Arboricultural Impact Assessment

Yale Campus Redevelopment - Coleg Cambria, Wrexham

Prepared for:

COLEG CAMBRIA
C/o TACP Architects

Our Ref: 17/AIA/WXM/201

July 2018

Tree Solutions Ltd

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1.0 INSTRUCTION

1.1 We have been instructed by Coleg Cambria C/o TACP Architects to carry out an Arboricultural Impact Assessment (AIA) in order to assess the development proposal in relation to trees in accordance with the principles of British Standard 5837 'Trees in Relation to Design, Demolition & Construction - Recommendations' 2012.

1.2 We are instructed to prepare a draft report in order to provide information to assist all parties involved in the planning process to make balanced judgements with regard to arboricultural features in relation to the proposed new Yale Campus development at Coleg Cambria, Grove Park Road, Wrexham. As such, all significant trees within influencing distance to the development proposal both on and adjoining the site have been surveyed and are listed within a Tree Survey Schedule (***Appendix 1***) and plotted on all accompanying plans.

1.3 The phase 1 tree survey was carried out on 26 April 2017 by Alistair Henderson, Principal Arboricultural Consultant to Tree Solutions Ltd. Our appraisal of the mechanical integrity of trees on the site is sufficient only to inform the current project. The assessment of trees is carried out from ground level without invasive investigation and the disclosure of hidden defects cannot therefore be expected. Whilst the survey is not specifically commissioned to report on matters of tree safety, we report obvious defects that are significant in relation to the existing and proposed land use. We do not carry out detailed safety inspections unless specifically instructed to do so in writing and have not carried out such inspections of trees on the proposal site.

1.4 Fifty six individual trees (T1–T56) and three groups (G1-G3) were surveyed and mapped on a preliminary Tree Constraints Plan Ref: 17/AIA/WXM/201, Drawing No. 1 at ***Appendix 2***. All arboricultural information recorded during the survey is presented within a schedule at ***Appendix 1***.

1.5 The Arboricultural Impact Assessment is based on the draft site layout Ref: 16082, Drawing No: YCR-TACP-PS-XX-DR-A-701 provided by TACP Architects.

2.0 STATUTORY CONTROLS

2.1 A number of the more mature trees on site are subject to a Tree Preservation Order. Confirmation of what trees are included in the Order should be obtained through Wrexham County Borough Council.

2.2 Protected Species

2.2.1 Mature trees often contain cavities, crevices and hollows that offer potential habitat for species such as bats and barn owls. Both are afforded protection under the Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are also protected under The Conservation of Habitats and Species Regulations 2010 (as amended).

2.3 Wildlife Habitats

2.3.1 Trees and hedgerows of most species provide valuable nesting sites for a wide range of birds and it is likely that nesting birds will be present on the site during the period March to September.

3.0 THE SITE

3.1 The application site is within the Coleg Cambria grounds. It currently contains existing college buildings and areas of open space that contain a mixed age class of trees. The most prominent trees are located outside the southern boundary and adjoin the Wrexham Council car park.

4.0 DEVELOPMENT PROPOSAL

4.1 Demolition of existing buildings and redevelopment of new Yale Campus.

5.0 GENERAL CONSTRAINTS DATA - CONSTRUCTION EXCLUSION ZONES (CEZ's)

5.1 GENERAL

5.1.1 The three phases of an AIA were outlined in Section 1. In addition, during the development process for retention trees, there may be three and even four constraints to consider: Construction Exclusion Zone (CEZ's):

- CEZ 1: Root Protection Area (see 5.2)
- CEZ 2: Tree Crown Protection (see 5.3)
- CEZ 3: Tree Dominance (see 5.4)
- CEZ 4: New Tree Planting Zone (see 5.5)

CEZ's are explained below:

5.2 CEZ 1: ROOT PROTECTION AREA (RPA)

5.2.1 The RPA, calculated in m2, should be protected before and during any demolition/construction works. This ensures the effective retention of trees by safeguarding a reliable quantum of functioning tree roots. The RPA is based on a radial measure from the centre of the tree stem, which is calculated by multiplying the stem diameter by a factor of twelve or by the (mean stem diameter^2) x number of stems for multi-stemmed trees. With the AIA 1, the RPA is only shown indicatively on the preliminary TCP, as its shape may be subject to amendment as the design progresses.

5.2.2 During the AIA 2, the derived radial measure is converted by the arboriculturalist into the actual area to be protected, having due regard to prevailing site conditions and how these may have affected the tree(s), particularly in relation to factors affecting their likely rooting disposition. The RPA for each tree should initially be plotted as a circle centred on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution.

5.2.3 The means of protecting the RPA will include the installation of tree protective fencing prior to the start of any demolition or construction work on site. The prohibition of various activities within the RPA must be adhered to (e.g. mechanical excavation, soil stripping, fire lighting, material storage, lowering levels and creating excessive sealed surfacing) and may include the use of temporary ground protection and/or special engineering solutions where construction is proposed near to retention trees or within the RPA.

5.3 CEZ 2: TREE CROWN PROTECTION ZONE

5.3.1 This is the area above ground occupied by the crown (branches) of the tree, along with allowances for working space (safe working area) and if appropriate, for future growth. The extent of CEZ 2 is determined by considering the existing and future crown spread of the tree(s), bearing in mind the possibility of this being modified by an acceptable quantum of pruning.

5.4 CEZ 3: TREE DOMINANCE ZONE

5.4.1 This is the area above ground dominated by the tree in relation to issues of shading, seasonal debris and safety apprehension. This area is calculated by considering the height and spread of the tree relative to the proposed buildings, cross referenced with intended end use. As such, what is assessed is the likely psychological effect of the tree on the end user.

5.4.2 The purpose of identifying CEZ 3 is to protect trees from post development pressure (resentment) by the site's end users, who may, if resentful of the trees, seek to procure excessive pruning treatments or even to have them removed. This is a common Planning Service concern, which has led on many occasions both to refusals of consent and to dismissed Appeals against those refusals.

5.4.3 The means of protecting CEZ 3 is likely to include optimising the site layout and room type (especially in relation to new residential dwellings), such that any adverse psychological impacts of the trees are reduced to an acceptable minimum. Key principles include ensuring adequate separation distances between trees and new buildings, in the context of the buildings' end use relative to the location of the tree(s) and avoiding excessive obstruction by trees of critical solar access.

5.5 CEZ 4: NEW PLANTING ZONE

5.5.1 In some cases, it may be appropriate to identify and protect areas intended for new landscape planting, which can fail to establish if the soil has been heavily compacted or contaminated during the demolition/construction process. The means of protecting CEZ 4 will either be by fencing it off prior to the start of works on site, or by soil remediation once construction has finished (and prior to the start of planting). Topsoil protection in areas destined for new planting is frequently an economy measure, saving on plant replacement and soil structure remediation.

6.0 SURVEY METHODOLOGY

6.1 The method used in the preparation of this report is based on the principles of BS 5837: 2012.

1. Tree heights were surveyed to the nearest 1m.
2. Trunk diameters were measured by use of forestry girth tape
3. The category assessment (Table 1) on which the trees is based include current and long-term arboricultural, landscape, cultural and conservation values (BS5837: 2012). This table can be found at ***Appendix 1***
4. For clarity, the grading system is summarised from ***Table 2*** of the BS as follows:

U grade – trees for removal, effective for less than 10 years

A grade – trees of high quality and value, effective for more than 40 years

B grade – trees of moderate quality and value, effective for more than 20 years

C grade – trees of low quality and value, effective for 10 years

Note: We have indicated colour coding on the drawing and therefore a monochrome copy should not be relied on.

6.2 SOIL ASSESSMENT

6.2.1 A soil assessment should be undertaken by a competent person to inform decisions relating to:

- the root protection area (RPA)
- tree protection
- new planting design; and
- foundation design to take account of retained, removed and new trees (potential soil subsidence/heave)

Tree Solutions do not undertake soil assessments and the client is advised to seek specialist advice in this respect.

7.0 JUXTAPOSITION OF TREES AND STRUCTURES

7.1 Below ground constraints

7.1.1 The below ground constraints are generally summarised as the root protection area (RPA). The shape of the RPA and its exact location will depend upon arboricultural considerations including likely tolerance of the tree to root disturbance; morphology and disposition of the roots when known influenced by past or existing site conditions; soil type and structure; and topography and drainage.

7.1.2 The purpose of the RPA is to prevent physical damage to tree roots and to prevent damage to the soil structure. Tree roots are damaged by soil compaction, changes in soil levels or soil contamination which could reduce tree health and/or stability.

7.1.3 Root patterns are affected by topography and characteristics of the soil or substrate. Where trees are located within close proximity to existing hard standing or underground physical barriers they are unlikely to have an even distribution of lateral roots due to restrictions in root growth created by compacted sub-grades beneath. The RPA of all tree numbers 4, 8, 10, 12, 24, 25 & G2 have been modified and are shown running around the edge of the existing college buildings. The RPA of tree numbers 34-38 are also modified and shown extending 2m within Chester Road and around campus buildings. The required volume of RPA has been maintained by extending in the opposite direction where a more favourable rooting environment exists. All other trees within the application site boundary have been plotted unmodified as there were no underground barriers present to prevent good radial root spread.

7.2 Underground Services

7.2.1 We have considered the broad implications of the provision of underground services but the locations of existing and proposed were not identified and in this regard, our advice is of a general nature. Details will be included as part of the final submission.

7.2.2 Drainage and service runs may need to be constructed within the rooting areas of retained trees. If this is a requirement of the development it will be necessary to retain significant roots and methods of excavation, such as thrust boring or hand digging, may need to be adopted to ensure that these impacts are acceptable.

7.2.3 As with foundation design, low impact construction methods for services installation are now well established. For more information regarding underground services, reference should be made to the National Joint Utilities Group (NJUG) Publication No. 10. Volume 4 *'Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees' 2007*

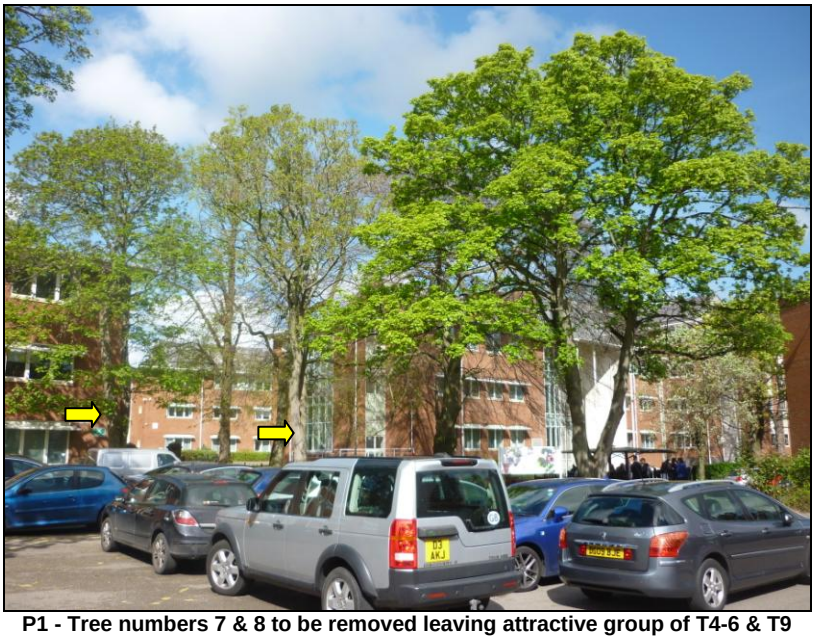
8.0 DEVELOPMENT IMPACT TO TREES

8.1 Tree Solutions carried out a phase one preliminary tree survey and provided the project architect with a report in which all existing trees and their respective Root Protection Areas (RPA) were identified and plotted on a tree constraints. The architect has incorporated the design and layout advice contained within the phase 1 survey and input from Tree Solutions to ensure the best quality trees can be retained with no adverse construction impacts. A pre-application meeting was undertaken in early May 2018 in which the Council Tree Officer commented that he had no objection in principle to the proposed works subject to an Arboricultural Impact Assessment and Method Statement being undertaken. We are therefore satisfied that the proposal has taken the long-term future of the most important trees into account and the design is in accordance with recommendations contained with BS5837: 2012.

8.2 In order to accommodate the proposed development it will be necessary to remove tree numbers 8, 10-12, 17-23, 34-39 & G1, G3. Removal of T8 will be mitigated by retention of the better quality tree numbers 4-6 & 9, tree numbers 10-12 are not particularly good quality specimens and are not visually prominent. Tree numbers 17-23 & G1 are semi-mature/early mature Alders planted by the college as landscaping associated with the previous development works. Whilst they do offer some visual amenity to students and staff, their retention value is disproportionate to the value of the new proposed campus. Furthermore, these trees will all be replaced by new planting that will suitably mitigate for their loss. Tree number 34 is a past coppiced Sycamore of no particular merit and T35 & 36 are past topped/pollarded Limes with extensive basal decay and as such require considerable remedial management irrespective of this development proposal. G3 are mixed overgrown/unmanaged evergreen shrubs that provide screening that would no longer be required after the new building is erected and T37-38 are dark oppressive trees that are causing damage to the boundary retaining wall. Removal of these trees will allow much needed light and space along this heavily tree lined boundary and also provide scope for some attractive new landscaping as part of the main pedestrian entrance to the campus off Chester Road. T39 is now a 3m stump of no value and should not form a material consideration of this application. This tree will be replaced by a specimen Ginkgo or similar.

8.2 Whilst unnecessary to accommodate the development we have also recommended the removal of tree number 7 as it is showing signs of stress and decline. Removing this tree will open up a clear vista to tree numbers 4, 5, 6 & 9 which are far better quality specimens that provide high amenity and landscape value within the college grounds. We would recommend this appropriate tree management works irrespective of the development proposal.

8.3 Access facilitation pruning will be required to the overhanging canopies of group 2 and tree numbers 24-32. As the canopies of group 2 have been reduced and lifted many times in the past as ongoing maintenance work this proposed pruning works will have no adverse effect on the health and vigour of the trees or the amenity value they afford to the area. Pruning to tree numbers 24-32 will be kept to the minimum required to erect scaffolding and provide a minimum 2m easement to the new building.



P1 - Tree numbers 7 & 8 to be removed leaving attractive group of T4-6 & T9

P2 - Tree numbers 10-12 to be removed

P3 - Tree numbers 17-22 - semi-mature Alders to be removed

P4 - G1 - low grade Alders of no value to be removed for development

P5 - G2 - Lime avenue beyond boundary wall - small diameter secondary growth to be reduced back over site to prevent damage from demolition works & create easement to new building. Area beyond wall fenced off during all works to prevent root damage

P6 - Close proximity of G2 to existing building

P7 - Eastern section of G2 - note past crown lifting & reduction work

P8 - Tree number 24-27 viewed from council car park

P9 - T24-T30 viewed from within the site. Canopies to be pruned back where necessary to provide a minimum 2m easement to new building

P10 - Decay cavity at base of T35. Entire base of stem is hollow

P11 - Base of T37 & T38 abut existing boundary wall causing displacement. Trees appear dark & oppressive - removal will open up the area & allow for some new landscape enhancement works

9.0 CONCLUSIONS

9.1 BS 5837: 2012 contains clear and current recommendations for a best practice approach to the assessment, retention and protection of trees on development sites. The proposed development has followed this guidance by:

- Seeking arboricultural advice and undertaking a phase 1 preliminary tree survey in order to inform the layout and design of the proposed development
- Respecting the constraints posed to development of the site by high or moderate quality trees
- Acting upon arboricultural advice throughout the design process in order to obtain the best development proposal whilst considering the current and future tree requirements
- Instigate extensive landscape enhancement works

10.0 LIMITING CONDITIONS

Unless stated otherwise:
Information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of the inspection.
The inspection is limited to visual examination of the subject trees from ground level only and without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.
This report has been prepared for the sole use and benefit of the client. Any liability of Tree Solutions shall not be extended to any third party.

Appendix One

Tree Survey Schedule

Tree Solutions
Arboricultural Consultants

TREE SURVEY SCHEDULE (BS5837: 2012)

SITE:	YALE CAMPUS - COLEG CAMBRIA, GROVE PARK RD, WREXHAM, LL12 7AB
CLIENT:	COLEG CAMBRIA
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	26 APRIL 2017
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	17/AIA/WXM/201

TREE NO. T - Tree G - Group H- Hedge	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m) N	S	E	W	STEM/ MULTI-STEM* DIA.(mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m^2)
T1	Whitebeam	Y	2.5 0.5E	1	1	1	1	70	G	• Young newly planted tree with no defects • E.R.C. 20+	• N/A	C3	0.8 2m²
T2	Sycamore	M	15 2S	5	5	2.5	5	550	G	• Abuts boundary low level retaining wall - root likely to extend beneath • Minor displacement of wall evident • No significant defects to tree detected • E.R.C. 20+	• N/A	B2	6.6 137m²
T3	Sycamore	M	16 5W	6	7	5	6	810	G	• As T2 • Prominent landscape feature within college grounds • E.R.C. 20+	• N/A	A2	9.2 297m²
T4	Lime	M	19 3E	4	2	2	4	690	M	• Crown reduced in past leaving multiple pruning wounds with secondary crown above • Squirrel damage & large diameter dead wood in crown - **HAZARD** • E.R.C. 20	• Remove all dead wood and crown clean	B2	8.3 215m²

HEADINGS & ABBREVIATIONS

TREE NO.	REFERENCE NUMBER. REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE (T = TREE, G = GROUP, H = HEDGE)
SPECIES:	COMMON NAME (LATIN NAMES AVAILABLE ON REQUEST)
AGE RANGE/LIFE STAGE:	Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, PM = POST MATURE
HEIGHT:	ESTIMATED AND RECORDED IN METRES. APPROXIMATELY 1 IN 10 TREES ARE MEASURED USING A CLINOMETER AND THE REMAINDER ESTIMATED AGAINST THE MEASURED TREES
CROWN SPREAD:	MAXIMUM CROWN RADIUS MEASURED TO THE FOUR CARDINAL COMPASS POINTS FOR SINGLE SPECIMENS ONLY (MEASUREMENT FOR TREE GROUPS - MAXIMUM RADIUS OF THE GROUP)
CROWN CLEARANCE & DIRECTION OF GROWTH:	HEIGHT IN METERS OF CROWN CLEARANCE ABOVE ADJACENT GROUND LEVEL (TO INFORM ON GROUND CLEARANCE, CROWN/STEM RATIO AND SHADING)
STEM DIA/MULTI-STEM DIA:	STEM DIAMETER - MEASURED AT APPROXIMATELY 1.5 METRES ABOVE GROUND LEVEL OR A COMBINATION OF STEMS FOR MULTI-STEMMED TREES
VITALITY:	A MEASURE OF PHYSIOLOGICAL CONDITION. D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, G = GOOD
E.R.C. = ESTIMATED REMAINING CONTRIBUTION:	RELATIVE USEFUL LIFE EXPECTANCY (YEARS)
BS 5837CATEGORY & SUB-CATEGORY GRADING:	A = HIGH QUALITY AND VALUE, B = MODERATE QUALITY AND VALUE, C = LOW QUALITY AND VALUE, U = UNSUITABLE FOR RETENTION (SUB-CATEGORY REFERS TO ARBORICULTURAL., LANDSCAPE AND CULTURAL/CONSERVATION VALUES)
BS 5837 RADIUS & BS 5837 RPA:	PROTECTIVE DISTANCE - RADIUS FROM THE CENTRE OF THE STEM TO THE LINE OF TREE PROTECTION (CONSTRUCTION EXCLUSION ZONE - CEZ) AND PROTECTIVE BARRIER ROOT PROTECTION AREA - BS 5837 (2012) ANNEX D (THE RECOMMENDATIONS STATE THAT THE RPA SHOULD BE CAPPED AT 707 M^2) NOTE – ALL CALCULATIONS ROUNDED TO NEAREST DECIMAL

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T5	Beech	M	19 3E	7	5	5.5	5	700	G	• No visual defects • E.R.C. 40	• N/A	A2	8.4 222m²
T6	Beech	M	18 2E	8	8	9	9	1070	G	• Prominent tree to area • No significant defects detected • E.R.C. 40	• N/A	A2	12.8 518m²
T7	Sycamore	M	17 7E	3	5	7	4	570	P	• Ground levels raised around base during construction work • Stem abrasion at base to north • Significant crown dieback & large diameter dead wood over busy pedestrian footpath **HAZARDOUS** • Tree appears in decline • E.R.C. <10	• Remove	C2	6.8 147m²
T8	Sycamore	M	17 2N	4	6	5	2	690	G	• Ground levels raised around base during construction work • Crown reduced to west to clear building leaving asymmetric canopy spread • E.R.C. 20	• Remove for development	B2	8.3 215m²
T9	Sycamore	M	19 4E	7	9	6.5	7	650 550 (851)	G	• Prominent tree that appears in good health & vigour • E.R.C. 40	• N/A	A2	10.2 328m²
T10	Sycamore	EM	16 2N	4.5	4.5	4	5	400 x2 460 (729)	G	• Multi-stem located within linier planting strip • E.R.C. 20	• Remove for development	B2	8.7 240m²

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T11	Sycamore	EM	16 2N	3	4	5	7	430	G	• No visual defects • E.R.C. 20	• Remove for development	B2	5.2 84m²
T12	Holly (Variegated)	M	8 2E	1.5	3	3	2	360	G	• Located beneath canopy of T10 & outgrowing its confined location • Causing significant shading to adjacent building to south • E.R.C. ≤20	• Remove for development	B2	4.3 59m²
T13	Alder								D	• Dead	• Remove	U	N/A
T14	Alder	EM	1N	4	3	4	2.5	360	M/G	• Hard standing over all primary roots • E.R.C. 10	• N/A	B2	4.3 59m²
T15	Alder	EM	16 1S	3	4.5	3	4.5	430	G	• No visual defects • E.R.C. ≤20	• N/A	B2	5.2 84m²
T16	Alder	EM	17 1W	4.5	4.5	4.5	2	340	G	• No visual defects • E.R.C. 10	• N/A	B2	4 52m²
T17	Alder	SM	10 1N	1	1	1	1	130	M	• Stunted form • Large seam on stem to west • E.R.C. 10	• Remove for development	C1	1.5 8m²

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T18	Alder	EM	12 1E	4	3	4	3	250	G	• No visual defects • Forms part of avenue either side of pedestrian access link • E.R.C. 20	• Remove for development	B2	3 28m²
T19	Alder	EM	12 1W	4	5	4	4	310	G	• As T18	• Remove for development	B2	3.7 43m²
T20	Alder	EM	9 1N	2.5	1	1.5	2	220	M	• Appears stressed • Suppressed by T21 • E.R.C. 10	• Remove for development	C2	2.6 22m²
T21	Alder	EM	15 2W	4	4	4	5	420	G	• As T18	• Remove for development	B2	5 80m²
T22	Alder	EM	13 2W	4	4	4.5	4.5	410	G	• As T18	• Remove for development	B2	4.9 76m²
T23	Alder	M	16 1N	4.5	4.5	4	4.5	450	G	• Ivy clad stem & lower canopy impeding inspections • E.R.C. 20	• Remove for development	B2	5.4 92m²
T24	Horse Chestnut	M	17 1E	6.5	5	4	4	690	G	• Extensive staining from Horse Chestnut Bleeding Canker evident on stem • E.R.C. ≤20	• Reduce northern canopy by 2.5m back to suitable inner sub-lateral growth points	B1	8.3 215m²

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T25	Lime	M	17 1E	5	5	5	3	490	G	• No visual defects • E.R.C. 40	• Crown reduce if necessary to provide 2m easement to new building	A2	5.9 109m²
T26	Lime	M	17 1E	5	6	4	5	470	G	• No visual defects • E.R.C. 40	• As T25	A2	5.6 100m²
T27	Horse Chestnut	M	15 2N	5	5	3	4	490	M	• Horse Chestnut Bleeding Canker evident on stem • Decay at base to west - possibly Honey Fungus • E.R.C. 20	• Requires more detailed tree condition survey by owner (Council) • As T25	B2	5.9 109m²
T28	Lime	M	17 1N	5	6	5	3	480	G	• No visual defects • E.R.C. 40	• As T25	A2	5.7 104m²
T29	Horse Chestnut	M	17 2N	5	5	5	3	560	G	• Cavities on stem at point of pruning • Mass epicormic growth on inner scaffold limbs - (sign of stress) • E.R.C. 20	• As T25	A2	6.7 142m²
T30	Lime	M	17 1W	5	7	3	2	450	G	• No visual defects • E.R.C. 40	• As T25	A2	5.4 92m²
T31	Horse Chestnut	M	15 2S	6	6	4	3	560	G	• No visual defects • E.R.C. 40	• 3rd party tree - N/A	A2	6.7 142m²

TREE SURVEY SCHEDULE (BS5837: 2012)

Tree Solutions
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SITE:	YALE CAMPUS - COLEG CAMBRIA, GROVE PARK RD, WREXHAM, LL12 7AB
CLIENT:	COLEG CAMBRIA
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	26 APRIL 2017
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	17/AIA/WXM/201

TREE NO. T - Tree G - Group H- Hedge W - Wood	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m) N	S	E	W	STEM/ MULTI-STEM* DIA.(mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m^2)
T32	Lime	M	17 1S	5	5	4	3	490	G	• No visual defects • E.R.C. 40	• As T25	A2	5.8 109m²
T33	Lime	M	17 1S	5	5	5	2.5	560	G	• No visual defects • E.R.C. 40	• As T25	A2	6.7 142m²
T34	Sycamore	EM	13 2W	2	4	4	4	210x5 (470)	G	• Multi-stem from past coppice • Offers greenery along Chester Rd • E.R.C. 20	• Remove	B2	5.6 100m²
T35	Lime	FM	18 0.5E	4	4	4	5	810	G	• Topped/pollarded at 12m leaving large wound with decay column below & secondary crown above • Hollow butt • **Potential hazard** • E.R.C. 20 (depending on management)	• Remove for development & replace with specimen tree - see landscape plan	B2	9.7 297m²
T36	Lime	FM	17 1E	5	2	4	4	870	G	• As T35 • Extensive decay in base - hollow • **Potential hazard** • E.R.C. 20 (depending on management)	• Remove for development & replace with specimen tree - see landscape plan	B2	10.4 342m²

Tree Solutions
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TREE SURVEY SCHEDULE (BS5837: 2012)

SITE:	YALE CAMPUS - COLEG CAMBRIA, GROVE PARK RD, WREXHAM, LL12 7AB
CLIENT:	COLEG CAMBRIA
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	26 APRIL 2017
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	17/AIA/WXM/201

TREE NO. T - Tree G - Group H- Hedge W - Wood	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m) N	S	E	W	STEM/ MULTI-STEM* DIA.(mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m^2)
T37	Holly	M	16 1S	4	4	3	4	450	G	• Abuts boundary retaining wall at pedestrian entrance off Chester Rd & causing displacement • Canopy obscuring street lighting column • E.R.C. 20	• Remove & replace with specimen tree - see landscape plan	B2	5.4 92m²
T38	Holly	M	13 1N	3	4	3	3	450	G	• As T37	• Remove & replace with specimen tree - see landscape plan	B2	5.4 92m²
T39	Poplar (White)	FM/ PM	3					1430	G	• Pollarded leaving 3m stump post damage from Storm Doris • (Survey schedule updated June 2018)	• Remove & replace with specimen tree - see landscape plan	C1	N/A
T40	Maple	M	19 1.5S	2	6	5	6	840	G	• Crown bias south • Located close to boundary retaining wall • Prominent landscape feature • E.R.C. 40	• N/A	A2	10 319m²
T41	Maple	M	18 5E	4	1.5	5	5	600	M	• Dieback & dead wood in crown • Raised root plate • E.R.C. ≤20	• Risk assessment required	B2	7.2 163m²

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TREE SURVEY SCHEDULE (BS5837: 2012)

SITE:	YALE CAMPUS - COLEG CAMBRIA, GROVE PARK RD, WREXHAM, LL12 7AB
CLIENT:	COLEG CAMBRIA
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	26 APRIL 2017
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	17/AIA/WXM/201

TREE NO. T - Tree G - Group H- Hedge W - Wood	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m) N	S	E	W	STEM/ MULTI-STEM* DIA.(mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m^2)
T42	Maple	M	18 2N	5	1.5	6	6	630	G	• Asymmetric crown form • E.R.C. 40	• N/A	A2	7.5 180m²
T43	Holly	M	13 0	2.5	2.5	2.5	2.5	300	G	• Insignificant tree • E.R.C. 10	• N/A	C2	3.6 41m²
T44	Lime	EM	15 1S	4.5	3	3	3	420	G	• No significant defects • E.R.C. 40	• N/A	A2	5 80m²
T45	Horse Chestnut	FM	16 1W	5	6	6	6.5	820	M	• Large seam on stem to west • Bark delaminating • E.R.C. 20	• Recommend more invasive tree risk assessment	B2	9.8 304m²
T46	Horse Chestnut	M	16 1N	5	5	5	1.5	580	M	• Poor structural crown form • Past large diameter limb failure • E.R.C. <20	• N/A	B2	7 152m²
T47	Beech	FM	23 5S	5	4	7	5	820	G	• No visual defects • E.R.C. 40	• N/A	A2	9.8 304m²
T48	Sycamore	M	18 5N	6	1.5	9	4	700	M	• Poor quality tree of no long-term viability • Crown reduced in past leaving extensive wounds with decay • E.R.C. 10	• Remove & replace with better quality specimen tree	C1	8.4 222m²

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TREE SURVEY SCHEDULE (BS5837: 2012)

SITE:	YALE CAMPUS - COLEG CAMBRIA, GROVE PARK RD, WREXHAM, LL12 7AB
CLIENT:	COLEG CAMBRIA
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	26 APRIL 2017
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	17/AIA/WXM/201

TREE NO. T - Tree G - Group H- Hedge W - Wood	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m) N	S	E	W	STEM/ MULTI-STEM* DIA.(mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m^2)
T42	Maple	M	18 2N	5	1.5	6	6	630	G	• Asymmetric crown form • E.R.C. 40	• N/A	A2	7.5 180m²
T43	Holly	M	13 0	2.5	2.5	2.5	2.5	300	G	• Insignificant tree • E.R.C. 10	• N/A	C2	3.6 41m²
T44	Lime	EM	15 1S	4.5	3	3	3	420	G	• No significant defects • E.R.C. 40	• N/A	A2	5 80m²
T45	Horse Chestnut	FM	16 1W	5	6	6	6.5	820	M	• Large seam on stem to west • Bark delaminating • E.R.C. 20	• Recommend more invasive tree risk assessment	B2	9.8 304m²
T46	Horse Chestnut	M	16 1N	5	5	5	1.5	580	M	• Poor structural crown form • Past large diameter limb failure • E.R.C. <20	• N/A	B2	7 152m²
T47	Beech	FM	23 5S	5	4	7	5	820	G	• No visual defects • E.R.C. 40	• N/A	A2	9.8 304m²
T48	Sycamore	M	18 5N	6	1.5	9	4	700	M	• Poor quality tree of no long-term viability • Crown reduced in past leaving extensive wounds with decay • E.R.C. 10	• Remove & replace with better quality specimen tree	C1	8.4 222m²

TREE SURVEY SCHEDULE (BS5837: 2012)

Tree Solutions
Arboricultural Consultants

SITE:	YALE CAMPUS - COLEG CAMBRIA, GROVE PARK RD, WREXHAM, LL12 7AB
CLIENT:	COLEG CAMBRIA
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	26 APRIL 2017
VIEWING CONDITIONS:	GOOD
JOB REFERENCE:	17/AIA/WXM/201

TREE NO. T - Tree G - Group H- Hedge W - Wood	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m) N	S	E	W	STEM/ MULTI-STEM* DIA.(mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m^2)
T49	Horse Chestnut	M	16 0.5S	5	6	5	4	750	G	• Prominent tree • E.R.C. 40	• N/A	A2	9 255m²
T50	Horse Chestnut	M	20 1S	8	7	7	7	960	G	• Past limb failure • E.R.C. 40	• N/A	A2	11.5 417m²
T51	Lime	EM	15 1S	4	4	3	3	460	G	• No visual defects • E.R.C. 40	• N/A	A2	5.5 96m²
T52	Lime	M	18 4E	3	4	4	3	600	G	• Part of linier group on site boundary • Crown reduced and lifted • E.R.C. 20+	• N/A	A2	7.2 163m²
T53	Holly (Variegated)	M	13 0	2	2	2	2	300	G	• No visual defects • E.R.C. 20	• N/A	B2	3.6 41m²
T54	Lime	M	22 2N	5	4	4	4	600	G	• Topped out at 12m leaving decay in stem and secondary crown above • E.R.C. 40	• Will require a program of re-pollarding to prevent crown failures	A2	7.2 163m²
T55	Yew	M	16 1.5N	4.4	2	4	4	540	G	• Crown reduced to south to clear building • Co-dominant stems with seepage evident below union • E.R.C. 20	• Monitor for cracks to union	C1	6.5 132m²

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TREE SURVEY SCHEDULE (BS5837: 2012)

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CLIENT:	COLEG CAMBRIA
BRIEF:	ARBORICULTURAL IMPACT ASSESSMENT

SURVEYOR:	A. HENDERSON
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TREE NO. T - Tree G - Group H- Hedge W - Wood	SPECIES (COMMON NAME)	AGE	HEIGHT (m) + CROWN CLEARANCE/ DIRECTION OF GROWTH (N.S.E.W)	RADIAL CROWN SPREAD (m) N	S	E	W	STEM/ MULTI-STEM* DIA.(mm)	VITALITY	COMMENTS	MANAGEMENT	CATEGORY & SUB-CATEGORY GRADING BS 5837	BS 5837 RADIUS (m) RPA (m^2)
T56	Lime	M	22 4N	5	4	4	4	700	G	• Part of linier group on site boundary • Crown reduced and lifted • E.R.C. 20+	• N/A	A2	8.4 222m²
G1	Alder	SM	≤5	1	1	1	1	≤120	M	• Small diameter trees that appear stressed & in decline • No long-term viability • E.R.C. 10	• Remove for development	C2	1.4 7m²
G2	Lime	M	≤21 1W	3.5	3.5	3.5	3.5	≤600	G	• Linier group located outside site boundary within Council land • Dead wood and squirrel damage in crown • Restricted rooting environment due to car park hard standing over primary roots to south & east and college sports hall to north & west • All trees have ben crown lifted & reduced leaving a mass of subsequent epicormic growth • Prominent trees to locale • E.R.C. 40	• Crown lift and reduce overhanging canopy back to previous pruning wounds in order to provide and maintain an suitable easement to the new building	A2	7.2 163m²
G3	Dogwood x 1 Bay Laurel x 2 Cypress x 2	M	≤5	2	2	2	2	≤250	G	• No visual defects • E.R.C. 20+	• Remove to allow for enhancement landscaping	B2	3 28m²

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 **4.5.7**.*			See Table 2
	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)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Appendix Two

Preliminary Tree Constraints Plan

Legend

Root Protection Area Modified to Account for Site Features

Category
Crown Spread
Tree Number
13
Root Protection Area

NOTE: Tree/group numbers marked with an * have approximate locations

- Category A (High Quality)
- Category B (Moderate Quality)
- Category C (Low Quality)
- Category U (Dead/Dying/In Decline)

Client: Coleg Cambria	
Project: Grove Park Road, Wrexham, LL12 7AB	
Title: Preliminary Tree Constraints Plan	
Scale: 1:500 @ A2	Date: May 2017
Drawn By: LI	Revision: -
Job Ref: 17/AIA/WXM/201	Drawing No: 01

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Appendix Three

Arboricultural Impact Plan

Client:
Coleg Cambria

Project:
Yale Campus Redevelopment

Title:
Arboricultural Impact Assessment

Scale:	Date:
1:500 @ A2	July 2018
Drawn By: NB	Revision: A
Job Ref: 17/AIA/WXM/201	Drawing No: 02

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