BS5837 Tree Report

Grange Gardens, Wigton. Revision B 31.05.12
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Introduction

INTRODUCTION

Instruction
Christians Environmental have been instructed to inspect all trees within the site boundary and trees in adjacent land that may be affected by the proposed development. The aim of which is to prepare the following information to accompany a planning submission for the site:

- Schedule of the relevant trees to include basic data and a condition assessment
- Appraisal of the impact of the proposed development on the trees and any resulting impact that has on local amenity.
- Arboricultural method statement setting out appropriate protective measures and management for trees to be retained.

Purpose of the report
This report provides an analysis of the impact of the proposed development on trees and local amenity with additional guidance on appropriate management and protective measures. Its primary purpose is for the Local Authority to review any tree issues associated with the planning application and use as a basis for issuing a planning consent or engaging in further discussions towards that end. During the planning process, this document and accompanying data will be available for inspection by people including the general public, we aim to present the information in a format that is easily understandable to people without a general knowledge of the subject area.

To make this report easier to use, the context is concise with minimal explanations. Where appropriate we have included further reading and/or explanations within the appendix.

Provided Documents
The following plans have been provided.
- Land Survey, provided in dwg format
- Proposed development layout, provided in pdf & dwg format
- Landscape Master Plan

Tree Data Collection
All Trees on site which are adjacent to any proposed development areas or fall directly into these areas have been numbered and species identified. Each tree has also been inspected as described in British Standard 5837, this includes information on height, diameter, crown spread, maturity, condition and recommendations. Each tree is also classified as a category A, B, C or R [Summary in the Appendix]. This categorization reflects the trees material constraint on the proposed development. Collection of information also takes into consideration any low branches, structural or physiological conditions and any remaining contribution that the tree offers to the site.

Interpretation of Tree Data
Within section 5 of the British Standard BS 5837 it recommends that the stem diameter taken at breast height is used to calculate the root protection area. This root protection area can be interpreted to identify any design constraints to the site. Once site design has taken place this data can be used to form the basis of any exclusion zone and position of protective barriers/fencing.

Also included within this report are:
- The Tree Constraints Plan which identifies any arboricultural constraints on site.
- The Tree Protection Plan which shows the location of the protective fencing and area set to exclusion zones.

These plans act as a visual aid in the planning stage and are also designed to aid and instruct contractors on site. The use of these plans should also be implemented on site visits to check on the location of the protective barrier and area.
The site is currently a disused field with very tall scrubby grasses.

The immediate surrounding area consists of mostly residential dwellings.

To the west of the site is a new housing estate and to the north is open farmland.

Wigton is a small market town and civil parish outside the Lake District, in the administrative county of Cumbria in England, and traditionally in Cumberland.

Wigton today is a thriving market town, with livestock auctions being held regularly at Hopes Auction Company.

The town has its own secondary school, called The Nelson Thomlinson School, which is a well-performing comprehensive.
Summary of the impact on trees

Within the proposed development area and including adjacent land there is a total of 8 individual trees and 1 group that possess the potential to be affected by the development proposals.

Overview

- 0 trees will be removed due to the development proposal.
- 4 trees lie within close proximity to the proposals and will be under protection during the construction phase.

Detailed impact assessment
(Please refer to the Tree Constraints Plan and Tree Data Section when reading the below)

Category B trees and groups.

- 1 Category B tree has the potential to be affected by the proposal

Tree T3 will be subject to tree protection measures as recommended in BS5837 guidelines.

If the tree protection measures are installed as recommended the tree will be unaffected by the proposals.

See tree protection plan and method statement for more information.

Category C trees and groups.

- 3 Category C tree has the potential to be affected by the proposal

Trees T1, T2 and T4 will be subject to tree protection measures as recommended in BS5837 guidelines.

If the tree protection measures are installed as recommended the tree will be unaffected by the proposals.

See tree protection plan and method statement for more information.
Impact on local amenity

The Site currently has a limited number of trees within its boundary or in close proximity to its boundary. All the trees are over mature and some are in a state of decline.

The trees that are to remain will be under strict protection and every measure has been taken to ensure that the trees do not decline because of the development.

Protection of retained trees

The successful retention of trees depends on the quality of the protection and the procedures to ensure any protective measures remain in place.

This is carried out by means of an arboricultural method statement contained within this report, this is also accompanied by a Tree Protection Plan and on this occasion a Special Construction Plan to highlight the methods used to install new surfaces which are near to a number of trees.

Prior to the production of the method statement and design of the tree protection measures, a meeting at the site was attended by the LA Tree Officer and lead arboricultural consultant to discuss the measures needed in detail to ensure the tree was adequately protected.
Within this section is the tree survey data, also included is a chart explaining how trees are classed when carrying out a BS 5837:2005 “trees in relation to construction” report. Below is also an overview of acronyms that are commonly used.

Within the appendix is also a glossary of arboricultural terms.

### Category Grade and Description

<table>
<thead>
<tr>
<th>Category Grade</th>
<th>Category Description</th>
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<tbody>
<tr>
<td>Category A</td>
<td>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)</td>
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<td>Category B</td>
<td>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)</td>
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<td>Category C</td>
<td>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)</td>
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<td>Category R</td>
<td>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</td>
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### Tree Survey Data

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<th>DBH (cm)</th>
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<th>E</th>
<th>S</th>
<th>W</th>
<th>Age Class</th>
<th>Physiological Condition</th>
<th>Structural Condition</th>
<th>Condition Comments</th>
<th>Preliminary Management Recommendations</th>
<th>RPA (M)</th>
<th>Rec Con Years</th>
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**KEY:**
- Tree Numbers/Tags: Individual tree = T+number
  Group of trees = G+number
- Species: Common and or scientific names where appropriate
- Height: Overall tree height
- Crown Clearance: Overall height of lowest branches from the ground level
- Diameter at breast height: Measurement of tree stem
- Canopy spread: Extents of tree branches taken in compass points
- Age Class:
  - (Y=Young)
  - (SM=Semi Mature)
  - (M=Mature)
  - (OM=Over Mature)
  - (V=Veteran)
- Tree Condition: Comments on trees overall health etc
- Comments: Any further details that may be of importance
- Management recs: List of urgent works or further investigation that may be needed
- Remaining contribution: How long the tree will offer a contribution
- Category Rating: See opposite table

**IN ADJACENT PRIVATE PROPERTY:** Trees labelled with this are not the responsibility of the client but of the owner.
Introduction

This Method Statement has been drawn up to assist the Local Authority and the developer in overseeing the construction of the proposed development at Grange, Wigton.

This document seeks list those trees which are proposed for removal and discuss any tree constraints and implications.

It describes the proposals for ensuring that the trees that are to remain would survive the development and thrive after the development has taken place.

The development and timing of construction operations are described, together with materials which would be used in order to maximize tree protection.

The document also includes a section of useful telephone numbers and addresses.

This statement will be included as part of the specification and schedule of works issued to the building contractor and will form part of the contract. The accompanying arboricultural statement, plans will be available on site for inspection along with this method statement.

Overview of Stages

1) Install tree protection
2) Carryout construction works
3) Remove tree protection once the development is complete
4) Final site meeting with LA Tree Officer
Stage 1

Protective Fencing

Following the completion of any tree works and prior to machinery entering the site for any building, levelling or site clearance purposes, all trees listed to be retained within the development will be fenced off in a continuous line around their specified root protection areas in accordance with British Standard 5837: 2005: clause 7.1 and 7.2

The fencing will be constructed with a framework of scaffolding poles driven 600mm into the ground, braced together and backstays will then be added at 3m centres. Onto this will be attached a continuous line of welded mesh panels (alternatively Ply or corrugated sheet metal panels may be used) to be securely fixed with wire or scaffold clamps in accordance with British Standard 5837:2005. For sample see appendix

Site Notices on fencing will be used in the form of pre-printed laminated waterproof signs A3 in size fixed securely to fencing panels on each enclosure at 9m intervals. The signs will clearly read:

Protected Tree Zone
No Storage or Operations Within Fenced off Areas

Failure to comply with the above requirements could lead to enforcement action, including the issuing of a Stop Notice, until the matter has been remedied. Where damage has occurred to legally protected trees, the owner of the site may be liable for prosecution.

A copy of an appropriate tree protection sign is included within the Appendix, a copy can be supplied direct from Christians Arboriculture upon request.

A diagram/plan of fencing design is included within the Appendix
Stage 2

**Carry out construction works.**

Once the tree protection is in place and assessed and the access roads near to trees are constructed the general construction works can begin.

During the construction phase it is important that all staff are aware of the tree protection areas and their importance.

If any breach in the tree protection occurs it is the site manager’s responsibility to report this urgently to the arboricultural consultants so the appropriate measures can be taken.

It is recommended that all staff are made aware of the tree protection measures and procedures during a site induction.

Stage 3

**Remove stem/tree protection.**

When the development is complete, all drainage and service runs are in place and the main site machinery has been removed, temporary protective fencing will be dismantled. This must be done with great care and will need to be supervised to avoid heavy machinery being used.

Stage 4

**Final site meeting with LA Tree Officer.**

Upon completion of all the works specified above and procedures also specified, the developer’s arboriculturalist will invite the local authority’s tree officer to meet on site to discuss the process and to agree any final remedial works which may be required.

Works Near Trees

Prior to the commencement of works in the vicinity of retained trees a meeting will be called, to which the local authority’s tree officer will be invited. This is in order to agree that the methods and new position of the tree protection fencing are adequate and meet with the local authority’s approval.

The remainder of the tree removal, excavation, and landscaping works including installation of paths and minor structures within the Root Protection Areas shall be monitored by the developer’s arboriculturalist on a regular and frequent basis. Depending on the length of time required to carry out works this may not require a permanent presence but as a minimum they shall be present at the commencement of the following stages of work: (i) tree removal, (ii) excavations, (iii) landscaping, installation of paths and minor structures.

Any pre-approved excavation works within the Root Protection areas should only be carried out with consent and instruction from both the developer’s arboriculturalist and the local authority’s tree officer.
Additional Notes

Site Storage, Cement Mixing and Washing Points

All site storage areas, cement mixing and washing points for equipment and vehicles must be outside the RPA and it is recommended that this area is extended to 10 metres away from the protective fencing in respect to the above. Where there is a risk of polluted water runoff into RPA’s, heavy duty plastic sheeting and sandbags must be used to contain any spillages and prevent contamination.

Services

All service runs will be aligned to pass beneath the raised Housedeck, the Housedeck has sufficient ground clearance to allow all services to be installed above the ground level, these will be accessed with the use of inspection hatches installed in the extension floor.

In the rare chance Should the need arise to dig within the protective fence lines at any time, the developer’s arboriculturist will liaise with the local authority's tree officer in order to implement non-destructive trenching methods (open trenching by use of air spade or a mole dig system).

All work to services on site will be undertaken in line with the NIUG "Guidelines for Planning, Installation and Maintenance of Utility Services in Proximity to Trees".

Useful Names And Telephone Numbers

The Arboricultural Consultants –

Christians,

Manchester: BCR House, 3 Bredbury Business Park, Stockport. SK6 2SN
London: Suite 404, Albany House, 324/326 Regent Street, London. W1B 3HH
Cumbria: Warwick Mill Business Village, Warwick Bridge, Carlisle, Cumbria. CA4 8RR

Tel: 0161 4061862

Emergency Number: 07925 142793
Proposed Tree Replacement Plan:

**Site: Grange Gardens, Wigton**

**Tree Species:** Acer Pseudoplatanus (Sycamore)

**Tree Sizes:**
- T1: 16-18cm

**Quantity:** 2

Tree sizes represent categories given in BS3936 so 10-12cm is 'Standard' and 12-14cm is 'Heavy Standard'. All trees planted must be container grown.

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**Key:**
- **T1:** Sycamore
- **T2:** Oak

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**Legend:**
- **Proposed Tree:**
- **Removal Tree:**
- **Call-Out Symbol:**
- **Quantity:**

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**Notes:**
- DO NOT SCALE FROM THIS DRAWING.
- ALL DIMENSIONS TO BE CHECKED ON SITE.
1. Standard scaffold poles
2. Uprights to be driven into the ground
3. Panels secured to uprights with wire ties and, where necessary, standard scaffold clamps
4. Weldmesh wired to the uprights and horizontals
5. Standard clamps
6. Wire twisted and secured on inside face of fencing to avoid easy dismantling
7. Ground level
8. Approx. 0.6m driven into the ground

Tree Protection Fence (Diagram)
Appendix
Tree Protection Fencing/Systems

Scaffolding Within The RPA (Diagram)

Protected area

Ground undisturbed and protected by geotextile fabric, and side butting scaffold boards on a compressible layer

Proper protective fencing

Platform level at first lift of brickwork

Toeboard

Ground undisturbed and protected by geotextile fabric, and side butting scaffold boards on a compressible layer
Tree Protection Warning Sign
Abscission. The shedding of a leaf or other short-lived part of a woody plant, involving the formation of a cortical layer across its base; in some tree species twigs can be shed in this way.

Abiotic. Pertaining to non-living agents; e.g. environmental factors.

Absorptive roots. Non-woody, short-lived roots, generally having a diameter of less than one millimetre, the primary function of which is uptake of water and nutrients.

Adaptive growth. In tree biomechanics, the process whereby the rate of wood formation in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium. This helps to maintain a uniform distribution of mechanical stresses.

Adaptive roots. The adaptive growth of existing roots; or the production of new roots in response to damage, decay or altered mechanical loading.

Adventitious shoots. Shoots that develop other than from apical, axillary or dormant buds; see also ‘epicormic’.

Anchorages. The system whereby a tree is fixed within the soil, involving cohesion between roots and soil and the development of a branched system of roots which withstands wind and gravitational forces transmitted from the aerial parts of the tree.

Architecture. In a tree, a term describing the pattern of branching of the crown or root system.

Axil. The place where a bud is borne between a leaf and its parent shoot.

Bacteria. Microscopic single-celled organisms, many species of which break down dead organic matter, and some of which cause diseases in other organisms.

Bark. A term usually applied to all the tissues of a woody plant lying outside the vascular cambium, thus including the phloem, cortex and periderm; occasionally applied only to the periderm or the phellem.

Basiidiomycota (Basiidiomycetes). One of the major taxonomic groups of fungi; their spores are borne on microscopic peg-like structures (basidia), which in many types are in turn borne on or within conspicuous fruit bodies, such as brackets or toadstools. Most of the principal decay fungi in standing trees are basidiomycetes.

Bolling. A term sometimes used to describe pollard heads.

Bottle-but. A broadening of the stem base and buttresses of a tree, in excess of normal and sometimes denoting a growth response to weakening in that region, especially due to decay involving selective delignification.

Bracing. The use of rods or cables to restrain the movement between parts of a tree.

Branch:

- Primary. A first order branch arising from a stem.
- Secondary. A second order branch, subordinate to a primary branch or stem and bearing sub-lateral branches.
- Sub-lateral. A third order branch, subordinate to a lateral or primary branch, or stem, and usually bearing only twigs.

Branch bark ridge. The raised arc of bark tissues that forms within the acute angle between a branch and its parent stem.

Branch collar. A visible swelling formed at the base of a branch whose diameter growth has been disproportionately slow compared to that of the parent stem; a term sometimes used to describe the removal of large branches from a tree, but also used to describe other forms of cutting.

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Bracing.
Proximal. In the direction towards from the main body of a tree or other living organism (cf. distal)

Pruning. The removal or cutting back of twigs or branches, sometimes applied to twigs or small branches only, but often used to describe most activities involving the cutting of trees or shrubs

Radial. In the plane or direction of the radius of a circular object such as a tree stem

Rams-horn. In connection with wounds on trees, a roll of occluding tissues which has a spiral structure as seen in cross-section

Rays. Strips of radially elongated parenchyma cells within wood and bark. The functions of rays include food storage, radial translocation and contributing to the strength of wood

Red-rot. A form of decay in which reddish pigments are present but which is biochemically a white-rot; not to be confused with brown-rots which sometimes also have a reddish-brown colour

Reactive Growth/Reaction Wood. Production of woody tissue in response to altered mechanical loading; often in response to internal defect or decay and associated strength loss (cf. adaptive growth)

Removal of dead wood. Unless otherwise specified, this refers to the removal of all accessible dead, drying and diseased branchwood and broken snags

Removal of major dead wood. The removal of, dead, drying and diseased branchwood above a specified size

Repricing. Selective removal of trees from a group or woodland to provide space and resources for the development of retained trees.

Residual wall. The wall of non-decayed wood remaining following decay of internal stem, branch or root tissues

Root-collar. The transitional area between the stem/s and roots

Root-collar examination. Excavation of surfaces and soils around the root-collar to assess the structural integrity of roots and/or stem

Root protection area. An area of ground surrounding a tree that contains sufficient rooting volume to ensure the tree’s survival. Calculated with reference to Table 2 of BS 8587 (2005) and shown in plan form in square metres

Root zone. Area of soils containing absorptive roots of the tree/s described microscopically and dispersed in air or water. The Primary root zone is that which we consider of primary importance to the physiological well-being of the tree

Sapwood. Living xylem tissues

Secondary branch. A branch, generally having a basal diameter of less than 0.25 x stem diameter

Selective delignification. A kind of wood decay (white-rot) in which lignin is degraded faster than cellulose

Shedding. In woody plants, the normal abscission, rotting off or sloughing of leaves, floral parts, twigs, fine roots and bark scales

Silvicultural thinning. Removal of selected trees to favour the development of retained specimens to achieve a management objective

Simultaneous white-rot. A kind of wood decay in which lignin and cellulose are degraded at about the same rate

Snap. In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snap usually tends to die back to the nearest growing point

Soft-rot. A kind of wood decay in which a fungus degrades cellulose within the cell walls, without any general degradation of the wall as a whole

Spores. Propagules of fungi and many other life-forms; most spores are Shrub species. Woody perennial species forming the lowest level of woody plants in a woodland and not normally considered to be trees

Sporophore. The spore bearing structure of fungi

Sprouts. Adventitious shoot growth erupting from beneath the bark

Stem/s. The main supporting structure/s, from ground level up to the first major division into branches

Stress. In plant physiology, a condition under which one or more physiological functions are not operating within their optimum range, for example due to lack of water, inadequate nutrition or extremes of temperature

Subsidence. In relation to soil or structures resting on or on soil, a sinking due to shrinkage when certain types of clay soil dry out, sometimes due to extraction of moisture by tree roots

Subsidence. In relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight

Taper. In stems and branches, the degree of change in girth along a given length

Target canker. A kind of perennial canker, containing concentric rings of dead occluding tissues

Targets. In tree risk assessment (with slight misuse of normal meaning) persons or property or other things of value which might be harmed by mechanical failure of the tree or by objects falling from it

Topping. In arboriculture, the removal of the crown of a tree, or of a major proportion of it

Torsional stress. Mechanical stress applied by a twisting force

Translocation. In plant physiology, the movement of water and dissolved materials through the body of the plant

Transpiration. The evaporation of moisture from the surface of a plant, especially via the stomata of leaves; it exerts a suction which draws water up from the roots and through the intervening xylem tissues

Understorey. A layer of vegetation beneath the main canopy of woodland or forest or plants forming this

Understorey tree species. Tree species not having potential to attain a size at which they can contribute to the closed high canopy of a woodland

Vascular wilt. A type of plant disease in which water-conducting cells become dysfunctional

Vessels. Water-conducting cells in plants, usually wide and long for hydraulic efficiency; generally not present in coniferous trees

Vetran tree. A loosely defined term for an old specimen that is of interest biologically, culturally or aesthetically because of its age, size or condition and which has usually lived longer than the typical upper age range for the species concerned

White-rot. A range of kinds of wood decay in which lignin, usually together with cellulose and other wood constituents, is degraded

Wind exposure. The degree to which a tree or other object is exposed to wind, both in terms of duration and velocity

Wind pressure. The force exerted by a wind on a particular object

Windthrow. The blowing over of a tree at its roots

Wound dressing. A general term for sealants and other materials used to cover wounds in the hope of protecting them against desiccation and infection; only of proven value against fresh wound parasites

Woundwood. Wood with atypical anatomical features, formed in the vicinity of a wound