Arboricultural Impact Assessment

in Relation to Proposal to Demolish Existing Shed and Replace with New Pavilion and to Construct Extension to Garage at

Newton Hall, Newton in Bowland, Lancashire, BB7 2DY

Prepared by:

Bowland Tree Consultancy Ltd

May 2017

Control sheet

Project No.:	BTC1308
Site:	Newton Hall, Newton in Bowland, Lancashire, BB7 3DY
Client:	Mr M. Bentley
Council:	Ribble Valley Borough Council
Survey Date:	22 March 2017
Surveyor:	Richard Dunn HND
Report Prepared by:	Richard Dunn HND
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DISCLAIMER

Survey Limitations: Unless otherwise stated all trees are surveyed from ground level using non-invasive techniques, in sufficient detail to gather data for and inform the design of the current project only. The disclosure of hidden crown and stem defects, in particular where they may be above a reachable height or where trees are ivy clad or located in areas of restrictive ground vegetation, cannot therefore be expected. Detailed tree safety appraisals are only carried out under specific written instructions. Comments upon evident tree safety relate to the condition of said tree at the time of the survey only. Unless otherwise stated all trees should be re-inspected annually in order to appraise their on-going mechanical integrity and physiological condition. It should, however, be recognised that tree condition is subject to change, for example due to the effects of disease, decay, high winds, development works, etc. Changes in land use or site conditions (e.g. development that increases access frequency) and the occurrence of severe weather incidents are also significant considerations with regard to tree structural integrity, and trees should therefore be re-assessed in the context of such changes and/or incidents and inspected at intervals relative to identified and varying site conditions and associated risks.

Where trees are located wholly or partially on neighbouring private third-party land then said land is not accessed and our inspection is therefore restricted to what can reasonably be seen from within the site. Stem diameters and other measurements of trees located on such land are estimated. Any subsequent comments and judgments made in respect of such trees are based on these restrictions and are our preliminary opinion only. Recommendations for works to neighbouring third-party trees are only made where a potential risk to persons and/or property has been identified during our survey or, if applicable, where permissible works are required to implement a proposed development. Where significant structural defects of third-party trees are identified and associated management works are considered essential to negate any risk of harm and/or damage then we will inform the relevant Council of the matter. Where a more detailed assessment is considered necessary then appropriate recommendations are set out in the Tree Survey Schedule.

Where tree stem locations are not included on the plan(s) provided then they are plotted by the arboriculturist at the time of the survey using, where appropriate and/or practicable, a combination of measurement triangulation and GPS co-ordination. Where this is not possible then locations are estimated. Restrictions in these respects are detailed in the report.

This document is intended as a guide to identify key tree related constraints to site development only, and the potential influence of trees upon existing or proposed buildings or other structures resulting from the effects of their roots abstracting water from shrinkable load-bearing soils is not considered herein. The tree survey information in its current form should not therefore be considered sufficient to determine appropriate foundation depths for new buildings. Accordingly, an updated survey, with reference to the current NHBC Standards Chapter 4.2 - Building Near Trees, must therefore be prepared for the specific purpose of informing suitable foundation depths subsequent to planning approval being granted. The advice of a structural engineer must also be sought with regard to appropriate foundation depths for new buildings.

Third Parties: Any disclosure of this document to a third party is subject to this disclaimer. The report was prepared by Bowland Tree Consultancy Ltd at the instruction of and for use by our client. This report does not in any way constitute advice to any third party who is able to access it by any means. Bowland Tree Consultancy Ltd excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage arising from reliance on the contents of this report.

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APPENDICES

PLANS

1.0 INTRODUCTION

Terms of Reference

1.1 Bowland Tree Consultancy Ltd was instructed to:

a) Survey, either as individuals or by group, all trees having reasonable potential to affect or to be adversely affected by the proposed development of the site under consideration;
b) Prepare a tabulated Tree Survey Schedule based on guidance specified BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations;
c) Evaluate the potential tree related impacts and design conflicts of the proposals;
d) Advise on removal, retention and management options for the trees in the current context and in the context of the proposed development;
e) Advise on suitable tree protection measures required during development;
f) Annotate the proposed site plan to produce a Tree Impact Plan identifying tree retention categories, crown spreads, Root Protection Areas, projected tree related impacts, and other pertinent details; and
g) Produce an Arboricultural Impact Assessment report outlining the main tree related issues and reasonably foreseeable tree related impacts in relation to the proposed development and indicating suitable mitigation provisions and retained tree protection measures.

Scope and Purpose of Report

1.2 By detailing foreseeable tree related issues this report is intended to assist the Local Planning Authority (LPA), in this case Ribble Valley Borough Council, in their review of the proposed development and, as such, should be supplied to them in support of the planning application to which it pertains.

1.3 Essentially, the report provides an analysis of the impacts that the proposed development is projected to have on trees located both within the site and, where practicable, on land immediately adjacent to its boundaries. It also offers guidance on suitable retained tree management and mitigation for projected losses, along with advice on appropriate tree protection measures in the context of the proposed development in accordance with current guidance.

Site Visit, Data Collection and Tree Plans

1.4 Further to our instruction, I confirm that I carried out a tree survey on 22 March 2017. The survey was carried out in accordance with the preceding disclaimer, and all tree data collected on site is set out in the attached tabulated Tree Survey Schedule (TSS) at Appendix One which, for ease of interpretation, should be read alongside the associated BS5837:2012 Table 1 (as appended).

1.5 The survey identified 14 individual trees (prefixed ‘T’) and three groups of trees (prefixed ‘G’), which have been numbered accordingly on the Tree Impact Plan (TIP), as appended. The TIP details the existing site, with readily definable tree constraints, and an overlay of the development proposals detailing associated tree impacts, retention proposals, and other pertinent information. The plan is based on a topographical survey based site proposal plan that was provided in electronic format by the project agent, Sunderland Peacock and Associates Ltd, and, for the purpose of this report, I presume the provided plan’s details to be accurate.

2.0 STATUTORY PROTECTION IN RESPECT OF TREES AND ASSOCIATED WILDLIFE

Tree Preservation Orders and Conservation Area Designations

2.1 The Town & Country Planning Act (1990) (the Act) and associated Regulations empower Local Planning Authorities (LPAs) to protect trees in the interests of amenity by making Tree Preservation Orders (TPOs). The Act also affords protection for trees of over 75 mm diameter that stand within the curtilage of a Conservation Area (CA).

2.2 Subject to certain exemptions, an application must be made to the LPA in question to carry out works upon or to remove trees that are subject to a TPO, whilst six weeks' notice of intention must be given to carry out works upon or to remove trees within a CA that are not protected by a TPO.

2.3 According to Ribble Valley Borough Council's website, the site stands within the Newton Conservation Area, and the above restrictions regarding work to trees in CAs therefore apply. However, I have not been informed if any of the surveyed trees are the subject of a TPO and, as such, it is therefore also essential to contact the planning office at Ribble Valley Borough Council in order to check for the presence of any such statutory tree protection prior to carrying out any tree works that are not related directly to the implementation of a detailed planning approval.

Protected Species

2.4 Nesting birds are afforded statutory protection under the Wildlife & Countryside Act (1981) (as amended) and their potential presence should therefore be considered when clipping hedges, removing climbing plants and pruning and removing trees. The breeding period for woodlands runs from March to August inclusive. Hedges provide valuable nesting sites for many birds and clipping should therefore be avoided during March to July. Trees, hedges and ivy should be inspected for nests prior to pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young have fledged.

2.5 All bat species are protected under Schedule 5 of the Wildlife & Countryside Act (1981) (as amended) and under Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). In this respect it should be noted that it is possible that unidentified bat habitat features may be located high up in tree crowns and all personnel carrying out tree works at the site should therefore be vigilant and mindful of the possibility that roosting bats may be present in trees with such features. If any bat roosts are identified, then it is essential that works are halted immediately and that a suitably qualified and experienced ecologist investigates and advises on appropriate action(s) prior to works continuing.

Felling Licences

2.6 Subject to certain exemptions the Forestry Act (1967) requires that a 'Felling Licence' be obtained to remove growing trees amounting to more than five cubic metres of timber in a calendar quarter. Felling Licences are administered by the Forestry Commission and contravention of the associated controls can incur substantial penalties.

2.7 A felling licence is, however, not required for the felling of trees immediately required for the purpose of carrying out development authorised by a full planning permission granted under the Town and Country Planning Act 1990, or for the removal of trees located within a residential garden, as is the case with the site under consideration.

3.0 THE SITE AND THE SURROUNDINGS

3.1 The site under consideration is a detached Grade 2 listed residential property with gardens and a tennis court. The property is located on the southern edge of the village of Newton in Bowland, Lancashire, approximately 11 kilometres north-west of Clitheroe, within the administrational boundaries of Ribble Valley Borough Council.

3.2 The site is bordered to the north by neighbouring residential properties, to the south and west by the B6478, and to the east by a lane. According to the topographical survey, the ground levels at the site are highly variable, with a rise of approximately 3 metres from south to north (i.e. from the rear of the property to the edge of the tennis courts).

4.0 THE TREE POPULATION

4.1 As noted previously, a total of 14 individual trees and three groups of trees were surveyed for the purpose of this appraisal. They range from young to mature in age, with heights of up to 15 metres, maximum diametrical crown spreads of up to approximately 16 metres, and stem diameters of up to 660 millimetres. Detailed tree dimensions and other pertinent information, such as structural defects and physiological deficiencies, are included in the Tree Survey Schedule (TSS) at Appendix One.

4.2 In respect of the survey it should be noted that tree quality is categorised within the existing context without taking any site development proposals into account. However, recommendations for works included in the TSS take both current site usage into consideration and the proposed site development where there are definable development related issues with regard to specific trees.

4.3 Under the UK's planning system trees are a material consideration in the planning and development process. Nonetheless, only trees of a suitable quality and value should be considered a material constraint to development. In this respect the TSS includes a column ('Cat. Grade') listing the trees' respective retention values, where they are rated either 'A', 'B', 'C' or 'U', as per BS5837:2012 Table 1 (Appendix One). 'A' category trees are those considered to be of 'high quality' and, accordingly, the most suitable for retention, whilst 'B' category trees are those considered to be of 'moderate quality', and 'C' category trees are those considered to be of 'low quality' with a correlated low retention value. In turn, 'U' category trees are those that are considered to be 'unsuitable for retention'.

4.4 As detailed in Table A, below, two trees were categorised as moderate quality (i.e. 'B' category), eleven trees and three groups were categorised as low quality (i.e. 'C' category), and one tree was categorised as unsuitable for retention (i.e. 'U' category).

Table A: BS5837-2012 Retention Categories of the Surveyed Trees

	Ret. Cats.	Tree/Group Numbers	Totals
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	**'A'**	-	-
	'B'	T10,T11	*2 Trees*
Those of a low quality that should not be considered a material constraint to development	**'C'**	T1, T2, T3, T4, T6, T7, T8, T9, T12, T13, T14, G1, G2, G3	*11 Trees 3 Groups*
Those that should be removed for sound management reasons regardless of site proposals	**'U'**	T5	*1 Tree*
			= 14 Trees & 3 Groups in Total

6.0 THE DEVELOPMENT PROPOSAL AND ITS PROJECTED ARBORICULTURAL IMPACTS

The Development Proposal

6.1 I am informed, by the client's agents, Sunderland Peacock and Associates Ltd, that the planning application is for the proposed demolition of an existing wooden shed and the construction of a new pavilion adjacent to the south-east corner of the tennis court, and the extension of an existing detached garage to the rear of Newton Hall.

Projected Arboricultural Losses Relating to the Proposal

6.2 As detailed in Table B, below, it is projected that construction of the development as proposed will require the removal of two low quality trees, one poor quality tree, and part of one low quality group (two trees from the group).

Table B: Arboricultural Impacts of Proposed Development & Other Tree Removal Proposals

	Ret. Cats.	Removals necessary to implement development	Removals recommended regardless of development	Total no. of tree removals
Those of a high quality that should be afforded appropriate consideration in the context of development	**'A'**	-	-	-
Those of a moderate quality that should be afforded appropriate consideration in the context of development	**'B'**	-	-	-
Those of a low quality that should be afforded appropriate consideration in the context of development	**'C'**	T3, T4, G1(part)	-	*2 Trees 1 part Group*
Those that should be removed for sound management reasons regardless of plans	**'U'**	T5		*1 Tree*
Totals		*3 Trees 1 part Group*		***= 3 Trees & part of 1 Group in Total***

Mitigation for Projected Tree Losses as Part of Site Landscaping

6.3 The site could accommodate several new high quality, relatively large growing trees in order to mitigate for the necessary tree losses. Possible areas for new planting are to the north-west of the tennis court, and within the shrub beds to the south of the proposed new pavilion. In this respect, the provision of specific species, numbers, planting locations and post-planting management, in the form of a landscape plan, can be conditioned to a planning approval.

7.0 RECOMMENDATIONS FOR SUCCESSFUL TREE RETENTION IN THE CONTEXT OF DEVELOPMENT

Root Protection Areas and Construction Exclusion Zones

7.1 Adequate protection of the Root Protection Areas (RPAs) of retained trees during construction is essential if their long-term viability is to be assured. RPAs, which are calculated through a method provided in BS5837:2012, are ground areas that should be protected by temporary protective fencing as Construction Exclusion Zones (CEZs) throughout the development process, thereby keeping the trees' root zones free from disturbance. Consequently, the RPA distances, as detailed in the TSS (see 6.2) and on the TIP, give an idea of the on-site below-ground constraints in respect of tree roots and assist in planning for appropriate tree retention in relation to feasible development.

7.2 The TSS includes two columns listing the RPAs of the individually surveyed trees and, where applicable, the largest of the trees in any surveyed groups as overall areas in square metres and as radial distances. The radial RPAs are indicated as magenta coloured circles on the TIP. With regard to CEZs the design, materials and construction of the fencing should be appropriate for the intensity and type of site construction works, should conform to at least section 6.2 of BS5837:2012, and should be secured by the imposition of a suitably worded planning condition. A default Temporary Protective Fencing Specification is included at Appendix Two.

Underground Utilities

7.3 The installation of underground utilities in close proximity to trees can cause serious damage to their roots. As such, it is essential that utilities be routed outside RPAs unless there is no other available option. Where RPAs cannot be avoided then guidelines set out in the National Joint Utilities Group publication 'Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) – Operatives Handbook' should be followed (e.g. trenches of a very limited width to be hand dug or the use of directional drilling).

7.4 In the case of the development under consideration, there are currently no service utilities which will encroach into the RPAs of the retained trees.

Arboricultural Method Statement and Tree Protection Plan

7.5 Government guidance recommends that, where considered expedient by the LPA, an Arboricultural Method Statement (AMS) and a Tree Protection Plan (TPP) be prepared detailing special mitigation construction issues in relation to the development under consideration. Essentially, the AMS and TPP describe and detail the procedures, working methods and protective measures to be used in relation to retained trees in order to ensure that they are adequately protected during the construction process.

7.6 In order to ensure that any such special working methods are followed, and that the retained trees are adequately protected throughout the development process, the production of and adherence to an AMS and TPP can be conditioned to a planning approval.

8.0 OTHER RECOMMENDATIONS

Non-Development Related Tree Works and Recommendations

8.1 Any general management pruning works for retained trees that are stated to be non-development related, as detailed in the TSS, are recommended in accordance with prudent arboricultural management and should therefore be carried out regardless of any site development proposals and potential changes in land usage. All tree works should be carried out in accordance with BS3998:2010 - Tree Work – Recommendations.

Tree Work Related Consents

8.2 No tree pruning or removal works should commence on site until necessary consents have been obtained from the LPA as part of a planning approval or in respect of any statutory tree protection (e.g. TPOs).

Arboricultural Contractors

8.3 All tree works should be carried out by suitably qualified and experienced arboricultural contractors carrying appropriate public liability insurance cover and be implemented to the minimum current CE and UK industry standards and in accordance with industry codes of practice. Only certificated personnel should, in accordance with The Control of Pesticides Regulations, apply any pesticides.

Contractors and Subsequently Identified Tree Defects

8.4 Tree contractors should be made aware that, should any significant tree defects become apparent during operations that would not have been immediately obvious to the surveyor, then such defects should be notified immediately to the client and subsequently confirmed to the consultant within five working days.

New Tree Planting

8.5 All tree planting at the site should be carried out in accordance with BS8545:2014 Trees: from nursery to independence in the landscape – Recommendations.

Retained Tree Management

8.6 Any tree risk management appraisals and subsequent recommendations made in this report were based on observations and site circumstances at the time of our survey. Trees are dynamic living organisms whose structure is constantly changing and even those evidently in good condition can succumb to damage and/or stress.

8.7 In this respect, we would note that, under the Occupiers' Liability Act (1957 & 1984), site occupants have a duty of care to take reasonable steps to prevent or minimise the risk of personal injury and/or damage to property from any tree located within the curtilage of the land they occupy. It is accepted that these steps should normally include commissioning a qualified and experienced arboriculturist to survey their trees in order to identify any risk of harm to persons or damage to property that they may present and, where unacceptable risks are identified, taking suitable remedial action to negate those risks.

9.0 SUMMARY AND CONCLUSIONS

9.1 Fourteen individual trees and three groups of trees were surveyed in respect of a proposal to demolish and replace a wooden shed with a new pavilion and to extend an existing detached garage.

9.2 Two trees were allocated moderate retention values, 11 trees and three groups were allocated low retention values, and one tree was considered unsuitable for retention.

9.3 My appraisal identified that construction of the development as proposed will require the removal of two low quality trees, one poor quality tree, and part of one low quality group.

9.4 Nonetheless, it is proposed that the loss of the trees is mitigated for through the planting of several new trees, the provision of which can be conditioned to a planning approval.

9.5 However, in order to ensure successful existing tree preservation over the long-term, it is essential that the retained trees are protected in strict accordance with current Government guidance and the recommendations included herein.

9.6 Accordingly, the provision of and adherence to a suitably detailed Arboricultural Method Statement and Tree Protection Plan can be conditioned to a planning permission in order to ensure the protection of retained trees.

REFERENCES

BS8545:2014 - Trees: From Nursery to Independence in the Landscape – Recommendations. BSI British Standards, London.
BS3998:2010 - Tree Work - Recommendations. BSI British Standards, London.
BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations. BSI British Standards, London.
National House Building Council (2016). NHBC Standards Chapter 4.2 - Building Near Trees. NHBC, Amersham.
National Joint Utilities Group (2007). Volume 4: NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) – Operatives Handbook.

APPENDICES

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL					
Site:	Newton Hall, Newton in Bowland, Lancashire, BB7 3DY	**Surveyor:**	Richard Dunn HND	**Page:** 1 of 3	
Agent for Client:	Sunderland Peacock & Associates Ltd.	**Survey Date:**	22 March 2017		
		Job Ref:	BTC1308		

No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)
T1	Maple sp.	2.5	85	N E S W	1.5 1.5 1.5 1.5	1.5-N 1	Y	G	▪ Ornamental variety. ▪ No visible defects.	▪	10+	C1	3	1.02
T2	Kilmarnock Willow	1.5	140	N E S W	1 1 1 1	1-N 0.2	SM	G	▪ No visible defects.	▪	10+	C1	9	1.68
T3	Lawson Cypress	7	1x250 1x250 1x220 1x180 1x160 (ms)	N E S W	1.5 1.5 1.5 1.5	0.1-W 0.1	M	G	▪ Multi-stemmed from ground. ▪ Situated within shrub bed, which includes Ornamental Cypress and Elder.	▪ Remove to develop the site as proposed.	10+	C1	105	5.77
T4	Wild Cherry	3.5	160	N E S W	2.5 3 2 2.5	2-S 1.5	SM	G	▪ Tree has been topped at a height of approximately 2m. ▪ Multiple pruning stubs in crown. ▪ Situated within shrub bed, which includes Forsythia and Rhododendron.	▪ Remove to develop the site as proposed.	10+	C1	12	1.92
T5	Goat Willow	6	200	N E S W	3 3 3 3.5	0.5-W 1.5	SM	G	▪ Located in close proximity to wall, leaving no space for incremental growth. ▪ Tree growing out of stone trough.	▪ Remove to develop the site as proposed.	<10	U	18	2.4
T6	Lawson Cypress	9	1x320 1x140 (ts)	N E S W	3 3 3 3	2-E 0.1	M	G	▪ Bifurcated from ground. ▪ Multiple primary branches from a height of approximately 2m, tight forks with included bark.	▪ Protect Root Protection Area (RPA) throughout development using Temporary Protective Fencing (specification appended) to form a Construction Exclusion Zone (CEZ), (see appendix 2 in AIA)	10+	C1	55	4.19

Headings and Abbreviations:

No. Allocated sequential reference number - Tree ('T'), Group ('G'), Woodland ('W') or Hedge ('H') reference number - refer to plan and to numbered tags where applicable
Species: Common name
Height: In metres, to nearest half metre – where possible approximately 80% are measured using an electronic clinometer and the remainder estimated against the measured trees. In the case of Groups and Woodlands the measurement listed is that of the highest tree
Stem Diam.: Stem diameter in millimetres, to nearest 10mm - measured and calculated as per Annex C of BS5837:2012. MS = multi-stemmed, TS = twin-stemmed
Branch Spread: Crown radius measured (or estimated where considered appropriate) from the four cardinal points (north, east, south and west) to give an accurate visual representation of the crown
Branch & Canopy Clearances: Existing height above ground level, in metres, of first significant branch and direction of growth (e.g. 2.5-N) and of canopy at lowest point – to inform on crown to height ratio, potential for shading, etc.
Life Stage: Estimated age class - Y = young, SM = semi-mature, EM = early-mature, M = mature, PM = post-mature
PC: Physiological Condition - a measure of the tree'(s)' overall vitality, i.e. D = Dead, MD = Moribund, P = Poor, M = Moderate, G = Good
General Observations and Comments: Comments relating to the tree'(s)' overall condition and any other pertinent factors including structural defects, current and potential direct structural damage, physiological decline, poor form, etc.
Management Recommendations: Either Preliminary or In Consideration of the Proposal - In the case of Arboricultural Constraints Surveys the recommended management works only take exiting site and tree circumstances and conditions into account and not proposed developments. Arboricultural Impact Assessment and Method Statement related Surveys take the proposed development into consideration with recommendations made accordingly. More than one option may be given if considered appropriate
ERC: Estimated Remaining Contribution - in years as per BS5837:2012 (i.e. <10, 10+, 20+, 40+)
Cat. Grade: Category Grading - tree retention value listed as U, A, B or C - in accordance with BS5837:2012 Table 1
RPA m²: Root Protection Area in m² - calculated area around the tree that must be appropriately protected throughout the development process in order avoid root damage
RPA Radius (m): Root Protection Area Radius - in metres measured from the centre of the stem to the line of tree protection
 # (Estimated Dimensions): Where trees are located off-site, or are inaccessible for any other reason, and accurate measurements or other information cannot be taken then the information provided is estimated and is duly suffixed with a "#" symbol

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Agent for Client:	Sunderland Peacock & Associates Ltd.	Job Ref:	BTC1308	

No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)
T7	Norway Maple	11	460	N E S W	5 5 6 5.5	3-N 2	M	G	▪ Moderate covering of ivy on stem, spreading into lower crown. ▪ Occluded pruning wounds on the northern and southern sides of the tree at a height of approximately 2m.	▪	10+	C1	96	5.52
T8	Wild Cherry	6	380	N E S W	3 3 4.5 5	1.5-E 1.5	M	G	▪ Stem is heavily covered in ivy, which spreads into upper crown. ▪ Multiple pruning stubs throughout crown. ▪ Situated within shrub bed, which includes Laurel and Cotoneaster.	▪ Protect Root Protection Area (RPA) throughout development using Temporary Protective Fencing (specification appended) to form a Construction Exclusion Zone (CEZ), (see appendix 2 in AIA)	10+	C1	65	4.56
T9	Hawthorn	7.5	230	N E S W	2 2 2 2	2-E 3	M	G	▪ Stem is heavily covered in ivy, which spreads into upper crown. ▪ Situated within shrub bed, which includes Viburnum, Rhododendron and Laurel.	▪	10+	C1	24	2.76
T10	Colorado Blue Spruce	10.5	310	N E S W	3 3.5 4 3.5	2.5-S 1.5	M	G	▪ Bifurcates at height of approximately 5m. ▪ Slight lean south. ▪ Situated within shrub bed of Ornamental Cypress.	▪	20+	B1	43	3.72
T11	Beech	15	660	N E S W	8 8 8 7.5	2-W 2	M	G	▪ Multiple partially occluded pruning wounds throughout crown. ▪ Light covering of ivy on stem. ▪ Situated within shrub bed, which includes Rhododendron, Laurel and Holly.	▪	20+	B1	197	7.92
T12	Lawson Cypress	8.5	1x250 1x240 (ts)	N E S W	4 2.5 3.5 4	2-N 1.5	M	G	▪ Bifurcated from ground. ▪ Crown biased moderately west. ▪ Suppressed by neighbouring tree. ▪ Two pruning stubs on the eastern side of the tree, at a height of approximately 1m, 300mm in length, 150mm in diameter.	▪	10+	C1	54	4.16
T13	Lawson Cypress	7	370	N E S W	2 1.5 1.5 2.5	2-N 1	SM	G	▪ Crown biased moderately north west. ▪ Moderate covering of Ivy on stem. ▪ Suppressed by neighbouring tree.	▪	10+	C1	62	4.44
T14	Goat Willow	7.5	1x290 1x250 1x170 (ms)	N E S W	4.5 4.5 4.5 4.5	1.5-N 0.5	M	G	▪ Trifurcates at a height of approximately 1.5m.	▪	10+	C1	79	5.03

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No.	Species	Height	Stem Diam.	Branch Spread		Branch & Canopy Clearances	Life Stage	PC	General Observations and Comments	Management Recommendations	ERC	Cat. Grade	RPA (m^2)	RPA Radius (m)
G1	3no. Wild Cherry, 1no. Holly	≤ 6	≤ 150	N E S W	≤ 2.5 ≤ 3 ≤ 2.5 ≤ 2.5	0.5-W ≥ 0.1	SM	G	▪ Moderately spaced group. ▪ Situated within an area of dense shrubs, including Ornamental Cypress, Laurel, Dogwood and Lonicera.	▪ Remove part of group (2 Wild Cherry) to develop the site as proposed. ▪ Protect RPAs of retained trees throughout development using Temporary Protective Fencing to form a CEZ. (see appendix 2 in AIA)	10+	C1	≤ 10	≤ 1.8
G2	2no. Wild Cherry, 1no. Lawson Cypress, 1no. Lilac	≤ 6.5	≤ 200	N E S W	≤ 2.5 ≤ 2.5 ≤ 3 ≤ 2	1-N ≥ 0.0	SM	G	▪ Closely spaced linear group. ▪ Moderate covering of ivy on stems.	▪	10+	C1	≤ 18	≤ 2.4
G3	3no. Apple, 1no. Wild Cherry	≤ 4.5	≤ 160	N E S W	≤ 2 ≤ 2 ≤ 2 ≤ 2	1-N ≥ 1.5	Y-EM	G	▪ Moderately spaced group. ▪ One early mature Apple has fallen.	▪	10+	C1	≤ 12	≤ 1.92

BS5837:2012 Table 1 – Cascade Chart for Tree Quality Assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U 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 which it might be desirable to preserve; see BS5837:2012 paragraph 4.5.7.*			Red
	1. Mainly arboricultural qualities	**2. Mainly landscape qualities**	**3. Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 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 (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Green
Category B Those of moderate quality and value: those in such a condition as to make a significant contribution. A minimum of 20 years is suggested.	Trees that might be included in the high category, but are downgraded because of impaired condition. Examples include the presence of remediable defects including unsympathetic past management and minor storm damage	Trees present in numbers, usually as groups or woodlands, so they form distinct landscape features which attract a higher collective rating than they might as individuals. But which are not, individually, essential components of formal or semi-formal arboricultural features. For example, trees of moderate quality within an avenue that includes better, A category specimens. Or trees which are internal to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	Blue
Category C Those trees of low quality and value: currently in adequate condition to remain until new planting could be established - a minimum of 10 years is suggested - or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	Grey
	Note – Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation			

- TEMPORARY PROTECTIVE FENCING & GROUND PROTECTION SPECIFICATION -

Construction Exclusion Zones (CEZs), shall be enclosed by **Temporary Protective Fencing** and/or, where necessary, **Temporary Ground Protection Measures**. The fencing/ground protection Type(s), locations, and extents shall be agreed, in writing, with the Local Planning Authority (LPA). In turn, the **Temporary Protective Fencing** and/or **Temporary Ground Protection Measures** shall:

1. be constructed as in accordance with the Type 1, Type 2 or Type 3 'Temporary Protective Fencing Construction' sections and, where applicable the 'Temporary Ground Protection Measures' section, as detailed herein and agreed, in advance with the LPA;
1. be retained in place throughout the development process until completion of the project, and only removed following receipt of written permission from the LPA;
2. be sited in the area(s) defined by the Root Protection Areas on the associated Tree Impact Plan, or as the CEZs on the Tree Protection Plan;
3. be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project;
4. preclude any delivery of site accommodation and/or materials and/or plant machinery;
5. preclude all construction related activity, with the sole exception of specified arboricultural works and any other works to be carried out under supervision that have been agreed by all parties;
6. preclude the storage of all development related materials and substances including fuels, oils, additives, cement and/or any other deleterious substance; and
7. be affixed with a 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1, below), at every 10.0 metre length of protective fencing.

Important: Any incursion into CEZs must be by prior arrangement, following consultation with the LPA.

Figure 1: CEZ Warning Sign

– TREE PROTECTION AREA –
KEEP OUT!

(TOWN & COUNTRY PLANNING ACT 1990)
THE TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR SUBJECTS OF A 'TREE PRESERVATION ORDER', THE CONTRAVENTION OF WHICH MAY LEAD TO CRIMINAL PROSECUTION

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:

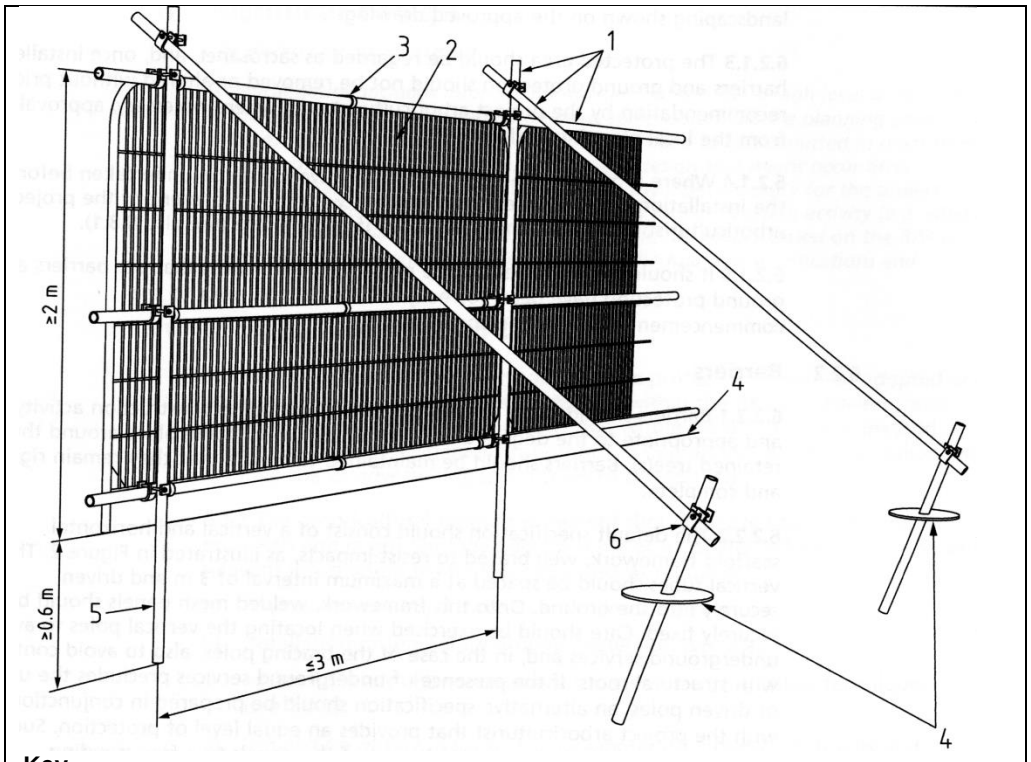
- THE PROTECTIVE FENCING MUST NOT BE MOVED
- NO PERSON SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE
- NO MACHINE, PLANT OR VEHICLES SHALL ENTER THE EXCLUSION ZONE
- NO MATERIALS SHALL BE STORED IN THE EXCLUSION ZONE
- NO SPOIL SHALL BE DEPOSITED IN THE EXCLUSION ZONE
- NO EXCAVATION SHALL OCCUR IN THE EXCLUSION ZONE
- NO FIRES SHALL BE LIT IN THE EXCLUSION ZONE

ANY INCURSION INTO THE EXCLUSION ZONE MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Type 1 (i.e. 'Default') Temporary Protective Fencing Construction (see Figure 2, below)

1. Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 metres in height.
2. The panels shall butt together and be securely fixed to a scaffold framework, as per points 3 to 5 of Figure 2, overleaf.
3. The scaffold framework shall comprise of upright poles of at least 3.0 metres in length driven no less than 0.6 metres into the ground at maximum 3.0 metre centres with horizontal and diagonal poles fixed to the uprights, as per points 4 to 5.
4. The two horizontal rail poles shall be attached to the uprights at heights of 0.6 and 1.8 metres with 3 no. clamps to each joint.
5. The diagonal scaffold pole struts be clamped to the top rail of the scaffold framework at a 45º angle and extend back into the CEZ and clamped to a 0.7 metre length of scaffold tube that shall be driven no less than 0.5m into the ground.
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion of erection, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Protective Fencing.

Figure 2: BS5837:2012 Default specification for protective barrier



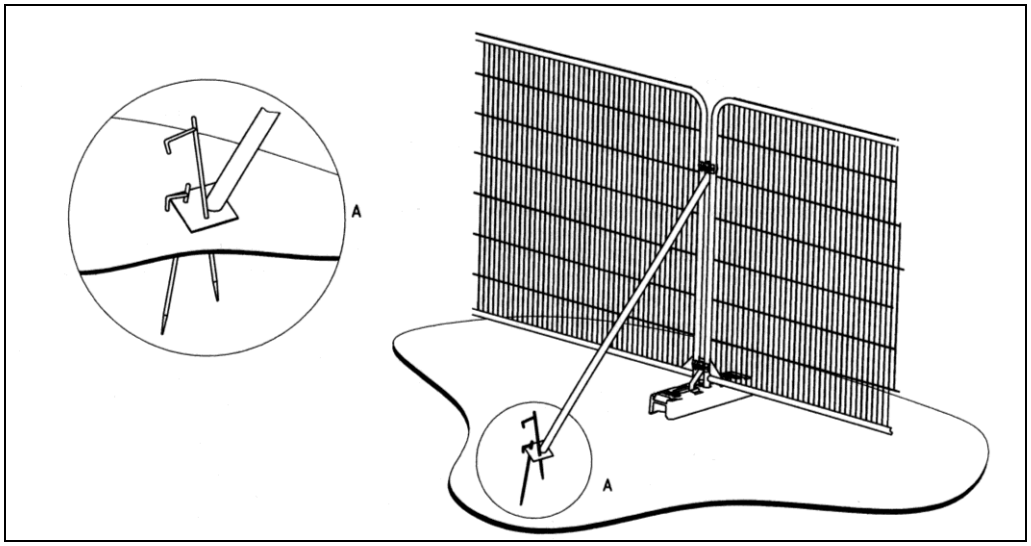
Key

1. Standard scaffold poles.
2. Heavy gauge 2 metre tall galvanised tube and welded mesh infill panels
3. Panels secured to uprights and cross members with wires ties
4. Ground level
5. Uprights driven into the ground until secure (minimum depth 0.6 metres)
6. Standard scaffold clamps

Type 2 Temporary Protective Fencing Construction (see Figure 3(a), below)

1. Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 metres in height.
2. The panels shall stand on rubber or concrete feet.
3. The panels shall butt together, and be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence.
4. The distance between the fence couplers shall be at least 1.0 metre, and shall be uniform throughout the fence.
5. The panels shall be supported on the inner side by stabiliser struts, which shall be clamped to the scaffold framework at a 45º angle and extend back into the CEZ and shall be attached to a base plate, which shall be secured to the ground with pins (Figure 3a).
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion of erection, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Protective Fencing.

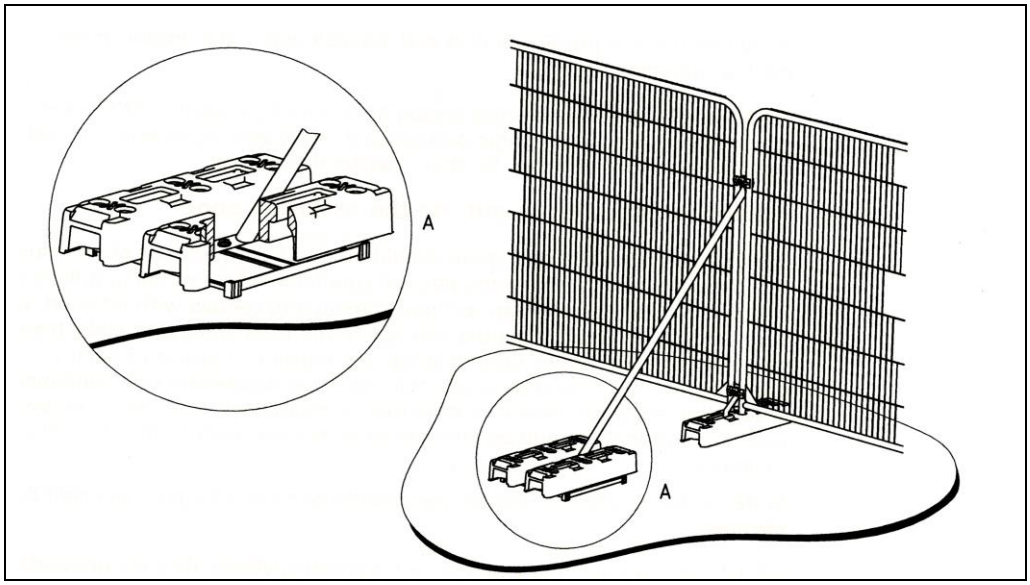
Figure 3(a): Type 2 Fencing (BS5837:2012 above-ground strut stabilising system with ground pins)



Type 3 Temporary Protective Fencing Construction (see Figure 3(b), overleaf)

1. Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 metres in height.
2. The panels shall stand on rubber or concrete feet.
3. The panels shall butt together, and be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence.
4. The distance between the fence couplers shall be at least 1.0 metre, and shall be uniform throughout the fence.
5. The panels shall be supported on the inner side by stabiliser struts, which shall be clamped to the scaffold framework at a 45º angle and extend back into the CEZ and shall be attached to a block tray base (Figure 3b).
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure 1) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion of erection, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Protective Fencing.

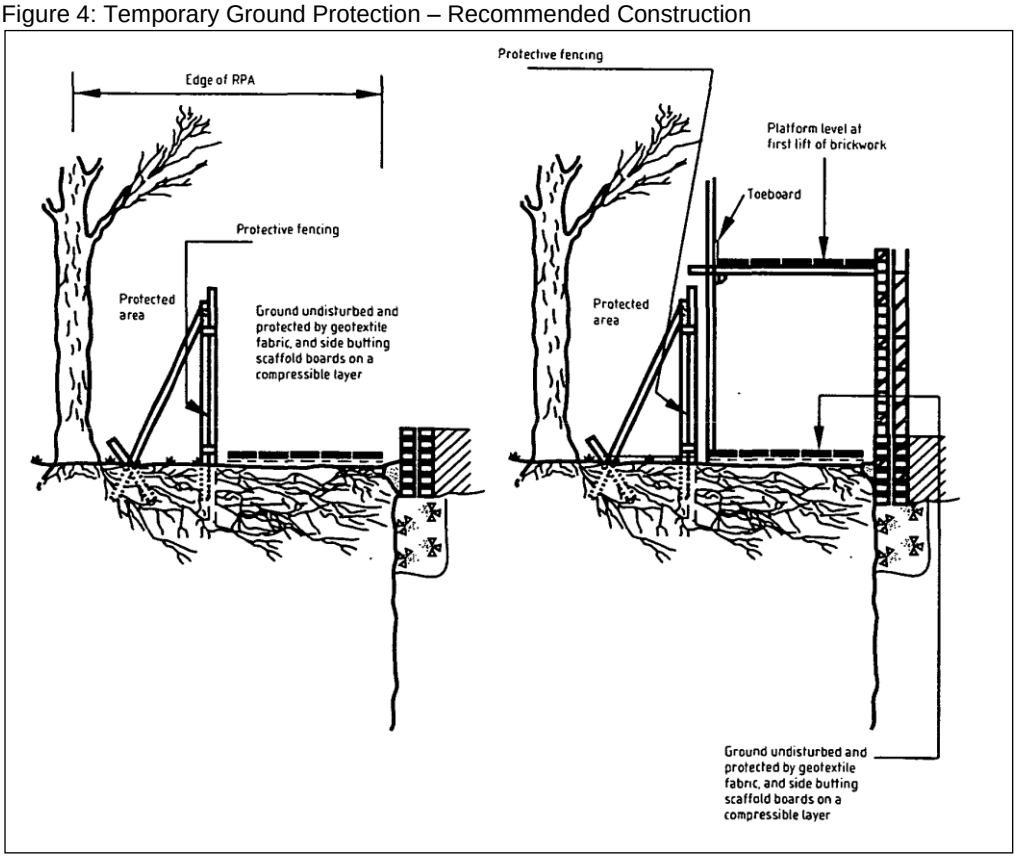
Figure 3(b): Type 3 Fencing (BS5837:2012 above-ground stabilising system with strut on block tray)

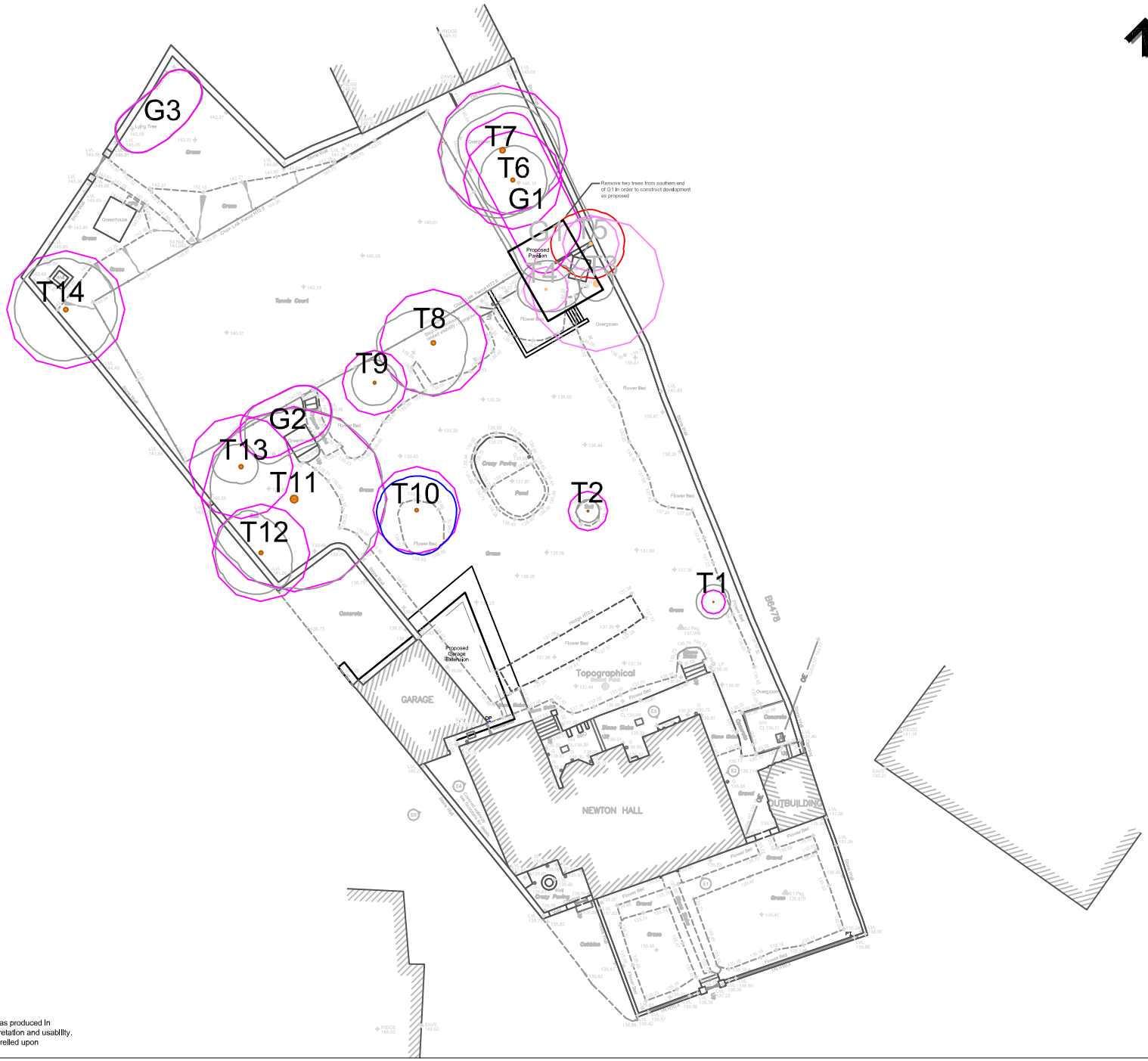


Temporary Ground Protection

2. Any necessary Temporary Ground Protection areas shall conform to Figure 4, below, unless otherwise agreed with the LPA.
3. The Ground Protection Area shall be left undisturbed and covered by a semi-permeable geotextile membrane which shall, in turn, be covered by a compressible layer consisting of a material such as woodchip.
4. Side-butting scaffold boards shall then be fitted to cover the Ground Protection Area.
5. On completion of installation, and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arboriculturist or the LPA Tree Officer, as agreed, shall inspect the Temporary Ground Protection.
6. The Temporary Ground Protection shall remain in place until completion of the project and only removed following receipt of written permission from the LPA.

Figure 4: Temporary Ground Protection – Recommended Construction





Important: The original version of this plan was produced in colour, which is essential to the plan's interpretation and usability. As such, a monochrome copy should not be relied upon

KEY

T = Individual Tree
G = Group of Trees

Please refer to associated Arboricultural Impact Assessment Report for specific details in respect of items below:

Tree Categorisations:

Those to be Considered for Retention:

Category 'A' Tree/Group
Those of a High Quality with an Estimated Remaining Life Expectancy of at Least 40 Years

Category 'B' Tree/Group
Those of a Moderate Quality with an Estimated Remaining Life Expectancy of at Least 20 Years

Category 'C' Tree/Group
Those of Low Quality with an Estimated Remaining Life Expectancy of at Least 10 Years, or Young Trees

Those Considered Unsuitable for Retention:

Category 'U' Tree/Group
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

Note 1: The stems of trees T6 and T9 were not plotted on the topographical site site plan provided, and their locations were subsequently plotted by the by the arboricultural surveyor using GPS at the time of the survey. As such, the plotted location of these trees cannot therefore be considered to be wholly accurate

Note 2: Trees with their identification numbers labelled in grey are recommended for removal in the context of the development

Root Protection Areas (RPAs):

RPAs
Area(s) of Ground Around Trees that Should be Protected Throughout Development Works with Protective Fencing to form a Construction Exclusion Zone - see Temporary Protective Fencing Specification

Project:
NEWTON HALL
NEWTON IN BOWLAND
LANCASHIRE
BB7 2DY

Agent for Client:
SUNDERLAND PEACOCK & ASSOCIATES LTD

Title:
TREE IMPACT PLAN
In Relation to Proposal to Demolish Existing Shed and Replace with New Pavilion and to Construct Extension to Garage

Scale:	1:500@A4
Date:	May 2017
Drawn by:	JK
Checked by:	RD

Bowland Tree Consultancy Ltd
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Ref: BTC1308-TIP Rev: