



Elite Ecology

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Cheshire Cheese, Penley



BS5837:2012 Tree Survey and Arboricultural Impact Assessment

April 2021



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BS5837:2012 Tree Survey and Arboricultural Impact Assessment

Document Control			
Document Properties			
Organisation	Elite Ecology		
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Title	Cheshire Cheese, Penley BS5837:2012 Tree Survey and Arboricultural Impact Assessment		
Version History			
Date	Version	Status	Description/Changes
28/04/2021	V1	First Draft	Initial Draft
29/04/2021	V1	Final Report	Proof Read

0. Executive Summary

- 0.1** This report has been prepared at the request of Mr. Roy Evison (Proprietor). Elite Ecology were commissioned to undertake a BS5837:2012 Tree Survey and Arboriculture Impact Assessment at the site located at Cheshire Cheese, Overton Road, Penley, Wrexham, LL13-0DA (Central OS Grid Reference: SJ 40426 40164). This survey effort involved both a desktop study and field survey being undertaken.
- 0.2** The survey records all trees within the site and any that may be impacted by the development proposals within or outside of the site boundary. The survey records a number of parameters including, species, crown/ canopy spread and root protection areas (RPA).
- 0.3** Throughout this report “RPA” is used to refer to “root protection area”. The RPA of any given tree is the area of ground around that tree which should not be disturbed by excavation, compaction, changes in level and/or any other construction/ demolition processes. The extent of the RPA is calculated in accordance with the BS5837 (2012) guidelines and is an important part of the methodologies described in this report.
- 0.4** In total the survey recorded 6 individual trees and 3 groups of trees. These were a mixture of native and non-native broadleaf and coniferous specimens. The age class ranges from **semi-mature** to **mature** and the general overall condition was thought to be **good**.
- 0.5** This report details the arboricultural impacts and offers a range of protection measures that should be put in place prior to any works being started as well as construction methodologies that should be adopted. These measures will prevent accidental damage and other adverse effects on retained trees.

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1. Introduction

1.1 Report rationale

This report has been prepared at the request of Mr. Roy Evison (Proprietor). Elite Ecology were commissioned to undertake a BS5837:2012 Tree Survey and Arboriculture Impact Assessment at the site located at Cheshire Cheese, Overton Road, Penley, Wrexham, LL13-0DA (Central OS Grid Reference: SJ 40426 40164). This survey effort involved both a desktop study and field survey being undertaken.

Elite Ecology is a multi-disciplinary ecological and arboricultural consultancy practice which operates nationwide for its clients on a multitude of ecological and arboricultural projects since 2015. The author of this document Mr. David Whitehead is a time served climbing arborist and arboriculturist with twenty years of experience within the arboricultural industry, and is currently qualified to QCF level 4, HNC Arboriculture, and is further studying towards QCF level 5, FdSc Arboriculture. The overseer of this document, Mr. Richard Millington, is a Senior Ecologist, and is currently qualified to QCF level 6, BSc (Hons) in Ecology and Conservation Management.

1.2 Purpose

This report was carried out in accordance with BS5837 (2012) "*Trees in relation to design, demolition and construction*". The purpose of this report is to provide an analysis of the impact that the development proposals will incur on the trees and local amenity, and, the potential impacts of the trees on the proposals.

The report provides professional advice and recommendations in order to ease any conflicts and to help devise a suitable proposal that considers the tree population at the site.

1.3 Site description

The site is situated on agricultural land just off the A539 to the South, and to the East of the Cheshire Cheese property. Several individual scattered trees and 3 groups of trees are present throughout the proposal area. A brook runs through the site from north to south along which exists many Alder trees. A poplar plantation exists to the south of the site, and a mature Oak adjacent to an already existing track way.

1.3.1 Root Barriers

No significant root barriers were observed.

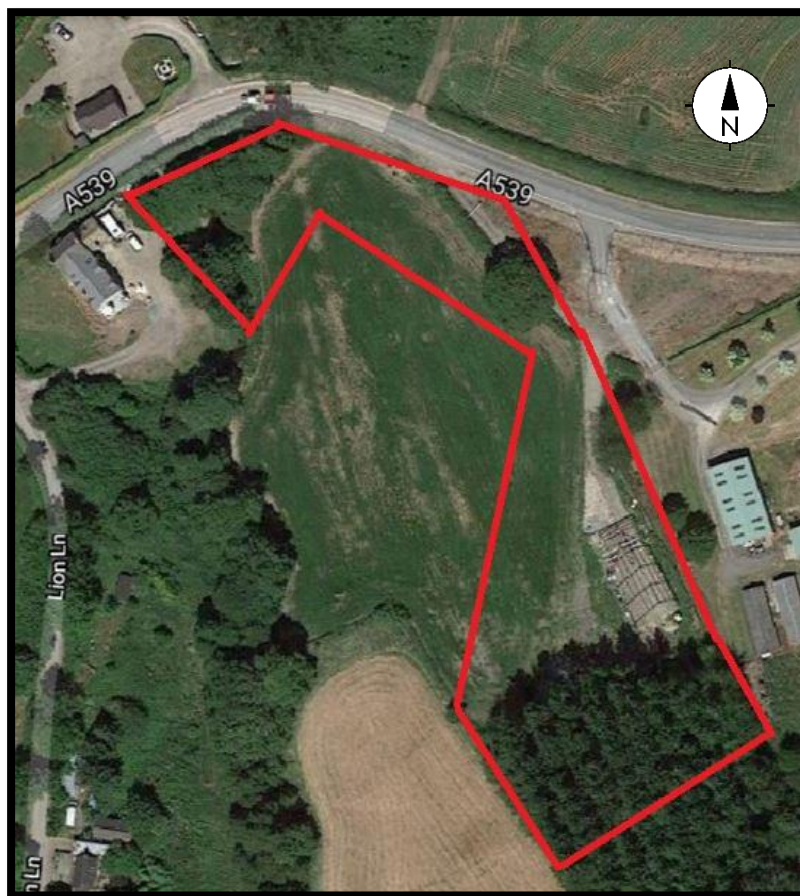
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1.3.2 Soils

A search of the Landis.org.uk national soils database describes the soil in this area as slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils. The soil here is has the potential to be of a shrinkable nature. The potential of root systems to exasperate seasonal climatic conditions via there water uptake, and the consequent effect that this can have on soil volume that can affect foundations and cause movement should be considered when designing foundations and expert advice regarding this should be sought from a qualified and competent structural engineer.

No in-depth soil analysis was undertaken, and no samples were taken or studied.

Figure 1: An aerial image showing the location and survey area at Cheshire Cheese, Penley.



1.4 Current Proposals

Under the current proposals, a new vehicular access bridge is proposed to be constructed at the site. These works have the potential to cause both temporary and permanent impacts upon the habitats on site.

2. Survey Methodology

The pre-development survey and assessment of the trees on site was undertaken in accordance with the British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' (BS5837:2012).

These assessments were made from ground level only and is based on a visual inspection of the trees within the area. No invasive investigations, no tissue samples and no soil samples were gathered from this survey effort. This survey aimed to examine external features of the trees. Any growing conditions were noted down, with any obvious signs of physical and/or structure defects are recorded (this includes deadwood, die-back or any signs of decay).

In accordance with the aforementioned recommendations, the tree survey included all specimens that are within the site boundary with a diameter at breast height (DBH) of 75mm or above.

This DBH is then used to calculate the Root Protection Area (RPA) of the specimens on site. The RPA represents the minimum area around each tree that must be left undisturbed to ensure their survival. The majority of the tree roots are found in the top 600mm of soil, with most of the nutrient absorbing fine roots found within the top 100mm. The morphology of the roots is influenced by the presence of other site factors (such as roads, structures), soil type, topography and drainage. Where no RPA is identified in the table above, the canopy line should be treated as the RPA (this typically applies to small trees).

A topographical survey has been undertaken on the site prior to the field survey.

The field survey obtained numerous factors about the trees. The equipment used to gain measurements were a diameter tape, a laser measure and a clinometer. The information collected on the trees is as follows:

- Tree Number/Group Reference
- Species
- Height
- Branch Spread
- Height of First Significant Branch
- Age Class
- Physiological and Structural Condition
- Estimated Remaining Contribution (Years)
- Management Recommendations
- Notes

2.1 Tree Categorisation

Trees are graded in accordance with the Cascade Chart for Tree Quality Assessment. The purpose of the categorisation is to identify the value of the existing trees, allowing for informed decisions to be made in order to comply with BS5837:2012. These categories are **A**, **B**, **C** and **U**. Trees categorised as **U** have sound reasons for removal. Trees that fall within categories **A**, **B** and **C** should be considered for retention. The categories are as follows:

➤ **Category A:**

Trees that are of high quality, with an estimated remaining life span of at least forty 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.

Trees, groups or woodlands of particular visual importance as arboriculture and/or landscape features.

Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).

Trees in this category will be shown **light green** on the Tree Survey Plan.

➤ **Category B:**

Trees of moderate quality, with an estimated remaining life span of at least twenty years.

Trees that might be included within **Category A**, but have been downgraded due to impaired condition, such that they are unlikely for retention beyond forty years.

Trees that do not contain the special quality necessary to be classified as **Category A**.

Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals.

Trees occurring in collectives, but situated to contribute little to the local visual amenity of the area.

Trees with material consideration or other cultural value.

Trees in this category will be shown **mid-blue** on the Tree Survey Plan.

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➤ **Category C:**

Trees that are of low quality with an estimated life span of at least ten years, or young trees with a stem diameter below 150mm.

Trees of limited merit and impaired condition so as to not be classified at a higher category.

Trees present in groups or woodlands that are significantly greater collectively within the landscape.

Trees that offer minimal or temporary landscape benefits.

Trees with no material conservation or other cultural value.

Trees in this category will be shown **grey** on the Tree Survey Plan.

➤ **Category U:**

Trees that are in a condition where they cannot be realistically retained as living trees for longer than ten years.

Trees that have a serious, irremediable, structural defect that their loss would be due to collapse. This includes specimens that will not be viable following the removal of further **Category U** trees.

Trees that are dead or are showing signs of significant, immediate and irreversible decline.

Trees infected with pathogens or diseases that are harming the specimen itself, or is at risk of infecting nearby trees.

Trees that are of very low quality that are suppressing other nearby trees of higher landscape or ecological value.

Trees in this category will be shown **dark red** on the Tree Survey Plan.

2.2 Life Stages

All of the trees are separated into five life stages. These are as follows:

- **Young (Y)** – Newly planted or early established trees that are less than 150mm. These can easily be replaced.
- **Semi Mature (SM)** – Tree within the first quarter of its life span. Increasing in height and spread.
- **Early Mature (EM)** – Tree within the second quarter of its life span. Usually increasing in height and spread.
- **Mature (M)** – Tree within the third quarter of its life span. Usually at full height expectancy.
- **Over Mature (OM)** – Trees within the final quarter of its life span, or those that have exceeded their life expectancy. These can be in decline.

2.3 Physiological and Structural Condition

These conditions are categorised as either **good, fair, poor** or **dead**.

An assessment of a tree's physiological condition is defined as:

- **Good** – A fully functioning biological system showing expectant vitality for the species (i.e. normal bud growth, leaf size, crown density and wound closure).
- **Fair** – A fully functioning biological system showing below average vitality for the species (i.e. reduced bud growth, smaller leaf size, lower crown density and reduced wound closure).
- **Poor** – A limited biological system showing physiological decline, disease or significantly below average vitality (i.e. limited bud growth, small and chlorotic leaves, low crown density and limited wound closure).
- **Dead** – Those trees marked **Dead** have no visible foliage and brown cell structure under young bark.

An assessment of a tree's structural condition is defined as:

- **Good** – No significant structural defects.
- **Fair** – Structural defects that could be alleviated through remedial tree surgery or arboricultural management practices.
- **Poor** – Structural defects which cannot be alleviated through tree surgery or arboricultural management practices.
- **Dead** – Those trees marked **Dead** have no visible foliage and brown cell structure under young bark.

3. Statutory Protection and Guidance

3.1 Statutory Protection and National Planning Policy Framework (NPPF)

Any area of ground that has been continuously wooded since 1600AD is defined as an ancient woodland. Any tree of significant size, age, ecological value, amenity value, cultural and/or heritage value, is classed as a veteran tree. The NPPF assumes protection of all such trees and woodlands with exceptions made only in extreme circumstances where suitable mitigation strategies exist.

On site, no ancient woodland or veteran trees exist.

3.2 Tree Preservation Orders and Conservation Areas

An inquiry was made with the local authority Arboriculture Officer, this has revealed that T1, a common sycamore and T2, a common ash are both protected by Tree Preservation Order.

Any advice given in this report is strictly advisory and does not overrule, bypass or otherwise in any way grant the client permission to carry out works on any of the trees included within the survey. Trees that are protected by TPO (tree preservation order), **require the express permission of the local district authority and/or their acting tree officer before any works may be carried out on them.** Trees existing within a conservation area protected by section 211 of the town and country planning act 1990 in that anyone wishing to carry out work of any kind on such trees is required to submit a section 211 application with the local authority allowing six weeks' notice for any works. During such time the local authority may assess such trees with a view to issuing further protection via tree preservation order if considered necessary.

3.3 Felling Licences

Tree felling in the United Kingdom is controlled by the Forestry Commission under the Forestry Act 1967. In a calendar quarter (three months), up to 5m³ can be felled without requiring a felling licence providing that no more than 2m³ are to be sold. If any felling proposed does not meet the aforementioned criteria, then a felling licence will be required. It is worth noting that some types of felling are exempt, such as the removal of deceased trees, or ones that are dying, dangerous or causing a nuisance.

3.4 Trees Outside of the Property

If works are recommended to be undertaken on trees that fall outside of the client/applicant's land, the full co-operation and liaison with these tree owners is necessary. Implications of not cooperating requires additional legal interpretation that are beyond the remit of this report. Under Common Law, branches from trees on adjacent properties that extend over boundaries can be pruned back to the boundary line without the permission of the owners.

3.5 Implementation of Tree Work

When appointing a tree contractor, only suitably qualified and experienced companies should be used. Always ensure that the contractor carries adequate insurance. The contractor should carry out all tree works to BS 3998:2010 *Recommendations for Tree Work*, as modified by more recent research findings.

3.6 Wildlife

All operations need to take into account the presence and/or potential presence of any wildlife at the site.

3.6.1 Bats

All trees with potential roosting features (PRF's) need to be assessed by a licenced bat surveyor. All bats and their roosts are protected by the legal framework within the United Kingdom. It is an offence to kill, injure or disturb a bat and to destroy or damage any place that is used for shelter by a bat.

3.6.2 Birds

All breeding birds are protected by law within the United Kingdom. Therefore, any tree removal should take place outside of the breeding bird season (March to August inclusive). If this cannot be achieved, a suitably qualified and experienced ecologist is required to inspect for any nests. If an active nest is located, an exclusion zone will then be implemented around this feature until any chicks have fledged the nest.

4. Results

The field survey at the site assessed the individual condition and value of a number of trees forming one group. The values in the table include the largest measurements and the mean category/classification of the trees.

Tree No.	Species	Tree Category (U/A/B/C)	Life Stage (Y/SM/EM/M/OM)	Condition (Good/Fair/Poor/Dead)	Number of Stems	Height (m)	Branch Spread (m)				Lowest Significant First Branch (m)	Stem at Breast Height (mm)	Minimum Remaining Contribution (years*)	Root Protection Area (m ²)	Root Protection Radius (m)	Observations
							N	E	S	W						
T1	English Oak (<i>Quercus robur</i>)	A2	M	Good	1	18	9	8.5	10	10	3.5	900	20+	366	10.8	
T2	Cherry (<i>Prunus Spp.</i>)	B2	SM	Good	1	9	4.5	4.5	4.5	4.5	2	290	20+	36	3.4	
T3	Lombardy Poplar (<i>Populus nigra</i>)	B2	SM	Good	1	22	1.5	1.5	1.5	1.5	4	490	20+	105	5.8	
T4	Lombardy Poplar (<i>Populus nigra</i>)	B2	SM	Good	1	22	1.5	1.5	1.5	1.5	4	430	20+	81	5.1	

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T5	Common Alder (<i>Alnus glutinosa</i>)	B2	SM	Good	6	16	7	7	7	7	3	420	20+	452	12	
												450				
												400				
												430				
												380				
												400				
T6	Common Alder (<i>Alnus glutinosa</i>)	B2	SM	Good	1	16	4	4	4	7	3	400	20+	72	4.8	
G1	Common Alder (<i>Alnus glutinosa</i>)	B2	SM	Good	-	16	7	4	4	4	1.5	200 Avg	20+	-	2.4	Small Group on brook embankment. (Parameter RPA)
G2	Leyland Cypress (<i>Cupressus</i> × <i>leylandii</i>)	B2	SM	Good	-	12	2	2	2	2	-	180 Avg	20+	-	2.1	Hedgerow. (Parameter RPA).
G3	Lombardy Poplar (<i>Populus nigra</i>)	B2	SM	Good	-	18	-	-	-	-	-	300 Avg	20+	-	3.6	Large Group/ Plantation. (Parameter RPA).
		Category Grading		Life Stages		Condition		NOTES:								
		A	1	Y	0	GOOD	9									

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TOTALS	B	8	SM	8	FAIR	0	
	C	0	EM	0	POOR	0	
	U	0	M	1	DEAD	0	
			OM	0			

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5. Summary of Results

The field survey found the following information about the trees located on the survey site and within the sphere of influence:

5.1 Species Composition

In total, 5 tree species were identified on and around the survey site. The trees identified were:

- **T1:** English Oak (*Quercus robur*)
- **T2:** Cherry (*Prunus Spp*)
- **T3, T4 and G3:** Lombardy Poplar (*Populus nigra*)
- **T5, T6 and G1:** Common Alder (*Alnus glutinosa*)
- **G2:** Leyland Cypress (*Cupressus × leylandii*)

5.2 Tree Survey Findings

All trees surveyed at the site were assessed, evaluated and categorised in accordance with BS 5837 – *Trees in Relation to Design, Demolition and Construction* 2012. This information is summarised in the table below.

LIFE STAGES		CONDITION		BS 5837 CATEGORY		
Subject Tree/ Group	Life Stage	Subject Tree/ Group	Condition	Subject Tree/ Group	Category	Sub cat
None	Young	T1, T2, T3, T4, T5, T6, G1, G2, G3	Good	T1	A	2
T2, T3, T4, T5, T6, G1, G2, G3	Semi-Mature	None	Fair	T2, T3, T4, T5, T6, G1, G2, G3	B	2
T1	Mature	None	Poor	None	C	
None	Over Mature	None	Dead	None	U	

6. Recommendations

6.1 General Condition and Observations

T1 is a mature English Oak that is generally in good overall condition. It is a prominent landscape feature, with a large symmetrical crown. There is minor deadwood present.

T2 is a cherry tree situated on the eastern bank of the brook, adjacent to the road. This tree is in generally good condition and form.

T3 and T4 are Lombardy Poplars that are situated on the eastern bank of the brook. They are generally in good condition and form, but are of no special merits.

T5 and T6 are semi-mature Alders situated on the western bank of the brook. They are generally in good condition and form.

G1 is a small group of Alder trees situated on the west bank of the brook. It is generally in good condition, but is of no special merits.

G2 is a Leyland Cypress hedgerow/screen that is situated along the roadside at the northern end of the site. It is of no special merits.

G3 is a Poplar plantation situated to the south. It is generally in good condition with no special merits.

6.2 Visual Tree Assessment (VTA)

A VTA was carried out from ground level. The assessment looked for cavities, fractures, breaks, cracks and signs of stress through tension and compression from the base and throughout the main body/ bole of the subject within the reasonably visible limits. The assessment also looked for signs of decay, fungal bodies and/or signs of insect infestation, along with the overall vitality of the subject and its organs. The assessment considered the location of the subject and its position, form, elemental exposure and proximity to neighbouring structures and public areas. The surrounding ground was also assessed for cracks and signs of movement or heave that may relate to root plate movement.

6.3 Structural Condition

Trees are multi-cellular living organisms and can be subject to rapid change over short periods of time. All observations were accurate at the time of survey. The general structural integrity of all trees is thought to be good at this time with no major cracks, fractures, breaks, cavities, or weaknesses observed.

6.4 Physiological Condition

Minor black staining observed on West side of lower main stem of T1. Associated with acute oak decline, however no other signs or bleeding were observed and the specimen appears to be in generally good condition. Minor bark damage also observed on West side of lower main stem.

The detection of disease, infection, and infestation are subject to seasonal and climatic conditions. Some fungus, insect infestation and diseases are only apparent when they are in season and may be easily undetected at certain other times of the year.

At the time of survey, no major signs of disease, pathogen, fungal bodies, or insect infestation were observed on these trees.

7. Arboricultural Impact Assessment (AIA)

7.1 Development Proposals

Under the current proposals, a new vehicular access bridge is proposed to be constructed at the site. These works have the potential to cause both temporary and permanent impacts upon the habitats on site.

7.2 Development Impacts

The majority of potential impacts foreseen are mainly in conjunction with the proposed access road that will overlay several RPA's along its proposed route. Under current British Standards Guidelines it is acceptable to overlay an RPA providing that:

1. The respective area of RPA does not exceed more than 20% of the overall RPA.
2. The proposed surface is designed in line with BS 5837, section 7.4 *Permanent Hard Surfaces within an RPA*.

The current proposals do not excessively overlay any of the RPA's, with all areas of overlay calculated as being less than 20% of the respective RPA's.

7.2.1 Root Protection Areas

Root protection areas (RPA) have been calculated in line with BS 5837 guidelines and are shown as blue circles on the tree constraints and protection drawings.

The RPA's of T1, T4, T5, T6 and G1 are infringed upon and will be overlaid partially by the proposed access road. The potential for detriment to the trees comes by way of soil compaction around the critical surface root systems of the respective mentioned trees. These impacts can be mitigated via the use of a suitable cellweb ground protection matting being incorporated into the design to suitably spread load and force.

7.2.2 Ground Level Changes around Trees

Minor ground level changes are expected via the installation of the access road, however these are not expected to be excessive and providing that the design of such is in line with BS 5837, section 7.4 *Permanent Hard Surfaces within an RPA*, then no detriment to the trees is expected.

Designers should strive to not impact or effect ground levels around or within the RPA areas of retained trees. It is important that the existing ground level around any trees to be retained remains the same. This is because the critical root mass essential for the tree/s survival (the fine hair feeding roots) is usually found to exist within the top 100mm of topsoil. Should additional earth or material be pushed or laid over the top of the RPA then this critical root mass will no longer exist at its chosen ground level, soils become dehydrated, fungal and microorganism activity changes and this is known to have a detrimental effect on the feeding roots and consequently cause post development decline of the tree/s.

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7.2.3 Access Facilitation Pruning

No access facilitation pruning is required for this site.

7.2.4 Tree Removals

No removals are necessary, however removals have been recommended.

7.2.5 Tree Retention

All trees can be retained if necessary.

7.2.6 Amenity and Area Impacts

No amenity and area impacts are foreseen.

7.2.7 Spatial Relationship of Trees and Post Development Pressure

There are no canopy conflicts of future pressures foreseen.

7.2.8 Installation of Utilities

Currently there are no plans to route services or utilities through the RPA's of any of the retained trees. Should this change at a later stage of the project, proposals should be submitted to the local authority tree officer for approval.

As guidance only, the routing of any services through the RPA of any of the retained trees should be in accordance with BS5837: 2012 clause 7.7.2 and NJUG guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.

7.3 Impact Summary

In summary all impacts can be suitably mitigated as outlined in the following recommendations section. No detriment is expected to any of the trees surveyed.

8. Recommendations

8.1 Tree Work Recommendations

Felling and coppicing works are recommended for the site.

T3 and T4 are two semi-mature Lombardy Poplars. These trees are recommended for removal.

Reason:

The species is well known for developing structural faults and weaknesses during maturity, along with cavities and pockets of decay. Both trees are within close proximity of the adjacent A539 and pose a moderate future threat should stem failure occur. The species is known for being able to achieve a height of approximately 28 - 30 meters, and although the crowns are not extensive, they are dense and can effectively capture wind force. The prevailing wind comes mainly from the south-west and this pushes the trees towards the A539. As there is now an opportunity for mitigation planting, it is thought to be prudent to remove these trees and replace them with native species situated along the new access road.

T5, T6 and G1 are semi-mature Alder trees. These trees are recommended to be coppiced.

Reason:

These trees are all within relatively close proximity to the new access road and may pose minor conflict between their canopies and vehicles. As an alternative to selective pruning and management, it is recommended that these trees be coppiced and allowed to regenerate. It is thought that this will prolong the life cycle of the trees and maintain their importance within the local environment, whilst also ensuring a clear route for the new access road.

8.1.1 Remedial Tree Works

No remedial tree works are required.

8.1.2 Tree Removal/Felling

T3 and T4 are recommended to be removed and replaced.

G1 are recommended to be coppiced to 6 inches above ground level.

T5 and T6 are recommended to be coppiced to a height of 1 meter.

8.1.3 Protective Barriers

Solid barrier protection is thought to be necessary for this site, in order to protect the main stems of T1 from any potential accidental damage. A sturdy "Heras" type fencing or similar type is recommended for this site. The protective fencing must display suitable signage, and this must be placed so as to be clear and visible. The location of recommended fencing is shown as red dashed line on the drawings.

8.2 Root Protection Measures

8.2.1 Protective Barriers

It is recommended that robust steel framed fencing of the “Heras” type or similar be used at the site. Suitable signage should be attached so as to be clear and visible.

8.2.2 Protective Barrier Specification

It is recommended that a sturdy type fencing product be used around the root protection areas at the front of the site. It is thought that a steel framed, wire weld meshed fencing similar to or equivalent to “Heras” style fencing will be sufficient in these areas of the site. The below diagrams have been shown to provide a good example of this.

Figure 3: A diagram of the tree root protection barrier.

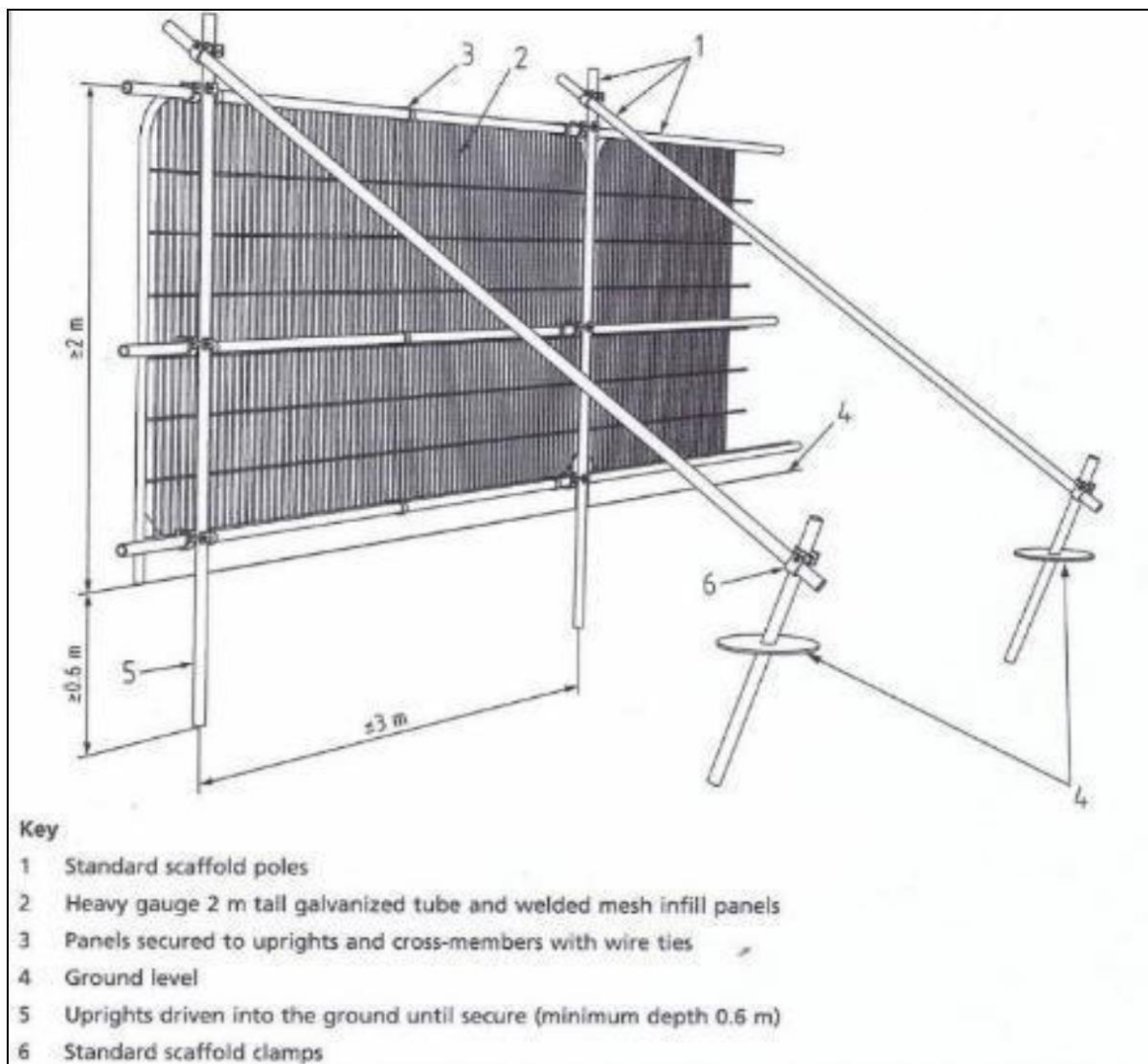
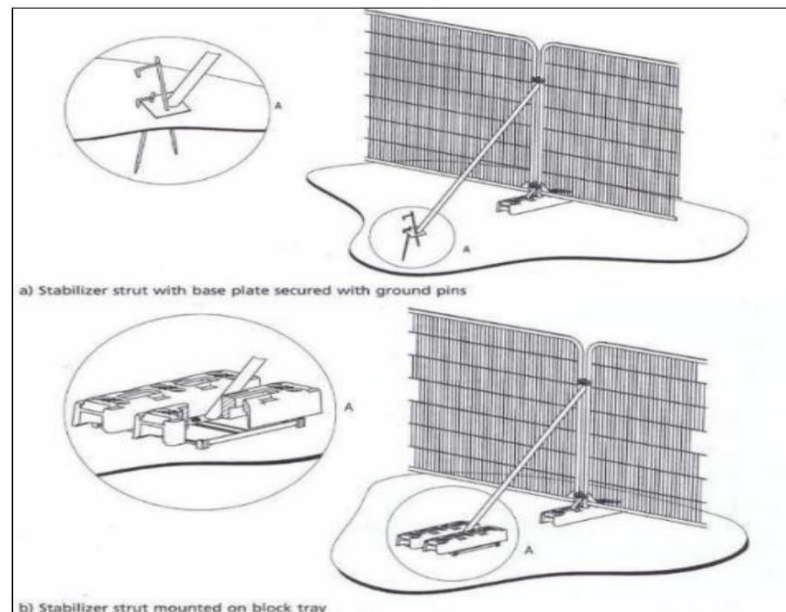


Figure 4: A diagram of the alternative tree root protection barrier.



8.2.3 Appropriate Signage

Appropriate signage is important and necessary and should be attached to the protective fencing in such a way as to be clear and visible.

Figure 5: An example of a notice to be attached to the fencing.



8.3 Prohibited Activities within or close to the RPA

Regardless of circumstances, the following activities are prohibited:

- a) No fires should be lit on the site within 10m of the nearest section of tree canopy for any retained tree. This is prevalent for all trees located on site and adjacent to the proposal site.
- b) No equipment, signage, fencing shall be attached to or be supported by any retained tree on or adjacent to the application site.
- c) There will be no temporary access into the root protection areas (RPA's) unless written approval from the local planning authority (LPA) has been obtained.
- d) No mixing of cement, dispensing of fuels or chemicals is to occur within 10m of the tree stem for any retained tree. This is prevalent for all trees located on site and adjacent to the proposal site.
- e) No soakaways are to be routed within the RPA of any retained tree that is on or adjacent to the site.
- f) No topsoil, excavation or reprofiling works are to be undertaken within the RPA of any retained tree that is on or adjacent to the application site.
- g) No storage of materials is to occur within the RPA of any retained tree on or adjacent to the site. This includes, but is not limited to, topsoil and building materials.
- h) No variations to any approved tree protection schemes shall be carried out without obtaining the prior written approval of the district planning authority.

8.4 Arboricultural Supervision

No arboricultural supervision is required.

9. Arboricultural Method Statement (AMS)

9.1 The use of Arboricultural Method Statement/s

The Arboricultural Method Statement should be read in conjunction with the tree protection drawing that is provided within the appendixes.

9.2 Pre-Commencement Meeting

It is advised that a pre-commencement site meeting is held with contractors who are responsible for operating machinery and vehicles on site. The meeting will firstly highlight the potential damages that can be caused when operating machinery within close proximity to the crowns, stems and root protection areas of protected trees, but thereafter emphasise the importance of careful manoeuvring of machinery and vehicles close to these protected areas. The use of “banksmen” as guides for machinery and vehicle drivers is also to be strongly recommended and implemented.

The meeting will also highlight the importance of the root protection areas and the rules surrounding such as set out in **Section 7.3** (prohibited activities within or close to the root protection area).

9.3 The Erection of Protective Barriers and Fences

Prior to any demolition, or construction activities commencing, the recommended and suitable protection barriers should be erected and set out around the root protection areas as shown in the tree protection plan. Checks should be made to ensure that these have been suitably erected and are of sufficient construction to provide the necessary protection from the demolition and construction activities. These protective fences should not be removed until construction is fully complete.

9.4 Tree Works

Any tree works/ tree removals, access facilitation pruning etc, should be carried out by a suitably competent and qualified arborist and in accordance with BS3998 tree work recommendations. Suitable specific method statements should be provided by the arboricultural contractors.

9.4.1 Pre-Commencement Considerations for Tree Works

It is strongly advised that prior to any tree work being carried out, suitable checks are made to ensure that no wildlife habitat is destroyed or disturbed with regards to bats, birds and squirrels.

9.4.2 Construction Traffic, Heavy Plant Machinery and Access Routes

It is important that the site planner studies the root protection areas outlined in the tree constraints and protection measures plan. All heavy plant machinery, vehicles and excavation works will need to be prohibited in these areas. Access routes for machinery and vehicles should ideally be routed around these areas. Where this is not possible and access routes need to pass over a root protection area then a Geotech, gravel/ hardcore filled ground protection matting should be used to minimise the impacts of compression and compaction on the root structures. The exact specifications of such matting should be sourced and calculated by the site planner depending on the size and weight of the vehicles and/or machinery to be used.

10. References

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- Mattheck, C. and Belier, H. (1994) *The body language of trees*. Research for amenity trees No. 4. HMSO, London.
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- The Conservation of Habitats and Species Regulations 2017 (Amendment). SI 2017/1012.
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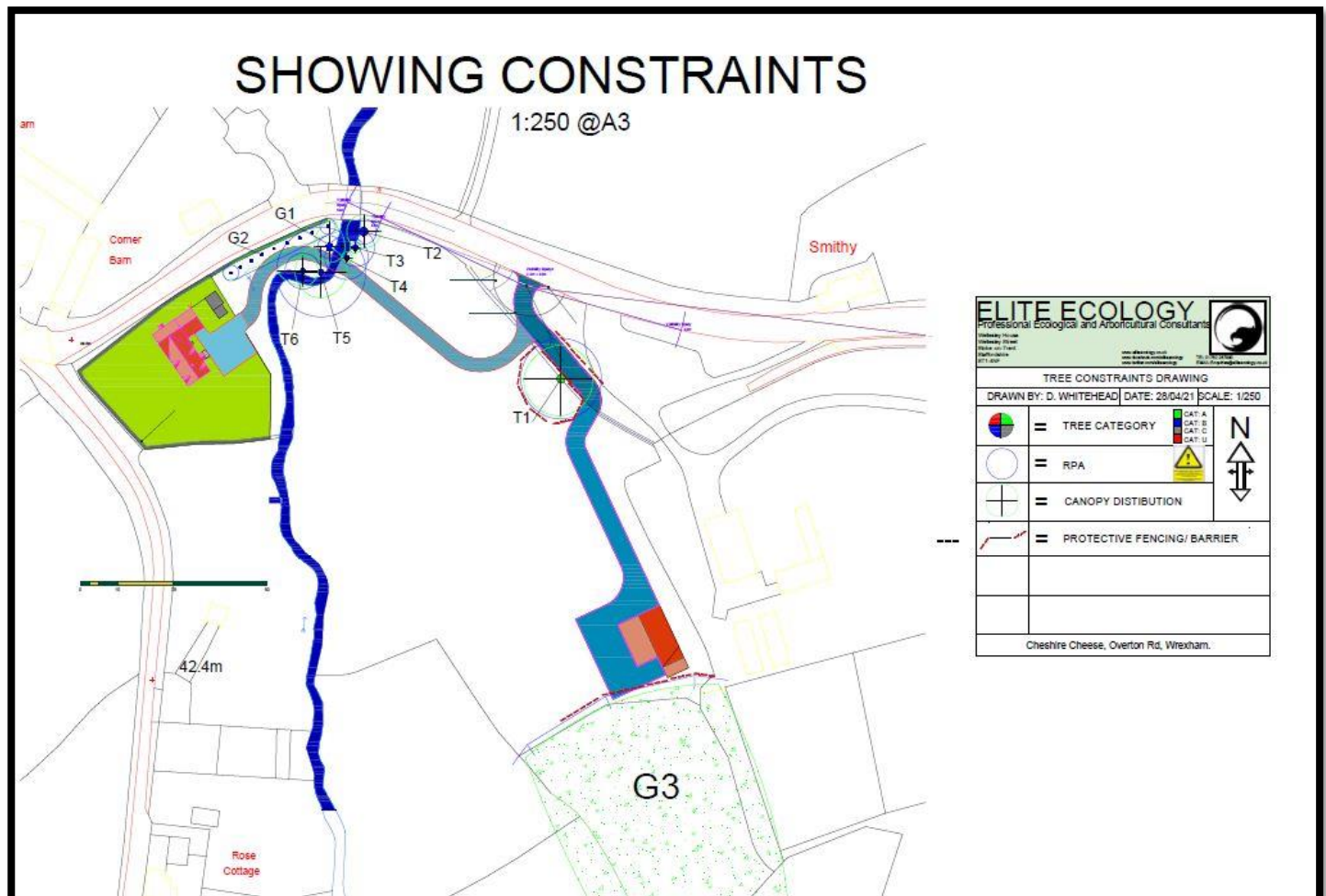
11. Appendices

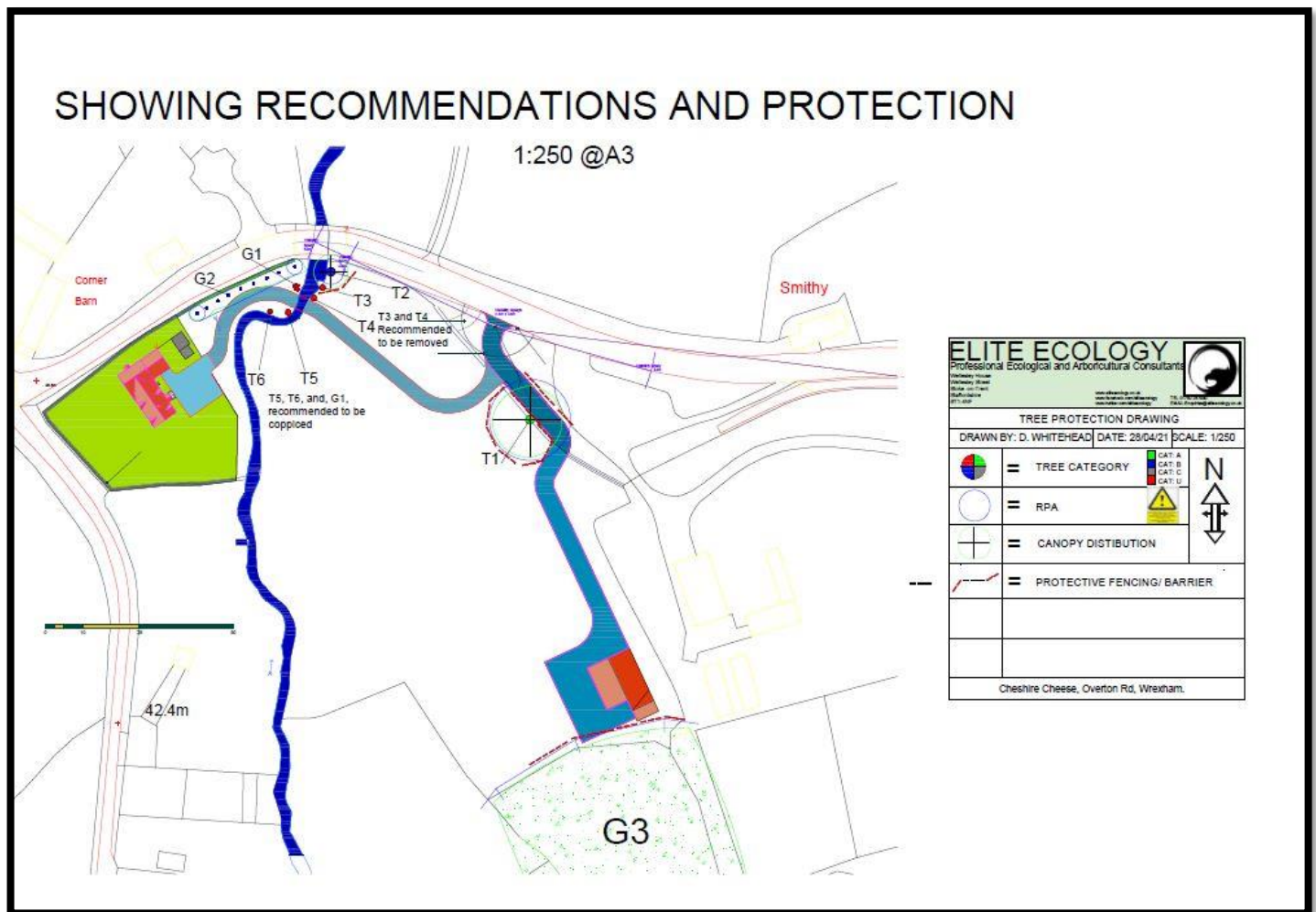
Appendix A: Tree Constraints Drawing

Appendix B: Photographic Records

Appendix A: Tree Constraints Plan

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Appendix B: Photographic Records

Plate 1: Showing T1



BS5837:2012 Tree Survey and Arboricultural Impact Assessment

Plate 2: Showing T2 (lower right) with T3 and T4 (centre).



Plate 3: Showing T5 (centre) and T6 (behind, left) with G2 (background).



Plate 4: G1.



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All reports are certified products and cannot be shown, copied or distributed to third parties without the written permission of Elite Ecology. No liability is accepted for the contents of the report, other than to that of the client(s). If any part of this report is altered without the written permission of Elite Ecology, then the whole report becomes invalid.

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The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

Elite Ecology has been provided with full payment for this report and thus the product has been released to the client(s) for the purpose of their planning application. If any part of the report is lost or altered without the written permission of Elite Ecology, then the entire report becomes invalid. Due to the potential for continual change within the natural world, this report is valid for **1 year only** from the date of the last survey visit. If this report is submitted after the 1 year deadline, then a further updated inspection will be required to ascertain whether the site remains in the same condition as it was when initially inspected.

No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.