cheshire woodlands
arboricultural consultancy

# ARBORICULTURAL STATEMENT

ON

PROPOSED REDEVELOPMENT OF
THE FORMER BATLEY MORTAR SITE
SMITHIES MOOR LANE
KIRKLEES WF17 9AN

ON BEHALF OF

UNITED ENVIRONMENTAL SERVICES
NO. 1 BOOTHS PARK
CHELFORD ROAD, KNUTSFORD
CHESHIRE, WA16 8QZ

REF: CW / 6555-AS1

DATE: 1 AUGUST 2012

**Partners**: M. J. Ellison J. M. Ellison G. Thomas **Address:** 9 Lowe Street, Macclesfield, Cheshire, SK11 7NJ
**T.** +44(0)1625 669668 **F.** +44(0)1625 669355 **E.** info@cheshire-woodlands.co.uk **W.** www.cheshire-woodlands.co.uk

CONTENTS

**1.** Executive Summary
**2.** Terms of Reference
**3.** Introduction
**4.** The Site
**5.** Statutory Controls and Planning Policy
**6.** Survey Methodology
**7.** Discussion
**8.** Conclusions
**9.** Recommendations
**10.** References.

APPENDICES

1. Tree Schedule CW/6555-SS1
2. Glossary of Terms
3. Guidance Note – Retention Values and Visual Prominence
4. Tree Protection Plan CW/6555-P-TP

## 1. EXECUTIVE SUMMARY

1.1 The outline planning application that is the subject of this assessment is for the construction of up to 21 dwellings. Details of layout are reserved for consideration at a later stage. A parameters plan submitted with the application shows the areas on site where development is proposed to take place. An indicative layout illustrates how the development could accommodate the maximum number of units and has been used to inform the principles and recommendations set out by this assessment. The proposal includes the removal of a high proportion of tree cover on the site, most of which is low quality, and the replacement planting of large stock sizes to provide an instant visual impact and long-term sustainable tree cover on the site. All retained trees, both on and immediately adjacent to the site , can be protected fully in accordance with best practice

## 2. TERMS OF REFERENCE

2.1 I am instructed by United Environmental Services to:

- survey from ground level, individually or in groups, all trees having potential to be affected by the development proposal described at Section 3 below, identifying species, condition and suitability for retention
- assess the possible effects of the development proposal on trees
- advise on removal, retention and management of trees
- prepare a schedule of trees
- assess the requirement for protection of trees during the development
- assess potential mitigation strategies where design conflicts are identified
- prepare a report on the above matters to be submitted with a planning application for the proposed development.

2.2 The following documents have been considered in my evaluation:

- Topographical survey drawing
- Indicative layout proposal drawing 200-11-Revision 2
- National Planning Policy Framework
- Saved Policy E9 of the Kirklees Unitary Development Plan 1999
- BS5837 (2012) Trees in relation to design, demolition and construction - Recommendations

2.3 Assessing the potential effects of trees upon load-bearing soils beneath existing and proposed structures, resulting from water abstraction by trees on shrinkable soils, was not included in the contract brief and is not, therefore, considered in the report. Cheshire Woodlands cannot be held responsible for damage arising from soil shrinkage or heave related to water abstraction by trees.

2.4 The tree survey is carried out in sufficient detail to gather data for and inform the design of the current project. My appraisal of the mechanical integrity of trees on the site is of a preliminary nature and sufficient only to inform the current project. The assessment of trees is carried out from ground level without invasive investigation therefore the disclosure of hidden defects cannot 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 assessments unless specifically instructed in writing to do so and have not carried out such an assessment of trees on the proposal site.

2.5 This report and associated plans remain the copyright of Cheshire Woodlands and any transfer of rights to any third party must be with our express written consent.

## 3. INTRODUCTION

3.1 My name is Michael Ellison, I am, senior consultant with Cheshire Woodlands Arboricultural Consultancy. I carried out my initial assessment of the trees on 22 June 2012.

3.2 My assessment evaluates the effects of the application proposal upon trees. The comparative values of trees are considered broadly in line with the guidance of BS5837 (2012) and retention, protection and management of trees is informed by this evaluation.

3.3 The construction of up to 21 dwellings is proposed. On my tree protection plan CW/6555-P-TP, the indicative layout as set out on drawing reference 10039/200-11-Revision 02 is superimposed on the topographical land survey drawing and forms the basis for my evaluation of the application in relation to trees.

## 4. THE SITE

4.1 The site, slopes from south to north and at mid point, a partially culverted watercourse crosses the site from west to east. Formerly occupied by a mortar mixing plant, the site has been cleared of industrial equipment. A high proportion of the site area remains laid to in-situ concrete surfacing. The site is bounded by highways to the south and east, residential properties and vacant land to the west, and public open space to the north.

## 5. STATUTORY CONTROLS AND PLANNING POLICY

5.1 In terms of impact on trees, the planning application will be assessed against both national and local planning policies. In this regard, I have considered the impact of the proposal on trees in the context of the National Planning Policy Framework and Kirklees

Council's saved policy E9, which states "***Development proposals should normally retain any mature trees within the application site. Where development is approved on sites containing mature trees no construction including changes in levels, drainage works and the formation of access roads will be permitted within the crown spread of the trees unless it can be demonstrated that satisfactory precautions will be taken to ensure their continued viability***."

5.2 A telephone enquiry to Kirklees Council revealed that the site does not stand within a conservation area and that trees within the curtilage of the site are not currently the subjects of a tree preservation order.

5.3 The Forestry Act (1967 as amended) requires that a licence must be obtained for the felling of growing trees, subject to certain exemptions. Up to five cubic metres of timber may be felled without a felling licence in any calendar quarter, providing no more than two cubic metres are sold. Where directly affecting the implementation of a detailed planning approval (granted under the Town and Country Planning Act 1990), such works as are necessary to implement the development may be carried out to trees without the permission of the Forestry Commission. It is my view that the volume of timber proposed to be felled would require a felling licence if felled without being subject to a full and valid planning permission.

5.4 The Wildlife and Countryside Act 1981 (together with the amendments of 1985 & 1991, the subsequent variations to the schedule orders, and strengthening amendments made within the Countryside and Rights of Way Act 2000) forms the basis for legislation protecting Britain's flora and fauna. Nesting birds and all species of bat are afforded statutory protection. It is an offence to:

- disturb a nesting bird
- disturb a roosting bat or damage, destroy or block access to a bat roost
- intentionally kill, injure or take a bat
- sell, hire, barter or exchange a bat, dead or alive
- be in possession or control of a bat or anything derived from a bat

## 6. SURVEY METHODOLOGY

6.1 The client supplied a topographic land survey drawing with tree stem positions plotted and a site layout proposal drawing. For the purpose of the report, I have assumed that detail on both drawings is accurate. The topographic land survey site layout proposal drawing is the base for my Tree Protection Plan.

6.2 Trees were identified, measured and recorded as set out in the tabulated Tree Survey Schedule. Tree stem diameters and canopy spreads were mostly measured using a tape, whereas approximately ten percent of the recorded tree heights were measured using a tape and clinometer with the remainder being estimated against the measured trees. Trees

have been surveyed individually, in groups, by area and as woodland. Individual trees are prefixed 'T', groups of trees 'G' and a single area of natural colonisation of trees is prefixed 'A". The survey schedule should be read in conjunction with the Glossary of Terms appended at CW2.

6.3 All surveyed trees, either individually or by group, are allocated Retention and Visual Prominence values as defined at appendix CW3. In respect of retention values, trees or groups of trees are evaluated twice to consider their relative merits. Firstly, the trees are assessed and categorised in the context of the current land use to provide a broad valuation of all of their attributes and contribution to their environs. Secondly, the trees are assessed and categorised in the context of the development proposal.

6.4 A brief assessment for obvious signs of wildlife habitat in trees and hedges on the site was carried out during my survey. Decay cavities in and around the old topping cuts to trees in G6 and G7 might provide bird nesting or bat roost sites. These trees should be investigated and a risk assessment carried out prior to removal.

## 7. DISCUSSION

7.1 Trees on the site, which have been subject to various past management practices, can be divided into 3 general groups.

- Group G2 of my survey comprises a maturing sycamore tree (***Acer pseudoplatanus***) and a maturing lime tree (***Tilia x europaea***), which are prominent trees of good quality, and are categorised as B value (BS5837 2012) in the survey.

- Groups G6 and G7 are linear groups of trees planted close to the Bridge Street and Mill Street boundaries respectively. These groups comprise lime, sycamore, wych elm (***Ulmus glabra***) and beech (***Fagus sylvatica***) trees, which were topped at heights of between 8 to 10 metres some 10 to 15 years ago. The topping of the trees has resulted in decay of the stems around which new multiple ascending branches of regrowth have relatively weak attachment. Many trees in these groups have significant potential to displace the adjacent boundary walls. While these are prominent trees, it is considered that redevelopment of the site provides an opportunity to remove and replace them with new trees and that this is far more sustainable than their retention within a residential development.

- Groups G1, G4, G5 and area A1 are natural colonisation of predominantly sycamore trees, many of which are multi-stemmed trees have grown from the stumps that were felled during the commercial operation of the site. Removal of these trees is proposed, with replacement trees to be planted within the areas of designed open space within the development.

7.2 In addition to those trees within the site boundaries, the low quality sycamore tree T1 is situated on neighbouring land to the west and T2 and G3 are located on public open space immediately to the north of the site. T1 can be retained and protected in accordance with current best practice if necessary. T2 is a high quality tree that can be fully protected during development, and is proposed for retention. G3 is a visually prominent but low quality group that can also be fully protected during development.

7.3 On 18 July 2012, a meeting was held at the application site between the Council's Tree Officer Mr Robertson and myself. A tree constraints plan identifying a draft development layout was presented for discussion. Discussions focussed on the past topping of the highway boundary trees in groups G6 and G7 of my survey, and the past ground disturbance within their root protection areas. It was agreed that, due to this inappropriate past management, removal and replacement of these trees was preferable to their retention in a new housing development. Mr Robinson advised that he would raise no objections to an application involving removal of trees G4 to G7, providing that it was supported by a scheme of replacement planting to include substantial replacement trees that would provide immediate visual impact. It was agreed that the most important trees were T2 and those in G2 of my survey, and that the protection of these and off-site trees G3 should be detailed in the planning submission.

7.4 In consideration of the above issues, I have included on the Tree Protection Plan an Arboricultural Method Statement, which details working methods in relation to trees. This method statement should be clearly communicated to the project design team and to all site operatives during the construction process.

## 8. CONCLUSIONS

8.1 The application proposal includes the removal and replacement of a high proportion of tree cover on the site, most of which is of low quality, category C (BS5837 2012) trees, which should not impose substantial constraints on development of the site. Replacement of the C category trees has been agreed with the Council's Tree Officer been agreed as the most appropriate course of action to secure long-term tree cover on the site, providing that the replacements are of suitable species for their locations and of sufficient size to provide some instant impact.

8.2 Trees proposed for retention and neighbouring trees can be fully protected in accordance with current best practice as set out on the tree protection plan.

## 9. RECOMMENDATIONS

9.1 No tree pruning or removal works should commence on site until necessary consents have been obtained from the local planning authority as part of a detailed planning approval.

9.2 All personnel working with or in the trees should be vigilant and mindful of the possible presence of roosting bats. A competent ecologist should investigate and advise on any indications that trees on the site are used as bat roosts.

9.3 Trees should be carefully inspected birds' nests prior to pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young have fledged.

9.4 All tree removal works should be implemented in accordance with Tree Survey Schedule CW/6555-SS1, prior to commencement of any construction activity. All such works should be carried out by a qualified arboricultural contractor, carrying appropriate insurance cover and should be implemented to the minimum current CE and UK industry standards and in accordance with current industry codes of practice. Certificated personnel should apply all pesticides in accordance with The Control of Pesticides Regulations.

9.5 Within the development site, a construction exclusion zone around retained trees should be achieved by the erection of a tree protection barrier as detailed on the tree protection plan. The integrity of the barrier should be maintained for the duration of the works.

9.6 All arboricultural, demolition, construction, and landscape works should be carried out in accordance with the arboricultural method statement on the tree protection plan.

9.7 There should be no excavation for new or replacement underground services within the construction exclusion zone.

9.8 Foundation design should take into consideration the juxtaposition of existing and proposed trees and the nature of the load-bearing soils.

9.9 Design of outdoor amenity space should fully consider the locations of existing trees to be retained. Alteration of levels and cultivation of ground beneath trees can result in significant root loss or damage and altered drainage patterns, which can to lead to a decline in tree condition and possible structural instability of trees. Removal of existing herbaceous vegetation, by hand or herbicide application and addition of a thin layer (100mm - 150mm) of a sandy-loam topsoil will facilitate the establishment of grass or other vegetation beneath the canopies of existing trees whilst avoiding unnecessary root disturbance.

## 10. REFERENCES.

BS5837 2012. Trees in Relation to Construction - Recommendations. British Standards Institute, London.

BS3998 2010. Recommendations for Tree Work. British Standards Institute, London.

# TREE SURVEY SCHEDULE

**PROJECT:** BATLEY MORTAR SITE, SMITHIES MOOR LANE, BIRSTALL, KIRKLEES
**CLIENT:** UNITED ENVIRONMENTAL SERVICES
**REF:** CW/6555-SS1
**DATE:** 22/6/2012

**SURVEYED BY:** M J ELLISON
CHESHIRE WOODLANDS
**PAGE:** 1

| No. | Species | Age Range | Height (m) | Crown Spread (m) | Stem Dia. (mm) | Vitality | Comments | Management | Visual prominence | Retention Value Existing | Retention Value Proposed | BS5837 RPA Radius (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1 | Sycamore *(Acer pseudoplatanus)* | Y | 10 | 6 | 150<br>150<br>100<br>100<br>150<br>(300) | | • Located on neighbouring land to the north west side<br>• It appears that the stems are the result of regrowth to the stump of a felled tree<br>• Ground clearance of 1.0 to 1.5 metres, which could be raised to 4.0 to 5.0 metres by removal of minor lateral branches | • Fell and grub out or grind stump to a minimum of 0.2m depth | 2 | C | U | |
| T2 | Sycamore | SM | 13 | 11 | 480 | G | • Located off-site in an area of unmanaged public open space<br>• Ground clearance of approximately 4.0 metres over the site, which could not be significantly increased without affecting the visual quality of the tree<br>• Beneath the canopy of the tree is extensive in-situ concrete that will require breaking out during the construction process<br>• Also located beneath the crown of the tree is a large drainage gully | • Protect during demolition and construction operations | 3 | A | A | 5.8 |

**Inspection was restricted where trees were ivy clad or located wholly or partially on neighbouring land or where basal growth or other vegetation obscured lower stems and root collars**
**All trees should be re-assessed at appropriate intervals to assess their mechanical integrity unless otherwise stated in the schedule**

**HEADINGS & ABBREVIATIONS**

**Age Range:** Y = Young, SM = Semi mature, EM = Early mature, M = Mature, PM = Post Mature.
**Stem Dia.** Stem diameter (measured at a height of approximately 1.5 metres) MS = multi-stemmed
**Crown Spread:** Maximum crown diameter
**Vitality:** D = Dead, MD = Moribund, P = Poor, M = Moderate, G = Good
**Visual prominence:** Broad indication of contribution to the landscape. 0 = none, 1=very low up to 5 =very high, G= contribution to a wider group. Values take into consideration the potential contribution to the landscape. Our assessment of public visibility is influenced by safe life expectancy of the tree or group
**Retention Value Existing:** Broadly in line with BS5837 (2012) Table 1. Our valuation considers the merits of the tree or group in the context of the existing land-use
**Retention Value Proposed:** Broadly in line with BS5837 (2012) chapter Table 1. Our valuation considers the merits of the tree or group in the context of a development proposal. U = Unsuitable for retention
**BS5837 RPA Radius:** Radius from the centre of the stem to the line of tree protection as set out in BS5837:2012

**TREE SURVEY SCHEDULE**

**PROJECT:** BATLEY MORTAR SITE, SMITHIES MOOR LANE, BIRSTALL, KIRKLEES
**CLIENT:** UNITED ENVIRONMENTAL SERVICES
**REF:** CW/6555-SS1
**DATE:** 22/6/2012

**SURVEYED BY:** M J ELLISON
CHESHIRE WOODLANDS
**PAGE:** 2

| No. | Species | Age Range | Height (m) | Crown Spread (m) | Stem Dia. (mm) | Vitality | Comments | Management | Visual prominence | Retention Value Existing | Retention Value Proposed | BS5837 RPA Radius (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G1 | Sycamore | SM-EM | ≤17 | ≤14 | 680 | G | • The largest tree G1/1 is multi-stemmed from ground level and has acute, included-bark unions<br>• To the north west side of G1/1, on neighbouring land, there is extensive recent landfill, which has potential to significantly affect the health of this tree<br>• G1/2 is located close to a stone boundary wall and has significant potential to displace this structure<br>• Extensive basal shoots<br>• Ground clearance over site of between 2.0 and 7.0 metres, which could be increased to an all-round clearance of 4.0 to 5.0 metres by removal of minor lateral branches | • Fell and grub out or grind stumps to a minimum of 0.2m depth | 2 | C | U | |
| G2 | Sycamore<br>Lime *(Tilia x europaea)* | EM | ≤19 | ≤14 | ≤680 | G | • Partially suppressed on the south west side by other trees but would stand alone if G1 removed<br>• General ground clearance over the site of 4.0 metres, which could be raised to a height of between 5.0 and 7.0 metres by the reduction or removal of a small number of low lateral branches from the sycamore<br>• Basal shoots to both trees | • Protect during demolition and construction operations | 3 | B | B | UP TO 8.2 |
| G3 | Balsam poplar *(Populus sp.)*<br>Ash *(Fraxinus excelsior)*<br>Cherry *(Prunus sp.)*<br>Elder *(Sambucus nigra)* | EM | ≤17 | | 380<br>380<br>400<br>(670) | G-P | • Located off-site on what appears to be an area of unmanaged public open space<br>• Only a single ash tree (G3/1) has any particular merit and even this is a multi-stemmed tree<br>• The poplars all exhibit signs of low vitality and past decline, the cause of which is not clear<br>• There is recent partial failure in a poplar on the eastern side of the group | • Protect during demolition and construction operations | 3 | C | C | 8.0 |
| G4 | Sycamore | Y | 12 | ≤7 | ≤300<br>300<br>200<br>200<br>(410) | G | • Natural colonisation and regrowth to stumps of felled trees growing on the stream embankment | • Fell and grub out or grind stumps to a minimum of 0.2m depth | 2 | C | U | |

**TREE SURVEY SCHEDULE**

**PROJECT:** BATLEY MORTAR SITE, SMITHIES MOOR LANE, BIRSTALL, KIRKLEES
**CLIENT:** UNITED ENVIRONMENTAL SERVICES
**REF:** CW/6555-SS1
**DATE:** 22/6/2012

**SURVEYED BY:** M J ELLISON
CHESHIRE WOODLANDS
**PAGE:** 3

| No. | Species | Age Range | Height (m) | Crown Spread (m) | Stem Dia. (mm) | Vitality | Comments | Management | Visual prominence | Retention Value Existing | Retention Value Proposed | BS5837 RPA Radius (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| G5 | Sycamore | SM | 16 | SEE PLAN | 380<br>400<br>400<br>(680) | | • Natural colonisation and regrowth from stumps of felled trees<br>• Growing on an east facing embankment<br>• The lack of basal taper to the stems of several trees indicates past landfill<br>• Extensive Japanese knotweed of eastern edge of group | • Fell and grub out or grind stumps to a minimum of 0.2m depth<br>• Implement control of Japanese knotweed | 3 | C | U | |
| G6 | Lime *(Tilia x europaea)*<br>Sycamore<br>Beech (*Fagus sylvatica*)<br>Elm *(Ulmus glabra)* | EM | ≤18 | SEE PLAN | ≤680 | G | • A linear group<br>• Topped at heights of between and 8.0 and 10.0 metres some 5-10 years ago with subsequent decay at topping cuts and multiple stemmed regrowth<br>• General ground clearance over the site of between 2.0 and 4.0 metres with extensive basal shoots and low growth close to the stems<br>• Bark wounds to the lower stems of several trees<br>• Growing close to boundary wall with potential to displace this structure as stems and roots increase in diameter<br>• Dense vegetation and basal shoots limited the assessment of the lower stems of trees | • Fell and grub out or grind stumps to a minimum of 0.2m depth | 3 | C | U | |
| G7 | Lime<br>Sycamore | EM | ≤18 | SEE PLAN | ≤800 | G | • A linear group<br>• Topped at heights of between and 8.0 and 10.0 with subsequent decay at topping cuts and multiple stemmed regrowth<br>• Undergrowth of hawthorn and elder<br>• Landfill around the bases of several trees at the southern end of the group<br>• Occasional stem cavities | • Fell and grub out or grind stumps to a minimum of 0.2m depth | 3 | B-C | U | |
| A1 | Sycamore<br>Wych elm | Y | 4 | | 50 | G | • Natural colonisation of the boundary fence line with saplings on both sides of the fence<br>• Japanese knotweed | • Fell and poison stumps (subject to agreement of neighbouring landowners)<br>• Implement control of Japanese knotweed | 1 | C | U | |

# GLOSSARY OF ARBORICULTURAL TERMS

Abscission. The shedding of a leaf or other short-lived part of a woody plant, involving the formation of a corky 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 stress

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'

Anchorage. 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

Basidiomycotina (Basidiomycetes). 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-butt. 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
- Lateral. 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 applied also to the pattern of growth of the cells of the parent stem around the branch base

Brown-rot. A type of wood decay in which cellulose is degraded, while lignin is only modified

Buckling. An irreversible deformation of a structure subjected to a bending load

Buttress zone. The region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper side of the junctions

Cambium. Layer of dividing cells producing xylem (woody) tissue internally and phloem (bark) tissue externally

Canker. A persistent lesion formed by the death of bark and cambium due to colonisation by fungi or bacteria

Canopy species. Tree species that mature to form a closed woodland canopy

Cleaning out. The removal of dead, crossing, weak, and damaged branches, where this will not damage or spoil the overall appearance of the tree

Compartmentalization. The confinement of disease, decay or other dysfunction within an anatomically discrete region of plant tissue, due to passive and / or active defences operating at the boundaries of the affected region

Compression fork. An acute angled fork that is mechanically optimised for the growth pressure that two or more adjacent stems exert on each other.

Compression strength. The ability of a material or structure to resist failure when subjected to compressive loading; measurable in trees with special drilling devices

Compressive loading. Mechanical loading which exerts a positive pressure; the opposite to tensile loading

Condition. An indication of the physiological vitality of the tree. Where the term ‘condition’ is used in a report, it should not be taken as an indication of the stability of the tree

Construction exclusion zone. Area based on the Root Protection Area (in square metres) to be protected during development, by the use of barriers and / or ground protection

Crown/Canopy. The main foliage bearing section of the tree

Crown lifting. The removal of limbs and small branches to a specified height above ground level

Crown thinning. The removal of a proportion of secondary branch growth throughout the crown to produce an even density of foliage around a well-balanced branch structure

Crown reduction/shaping. A specified reduction in crown size whilst preserving, as far as possible, the natural tree shape

Crown reduction/thinning. Reduction of the canopy volume by thinning to remove dominant branches whilst preserving, as far as possible the natural tree shape

Deadwood. Dead branch wood

Decurrent. In trees, a system of branching in which the crown is borne on a number of major widely-spreading limbs of similar size (cf. excurrent). In fungi with toadstools as fruit bodies, the description of gills which run some distance down the stem, rather than terminating abruptly

Defect. In relation to tree hazards, any feature of a tree which detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment

Delamination. The separation of wood layers along their length, visible as longitudinal splitting

Dieback. The death of parts of a woody plant, starting at shoot-tips or root-tips

Disease. A malfunction in or destruction of tissues within a living organism, usually excluding mechanical damage; in trees, usually caused by pathogenic micro-organisms

Distal. In the direction away from the main body of a tree or subject organism (cf. proximal)

Dominance. In trees, the tendency for a leading shoot to grow faster or more vigorously than the lateral shoots; also the tendency of a tree to maintain a taller crown than its neighbours

Dormant bud. An axial bud which does not develop into a shoot until after the formation of two or more annual wood increments; many such buds persist through the life of a tree and develop only if stimulated to do so

Incorporating extracts from Lonsdale, D. 1999. Principles of Tree Hazard Assessment. Her Majesty's Stationary Office, London

Dysfunction. In woody tissues, the loss of physiological function, especially water conduction, in sapwood

DBH (Diameter at Breast Height). Stem diameter measured at a height of 1.5 metres (UK) or the nearest measurable point. Where measurement at a height of 1.5 metres is not possible, another height may be specified

Deadwood. Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of species and seldom represents a threat to the health of the tree. Removal of deadwood can result in the ingress of decay to otherwise sound tissues and climbing operations to access deadwood can cause significant damage to a tree. Removal of deadwood is generally recommended only where it represents an unacceptable level of hazard

Endophytes. Micro-organisms which live inside plant tissues without causing overt disease, but in some cases capable of causing disease if the tissues become physiologically stressed, for example by lack of moisture

Epicormic shoot. A shoot having developed from a dormant or adventitious bud and not having developed from a first year shoot

Excrescence. Any abnormal outgrowth on the surface of tree or other organism

Excurrent. In trees, a system of branching in which there is a well defined central main stem, bearing branches which are limited in their length, diameter and secondary branching (cf. decurrent)

Fastigiate. Having upright, often clustered branches

Felling licence. In the UK, a permit to fell trees in excess of a stipulated number of stems or volume of timber

Flush-cut. A pruning cut which removes part of the branch bark ridge and or branch-collar

Girdling root. A root which circles and constricts the stem or roots possibly causing death of phloem and/or cambial tissue

Guying. A form of artificial support with cables for trees with a temporarily inadequate anchorage

Habit. The overall growth characteristics, shape of the tree and branch structure

Hazard beam. An upwardly curved part of a tree in which strong internal stresses may occur without being reduced by adaptive growth; prone to longitudinal splitting

Heartwood/false-heartwood/ripewood. Sapwood that has become dysfunctional as part of the natural aging processes

Heave. A term mainly applicable to a shrinkable clay soil which expands due to re-wetting after the felling of a tree which was previously extracting moisture from the deeper layers; also the lifting of pavements and other structures by root diameter expansion; also the lifting of one side of a wind-rocked root-plate

High canopy tree species. Tree species having potential to contribute to the closed canopy of a mature woodland or forest

Incipient failure. In wood tissues, a mechanical failure which results only in deformation or cracking, and not in the fall or detachment of the affected part

Included bark (ingrown bark). Bark of adjacent parts of a tree (usually forks, acutely joined branches or basal flutes) which is in face-to-face contact

Increment borer. A hollow auger, which can be used for the extraction of wood cores for counting or measuring wood increments or for inspecting the condition of the wood

Infection. The establishment of a parasitic micro-organism in the tissues of a tree or other organism

Internode. The part of a stem between two nodes; not to be confused with a length of stem which bear nodes but no branches

Lever arm. A mechanical term denoting the length of the lever represented by a structure that is free to move at one end, such as a tree or an individual branch

Lignin. The hard, cement-like constituent of wood cells; deposition of lignin within the matrix of cellulose microfibrils in the cell wall is termed Lignification

Lions tailing. A term applied to a branch of a tree that has few if any side-branches except at its end, and is thus liable to snap due to end-loading

Loading. A mechanical term describing the force acting on a structure from a particular source; e.g. the weight of the structure itself or wind pressure

Longitudinal. Along the length (of a stem, root or branch)

Lopping. A term often used to describe the removal of large branches from a tree, but also used to describe other forms of cutting

Mature Heights (approximate):

- Low maturing – less than 8 metres high
- Moderately high maturing – 8 – 12 metres high
- High maturing – greater than 12 metres high

Microdrill. An electronic rotating steel probe, which when inserted into woody tissue provides a measure of tissue density

Minor deadwood. Deadwood of a diameter less than 25mm and or unlikely to cause significant harm or damage upon impact with a target beneath the tree

Mulch. Material laid down over the rooting area of a tree or other plant to help conserve moisture; a mulch may consist of organic matter or a sheet of plastic or other artificial material

Mycelium. The body of a fungus, consisting of branched filaments (hyphae)

Occluding tissues. A general term for the roll of wood, cambium and bark that forms around a wound on a woody plant (cf. woundwood)

Occlusion. The process whereby a wound is progressively closed by the formation of new wood and bark around it

Pathogen. A micro-organism which causes disease in another organism

Photosynthesis. The process whereby plants use light energy to split hydrogen from water molecules, and combine it with carbon dioxide to form the molecular building blocks for synthesizing carbohydrates and other biochemical products

Phytotoxic. Toxic to plants

Pollarding. The removal of the tree canopy, back to the stem or primary branches, usually to a point just outside that of the previous cutting. Pollarding may involve the removal of the entire canopy in one operation, or may be phased over several years. The period of safe retention of trees having been pollarded varies with species and individuals. It is usually necessary to re-pollard on a regular basis, annually in the case of some species

Primary branch. A major branch, generally having a basal diameter greater than 0.25 x stem diameter

Primary root zone. The soil volume most likely to contain roots that are critical to the health and stability of the tree and normally defined by reference BS5837 (2005) Guide for Trees in Relation to Construction.

Priority. Works may be prioritised, 1. = high, 5. = low

Probability. A statistical measure of the likelihood that a particular event might occur

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

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)

Incorporating extracts from Lonsdale, D. 1999. Principles of Tree Hazard Assessment. Her Majesty's Stationary Office, London

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

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

Respacing. 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

Ring-barking (girdling). The removal of a ring of bark and phloem around the circumference of a stem or branch, normally resulting in an inability to transport photosynthetic assimilates below the area of damage. Almost inevitably results in the eventual death of the affected stem or branch above the damage.

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

Root-collar examination. Excavation of surfacing 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 BS5837 (2005) and shown in plan form in square metres

Root zone. Area of soils containing absorptive roots of the tree/s described. 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

Snag. In woody plants, a portion of a cut or broken stem, branch or root which extends beyond any growing-point or dormant bud; a snag 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 microscopic and dispersed in air or water

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

Stress. In mechanics, the application of a force to an object

Stringy white-rot. The kind of wood decay produced by selective delignification

Storm. A layer of tissue which supports the fruit bodies of some types of fungi, mainly ascomycetes

Structural roots. Roots, generally having a diameter greater than ten millimetres, and contributing significantly to the structural support and stability of the tree

Subsidence. In relation to soil or structures resting in 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 cells

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

Veteran 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

Vigour. The expression of carbohydrate expenditure to growth (in trees).

Vitality. A measure of physiological condition expressed through the health and growth of foliage, shoots and adaptive woody tissues.

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

Incorporating extracts from Lonsdale, D. 1999. Principles of Tree Hazard Assessment. Her Majesty's Stationary Office, London

# Guidance Note - Assessment of Retention Values and Assessment of Visual Prominence

Retention Values. Trees or groups of trees are evaluated twice in order to facilitate consideration of their relative merits. Firstly, the trees are assessed and categorised in the context of the pre-development situation to provide a broad valuation of all of their attributes and the contribution to their environs. Secondly, the trees are similarly assessed and categorised in the context of a development proposal. The evaluations consider current or projected: -

- life expectancy (broad categorisation)
- visual prominence (current and potential)
- landscape function
- numbers of other trees and their maturity (continuity for landscape, amenity, habitat)
- wildlife habitats (incl. continuity)
- safety
- conflicts with the built environment or other land-use
- cultural, historical or other special value

Groups of trees are assessed and categorised as a single unit.

Pre-Development Retention Value. Each surveyed tree or group of trees is valued and placed into one of the following categories (A, B, C or U). The valuation considers the benefits and disbenefits of retaining the tree or group of trees in the pre-development context; any specific issues are noted in the tree survey schedule.

(A) Trees the retention of which in the pre-development context is most desirable and that have an estimated remaining life expectancy of at least 40 years (high value category)

- wholly appropriate to the pre-development situation and without significant conflict

(B) Trees the retention of which in the pre-development context is desirable and that have an estimated remaining life expectancy of at least 20 years (moderate value category)

- appropriate to the pre-development situation but not of highest value

(C) Trees that could be retained in the pre-development context and have an estimated remaining life expectancy of at least 10 years (low value category)

- ill suited to the pre-development situation but could be retained with moderate conflicts
- trees of no particular merit in the pre-development context

(U) Trees unsuitable for retention in the pre-development context

- cannot reasonably be retained within the pre-development situation for longer than 10 years

Post-Development Retention Value. With reference to a development proposal, each of the trees or groups of trees is placed in one of the following categories (A, B, C or U). The valuation considers the benefits and disbenefits of retaining the tree or group of trees in the context of the development proposal; any specific issues are noted in the tree survey schedule.

(A) Trees the retention of which is most desirable (high value category)
- retention wholly appropriate to the proposed situation and without significant conflict

(B) Trees the retention of which is desirable (moderate category)
- retention appropriate to the proposed situation but not of highest value and / or having only minor conflicts

(C) Trees which could be retained (low value category)
- retention ill suited to the proposed situation but could be retained with moderate conflicts
- trees of no particular merit in the proposed situation

(U) Trees for removal:
- cannot reasonably be retained within the proposed situation

Visual Prominence Values. Determined by assessment of current and potential visual prominence and taking account of location, tree size and growth potential. Visual prominence values are classified as follows:
(0) none, (1) very low up to (5) very high

## ARBORICULTURAL METHOD STATEMENT

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

**SEQUENCE OF WORKS**

1. Pre-contract site meeting
2. Tree removal
3. Erection of 'tree protection barrier'
4. Demolition
5. Main construction phase
6. Removal of tree protection barrier
7. Landscape works

**1. PRE-CONTRACT SITE MEETING**

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

- Main contractor
- Site agent
- Project arboriculturist

**2. TREE REMOVAL**

a. Prior to erection of 'tree protection barriers', all tree removal works shall be implemented in accordance with the Tree Survey Schedule CW/6555-SS1 and this drawing
b. Every effort shall be made to prevent damage to retained trees
c. All tree removal works shall be carried out at least to the standards specified in British Standard 3998: 2010 Tree work Recommendations, unless otherwise specified in the tree survey schedule
d. All operatives shall be equipped with and shall use personal protective equipment in accordance with current Health and Safety Executive guidance or current industry codes of practice
e. Performance of all arboricultural operations and use of equipment shall be in accordance with current directives of the Health and Safety Executive and current industry codes of practice

**3. ERECTION OF TREE PROTECTION BARRIER**

a. Following completion of the tree removal and pruning works, the main contractor shall erect the 'tree protection barrier' to provide tree protection as detailed on this drawing
b. The project arboriculturist shall inspect installation of the 'tree protection barrier' prior to commencement of any demolition or construction works, site preparation, excavation or delivery of plant and materials

**4. DEMOLITION**

a. Prior to commencing work on site, the demolition contractor shall produce a method statement, which will set out working methods in relation to the protection of retained trees
b. Plant and machinery shall be of a size and design appropriate to operation within the constraints imposed by adjacent trees
c. Plant and equipment shall be neither stored nor refueled within 10,0m of a 'construction exclusion zone'
d. Other than the minimum depth of excavation required to break out concrete hardstanding within the 'construction exclusion zone', excavation shall not occur at a distance of less than 300mm from the 'tree protection barrier'
e. Breaking out of the concrete hardstanding shall be performed prior to erection of the 'tree protection barrier' using a 360 degree excavator with a straight-edged bucket and without ripping-teeth. The excavation shall not extend into the underlying soil and shall be supervised by an arboriculturist
f. The 'tree protection barrier' shall be erected immediately following removal of concrete hardstanding from the 'construction exclusion zone' and shall be maintained for the duration of the demolition and construction operations
g. Any damage occurring to 'tree protection barriers' during demolition operations shall be reported to the project arboriculturist and immediately made good by the main contractor

**5. MAIN CONSTRUCTION PHASE**

a. There shall be no storage of construction equipment, plant and materials within the 'construction exclusion zone'
b. No fires shall be lit within 20,0m of any tree
c. The site agent shall supervise all deliveries by self-loading crane, with vehicles positioned in such a manner that retained trees and hedges are not at risk of damage
d. Excavation shall not occur at a distance of less than 300mm from a 'tree protection barrier'
e. The integrity of the 'tree protection barrier' shall be maintained for the duration of the main construction phase
f. Any damage occurring to 'tree protection barriers' during the main construction phase shall be reported to the project arboriculturist and immediately made good by the main contractor
g. Site drainage and washings from concrete and mortar mixings shall be directed away from all 'construction exclusion zones'

**6. REMOVAL OF TREE PROTECTION BARRIER**

a. The 'Tree protection barrier' shall be removed only upon completion of construction works and in compliance with any relevant planning conditions

**7. LANDSCAPE WORKS**

a. Landscaping works shall be implemented in accordance with a scheme approved by the LPA and following removal of the 'tree protection barrier'
b. There shall be no rotovation of ground within the 'construction exclusion zone'
c. Sandy topsoil may be spread within the 'construction exclusion zones' to a depth of not more than 150mm to facilitate the establishment of new vegetation. No other addition of soil or other material shall be carried out within any area designated as a 'construction exclusion zones' or otherwise protected on this drawing without prior consultation with the LPA
d. No hard landscaping works or excavation for cables or any other service shall be carried out within the 'construction exclusion zones' without the prior written consent of the LPA. All such excavations shall be carried out in accordance with the guidance set out in NJUG4 (2007)

## TREE PROTECTION SPECIFICATION

**The Construction Exclusion Zones** shall: -

1. be secured prior to commencement of any construction or demolition works, delivery of site accommodation or materials and shall remain intact for the duration of construction works
2. preclude all construction activity with the sole exception of specified arboricultural works and such works as have been agreed by all parties and to be carried out under supervision
3. be protected by 'tree protection barrier' and other measures as specified on this drawing
4. preclude the storage or tipping of all materials and substances

Toxic substances such as fuels, oils, additives and cement shall not be stored within 5.0 metre of the exclusion zone

Any incursion into the 'construction exclusion zone' must be by prior arrangement, following consultation with the LPA

**Tree Protection Barrier Construction**

1. The 'tree protection barrier' shall comprise 2,0m high weldmesh 'Heras' type fencing
2. The fencing panels shall butt together and be clamped to a framework of scaffold tubes
3. Vertical scaffold tubes shall be located at 3 metre centres and driven firmly into the ground having first established the absence of underground services
4. At least two horizontal acaffold tubes shall be be clamped to thevertical section, onto which the fence panels shall be clamped
5. Each vertical tube shall be supported by a 45º strut of scaffold tube, from the top rail of the fence panel back into the 'construction exclusion zone'
5. No fixing shall be made to any tree and every possible precaution shall be taken to prevent damage to tree roots when locating scaffold tubes
6. A 600mm x 300mm warning sign reading as per figure 1 shall be fixed to every 10,0m of 'tree protection barrier'

Fig.1

CONSTRUCTION EXCLUSION ZONE
KEEP OUT!

ALL TREES ENCLOSED BY THIS FENCE ARE PROTECTED
BY PLANNING CONDITIONS (TOWN AND COUNTRY PLANNING ACT 1990)

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:

- THE TEMPORARY PROTECTIVE FENCING MUST NOT BE MOVED
- NO PERSON SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE
- NO MACHINE OR PLANT SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE
- NO MATERIAL SHALL BE STORED IN THE CONSTRUCTION EXCLUSION ZONE
- NO SPOIL SHALL BE DEPOSITED IN THE CONSTRUCTION EXCLUSION ZONE
- NO EXCAVATION SHALL OCCUR IN THE CONSTRUCTION EXCLUSION ZONE

ANY INCURSION INTO THE CONSTRUCTION EXCLUSION ZONE MUST BE
WITH THE PRIOR WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

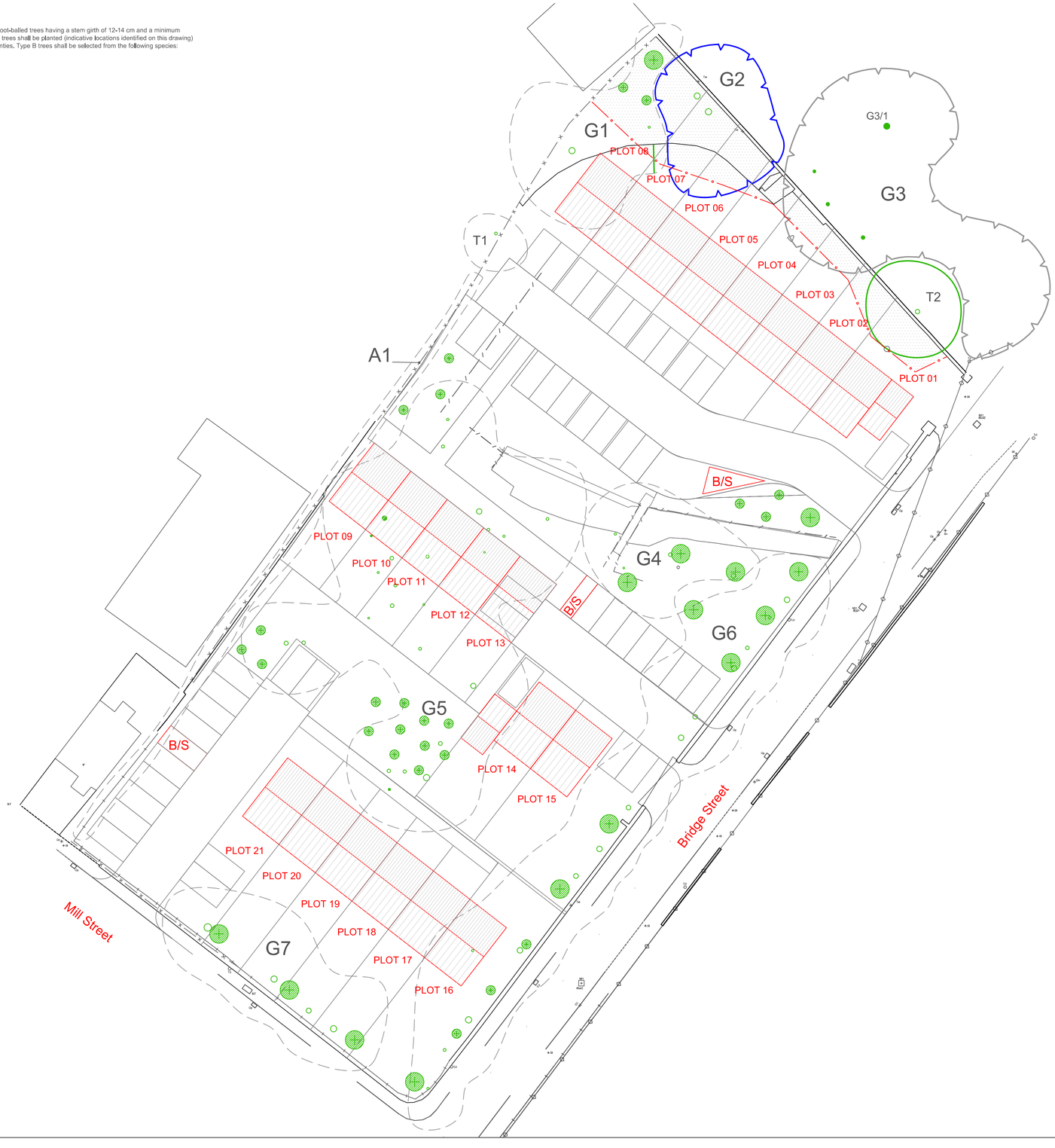
## INDICATIVE TREE PLANTING PROPOSAL

Type A new trees shall be advance nursery stock, root-balled trees having a stem girth of 25-30cm and a minimum height of 5 metres at the time of planting. 15 type A trees shall be planted (indicative locations identified on this drawing) at locations that do not conflict with residential amenties. Type A trees shall be selected from the following species and be at least 50% *Tilia cordata*:

*Alnus incana* (grey alder)
*Betula pendula* (silver birch)
*Liquidambar styraciflua* (sweet gum)
*Tilia cordata* (small-leaved lime)
*Sorbus aria* (whitebeam)

Type B new trees shall be advance nursery stock, root-balled trees having a stem girth of 12-14 cm and a minimum height of 3 metres at the time of planting. 15 type B trees shall be planted (indicative locations identified on this drawing) at locations that do not conflict with residential amenties. Type B trees shall be selected from the following species:

*Crataegus monogyna* (hawthorn)
*Corylus columa* (Turkish hazel)
*Ilex aquifolium* (holly)
*Malus* sp. (crab apple)
*Pinus sylvestris* (Scots pine)
*Prunus avium* 'Plena' (gean cherry)
*Prunus padus* (bird cherry)
*Sorbus aucuparia* (rowan)




## TREE PROTECTION PLAN

**CHESHIRE WOODLANDS**
CONSULTING ARBORICULTURISTS


**9 LOWE STREET**
**MACCLESFIELD**
**CHESHIRE**
**SK11 7NJ**

**T.** +44(0)1625 669668
**F.** +44(0)1625 669355
**E.** info@ cheshire-woodlands.co.uk
**W.** www. cheshire-woodlands.co.uk


| | |
|---|---|
| CLIENT | UNITED ENVIRONMENTAL SERVICES |
| PROJECT | BATLEY MORTAR SITE<br>SMITHIES MOOR LANE, BIRSTALL<br>KIRKLEES, WF17 9AN |
| JOB REF | CW/6555-P-TP |
| DATE | 01 AUGUST 2012 |
| SCALE | 1:250 @A1 |

- INDIVIDUAL TREE TO BE RETAINED
- GROUP OF TREES TO BE RETAINED
- TREE, GROUP, AREA, SHRUBS OR HEDGE TO BE REMOVED
- STEM POSITION APPROXIMATED
- PROPOSED TREE TYPE A
- PROPOSED TREE TYPE B
- BS5837 CATEGORY 'A' TREES
- BS5837 CATEGORY 'B' TREES
- BS5837 CATEGORY 'C' TREES
- CONSTRUCTION EXCLUSION ZONE
- TYPE 1 TREE PROTECTION BARRIER