

Arboricultural Impact Assessment

Plot 3, Land at Min Y Dyffryn, Gresford, Wrexham

Prepared for:

Mr J Parry
C/o Parry Davies Architects

Planning Ref: P/2011/0668
Our Ref: 11/AIA/WXM/76

07 October 2011

Contents:

1.0	Instruction
2.0	Statutory Controls & Planning Policy
3.0	The Site
4.0	Development Proposal
5.0	General Constraints Data
6.0	Juxtaposition of Trees & Structures
7.0	Development Implications
8.0	Survey Methodology
9.0	Summery & Analysis of Trees
10.0	Proposed Revisions
11.0	Conclusions
12.0	Limiting Conditions

<i>Appendix 1</i>	Tree Survey Schedule
<i>Appendix 2</i>	BS 5837 Category Grading Chart
<i>Appendix 3</i>	Arboricultural Impact Plan
<i>Appendix 4</i>	Tree Protection Plan/Replacement Tree Planting Plan
<i>Appendix 5</i>	Method Statement

1.0 INSTRUCTIONS

- 1.1 We have been instructed by Mr J Parry to carry out an Arboricultural Impact Assessment (AIA) in order to assess the development proposal in relation to trees plotted on the plans provided, in accordance with the principles of British Standard 5837 'Trees in Relation to Construction - Recommendations' 2005.
- 1.2 We are instructed to prepare a 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 variation of Planning Condition No 5 Under Planning Consent P/2007/1260, Dated 23/2/2009 for the substitution of house type to Plot 3, Myn y Dyffryn, Gresford, Wrexham. As such, all significant trees on and adjoining Plot 3 have been surveyed and are listed within a Tree Survey Schedule (**Appendix 1**) and plotted on an Impact Assessment Plan (**Appendix 3**).
- 1.3 The survey was carried out on 26 September 2011 by Alistair Henderson, Principal Consultant to Tree Solutions. 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 Five individual trees (T1 – T5) were surveyed and mapped on an Impact Assessment Plan Ref: 11/AIA/WXM/76, Drawing No: 1. 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 proposed site layout plan Ref: 11.5314-CP7 dated August 2011 undertaken by Parry Davies Architects.

2.0 STATUTORY CONTROLS & PLANNING POLICY

- 2.1 In terms of impacts on trees, the planning application will be assessed against Policy EC4 of the Wrexham County Borough Council Unitary Development Plan (2005) and Local Planning Guidance Note 17 'Trees & Development' (2011).
- 2.2 Consultation with Wrexham County Borough Council on 07 October 2011 confirmed that all trees on and adjoining the site are subject to Denbighshire County Council Tree Preservation Order No. 20, 1953 and the whole of Min Y Dyffryn falls within a designated Conservation Area. As such, the formal consent of the Council is required prior to undertaking any tree removal or pruning works that are not granted planning consent under this current application.

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), as well as The Conservation (Natural Habitats, &c) (Amendment) Regulations 2007.

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 development area for Plot 3 already has planning consent for one detached residential dwelling. The previous site owner has cleared all vegetation and pruned trees beyond the northern boundary. There are residential dwellings to the south, east and western boundaries with woodland to the north.

4.0 DEVELOPEMENT PROPOSAL

- 4.1 Substitution of house type to plot 3 to provide for 1 detached residential dwelling with detached double garage and associated vehicular access/parking.

5.0 GENERAL CONSTRAINTS DATA

- 5.1 Constraints arising from retention trees are separated into three and sometimes four types of Construction Exclusion Zone (CEZ), of which CEZ1 (the Root Protection Area - RPA) is illustrated on the Impact Assessment Plan. The CEZ's are explained further as follows:

5.2 CEZ1: Root Protection Area (RPA)

- 5.2.1 The area, calculated in m², which shall be protected during and preserved intact after construction, in order to facilitate the healthy retention of the tree(s) concerned by safeguarding a reliable quantum of functioning tree roots. This area is based on a radial measure from the centre of the stem of the tree, which is found by multiplying the stem diameter of the tree concerned, by a factor of twelve (or by a factor of ten when measuring basal diameter immediately above the root flare for multi-stemmed trees).
- 5.2.2 During this Arboricultural Impact Assessment, the derived radial measure has been converted into the actual area to be protected, having due regard to prevailing site conditions and how these may have affected the trees, particularly in relation to factors affecting their likely rooting disposition.
- 5.2.3 The means of protecting the RPA will include the installation of tree protection fencing prior to the start of work on site, including all demolition. Various activities within the RPA are prohibited (e.g. mechanical excavation, soil stripping, fire lighting, materials 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 CEZ2: Tree Crown Protection Zone

- 5.3.1 This is the area above ground occupied by the crown of the tree, along with allowances for working space and if appropriate, for future growth. The extent of CEZ2 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.
- 5.3.2 Arising from the above, the means of protecting CEZ2 includes providing an adequate separation distance between retention trees and the proposed residential dwelling. This will include tree removal and access facilitation pruning, where this is necessary and considered good arboricultural management.

6.0 SURVEY METHODOLOGY

- 6.1 For the purpose of this report we have assumed that all tree positions have been accurately plotted on the topographical site survey provided.
- 6.2 The method used in the preparation of this report is based on the principles of BS 5837: 2005.
- 6.3 Tree heights were surveyed to the nearest 1m. They can be measured with a Suunto Clinometer if required.
- 6.4 Trunk diameters were measured by use of forestry girth tape.
- 6.5 The category assessment (Table 1) on which the trees is based include current and long-term arboricultural, landscape, cultural and conservation values (BS5837: 2005). This table can be found at **Appendix 2**
- 6.6 For clarity, the grading system is summarised as follows:

R 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

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.
- 7.2.3 Root patterns are affected by topography and characteristics of the soil or substrate. Where trees are located within close proximity to existing hard standing they are unlikely to have an even distribution of lateral roots due to restrictions in root growth created by compacted sub-grades beneath. There were no underground physical barriers adjacent to any other tree surveyed all RPA's have therefore been plotted unmodified and are shown as as full circles.

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 on the plans supplied by the Project Architect and in this regard, our advice is of a general nature.
- 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 There is one minor impact to trees as detailed below:

1. The north east corner of Plot 3 encroaches within the RPA of tree number 3 by 1.8m. This incursion is in our opinion negligible and we are confident that no significant tree roots will be encountered during the excavation required for the foundation. As such, we believe it is unnecessary to amend the foundation design to a pile and beam. Furthermore, the new location of Plot 3 is a vast improvement on the previous approved layout where the northern section of the dwelling encroached well within the RPA of tree number 1 and 2 to a distance of 2.5m from the stems. In addition, the previous layout had a rear courtyard proposed within the RPA of all trees whereas the new layout will have a garden area.
2. Plot 2 - Although not part of this AIA for Plot 3, we have recommended the removal of a Cherry and Spruce tree located to the south west of Plot 2. The Cherry tree has unfortunately suffered significant root loss during the installation of an electricity substation. It was evident that this work had been undertaken prior to Mr Parry purchasing the site and as such he is not responsible. This tree is now liable to windthrow and as such represents a potential hazard to vehicles and pedestrians using Gresford Road beyond the western boundary. It should therefore be removed. The Spruce tree is a commercial forestry tree that is completely inappropriate to retain within a confined location adjacent to a residential dwelling. Furthermore, its roots are likely to be damaged during the construction of the adjacent driveway. The existing hedgerow along the frontage falls within the highway visibility splay and will therefore be removed in order to meet the requirements of WCBC Highways Department. As mitigation to the loss of these trees and hedgerow, the applicant intends to plant an instant Beech hedge with a minimum plant height of 90-120mm and three extra heavy standard Birch trees. Details of mitigation planting with specification can be found on the Tree Protection Plan at **Appendix 4**.
3. Although not a requirement of the previous planning consent, the applicant has installed tree protective fencing and ground protection boards in accordance with BS 5837: 2005 at the furthest extent of an over mature Horse Chestnut tree located outside the northern boundary of Plot 2.

9.0 SUMMARY AND ANALYSIS OF TREES

- 9.1 A full description of all tree details is provided in **Appendix 1**.
- 9.2 The tree survey covers 5 individual trees. Two trees (T4 & T5) have been categorised as 'R' grade i.e. in such a condition that any value would be lost within 10 years or classed as dead, dying or dangerous. These trees are unaffected by this proposal but should in our opinion be removed if granted 3rd party consent in order to abate any future health and safety issues to the occupiers of plot 3.
- 9.3 Tree numbers 1 - 3 have been categorised as 'B' grade, i.e. of moderate quality and value due to their mature height making them prominent skyline features within this residential area.

10.0 PROPOSED REVISIONS TO THE SCHEME

- 10.1 We advise that all proposed revisions having implications for trees should be referred to us for review.

11.0 CONCLUSIONS

11.1 BS 5837: 2005 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 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
- Planting high quality large trees and hedgerow in order to create an instant screen along the western boundary

11.2 The protection of retained trees will be in accordance with recommendation contained within the BS and as detailed on the Tree Protection Plan at **Appendix 4**.

12.0 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.

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Appendix One
Tree Survey Schedule

BS 5837: 2005 TREE SURVEY SCHEDULE

SITE:	LAND MIN Y DYFFRYN, GRESFORD, WREXHAM
CLIENT:	MR J PARRY
BRIEF:	TREE SURVEY FOR ARBORICULTURAL IMPACT ASSESSMENT (PLOT 3)

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	26/10/2011
VIEWING CONDITIONS:	CLEAR
JOB REFERENCE:	11/AIA/WXM/76

PAGE: 1 OF 2

Ref T - Tree G - Group H - Hedge	Species	Age	Height (m)	Crown Spread (m)	D.B.H (mm)	Vitality	Comments	Management	BS 5837 Retention Category	BS5837 RPA Radius (m)
T1	Sycamore	M	18 C- 3	N: 4 S: 3 E: 2.5 W: 3	420	M	- Located outside the northern boundary on sloping embankment that falls to north - Forms closed canopy with T2 due to close proximity of stems - Overgrown self set tree - Ivy clad stem impeded inspection - Southern canopy pruned back to boundary - E.R.C 20	Sever Ivy at base to allow for closer inspection of stem	B2	5 8m²
T2	Sycamore	M	17 C- 3	N: 3 S: 2.5 E: 3.5 W: 1.5	500 (over Ivy)	M	- As T1 - E.R.C 20+	As T1	B2	8.5 228m²
T3	Sycamore	M	17 C- 4	N: 5 S: 3 E: 5 W: 7	750	M	- Ivy clad impeding inspection - Co-dominant stems from 1.5m - E.R.C 20+	As T1	B2	8.5 228m²

HEADINGS & ABBREVIATIONS

TREE NO.

AGE RANGE:

DBH:

CROWN SPREAD:

VITALITY:

BS 5837 RETENTION CATEGORY:

BS 5837 RPA RADIUS:

E.R.C.

REFERENCE NUMBER. REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE

Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, FM = FULLY MATURE, PM = POST MATURE

STEM DIAMETER – MEASURED AT 1.5 METRES

MEASURED DIAMETER OF CROWN AT 4 CARDINAL COMPASS POINTS

A MEASURE OF PHYSIOLOGICAL CONDITION. D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, G = GOOD

RETENTION VALUE BASED ON TABLE 1 BS 5837 (2005)

RADIUS FROM STEM TO THE LINE OF THE TREE PROTECTION AS SET OUT IN TABLE 2 OF THE STANDARD

ESTIMATED REMAINING CONTRIBUTION (YEARS)

BS 5837: 2005 TREE SURVEY SCHEDULE

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CLIENT:	MR J PARRY
BRIEF:	TREE SURVEY FOR ARBORICULTURAL IMPACT ASSESSMENT (PLOT 3)

SURVEYOR:	A. HENDERSON
ASSESSMENT DATE:	26/10/2011
VIEWING CONDITIONS:	CLEAR
JOB REFERENCE:	11/AIA/WXM/76

PAGE: 2 OF 2

Ref T - Tree G - Group H - Hedge	Species	Age	Height (m)	Crown Spread (m)	D.B.H (mm)	Vitality	Comments	Management	BS 5837 Retention Category	BS5837 RPA Radius (m)
T4	Sycamore	M	10 C- 2	N: 3 S: 2 E: 5 W: 4	400	MD	- Poor quality tree in decline - Topped at 8m - E.R.C 0	Fell if granted 3rd party consent	R	N/A
T5	Ash	SM	10 C- 4	N: 3 S: 3 E: 3 W: 2	190	M	- Small self set tree outside eastern boundary - Major included union with signs of failure - E.R.C 0	Fell if granted 3rd party consent	R	N/A

Appendix Two
BS 5837 Category Grading Chart

Table 1 — Cascade chart for tree quality assessment

TREES FOR REMOVAL				
Category and definition	Criteria			Identification on plan
Category R Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	- 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 R category trees (i.e. 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 (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality. NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).			DARK RED
TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	Criteria – Subcategories			Identification on plan
	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values, including conservation	
Category A Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B Those trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE
Category C Those trees of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.			

Appendix Three
Arboricultural Impact Plan

Appendix Four
Tree Protection Plan

Appendix Five
Arboricultural Method Statement

SEQUENCE OF WORKS

From commencement of the above development, the following methodology shall be implemented in the manner and sequence described:

1. Pre-contract site meeting
2. Erection of temporary protective fencing
3. Install ground protection with RPA
4. Underground services
5. Main construction phase
6. Removal of temporary fencing

1. PRE-CONTRACT SITE MEETING

To outline working methods in relation to trees prior to any construction activity on site, a site meeting of the following shall take place:

1. Client
2. Main Contractor
3. Arboriculturist

2. TEMPORARY PROTECTIVE FENCING ERECTION

Following completion of the tree felling and prior to construction, the main contractor shall erect the temporary protective fencing as detailed in the 'Tree Protection Plan'. Prior to commencement of any site demolition, construction, preparation, excavation or material deliveries, the Arboricultural Consultant will inspect the installed temporary fencing and report back to the LPA tree officer with photographic evidence. Any damage occurring to protective fencing during the demolition or construction phase shall be made good by the main contractor.

3. GROUND PROTECTION WITHIN RPA OF TREE NUMBERS 1, 2 & 3 FOR ERECTION OF SCAFFOLDING

- 1 The ground protection will involve the use of a temporary plywood boards laid across the RPA that extends beyond the protective fencing location butted together to form a continuous line as indicated on the Tree Protection Plan. The boards will be fixed in place by construction tie-rods to avoid any displacement.
- 2 The ground beneath any protection boarding will be left undisturbed and will be protected with a porous geotextile fabric and side butting scaffold boards on a 100mm compressible layer such of sharp sand.

4. UNDERGROUND SERVICES

Unless an emergency arises, there shall be no new excavation for the installation, renewal, or repair of underground services within any area designated as a Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) and enclosed by Temporary Protective Fencing (unless very low root volume is established beforehand).

5. MAIN CONSTRUCTION PHASE

There shall be no storage of construction material, site parking, site accommodation or equipment in any area designated as the Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) and enclosed by Temporary Protective Fencing. The site agent shall supervise deliveries by self-loading crane, with vehicles positioned in such a manner that retained trees are not at risk of damage.

Avoiding Damage to Stems and Branches

Care shall be taken when planning site operations in proximity to trees to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can result in serious injury resulting in safe retention impossible.

6. REMOVAL OF TEMPORARY FENCING

1. Temporary protective fencing shall be removed only upon written approval of the Local Planning Authority.

TREE PROTECTION SPECIFICATION

The Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) enclosed by temporary protective fencing shall:

1. Be erected prior to any demolition works, delivery of site accommodation or materials and shall remain for the duration of construction works.
2. Preclude all construction activity with the sole exception of specified arboricultural works and as such works as have been agreed by all parties and to be carried out under supervision.
3. Be protected by temporary protective fencing and other measures as specified.
4. Preclude the storage or tipping of all materials and substances, in addition, toxic substances such as fuels, oils, additives, cement, or other deleterious substances within 5.0 meters of an exclusion zone.
5. Clearly legible weatherproof signage, stating "Protected Trees – Exclusion Zone" shall be attached to the fencing 1.5m from the ground, facing out of the Tree Protection Zone located at regular intervals along the fence line. .
6. Other than works detailed within this method statement or approved in writing by the Local Planning Authority (LPA), no works including storage or dumping of materials shall take place within the exclusion zones defined by the protective fencing.
7. Any incursion into the Root Protection Area (RPA) and Construction Exclusion Zone (CEZ) must be by prior arrangement, following consultation with the LPA

Temporary Protective Fencing Type

The fence types are shown on the Tree Protection Plan with the following colour key:-

1. **Magenta** - 2.0M high heavy duty rhino panels (with extra central support bar) mounted on scaffold poles (driven in to the ground) and secured with anti tamper bolts – as illustrated below.



Example of Tree Protective Fencing Specification

GENERAL PRECAUTIONS

No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10 metres of the trunk of a tree that is to be retained. No fires will be lit.

On Site Storage of Spoil and Building Materials

Prior to and during all site works no spoil or construction material will be stored within the crown spread on any tree on or adjacent to the site even if proposed site work is to be within the crown spread. Any encroachment within this protected area will only be with the prior agreement of the LPA Arboricultural Officer.