

Trees and Construction

BS5837 Tree Survey Assessment

Site: Former Grove High School, Penymaes Avenue,
Wrexham, LL12 7AP

Ref: 14277 / A1

Client: Coleg Cambria



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- June 2014 -

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Revision	Description	Date
/	/	/



1. INTRODUCTION

- 1.1 **Instruction:** This advice has been prepared for Coleg Cambria (hereafter; client) and is in respect of the tree related considerations at the Former Grove High School, Penymaes Avenue, Wrexham, LL12 7AP (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 potential impact on trees and vice versa.
- 1.4 Following instruction the consultant surveyed the site on the 11th June 2014 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 is currently a disused education facility with the main building being inset to the site and concentrated to the south-west site corner. Due to the previous site use, existing entrances and access links are noted with hard surface access on/around site.

The site is bound by a mixture of roads and residential boundaries and as above has existing hard surfaces on site. This is however dominated by open grasses and weed growth from the previous use.

- 2.2 **Proposal:** At the time of this writing no scheme has been provided for comment, however, it is understood that the site is being considered for development. Hence, the guidance and considerations herein will surround the principal of construction related activity on site in respect of the surveyed trees.

- 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 property 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 categorised as 'U' for either small scale trees or those dead, dying or dangerous, possibly with existing conflicts needing to be removed; it is also worth noting that the BS5837 circular RPAs will halt at the extents of existing school building (T12 and T13).
- 2.4.2 There are established features on site in the form of the mature Lime tree planting lines (i.e. G2 and G8), the mixed boundary planting T16 - T20 and G6 as well as the trees along the east boundary (T21 - T32).
- 2.4.3 There are identified defects to the surveyed trees, this has resulted in the recommendation for tree removal, i.e. the category 'U' trees. Also, the defects to some other trees may warrant their removal in the context of the development, i.e. T20, T39.
- 2.4.4 It is understood that site is not contained within a Conservation Area (hereafter; CA) although no council search/contact has been requested and hence confirmation as to whether trees are protected (CA or by Tree Preservation Order - hereafter; TPO) was unavailable at the time of writing this advice - please advise if this detail is available and/or confirm whether a CA and TPO check is to be made as part of this advice.



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 (14277/TCP/01).

3.2 General Considerations for Tree Retention / Removal

3.2.1 Based on the boundary line location/neighbour's site location of T6 and any street tree planting (T21, T22, T27 - T37), their retention and protection is to be assumed as part of the scheme; protection to be achieved by avoidance and suitable crown clearance.

3.2.2 Due to the poor condition and conflicts noted to the trees categorised as 'U' and in the context of the site's development, it is recommended that T14, T38 and T40 be removed.

3.2.3 Following the removal of the above trees, it may be likely that T12 and T13 will also need to be removed. This may be due to anticipated building conflict, demolition restriction or conflict with scaffold erection. Where the trees can be retained, these may be integrated into the landscaped planting borders as retained landscape vegetation; this said, both trees should not significantly guide nor constrain a scheme.

3.2.4 Thereafter, the tree stock is primarily noted at the site's boundaries, outside the fencing in verges or provides a notable individual/group contribution. Hence, consideration for the remaining trees is thus -

- The scrub growth and sapling regeneration internal to the site and within the site's planted borders should be removed as part of vegetation management.
- The low quality 'C' category trees should not individually guide nor constrain the scheme although consideration for their collective contribution is relevant in the context of the screening they provide, i.e. retention or replacement with considered screen planting within the landscape scheme for G2, T8-T11 etc.
- The individual moderate quality 'B' category trees require consideration and should be retained within the scheme where possible. In respect of the collective tree lines or group planting, greater consideration is recommended.
- The most notable individuals on site, the established street trees and the boundary tree lines are categorised as 'A' for current and future contributions; these are to be retained and protected by avoidance and provision of suitable crown clearances within the design.

3.2.5 The proportionate removal of trees or vegetation may have an impact on the green cover in the first instance, however, the scheme is likely to present a significant enhancement opportunity. Selective removals which facilitate the scheme will allow for the integration of replacement tree planting to enhance amenity and biodiversity.



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;
- Retention and use of existing hard surfaces for access (certainly within 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;
- 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

The tree removals to facilitate the scheme are to be justifiable in the context of the site layout and are to be mitigated by way of a landscape scheme; new tree planting will be required to replace and enhance the site's canopy cover with a general scheme of landscaping in acknowledgement for the removal of poor quality trees.



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

Taking account of the previous encroachment on structures (i.e. from T12 and T13), providing these conditions remain or clearances are increased, this will demonstrate no change of circumstance or an improvement to conditions and should be acceptable.

However, 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)

As a minimum it would be suitable to consider the outer extents of retained trees' RPAs [up to the previous foundations] as construction exclusion zones and be protected.

As above, 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.

There are existing hard surfaces on site, some sections within RPAs. These can be replaced on a like for like basis or of a preferential surface treatment.



Elsewhere, 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.

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 currently available space throughout the site, good tree planting space is anticipated as part of the scheme. It is necessary however to consider and avoid future canopy/shade conflicts. Smaller scale ornamentals would therefore be advised for the southern boundaries with larger scale species in open grown amenity spaces.

3.5 Additional Details & Report Handling

- 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 Where retained trees are avoided and removed trees are mitigated, typically, the considerations herein can form part of tree related planning conditions. These are then detailed within a method statement based on the approved scheme; proposed construction near trees may require detailed method statements to support the planning application and should be requested where present within the design.

This concludes our advice.

Appendix I

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 (14277/TCP/01)

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

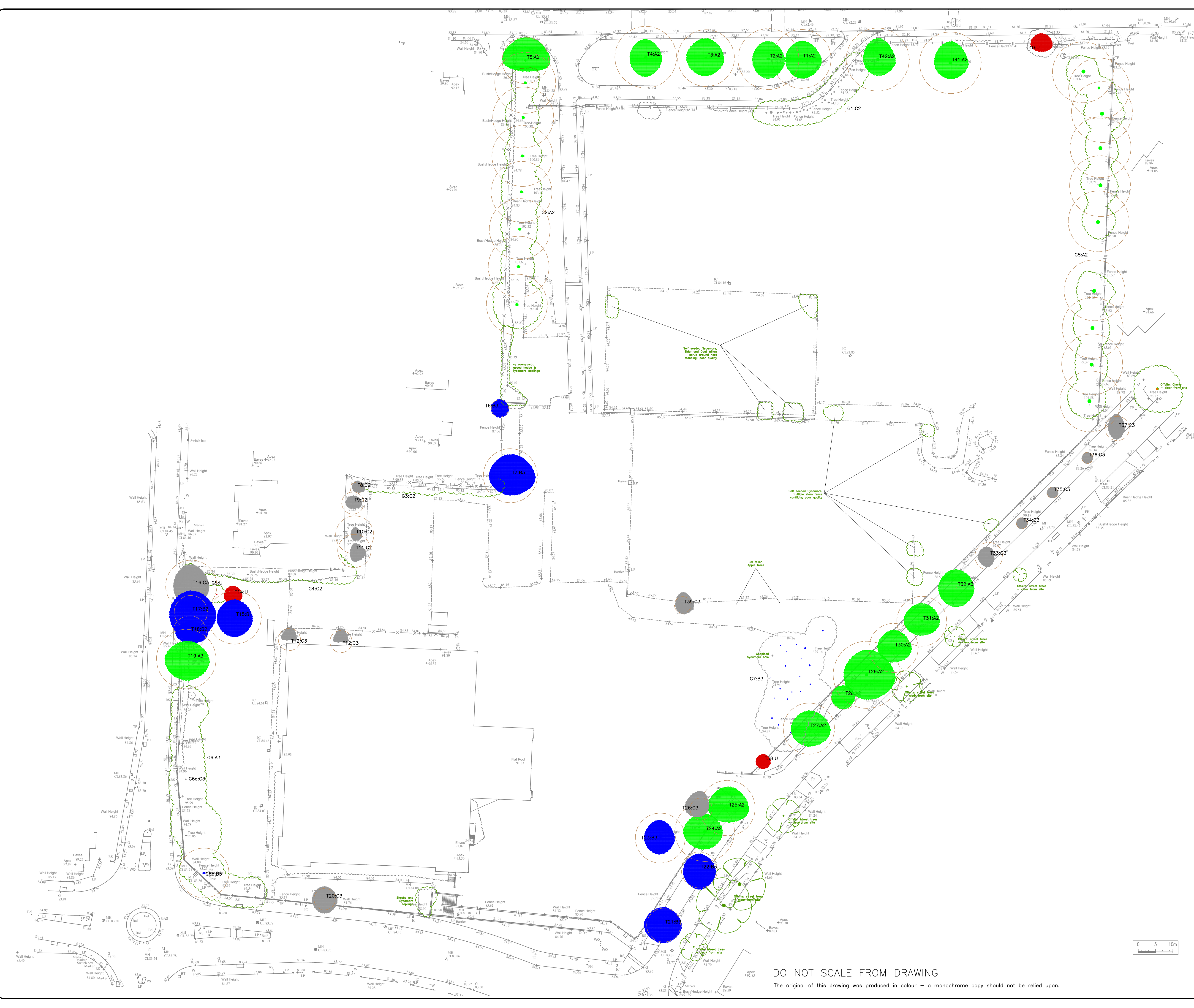
FIELD KEY:

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, 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: Coleg Cambria			PROJECT REF: 14277					SITE: Site at Former Grove High School, Penymaes Avenue, Wrexham, LL12 7AP								
CONTACT: Graham Evans			SURVEY DATE: 11 June 2014					ARB CONSULTANT: Andrew Turnbull FDS <i>c</i> MArborA								
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
G1	Cypress; Cupressus, Cupressaceae - Hedge	M	10-12	\	\	\	\	150 - 400 *	\	0	6	Fair	20 - 40	Line of planted stems, functional screen, multi stems, conflicts, continuous canopy.	C 2	
T1	Lime; Tilia, Tiliaceae	M	18	5	5.5	5.5	4.5	710	8.5	1	6	Normal	40 +	In verge with separation from fenced off school grounds, hedgehog base, congested crown.	A 2	Crown clean.
T2	Lime; Tilia, Tiliaceae	M	18	5	5.5	4.5	4.5	730	8.8	1	6	Normal	40 +	In verge with separation from fenced off school grounds, hedgehog base, congested crown.	A 2	Crown clean.
T3	Lime; Tilia, Tiliaceae	M	18	5.5	5	5	5.5	680	8.2	1	6	Normal	40 +	In verge with separation from fenced off school grounds, hedgehog base, congested crown.	A 2	Crown clean.
T4	Lime; Tilia, Tiliaceae	M	19	5	5.5	4.5	4.5	740	8.9	1	6	Normal	40 +	In verge with separation from fenced off school grounds, hedgehog base, congested crown.	A 2	Crown clean.
T5	Norway Maple; Acer, Aceraceae	M	15	6.5	3	7	6.5	560	6.7	2	2.5	Normal	40 +	On end of Lime planting line, multi stems at 2.5m.	A 2	
G2	Lime; Tilia, Tiliaceae X 7	M	17-19	6	6	6	6	730	8.8	1 - 2	5-6	Normal	40 +	Planting line inset from boundary epicormic and congested crown separation but collective amenity.	A 2	Crown clean.
T6	Spruce; Picea, Pinaceae	SM	10	2.5	2.5	2.5	2.5	210	2.5	1.5	2.5	Normal	20 - 40	Offsite, single stem, fair form.	B 3	
T7	Lime; Tilia, Tiliaceae	M	15	6	5.5	7	6	650	7.8	1	5	Normal	40 +	Hard surface on most of surrounds, epicormic base, deadwood and congested.	B 3	Crown clean.
G3	Mixed screen (Gold Cypress and Sycamore)	SM-M	4-9	\	\	\	\	<300	3.6	0	1	Fair	10 - 20	Screen planting and sapling growth, on and offsite limited function.	C 2	
T8	Pissard Plum; Prunus, Rosaceae	SM / M	6	2	1	2.5	1	140	1.7	1.5	1.5	Fair	10 - 20	In side border, close to tarmac and scrubby form.	C 2	
T9	Purple; Prunus, Rosaceae	M	6	2	1.5	2.5	2	266	3.2	1	1.5	Fair	10 - 20	In side border, close to tarmac and scrubby form, multi stems measured at 1.5 - 2m, (multi stems measured at 140mm, 150mm and 170mm)	C 2	
T10	Golden Chain; Laburnum, Fabaceae	LM	7	2	1.5	2	1	455	5.5	1.5	2.5	Fair	10 - 20	In side border, close to tarmac and scrubby form, co-dominant at 1m, decay and deadwood, (multi stems measured 290mm and 350mm)	C 2	
T11	Purple; Prunus, Rosaceae	M / LM	7.5	2	3	3	1	398	4.8	1	2	Fair	10 - 20	In side border, close to tarmac and scrubby form, individual co-dominate at base and 1m, (multi stems measured at 280mm, 210mm, 190mm)	C 2	
G4	Mixed border (Sycamore; Acer, Aceraceae and Cypress; Cupressus, Cupressaceae)	Y / SM	3.5-8	\	\	\	\	100 - 280	\	0	2	Fair	20 - 40	Hedge and screen planting with self set sapling growth off and onsite.	C 2	Manage by Sycamore removal.
T12	Yew; Taxus, Taxaceae	SM	8	3.5	0	2	2	270	3.2	1	2.5	Fair	10 - 20	<1m from building, limited future.	C 3	
T13	Yew; Taxus, Taxaceae	SM / M	8	6	0	4	4	410	4.9	1.5	2.5	Fair	10 - 20	<1m from building, limited future.	C 3	
T14	Sorbus, Rosaceae	M	9	2.5	2.5	2.5	2.5	300	3.6	\	\	Dead	< 10	Dead.	U	Remove.
T15	Deodar Cedar; Cedrus, Pinaceae	M	16	5	5.5	5	5	640	7.7	1.5	4	Normal	40 +	Single stem, good form, notable root future raised roots and decay to West.	B 1/3	Monitor and consider Picus assessment.
G5	Lilac; Syringa, Oleaceae and Cherry; Prunus, Rosaceae	M	6	\	\	\	\	< 200	2.4	2	\	Poor	< 10	Small scale, structured defects.	U	
T16	Sycamore; Acer, Aceraceae	M	15	6	6	5	5	620	7.4	3	5	Fair/Poor	10 - 20	At roadside boundary, stem decay and divide noted.	C 3	Monitor tree's condition.

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T17	Lime; Tilia, Tiliaceae	SM	15	6	8	7	6	400	4.8	0.5	4	Normal	40 +	At roadside boundary, stem decay and ?? noted , multi stem crown, wide lateral and spread, good future potential.	B 2/3	
T18	Lime; Tilia, Tiliaceae	SM	16	3	3	5	4	400	4.8	0.5	4	Normal	40 +	At roadside boundary, stem decay and divide noted and congested crown, good future potential.	B 2/3	
T19	Sycamore; Acer, Aceraceae	M	18	5	6	6.5	6	720	8.6	4	6	Normal	40 +	At roadside boundary, stem decay and divide noted., multi stem crown, dominate individual, stem decay noted at point of lost branches, fair form, leaf cover and structure.	A 3	
G6	Roadside Planting line (Purple Beech, Ash, Lime, Beech, Red Oak)	SM	8-13	\	\	\	\	160 - 430	\	0.5 - 1	\	Normal	40 +	Along roadside boundary, inset to wall, individual trees and collective contribution, lower individual importance.	A 3	
G6.a	Beech; Fagus, Fagaceae	SM	9	\	\	\	\	\	\	1	\	\	10 - 20	Poor structure at 0.5 - 1m.	C 3	Remove and replace.
G6.b	Red Oak; Quercus, Fagaceae	SM / M	10	5	5	5.5	6	615	7.4	0.5	1	Normal	40 +	Reaching mature form, larger tree of G6, multi stems at 1 - 1.5m. (multi stems measured at 430mm and 440mm)	B 3	
T20	Ash; Fraxinus, Oleaceae	SM / M	13	3.5	4	3.5	3.5	260	3.1	0.5	2	Fair	20 - 40	Multi stems at 1.5 - 2m with congested union.	C 3	Not to not significantly guide the scheme.
T21	Norway Maple; Acer, Aceraceae	SM / M	12	5	5	5	5.5	410	4.9	1.5	3.5	Normal	40 +	Offsite, street tree (Park Ave), multi stemmed crown.	B 3	
T22	Birch; Betula, Betulaceae	M	12.5	4.5	5.5	4.5	4.5	430	5.2	1.5	5	Normal	20 - 40	Offsite, street tree (Park Ave), good leaf cover and wide lateral spread.	B 3	
T23	Lime; Tilia, Tiliaceae	M	18	5	4.5	4	4.5	600	7.2	0	6	Fair	40 +	Compacted grounds, epicormic and congested deadwood and some tip dieback.	B 3	Monitor and clean.
T24	Lime; Tilia, Tiliaceae	M	16	5	5	5	6	720	8.6	0	5	Normal	40 +	Epicormic, congested, deadwood and co-dominant at 3m and touching fence.	A 2	Crown clean.
T25	Lime; Tilia, Tiliaceae	M	16	6	4	6	5.5	670	8.0	0	7	Normal	40 +	Epicormic, congested, multi stems at 4 - 5 m, individual unions noted.	A 2	Crown clean.
T26	Birch; Betula, Betulaceae	SM	11	5	2	2	4.5	270	3.2	1.5	2	Fair	20 - 40	Stem damage and attachment at 1m, growth lean away T24 and T25.	C 3	
T27	Lime; Tilia, Tiliaceae	M	17	5	5	6	5	620	7.4	3	5	Normal	40 +	Street tree, in verge, in line and multi stems at 5 - 6 m.	A 2	
T28	Lime; Tilia, Tiliaceae	SM	10	3	3.5	3	3.5	310	3.7	3	4	Normal	40 +	Street tree, in verge, in line and good form and future.	A 2	
T29	Sycamore; Acer, Aceraceae	M / LM	18	7	7	8	6.5	810	9.7	3.5	4	Normal	40 +	Street tree, in verge, in line and multi stemmed crown.	A 2	
T30	Lime; Tilia, Tiliaceae	M	16	5	4	5	4.5	590	7.1	3	4	Normal	40 +	Street tree, in verge, in line and multi stems at 4 - 5 m.	A 2	
T31	Lime; Tilia, Tiliaceae	M	17	5	4	5	5	600	7.2	3	4	Normal	40 +	Street tree, in verge, in line and co-dominate at 2m and multi stems at 4m.	A 2	
T32	Horse Chestnut; Aesculus, Aesculaceae	M	15	5	5.5	5	5	\	\	3	3	Normal	40 +	Street tree, in verge, in line and multi stems at 3.5m	A 3	
T33	Lime; Tilia, Tiliaceae	SM	6.5	2.5	3	1.5	3	330	4.0	2.5	2	Fair	40 +	In verge, clear from site, and fairly well established.	C 3	

TREE SURVEY IN ACCORDANCE WITH BRITISH STANDARD 5837:2012 'TREES IN RELATION TO DESIGN, DEMOLITION & CONSTRUCTION - RECOMMENDATIONS'																
CLIENT: Coleg Cambria				PROJECT REF: 14277				SITE: Site at Former Grove High School, Penymaes Avenue, Wrexham, LL12 7AP								
CONTACT: Graham Evans				SURVEY DATE: 11 June 2014				ARB CONSULTANT: Andrew Turnbull FDS <i>c</i> MArborA								
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
T34	Lime; Tilia, Tiliaceae	Y	5	1.5	1.5	1.5	1.5	130	1.6	1	1.5	Fair	40 +	In verge, clear from site, and fairly well established.	C 3	
T35	Lime; Tilia, Tiliaceae	Y	4.5	1.5	1.5	1.5	1.5	130	1.6	1	1.5	Fair	40 +	In verge, clear from site, and fairly well established.	C 3	
T36	Lime; Tilia, Tiliaceae	Y	4	1.5	1.5	1.5	1.5	130	1.6	1	1.5	Fair	20 - 40	In verge, clear from site, and fairly well established and congested and epicormic.	C 3	Formative prune.
T37	Cherry; Prunus, Rosaceae	M	5	4	3	2	2.5	290	3.5	1	1.5	Fair	10 - 20	In verge, clear from site, and fairly well established and multi stems @ 1.5m and sparse.	C 3	Monitor tree's condition.
T38	Birch; Betula, Betulaceae	Y / SM	6.5	2	2	2	2	130	1.6	0.5	1.5	Poor	< 10	Self seeded and in conflict with wall.	U	Remove.
T39	Apple; Malus, Rosaceae	M	9	3.5	2.5	3	2	200	2.4	2	1.5	Fair	10 - 20	On bank, others close by have fallen, limited future.	C 3	
G7	Ornamental planting copse (Rowan, Whitebeam, Oak, Ash, Cherry, Birch, Lime)	SM	6-10	\	\	\	\	90 - 290	\	0 - 1	\	Normal	40 +	Good collective canopy, lower individual importance, some with good future (Oak and Ash).	B 3	Remove Sycamore.
G8	Lime; Tilia, Tiliaceae x 8	M	18-20	\	\	\	\	670 - 720	\	0	5	Normal	40 +	Planting line at residential boundary, multi stemmed crowns, over gardens, magour deadwood, epicormic and congested.	A 2/3	Clean and Monitor.
T40	Goat Willow; Salix, Salicaceae	Y / SM	5	3	2	3	3	160	1.9	0	\	Poor	10 - 20	Multi stemmed growth in conflict with fence.	U	Remove.
T41	Lime; Tilia, Tiliaceae	M	20	6	4.5	5	4.5	740	8.9	0	6	Normal	40 +	At roadside fence boundary, epicormic, deadwood and congested crown	A 2/3	Crown clean and Monitor.
T42	Lime; Tilia, Tiliaceae	M	20	6	4.5	5	4	760	9.1	0	7	Normal	40 +	At roadside fence boundary, epicormic, deadwood and congested crown	A 2/3	



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'

DO NOT SCALE FROM DRAWING
The original of this drawing was produced in colour – a monochrome copy should not be relied upon.

REV.	DESCRIPTION	DWN	CHK'D	DATE		
CLIENT						
Coleg Cambria						
PROJECT						
14277 Site at Former Grove High School, Penymaes Avenue, Wrexham, LL12 7AP						
TITLE						
Tree Constraints Plan						
DWN	DATE	CHK'D	DATE	APP'D	DATE	SCALE
RCK	16/06/2014	AT	17/06/2014			1:500
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