental trees should be incorporated within new gardens to increase the overall diversity of tree species, size and age across the site.

7.15 It is not recommended to plant ash due to the prevalence of ash dieback across the site and affecting an increasing portion of the national ash population.

7.16 Aftercare is vital to the survival of newly planted trees. Provision should be made for a minimum of two years' maintenance of newly planted trees and include watering, formative pruning and the checking of tree ties and stakes.

7.17 Based on the landscaping proposals shown on the Landscape Masterplan it is the recommendation of this report that mitigation in the form of tree planting has the potential to result in a temporary reduction in mature tree cover (estimated at 40 years post-construction) but a long term increase in both tree quality and diversity.

7.18 The extent of mitigation planting will ultimately be determined in agreement with the LPA.

Post Construction Tree Care

7.19 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 Robin Grimes
Date 23.02.18
Town Clitheroe
Site Waddow View
Dwg Ref D6896.101

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	Common ash	13.5	976	4.0	11.0	8.5	9.0	9.5	0.5	NE	Mature	Good	Located in H2; Stem trifurcates into sub-stems at 1.5m; some included stem unions; good crown form and vigour with slight weighting to north over field; ditch near base of stem	B,1,2	11.7	430.9		Long	
T2	Horse chestnut	6.0	310	1.0	4.0	4.0	4.0	4.0	2.0	N	Middle Age	Good	Good form and vigour; no significant defects	B,1	3.7	43.5		Long	
T3	Common ash	8.0	120	1.0	1.0	1.0	1.0	1.0	0.5	S	Young	Good	Self-set; no significant defects	C,1	1.4	6.5		Long	
T4	Common ash	13.0	870	1.0	9.0	8.0	11.0	7.5	5.0	E	Mature	Poor	Large branch failure at 4.5m with open wound, large decay pockets and several Daeldinia concentrica fungal fruiting bodies present; potential to shed more large branches	U	0.0	0.0		Short	
T5	Common ash	10.0	280	1.0	5.0	3.0	4.0	3.0	2.0	N	Middle Age	Good	Minor stem lean to east; no significant defects	B,1	3.4	35.5		Long	
T6	Common ash	11.0	397	2.0	6.0	5.0	5.0	5.0	4.0	NE	Middle Age	Good	Bifurcate at 1m with minor stem inclusion; large bark wound to south has partially occluded; no significant defects	B,1	4.8	71.3		Long	
T7	Common alder	15.5	820	1.0	8.0	8.0	7.0	7.0	6.0	NW	Mature	Good	Excellent form and vigour; growing on edge of access track with field to south at lower level; minor dead wood; no significant defects	A,1	9.8	304.2		Long	
T8	Common alder	13.0	700	1.0	8.0	7.0	5.0	7.0	2.0	W	Mature	Poor	Very large basal cavity with extensive decay present; cavity extends up and into tree some way; moderate crown vigour	U	0.0	0.0		Short	
T9	Common alder	13.0	610	1.0	6.0	6.0	6.0	6.0	4.0	N	Mature	Good	Pronounced buttress flare; some epicormic growth but dense vegetation in H4 also growing around base; good crown form and vigour	A,1	7.3	168.3		Long	
T10	Common alder	15.0	550	1.0	0.0	0.0	0.0	0.0			Mature	Dead	Dead stem lying on floor to north east	U	0.0	0.0		Short	
T11	Grey willow	7.0	418	4.0	6.0	5.0	7.0	5.0	1.5	E	Mature	Fair	Multi-stemmed from base with sprawling stems and crown	C,1	5.0	79.1		Medium	
T12	Common ash	6.0	180	1.0	0.5	3.0	2.0	2.5	3.0	E	Middle Age	Good	Growing under crown of T13 so highly asymmetric and weighted to south; good vigour	C,1,2	2.2	14.7		Long	
T13	Common ash	9.0	470	1.0	5.5	5.5	5.5	5.5	4.0	SW	Middle Age	Fair	Good form with slightly reduced vigour; forms part of tree line within hedgerow; good landscape value	B,1,2	5.6	99.9		Medium	
T14	Common ash	9.0	580	1.0	3.0	5.0	5.0	2.0	3.0	E	Mature	Poor	Third party tree located in adjacent ditch; significant die back and reduced vigour	U	0.0	0.0		Short	

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
T15	Common ash	10.0	550	1.0	5.0	5.0	7.5	3.0	4.5	W	Mature	Poor	Third party tree located in adjacent ditch; hollow stem from base; die back and reduced vigour in crown	U	0.0	0.0		Short	
T16	Common ash	8.0	500	1.0	4.5	2.5	3.5	4.5	2.5	W	Mature	Poor	Third party tree located in adjacent ditch; significant die back and reduced vigour	U	0.0	0.0		Short	
T17	Common ash	13.0	720	1.0	8.0	8.0	8.0	8.0	4.0	W	Mature	Fair	Third party tree located adjacent ditch; some minor branch tip die back and dead wood	B,1,2	8.6	234.5		Medium	
T18	Common ash	9.0	180	1.0	3.0	3.5	4.0	2.5	2.0	S	Middle Age	Good	Third party tree located adjacent ditch; growing under T17 and T19 with some minor suppression	C,1,2	2.2	14.7		Long	
T19	Common ash	16.5	810	1.0	8.0	7.0	9.0	6.0	6.0	N	Mature	Poor	In severe decline	U	0.0	0.0		Short	
T20	Common alder	8.0	600	1.0	5.0	4.0	6.0	3.5	1.5	W	Mature	Fair	Large burred bole to 0.5m (adaptation to constant grazing around base of tree); small crown with signs of minor reduction in vigour	B,1,2	7.2	162.9		Long	
T21	Common whitebeam	8.0	250	1.0	3.0	3.5	1.0	3.5	2.0	S	Middle Age	Good	Third party tree on boundary; stem bifurcates at 3m; good crown form and vigour	C,1	3.0	28.3		Long	
T22	Common ash	10.0	260	1.0	3.0	4.5	3.0	4.0	2.5	E	Middle Age	Good	Kinked stem at 3m; crown weighted south	C,1	3.1	30.6		Long	
T23	Hawthorn	7.0	340	1.0	3.0	3.0	3.0	3.0	1.0	W	Mature	Good	Third party tree with crown overhanging site by up to 1m; broken branches to south; minor basal cavity; fused branches within crown	B,1	4.1	52.3		Long	
T24	Common ash	9.0	250	1.0	2.0	2.0	2.0	2.0	5.0	S	Middle Age	Good	Self-set in H7; good form and vigour; no significant defects	C,1	3.0	28.3		Long	
T25	Common alder	9.0	620	1.0	5.0	6.5	6.5	5.0	3.0	S	Mature	Good	Stem bifurcates at 2m; good crown form and vigour	B,1	7.4	173.9		Long	
T26	Grey willow	8.0	777	4.0	5.0	9.0	8.0	4.0	1.0	S	Mature	Good	Layered, sprawling stems along surface from multi-stemmed bole; good crown vigour; quite a wide, sprawling tree	C,1	9.3	272.9		Long	
T27	Common ash	10.0	520	1.0	6.0	6.0	6.0	6.0	4.0	S	Mature	Fair	Good form; ivy clad stem; slightly reduced vigour with minor shoot tip die back	C,1	6.2	122.3		Long	
T28	Common ash	10.0	350	1.0	5.0	5.0	5.0	5.0	4.0	S	Middle Age	Good	Third party tree adjacent ditch; ivy clad stem; good form	A,1	4.2	55.4		Long	
T29	Common ash	11.0	450	1.0	6.0	6.0	6.0	6.0	2.5	S	Middle Age	Fair	Third party tree located adjacent ditch; ivy clad stem and in lower crown; slightly reduced vigour and shoot die back and broken branches	C,1	5.4	91.6		Long	
T30	Common ash	10.0	600	1.0	6.0	6.0	6.0	6.0	3.0	S	Mature	Poor	In severe decline	U	0.0	0.0		Short	
T31	Common ash	13.0	320	1.0	3.0	4.0	2.0	3.0	5.0	S	Middle Age	Fair	Third party tree adjacent ditch; tall, thin crown	C,1	3.8	46.3		Medium	
T32	Hawthorn	3.0	210	1.0	1.0	1.0	2.0	1.0	0.5	W	Middle Age	Fair	Small, shrubby tree densely ivy clad	C,1	2.5	20.0		Medium	
T33	English elm	16.0	440	1.0	4.0	4.0	2.5	5.0	6.0	N	Middle Age	Good	Boundary/highway tree on edge of footpath and field; upper crown has slightly upright form with good crown vigour	B,1,2	5.3	87.6		Long	

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
T34	Common ash	9.0	280	1.0	3.0	5.0	5.0	3.0	2.0	S	Middle Age	Fair	Boundary/highway tree on edge of footpath and field; weighted crown to south and east; severe kink in lower stem at 0.5m	C,1,2	3.4	35.5		Medium	
T35	Common ash	6.0	140	1.0	2.0	3.0	3.0	3.0	2.0	S	Middle Age	Fair	Boundary/highway tree on edge of footpath and field; weighted crown to south and east; minor bark damage with good occlusion wood	C,1,2	1.7	8.9		Medium	
T36	Common ash	10.0	210	1.0	3.0	2.0	3.0	2.5	3.0	SW	Middle Age	Good	Boundary/highway tree on edge of footpath and field; stem abutted up to footpath; good crown form and vigour	C,1,2	2.5	20.0		Long	
T37	Common ash	10.0	210	1.0	2.5	2.5	3.5	2.5	3.0	E	Middle Age	Good	Boundary/highway tree on edge of footpath and field; stem abutted up to footpath; good crown form and vigour	C,1,2	2.5	20.0		Long	
T38	Common ash	9.0	220	1.0	3.0	2.5	3.5	2.5	3.0	W	Middle Age	Fair	Boundary/highway tree on edge of footpath and field; stem abutted up to footpath; small burrs and cankers in crown	C,1,2	2.6	21.9		Medium	
T39	Common ash	12.0	390	3.0	5.0	5.0	5.0	6.0	3.0	SW	Middle Age	Good	Boundary/highway tree on edge of footpath and field; multi-stemmed at 1m where wooden fence has been consumed by tree; good vigour	C,1,2	4.7	68.8		Long	
Groups																			
G1	Hawthorn	to 7	to 450	c. 50							Mature	Fair	Outgrown hedge now comprising mature hawthorn trees: with decayed stems; broken branches; leaning crowns; and small cavities; some in decline, some with veteran characteristics; good boundary feature but would struggle to bring back into full hedgerow management; not stock proof and very unkempt in places	B,2,3	Refer to Drawing	n/a		Medium	
G2	Common alder	to 11	to 450	2.0							Middle Age	Good	Third party trees adjacent ditch; 2 trees forming 1 crown; good form and vigour	B,1,2	Refer to Drawing	n/a		Long	
G3	Common alder	to 10	to 450	2.0							Middle Age	Poor	Both trees in decline	U	Refer to Drawing	n/a		Short	
G4	Common ash	to 9	to 350	5.0							Middle Age	Good	Third party boundary trees; unkempt form	C,2	Refer to Drawing	n/a		Long	
G5	Goat willow	to 6	to 200	c. 20							Middle Age	Fair	Sprawling self-set regen growth emanating from T26	C,2	Refer to Drawing	n/a		Long	
G6	Hawthorn; elder	to 7	to 80	7.0							Young	Fair	Shrubby, self-set trees under T33 and T34	C,2	Refer to Drawing	n/a		Long	
G7	Sycamore; common ash; hawthorn	to 9	to 290	3.0							Middle Age	Good	3 trees growing together on edge of stone wall and gate; ivy clad stems; leaning stems; good crown vigour	C,2	Refer to Drawing	n/a		Long	
Hedges																			
H1	Hawthorn	to 1	n/a	n/a							Middle Age	Good	Well-maintained field boundary hedge		Refer to Drawing	n/a		Long	

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
H2	Hawthorn; blackthorn	to 3	n/a	n/a							Middle Age	Fair	Un-managed field boundary hedge		Refer to Drawing	n/a		Long	
H3	Hawthorn; blackthorn; elder	to 1.5	n/a	n/a							Middle Age	Good	Well-maintained field boundary hedge		Refer to Drawing	n/a		Long	
H4	Hawthorn; hazel; holly; blackthorn; elder	to 4	n/a	n/a							Middle Age	Fair	Un-managed field boundary/access road hedge		Refer to Drawing	n/a		Long	
H5	Blackthorn; hawthorn	to 2	n/a	n/a							Middle Age	Good	Part-managed field boundary hedge running along ditch to west; flailed to most edges and top		Refer to Drawing	n/a		Long	
H6	Hawthorn	to 1.5	n/a	n/a							Middle Age	Good	Small, well-maintained field boundary hedge		Refer to Drawing	n/a		Long	
H7	Hawthorn; blackthorn; elder; holly	to 1.5	n/a	n/a							Middle Age	Good	Small, well-maintained field boundary hedge		Refer to Drawing	n/a		Long	
H8	Hawthorn; blackthorn; holly; hazel; elder	to 2	n/a	n/a							Middle Age	Good	Part-managed field boundary hedge		Refer to Drawing	n/a		Long	
H9	Hawthorn	to 1	n/a	n/a							Middle Age	Good	gappy boundary hedge under trees T33 to T39		Refer to Drawing	n/a		Long	

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 (m^2) 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 trees 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 Protection Plan
Drawing 3 - Recommended Tree Protection Fencing

KEY

[This drawing must be reproduced in colour]

- T1 Individual trees
- G1 Groups of trees
- H1 Hedgerow
- Root Protection Area (RPA)
- Survey Boundary
- # Approximate location (Feature not shown on topo)
- * Tree Preservation Order (TBC)

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)
- Hedgerow (Not categorised)

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

Rev	Description	Drawn	Approved	Date

THE ENVIRONMENT PARTNERSHIP

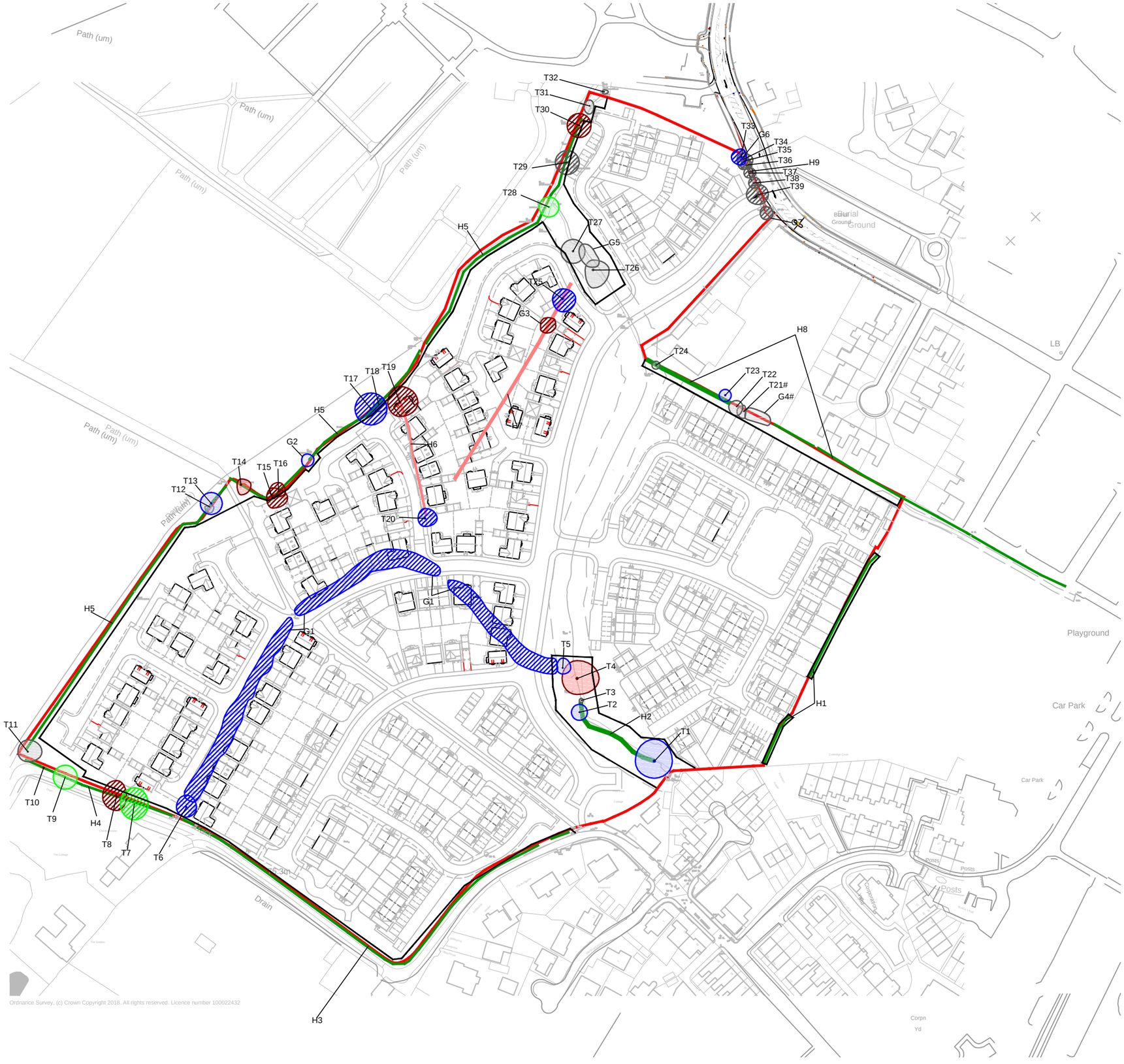
Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
Tel 01925 844004 e-mail tep@tep.uk.com www.tep.uk.com

Project
Waddow View, Clitheroe
Arboricultural Impact Assessment

Title
Drawing 1 - Tree Constraints Plan

Drawing Number
D6896.101

Drawn	Checked	Approved	Scale	Date
ML	RMG	JGS	1:2000 @ A3	28/02/2018



KEY

[This drawing must be reproduced in colour]

- T1 Individual trees
- G1 Groups of trees
- Survey Boundary
- # Approximate location (Feature not shown on topo)
- * Tree Preservation Order (TBC)
- Tree Protection Fencing (c. 1442m or 412 Heras panels) (Must be installed prior to works commencement)

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)
- H1 Hedgerow (Not categorised)

Trees to be removed

- Category A (High quality)
- Category B (Moderate quality)
- Category C (Low quality)
- Category U (Unsuitable for retention)
- Hedgerow (Not categorised)

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).

Rev	Description	Drawn	Approved	Date

THE ENVIRONMENT PARTNERSHIP

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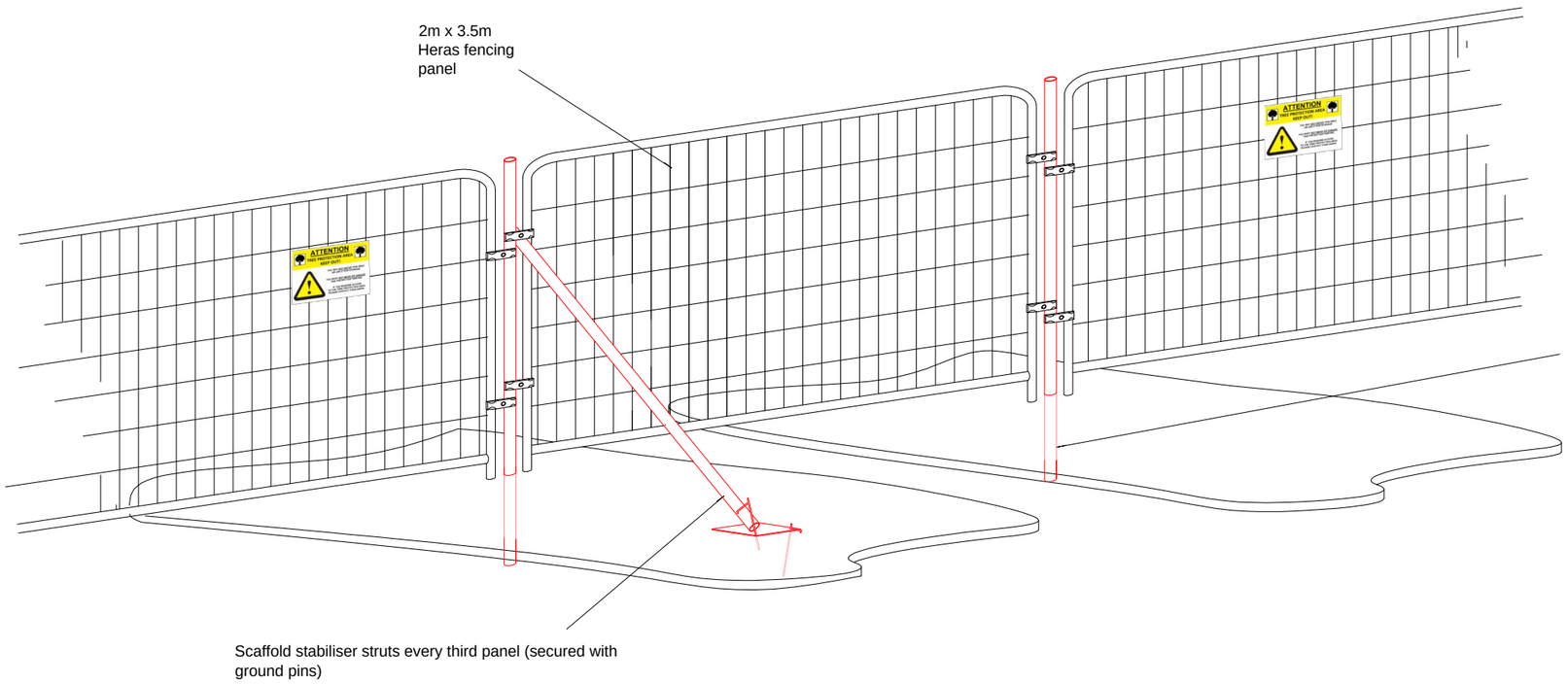
Project
Waddow View, Clitheroe
Arboricultural Impact Assessment

Title
Drawing 2 - Tree Removal and Protection Plan

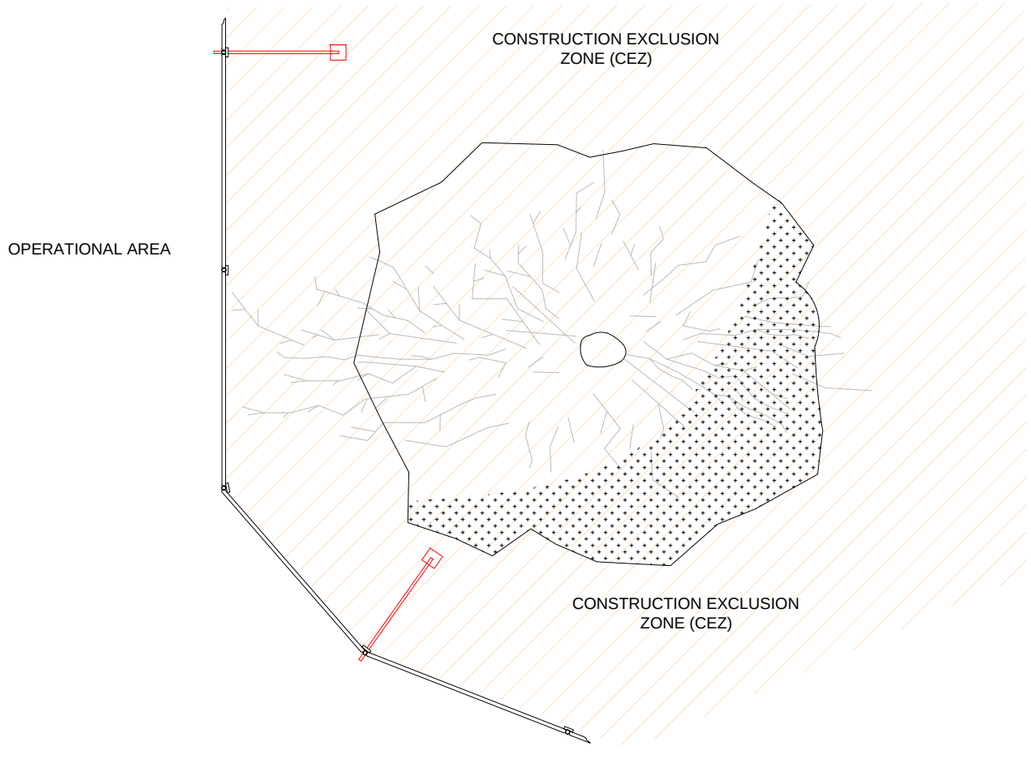
Drawing Number
D6896.102

Drawn	Checked	Approved	Scale	Date
RMG	JGS	JGS	1:2000 @ A3	02/03/2018



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:



Rev	Description	Drawn	Approved	Date

THE ENVIRONMENT PARTNERSHIP

Genesis Centre, Birchwood Science Park, Warrington WA3 7BH
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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

THE ENVIRONMENT PARTNERSHIP

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