Treestyle CONSULTANCY

April 2016

# BS5837
## *Trees in Relation to design, demolition & construction survey*

**Proposed development**
**At**
**Hougher Fall Farm**
**Old Clitheroe Road**
**Dutton**
**PR3 2YU**

Author;

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| **Client:** | **Mr J Collinson** |
| **Site details:** | **Development of old barns and garages** |
| **Date of site inspection:** | **April 2016** |
| **Assessor & Report Author:** | **Andrew McLoughlin NC/HND Arboriculture Treestyle Consultancy** |
| **Proposal:** | **Proposed property development** |

## 1.0 Instruction and the purpose of the report

**1.1** I have been instructed to prepare an Arboricultural Implications Assessment (AIA), in accordance with BS 5837:2012 (Trees in relation to design, demolition and construction – Recommendations), by Mr J Collinson for the above site. Maps supplied by PGB Architectural Services Ltd. The findings are listed in the Conclusions in section 9 page 11.

**1.2** This report needs to be read in conjunction with the Tree Protection Plan that accompanies for the trees that are to be retained.

**1.3** To assess the implications of the proposed development with regards to the close proximity to trees and to provide a method statement for the potential works that surround the area that may be affected by the site development. Then to provide tree protection measures for any retained trees during the construction phase.

**1.4** To provide a schedule of tree works to accompany a planning application.

## 2.0 The scope of the report - methodology & limitations

**2.1** The tree survey process consisted of a ground-based visual inspection only.

**2.2** The inspection consisted of an aboveground inspection only. Soil types were not assessed.

**2.3** This report is valid for one year from the date of site inspection. The condition of trees can change following severe weather conditions, the effects of diseases or pests and other abiotic factors.

**2.4** Any works to neighbouring trees may require the consent of the owner. These trees have not all been inspected because of access that couldn't always be gained. Access wasn't gained to the property that houses other trees. One defect on a neighbouring Oak *(Quercus spp)* was displaying codominant stem with bark inclusion. Please note the trees were observed from a short distance.

**2.5** Only trees over 100mm in diameter at 1.5 meters have been included in the report. This is in accordance with British Standard for trees in relation to construction BS 5837:2012 (Trees in relation to design, demolition and construction – Recommendations). One tree in particular was very young, located at the front of the property. It has also been included even though its too small for BS5837. Another party produced the mapping supplied to myself.

**2.6** No details relating to the location or the installation of services have been supplied. Therefore this report can only deal with this issue in a preliminary manner. The positioning of services should be approved by the appropriate organisation.

## 3.0 Site Description and Nature of Tree Stock

**3.1** The property and land that surrounds Hougher Fall Farm is set in the rural area of Dutton. There are other residential properties nearby and next to Hougher Fall Farm, but the surrounding area is predominately fields with some wooded areas.

**3.2** The proposed development is located next to Hougher Fall Farm where access would be shared between the existing and the new developments. To the west of the proposal is a neighbouring house and to the north is Old Clitheroe Road.

**3.3** The proposed land to be developed is located between the two residential properties and is already a hard standing area. The trees that immediately surround the proposal are most self seeded with low amenity value. Beyond these are some quite valuable tree species like Yew *(Taxus baccata)* and Beech *(Fagus sylvatica).*

## 4.0 Description of the subject trees

**4.1** The table of results in section 12 and the submitted plan show the condition of the trees and their suitability for suitability for retention according to the British Standard for trees in relation to construction BS 5837:2012 (Trees in relation to design, demolition and construction – Recommendations). This guidance sets out four categories of trees; from trees that are highly desirable to retain (A), through (B) to trees that may or may not be suitable for retention C and trees to be removed (U). This system assesses the trees health and condition. In addition other factors such as their long-term impact on adjacent structures and good arboricultural management. A more detailed breakdown of this is included in Section 13 page 15.

**4.2** Trees marked 'U' have a condition that mean they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. However, they may have existing or potential conservation value that might be desirable to preserve. Trees marked 'C1 – C3' are insignificant or immature specimens or those not of sufficient quality to be in the higher 'A' and 'B' categories. **'C' trees should be retained where possible or where it suits the development layout but there is a general presumption that they can be removed to facilitate development if necessary.** These trees are easily replaced with suitable landscaping.

**4.3** There are five trees listed under the A category. This is 38% of the tree population.

**4.4** There is one tree listed under the B category, this equates to 8% of the tree population that may be affected by the development.

**4.5** There are five trees listed under the C category, this equates to 38% of the tree population that may be affected by the development.

**4.6** There are two trees listed under the U category, this equates to 16% of the tree population. These are dangerous and should be removed.

## 5.0 Arboricultural Implication Assessment

**5.1** The removal of the Cypress T4 and T10 the diseased Beech *(Fagus sylvatica).* There are three other small trees that should be removed that fall under category C.

**5.2** The installation of protective fencing to the north and south of the site prior to any construction.

**Table 1: Summary of trees to be potentially removed**

| Number | Species | Category | Age |
|---|---|---|---|
| T4 | Cypress | U | M |
| T5 | Spruce | C2 | YM |
| T6 | Willow | C2 | YM |
| T7 | Rowan | C2 | M |
| T10 | Beech | U | M |

## 6.0 Tree Protection Plan

**6.1** The Tree Protection Plan (TPP) shows the ground to be designated as a Root Protection Area (RPA). The RPA also represents a Construction Exclusion Zone (CEZ).

**6.2** It should be noted that the full RPA cannot always be achieved on site due to ground constraints. The RPA can also be tailored to some extent given the structure and condition of individual trees. The CEZ shows the area that should be kept free of development work

**Root damage can be minimised by using;**

- Piles, with site investigations used to determine their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600 mm.

- Beams, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.

**6.3 The following are precautions that must be taken within the RPA**:

- Fencing to be erected prior to any development commencing on site or any materials or machinery associated with development are brought onto the site.

- The fencing shall be maintained for the duration of the development unless otherwise agreed by the Local Planning Authority or in accordance with the approved plans and particulars.

- No materials, machinery, chemicals or fuel shall be stored within the RPA for the duration of the development.

- The ground levels within the RPA shall not be lowered or raised without the consent of the Local Planning Authority and/or in accordance with the approved plans and particulars.

- Dwellings should be constructed with a ventilated air space between the underside of the slab and the existing soil surface (to enable gas exchange and venting through soil surface). This should be a three dimensional cellular confinements system. The design of the foundation should take account of any effect on the load bearing propertied of underlying soil from the redirected roof run off. Approval in principle for a foundation that relies on topsoil retention and roof run off under the slab should be sought from the building control authority prior to the approach being installed. Where piling is to be installed near to the trees, the smallest practical pile diameter should be used, as this reduces the possibility of striking major tree roots, and reduces the size of the rig required to sink the piles.

- Following treatment with herbicide, existing vegetation shall be removed once dead by the use of hand tools e.g. spade or fork and shall not be removed by machinery.

**6.4 Protective measures outside the RPA**: The following are additional precautions outside the RPA. In addition to the ground protection within the RPA the following should be addressed or avoided

a) Care should be taken when planning site operations 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 damage to trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banks man to ensure that adequate clearance from trees is maintained at all times.
b) Material that will contaminate the soil, e.g. concrete mixings, diesel oil and vehicle washings, should not be discharged within 10m of the tree stem.
c) It is essential that allowance be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards trees.
d) Fires should not be lit in a position where their flames can extend to within 5m of foliage, branches or trunk. This will depend on the size of the fire and the wind direction.
e) Notice boards, telephone cables or other services should not be attached to any part of the tree.

**6.5 Installation of new services**: No services should be installed within the root protection area (RPA). Should existing services within the RPA need upgrading this should be done in accordance with the advice of a suitably qualified Arborist and using a method approved by the Local Planning Authority.

**6.6 Site monitoring**: British Standard for trees in relation to BS 5837:2012 (Trees in relation to design, demolition and construction – Recommendations). requires that any RPAs are monitored during construction by a qualified and experienced Arborist. An appointed Arborist should be involved with the pre-commencement discussions and oversee the tree protection measures.

**6.7 Construction plans**: The RPA should be marked on all the construction plans to prevent any breach of the protection measures and planning conditions.

### 6.8 Tree root protection areas

| Tree / Hedge Number | Species | BS5837 Category | Root Protection (Radius m) | Root Protection (Area m2) |
|---|---|---|---|---|
| 1 | Sycamore | B2 | 4.2 | 55 |
| 2 | Yew | A1 | 7.2 | 163 |
| 3 | Cypress | A2 | 4.2 | 55 |
| 8 | Beech | A2 | 6 | 72 |
| 9 | Beech | A2 | 6 | 72 |
| 11 | Beech | A2 | 8.25 | 137 |
| 12 | Rowan | C2 | 3 | 28 |
| 13 | Cherry | C2 | 2.4 | 18 |

**NB** All the trees have been listed even though some are to be removed, this can help buildings and foundations providers to see the rooting areas of the trees.

**6.9** Due to the surrounding constraints of the drainage ditch separating the field to the land, the rooting areas of the trees listed below have been increased to accommodate for this, it has been calculated that;

| Tree Number | Species | An open grown tree radius | Percentage of constrained roots | Amended tree radius |
|---|---|---|---|---|
| T8 | Beech | 4.8m | 25% | 6m |
| T9 | Beech | 4.8m | 25% | 6m |
| T11 | Beech | 6.6m | 25% | 8.25m |

## 7.0 Arboricultural Method Statement (AMS)

**7.1** The protective fencing installed prior to any construction or plant machinery is allowed on site. Fencing to be inspected by a qualified Arborist prior to any work starts on construction.

**7.2** For this section the following methodology is to be applied:

1) *Pre commencement site meeting with site manager, works crew and appointed* Arborist*. The appointed* Arborist *will fully explain how this AMS is to be executed and answer any questions.*
2) *Distances from the trees should be identified and the RPA marked up.*
3) *Trees removed according to Table 1 page 6, tree work carried out according to the Tree survey table page 14.*
4) *Ensure that fencing is installed in accordance with the Tree Protection Plan (TPP) See section 6 page 7. This fencing defines the working area. Distances can be seen on the page 9, the maps on page 16 and fencing criteria on page 20.*
5) *Fencing can only be removed once permission from the LPA's tree officer is received.*
6) Once this has been completed a qualified Arborist must inspect the site, only then can machinery enter the site and construction begin.
7) A tree survey must be carried out approximately 24 months after the extension has been completed.

## 8.0 Legal constraints

**8.1 Trees subject to statutory controls:** The site may be subject to a Tree Preservation Order (TPO). If this is the case then any works to trees covered by the TPO will need the consent of the Local Planning Authority (LPA), unless exempt. The site may also be within a Conservation Area. If this is the case it is necessary to give six weeks prior written notice of intent to the LPA before any tree works other than certain exemptions can be carried out. Any works specified herein are necessary for the proposal to be implemented, and if approved, should be acceptable to the LPA. However, this should be confirmed in writing with the LPA prior to being implemented.

**8.2 Statutory wildlife obligations:** The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 provide statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions and advice from an ecologist should be obtained before undertaking any works that might constitute an offence.

## 9.0 Conclusions

**9.1** The area proposed for development on Hougher Fall Farm would be beneficial as the current site is unused, neglected and in need of development. There are two areas of trees that should be protected, the trees along the Old Clitheroe Road and the trees to the south that are located in a neighbouring garden. The trees located to the south in a neighbouring garden are especially good specimens that require protection from building materials such as cement. These are located on land that is slightly lower than the proposed development and therefore susceptible to run off and leaching through the soil profile. This is easily rectifiable if the TPP is carried out correctly.

**9.2** Many of the trees located in the immediate area surrounding the development are small and self seeded, these should not hinder any development.

**9.3** T10 Beech *(Fagus sylvatica)* is located on the Old Clitheroe Road and has been identified as diseased and dangerous. Phytophthora on one side of the stem, Ganoderma on another area and on the crucial tension side is a saprophytic fungi that is living off the dead stem. This trees requires removing, ownership is not known but it could be a highway tree.

**9.4** Trees located along the Old Clitheroe Road are far away enough from the development not to be affected. It is recommended that their RPA be fenced off to avoid storage or access from the construction.

**9.5** Re-inspection of all trees within 24 months of the construction of the property. This is because it can take this long for the trees to show signs of stress because of the construction.

## 10.0 Methodology

The data recorded includes:
Height - Where access to the tree was not possible the Heights were estimated.
Diameter - measurements taken at 1.5 metres above ground level (complying with requirements for BS 5837:2012 (Trees in relation to design, demolition and construction – Recommendations).). Where multiple stems occurred below 1.5m the measurement was take as the point immediately above the root flare.
Girth data was gathered using a metric diameter tape, callipers or estimated when no access.
Tree crown spread – estimated measurement of the four cardinal points to provide information to be used with the arboricultural constraints plan
Tree Crown Clearance – crown height above ground level
Tree condition - judged visually using the guidelines produced in the report. The condition is indicated with the appropriate colour on the map found in the report
Age class - estimated from an examination of the tree in question.

### 10.1 Age Classification

The following classification is employed:
Y - Young: MA – Middle Aged:
M - Mature:
OM- Over mature:
V – Veteran:
Saplings and young trees under 10 years of age
Trees older than 10 years but less than one third of the life expectancy of their species, normally making substantial extension growth.
Trees between one third and two thirds of the life expectancy of their species. More or less full height and large girth, increasing only slowly.
Trees beyond two thirds of the life expectancy of their species. No significant extension growth. Crown starting to break up and decrease in size.
tree that shows features of biological, cultural or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species.

### 10.2 Estimated Remaining Contribution in Years

The estimated remaining contribution in years is an estimate based on currently known factors of the possible remaining life of the tree as an asset. Clearly, it is impossible to predict changes in condition which may occur in the future and this reflects what is considered reasonable under existing circumstances, The following classification is employed:
Death or removal is likely within less than 10 years Death or removal is likely within 10-20 years. Death or removal is likely within 20-40 years.
Death or removal is likely beyond 40 years The estimated remaining contribution in years will be dependent on the interaction of the typical longevity of the species, its current age and condition with prevailing environmental factors. The estimated remaining contribution in years also dependent on future tree management that can extend useful life in some instances.

### 10.3 Tree Condition

The tree survey assessed the individual condition of all trees identified on the site. The assessment of condition is based on a visual and professional view.
The categories considered for Physiological Condition are good, fair, poor and dead.
Structural Condition is also commented on and this will include such items of presence of decay and physical defects.
Trees are living organisms and their condition can change rapidly in response to environmental variables. Condition remarks refer to the date of survey and cannot be assumed to remain unchanged. While there is no such thing as a safe tree, regular inspection of trees is recommended to reduce the foreseeable risks associated with trees. There is currently no published guidance from the UK insurance industry on the frequency of tree inspections. In the German courts a bi-annual routine inspection is normally expected for older street trees, giving an indication of the rapidity of change in condition that can occur.

## 11.0 References


**11.1** *British Standards: 5837 - Trees in relation to design, demolition and construction – Recommendations (2012). The British Standards Institution, controlled copy.*

**11.2** *DEFRA (2013).Wildlife and Countryside Act (WCA) 1981. Accessed 08.03.13 via http://jncc.defra.gov.uk/Default.aspx*

**11.3** *RG Strouts and TG Winter - Diagnosis of ill health in trees*

**11.4** *Principles of tree hazard assessment and management – David Lonsdale*

**11.5** *Claus Mattheck and Helge Breloer – Body Language of trees*

**11.6** *British Standards: 3998 -2010 - Tree work – Recommendations*

**11.7** *R.G.Srouts and T.G Winter - Diagnosis of ill health in trees*

**11.8** *NTSG - Common sense risk management of trees*

**11.9** Shigo (1986) - A new tree biology

**11.1.1** John Roberts, Nick Jackson and Mark Smith - *Tree roots in the built environment (2006)*

**11.1.2** Google maps