



## **BS5837 TREE SURVEY**

For  
Land South of Hadnall Hall

Grid ref: SJ523200

### Version History

- 1.1: 7<sup>th</sup> March 2022
- 2.0 : 28<sup>th</sup> October 2023
- 2.1 9<sup>th</sup> November 2023

<b>Prepared by</b>	<b>For</b>
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## 1 Introduction

- 1.1 Treetec were instructed by Mr David Parocki to undertake a pre-development tree survey at the site located south of Hadnall Hall, Hadnall. The intention is to construct four dwellings on this site.
- 1.2 This report has been prepared in order to inform construction options and positioning of proposed built form on this site in accordance with the guidelines set out in British Standard BS5837:2012 'Trees in relation to construction – recommendations' (BSI, 2012).

## 2 Method

- 2.1 All the trees in this survey have been surveyed from the ground. The survey is based on a visual assessment of the trees. Aerial inspections, decay detection surveys, or root collar examinations have **not** been undertaken and laboratory investigations of specific soil properties have **not** been made.
- 2.2 A drawing, entitled 'Land to the south of Hadnall Hall.dwg', was supplied with some trees, shrub masses, and hedgerows displayed. Treetec accepts no responsibility for the accuracy of the plots on this drawing.
- 2.3 All trees surveyed have been plotted on the drawing and their data recorded in detail within the Tree Data Schedule (appendix 3). This includes all trees and shrubs with a diameter of 75mm or above (measured at 1.3m above ground level), along with potentially affected individuals or groups of trees on adjacent land. All tree nomenclature follows *A New Flora of The British Isles* (3<sup>rd</sup> edition) Clive Stace 2010.
- 2.4 Where relevant, recommended works, particularly to hazardous trees have been included. Such recommendations are valid for a period of 18 months from the date of this inspection, following which it may be necessary to reassess this advice in accordance with sound arboricultural principles.

## 3 Statutory protection

- 3.1 There are preservation orders on some of these trees. The current protective status of every tree contained within the survey should be confirmed with the Local Planning Authority before any works commence.
- 3.2 The Wildlife and Countryside Act 1981, (as amended), and the Conservation of Habitats and Species Regulations 2010 (England and Wales), provide statutory protection to birds, bats, invertebrates and other species that inhabit trees, hedges or associated vegetation. These could impose constraints on the use and timing of access to the site in addition to any of the tree matters, and are beyond the scope of this report.

## 4 Results

- 4.1 The original survey was carried out by Angus Andrew on the 26<sup>th</sup> February 2022. The author has re-visited this site on 14<sup>th</sup> October 2023. Site conditions were favourable and there were no restrictions on access to the trees.

- 4.2 The survey site forms part of the garden area of the large residential dwelling, Hadnall Hall. It is predominantly short mown amenity grassland with a border of hedgerows, estate fencing and trees. The wider area consists of residential housing and arable fields .
- 4.3 This survey is to be read with the associated results depicted in the tree survey schedule and plans prepared by Treetec and presented in appendices 3, 4 and 5. There is a key to the map symbols used in accordance with BS5837:2012.

## 5 Constraints posed by existing trees

- 5.1 Above ground constraints arising from the current height and spread of the trees are marked on the Tree Constraints Plan. The height and direction of the first significant branch and any notable characteristics such as decay pathogens or pronounced lean are described in the Tree Survey Schedule.
- 5.2 The below ground constraints are marked as root protection areas (RPA) on the Constraints Plan. These represent the **minimum** area of protection. For single stemmed trees, the radii of RPAs are assumed to be twelve times the diameters of the enclosed trees, for multiple stemmed trees the radii are derived from the square root of the squared sum of the diameters of the stems. Irrespective of these rules, the Standard indicates that the radius of an RPA should rarely (if ever) exceed 15 metres. The plan accompanying this report shows, in most cases, the nominal RPA indicated as circles centered upon the trunk of a radius such that they enclose an area equal to the relevant RPA. In practice the distribution of roots around a tree will frequently prove to be uneven due to a variety of constraining influences such as physical barriers, waterlogging or soil compaction. The area and shape of an RPA may therefore be changed if local conditions dictate or the tree's condition indicates that a larger zone is required.

## 6 Arboricultural Impact Assessment

- 6.1 Without mitigation the construction could cause root compaction and/or root severance to trees by construction machinery and repeated footfall.
- 6.3 The hedge H2 and trees of G1 must be protected with fencing from the construction processes causing damage. (see appendix 7).

## 7 Arboricultural Method Statement

- 7.1 This section of the report details best practise measures to be adopted in order to protect retained trees during the development process.
- 7.2 No machinery (e.g. excavators) shall be driven into RPA's. Work will be carried out from outside the the RPA i.e. the car park hard standing. Careful operations with excavators should reduce the risk of direct e.g. mechanical contact or indirect e.g. compaction damage to trees.
- 7.3 Driveway construction method to demonstrate how the RPA hedge H2 will be protected.
- Loading which would otherwise result in ground compaction and damage in RPA zones, will be dissipated by the installation of ground protection comprising *Terram*, *Geocel*, *Arborraft* or *Cellweb* or a similar proprietary cellular confinement system laid over a geotextile membrane and filled with washed sand.
  - The area for no dig should first be marked on site with the use of ground pins or marker spray. The existing ground vegetation will be screefed by hand or killed off using a systemic '*Glyphosate*' based weed killer which when used in accordance with the manufacturer's instructions will not have any

long-term detriment on tree roots or reside in the soil post application.

- The ground shall then be treated with Biochar or compost before covering with a permeable geotextile membrane. The ground is fairly level and requires little or no build up before installation of the ground protection. Under no circumstances will levels be formed by excavating soil within the RPA.
- A preformed edge will be installed along the periphery of the Geo-textile grid and held into place with metal ground pins. Timber boards may be used to provide edging.
- Ground protection shall be installed by machinery operated from **outside** the RPA or from the previously laid surface i.e. machinery may work off installed areas to facilitate further installation. When loading up the geocells, the drop height must be less than 0.5m or a height that prevents crushing the cell walls.
- The system retains its porosity until contamination and colonisation by weeds restricts its breathability. This may be prevalent because of leaf fall on this site. The area should be treated with glyphosate herbicide if severely overgrown.

7.4 Construction Exclusion Zone (CEZ) fencing shall be erected as shown on the plan and in conjunction with the marked RPA's to exclude those trees from harm where work is occurring. There is not a requirement for exclusion zones on all trees. "Heras" or similar type fencing is less invasive but must however be braced and pinned to the ground to make it less conveniently movable (see appendix 7 for diagram). Weatherproof notices shall be attached to any protective fencing displaying the words "*Construction Exclusion Zone*" and listing all restrictions that apply. All personnel must be made aware of these restrictions. It shall be checked by an arboriculturalist before excavation works commence.

7.5 Tree protection and the CEZ (See Appendix 7)

- The area within the CEZ is to be regarded as sacrosanct and the fencing shall not be taken down or relocated at any time without the prior written approval of the monitoring arboriculturist or local authority tree officer.
- Particular care shall be taken to avoid disturbing existing ground levels within the CEZ's.
- Contaminants, for example, concrete mixings, diesel oil and vehicle washings, shall not be discharged within 10m of trees or where they may leach into CEZs. Cement and some cement additives are highly alkaline and toxic to plant roots. Therefore, cement for concrete mixing and washings must not be allowed to contaminate the soil, especially within the surrounding RPA's of trees.
- Fires shall not be lit on sites where flames and smoke may be carried to within 5 metres of a tree's foliage, branches and stems.
- Notice boards, telephone cables or other services shall not be attached to trees.
- Vehicles and machinery shall not be permitted to cross CEZ's. Outside these areas, care shall be taken to ensure that machines can operate without damaging retained trees. Where adequate clearance cannot be maintained, trees may be pruned to facilitate access. Pruning should be specified and supervised by an arboriculturalist.
- Soil surfaces within the CEZ shall not be skimmed to establish new levels before or after implementation of the barrier.
- Water levels shall remain unchanged in the CEZ. Permeable surfaces may be used where surface water is unlikely to be contaminated by materials toxic to trees. If contamination is likely, an impermeable surface may be specified. Land drainage may be required if excess water is likely to accumulate but drains shall not be located within root protection areas.

## **8 Monitoring Schedule by arboriculturist**

Good tree protection cannot be reliably implemented without regular arboricultural input.

Those operations potentially injurious to trees or their roots will be supervised by an arboriculturist. This would include the protection fencing, digging of holes or trenches and the construction of no-dig areas. The arboriculturist will be called to visit the site at pre-scheduled intervals to ensure the suitability of the method statement under field conditions and ensure compliance by contractors.

## **APPENDICES**

[Appendix 1 – Surveyors Experience](#)

[Appendix 2 – Explanation of Terms](#)

[Appendix 3 – Tree Data Schedule](#)

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[Appendix 7 – Tree Protection Plan](#)

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## **APPENDIX 1**

### **Author's Experience**

#### **Angus Andrew MSc, BSc**

Angus Andrew is a professional arboriculturist with 29 years experience in relation to trees and woodlands encompassing technical, strategic and practical roles in tree and woodland maintenance and management, tree surgery, and tree safety assessment. His career experience spans the public and private sectors including nine years as a local authority arboricultural and woodlands officer with Shropshire Council.

## APPENDIX 2

### Explanation of Terms used in Tree Data Schedule

**Tree / Group number:** Tree reference number prefixed by **T** for individual trees, **G** for groups, and **W** for woodland.

**Common name / Binomial:** Tree and other plant names follow Stace, New Flora of the British Isles (3<sup>rd</sup> edition 1997) and are provided as common and scientific species names. Synonyms are in brackets. .

**Tree height:** Height of the tree in metres. [SEP]

**Stem diameter:** Diameter of the trunk(s) measured in accordance with Annex C of the Standard and expressed in millimetres.

**Crown spread:** Radial spread of the crown measured at the cardinal points and expressed in metres.

**Canopy height:** (C Hgt) Clearance above ground of lowest branch tips in metres.

**First significant branch:** Height at point of attachment with parent stem and direction of growth (Brg).

**Life stage:** The estimated age: young, semi mature, early mature, mature, over mature or veteran shown as Y, SM, EM, M, OM and V

<b>Young</b>	Tree in establishment stage, normally up to 10 years old
<b>Semi-mature</b>	Establishing tree with potential for significant growth both in terms of tree height and crown spread
<b>Early-mature</b>	Established tree, typically having attained at least 70% of likely mature height and crown spread
<b>Mature</b>	Full height and crown spread attained
<b>Over-mature</b>	Extensive decline in physiological functions and/or structural integrity
<b>Veteran</b>	A tree that shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species

**Physiological condition:** Physiological condition being good, fair, poor or dead.

<b>Good</b>	Healthy tree with no symptoms of significant disease
<b>Fair</b>	Tree with early signs of disease, small defects, decreased life expectancy, or evidence of less than average vigour for the species
<b>Poor</b>	Significant disease present, limited life expectancy, or with very low vigour for the species and evidence of physiological stress
<b>Very Poor</b>	Tree is in advanced stages of physiological failure and is dying

[SEP]

**Structural condition:** Structural condition being good, fair, poor or dangerous

<b>Good</b>	No significant structural defects observed
<b>Fair</b>	Some structural defects observed but these do not necessitate remedial action at present
<b>Poor</b>	Significant defects observed resulting in a tree which is likely to require either monitoring or remedial action
<b>Very Poor</b>	Major defects which compromise the safety of the tree. Remedial works or tree removal are likely to be required in the majority of target locations

**Estimated remaining useful life expectancy (ULE):** Four categories covering the ranges <10, 10–19, 20–39 or >40. These are shown in the data as <10, 10+, 20+ or 40+

**General observations:** Notes on structural and/or physiological condition and requirements for further investigation of defects. Recommendations for remedial works and comments on other significant features such as the potential for protected species presence.

**Measuring units:** The survey adhered to the BS5837 measurement conventions:

- Height and crown spread were recorded to the nearest half metre for dimensions up to 10m and the nearest whole metre for dimensions over 10m. A Suunto hypsometer was used for height measurement.
- Stem diameter was recorded in millimetres using a forestry girth tape, rounded up to the nearest 10mm (0.01m).

**Retention category:** Categorisation of surveyed trees in accordance with Section 4.5 and Table 1 of the Standard.

- **U (dark red):** 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. <sup>[SEP]</sup>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). <sup>[SEP]</sup>Trees that are dead or are showing signs of significant, immediate and irreversible overall decline. <sup>[SEP]</sup>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. <sup>[SEP]</sup>**NOTE:** Category U trees can have existing or potential conservation value that it might be desirable to preserve.
- **A (light green):** Trees of high quality with an estimated remaining life expectancy of at least 40 years. <sup>[SEP]</sup>**Mainly arboricultural qualities:** Trees that are particularly good examples of their species, especially if rare or unusual, or those that are essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue). Indicated by **1** in brackets after the appropriate category classification. <sup>[SEP]</sup>**Mainly landscape qualities:** Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features. Indicated by **2** in brackets after the appropriate category classification. <sup>[SEP]</sup>**Mainly cultural values, including conservation:** Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or woodpasture). Indicated by **3** in brackets after the appropriate category classification. <sup>[SEP]</sup>Trees with an estimated remaining life expectancy of at least 20 years.
- **B (mid blue):** <sup>[SEP]</sup>**Mainly arboricultural qualities:** Trees that might be included in category A, but are downgraded because of impaired condition (eg. 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. Indicated by **1** in brackets after the appropriate category classification. <sup>[SEP]</sup>**Mainly landscape qualities:** 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. Indicated by **2** in brackets after the appropriate category classification. <sup>[SEP]</sup>**Mainly cultural values, including conservation:** Trees with material conservation or other cultural value. Indicated by **3** in brackets after the appropriate category classification.
- **C (grey):** Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. <sup>[SEP]</sup>**Mainly arboricultural qualities:** Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories. Indicated by **1** in brackets after the appropriate category classification. <sup>[SEP]</sup>**Mainly landscape qualities:** 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. Indicated by **2** in brackets after the appropriate category classification. <sup>[SEP]</sup>**Mainly cultural values, including conservation:** Trees with no material conservation or other cultural value. Indicated by **3** in brackets after the appropriate category classification.



### APPENDIX 3

#### Individual Tree Data Schedule

Tag	Species	Age	Hgt	L Hgt	1st Sig. Branch		Stems		Crown spread				P cond	S cond	ULE	Cat	Observations
			(m)	(m)	(m)	Brg	No	Dia (mm)	N	E	S	W			(Yrs)		
T1	Birch - Silver {Betula pendula}	EM	12	2	2	SW	1	380	5	3	3	4	Good	Good	20 +	B1	
T2	Ash {Fraxinus excelsior}	EM	12	2	2	S	1	300	5	4	4	4	Good	Good	40 +	A1	Forks 1m above base
T3	Horse Chestnut {Aesculus hippocastanum}	M	18	2	3	E	1	1200	7	5	5	6	Fair	Fair	10 +	C1	3 large fused limbs which originate from near the tree's base. Loose bark on the west side of the trunk. Some fungal decay near the base. Decay in a large crown lifting pruning wound on the southern most scaffold limb. Bacterial canker present.
T5	Ash {Fraxinus excelsior}	M	18	3	1	W	1	790	12	9	12	10	Good	Fair	20 +	B1	Short stem three fused limbs. Large low spreading canopy
T6	Maple - Norway {Acer platanoides}	SM	8	1	1	N	1	370	5	5	4	6	Good	Good	20 +	B2	Situated on top of embankment
T7	Birch - Silver {Betula pendula}	SM	12	1	1	All	3	120,120,110	2	2	2	2	Fair	Fair	10 +	C2	

Tag	Species	Age	Hgt	L Hgt	1st Sig. Branch		Stems		Crown spread				P cond	S cond	ULE	Cat	Observations
			(m)	(m)	(m)	Brg	No	Dia (mm)	N	E	S	W			(Yrs)		
T8	Birch - Silver {Betula pendula}	SM	9	1	1	All	2	90,120	5	4	5	4	Good	Good	20 +	B1	
T9	Cypress - Lawson {Chamaecyparis lawsoniana}	SM	11	2	2	All	1	220	3	3	3	3	Good	Good	20 +	B1	
T10	Ash {Fraxinus excelsior}	M	15	4	4	E	1	450	4	5	6	6	Good	Fair	20 +	B1	Ivy clad. Adjacent to tarmac driveway.

#### APPENDIX 4 – Hedgerow schedule

Tag	Species	Age	Av Hgt	Width	Stem Range	Physical condition	Structural condition	ULE	Cat	Observations
			(m)	(m)	Dia (mm)			(Yrs)		
H1	Beech	M	3	0.9	60-90	Good	Good	40 +	B2	Sides trimmed
H2	Leylandii, laurel	M	3	0.8	90-120	Good	Good	20 +	C2	Sides trimmed

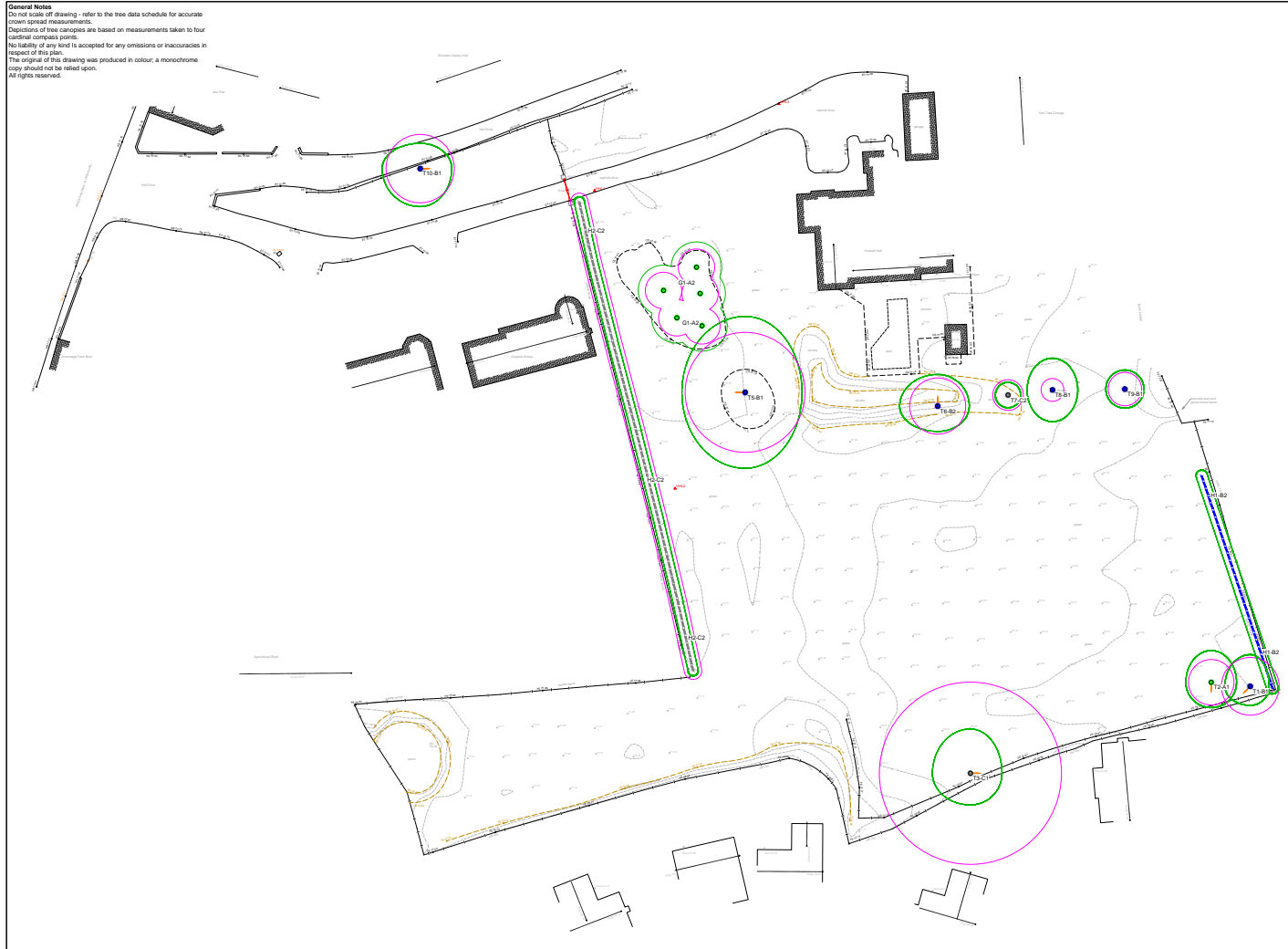
### APPENDIX 5 – Group schedule

Tag	Species	No of trees	Age	Av Hgt	Stem Range	Branch spread				Physical condition	Structural condition	ULE	Cat
				(m)	Dia (mm)	North	East	South	West			(Years)	
G1	Yew, thuja, cedar, lawson cypress	5	SM	12	200- 280	4	4	4	4	Good	Good	40 +	A2

# APPENDIX 6 – Tree Constraints Plan

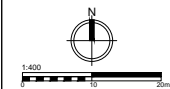
**General Notes**

Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.  
 Depictions of tree canopies are based on measurements taken to four cardinal compass points.  
 No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.  
 The original of this drawing was produced in colour; a monochrome copy should not be relied upon.  
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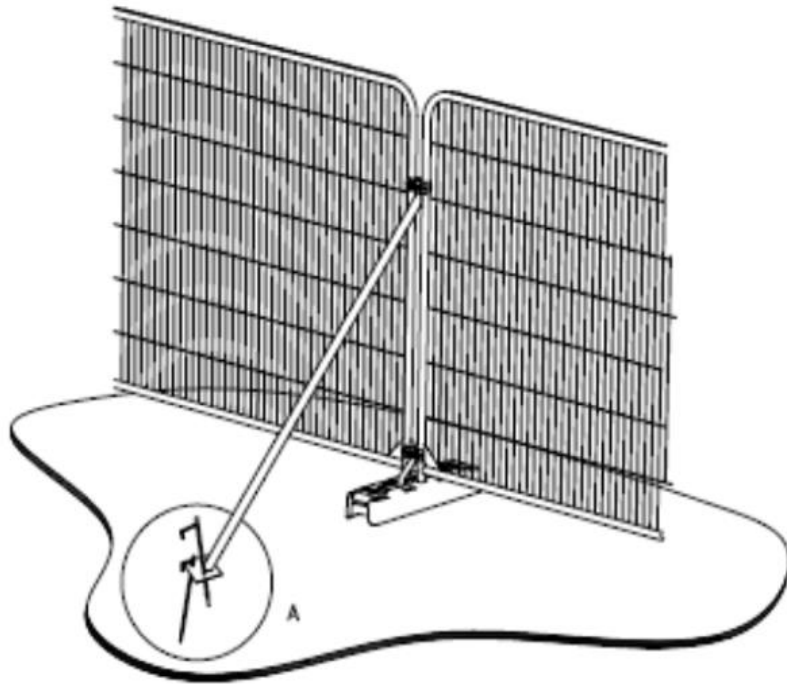
**Key**

- Tree**  
Showing Canopy extent, category colour and tag number (with category).
- Category A**  
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B**  
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- 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 100 mm.
- Category D**  
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- BS 5827:2012 Road Protection Area**
- Tree Group**  
Shown as dashed centre/boundary line. Colour represents category (see above).



<b>Tree Constraints Plan</b>			
Mr S. Groves			
Hadhall Hall			
Scale:	1:400 - A2	Date:	02/03/2022
Drawn by:	AA_TCP-2_3_22	Sheet:	3 CS AA
<b>Treetec Ecology</b> Angus Andrew MSC BSc 12 Dorset Drive, Castlefields Shrewsbury, Shropshire, SY1 2JH Tel: 01742 248771 Mob: 0771 150620 Email: info@treetec.co.uk Web: www.treetec.co.uk			

## APPENDIX 7 – Tree Protection fencing



1. 2m high welded mesh panels.
2. Placed upon rubber or concrete feet.
3. Joined using a minimum of 2 anti-tamper couplers placed at least 1m apart.
4. Panels to be supported on the inner side by stabilizer struts with ground pins
5. Signs to be affixed to fencing every ten metres. See below for example.

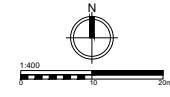


**General Notes**  
 Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.  
 Depictions of tree canopies are based on measurements taken to four cardinal compass points.  
 No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.  
 The original of this drawing was produced in colour; a monochrome copy should not be relied upon.  
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**Key**

- Tree
- Category 1: Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category 2: Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category 3: Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 100 mm.
- Category 4: Trees in such a condition that they can not realistically be retained as being trees in the context of the current land use for longer than 10 years.
- BS 5837:2012 Root Protection Area
- Tree Cuts
- Tree Protective Fencing



Tree Protection Plan			
Client	Mr S. Groves		
Site Name	Hadnall Hall		
Reference	1:400 - A2	Date	06/03/2022
Drawn by	AA_TPP-3_3.22	Scale	3 CS AA
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**Figure 1** Trees 1 and 2 on the left and T5 on the right  
14/10/2023



**Figure 2** Trees 5, 6 and 7 14/10/2023