



BS5837 TREE SURVEY REPORT

Tree Tops Chalets

Henlle Hall,
Preeshenlle Lane, Gobowen,
Shropshire,
SY10 7AX

June 2018

Prepared by	For
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1 Introduction

- . Treetec were instructed by Roger Ballamy of CGL Homes Ltd to undertake a pre-development tree survey at the site known as Henlle Hall, near Gobowen. The intention is to erect three single storey, wood constructed, holiday chalets on this site.
- . This report has been prepared in order to inform construction options and positioning of these cabins 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 'Henlle Hall Tree Tops Chalets.dwg', was supplied with trees and shrub masses 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 Stace 2010, *A New Flora of Britain*, 3rd edition.
- . 2.4 Hedgerows have been recorded as a tree group including average lateral spread, height and stem diameter ranges. All woody species present have been recorded. Where woody plants are present within a hedgerow that are significantly different in character from the remainder of it, these have been identified and recorded separately, especially where they comprise a distinct tree form. Hedgerows extents have been recorded based on linear continuity or a change in attributes. Their compositions have been described in the data schedule.
- . 2.5 Where relevant, recommended works, particularly to hazardous trees have been included. Such recommendations are valid for a period of 12 months from the date of this inspection, following which it may be necessary to reassess this advice in accordance with sound arboricultural principals.

3 Statutory protection

- . There was an area Tree Preservation Order made on part of the Henlle Hall site in 1984. This would protect all the mature trees but probably not the younger specimens. It will be necessary to make the requisite application/prior notification of proposed works and receive written consent before any tree work or other actions that may be detrimental to the trees is carried out.
- . 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 survey was carried out by Angus Andrew on the 22nd May 2018. Site conditions were favourable, with no restrictions on visibility or access. The sites are existing clearings within woodland surrounded by rhododendron, scrub, mature and semi mature trees with some tall ruderal vegetation.
- 4.2 The three survey sites are contained within the woodland and extensive gardens of Henlle Hall. These include areas of mown, amenity grassland and groups of shrub and trees, aged young to fully mature. The site is surrounded by improved grassland, a golf course and a small area of woodland.
- 4.3 There were 3 category A trees, 11 category B, 15 category C and 1 category U trees.
- 4.4 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 Survey 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.

$$\text{The RPA(m}^2\text{)} = \left[\frac{\text{stem diameter(mm)} @ 1.5\text{m} \times 12}{1000} \right]^2 \times 3.142$$

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.

- 5.3 The proposed chalet footprints lie within the canopies and the RPAs of some trees in each clearing. The aim of this project is to retain as many trees as possible around the building to maintain the woodland setting and forest atmosphere of the development. The concept of the "Tree Tops Chalets" is to provide accommodation within the canopy spread. The construction method aims to minimize tree surgery works or damage to roots whilst achieving this aim.

- . 5.4 The existing tracks will be maintained with some additional surface dressing of loose stone. The proposed new short route into site 3 crosses root protection areas and a no dig method will be utilized.

6 Arboricultural Impact Assessment

- 6.1 The cabins are of timber construction and designed to be built by hand using a small workforce. The materials can be transported to the work area via an existing track.
All excavations can, if necessary, be carried out by hand. As such, the risk of direct e.g. mechanical contact or indirect e.g. compaction damage to trees is low. The construction design can accommodate variations in ground levels without excavations and the building is variable in height to below 5m above ground level. Very little branch pruning will be required to adjacent trees.
- 6.2 Trees 12 will be felled for reasons of sound arboricultural management.
- 6.3 Each cabin will have a 600 x 600mm pile for every 1.5m² of floor area. Twelve piles will typically be required giving a total excavation area of 4.3m². This represents a relatively small percentage of any RPA's under consideration. Even the smaller trees on site that have for example, a diameter of 330mm will have an RPA of almost 50m². As long as no roots thicker than 25mm in diameter are severed, the direct impact on roots will be insignificant.
- 6.4 Indirect damage to roots may occur through contamination, compaction or lack of water. The cabins will shelter their footprint area from rainfall. For this reason, the roof drainage will be directed under the chalets.
- 6.5 The new track route to chalet 3 crosses root protection areas. A no dig technique shall be utilized.
- 6.6 The cabins will be only partly shaded or overhung by the surrounding tree canopies as they stand within clearings. There are three instances where the first lowest significant branch interferes with the construction area. These branches will be removed or reduced in line with BS3998 leaving accurate finishing cuts.
- 6.7 The cabins will have a parking area for 1 or 2 cars. This could cause compaction of the soil within RPA's.

7 Arboricultural Method Statement

- 7.1 This section of the report details best practice measures to be adopted in order to protect retained trees during the development process. Details included within this section should be included within the specifications and schedules of work issued to all relevant construction and landscaping contractors. The methodology should be discussed and agreed between the local authority tree officer, architect and relevant contractors. The methods are listed in order of implementation.
- 7.2 Trees numbered 12 will be felled. Other trees will be pruned in accordance with BS3998:2010. No heavy machinery (e.g. vehicles, large chippers) shall be driven into RPA's.
- 7.3 The RPA's shall be measured and clearly marked on site with the use of ground pins or marker spray before heavy plant arrives or excavations begin. All relevant personnel should be briefed to ensure they are fully aware of the location and extent of the RPA's. Construction Exclusion Zone (CEZ) fencing shall be erected as shown on the plan and in conjunction with the marked RPA's to exclude the RPA's from harm. "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). Weather proof 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.
- 7.4 Mark out the positions of foundation piles on ground. Move positions if obvious interaction with tree roots or other obstacles is already evident.
- 7.5 **Hand digging of the foundation holes.** (See instructions and diagrams in Appendix 7).
- Place boards around work area to prevent compaction and contamination.
 - Place boards along heavy trafficked and/or material transport routes.
 - Site cement mixer and bagged materials away from RPA's on boards or access tracks.
 - Hand dig to a depth of 500mm to check for roots. Careful use of an "airspade" is an acceptable alternative to the use of hand tools.
 - During excavations any roots less than 25mm should be cut cleanly to the sides with a pair of secateurs. All roots greater than 25mm diameter will be left in situ undamaged. If no roots are found, complete hole mechanically with micro digger (<1 tonne tracked excavator).
 - If roots greater than 25mm diameter are encountered, carefully expose the roots running through the pier area and wrap with wet hessian and sleeve with a split plastic pipe to protect.
 - Hand dig either side of the root to expose a pier area unaffected by roots. This can be in any orientation necessary. Keep digging by hand until acceptable bearing ground is reached.
 - Engineer shall site design a mesh reinforcement bridge over the root(s).
 - Cover root(s) with the soil originally removed from around it and then cap with plastic membrane.
 - Pour concrete avoiding spillage on surrounds. 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 RPA's of trees.

7.6 Hand digging of drainage trenches.

In accordance with NJUG guidelines, where services must be routed through the RPA of a retained tree, the trench must be hand dug and all roots in excess of 25mm diameter retained, bridging the trench. If roots are exposed for more than a few hours during hot or freezing weather they must be wrapped with damp hessian to prevent drying or with an insulating material to prevent freezing as appropriate. Any insulating material must be removed before backfilling. Careful use of an "airspace" is an acceptable alternative to the use of hand tools. All services will be run through one trench to the cabin, the excavation of which has the potential to damage roots.

7.7 No dig construction of track and parking area

The proposed new access track and car parking area lie within the RPA's. It is assumed that only light vehicles such as cars and small vans will be utilize the track and parking. In these areas existing ground vegetation shall be screefed by hand and removed. The ground shall then be treated with Biochar and compost before covering with a permeable geotextile membrane. Loading which would otherwise result in ground compaction and damage, will be dissipated by the installation of ground protection comprising Cellweb or a similar cellular confinement system laid over the geotextile membrane and filled with washed no fines stone. Specifications for the use of such systems should be sought from the manufacturer. Top soil or a granular fill free of dust and fines up to a depth of 150mm may be used to build up uneven ground before installation of the ground protection. Under no circumstances are levels to be formed by excavating soil within the RPA. Ground protection shall be installed by machinery operated from outside the RPA. As it is installed, machinery may work off installed areas to facilitate further installation. If the fill used in the ground protection becomes contaminated with soil and fines, it shall be removed and replaced with clean no fines stone before any surfaces are laid. When loading up the geocells the drop height must be less than 0.5m or a height that prevents crushing the side walls. Unconsolidated washed gravel retains its porosity until contamination and colonisation by weeds restricts its breathability. This may be prevalent around the cabins because of high leaf fall. The gravel may need to be renewed or topped-up, The areas should be periodically treated with glyphosate herbicide.

The intention is to leave these areas as gravel surfacing. If however, any hard surface is laid over the ground protection it shall be permeable and gas-porous. Paving slabs and blocks may be laid with spaces left between individual slabs and blocks to allow air and moisture to penetrate the root zone. Timber boards may be used to provide edging.

7.8 Tree protection and the CEZ

- 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.
- 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.
- Existing ground cover vegetation shall be killed using an appropriate non-residual contact herbicide.
- Tree surgery may be done at the pre or post-development stages. It shall comply with BS:3998 (2010). Arisings may be removed from site, chipped and left, or cut and mounded to form habitat piles. They should not be burnt where fire and smoke may damage retained trees. Stumps should not be dug or pulled. They may be ground, but consideration should be given to their retention as habitats for flora and fauna.
- If extensive pedestrian access is required over the CEZ, it shall be protected by using scaffold boards as walkways. Additional protection can be provided by laying these over a compressible layer such as bark mulch spread over a porous geo-textile membrane.
- 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 shall not be skimmed to establish new levels.
- 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 Arboriculturalist

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 arboriculturalist. This would include the digging of foundation holes and trenches and the construction of parking areas. The arboriculturalist will visit site at pre-scheduled intervals to ensure the suitability of the method statement under field conditions and ensure compliance by contractors.

The new tree planting around the building will be monitored for its success rate.

APPENDICES

- Appendix 1 – Surveyors Experience
- Appendix 2 – Explanation of Terms
- Appendix 3 – Tree Data Schedule
- Appendix 4 – Hedges Data Schedule
- Appendix 5 – Tree survey and Constraints Plan
- Appendix 6 – Foundation construction method
- Appendix 7 – CEZ implementation

APPENDIX 1

Author's Qualifications and Experience

Angus Andrew BSc (Hons), RFS Cert Arb

Angus Andrew is a professional arboriculturalist with 25 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.

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 (3rd edition 1997) and are provided as common and scientific species names. Synonyms are in brackets. .

Tree height: Height of the tree in metres.

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

Young	Tree in establishment stage, normally up to 10 years old
Semi-mature	Establishing tree with potential for significant growth both in terms of tree height and crown spread
Early-mature	Established tree, typically having attained at least 70% of likely mature height and crown spread
Mature	Full height and crown spread attained
Over-mature	Extensive decline in physiological functions and/or structural integrity
Veteran	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.

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

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

Good	No significant structural defects observed
Fair	Some structural defects observed but these do not necessitate remedial action at present
Poor	Significant defects observed resulting in a tree which is likely to require either monitoring or remedial action
Very Poor	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. Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). Trees that are dead or are showing signs of significant, immediate and irreversible overall decline. Trees infected with pathogens of significance to the health and/or safety of other trees nearby or very low quality trees suppressing adjacent trees of better quality. **NOTE:** Category U trees can have existing or potential conservation value 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. **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. **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. **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. Trees with an estimated remaining life expectancy of at least 20 years.

- **B (mid blue):** **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. **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. **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. **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. **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. **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	Oak - Pedunculate { <i>Quercus robur</i> }	SM	12	4	3	All	1	240	4	3	2	1	Good	Good	40 +	A1	
T2	Birch - Silver { <i>Betula pendula</i> }	M	13	4	4	SE	1	360	2	3	5	3	Good	Good	40 +	B1	
T3	Birch - Silver { <i>Betula pendula</i> }	M	11	5	5	All	1	230	2	1	4	2	Good	Poor	10 +	C1	Leaning
T4	Hawthorn - Common { <i>Crateagus monogyna</i> }	M	6	2	2	All	1	260	2	4	4	2	Good	Good	40 +	B2	
T5	Hawthorn - Common { <i>Crateagus monogyna</i> }	M	9	2	2	All	1	250	2	1	3	2	Good	Good	20 +	B2	
T6	Cypress - Lawson { <i>Chamaecyparis lawsoniana</i> }	Y	5	2	2	All	1	100	2	2	2	2	Good	Good	20 +	B1	
T7	Holly { <i>Ilex aquifolium</i> }	M	11	4	4	All	3	200, 260, 220	4	4	4	3	Good	Fair	20 +	C2	Basal decay
T8	Holly { <i>Ilex aquifolium</i> }	V	12	6	6	All	1	530	2	2	2	2	Good	Good	20 +	B2	Minor basal decay
T9	Holly { <i>Ilex aquifolium</i> }	M	12	6	6	All	1	360	4	4	4	4	Good	Fair	20 +	C2	
T10	Cherry - Wild, Gean { <i>Prunus avium</i> }	M	15	7	7	SE	1	390	5	4	5	4	Good	Good	20 +	B1	
T11	Cherry - Wild, Gean { <i>Prunus avium</i> }	M	14	7	7	All	1	270	3	3	3	3	Good	Good	20 +	B2	

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)		
T12	Holly {Ilex aquifolium}	SM	8	4	4	All	3	120, 120, 100	3	4	4	4	Fair	Poor	< 10	U	Basal wounding and basal decay column extending one metre up trunk
T13	Hornbeam {Carpinus betulus}	SM	11	5	5	All	1	260	3	3	5	4	Good	Good	20 +	C2	
T14	Sycamore {Acer pseudoplatanus}	SM	6	3	3	All	1	270	1	2	3	2	Fair	Fair	10 +	C2	Squirrel damage
T15	Holly {Ilex aquifolium}	EM	6	2	2	All	1	250	1	2	3	1	Fair	Fair	10 +	C2	
T16	Holly {Ilex aquifolium}	SM	7	2	2	All	4	90,90,140,120	1	2	2	1	Fair	Fair	10 +	C2	
T17	Holly {Ilex aquifolium}	Y	6	3	3	All	1	110	2	2	2	2	Good	Good	40 +	C2	
T18	Holly {Ilex aquifolium}	M	11	3	3	All	3	280,90,120	1	2	3	2	Good	Good	20 +	B2	
T19	Holly {Ilex aquifolium}	SM	6	4	4	All	1	160	1	1	1	1	Good	Good	20 +	C2	
T20	Holly {Ilex aquifolium}	M	14	3	3	All	2	280, 260	4	5	4	3	Fair	Fair	20 +	B2	
T21	Holly {Ilex aquifolium}	M	14	5	5	All	1	280	3	3	3	3	Good	Fair	10 +	C2	
T22	Elm - Wych {Ulmus glabra}	SM	12	4	4	All	1	190	3	3	3	3	Good	Good	10 +	C2	
T23	Elm - Wych {Ulmus glabra}	SM	12	4	4	All	1	190	3	3	3	3	Good	Good	10 +	C2	
T24	Sycamore {Acer pseudoplatanus}	M	21	6	6	All	1	580	5	5	5	4	Good	Good	40 +	A2	
T25	Ash {Fraxinus excelsior}	M	19	7	7	All	4	500, 380, 470, 390	8	7	7	7	Good	Fair	20 +	B2	Lapsed coppice
T26	Ash {Fraxinus excelsior}	M	19	7	7	All	1	410	1	4	5	4	Fair	Fair	20 +	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)		
T27	Sycamore {Acer pseudoplatanus}	Y	6	2	2	All	1	140	2	2	2	2	Fair	Fair	10 +	C2	
T28	Elm - Wych {Ulmus glabra}	SM	7	4	4	All	1	120	2	2	2	2	Good	Good	10 +	C2	
T29	Horse Chestnut {Aesculus hippocastanum}	M	19	4	4	All	1	620	5	6	4	5	Good	Good	20 +	B2	
T30	Oak - Pedunculate {Quercus robur}	M	-20	5	5	SE	1	1400	8	10	12	10	Good	Fair	40 +	A1	

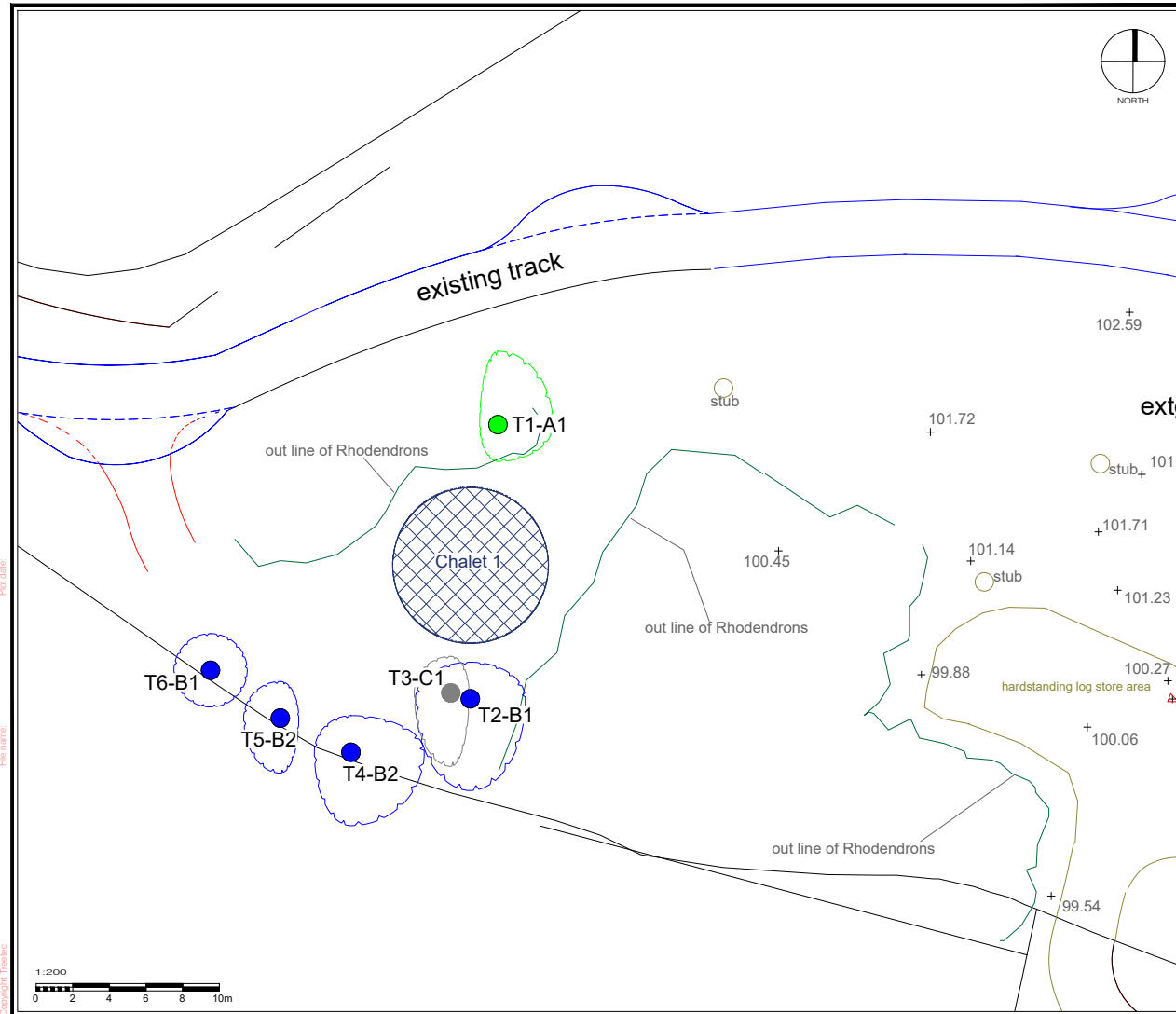
APPENDIX 4

Group Data 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	Rhododendron (90%), birch scrub	c.20	SM	4	60-100	4	4	4	4	Good	Good	10 +	C2

APPENDIX 5

Tree Schedule and Constraints Plans



Key

- CATEGORY A (GREEN) TREES
Trees of high quality with an estimated remaining life expectancy of at least 40 years
- CATEGORY B (BLUE) TREES
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
- CATEGORY C (GREY) TREES
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm
- CATEGORY U (RED) TREES
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
- Tree group
- Hedge

Tag	Species
T1	Oak - Pedunculatae (<i>Quercus robur</i>)
T2	Birch - Silver (<i>Betula pendula</i>)
T3	Birch - Silver (<i>Betula pendula</i>)
T4	Hawthorn - Common (<i>Crateagus monogyna</i>)
T5	Hawthorn - Common (<i>Crateagus monogyna</i>)
T6	Cypress - Lawson (<i>Chamaecyparis lawsoniana</i>)

- Notes:**
1. Tree survey carried out 22nd May 2018
 2. Topographic information provided by CGL Homes Ltd
 3. This drawing has been prepared in accordance with BS5837:2012.

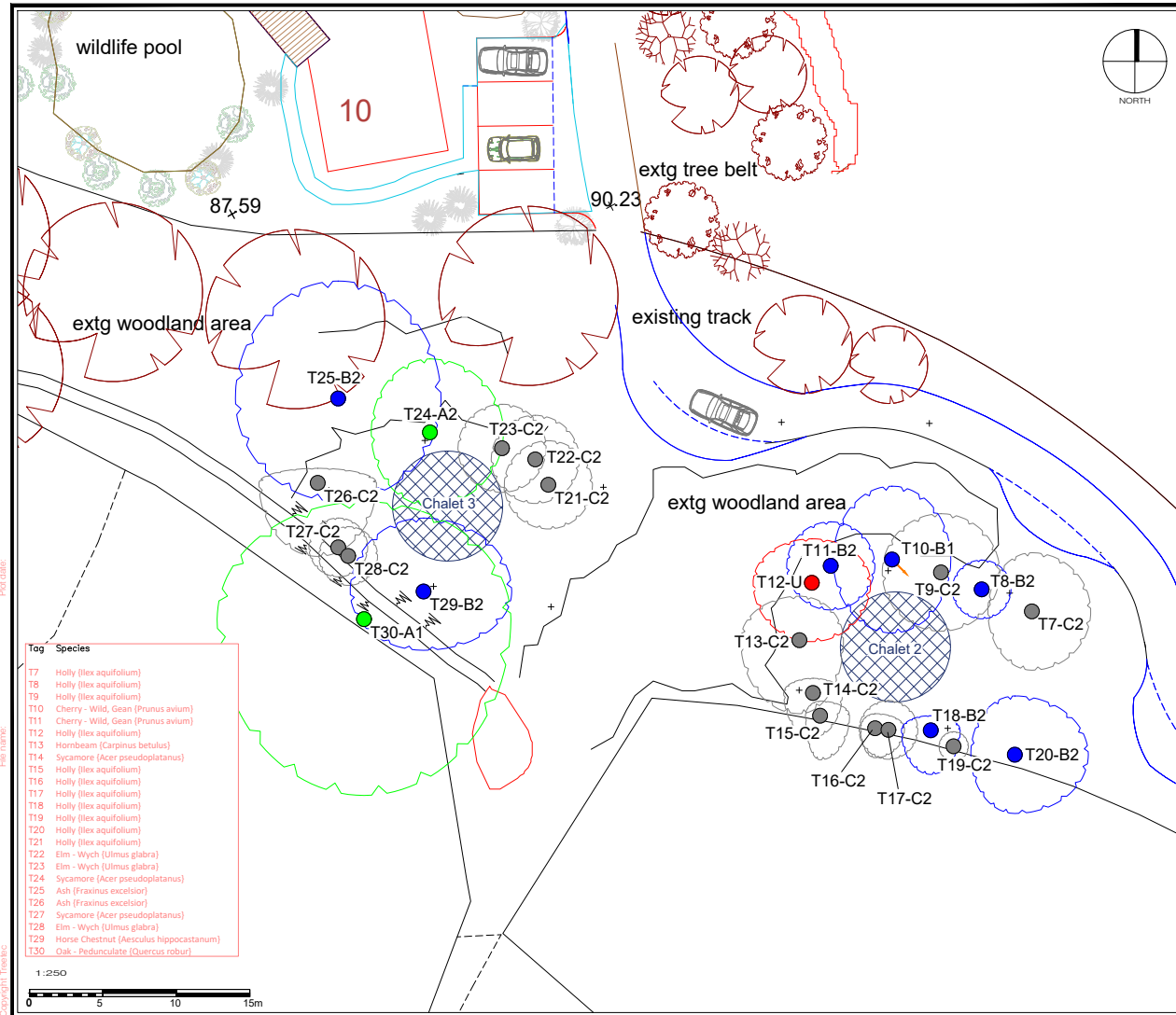
CGL HOMES LTD

**HENLLE HALL TREE TOPS
CHALETS 2018 - SITE 1**

FIGURE 1

**TREE SURVEY
SCHEDULE**

SCALE	1:200 @A3	PROJECT No.	TTC001
CONTENT	AA	DRAWN	CS
CHECKED	AA	DATE	JUNE 2018



File name:
 Plot date:
 Copyright Tretec

Tag	Species
T7	Holly (Ilex aquifolium)
T8	Holly (Ilex aquifolium)
T9	Holly (Ilex aquifolium)
T10	Cherry - Wild, Gean (Prunus avium)
T11	Cherry - Wild, Gean (Prunus avium)
T12	Holly (Ilex aquifolium)
T13	Hornbeam (Carpinus betulus)
T14	Sycamore (Acer pseudoplatanus)
T15	Holly (Ilex aquifolium)
T16	Holly (Ilex aquifolium)
T17	Holly (Ilex aquifolium)
T18	Holly (Ilex aquifolium)
T19	Holly (Ilex aquifolium)
T20	Holly (Ilex aquifolium)
T21	Holly (Ilex aquifolium)
T22	Elm - Wych (Ulmus glabra)
T23	Elm - Wych (Ulmus glabra)
T24	Sycamore (Acer pseudoplatanus)
T25	Ash (Fraxinus excelsior)
T26	Ash (Fraxinus excelsior)
T27	Sycamore (Acer pseudoplatanus)
T28	Elm - Wych (Ulmus glabra)
T29	Horse Chestnut (Aesculus hippocastanum)
T30	Oak - Pedunculate (Quercus robur)

Key

- CATEGORY A (GREEN) TREES
Trees of high quality with an estimated remaining life expectancy of at least 40 years
- CATEGORY B (BLUE) TREES
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
- CATEGORY C (GREY) TREES
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm
- CATEGORY U (RED) TREES
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
- Tree group
- Hedge

Notes:

1. Tree survey carried out 22nd May 2018
2. Topographic information provided by CGL Homes Ltd
3. This drawing has been prepared in accordance with BS5637:2012.

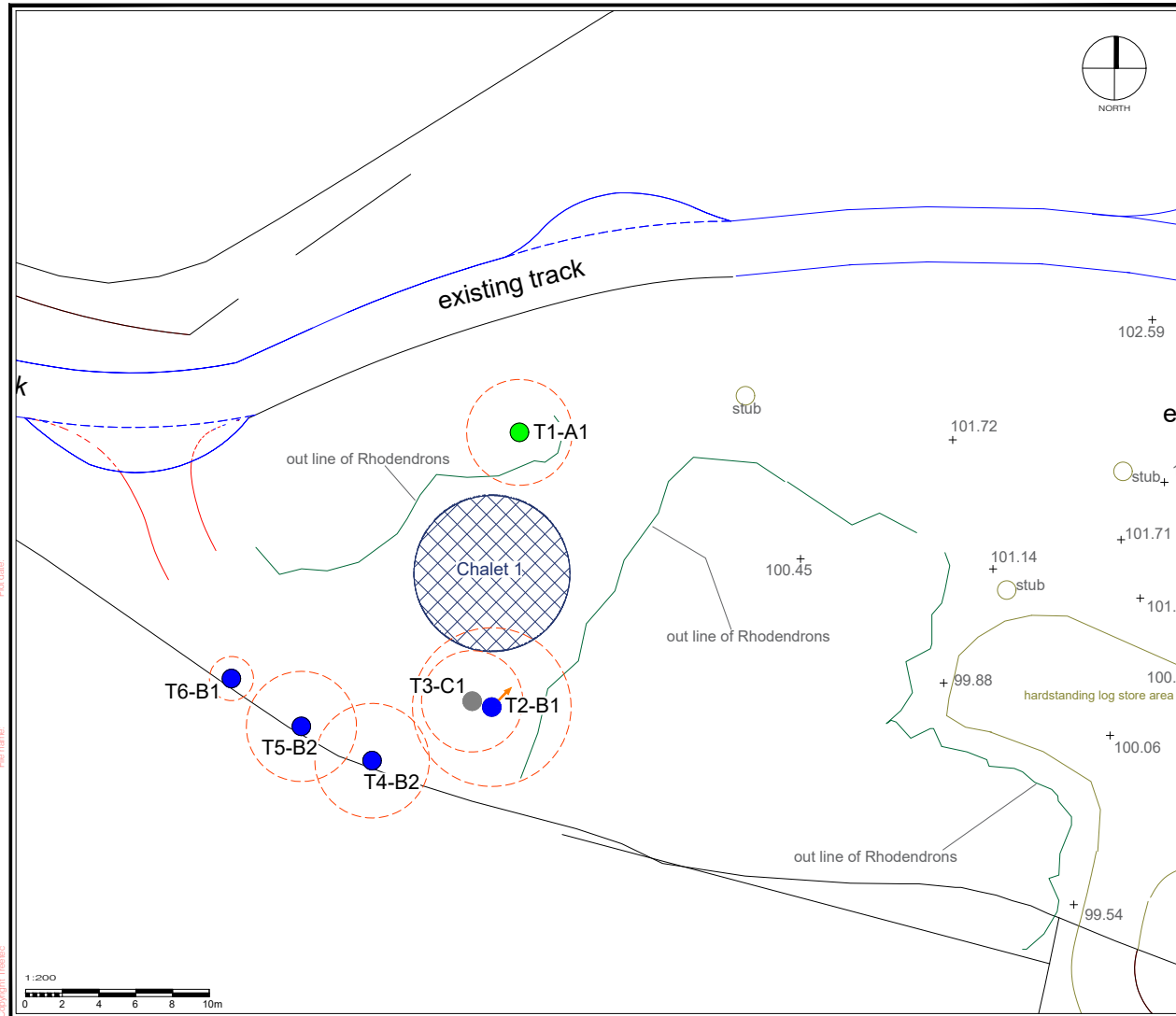
CGL HOMES LTD

**HENLLE HALL TREE TOPS
CHALETs 2018 - SITES 2 & 3**

FIGURE 1

**TREE SURVEY
SCHEDULE**

SCALE	1:250 @A3	PROJECT No.	TTC001
CONTENT	AA	DRAWN	CS
CHECKED	AA	DATE	JUNE 2018



Key

- ROOT PROTECTION ZONE: Area around protected trees indicates the minimum Root Protection Area required.
- CATEGORY A (GREEN) TREES
Trees of high quality with an estimated remaining life expectancy of at least 40 years
- CATEGORY B (BLUE) TREES
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
- CATEGORY C (GREY) TREES
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm
- CATEGORY U (RED) TREES
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
- FSB BEARING
Orange arrow showing direction of first significant branch (where applicable)
- Tree group
- Hedge

Tog	Species
T1	Dak - Pedunculate (<i>Quercus robur</i>)
T2	Birch - Silver (<i>Betula pendula</i>)
T3	Birch - Silver (<i>Betula pendula</i>)
T4	Hawthorn - Common (<i>Crateagus monogyna</i>)
T5	Hawthorn - Common (<i>Crateagus monogyna</i>)
T6	Cypress - Lawson (<i>Chamaecyparis lawsoniana</i>)

Notes:


- Tree survey carried out 22nd May 2018
- Topographic information provided by CGL Homes Ltd
- This drawing has been prepared in accordance with BS5837:2012.

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HENLLE HALL TREE TOPS CHALETs 2018 - SITE 1

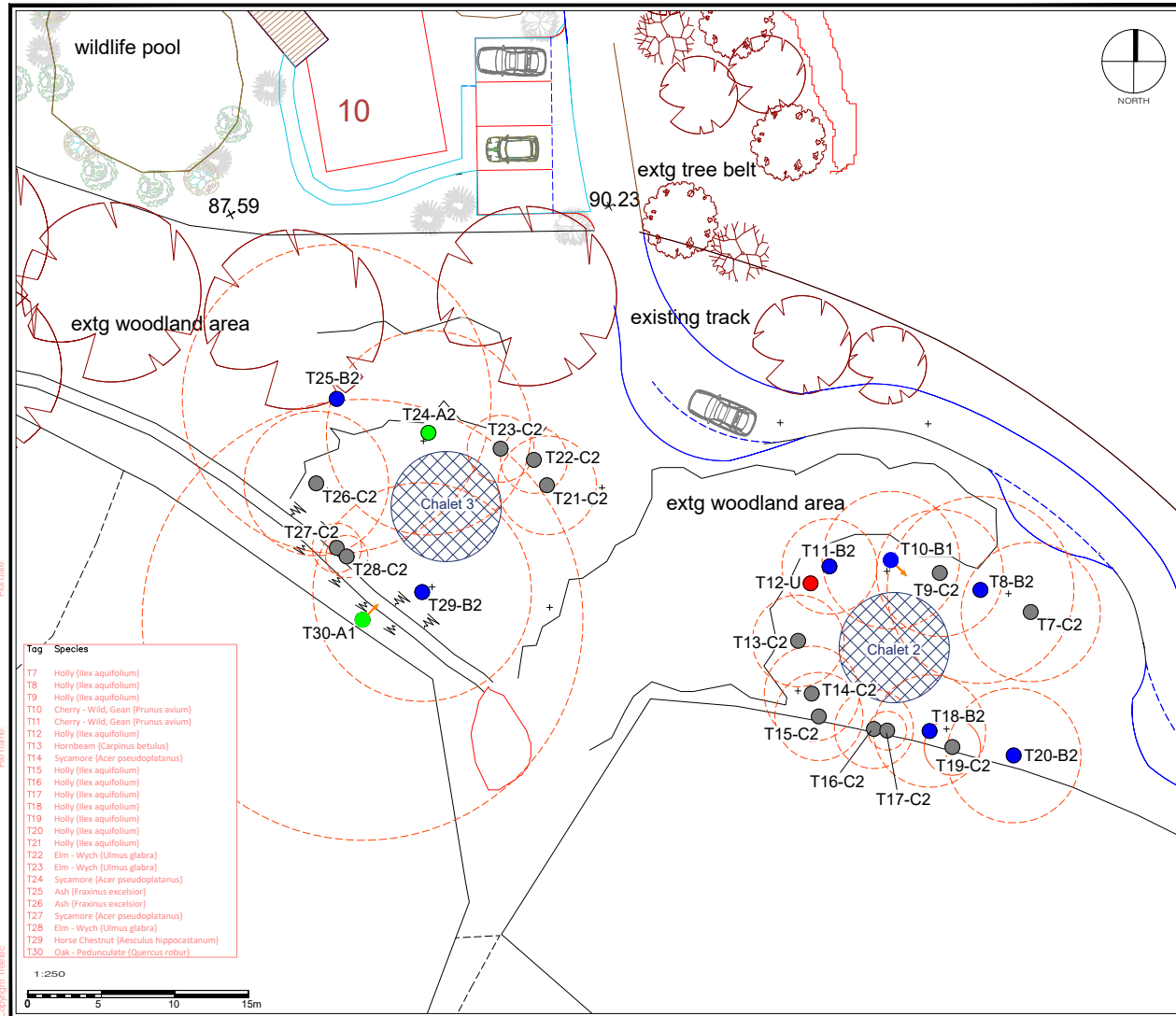
FIGURE 2

TREE CONSTRAINTS PLAN



Treetec
www.treetec.co.uk

SCALE	1:200 @A3	PROJECT No.	TTC001
CONTENT	AA	DRAWN	CS
CHECKED	AA	DATE	JUNE 2018



Key

- ROOT PROTECTION ZONE: Area around protected trees indicates the minimum Root Protection Area required.
- T21 CATEGORY A (GREEN) TREES
Trees of high quality with an estimated remaining life expectancy of at least 40 years
- T26 CATEGORY B (BLUE) TREES
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
- T11 CATEGORY C (GREY) TREES
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm
- T3 CATEGORY U (RED) TREES
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
- T3 FSB BEARING
Orange arrow showing direction of first significant branch (where applicable)
- G1 Tree group
- H1 Hedge

Notes:

- Tree survey carried out 22nd May 2018
- Topographic information provided by CGL Homes Ltd
- This drawing has been prepared in accordance with BS5837:2012.

CGL HOMES LTD

HENLLE HALL TREE TOPS CHALETs 2018 - SITES 2&3

FIGURE 2

TREE CONSTRAINTS PLAN

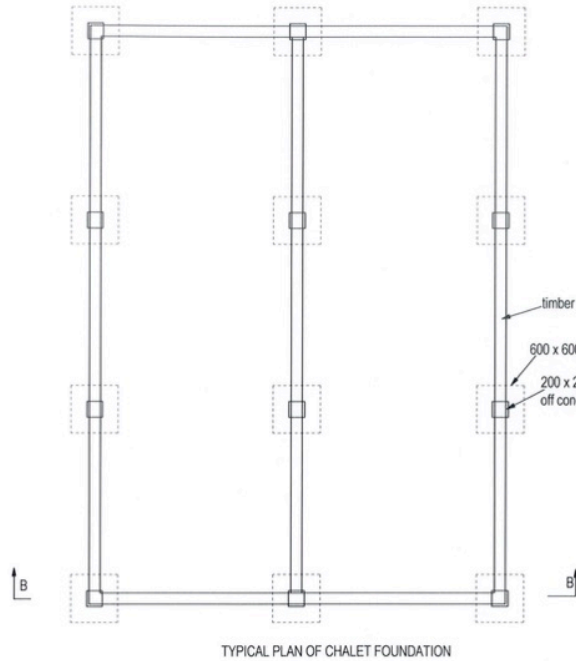
SCALE 1:200 @A3 **PROJECT No.** TTC001

CONTENT AA **DRAWN** CS

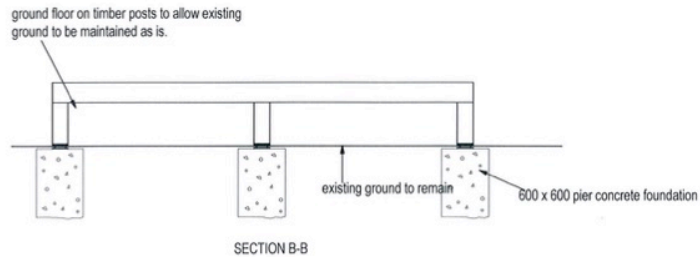
CHECKED AA **DATE** JUNE 2018

APPENDIX 6

Appendix 6 Foundation Construction Method



TYPICAL PLAN OF CHALET FOUNDATION



SECTION B-B

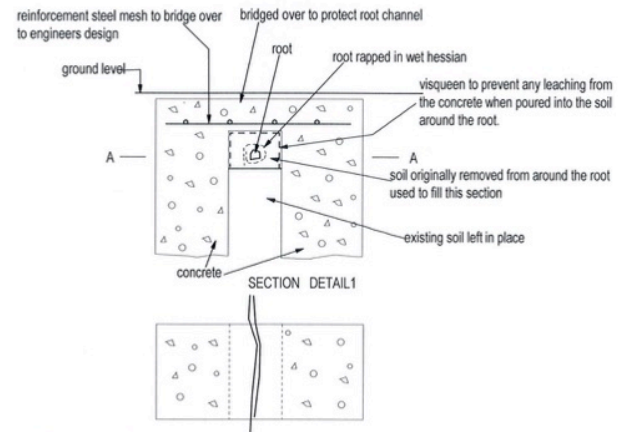
The woodland setting is of great importance to this site. The foundation type and detail have been especially designed to keep ground excavation to a minimum and thereby avoid damage to important tree roots. Where roots are encountered a method has been detailed on this drawing to protect them. Rain water from the roof will be fed on to the existing ground under the chalet so that the existing moisture balance of the ground remains the same.

Method to install pier foundations

- 1/ Work from within the building outline start at a far corner and work outwards.
- 2/ Hand dig to loosen the ground down to about 300mm below the surface to check for tree roots. If no roots found use the mini excavator to remove remaining soil to this level. If roots are found then follow the method as described in protecting roots at foundation piers. Repeat the above process until acceptable bearing ground is reached.
- 3/ Concrete the pier foundation bearing in mind the method for roots at foundation piers if roots have been found.

Method for roots at foundation piers

- 1/ Expose the roots through the pier area and rap with wet hessian then temporarily sleeve with a split pipe to protect.
- 2/ hand dig either side of the root area to expose a pier area that is unaffected by roots
- 3/ Carefully dig these areas until acceptable bearing ground is reached.
- 4/ Prepare the roots area as shown in detail 1 with the temporary split pipe being removed but leaving the wet hessian rapped around the root.
- 5/ Concrete the pier forming a mesh reinforced bridge over the root area as shown in detail 1.
- 6/ Engineer to on site design reinforcement bridge so that a wide variety of bridge widths and directions can be accommodated in dealing with protecting root paths.

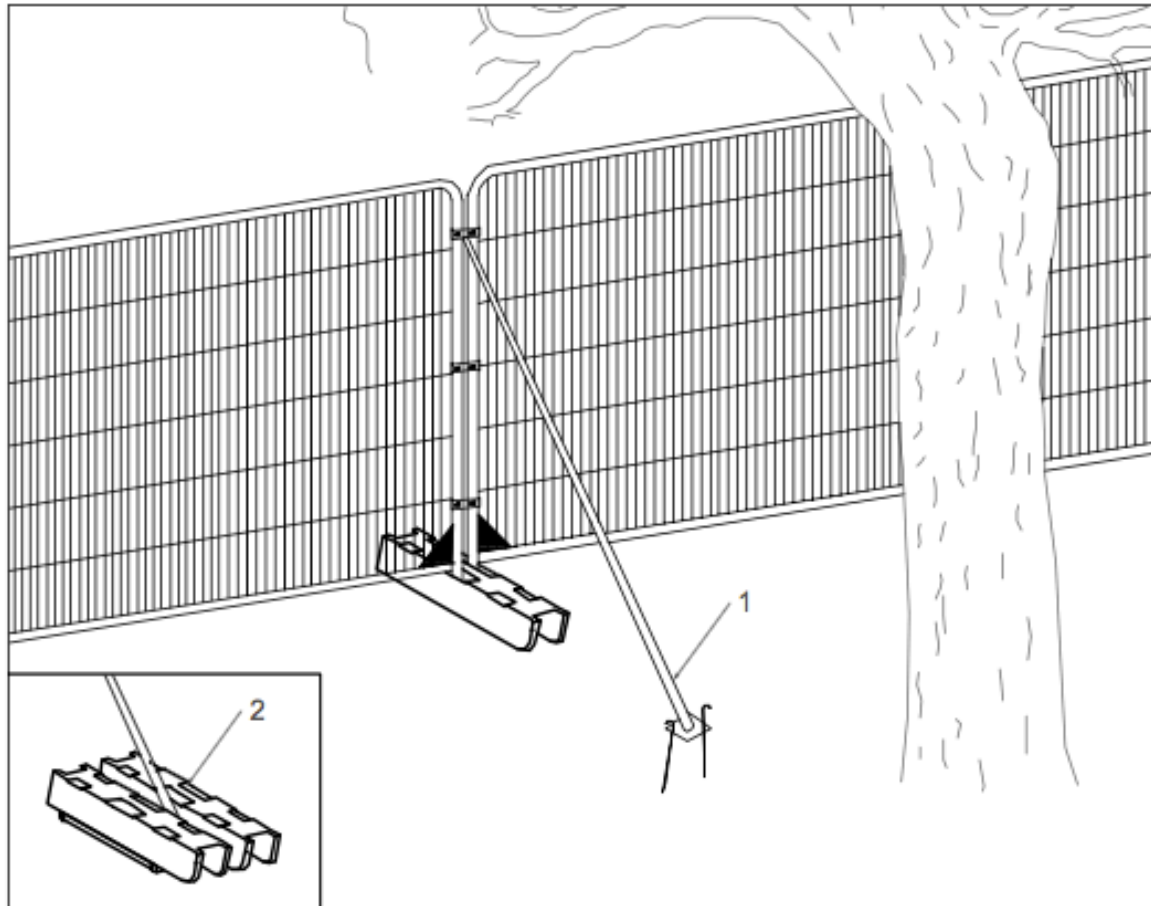


SECTION A-A ON PLAN DETAIL 1

CHALET FOUNDATION METHOD DETAILS HENLLE HALL

APPENDIX 7

Tree Protection Fencing



Above ground stabilising systems

1. Stabiliser strut with base plate secured with ground pins
2. Stabiliser strut mounted on block tray