
YEW TREE AND GARDENS

Client: First Resorts Ltd

– Brockwood Hall
Whicham, Millom, Cumbria.

ARBORICULTURAL IMPACT ASSESSMENT
FOR PROPOSED REPLACEMENT SWIMMING POOL

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ARBORICULTURAL IMPACT ASSESSMENT

1. SITE

A. SITE DESCRIPTION

1. The proposed development site comprises of a single area within the existing maintained grounds forming the surroundings of a number of accommodation lodges and the site of a former swimming pool at Brockwood Hall, Millom, Cumbria.
2. The development area is as indicated in Appendix 4 Tree Constraints Plan and tree stock is as detailed within Appendix 1: Tree schedule.
3. Significant Tree stock within the area of the site adjacent to the proposed replacement pool is comprised of a number of trees which span age classes from semi mature to mature. Tree stock is a mixture of native and non-native species with higher densities of non-native species within the central landscaped areas of the site.
4. The survey site is bounded to the West and East by areas of maintained lawns to the North by areas of existing lodges and tree cover and to the South by maintained grounds and vehicle access / parking associated with the main hall building.

B. SURVEY DETAILS

1. The site was surveyed on 30/07/2021, tree heights were estimated via use of clinometer (Suunto PM-5), measurements of DBH taken at 1.5m height and crown spread was taken by ground measurements. The position of trees and crown extents are taken from the supplied site plan. Due to weather conditions no images were taken at the date of the survey. Sun positions were estimated on site via Sun Surveyor software. Weather conditions were overcast with heavy rain and moderate winds.
2. All surveying of tree stock on the site was carried out visually from the ground only. Where ivy cover was encountered on trees then only limited visual checking of structure and potential defects was possible.
3. At the time of surveying all trees were recorded on standard tree record sheets, see Appendix 1: Tree Schedule. Trees were surveyed throughout the entire site, detailed individual details were recorded for all significant trees within the existing site. Where larger numbers of smaller trees were encountered in the survey area these are included as a Group record which includes the approximate height range and maximum Diameter at Breast Height (DBH) of trees within the group, these groups are referred to by group i.e. Group 2 (G2).
4. The surveyed trees are categorized by the standard retention categories as defined in BS5837:2012. Such retention categories seek to inform the design process of trees which may be worthy of consideration for inclusion within the proposed development. All work recommendations relate to trees within the context of the current site layout and usage. Note: the report and schedule recommendations form components of a development survey and are not intended to be used as a specific tree hazard assessment
5. Trees requiring removal to facilitate the proposed development or are unsuitable for retention are annotated in red on the Tree Constraints Plan and are further identified in the work recommendation section of the Tree Schedule.

2. PROPOSED DEVELOPMENT

A. PROPOSED DEVELOPMENT

1. The proposed development is for the construction of a replacement swimming pool building on the site of the former pool. The development is as indicated in Appendix 4: Tree Constraints Plan.

3. TREE PRESERVATION ORDERS AND CONSERVATION AREAS

A. SITE DESCRIPTION

1. The site is not located within a Conservation Area.
2. The site is covered by a Woodland Tree Preservation Order reference Copeland Borough Council No 2 1980. Whilst the trees within the central site may not have been present at the time of the making and confirming of the order, the presence of a woodland order covering the site means that all trees occurring within the boundary of the woodland order are afforded statutory protection.
3. The status of all trees within and adjacent to the site should be verified before any works or removals are undertaken.
4. It should be noted that trees located outside of maintained grounds and not covered by an active TPO or conservation area are subject to the standard Felling License constraints imposed by the Forestry Commission. These regulations restrict the volume of timber which may be removed in a calendar quarter without a felling licence to 5 cubic metres. Hedgerow regulations cover the protection of some established field boundary hedges.

4. IMPACT OF DEVELOPMENT ON TREE STOCK

A. CURRENT TREE STOCK

1. Existing tree stock within the vicinity of the pool location is detailed in Appendix 1 and outlined below.
2. T1 is a mature age class Hybrid Cypress. It is located immediately to the West of the former pool location and to the North of the retained ancillary / plant buildings. It has limited retention value within the current site and has an area of decay between two buttresses on the south side of the stem and the upper leaders are displaying signs of dieback / reduced vigour.
3. T2 is a mature Norway Maple, it is located to the North of the development area an immediately adjacent to an accommodation lodge
4. T3 is a Western Red Cedar in the early mature age class, it has a balanced crown form and from the evidence of previous crown lifting and footprint of the former pool it would appear to have previously been overhanging the pool building.
5. T4 is a Norway Maple in the early mature age class, it is located at a significant distance from the proposed replacement pool (>10m).
6. T5 is a semi mature Common Ash located to the East of the pool buildings. It has significant dieback / deadwood as a result of Ash Dieback Disease. T5 requires removal <12 month irrespective of any development.
7. No other trees or groups of trees are located in the vicinity of the pool buildings, all other vegetation is comprised of maintained and semi maintained ornamental shrubs.

B. PROPOSED DEVELOPMENT

1. The proposed replacement pool building is located within the same area of the site previously occupied by the former pool building.
2. To reflect this pre-existing permanent structure we have plotted the RPA (Root Protection Area) of trees close to the pool (T1, T3) to reflect this restriction. Due to this, and the respecting of the existing footprint, the proposed development will not make any incursion into the root zones of surveyed trees.
3. Similarly, it will not represent a change in relation with surveyed trees over that which existed between trees and the former pool building.
4. Tree reference T1 has identified defects which reduce its long-term retention value. This tree would not require removal to undertake the proposed development and if retention is intended then this may be achieved through the use of standard protective fencing. Two locations for protective fencing are shown on Appendix 4, one location (solid purple) if access is not required to the south of the building during construction and one location dashed purple with temporary ground protection if T1 is retained and construction access is required across the RPA. If T1 is removed in the development, it would not represent the loss of a notable tree and its removal could be offset by mitigation planting elsewhere within the site
5. Tree reference T2 is located outside of the development area, it may be retained and protected during the development

6. Tree reference T3 is located outside of the footprint of the proposed building. It is indicated for removal in the proposed development due to its proximity to the proposed building in relation to overhanging crown and access / exit doors. The location of T3 and the footprint of the former building indicates that T3 was overhanging and in close proximity to it, we note that we recommended pruning / reduction of this tree in a condition survey of 03/2018 due to the crown being in contact with the former pool building
7. The removal of T3 would not represent the loss of a notable tree nor would it represent a change from the pre-existing conflict with the former pool building. Its removal may be mitigated by replacement planting.
8. Tree reference T4 is located at a significant distance from the proposed development, it will be unaffected by it.
9. Tree reference T5 requires removal irrespective of the development due to Ash Dieback.
10. All other trees may be retained, recommendations for works to trees are contained in Appendix 1: Tree schedule.

5. SUGGESTED MITIGATION MEASURES

A. GUIDELINES

1. Specific construction guidelines will be required for the proposed development.
2. Site meeting between main contractor/architect and arboriculturalist. To discuss arboricultural issues relating to construction phase.
3. Tree work and tree removals prior to commencement of construction.
4. Erection of protective fencing at locations indicated in Appendix 4.
5. Temporary ground protection installation if required (blue shading) Appendix 2.
6. Construction of pool building.
7. Landscaping

B. PROTECTIVE FENCING

1. Once erected all protective fencing will be regarded as sacrosanct and will remain in place until the completion of the construction phase. It shall not be removed, relocated or breached at any time without consultation with the project arboriculturalist.
2. Protective fencing will be constructed of robust barriers fit for the purpose of excluding construction traffic from root protection areas. Details of appropriate fencing types are included in Appendix 5.
3. Signs will be affixed to every third panel stating 'Tree Protection Area Keep Out'. See Appendix 6 for example of signage.
4. All fencing will be securely affixed to avoid movement of fencing during the construction phase.
5. For the sections marked on Appendix 4 fences will be constructed of site fencing of 'Heras' type which must be securely braced with additional measures to prevent movement of the fence during construction.
6. Positions for protective fencing are shown in purple on Appendix 4: Tree Constraints Plan. There are two locations, one if T1 is retained and no access is required, one if T1 is retained and access is required over the RPA. If T1 is removed, then fencing should be located to provide protection to the RPA of T2 as shown.

5. SUGGESTED MITIGATION MEASURES (CONTINUED)

C. PRINCIPLES TO AVOID DAMAGE TO TREES.

1. A position for a tree Protection Fence is indicated on Appendix 4: Tree Constraints Plan
2. An indicative list of recommended practices during construction phase is listed below:
3. Once installed tree protection must remain in place and be observed at all times.
4. No fires within 10m of the crown of any retained trees.
5. Soil levels in rooting areas to be retained with minimal level changes, no greater increases than 300mm from existing levels.
6. No cement mixing/washout to take place within 15m of any retained trees.
7. No chemicals, bitumen etc. to be stored within 10m of any retained trees.
8. Any spillage of fuel, chemicals or contaminated water occurring within 2m of the root protection areas to be reported to project supervisor.
9. No additional underground services have been indicated to us at this time but they may be safely routed to avoid rooting zones, if additional services require routing through the root zones of trees for retention then appropriate sub surface or hand trenching methods should be used and guidance sought prior to any works being undertaken. See BS3857:2012.

5. SUGGESTED MITIGATION MEASURES (CONTINUED)

D. SPECIFIC GUIDANCE. POOL CONSTRUCTION

Appendix 4: Cyan shading – Temporary Ground Protection.

If T1 is retained and construction access is required over the RPA then the following steps should be followed.

1. Before the construction process starts, all areas of the RPA that may be affected will be covered with temporary ground protection as set out in BS. 5837:2012, we recommend a geotextile membrane overlaid by a minimum 100 mm depth of compressible material (woodchip or similar) topped with timber boards. An alternative method such as temporary plastic track mats may also be used.
2. The ground protection must remain in place until the construction is completed.
3. No cement mixing or wash out should take place within this area of the site.
4. The ground protection must remain in place until work is complete and there is no risk to the RPA.

E. PLANTING

1. Specific planting is not indicated on the supplied plans.
2. There is the potential for mitigation planting of replacement trees to form part of any post construction landscaping scheme.

6. CONCLUSION

1. The proposed development layout has where possible responded to tree constraints imposed upon the site by trees within the site boundaries.
2. The proposed development is based upon the footprint of the former pool building. As such there are no below ground constraints within the proposed area of construction.
3. T1 may be retained within the development through the use of protective fencing and additional ground protection if required. As noted, this tree does not have a significant individual value and has identified defects. If removal is undertaken, this would not represent the loss of a notable tree and could be mitigated by replacement planting.
4. Tree reference T2 will be unaffected by the proposed development.
5. Tree reference T3 is indicate for removal within the proposed development. This is due to its proximity to the proposed building. The former building had a similar relationship with T3 and it is unlikely that T3 would have had long term retention in the former site layout. The removal of T3 may be readily mitigated by replacement planting
6. T4 is located outside of the development area, the existing site layout is such that no tree protection measures are required
7. T5 requires removal irrespective of the proposed development du to its poor condition
8. The nature of the proposed development in relation to retained trees should not create any significant issues with either light reduction or perceived over shadowing. It would represent a continuation of the relationship between trees and the pool building which previously existed in this area of the site.
9. Replacement planting would provide effective mitigation for the required tree removals.
10. We would conclude that the proposed development could be completed without either the removal of significant individual trees or groups of trees nor would it have a significant detrimental impact upon the long-term retention of trees within the site.

7. RECOMMENDATIONS

It is recommended that

1. The design and layout of any proposed development reflects the guidance contained within this report both for the management of trees for retention and the protection of same during the proposed development phase and that due consideration is given to the position of any development in relation to retained trees and the removal of trees which are unsuitable for long term retention from the site prior to any development.

Type	Name	Age	DBH	Height	1stB	N	E	S	W	Cond	Life Exp	Comments	Recommendations	RPR m	RPA m2	Category
T1	Chamaecyparis lawsoniana (Lawson Cypress)	M	860	16	5	3.5	3.5	3.5	3.5	Fair	10+	Tree located immediately to W of former pool building footprint. Missing bark and localised decay up to 1.3m in height between pair of buttresses on W side of tree. Some areas of tip dieback / reduced vigour in leaders. Tree provides some internal site landscaping / screening but is not a significant individual tree	May be retained and protected through standard fencing and ground protection. No change in relationship from that with former pool building. If retained, T1 requires monitoring of its condition with respect to decay at base and tip / leader die back	10.3	334.63	C1
T2	Acer platanoides (Norway Maple)	M	1000	18	4.5	9	9	9	9	Fair	20+	Tree located to N of lodge decking area, crown extends to outer edge of former building footprint.	Retain and protect in development through standard protective fencing	12	452.45	B2
T3	Thuja plicata (Western Red Cedar)	EM	530	14	4	3	3	3	3	Good	20+	Balanced crown form, located in maintained grass area between former pool building location and lodge	Indicated for removal in development due to relationship with building / doorways	6.36	127.09	B2
T4	Acer platanoides (Norway Maple)	EM	430	11	5	4	4	4	4	Fair	10+	Stem bifurcates at 3.5m with formation of reaction wood. Area of bark dysfunction and early stages of decay in underlying wood at 1.5m height on lower stem	Outside of development area	5.16	83.66	C2
T5	Fraxinus excelsior (Ash)	SM	175	9	3	2.5	2.5	2.5	2.5	Poor	<10	Multi stemmed form, advanced stages of Ash Dieback <50% live crown and multiple epicormic shoots	Requires removal <12months irrespective of proposed development	4.2	55.42	U

DOWNHILL

DOWNHILL

Wood

Wood

UPHILL

DOWNHILL

DOWNHILL

Wood

UPHILL

Brockwood Hall

UPHILL

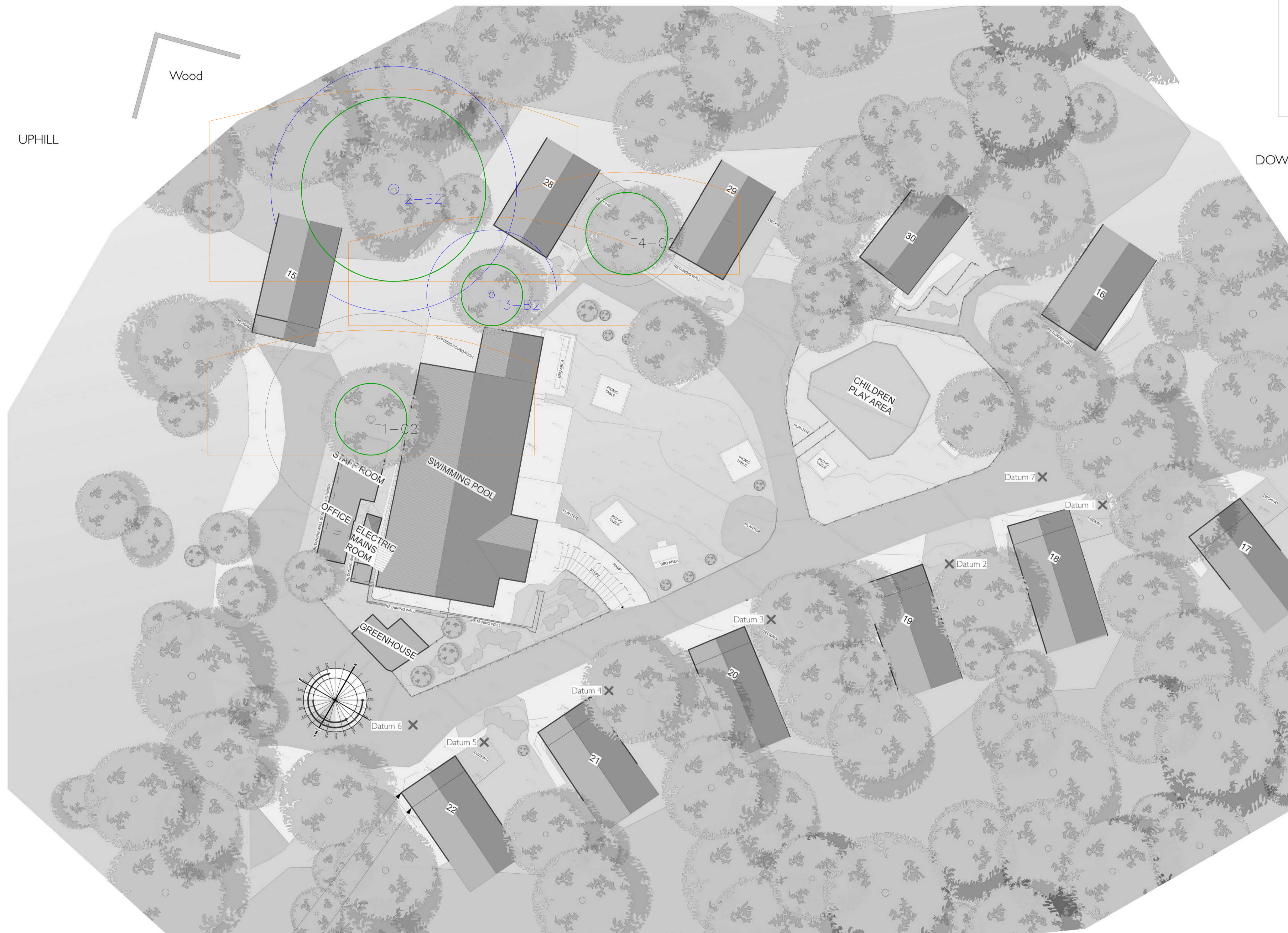
Roof Overhang

Lodge Gable

Wood

UPHILL

Datum Number	Height in meters
Datum 1	75.69
Datum 2	77.41
Datum 3	78.84
Datum 4	80.34
Datum 5	81.94
Datum 6	79.32
Datum 7	73.54
Gardent = (Datum 6 - Datum 7)	5.78 (79.32 - 73.54 = 5.78)



Tree Location Plan



<p>Tree Location by retention category</p> <ul style="list-style-type: none"> Green circle: RPA Category A Blue circle: RPA Category B Red circle: RPA Category C Orange circle: Category D tree unsuitable for retention <p>Restricted Root Protection Area (RPPA)</p> <p>Surveyed Canopy Extents</p> <p>Estimated Shadow Plot (provisional)</p>	<p>Project Title: Brockwood Hall Pool</p> <p>Date of Survey: 30/07/2021</p> <p>Surveyor: A. Wood</p> <p>Date File Created: 10/08/2021</p> <p>1:200</p> <p>Yew Tree & Garden Yew Tree House Hale Milnthorpe Cumbria LA7 7BJ 015395 63527 07813897631 info@yewtreegardens.co.uk www.yewtreegardens.co.uk</p> <p><small>Note: RPA only indicated for significant trees. Small garden trees and juvenile specimens may not be indicated. Retention Categories: As defined in BS5837: 2012 RPPA: Plotted from individual RPA sheets. Where restricted rooting conditions are present RPPA is also plotted as an area polygon.</small></p>
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A JLL 04.02.2021 Amendments to labelling

Rev.	Initial	Date	Note

WORK IN PROGRESS

project BROCKWOOD HALL

Demolition Plan

drawing title

drawg.no. 5972 /c/b/05	date Jan-19	rev A
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scale 1:200	@ A11	drawn by JLL	checked by -
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Drawings are based on survey data and may not accurately represent what is physically present. Do not scale from this drawing. All dimensions are to be verified on site before proceeding with works. All dimensions are in millimetres unless stated otherwise. Mason Gillibrand Architects are to be notified in writing of any discrepancies immediately.

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APPENDIX 3

Reference List

The Body Language of Trees by Claus Mattheck & Helge Breloer (1994) London:HMSO.
Diagnosis of ill-health in trees by R.G. Strouts and T.G. Winter. (2000) London:HMSO
Principles of Tree Hazard Assessment and Management by David Lonsdale.(1999) HMSO
BS5837:2012 British Standards Institute
BS3998:2010 British Standards Institute
Trees Their Use, Management, Cultivation and Biology Robert Watson 2006
Tree roots in the built environment (Research for Amenity Trees) (2013) Arboricultural Association
Law of Trees, Forests and Hedges
by Dr. Charles Mynors (Author) Sweet & Maxwell; 2nd Revised edition (14 Dec. 2011)

T2-B2

T4-C2

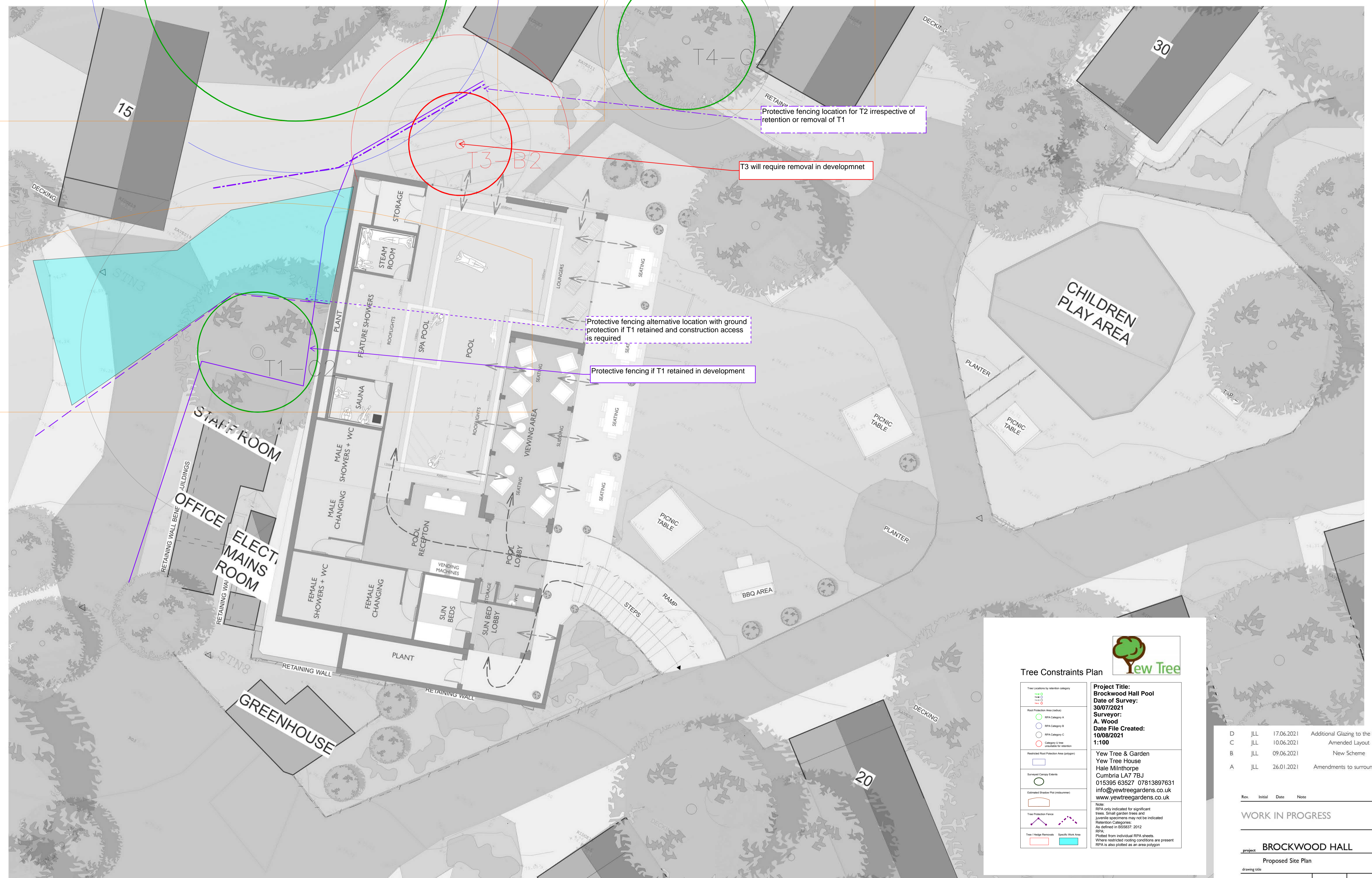
T3-B2

Protective fencing location for T2 irrespective of retention or removal of T1

T3 will require removal in development

Protective fencing alternative location with ground protection if T1 retained and construction access is required

Protective fencing if T1 retained in development



Tree Constraints Plan

Project Title: Brockwood Hall Pool
Date of Survey: 30/07/2021
Surveyor: A. Wood
Date File Created: 10/08/2021
1:100

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Note:
 RPA only indicated for significant trees. Small garden trees and juvenile specimens may not be indicated.
 Retention Categories:
 As defined in BS5837: 2012
 RPA:
 Plotted from individual RPA sheets.
 Where restricted rooting conditions are present RPA is also plotted as an area polygon.

Tree Locations by retention category	<ul style="list-style-type: none"> Red Circle: RPA Category A Blue Circle: RPA Category B Green Circle: RPA Category C Red Circle with slash: Category U (tree unsuitable for retention)
Restricted Root Protection Area (polygon)	Red outline
Surveyed Canopy Extent	Blue outline
Estimated Shadow PVI (redouner)	Red outline
Tree Protection Fence	Dashed purple line
Tree Hedge Removals	Red outline
Specific Work Area	Cyan fill

D	JLL	17.06.2021	Additional Glazing to the North
C	JLL	10.06.2021	Amended Layout
B	JLL	09.06.2021	New Scheme
A	JLL	26.01.2021	Amendments to surroundings

Rev. Initial Date Note

WORK IN PROGRESS

project **BROCKWOOD HALL**

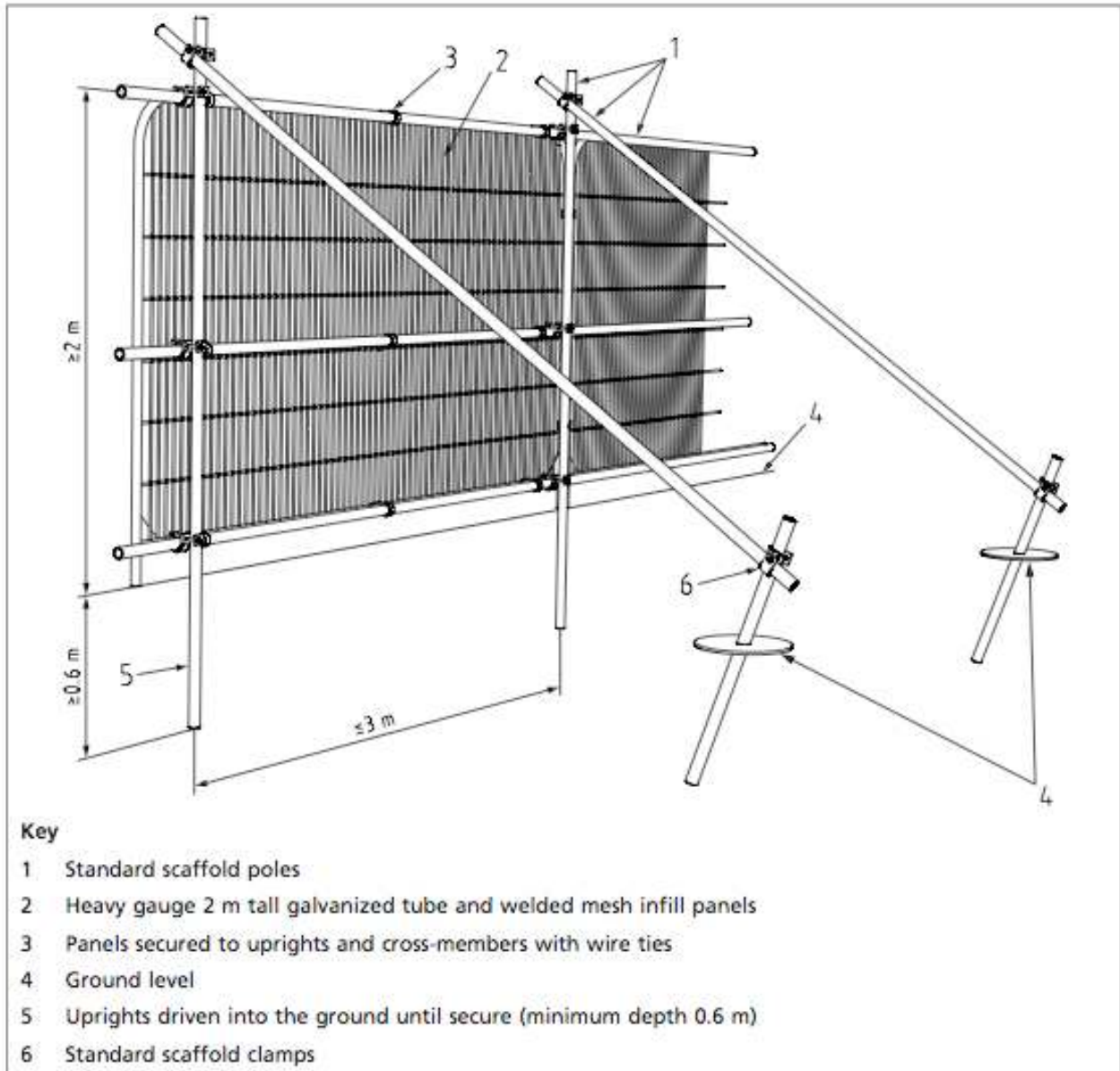
Proposed Site Plan

drawing title

Appendix 4 - Protective Fencing

Tree protective fencing

Figure 2 Default specification for protective barrier



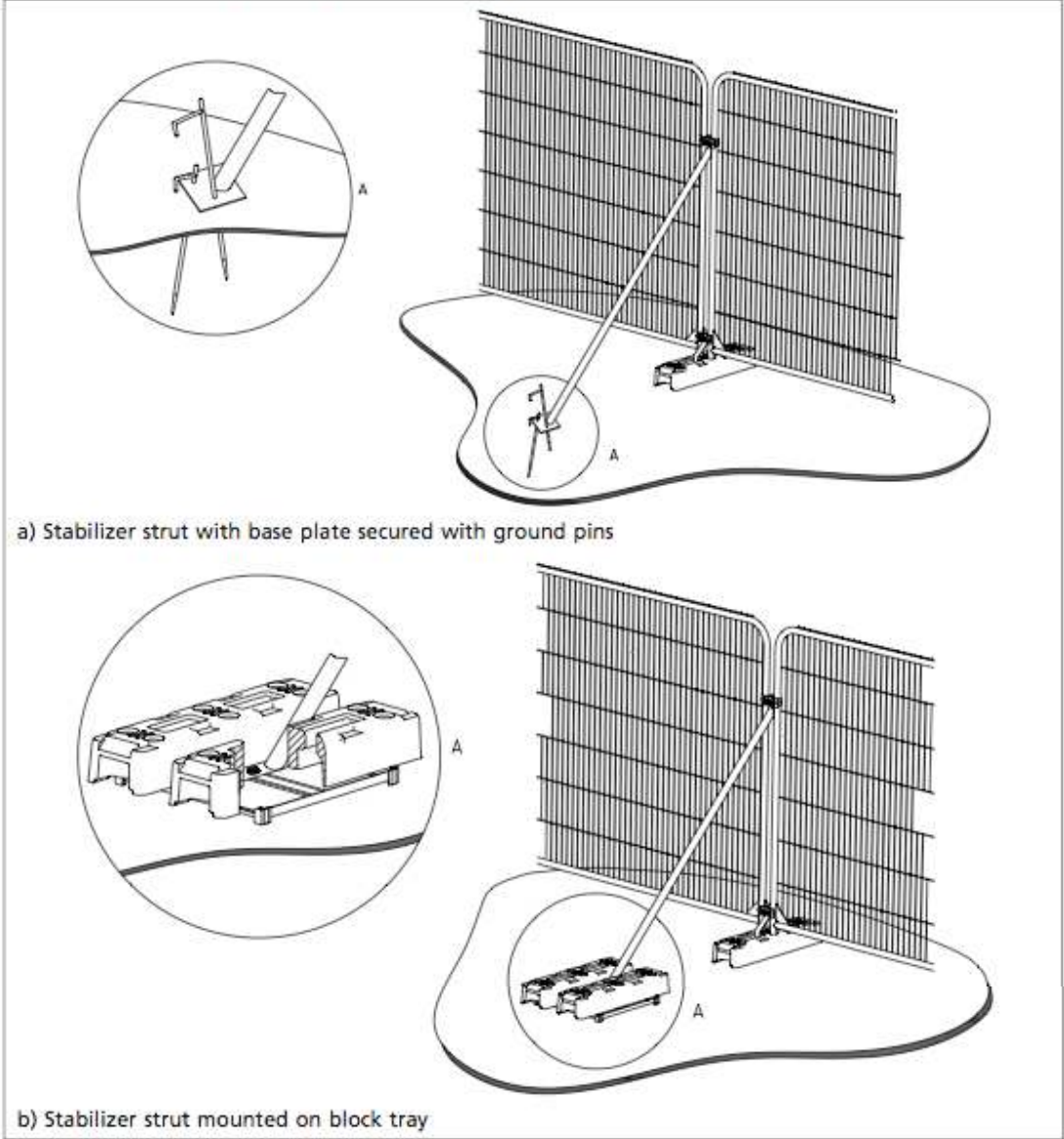
Appendix 4 - Protective Fencing

Tree protective fencing

BRITISH STANDARD

BS 5837:2012

Figure 3 Examples of above-ground stabilizing systems





**TREE PROTECTION
AREA**

KEEP OUT!

**ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE
AGREEMENT OF THE LOCAL AUTHORITY OR ARBORICULTURAL
CONSULTANT**