

Arboricultural Appraisal

(Incorporating an Arboricultural Impact Assessment and Tree Protection Measures in accordance with BS5837:2012: *trees in relation to design, demolition and construction – Recommendations*)

Project: Chapel Farm, Whitewell, Whitchurch, SY13 3AL

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On Behalf of: Mr G Cartwright

Foreword

Salopian Consultancy Ltd is an Arboricultural/Ecological consultancy which provides inputs to guide developers and architects during the planning process.

Core services include BS5837:2012 tree surveys, condition assessments, mortgage applications and woodland management. In addition, Salopian Consultancy Ltd have in house ecological expertise enabling them to perform a range of Phase 1 and Phase 2 ecological surveys.

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Contents

Executive Summary	1
Section 1: Tree survey	2
Introduction	2
Scope of study	3
Limitations	3
Site location and context of development	3
Overview of tree stock	5
Statutory legislation & planning policy	5
Section 2: Arboricultural Impact Assessment	7
Summary of impacts	7
Tree removal	7
Tree pruning	7
Activities within RPAs	7
Temporary RPA set back	7
Shading and future growth of trees	8
Utilities	8
Storage of materials	8
New tree planting	8
Section 3: Arboricultural Method Statement	9
Schedule of development	9
Program of management (Stages 1-5)	9
Concluding statement	11
Schedule 1	Tree Schedule
Appendices	
Appendix 1	Survey methodology
Appendix 2	Topographical survey
Appendix 3	Statutory controls
Appendix 4	Site layout
Appendix 5	Specification of tree protection barrier fencing
Appendix 6	Ground protection measures
Plans	
Plan 1	Tree Constraints Plan
Plan 2	Tree Protection Plan

Executive summary

Brief of the study and context of development

This report has been prepared to identify the key arboricultural constraints to inform a planning application for 8 caravan pitches at Chapel Farm. The aim of the study has been to highlight those arboricultural constraints so that significant impacts upon trees are avoided or minimised as far as possible whilst identifying opportunities to enhance the tree stock in the long term.

Survey methods

A tree survey was undertaken in accordance with the methodology set out in **BS5837:2012 Trees in relation to design, demolition and construction – Recommendations**. This information has been presented to the design team to act as a tool to ensure consideration has been given to those trees on and immediately off site during the design process.

An Arboricultural Impact Assessment (AIA) has been performed to provide an informed account on how foreseeable direct and indirect impacts associated with development may impact upon the tree stock. Following completion of the AIA, tree protection measures have been prescribed to demonstrate how those trees proposed for retention can be protected during development.

Findings and recommendations

Recent revisions to the proposed site layout have adjusted the position of the internal access route and position of the caravan pitches to avoid the Root Protection Areas (RPA) of all trees and hedgerows on site such that no arboricultural impacts were identified during the AIA.

All of those trees and hedgerows recorded can be protected during construction by means of protective barrier fencing to maintain a Construction Exclusion Zone (CEZ) that fully respects the RPA of each tree surveyed. Such protection measures and provisions for new tree planting could be secured by a suitably worded planning condition.

Section 1: Tree Survey

Introduction

- 1.1 This report, its plans and associated appendices have been prepared on behalf of Mr G Cartwright 'the client', to meet the requirements of **BS5837:2012 Trees in relation to design, demolition and construction - Recommendations**, at Chapel Farm hereafter referred to as 'the site'.
- 1.2 The tree survey was performed between the 22nd of June 2021 by Douglas Williams, Salopian Consultancy Ltd's Principal Arboriculturalist. Doug has over a decade of experience working within the Arboricultural industry and is a professional member of the Arboricultural Association. He holds a MSc in Biological Recording, a BSc (Hons) in Biological Sciences, and the Arboricultural Association's Professional Tree Inspection Certificate.
- 1.3 The tree survey has been undertaken in accordance with the methodology set out in **Section 4.4** of **BS5837:2012** which is summarised in **Appendix 1**.
- 1.4 The data obtained from this survey is presented within the Tree Schedule and depicted in the Tree Constraints Plan (**Plan1**) towards the end of the report. The position of those trees surveyed are derived from topographical data included in **Appendix 2**. Each tree has been allocated a sequential identification number which correlates with the Tree Schedule.
- 1.5 **Plan 1** depicts the theoretical rooting system of each tree using a yellow circle or polygon with the crown spreads of high-grade trees illustrated in green, moderate quality trees shown in blue and low-grade trees in grey. Those trees which have a limited life expectancy due to either a compromised structure or poor physiological condition are shown with red canopy spreads and referred to as 'U grade' trees.
- 1.6 The classification of trees has been undertaken in accordance with **Table 1 Cascade Chart for Tree Quality Assessment** described in **BS5837:2012** to provide a hierarchy system for tree retention based on their condition and contribution to the amenity of the local area.
- 1.7 The theoretical RPA for each tree has been calculated using formulas provided in **Section 4.6** of **BS5837:2012**. Both **Plan 1** and **Plan 2** acknowledge that pre-existing site conditions may prevent tree roots distributing asymmetrically. In such instances RPAs may be modified but not reduced based on arboricultural reasoning.
- 1.8 The findings of the tree survey have been used to highlight initial design implications with the aim of guiding the design process to encourage a harmonious relationship between trees and development.

Scope of the study

- 1.9 The primary focus of the study is to inform the planning process by;
- Meeting the validation requirements of Wrexham County Borough Council by presenting the findings of a tree survey undertaken in accordance with **BS5837:2012**.
 - Present those arboricultural constraints in a clear and concise manner to aid the design process.
 - Perform an assessment of those likely impacts associated with proposed site layout DRG.20_1124_002
 - Detail appropriate tree protection measures and working methodologies to safeguard trees proposed for retention during construction.

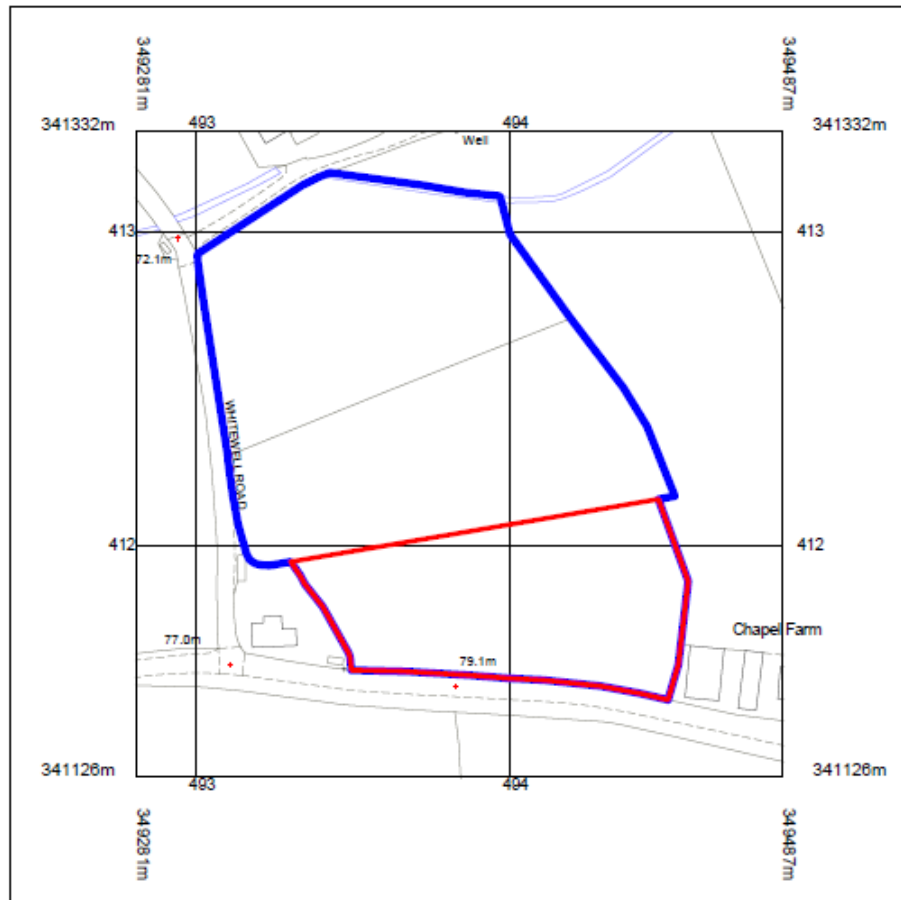
Limitations

- 1.10 This report does not;
- Provide an assessment of the likelihood of subsidence caused by the interactions between water availability, soils and tree roots, at present or in future years. Foundation design should be undertaken in accordance with the guidance available in **National House Building Council (NHBC) publication Building near trees, Chapter 4.2** following a soil assessment by competent personnel.
 - Carry out a detailed structural assessment of each tree surveyed. The absence of recommended tree work in **Schedule 1** does not imply that a tree is safe. Trees are dynamic structures and even those trees in good condition can fail or enter decline under extraordinary physical stress or following infection by pests and disease.
 - The accuracy of the findings of this report are reliant on the information presented in the topographical survey and site layout. Checks of the accuracy of third-party information have not been undertaken.

Site location and context of development

- 1.11 The site is located within a rural setting, situated directly adjacent to Whitewell Lane which abuts the southern aspect of the site and provide existing highway access. Survey area includes three field of improved grassland divided by a series of established hedgerows which contain several mature specimens of Ash. The application area focuses upon the most southern field compartment where planning permission is sought for 8 caravan pitches.

Figure 1 Site location plan provided by Green Planning Studio



Overview of the tree stock

- 1.12 The tree stock is largely dominated by mature specimens of Ash, many of which are impressive in their size and stature. Despite the challenges this species faces at a landscape level with Ash die back (*Hymenoscyphus fraxineus*) the majority of these specimens at present exhibit a good level of vitality, however, should be monitored regularly for any changes/decline in their physiological condition.

Figure 2 Main body of the site



Statutory legislation & planning Policy

- 1.13 Necessary checks prior to all tree works must be undertaken by the appointed tree work contractors to ensure statutory laws are not contravened. In addition to individual protection by virtue of TPOs or Conservation Areas (CA) consideration should also be given to restrictions to tree removal imposed by the Forestry Act (1967) and the potential to support protected species (notably nesting birds and roosting bats) governed by the Wildlife and Countryside Act (1981) and EU Habitats directive, detailed further in **Appendix 3**.
- 1.14 Trees have many social, ecological, and cultural benefits and are gaining more recognition in terms of their economic value through the ecosystem services they provide. Such services include, but are not limited to; shade provision, pollution absorption/interception¹, carbon sequestration/storage and stormwater attenuation reducing the risk of flooding and soil erosion². In addition, numerous studies³ have also shown that there are significant human physiological and physiological benefits associated the presence of mature trees. The demand for properties set within neighbourhoods with matures trees is also reflected by higher average house prices, as is the investment in areas with established green infra structure “environmental attractiveness^{4 5}”.
- 1.15 The importance of trees are recognised in various European and UK legislation such as; EU Habitats directive, Welsh Government Technical Advice Note 5 (TAN5) and the Town and Country Planning Act (1990). These policies refer to trees in respect to conserving and enhancing the natural environment and indirectly in relation to issues such as climate change, biodiversity and biosecurity.
- 1.16 Local planning policies GDP1, EC4, and EC6 give particular weight to the retention and protection of trees as assets that contribute towards biodiversity and landscape value. The default position should be to incorporate trees into any proposed layout with consideration to the direct and indirect impacts associated with development. Where there is tree loss as a consequence of development it should be demonstrated how the wider benefits of the proposal outweighs tree loss prior to determination of a planning application. In such instances appropriate level of compensatory planting is expected to attempt to mitigate tree loss as part of sustainable development.

¹Nowak *et al.* (2006) Air pollution Removal by Urban Trees and Shrubs in the United States. *Urban Forestry and Urban Greening* 4, p115-123

² <http://www.woodlandtrust.org.uk/en/moretrees-moregood/Documents/Trees-flooding.pdf>

³ R.S.Ulrich Health Benefits of Gardens in Hospitals Chalmers University of Technology

⁴ CBE (2005) Does money grow on trees?

<http://webarchive.nationalarchives.gov.uk/20110118095356/http://www.cabe.org.uk/files/does-money-grow-on-trees.pdf>

⁵ Gripaios *et al.* (1997) The Role of Inward Investment in Urban Economic Development: The Cases of Bristol, Cardiff and Plymouth

Section 2: Arboriculture Impact Assessment

Summary of impacts

- 2.1 The Arboricultural Impact Assessment (AIA) is a desk-based study which has been undertaken by superimposing the final site layout (**Appendix 4**) onto **Plan 1**. Development has the potential to cause a number of direct and indirect impacts upon trees that can be detrimental to their health. This section highlights those impacts that the construction process is likely to have upon the tree stock and gives consideration to the likely conflicts that the built form may have with those retained trees in future years.
- 2.2 **Plan 2** depicts those trees which are to be retained with their sequential numbering, full RPAs and crown spreads intact.
- 2.3 Impacts associated with construction activities can in most cases be reduced or completely mitigated for in the first instance through the installation of protective barrier fencing to maintain a stand-off area from trees. This stand-off area is referred to as the Construction Exclusion Zone (CEZ). Where activities within the RPAs of retained trees are necessary, specialised construction methods and working practices will be required to mitigate impacts to an acceptable level as detailed in **Section 3**.

Table 1 Summary of tree removal/impacts

Impacts	A Grade Items	B Grade Items	U/C Grade Items
Trees/Hedgerow loss	N/A	N/A	N/A
Tree pruning	N/A	N/A	N/A
Activities within RPAs	N/A	N/A	N/A
Temporary RPA set back	N/A	N/A	N/A
Conflicts with shading	N/A	N/A	N/A

Tree removal

- 2.4 Review of the proposed site layout has not identified the need to remove any trees to implement the proposal.

Tree pruning

- 2.5 The pruning of canopies of retained trees is not envisaged as part of the proposal however where required should be undertaken in accordance with **BS3998:2010 Tree work. Recommendations** and in line with those statutory controls and permissions outlined in **Appendix 3** by suitably trained and insured Arborists.

Activities within RPAs

- 2.6 No works are anticipated within the RPAs of any trees on or immediately adjacent to the site's boundaries.

Temporary RPA set back

- 2.7 The set back of protective barrier fencing is not anticipated. In the event that RPA set back is required within areas where hard standing is not present to provide access, ground protection measures must be installed in accordance with **Appendix 6** to avoid damage to tree roots.

Shading and future growth of trees

- 2.8 All of those proposed caravan pitches fall outside of the shade arc of those trees surveyed such that impacts associated with shading are not envisaged.

Utilities

- 2.9 It is anticipated that underground and overhead services can be located outside the RPA and canopies of retained trees. Where unavoidable, allowances are made for the use of hand dig methodologies or trenchless insertion methods so that roots can be retained, and desiccation avoided as permitted in **Section 7.1** and **7.7** of **BS5837:2012**

Storage of materials

- 2.10 Space for the storage of materials and vehicles during site preparation and construction is plentiful within the site. It is envisaged however that the delivery of materials and removal of arisings, will be managed via a phased programme particularly for ground works to make best use of the space available.

New tree planting

- 2.11 New tree planting should meet the requirements of **BS8545: 2014 Trees: from nursery to independence in the landscape. Recommendations** with specific reference to the procurement of new trees, species selection, aftercare, and maintenance.
- 2.12 The proposed site layout demonstrates that a significant portion of new tree and hedgerow planting has been incorporated into the design. It is envisaged that a diverse mix of broadleaved species would provide a robust future tree population resilient to pests and disease. A key consideration of any future tree planting scheme will be the planting of species in areas where they can achieve their full potential and expected stature without outgrowing their environment. Planting trees in close proximity to structures and existing trees or in high densities often results in tall, etiolated standards or stunted growth forms, both of which should be avoided.

Section 3: Arboricultural Method Statement

Schedule of development

- 3.1 The AMS details specific solutions to those impacts raised in **Section 2** in order to negate those potential impacts upon those trees proposed for retention. An outline program of management and an auditable process has been prepared to demonstrate that those tree protection measures proposed are capable of providing sufficient protection for trees pre, during and post development.
- 3.2 Such a program of activities is advised under the guidance of an experienced Arboricultural Clerk of Works (ACW) to ensure that the content of this method statement is understood and implemented effectively.
- 3.3 Direct supervision by the ACW is advised at pre-determined phases to assist with the development process and ensure correct implementation of tree-protection measures. A copy of this reports plans, and appendices will be available on site throughout the duration of construction.

Stage 1: Pre-commencement meeting

- 3.4 An appropriately experienced ACW will be appointed at the cost of the developer to ensure tree-protection measures are understood and enforced which could be secured using a suitably-worded planning condition. A pre-commencement meeting will be held before the commencement of works, normally attended by the ACW, the site manager and a Local Planning Authority (LPA) representative.
- 3.5 The sequence of construction and implementation of tree-protection measures will be discussed to identify any changes or difficulties that may arise from the onset. The extent of the CEZ will be marked out during this meeting and an inspection regime will be agreed upon by all parties.

Stage 2: Pre commencement tree works and Installation of tree protection measures

- 3.6 Construction activities have the potential to cause long-term detriment to trees. It is therefore essential that appropriate tree-protection measures are installed and maintained throughout the duration of construction to prevent avoidable impacts upon trees. The position of these measures will be confirmed by an appointed ACW prior to the implementation of construction activities.
- 3.7 The majority of a trees rooting system is located within the upper 50cm of the soil horizon. This layer provides the optimal level of organic material, water, enabling tree roots to respire, grow, repair and drive photosynthesis. Compaction or disturbance of this layer can have a serious effect on a trees ability to perform these functions. Root severance must be avoided at all costs to prevent undermining a tree's stability in addition to causing physiological stress.
- 3.8 To ensure adequate protection is afforded to the root system, stem, and canopy of retained trees, the extent of the RPA will be enclosed using a protective barrier fencing as illustrated in

Appendix 4. Plan 2 depicts the position of protective barrier fencing as a solid pink line and should be checked against the RPA measurements provided in the Tree Schedule. Once installed the ACW will inform the LPA that protective barrier fencing is in place and fit for purpose to allow works to commence.

- 3.9 The area within the line of protective barrier fencing is referred to as the CEZ, illustrated as an grey transparent area in **Plan 2**. This area will be treated as sacrosanct and will not be entered during construction. Once installed, protective barrier fencing must not be removed or altered without the prior approval of the ACW and LPA.
- 3.10 Access to the site will be restricted to the existing vehicular access from Whitewell Lane to the south. Parking of vehicles, plant and storage of materials will be located within a designated compound, 2m from the RPA of any tree.
- 3.11 Lighting of fires or mixing of materials will not be permitted within 2m of the CEZ. No mixing of materials will take place uphill from the CEZ to prevent leakage into these areas. In the event of spillage, all works will halt and the ACW will be contacted for advice. All plant and machinery will be fitted with spill kits and water will be available to flush spilt material to avoid contamination of the rooting environments.
- 3.12 Biosecurity control measures shall be implemented to avoid transportation of pest or disease to and from the site in line the **Arboricultural Associations Guidance Note 2 Application for Biosecurity**. This broadly involves cleaning machinery, uniform, PPE and vehicles using a disinfectant to minimise transportation of soil, water and plant materials from the works site.
- 3.13 Cases of ill health in trees must be brought to the attention of the ACW. The presence of a pest or disease will then be reported using the Forestry Commission Tree Pest and Pathogen sighting reporter (Tree Alert) <https://treealert.forestry.gov.uk>.
- 3.14 New tree planting must be undertaken in line with those provisions detailed in **Section 10 of BS8545: 2014 Trees: from nursery to independence in the landscape. Recommendations**; to ensure success. Key considerations are outlined in **Section 11** of this guidance, notably the application of mulch and irrigation during post-planting management and maintenance. The benefits of using organic mulches have been well documented in improving the soil environment for newly planted trees. These benefits include, but are not limited to; weed suppression, nutritional enrichment, regulating pH, moisture and temperature fluctuations, suppression of pathogens (*Phytophthora* & *Armillaria sp*⁶) and mitigating compaction of soils. To provide such benefits, an organic mulch applied to a radius 0.3m is advised for young trees at a depth of 50mm – 100mm. Care must be taken to avoid placing mulch directly against the buttress of the tree.

⁶Percival G. Controlling tree diseases: thinking outside the box. Arboricultural Association The Arb Magazine 42 -45.
<https://www.bartletttree.co.uk/resources/Controlling-Tree-Diseases-Thinking-Outside-the-Box.pdf>

- 3.15 The use of Treegator is advised as a slow release system to allow gradual irrigation avoiding the wilting point of trees or conversely waterlogging by over watering. This product is easy to install and requires minimal maintenance with refilling required every 5-7 days during dry periods. The use of this product is advised over the first two growing seasons of newly planted trees.
- 3.16 Particular care should be taken to source new tree and plant material from UK nurseries which are free of pests and disease and have been grown in the UK for at least 12 months. Information of the origin of plants shall be requested by the contractor from the nursery during the procurement of trees.

Stage 3 Works to be performed under supervision by ACW.

- 3.17 The need to undertake construction activities within the RPA of retained trees has not been identified or deemed necessary. Should this position change direct supervision by the appointed ACW is required, who will be given a minimum of two weeks' notice prior to such works to liaise with Wrexham County Borough Council.

Stage 4 Monitoring of tree protection measures

- 3.18 The ACW will undertake predetermined site visits agreed during the pre-commencement meeting, to ensure tree protection measures remain intact and fit for purpose. In the event that conflicts arise between trees and construction activities, it is the responsibility of the site manager to contact the ACW to seek advice on alternative working methods.

Stage 5 Removal of tree-protection measures

- 3.19 Following completion of works, tree protection measures can be dismantled and removed from site. A post-construction tree survey undertaken by the project ACW is advised to highlight any remedial tree work required prior to occupation of the site.

Concluding statement

- 3.20 Provided that the tree protection measures and working methodologies detailed in the AMS are adhered to, no adverse effects upon trees proposed for retention or conflict with construction activities are envisaged. Such protection measures and provisions for new planting could be secured by a suitable-worded planning condition.
- 3.21 The tree survey and arboricultural appraisal is valid for two years; it is recommended that a biennial survey of the tree stock is undertaken as part of proactive management of those trees on site to help maintain a healthy and safe tree population.
- 3.22 In the event that the development proposals alter significantly, an updated impact assessment must be undertaken to identify the likely impacts upon the tree stock and amendments made to the AMS accordingly.

Tree Schedule

Site Land adjacent to Chapel Farm
 Client Mr Cartwright
 Surveyor D.Williams
 Survey date 22/06/2021
 Climatic conditions Overcast

			Tree Constraints Information												
Tree Reference No.	Species	Stem Diameter (mm) at 1.5m	Category Grade	Radius of RPA (m)	Area of RPA (m2)	Height (m)	Canopy Spread (m)				Life Stage	Physiological Condition	Structural Condition	Proposed Tree Works	Priority Code
							N	E	S	W					
H1	Blackthorn, Hazel, Hawthorn & Elder	75	B1	0.9	2.5	3	N/A	N/A	N/A	N/A	Mature	Good	Field boundary hedgerow, provides screening to and from the site.	N/A	N/A
H2	Blackthorn, Hazel, Hawthorn & Elder	75	B1	0.9	2.5	4	N/A	N/A	N/A	N/A	Mature	Good	Field boundary hedgerow, provides screening to and from the site.	N/A	N/A
T3	Ash	975	C1	11.7	430.1	16	7	5	9	7	Over Mature	Fair	Set within hedgerow dense undergrowth around base of the stem. <i>Ganoderma applanatum</i> bracket noted upon the eastern buttress, with signs of ground disturbance/spoil close to the root flare. <i>Daldinia concentrica</i> fruiting bodies on the eastern stem at 5-6m, eastern primary limb dying back between 10m and 15m.	Negate any further compaction by avoiding parking beneath the canopy, particularly to the east. Removed deadwood. Monitor effect of <i>Ganoderma</i> , likely to required stage removal over the long term	3
H4	Blackthorn, Hazel, Hawthorn & Elder	75	B1	0.9	2.5	2	N/A	N/A	N/A	N/A	Mature	Good	Field boundary hedgerow provides screening to and from the site.	N/A	N/A
T5	Ash	950	B1	11.4	408.3	18	8	8	6.5	7	Over Mature	Good	Set within hedgerow large wound on main stem between 1.5m and 2m south from recent tree pruning operations. Displaying good vitality at present with no signs of ash die back to note	Monitor for ash die back	3
T6	Ash	1210	B1	14.5	662.4	28	7	10	9	9	Over Mature	Fair	Large wound at 3.5m from recent tree pruning operations. Bark proliferation on underside of primary limb at 3.5m west. Major dead wood 12m and 14m south. Canopy is notably sparser than its counterparts, no visible signs of fungal pathogens noted or other cause of physiological stress.	Re survey in the autumn months (2021) for fungal pathogens.	1
G7	Apple	350	B1	4.2	55.4	5	N/A	N/A	N/A	N/A	Mature	Good	Off site tree group dimension estimated, plotted by hand.	N/A	N/A
H8	Hazel & Hawthorn	75	B1	0.9	2.5	1.5	N/A	N/A	N/A	N/A	Mature	Good	Well maintained field hedgerow.	N/A	N/A
T9	Ash	1070	B1	12.8	518.0	15	8.5	10	7	7	Mature	Good	Road traverses the RPA to the west. Secondary limb torn at 5m west little clearance above the	Crown raise and remove deadwood	3

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Tree Reference No.	Species	Stem Diameter (mm) at 1.5m	Category Grade	Radius of RPA (m)	Area of RPA (m2)	Height (m)	Canopy Spread (m)				Life Stage	Physiological Condition	Structural Condition	Proposed Tree Works	Priority Code
							N	E	S	W					
													carriageway. Large historic tear out wound on main stem at 5m south west. Moderate deadwood (100 -150mm) hung up within the canopy at 5m north east. Dense canopy. Growth form of lower primary limbs suggest historic pruning by virtue of suggests kinds/division of limbs.		
H10	Blackthorn, Hazel, Hawthorn & Elder	75	B1	0.9	2.5	2	N/A	N/A	N/A	N/A	Mature	Fair	Field boundary hedgerow, no comment.	N/A	N/A
T11	Ash	950	B1	11.4	408.3	24	8	4	10	8	Mature	Fair	Set within hedgerow, dense undergrowth and ivy inhibits inspection. Dimensions estimated. Western secondary limb historically pruned at 4m west. Large torn limb at 12m east wood pecker hole noted above branch junction.	Monitor for ash die back	3
T12	Ash	900	B1	10.8	366.5	18	5.5	6	7	5	Mature	Good	No significant faults recorded.	Monitor for ash die back	3
T13	Alder	650	B1	7.8	191.2	16	4	4	5	4	Mature	Fair	Set in hedgerow dimensions estimated. No significant faults recorded.	N/A	N/A
G14	Alder and Oak	800	A1	9.6	289.6	18	N/A	N/A	N/A	N/A	Mature	Good	Off site tree group dimension estimated, plotted by hand. Ivy on main stems, some member set on the other side of the brook.	N/A	N/A
H15	Blackthorn	75	B1	0.9	2.5	2	N/A	N/A	N/A	N/A	Mature	Good	Field hedgerow, failed at 2m.	N/A	N/A
H16	Blackthorn & Hazel	75	B1	0.9	2.5	1.5	N/A	N/A	N/A	N/A	Mature	Good	Field hedgerow, failed at 1.5m.	N/A	N/A
T17	Ash	900	C1	10.8	366.5	16	5	7	5.5	4.5	Mature	Fair	Prolific ivy hinders inspection dimensions, estimated ditch to east. <i>Ceriporus squamosus</i> fruiting body on main stem 2m west growing through ivy. Small (7cmx7cm) <i>Inonotus hispidus</i>	None within the current context of the site. Monitor for ash die back	3

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Client Mr Cartwright
Surveyor D.Williams
Survey date 22/06/2021
Climatic conditions Overcast

			Tree Constraints Information												
Tree Reference No.	Species	Stem Diameter (mm) at 1.5m	Category Grade	Radius of RPA (m)	Area of RPA (m2)	Height (m)	Canopy Spread (m)				Life Stage	Physiological Condition	Structural Condition	Proposed Tree Works	Priority Code
							N	E	S	W					
													bracket a 10m south on eastern primary limb minor deadwood at extremities of this limb		
H18	Blackthorn	75	C1	0.9	2.5	1.5	N/A	N/A	N/A	N/A	Mature	Fair	Defunct in sections.	N/A	N/A

Appendix 1: Summary of BS5837:2012 survey methodology

The methodology adopted for this survey is based on guidelines set out in **BS5837:2012 Trees in Relation to Design, Demolition and Construction Recommendations**, especially **Section 4.4**, 'Tree Survey'.

The tree survey includes all trees and other significant vegetation with a stem diameter of >75mm at 1.5m within the site, in addition to those located beyond the boundaries within a distance of 12 times their stem diameter. The position of each item is represented in **Plan 1**, are derived from the topographical data included in **Appendix 2**. Those items not recorded on the topographical survey have been annotated by hand and marked using the symbol '*'.

All trees have been visually inspected from ground level, with no climbing or further detailed investigative tests undertaken. All measurements detailed in the Tree Schedule are metric and have been recorded in accordance with **Section 4.4.2.5 of BS5837:2012** summarised below. Where access to trees has been restricted, either as a result of vegetation, ground conditions or third party land ownership, dimensions have been estimated and highlighted using symbol '#' in **Schedule 1**.

Any recommendations given regarding longer-term management have been made on the basis of optimising the life expectancy of trees, given their current situation and any effects, which may arise as the results of the development proposal.

Sequential reference number

All numbering of surveyed items is sequential with the respective prefix 'T' for trees 'G' for groups of trees, 'H' for hedgerows and 'W' for woodland.

Species

Common English names are used wherever possible for simplicity.

Stem diameter (DBH)

This is the measurement of the stem diameter in millimetres taken at 1.5m above ground level in accordance with **Annex C of BS5837:2012**.

Category Grading

Trees have been assigned 'U' or category grading 'A' to 'C' in accordance with the Cascade Chart given in **BS5837:2012** reproduced overleaf.

RPA radius & RPA Area (m²)

Both values been calculated using the methodology set out in **Section 4.6 and Annexes C & D of BS5837:2012**. Where pre-existing site conditions may indicate that the rooting system is not asymmetric, the RPAs may be modified in **Plans 1 and 2** but the area not reduced based on arboricultural reasoning. Such instances include the physical obstruction to root development or inhospitable rooting environments.

Height

An approximation of height in metres is provided for the highest point of each tree.

Canopy spread

This is taken at four cardinal points, to provide a representative account of the canopy spread.

Life stage

There are six classes to which trees are assigned:

Table A.1: Definition of ages classes

Age class	Description
Young	Newly planted within 0-10 years
Semi mature	A tree in the first third of its normal life expectancy for the species (significant potential for future growth).
Early mature	A tree in the second third of its normal life expectancy for the species (some potential for future growth).
Mature	A tree in the latter third of its normal life expectancy for the species (typically having reached its ultimate size).
Over mature	Beyond the normal life expectancy for the species.
Veteran	A tree that is of interest biologically, aesthetically or culturally because of its condition size and/or age.

Physiological condition

The trees physiological condition is classified as good, fair, poor or dead on the basis of leaf or bud density, taking note of signs of physiological stress.

Structural condition

Details of the trees structural condition are provided identifying structural defects and or signs of decay, pest and pathogens where present.

Proposed tree works

Whilst a formal tree inspection has not been undertaken the survey process does take into consideration implications for damage or injury to persons and/or property; recording defects and assessing the structural condition of those trees surveyed. Where necessary, tree works have been proposed within the tree schedule to mitigate potential hazards as part of proactive management of the tree stock with the aim of optimising the life expectancy of those trees surveyed.

Tree work priority codes

Priority codes from 1 to 3 have been given for those trees requiring tree works detailed in **Table A.2** below. The definition and level of urgency have been determined based on the perceived likelihood of failure and hazards posed to potential or actual targets.

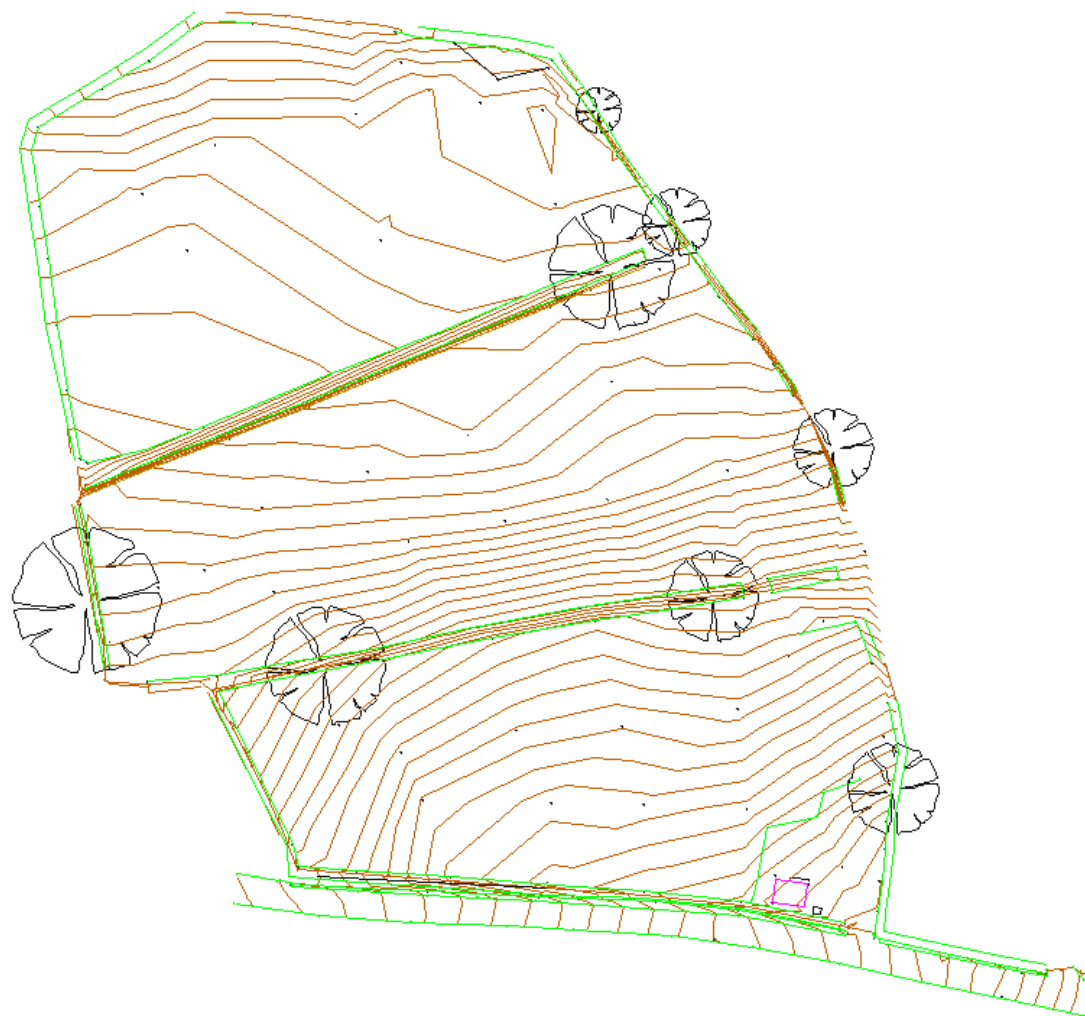
Table A.2: Tree works priority codes

Priority Code	Description
Priority Code 1	An identified hazard considered to pose an imminent or serious risk to person or property in the context of the current land use. Works must be undertaken at the earliest possible opportunity.
Priority Code 2	Works considered necessary to mitigate a perceived hazard from an observed and recorded defect. These tree works should be undertaken prior to any development works commencing on site.
Priority Code 3	Considered to be general maintenance works which should commence post development but prior to residential occupancy.

Table A.3: Summary of Cascade Chart for tree quality assessment

Category and definition	Criteria
Category U	Those trees in such a condition that they cannot be realistically retained as a living tree in the context of the current land use for longer than 10 years. If they cannot be safely retained as an ecological receptor following proposed remedial works, these trees should be removed for arboricultural reasons followed by appropriate replacement planting.
Category A (High quality of value)	Trees with an estimated life expectancy of at least 40 years. These trees may be of particular good example of their species or contribute an important visual landscape feature or provide significant historical/conservation value.
Category B (Moderate quality and value)	Trees with an estimated life expectancy of at least 20 years. These are trees that may be included within category A, but are downgraded due to the presence of significant but remedial defect. May also include trees present in such numbers that they form a distinctive landscape feature i.e. woodland, or tree of a material conservation/cultural value.
Category C (Low quality and value)	Trees with an estimated life expectancy of at least 10 years. Generally regarded as an unremarkable specimen of its species, or of such an impaired condition that they do not qualify for higher categories providing little landscape/conservation or cultural value.

Appendix 2: Topographical survey



Appendix 3: Statutory Controls

Tree Preservation Orders & Conservation Area

Written consent must be obtained from the local planning (LPA) authority prior to any works upon a tree subject of a Tree Preservation Order unless the tree is;

- Dead or dangerous
- Works are in line with an obligation under an Act of Parliament
- Permission has been granted through a Planning application

A six week notice to the LPA is required under Section 211 of the Town and Country Planning Act (1990) for any tree works within a Conservation area.

It is a criminal offence to cut down, uproot, wilfully destroy or deliberately damage a tree subject of a Tree Preservation Order. Under Section 210(2) of the Town and Country Planning Act (1990) anyone found guilty of the actions above are liable of a fine of up to £20,000 if convicted by a magistrates' court. In serious cases a person may be committed for trial in the Crown Court which will also consider any financial benefits which has or is likely to result from such an offence. In addition there is also a duty requiring landowners to replace a tree removed, uprooted or destroyed in contravention of a Tree Preservation Order.

Forestry Act 1967

A felling licence is required wherever an excess of 5 cubic metres of timber is felled per calendar quarter. Exceptions to the Forestry Act (1967) include felling trees which when measured at 1.3m above ground that have a stem diameter of 8cm or below. Other exceptions include thinning of woodland trees with a stem diameter of 10cm or below and coppicing of trees with a diameter of 15cm or below.

Exceptions are also afforded to work carried out by statutory undertakers; removal of dangerous and dead trees, prevention of abatement of a nuisance and to prevent the spread of quarantined pests or disease in response to a notice served by a Forestry Commission Plant Health Officer.

Where full planning permission is authorised, both statutory obligations above are no longer applicable, transcended by the Town and Countryside Planning act (1990), which permits tree removal for the purpose of development.

The Occupiers Liability Act 1957/1984

Land owners have a duty of care to ensure they have taken practice steps to ensure those trees within the curtilage of their property are reasonably safe for permitted visitors.

Highway Act 1980

The highway authority have the ability to issue a land owner a 14 days notice to carry out works upon tree or hedgerow that overhang a highway road or footpath which the public has access to as to endanger or obstruct the passage/sight lines of vehicles or pedestrians.

Protected species

All species of British bat are listed as a European Protected Species (EPS) on Schedule 2 of The Conservation of Habitats and Species Regulation (2017) which transpose the Habitats Directive making it an offence to:

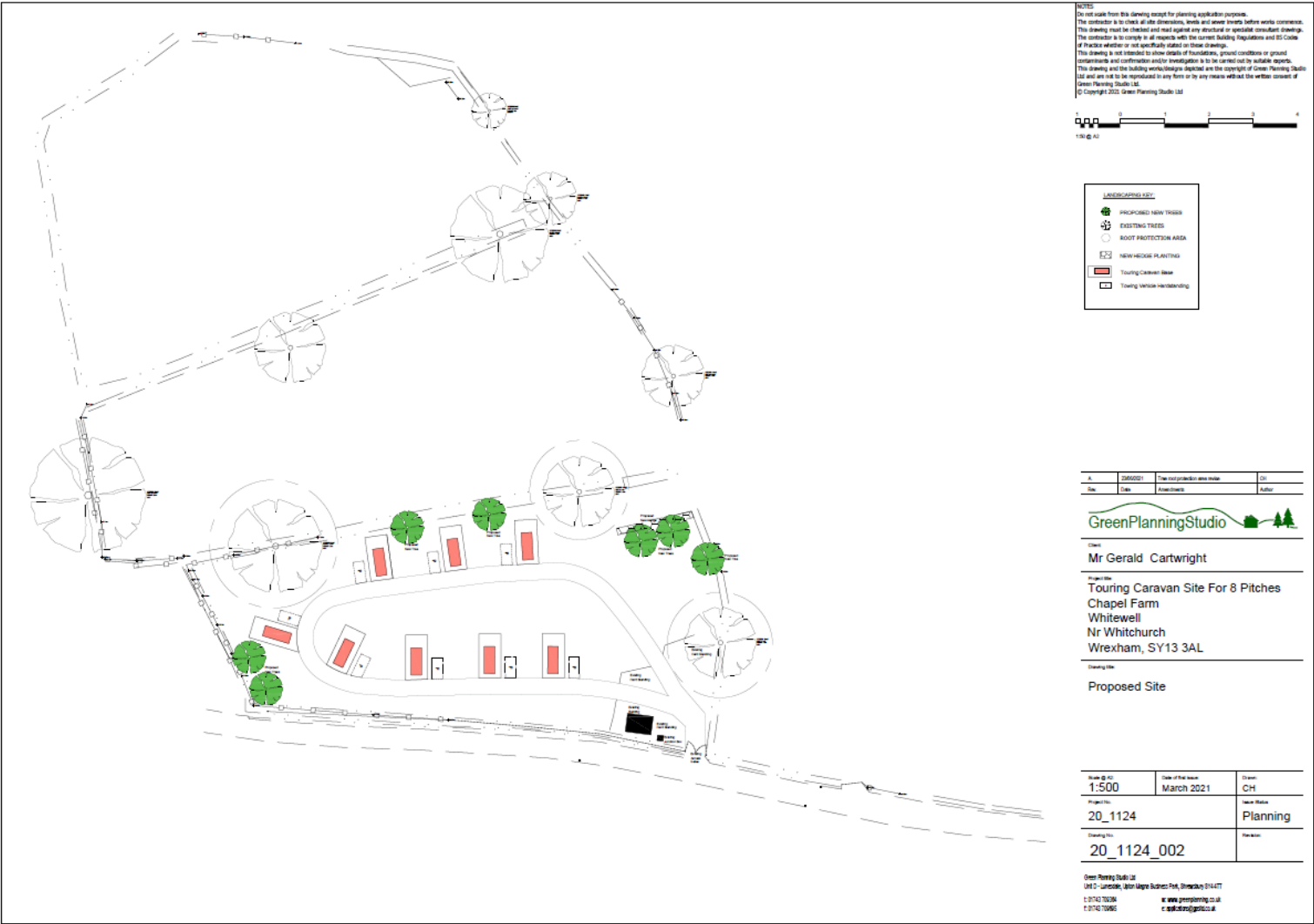
- *Deliberately capture, injure or kill a wild animal of a EPS;*
- *Deliberately disturb wild animals of a EPS wherever they are occurring, particularly any disturbance which is likely to impair their ability to survive, to breed or reproduce, or in the case of hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong;*
- *Deliberately take or destroy the eggs of a wild animal of a EPS; or*
- *Damage or destroy a breeding site or resting place of a wild animal of a EPS.*

Additional protection for bats is also afforded under the Wildlife and Countryside Act 1981 (as amended), making it an offence to intentionally or recklessly disturb bats whilst they are occupying a structure or place which is used for shelter or protection, or to obstruct access to this structure or place.

All wild birds, their nests and eggs are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended), this makes it an offence to:

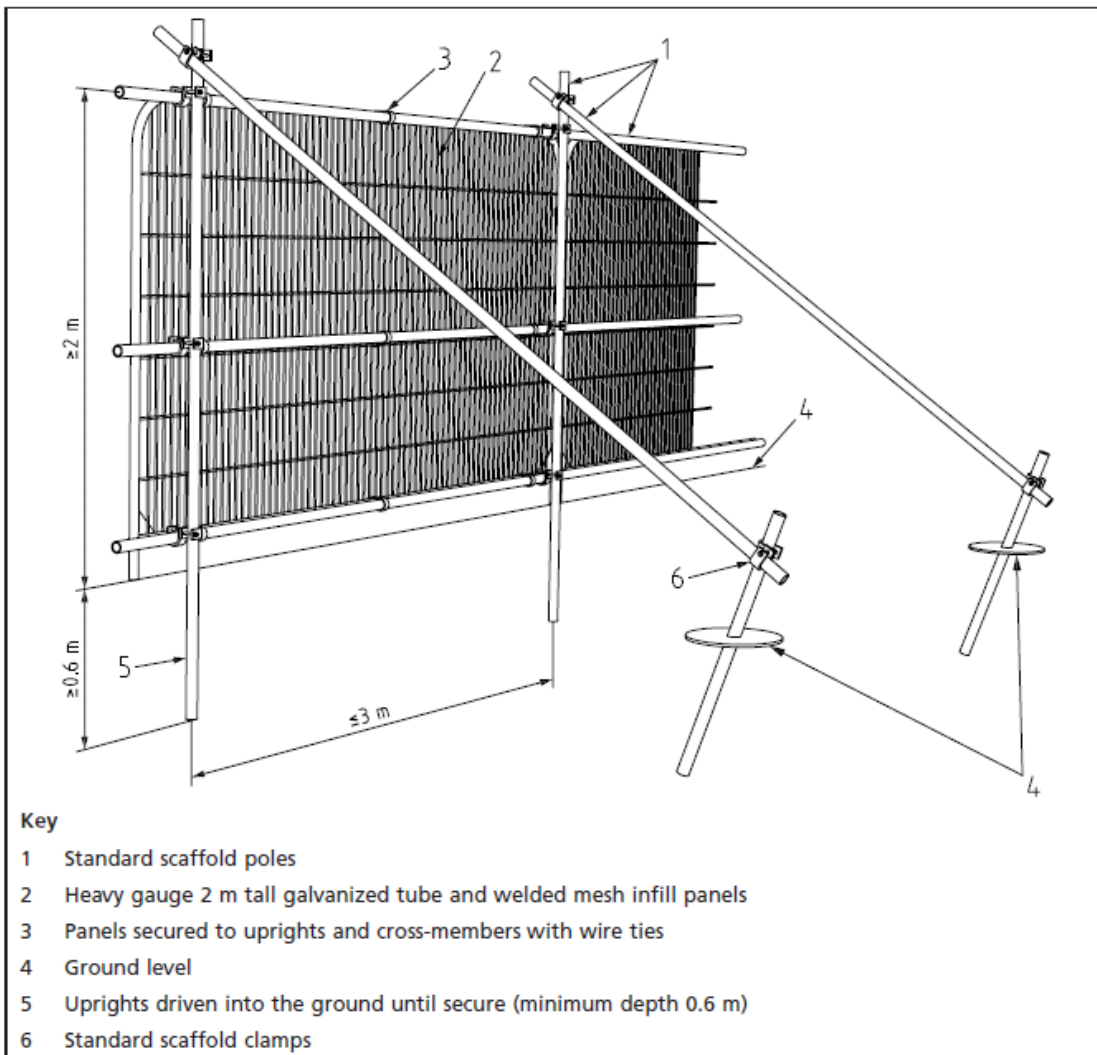
- *Intentionally kill, injure or take any wild bird;*
- *Take, damage or destroy the nest of any wild bird while it is in use or being built;*
- *Take, damage or destroy the egg of any wild bird; or*
- *To have in one's possession, or control, any wild bird (dead or alive) or egg or any part of a wild bird or egg.*

Appendix 4: Site Layout

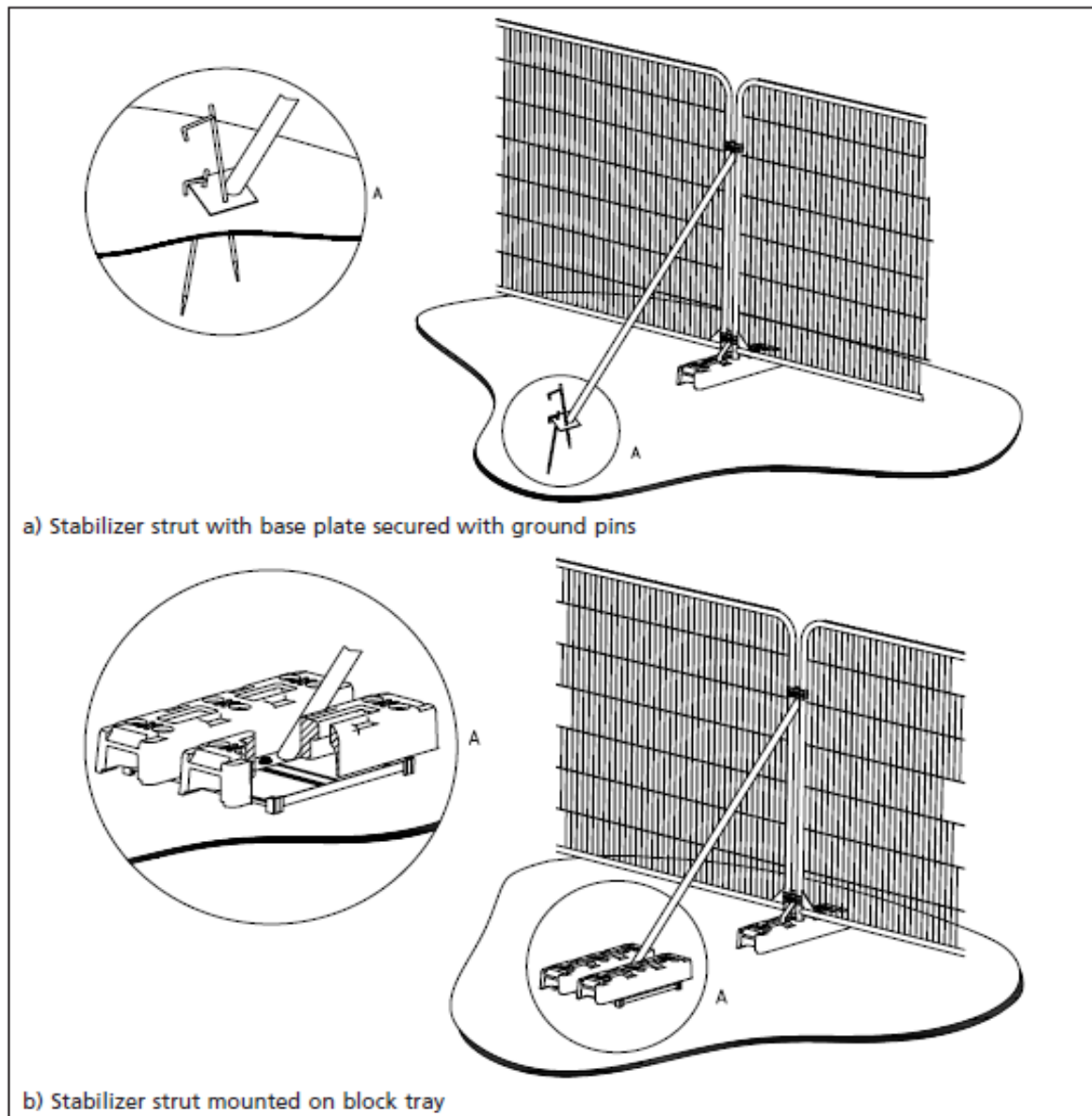


Appendix 5: Specification of protective barrier fencing

(Extract from BS 5837:2012, Figure 2)



Alternative options available for securing protective barrier fencing (Extract from BS 5837:2012, Figure 3)



Appendix 6: Specification of ground protection measures

(Extract from BS5837:2012)

6.2.3.2 Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.

6.2.3.3 New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

- a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;*
- b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;*
- c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*

6.2.3.4 The locations of and design for temporary ground protection should be shown on the tree protection plan and detailed within the arboricultural method statement (see 6.1).

6.2.3.5 In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

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Plan 1: Tree Constraints Plan

SCALE :

1 : 1250

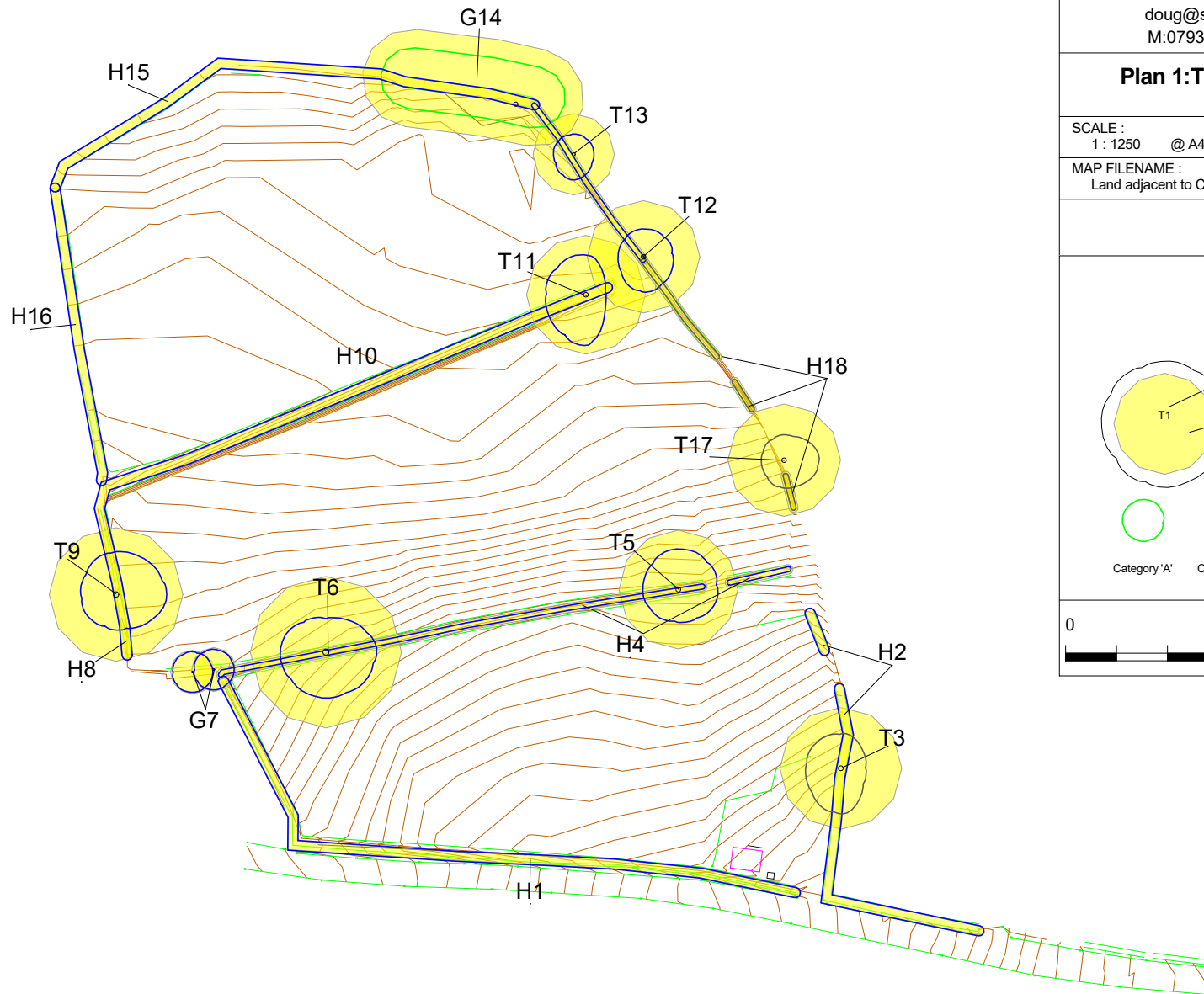
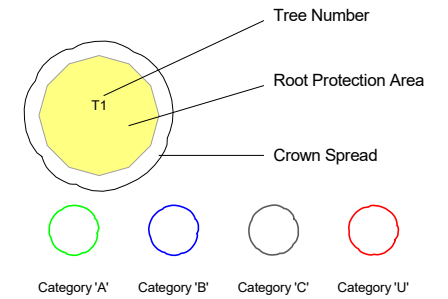
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DATE :

29/06/2021

MAP FILENAME :

Land adjacent to Chapel Farm



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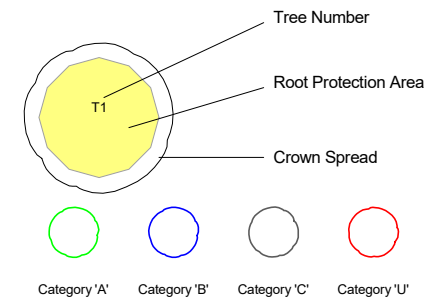
doug@salopianconsultancy.co.uk
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Plan 2: Tree Protection Plan

SCALE :
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DATE :
29/06/2021

MAP FILENAME :
Land adjacent to Chapel Farm



Tree Protection Measures

- Construction Exclusion Zone
- Protective Barrier Fencing

