

Trees and Construction

BS5837 Tree Survey Assessment

Site: Plas Coch Campus, Wrexham, LL11 2AW

Ref: 18164/S1/A1

Client: Wrexham Glydwr University



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Revision	Description	Date
/	/	/

1. INTRODUCTION

- 1.1 **Instruction:** This advice has been prepared for Wrexham Glydwr University (hereafter; client) and is in respect of the tree related planning considerations at Plas Coch Campus, Wrexham, LL11 2AW (hereafter; site).

As the proposal relates to development works at site, the advice herein is produced in accordance with the British Standard 5837 : 2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter; BS5837).

- 1.2 **BS5837:** The scope of BS5837 is to provide guidance on how trees and other vegetation can be integrated into construction and development design schemes. The overall aim is to ensure the protection of amenity by trees which are appropriate for retention.
- 1.3 **Scope of this advice:** This advice has been produced in accordance with BS5837 and is intended to demonstrate the site's realistic arboricultural constraints and assist with the design process. The objective is to systematically assess the site and provide suitable recommendations regarding the proposal's potential impact on trees and vice versa.
- 1.4 Following instruction the consultant surveyed the site on the 18th May 2018 where a site walkover and BS5837 tree survey were carried out; all trees on site and around the application boundary were surveyed from ground level and plotted as either an individual or a tree group.
- 1.5 This advice is subject to caveat at Appendix I, outlines relevant terms and definitions at Appendix II and constitutes the findings of the preliminary site assessment and associated arboricultural recommendations.
- 1.6 The survey data and site observations use the supplied topographical survey to illustrate the surveyed trees in plan format as a 'Tree Constraints Plan' (hereafter; TCP); the TCP and the tree survey data table are at Appendix III.

2. SITE INFORMATION & TREE ASSESSMENT

- 2.1 The site currently comprises an in-use university campus with associated structures, accesses, parking, sports fields and amenity space. The site is bound by commercial properties to the north, Mold Road to the south, residential properties and Crispin Lane to the east and the B5101 road to the west.
- 2.2 **Proposal:** No detailed scheme is available for comment at this stage. However, it is understood that the site is being considered for development which includes the construction of multiple new dwellings, new site access and new parking areas. As such, the considerations herein surround the principal of development in respect of trees and tree retention / protection recommendations.
- 2.3 The site requires consideration from an arboricultural perspective due to the presence of trees on and around the site; these trees are deemed to be within impacting distance of the existing structures and potential construction area.
- 2.4 The trees -
- 2.4.1 The tree survey and assessment resulted in the BS5837 quality/retention categories of 'A - high', 'B - moderate' and 'C - low' being attributed to trees/tree groups as well as those of curtailed life expectancy not to constrain development categorised as 'U'.
- 2.4.2 The BS5837 tree survey is a means of objective assessment and reflects the trees' condition, quality contribution, remaining life expectancy and spatial considerations (stem, crown and roots). On this basis and in order to consider the trees' accurate constraints, the survey data has the crown extents for north, south, east west, the stem diameter measurement, and the calculated root protection areas (hereafter; RPAs). Hereafter, the trees are therefore reviewed and considered on their own merits and in line with the guidance of BS5837.

3. FINDINGS & RECOMMENDATIONS

3.1 The following information, as with the prior contents of this report, should be read with the appended tree data table and tree constraints plan (18164/S1/TCP/01).

3.2 General Considerations for Tree Retention / Removal

3.2.1 Based on the boundary line location/neighbour's site location of G12, G13, T169 & T170 their retention and protection is to be assumed as part of the scheme. This is best achieved by avoidance whereby their crowns are avoided and their RPAs accommodated by design.

3.2.2 Due to the poor condition and defects noted to the trees categorised as 'U' and in the context of the site's current use and the site's development, it is recommended that T5 and T154 be removed as part of H&S tree risk management.

3.2.3 There are smaller scale trees and those with defects or limitations on the current amenity contribution or useful remaining life expectancy, these are categorised as 'C - low'.

These 'C' category trees should not constrain nor significantly guide a scheme, although protection may be preferable to retain landscape maturity. For any proposed tree removals, mitigation tree planting is recommended as part of a landscape scheme and can suitably replace and enhance the initial loss of copy cover.

3.2.4 The moderate quality 'B' category trees are noted as such due to their fair future potential and/or good current amenity contribution. These should be retained and protected where possible as part of the site's development.

Whilst the retention and protection of 'B' category trees is recommended, the removal of some may also be mitigated. Subject to supplementary details for tree selection as part of a well delivered landscape scheme, proposals of this nature may then be accepted by the council. However, this will require higher grade larger nursery planting stock than that to mitigate the removal of 'C' category trees.

3.2.5 The more notable trees, based on the individual prominence, lack of significant defects, current contribution and/or future potential, are categorised as 'A - high'. It is recommended that these trees be retained, protected and be clear of the proposal. This is best achieved by avoidance where their crowns and RPAs are accommodated in the design and layout.

3.3 Tree Protection

3.3.1 The design and layout of the site is to incorporate the essential components of retained trees (crown and rooting area) and provide a suitable level of clearance to allow for their long term safe retention, i.e. RPA protection and crown clearance as well as for any new tree(s) being planted.

3.3.2 Depending on the level of tree retention/removal, the protection methods for the retained trees is likely to vary. However, it is likely that a combination of construction restrictions be used with protective barrier fencing (to protect RPAs).

The process of site operations will be an important aspect to confirm by way of a construction layout plan, i.e. showing storage areas, parking, delivery area, access routes etc., all outside of RPAs or with a provision for ground protection. As a basis for tree protection the following points will need to be considered:

- Removal of all agreed trees and any agreed pruning works prior to works commencing by a suitably qualified arboricultural contractor;
- Induction of construction personnel regarding the exclusion of works (including access and storage) from the retained trees' RPAs;
- Secure temporary barrier fencing around the site to exclude the retained tree's crowns and RPAs from the working site;
- The storage of materials clear of all retained trees and conditions to ensure no contamination/run-off into soils in proximity to trees or on higher ground; and
- For the removal of existing structures and/or hard surfaces from RPAs the works to be undertaken separate to construction, manually and sensitively.

3.4 General Overview

3.4.1 The considerations for trees which are to be retained as part of the proposal need to be addressed in order to ensure their protection. This is to account for the potential impact on retained trees and their growing environment from the proposed development and vice versa (these follow).

Tree Works

Any trees which are to be removed should be well indicated to ensure that the retained trees are suitably protected. Hence, all trees which are to be removed are to be marked by a suitably qualified person [spraying the stems with a cross] prior to tree works.

Tree Crowns

Consideration is required for both existing and newly planted trees whereby the proposed construction should take account of trees reaching their full growth potential. It is always prudent to provide adequate clearance from a tree's current crown for

future growth, i.e. to allow a tree adequate space to reach maturity without conflicts with new structures.

Root Protection Areas (RPA)

It is *sometimes* possible to undertake construction activities within the rooting areas of retained trees which requires greater attention to tree protection, foundation designs, phasing of works etc. If it is proposed to undertake works within these areas, more specific advice should be sought from a qualified arboriculturalist with a view to assessing the feasibility of said proposal and forming a suitable method statement.

Demolition/Excavation Works

Any removal of existing built structures (including stairways, small outbuildings, retaining walls etc.) or hard surfacing will need to be undertaken with great care where this occurs within or near to the anticipated rooting areas of retained trees.

Said works should adhere to the RPA restrictions, be undertaken manually with hand held non mechanical tools and ensure that existing ground levels are retained.

Hard Landscape Works

As with previously mentioned arboricultural restrictions to demolition/construction, the proposed works should avoid retained trees' RPAs. However, where ground works are proposed within RPAs, construction methods [for hard surfacing, walls etc.] should retain the existing ground levels, be undertaken sensitively and using a no dig design.

Conversion of soft surfaced areas within RPAs to hard surfaced walkways, parking areas etc., will need to utilise a no-dig product to ensure no negative impact on the tree roots and/or growing conditions.

- 3.4.2 For any proportion of tree removal, new tree planting is to be integrated into a landscape scheme. The new trees should be of a suitable volume, species, scale, in suitably prepared planting locations with adequate space for future growth and development and enhance the site's long term amenity contribution.

Planting Species and Volume

New tree planting should incorporate a range of species, select mixed characteristics and take account of the availability of space, i.e. concentrate on selecting suitable scale species based on the ultimate growth extents.

Depending on the volume and quality of trees to be removed, new tree planting should directly proportionate; a 1:1 removal to replacement ratio is considered suitable.

Planting Specification

A detailed specification should be included within a landscape scheme (could form part of planning conditions). This should outline the proposed tree species, stock selection, location, planting process and ongoing maintenance (watering, mulch and pruning).

Planting Location

The new planting sites should take account of the future growth potential of the chosen species and should allow for the amenity space to be utilised, minimise the potential conflict with structures and facilitate the contribution to amenity from the site.

Based on the nature of the site, good tree planting space is anticipated. It is necessary however to consider and avoid future canopy / shade conflicts.

3.5 Additional Details

- 3.5.1 The surveyed trees have been subject to a detailed inspection and the arboricultural considerations detailed within this advice. The advice herein is intended to guide a suitable design in consideration for the site's valuable amenity assets.
- 3.5.2 Further to the above, the finer details of layout, design detail to accommodate trees and any proposed new tree planting are to be illustrated within a landscape plan. This is to include the exact details of hard and soft landscape works, RPA sections (where surface works are proposed) and details of new tree planting location, species, stock selection, installation and maintenance; to be undertaken by the appointed landscape architect with the full support of the arboricultural consultant (where required).
- 3.5.3 Hence, further to the supply of the finalised site plan for the planning application, this will be reviewed as an arboricultural impact assessment (AIA) to inform AMS 'consideration'. Where this advice is accounted for, this will enable the arboricultural constraints to be managed effectively, i.e., phased works, tree protection fences etc.

This concludes our advice.

Caveat

Any and all information supplied to Indigo Surveys Ltd by/on behalf of the client is assumed to be accurate unless otherwise informed. | This advice is limited to the observations made on the date of inspection as detailed herein and any deletion, editing or alteration will result in the advice being null and void in its entirety. | This advice in its entirety may be deemed null and void if remedial works are undertaken on any area of the site, on or after the date of the survey. | No liability is assumed by the author or by Indigo Surveys Ltd for any misuse, misinterpretation or misrepresentation of this advice. | This advice is not valid in adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events. | No responsibility is assumed either by the author of this advice or by Indigo Surveys Ltd for any legal matters that may arise as a consequence. | Neither the author nor Indigo Surveys Ltd will be required to attend court or give testimony as part of this agreement. | The responsibility for any works undertaken on the basis of the recommendations of this advice does not form part of this agreement.

Appendix II

Terms and Definitions

“Arboriculturist” - person who has, through relevant education, training and experience, gained expertise in the field of trees in relation to construction.

“Competent Person” - person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.

“Topographical survey” - an accurately measured land survey undertaken to show all relevant existing site features. *A method of carrying out topographical surveys is given in RICS specification* Surveys of land buildings and utility services at scales of 1:500 and larger.

“BS5837 Tree survey” - should be undertaken by an arboriculturist to record information about the trees on or adjacent to a site. The results of the tree survey, including material constraints arising from existing trees that merit retention, should be used (along with any other relevant baseline data) to inform feasibility studies and design options. For this reason, the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for development.

“Tree categorisation method” - trees should be categorised in accordance with the BS5837 cascade chart by an arboriculturist. This is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of development occurring.

“Root protection area (RPA)” - layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority, shown as an arboricultural constraint in m². The radius is calculated using the BS5837 calculation method. An arboriculturist may change the shape of an RPA but not reduce its area.

“Arboricultural implications assessment” - a study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

“Arboricultural method statement” - methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.

“Tree protection plan” - a scale drawing, informed by descriptive text where necessary, based upon the finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Appendix III

Data Table: As appended (BS5837 Tree Survey Key & Table)

Tree Constraints Plan: As appended (18164/S1/TCP/01)

TREE SURVEY 'KEY' - BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'

FIELD KEY:

TPO/CA	-	On client request: presence of Tree Preservation Orders (TPO) / site location within a Conservation Area (CA) & date checked;
TREE REF. #	-	Tree reference number: tag or plan number (T - individual tree, G - group of trees/shrubs, H - hedge);
SPECIES	-	Genus, species and/or common name;
AGE	-	Age classification (NP - new planting, Y - young, SM - semi mature, EM - early mature, M - mature, LM - late mature, OM - over mature);
HEIGHT (in m)	-	Approximate height of tree in metres;
CANOPY (in m) N - S - E - W	-	Approximate branch spread in metres of the four principal compass points;
STEM (in mm)	-	Stem diameter in millimetres: measured in accordance with s.4.6 of BS5837;
RPA (in m)	-	Circle radius of the Root Protection Area: calculated using the stem diameter (single/multiple stem variant, as outlined within BS5837);
CLEARANCE (in m)	-	Crown clearance in metres above the adjacent ground level;
IST BRANCH (in m)	-	Clearance in metres to first significant branch and direction of growth (where relevant);
VITALITY	-	Physiological condition typically gauged from canopy cover and annual extension growth (good, fair, poor, dead);
ESTIMATED REMAINING CONTRIBUTION	-	Approximate number of years the tree will continue to make a contribution without the need for oppressive arboricultural intervention, categorised in years as <10, 10-20, 20-40 and >40;
NOTES	-	Structural and physiological condition observations;
BS CAT.	-	BS5837 tree quality assessment category: resulting from structural/physiological condition and remaining contribution (approximate Standard retention category U : in such a condition that any existing value would be lost within 10 years; Standard retention category A : high quality and value, in such a condition as to be able to make substantial contribution of 40+ years; Standard retention category B : moderate quality and value, in such a condition as to make a significant contribution of 20+ years; Standard retention category C : low quality and value, currently in adequate condition to remain until new planting could be established Standard retention sub-category, mainly due to: 1 - Arboricultural values, 2 - Landscape values, 3 - Cultural values, including conservation;
MANAGEMENT	-	Preliminary management recommendations (as appropriate);
* * *	-	Within the survey schedule denotes an estimate

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
CLIENT: Wrexham Glydwr University			PROJECT REF: 18164/S1			SITE: Plas Coch Campus, Wrexham, LL11 2AW										
CONTACT: /			SURVEY DATE: 18th May 2018			ARB CONSULTANT: Tony Banner TechCert (ArborA) TechArborA										
TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T1	Apple; Malus, Rosaceae	M	6	3	3	3	3	230	2.8	2	2 union	Normal	20 - 40	Planted in square planter in hard standing, multi-stem crown 2m, base contact with metal grid of planter.	B 2	Consider removing metal grid to avoid conflict with tree's stem.
T2	Purple Hazel; Corylus, Betulaceae	M	5	3.5	3.5	3.5	3.5	193	2.3	1.5	/	Normal	10 - 20	Planted in soft border, multi-stem base.	C 3	
T3	Purple Hazel; Corylus, Betulaceae	M	5	2.5	2.5	2.5	2.5	176	2.1	1.5	/	Normal	10 - 20	Planted in soft border, multi-stem base, crown contact with building.	C 3	
T4	Cherry; Prunus, Rosaceae	M	10	1.5	4	3	4	240	2.9	1.5	/	Normal	10 - 20	Planted in soft border, multi-stem base, crown contact with building.	C 3	
T5	Goat Willow; Salix, Salicaceae	M	8	2.5	3.5	4.5	4.5	350	4.2	1.5	2	Normal	< 10	Planted in soft border in parking, decay in main stemmata 1.5m from tear out.	U	Consider tree removal as a preventative H&S measure.
T6	Cherry; Prunus, Rosaceae	M	12	4.5	4.5	4	5	400	4.8	1.5	2	Normal	10 - 20	Planted in soft border in parking, multi-stem crown at 2m.	C 3	
G1	Lombardy Poplar group	M	20 +	/	/	/	/	500 AVE	6.0	1.5	/	Normal	10 - 20	Planted line in shrub border in parking, ivy in parts.	C 2	Sever Ivy to allow unobscured tree assessment.
T7	Sweet Gum; Liquidambar, Hamamelidaceae	Y / SM	6	2.5	2.5	2.5	2.5	130	1.6	1.5	/	Normal	20 - 40	Planted in soft border in parking, young form.	C 3	
T8	Sweet Gum; Liquidambar, Hamamelidaceae	Y / SM	6	2.5	2.5	2.5	2.5	120	1.4	1.5	/	Normal	20 - 40	Planted in soft border in parking, young form.	C 3	
T9	Sweet Gum; Liquidambar, Hamamelidaceae	Y / SM	4	2	2	2	2	90	1.1	1.5	/	Fair	10 - 20	Planted in soft border in parking, young form, poor extension growth.	C 3	Mulch soft border to ensure successful tree establishment.
T10	Sweet Gum; Liquidambar, Hamamelidaceae	Y / SM	4	1.5	1.5	1.5	1.5	80	1.0	1.5	/	Fair	10 - 20	Planted in soft border in parking, young form, poor extension growth.	C 3	Mulch soft border to ensure successful tree establishment.
T11	Sweet Gum; Liquidambar, Hamamelidaceae	Y / SM	6	2	2	2	2	140	1.7	2	/	Normal	20 - 40	Planted in soft border in parking, young form.	C 3	
T12	Rowan; Sorbus, Rosaceae	EM	6	2.5	2.5	2.5	2.5	170	2.0	1.5	/	Normal	20 - 40	Planted in soft border in parking, multi-stem crown at 2m.	C 3	
T13	Rowan; Sorbus, Rosaceae	EM	6	2	1.5	1.5	2	160	1.9	1.5	/	Normal	10 - 20	Planted in soft border in parking, impact damage on stem at 1m, tear out in crown.	C 3	Monitor main union.
T14	Rowan; Sorbus, Rosaceae	EM	6	2	2	2	2	140	1.7	1.5	/	Normal	20 - 40	Planted in soft border in parking.	C 3	
T15	Cherry; Prunus, Rosaceae	Y / SM	3	1	1	1	1	80	1.0	1.5	/	Normal	10 - 20	Planted in soft border in parking, stake and tie in place.	C 3	
T16	Rowan; Sorbus, Rosaceae	SM	5	2	2	2	2	100	1.2	1.5	/	Normal	10 - 20	Planted in soft border in parking.	C 3	
T17	Cherry; Prunus, Rosaceae	SM	5	2.5	2.5	2.5	2.5	140	1.7	1.5	/	Normal	10 - 20	Planted in soft border in parking.	C 3	
T18	Cherry; Prunus, Rosaceae	Y / SM	3	1	1	1	1	90	1.1	1.5	/	Normal	10 - 20	Planted in soft border in parking.	C 3	
T19	Alder; Carpinus, Betulaceae	SM	4	2	2	2	2	130	1.6	2	/	Fair	10 - 20	Planted in soft border in parking, ivy, dead leader	C 3	Sever ivy at base and monitor tree's condition.
T20	Elm; Ulmus, Ulmaceae	SM	5	3	3.5	2.5	2	100	1.2	1.5	/	Fair	10 - 20	Planted in soft border in parking, dieback in upper crown.	C 3	Monitor tree's condition.
T21	Rowan; Sorbus, Rosaceae	SM	5	1.5	1.5	1.5	1.5	110	1.3	1.5	/	Fair	10 - 20	Planted in soft border in parking, crown suppressed by T20, deadwood.	C 3	
T22	Cherry; Prunus, Rosaceae	Y / SM	2.5	1.5	1.5	1.5	1.5	100	1.2	1.5	/	Normal	10 - 20	Planted in soft border in parking, stake and tie in place.	C 3	

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TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T23	Cherry; Prunus, Rosaceae	Y / SM	2.5	1	1	1	1	80	1.0	1.5	/	Normal	10 - 20	Planted in soft border in parking, stake and tie in place, sparse crown in parts.	C 3	Mulch soft border to ensure successful tree establishment.
T24	Rowan; Sorbus, Rosaceae	EM	6	2	2	2	2	140	1.7	/	/	Normal	10 - 20	Planted in soft border/access.	C 3	
T25	Rowan; Sorbus, Rosaceae	EM	6	2	2	2	2	130	1.6	/	/	Normal	10 - 20	Planted in soft border/access.	C 3	
T26	Sweet Gum; Liquidambar, Hamamelidaceae	Y / SM	4	1	1	1	1	75	0.9	/	/	Fair / Poor	10 - 20	Planted in soft border/access, poor extension growth.	C 3	Mulch soft border to ensure successful tree establishment.
T27	Sweet Gum; Liquidambar, Hamamelidaceae	Y / SM	5	1.5	1.5	1.5	1.5	90	1.1	/	/	Normal	10 - 20	Planted in soft border/access.	C 3	
T28	Sweet Gum; Liquidambar, Hamamelidaceae	Y / SM	6	1.5	1.5	1.5	1.5	100	1.2	/	/	Normal	10 - 20	Planted in soft border/access.	C 3	
T29	Cherry; Prunus, Rosaceae	M	7	3	3.5	6	4	430	5.2	1.5	2	Normal	20 - 40	Planted in soft border, multi-stem at 1.5m.	B 3	
T30	Cherry; Prunus, Rosaceae	M	7	4.5	4	4	4	440	5.3	1.5	2	Normal	20 - 40	Planted in soft border, multi-stem at 1.5m.	B 3	
T31	Cherry; Prunus, Rosaceae	M	6	4	4	4	4	300	3.6	1.5	2	Fair	20 - 40	Planted in soft border, multi-stem at 1.5m, dieback noted.	C 3	
G2	Birch group	EM	10	/	/	/	/	270 AVE	3.2	1.5	/	Normal	40 +	Trio planted in turf area.	B 2	
T32	Whitebeam; Sorbus, Rosaceae	Y / SM	4	2	2	2	2	80	1.0	1	/	Normal	20 - 40	Planted in turf area, current small scale	C 3	
T33	Whitebeam; Sorbus, Rosaceae	Y / SM	4	2	2	2	2	90	1.1	1.5	/	Normal	20 - 40	Planted in turf area, current small scale	C 3	
T34	Whitebeam; Sorbus, Rosaceae	SM	4	2	2	2	2	120	1.4	1	/	Normal	20 - 40	Planted in turf area, current small scale	C 3	
T35	Whitebeam; Sorbus, Rosaceae	SM	4	2	2	2	2	120	1.4	1	/	Normal	20 - 40	Planted in turf area, current small scale	C 3	
G3	Birch group	M	12	/	/	/	/	300	3.6	1.5	/	Normal	40 +	Trio planted in turf area.	B 2	
G4	Birch group	EM	7.5	/	/	/	/	200	2.4	1.5	/	Normal	40 +	Duo planted in turf area.	B 2	
T36	Hawthorn; Crataegus, Rosaceae	EM	3	2	2	2	2	200	2.4	0	/	Normal	20 - 40	Planted in turf area, current small scale	C 3	
T37	Birch; Betula, Betulaceae	EM	9	2.5	2.5	2.5	2.5	148	1.8	1.5	/	Normal	20 - 40	Planted in turf area, co-dominant base.	B 3	
T38	Birch; Betula, Betulaceae	EM	10	3	2.5	2.5	2.5	160	1.9	1.5	/	Normal	20 - 40	Planted in turf area.	B 3	
T39	Oak; Quercus, Fagaceae	SM	8	2.5	2.5	2.5	2.5	210	2.5	2	2	Normal	40 +	Planted in turf area, multi-stem at 2m, current young form, good future potential.	B 3	
T40	Rowan; Sorbus, Rosaceae	SM	5	1.5	1.5	1.5	1.5	150	1.8	1	/	Normal	10 - 20	Planted in turf area, multi-stem base.	C 3	
G5	Cherry group	M	< 12	/	/	/	/	400 - 650	7.8	1.5	/	Normal	20 - 40	Collective canopy group, ivy on 1no. stem.	B 2	Sever ivy to allow unobscured tree assessment.
G6	Ornamental group	Y	< 4	/	/	/	/	< 100	1.2	/	/	Normal	10 - 20	Relative young ornamental group.	C 2	
T41	Raywood Ash; Fraxinus, Oleaceae	SM	6	2	2	2	2	130	1.6	2	/	Normal	20 - 40	Planted in soft border, single stem, good future potential.	B 3	
T42	Raywood Ash; Fraxinus, Oleaceae	SM	6	2	2	2	2	120	1.4	2	/	Normal	20 - 40	Planted in soft border, single stem, good future potential.	B 3	
T43	Raywood Ash; Fraxinus, Oleaceae	SM	6	2	2	2	2	100	1.2	2	/	Normal	20 - 40	Planted in soft border, single stem, good future potential.	B 3	
T44	Raywood Ash; Fraxinus, Oleaceae	SM	6	2	2	2	2	100	1.2	2	/	Normal	20 - 40	Planted in soft border, single stem, good future potential.	B 3	

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
CLIENT: Wrexham Glydwr University				PROJECT REF: 18164/S1					SITE: Plas Coch Campus, Wrexham, LL11 2AW							
CONTACT: /				SURVEY DATE: 18th May 2018					ARB CONSULTANT: Tony Banner TechCert (ArborA) TechArborA							
TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T45	Raywood Ash; Fraxinus, Oleaceae	SM	6	2	2	2	2	120	1.4	2	/	Normal	20 - 40	Planted in soft border, single stem, good future potential.	B 3	
T46	Raywood Ash; Fraxinus, Oleaceae	SM	6	2	2	2	2	130	1.6	2	/	Normal	20 - 40	Planted in soft border, single stem, good future potential.	B 3	
T47	Raywood Ash; Fraxinus, Oleaceae	SM	6	2	2	2	2	110	1.3	2	/	Normal	20 - 40	Planted in soft border, single stem, good future potential.	B 3	
T48	Raywood Ash; Fraxinus, Oleaceae	SM	6	2.5	2.5	2.5	2.5	140	1.7	2	/	Normal	20 - 40	Planted in soft border, single stem, good future potential, sparse canopy in parts, dieback.	C 2	Mulch soft border to ensure successful tree establishment, and monitor tree's condition.
T49	Oriental Plane, Platanaceae,	EM	12	4.5	3	3.5	4.5	160	1.9	1.5	/	Normal	40 +	Planted in turf area towards boundary.	B 3	
T50	Oriental Plane, Platanaceae,	EM	12	5	2.5	3	4	160	1.9	1.5	/	Normal	40 +	Planted in turf area towards boundary.	B 3	
T51	Oriental Plane, Platanaceae,	EM	11	3	4.5	2.5	3.5	130	1.6	1.5	/	Normal	40 +	Planted in turf area towards boundary.	B 3	
T52	Oriental Plane, Platanaceae,	EM	10	3.5	3.5	3.5	3.5	140	1.7	1.5	/	Normal	40 +	Planted in turf area towards boundary.	B 3	
T53	Oriental Plane, Platanaceae,	EM	11	4	3.5	3.5	3.5	150	1.8	1.5	/	Normal	40 +	Planted in turf area towards boundary.	B 3	
T54	Oriental Plane, Platanaceae,	EM	10	3.5	2.5	3.5	3.5	130	1.6	1.5	/	Normal	40 +	Planted in turf area towards boundary.	B 3	
T55	Lime; Tilia, Tiliaceae	SM	4.5	3	3	3	3	200	2.4	1.5	/	Normal	40 +	Planted in turf area towards boundary, stake at base.	B 3	Remove stake.
G7	Mixed group (Cherry, Cornus sp., Elder, Goat Willow, Hazel, Birch, Ash)	M	4 - 10	/	/	/	/	200	2.4	0	/	Normal	20 - 40	Planted towards boundary, screen/buffer planting, ivy in parts.	B 2	
T56	Alder; Carpinus, Betulaceae	M	12	2.5	2.5	2.5	2.5	250	3.0	2	2	Normal	20 - 40	Planted in soft border in parking, single stem.	B 3	
T57	Rowan; Sorbus, Rosaceae	EM	6	2	2	2	2	120	1.4	2	/	Normal	10 - 20	Planted in soft border in parking.	C 3	
T58	Rowan; Sorbus, Rosaceae	EM	6	2	2	2	2	130	1.6	2	/	Normal	10 - 20	Planted in soft border in parking.	C 3	
T59	Rowan; Sorbus, Rosaceae	EM	6	2	2	2	2	130	1.6	2	/	Normal	10 - 20	Planted in soft border in parking.	C 3	
T60	Birch; Betula, Betulaceae	EM	12	2.5	2.5	2.5	2.5	250	3.0	2	/	Normal	20 - 40	Planted in soft border in parking.	B 3	
T61	Cherry; Prunus, Rosaceae	EM	7.5	3	3	3	3	210	2.5	2	/	Fair	10 - 20	Planted in soft border in parking, sparse canopy in parts.	C 3	Mulch soft border to ensure successful tree establishment.
T62	Cherry; Prunus, Rosaceae	EM	6	3	3	3	3	220	2.6	2	/	Normal	20 - 40	Planted in soft border in parking.	B 3	
T63	Rowan; Sorbus, Rosaceae	EM	7	1.5	2	1.5	1.5	100	1.2	/	/	Normal	10 - 20	Planted in soft border in parking.	C 3	
T64	Rowan; Sorbus, Rosaceae	EM	7	1.5	1.5	1.5	1.5	110	1.3	/	/	Normal	10 - 20	Planted in soft border in parking.	C 3	
T65	Rowan; Sorbus, Rosaceae	EM	7	2	2	2	2	100	1.2	/	/	Normal	10 - 20	Planted in soft border in parking.	C 3	
T66	Field Maple; Acer, Aceraceae	SM	6	1.5	1.5	1.5	1.5	130	1.6	/	/	Normal	20 - 40	Planted in soft border in parking, stake no tie.	C 3	
T67	Field Maple; Acer, Aceraceae	SM	6	1.5	1.5	1.5	1.5	110	1.3	/	/	Normal	20 - 40	Planted in soft border in parking, stake no tie.	C 3	
T68	Ash; Fraxinus, Oleaceae	EM	14	4	4	4	4	250	3.0	2	2	Normal	20 - 40	Planted line in soft border near building, crown close to building.	B 2	
T69	Ash; Fraxinus, Oleaceae	EM	13	4	4	4	4	240	2.9	2	2	Normal	20 - 40	Planted line in soft border near building, crown close to building.	B 2	
T70	Ash; Fraxinus, Oleaceae	EM	12	4	4	4	4	230	2.8	2	2	Normal	20 - 40	Planted line in soft border near building, crown close to building.	B 2	

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CONTACT: /			SURVEY DATE: 18th May 2018			ARB CONSULTANT: Tony Banner TechCert (ArborA) TechArborA										
TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T71	Ash; Fraxinus, Oleaceae	EM	12	4	4	4	4	230	2.8	2	2	Normal	20 - 40	Planted line in soft border near building, crown close to building.	B 2	
T72	Ash; Fraxinus, Oleaceae	EM	12	4	4	4	4	240	2.9	2	2	Normal	20 - 40	Planted line in soft border near building, crown close to building.	B 2	
T73	Ash; Fraxinus, Oleaceae	EM	12	4	4	4	4	191	2.3	2	2	Normal	20 - 40	Planted line in soft border near building, crown close to building, co-dominant base below 1.5m.	B 2	
T74	Ash; Fraxinus, Oleaceae	EM	12	4	4	4	4	240	2.9	2	2	Normal	20 - 40	Planted line in soft border near building, crown close to building.	B 2	
T75	Alder; Carpinus, Betulaceae	M	13	2.5	2.5	2.5	2.5	227	2.7	1.5	/	Normal	20 - 40	Planted in soft border, co-dominant base.	B 3	
T76	Spruce; Picea, Pinaceae	EM	13	2.5	2.5	2.5	2.5	260	3.1	2	/	Normal	20 - 40	Singel stem, crown close to building but only branch tips touching.	B 3	
T77	Field Maple; Acer, Aceraceae	M	8	3.5	3.5	3.5	3.5	430	5.2	2	2	Normal	20 - 40	multi-stem at 2m, crown conflict with building, dw.	B 3	Remove deadwood and prune to 1.5m clear of building.
T78	Cherry; Prunus, Rosaceae	M	6	3.5	3.5	3.5	3.5	240	2.9	/	/	Normal	20 - 40	Planted in soft border, multi-stem at 2m, crown close to building.	B 3	Prune to clear at 1.5m clear of building.
T79	Cherry; Prunus, Rosaceae	M	6	3.5	3	4.5	3	140	1.7	/	/	Normal	20 - 40	Planted in soft border, multi-stem 2m, crown contact with building.	B 3	
T80	Elm; Ulmus, Ulmaceae	M	20	6.5	8	12	9	1250 *	15.0	1.5	/	Normal	20 - 40	Growing in G7, no access to stem, large bole, multi-stem form 1m with large limbs.	A 1	
G8	Mixed group (Cherry, Cornus sp., Horse Chestnut, Red Oak, Hazel, Hawthorn, Ash)	M	6 - 12	/	/	/	/	250	3.0	0	/	Normal	40 +	Mixed group growing towards the boundary, screen/buffer planting.	B 2	
T81	Rowan; Sorbus, Rosaceae	M	8	3	3	3	3	240	2.9	2	/	Normal	20 - 40	Planted in turf area, single stem.	B 3	
T82	Cherry; Prunus, Rosaceae	M	8	3	3	3	3	230	2.8	1.5	/	Normal	20 - 40	Planted in turf area, single stem.	B 3	
T83	Birch; Betula, Betulaceae	EM	12	2.5	2.5	2.5	2.5	130	1.6	/	/	Normal	20 - 40	Planted in soft border, leans east.	B 3	
T84	Cypress; Cupressus, Cupressaceae	EM	10	1.5	1.5	1.5	1.5	160	1.9	2	/	Normal	20 - 40	Planted in soft border near building, leans north.	C 3	
T85	Cypress; Cupressus, Cupressaceae	EM	14	1.5	1.5	1.5	1.5	180	2.2	2	/	Normal	20 - 40	Planted in soft border near building.	C 3	
T86	Cypress; Cupressus, Cupressaceae	EM	15	1.5	1.5	1.5	1.5	210	2.5	2	/	Normal	20 - 40	Planted in soft border near building.	C 3	
T87	Cypress; Cupressus, Cupressaceae	EM	14	1.5	1.5	1.5	1.5	200	2.4	2	/	Normal	20 - 40	Planted in soft border near building.	C 3	
T88	Maple; Acer, Aceraceae	SM / EM	8	2.5	2.5	2.5	2.5	210	2.5	/	/	Poor	10 - 20	Deadwood and dieback throughout, impact damage at base.	C 3	Monitor tree's condition.
T89	Cherry; Prunus, Rosaceae	M	11	3	3	3	3	210	2.5	1.5	/	Normal	20 - 40	Fair form.	B 3	
T90	Cherry; Prunus, Rosaceae	EM	8	2.5	2.5	2.5	4	184	2.2	1.5	/	Normal	10 - 20	Planted in soft border, multi-stem base.	C 2	
G9	Mixed group (birch, willow, sycamore)	EM	< 10	/	/	/	/	150	1.8	2.5	/	Normal	10 - 20	Trio in soft border next to access.	C 2	
T91	Rowan; Sorbus, Rosaceae	EM	6	2.5	2.5	2.5	2.5	120	1.4	1.5	/	Normal	10 - 20	Planted in soft border.	C 3	
T92	Cherry; Prunus, Rosaceae	EM	6	3	3	3	3	170	2.0	1	2	Normal	20 - 40	Planted in turf area, multi-stem at 2m.	B 3	
T93	Cherry; Prunus, Rosaceae	M	10	4	4	4	4	250	3.0	1	2	Normal	20 - 40	Planted in turf area, multi-stem at 2m.	B 3	

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TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES		BS CAT.	MANAGEMENT
T94	Hawthorn; Crataegus, Rosaceae	EM	10	2.5	2.5	2.5	2.5	150	1.8	2	/	Normal	20 - 40	Planted in turf area, multi-stem at 2m.		B 3	
T95	Oriental Plane, Platanaceae,	EM	14	3.5	4.5	4	4	220	2.6	2	/	Normal	40 +	Planted in turf area.		B 1	
T96	Whitebeam; Sorbus, Rosaceae	EM	6.5	2	2	2	2	210	2.5	/	/	Normal	20 - 40	Planted in turf area.		B 1	
T97	Birch; Betula, Betulaceae	EM	14	2.5	2.5	4	2.5	237	2.8	/	/	Normal	20 - 40	Planted in turf area, multi-stem base.		B 1	
T98	Hornbeam; Carpinus, Betulaceae	EM	10	2	2	2	2	160	1.9	/	/	Normal	20 - 40	Planted in turf area.		B 1	
T99	Birch; Betula, Betulaceae	EM	12	2.5	2.5	2.5	2.5	233	2.8	/	/	Normal	20 - 40	Planted in turf area, co-dominant base.		B 1	
T100	Cherry; Prunus, Rosaceae	M	11	5	6.5	6.5	5	760	9.1	2	/	Normal	20 - 40	Planted in turf area near building, multi-stem at 2m, crown overhang of build but clear.		B 1	
T101	Cherry; Prunus, Rosaceae	M	8	4.5	4.5	4.5	4.5	270	3.2	/	/	Normal	20 - 40	Planted in turf area, multi-stem at 2m.		B 1	
T102	Spruce; Picea, Pinaceae	SM	8	1.5	1.5	1.5	1.5	200	2.4	/	/	Normal	10 - 20	Planted in soft border.		C 3	
T103	Birch; Betula, Betulaceae	M	12	5	5	3.5	4.5	410	4.9	0	1.5	Normal	20 - 40	Planted in soft border in parking, crown contact with building.		B 1	Prune to clear at 1.5m clear of building.
T104	Birch; Betula, Betulaceae	M	12	4	3	3	3	280	3.4	1	1.5	Normal	20 - 40	Planted in soft border in parking, crown contact with building.		B 1	
T105	Cherry; Prunus, Rosaceae	EM	10	4.5	2.5	3.5	3.5	240	2.9	1.5	/	Normal	20 - 40	Planted in soft border next to access.		C 3	
G10	Lombardy Poplar group	M	20 +	/	/	/	/	500 AVE	6.0	/	/	Normal	10 - 20	Planted line at boundary.		C 2	
T106	Cherry; Prunus, Rosaceae	EM	6	2.5	2.5	2.5	2.5	150	1.8	2	/	Normal	10 - 20	Planted in soft border next to access.		C 3	
T107	Cherry; Prunus, Rosaceae	EM	5	2	2	2	2	140	1.7	2	/	Normal	10 - 20	Planted in soft border next to access.		C 3	
T108	Cherry; Prunus, Rosaceae	EM	5	2	2	2	2	120	1.4	2	/	Normal	10 - 20	Planted in soft border next to access.		C 3	
T109	Cherry; Prunus, Rosaceae	EM	6	2	2	2	2	130	1.6	2	/	Normal	10 - 20	Planted in soft border next to access and parking.		C 3	
T110	Cherry; Prunus, Rosaceae	EM	5	2	2	2	2	130	1.6	2	/	Normal	10 - 20	Planted in soft border next to access, impact damage at base, multi-stem at 2m.		C 3	
T111	Cherry; Prunus, Rosaceae	EM	7	2.5	2.5	2.5	2.5	160	1.9	2	/	Normal	10 - 20	Planted in soft border next to access, epicormic growth at base, multi-stem at 2m.		C 3	
T112	Cherry; Prunus, Rosaceae	EM	6	2	3	2.5	2.5	130	1.6	2	/	Normal	10 - 20	Planted in soft border next to access.		C 3	
T113	Birch; Betula, Betulaceae	EM	6	2	2	2	2	100	1.2	2	/	Normal	10 - 20	Planted in soft border next to access.		C 3	
T114	Cherry; Prunus, Rosaceae	EM	6	2	2	2	2	120	1.4	/	/	Normal	10 - 20	Planted in soft border next to access, impact damage at base, multi-stem at 2m.		C 3	
T115	Cherry; Prunus, Rosaceae	EM	6	2	2	2	2	110	1.3	/	/	Normal	10 - 20	Planted in soft border next to access, impact damage at base, multi-stem at 2m.		C 3	
T116	Birch; Betula, Betulaceae	EM	6	2.5	2.5	2.5	2.5	140	1.7	/	/	Poor	10 - 20	Planted in soft border next to access, compacted soils in border, sparse canopy.		C 3	
T117	Birch; Betula, Betulaceae	EM	6	1.5	1	1.5	1.5	100	1.2	/	/	Normal	10 - 20	Planted in soft border next to access, compacted soils in border, sparse canopy.		C 3	Mulch soft border to ensure successful tree establishment.
T118	Birch; Betula, Betulaceae	EM	4	2	2	2	2	110	1.3	/	/	Normal	10 - 20	Planted in soft border next to access, compacted soils in border.		C 3	
T119	Birch; Betula, Betulaceae	EM	9	1.5	1.5	1.5	1.5	120	1.4	/	/	Normal	10 - 20	Planted in soft border next to access, compacted soils in border.		C 3	

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T120	Cherry; Prunus, Rosaceae	EM	7	2	1.5	2.5	2	180	2.2	2	2	Normal	20 - 40	Planted in soft border next to access, established tree.	B 2	
T121	Birch; Betula, Betulaceae	EM	10	2.5	2.5	2.5	2.5	170	2.0	2	2	Normal	20 - 40	Planted in soft border next to access, established tree.	B 2	
T122	Birch; Betula, Betulaceae	EM	12	3	3.5	2.5	3	190	2.3	1.5	/	Normal	20 - 40	Planted in soft border next to access, established tree.	B 3	
T123	Cherry; Prunus, Rosaceae	EM	8	2	2	2	2	150	1.8	2	/	Normal	10 - 20	Planted in soft border next to access.	C 3	
T124	Birch; Betula, Betulaceae	EM	6.5	2	2	2	2	140	1.7	2	/	Normal	10 - 20	Planted in soft border.	C 3	
T125	Birch; Betula, Betulaceae	EM	6.5	2	2	2	2	110	1.3	2	/	Normal	10 - 20	Planted in soft border.	C 3	
T126	Birch; Betula, Betulaceae	EM	6.5	2	2	2	2	120	1.4	2	/	Normal	10 - 20	Planted in soft border.	C 3	
T127	Birch; Betula, Betulaceae	EM	6.5	2	2	2	2	130	1.6	2	/	Normal	10 - 20	Planted in soft border.	C 3	
T128	Birch; Betula, Betulaceae	EM	6.5	2	2	2	2	140	1.7	2	/	Normal	10 - 20	Planted in soft border.	C 3	
T129	Birch; Betula, Betulaceae	EM	4	1.5	1.5	1.5	1.5	130	1.6	2	/	Normal	10 - 20	Planted in soft border.	C 3	
T130	Birch; Betula, Betulaceae	EM	8	2.5	2.5	2.5	2.5	150	1.8	2	/	Normal	20 - 40	Planted in soft border, established tree.	B 3	
T131	Willow; Salix, Salicaceae	SM	12	2.5	2.5	2.5	2.5	203	2.4	1.5	/	Normal	10 - 20	Planted in soft border, co-dominant base, leggy stem multi-stem.	C 3	
T132	Birch; Betula, Betulaceae	EM	8	2	2	2	2	150	1.8	1	/	Normal	10 - 20	Planted in turf area, stake and tie in place, tie partially included in stem.	C 3	Remove stake and remove tie (if possible).
T133	Cherry; Prunus, Rosaceae	EM	8	2.5	2.5	2.5	2.5	200	2.4	2	/	Normal	10 - 20	Planted in turf area near parking, epicormic growth near base.	C 3	
T134	Cherry; Prunus, Rosaceae	EM	8	2	2	2	2	150	1.8	2	/	Normal	10 - 20	Planted in turf area near parking.	C 3	
T135	Cherry; Prunus, Rosaceae	EM	8	3.5	3.5	3.5	3.5	230	2.8	1.5	/	Normal	10 - 20	Planted in turf area near parking, multi-stem base.	C 3	
T136	Norway Maple; Acer, Aceraceae	M	11	2.5	3.5	2.5	3.5	250	3.0	2	/	Normal	20 - 40	Part of planted line in soft border next to access, established tree, multi-stem at 2m.	B 2	
T137	Norway Maple; Acer, Aceraceae	M	11	3	3	3	3	220	2.6	2	/	Normal	20 - 40	Part of planted line in soft border next to access, established tree, multi-stem at 2m.	B 2	
T138	Norway Maple; Acer, Aceraceae	M	10	3	3	3	3	190	2.3	2	/	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T139	Norway Maple; Acer, Aceraceae	M	9	2.5	2.5	2.5	2.5	170	2.0	2	/	Normal	20 - 40	Part of planted line in soft border next to access, established tree and parking	B 2	
T140	Norway Maple; Acer, Aceraceae	M	8	2.5	2.5	2.5	2.5	180	2.2	2	/	Normal	20 - 40	Part of planted line in soft border next to access, established tree and parking	B 2	
T141	Norway Maple; Acer, Aceraceae	M	9	2	2	2	2	150	1.8	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T142	Norway Maple; Acer, Aceraceae	M	8	2	2	2	2	140	1.7	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T143	Norway Maple; Acer, Aceraceae	M	9	2	2	2	2	170	2.0	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T144	Norway Maple; Acer, Aceraceae	M	9	2	2	2	2	150	1.8	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T145	Norway Maple; Acer, Aceraceae	M	9	2.5	2.5	2.5	2.5	140	1.7	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	

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T146	Norway Maple; Acer, Aceraceae	M	10	1.5	3	2.5	3	200	2.4	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T147	Norway Maple; Acer, Aceraceae	M	10	3.5	3.5	3.5	3.5	240	2.9	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T148	Norway Maple; Acer, Aceraceae	M	10	3.5	3.5	3.5	3.5	350	4.2	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T149	Norway Maple; Acer, Aceraceae	M	10	3.5	3.5	3.5	3.5	260	3.1	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T150	Norway Maple; Acer, Aceraceae	M	10	3.5	3.5	3.5	3.5	330	4.0	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T151	Norway Maple; Acer, Aceraceae	M	10	3.5	3.5	3.5	3.5	350	4.2	2	2	Normal	20 - 40	Part of planted line in soft border next to access, established tree, tight unions with included bark and possible crack forming.	B 2	Monitor union for signs of splitting.
T152	Norway Maple; Acer, Aceraceae	M	10	2.5	2.5	2.5	2.5	300	3.6	2	/	Normal	20 - 40	Part of planted line in soft border next to access, established tree	B 2	
T153	Norway Maple; Acer, Aceraceae	M	10	2.5	2.5	2.5	2.5	300	3.6	2	/	Normal	20 - 40	Part of planted line in soft border next to access, established tree, ivy.	B 2	
T154	Goat Willow; Salix, Salicaceae	SM	5	3	3	3	3	335	4.0	0	/	Poor	< 10	multi-stem self-set tree under T153, some stemmulti-stem failed and laying on ground.	U	Fell tree.
T155	Cherry; Prunus, Rosaceae	M	8	4	4	4	4	360	4.3	1	/	Normal	20 - 40	Planted in soft border, established tree.	B 3	
T156	Cherry; Prunus, Rosaceae	EM	10	2.5	2.5	2.5	2.5	160	1.9	2	/	Normal	20 - 40	Planted in turf area next to access, established tree.	B 3	
T157	Cherry; Prunus, Rosaceae	EM	10	2.5	2.5	2.5	2.5	170	2.0	2	/	Normal	20 - 40	Planted in turf area next to access, established tree.	B 3	
T158	Cherry; Prunus, Rosaceae	EM	10	2.5	2.5	2.5	2.5	170	2.0	2	/	Normal	20 - 40	Planted in turf area next to access, established tree.	B 3	
T159	Birch; Betula, Betulaceae	EM	12	2	2	2	2	210	2.5	1	/	Normal	20 - 40	Planted in turf area next to access, established tree.	B 3	
T160	Box Elder; Acer, Aceraceae	M	10	4	4.5	5	4	351	4.2	/	/	Normal	20 - 40	Part of planted line next to access hard surfaces up to base, displacing surface in parts.	B 2	
T161	Box Elder; Acer, Aceraceae	M	10	3.5	4.5	5	5	370	4.4	/	/	Normal	20 - 40	Part of planted line next to access, hard surfaces up to base, displacing surface in parts.	B 2	
T162	Box Elder; Acer, Aceraceae	M	10	3	4	5	5	370	4.4	/	/	Normal	20 - 40	Part of planted line next to access, hard surfaces up to base, displacing surface in parts.	B 2	
T163	Field Maple; Acer, Aceraceae	M	10	3.5	3.5	3.5	3.5	400	4.8	2	/	Normal	20 - 40	Part of collective canopy group towards boundary	B 2	
T164	Field Maple; Acer, Aceraceae	M	10	3.5	3.5	4	3.5	410	4.9	2	/	Normal	20 - 40	Part of collective canopy group towards boundary	B 2	
T165	Field Maple; Acer, Aceraceae	M	10	3.5	3.5	4	3.5	350	4.2	2	/	Normal	20 - 40	Part of collective canopy group towards boundary, telegraph wire through crown.	B 2	
T166	Ash; Fraxinus, Oleaceae	M	8	3.5	1.5	5.5	3.5	210	2.5	2	/	Normal	10 - 20	Part of collective canopy group towards boundary, growth and lean away from T165.	B 2	

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
CLIENT: Wrexham Glydwr University				PROJECT REF: 18164/S1				SITE: Plas Coch Campus, Wrexham, LL11 2AW								
CONTACT: /				SURVEY DATE: 18th May 2018				ARB CONSULTANT: Tony Banner TechCert (ArborA) TechArborA								
TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
G11	Cherry & Rowan group	M	4 - 8	/	/	/	/	200	2.4	2	/	Normal	10 - 20	Multi-stem ornamental Rowan and Cherry planted towards the boundary.	C 2	
T167	Birch; Betula, Betulaceae	SM	7.5	2	2	2	2	120	1.4	1.5	/	Normal	10 - 20	Planted in turf area next to footpath, twisted growth.	C 3	
T168	Weeping Birch; Betula, Betulaceae	M	4	2.5	4	4	2.5	250	3.0	0	/	Normal	10 - 20	Weeping form.	B 1	
T169	Lime; Tilia, Tiliaceae	M	18	5	5	5	5	500 ivy	6.0	/	/	Normal	40 +	Offsite, part of planted line at field boundary, thick ivy in to crown.	A 2	Recommendation for tree owner: sever ivy at base.
G12	Elm & Sycamore group	M	18	/	/	/	/	300 - 800	9.6	1.5	/	Normal	20 - 40	Offsite group, ivy in parts.	B 2	
T170	Elm; Ulmus, Ulmaceae	M	18	5	6	4.5	6	800 *	9.6	1.5	/	Normal	20 - 40	In G12, no access to stem, largest tree in G12, ivy.	B 2	
G13	Elm & Sycamore group	M	12 - 14	/	/	/	/	400 - 700	8.4	1.5	/	Normal	40 +	Offsite group, ivy in parts.	B 2	
T171	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	100	1.2	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T172	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	110	1.3	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T173	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	100	1.2	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T174	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	80	1.0	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T175	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	110	1.3	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T176	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	120	1.4	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T177	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	110	1.3	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T178	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	100	1.2	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T179	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	100	1.2	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T180	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	4	2	2	2	2	120	1.4	/	/	Normal	10 - 20	Fairly new planted tree next to parking, leader broken off at 1m.	C 3	Mulch soft border to ensure successful tree establishment, and monitor tree's condition.

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
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CONTACT: /			SURVEY DATE: 18th May 2018			ARB CONSULTANT: Tony Banner TechCert (ArborA) TechArborA										
TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
T181	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	110	1.3	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T182	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	100	1.2	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
T183	London Plane; Platanus x hispanica, Platanaceae,	Y / SM	9	2	2	2	2	100	1.2	/	/	Normal	10 - 20	Fairly new planted tree next to parking.	C 3	Mulch soft border to ensure successful tree establishment.
G14	Prunus sp group	NP / Y	5	/	/	/	/	75	0.9	0	/	Normal	10 - 20	Newly planted trees, stakes and ties in place.	C 2	
T184	Ornamental Maple	SM	3	2	2	2	2	80	1.0	1.5	/	Normal	10 - 20	Single stem ornamental in circular painter in hard standing.	C 3	
T185	Ornamental Maple	SM	3	2	2	2	2	90	1.1	1.5	/	Normal	10 - 20	Single stem ornamental in circular painter in hard standing.	C 3	
T186	Ornamental Maple	SM	3	2	2	2	2	70	0.8	1.5	/	Normal	10 - 20	Single stem ornamental in circular painter in hard standing.	C 3	
T187	Ornamental Maple	SM	3	2	2	2	2	70	0.8	1.5	/	Normal	10 - 20	Single stem ornamental in circular painter in hard standing.	C 3	
T188	Ornamental Maple	SM	3	2	2	2	2	70	0.8	1.5	/	Normal	10 - 20	Single stem ornamental in circular painter in hard standing.	C 3	
G15	Cherry group	SM	< 8	/	/	/	/	100	1.2	1.5	/	Normal	10 - 20	Sapling growth next to parking.	C 2	
T189	Cherry; Prunus, Rosaceae	M	10	4	4	4	4	360	4.3	1.5	/	Normal	10 - 20	Co-dominant at 1.5m, ivy.	C 2	
T190	Weeping Willow; Salix, Salicaceae	M	10	3	4	1	6	320	3.8	0	/	Normal	10 - 20	Weeping form, growth away from G16.	C 3	
G16	Lombardy Poplar group	M	20 +	/	/	/	/	500	6.0	/	/	Normal	10 - 20	3x trees planted towards the boundary.	C 2	
G17	Lombardy Poplar group	M	20 +	/	/	/	/	500	6.0	/	/	Normal	10 - 20	Planted line towards the boundary.	C 2	
T191	Birch; Betula, Betulaceae	M	12	4	1.5	2.5	3	310	3.7	/	/	Normal	10 - 20	Part of collective canopy group, co-dominant at 1.5m.	C 2	
T192	Birch; Betula, Betulaceae	M	14	2.5	4	6	6.5	480	5.8	/	/	Normal	20 - 40	Part of collective canopy group, multi-stem at 2m.	B 2	
T193	Birch; Betula, Betulaceae	M	10	1	3	4	2.5	240	2.9	/	/	Fair	10 - 20	Part of collective canopy group, suppressed by T192.	C 2	
T194	Birch; Betula, Betulaceae	M	15	2.5	3.5	3.5	3.5	380	4.6	/	/	Normal	20 - 40	Part of collective canopy group, crown conflict with building.	B 2	Prune to clear at 1.5m clear of building (one branch).
T195	Birch; Betula, Betulaceae	M	8	2.5	2.5	2.5	2.5	250	3.0	/	/	Fair	10 - 20	Part of collective canopy group, twisted and stunted growth.	C 2	
T196	Birch; Betula, Betulaceae	M	10	3.5	3.5	3.5	3.5	380	4.6	/	/	Normal	10 - 20	One of a pair planted next to access.	C 2	
T197	Birch; Betula, Betulaceae	M	10	3.5	3.5	3.5	3.5	310	3.7	/	/	Normal	10 - 20	One of a pair planted next to access.	C 2	
T198	Birch; Betula, Betulaceae	EM	8	2.5	2.5	2.5	2.5	200	2.4	/	/	Fair	10 - 20	Fair form.	C 3	
T199	Cypress; Cupressus, Cupressaceae	M	12	2	2	2	2	400	4.8	1	/	Normal	10 - 20	Single stem, fair form.	C 3	
T200	Spruce; Picea, Pinaceae	SM	10	2	2	2	2	240	2.9	1.5	/	Normal	20 - 40	Single stem tree planted next to parking, good future potential.	B 3	
T201	Sycamore; Acer, Aceraceae	SM	10	2.5	2.5	2.5	2.5	220	2.6	1.5	/	Normal	10 - 20	Growing in G17.	C 3	

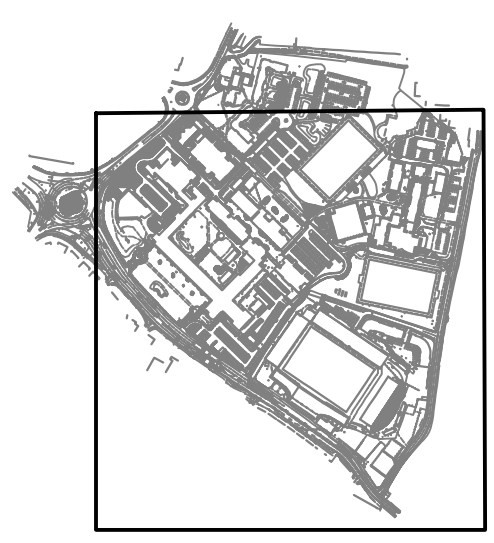
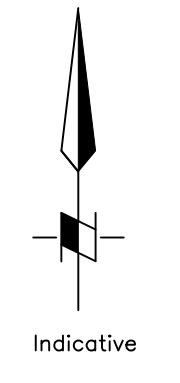
TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
CLIENT: Wrexham Glydwr University				PROJECT REF: 18164/S1					SITE: Plas Coch Campus, Wrexham, LL11 2AW							
CONTACT: /				SURVEY DATE: 18th May 2018					ARB CONSULTANT: Tony Banner TechCert (ArborA) TechArborA							
TREE REF. #	SPECIES	AGE	HEIGHT (in m)	CANOPY (in m) N - S - E - W				STEM (in mm)	RPA (in m)	CLEARANCE (in m)	1st BRANCH (in m)	VITALITY	LIFE EXPEC.	NOTES	BS CAT.	MANAGEMENT
G18	Spruce group	M	14	/	/	/	/	300 - 430	5.2	1.5	/	Normal	20 - 40	3x trees planted towards boundary.	B 2	
T202	Oak; Quercus, Fagaceae	M	13	6	8	5	6	510	6.1	1.5	/	Normal	40 +	Part included wound on lower stem, old pruning wounds and crossers in crown.	A 3	Monitor tree's condition.
T203	Weeping Willow; Salix, Salicaceae	M	16	6	4	5	6	850	10.2	2	/	Normal	20 - 40	Weeping form, old pruning wounds in crown (partially included).	A 3	Monitor tree's condition.
T204	Rowan; Sorbus, Rosaceae	Y	5	1.5	1.5	1.5	1.5	80	1.0	/	/	Normal	10 - 20	Young tree, stake and tie.	C 3	
T205	Rowan; Sorbus, Rosaceae	Y	5	1.5	1.5	1.5	1.5	80	1.0	/	/	Normal	10 - 20	Young tree.	C 3	
T206	Rowan; Sorbus, Rosaceae	Y	5	1.5	1.5	1.5	1.5	90	1.1	/	/	Normal	10 - 20	Young tree.	C 3	
T207	Norway Maple; Acer, Aceraceae	EM	10	3.5	3.5	3.5	3.5	260	3.1	2	2.5	Normal	20 - 40	Planted in turf area, multi-stem crown at 2m.	B 2	
T208	Ash; Fraxinus, Oleaceae	SM	6	1.5	1.5	1.5	1.5	120	1.4	/	/	Normal	10 - 20	Planted in soft border, current small scale.	C 3	
T209	Pine; Pinus, Pinaceae	EM	10	3	3	3	3	260	3.1	1.5	2	Normal	40 +	Planted in turf area, single stem, good future potential.	B 1	
T210	Beech; Fagus, Fagaceae	Y / SM	10	2.5	2.5	2.5	2.5	200	2.4	0	/	Normal	40 +	Young currently small scale tree, staked but no tie, significant growth potential.	B 1	
T211	Rowan; Sorbus, Rosaceae	EM	7.5	2	2	2	2	120	1.4	1.5	/	Normal	10 - 20	Planted in turf area.	C 3	
T212	Rowan; Sorbus, Rosaceae	EM	7.5	2	2	2	2	110	1.3	1.5	/	Normal	10 - 20	Planted in turf area.	C 3	
T213	Birch; Betula, Betulaceae	M	17	5	2.5	2.5	5	410	4.9	/	/	Normal	20 - 40	Planted in soft border framing building access, crown close too building.	B 1	Prune to clear at 1.5m clear of building.
T214	Birch; Betula, Betulaceae	M	16	5	2.5	2.5	5	240	2.9	/	/	Normal	20 - 40	Planted in soft border framing building access, crown close too building.	B 1	Prune to clear at 1.5m clear of building.
T215	Birch; Betula, Betulaceae	M	16	4	2	2.5	3	260	3.1	/	/	Normal	20 - 40	Planted in soft border framing building access, crown close too building.	B 1	Prune to clear at 1.5m clear of building.
T216	Cherry; Prunus, Rosaceae	M	10	4	4	4	4	336	4.0	1.5	/	Normal	20 - 40	Planted in soft border framing building access, crown close too building, co-dominant based with included bark.	C 2	
T217	Beech; Fagus, Fagaceae	Y	4	3	3	3	3	180	2.2	0	/	Normal	20 - 40	Young currently small scale tree, staked but no tie, significant growth potential.	C 3	
T218	Ash; Fraxinus, Oleaceae	SM	8	2.5	2.5	2.5	2.5	180	2.2	0	/	Normal	10 - 20	Fair form.	C 3	
T219	Ash; Fraxinus, Oleaceae	SM	6	2.5	2.5	2.5	2.5	140	1.7	1	/	Normal	10 - 20	Fair form.	C 3	
T220	Norway Maple; Acer, Aceraceae	M	10	3	3	3	3	220	2.6	1.5	2	Normal	20 - 40	Planted in turf area, multi-stem at 2m with tight unions.	B 3	Monitor tight union.
T221	Spruce; Picea, Pinaceae	SM	8	2	2	2	2	130	1.6	0	/	Normal	20 - 40	Young currently small scale tree, significant growth potential.	B 3	
T222	Spruce; Picea, Pinaceae	SM	8	2	2	2	2	140	1.7	0	/	Normal	20 - 40	Young currently small scale tree, significant growth potential.	B 3	
T223	Spruce; Picea, Pinaceae	SM	8	2	2	2	2	130	1.6	0	/	Normal	20 - 40	Young currently small scale tree, significant growth potential.	B 3	



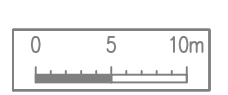
KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.
- Tree Condition Category
 - A
 - B
 - C
 - U

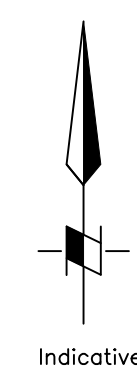
The surveyed trees are illustrated on this Constraints Plan which is prepared in accordance with British Standard BS5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'



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REV.	DESCRIPTION	DWN	CHKD	DATE
CLIENT Wrexham Glydwr University				
PROJECT 18164/S1 Plas Coch Campus, Wrexham, LL11 2AW				
TITLE Tree Constraints Plan 1of2				
DWN	DATE	CHKD	DATE	APPD
RCK	18/05/2018	TB	18/05/2018	
SCALE 1:500				REV.
Drawing Number 18164/S1/TCP/03				AO
Indigo SURVEYS (Wals) Second Floor, 1 Hunter's Walk, Canal Street, Chester, CH1 4EB Telephone: 0333 123 7080 www.indigosurveys.co.uk				
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KEY

- Tree Crown Spread
- Root Protection Area (RPA)
- Tree Stem
- T1 Tree No.
- Tree Condition Category

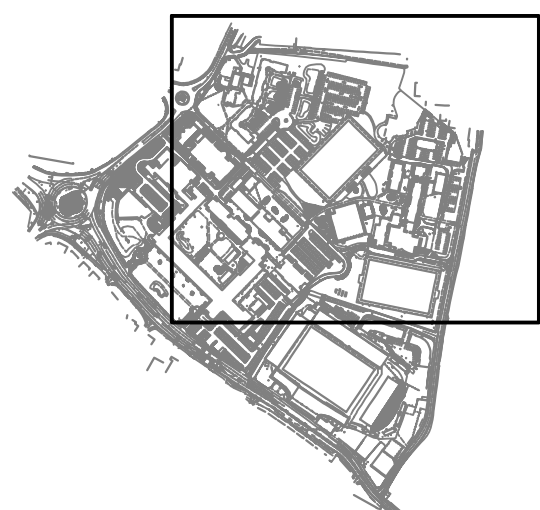
- A
- B
- C
- U

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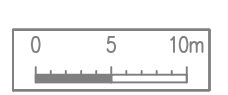


Established and newly planted shrubs and small scale ornamental trees

Established and newly planted shrubs and small scale ornamental trees



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REV.	DESCRIPTION	OWN	CHKD	DATE
CLIENT Wrexham Glydwr University				
PROJECT 18164/S1 Plas Coch Campus, Wrexham, LL11 2AW				
TITLE Tree Constraints Plan 2of2				
OWN	DATE	CHKD	DATE	APPD
RCK	18/05/2018	TB	18/05/2018	
SCALE 1:500				REV
Indigo Ltd (Wals) Second Floor, 1 Hunter's Walk, Canal Street, Chester, CH1 4EB Telephone: 0333 123 7080 www.indigosurveys.co.uk				A0
Drawing Number 18164/S1/TCP/02				REV
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