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Arboricultural Impact Assessment

of Construction of Proposed Development at



**The Bowling Green, Brockhall Village,
Old Langho, Lancashire**

Prepared by:

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February 2010

**ARBORICULTURAL IMPACT ASSESSMENT
THE BOWLING GREEN, BROCKHALL VILLAGE**

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Control sheet

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Client: MD Projects (NW) Ltd

Local Authority: Ribble Valley Borough Council

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1.0 TERMS OF REFERENCE

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- 1.1 I am commissioned by MD Projects (NW) Ltd to:
- Survey from ground level, individually or by group, all trees having reasonable potential to be adversely affected by the proposed site development;
 - Prepare a tabulated Tree Survey Schedule based on guidance specified in British Standard BS5837:2005 - Trees in Relation to Construction – Recommendations;
 - Assess the tree related impacts of the proposed development;
 - Advise on removal, retention and management options for the trees in the current context and in the context of the proposed development;
 - Annotate the site proposal plan to identify tree numbers, retention category grades, crown spreads, Root Protection Areas, appropriate protective fencing locations, areas where special considerations are required, proposed tree removals and indicative mitigation related new tree planting in order to produce a Tree Impact Plan (TIP) and a Tree Protection Plan (TPP); and
 - Produce an Arboricultural Impact Assessment (AIA) report outlining the main tree related issues and potential tree related impacts in relation to the development proposal and detail any suitable mitigation measures

2.0 INTRODUCTION

- 2.1 Further to your instruction regarding the above I confirm that I visited the site on 11 January 2010 and carried out an appraisal of the trees and subsequently attended a site meeting on 18 January 2010 with Mr Simon Miller of MD Projects, Mr Harry Hitman, representative of Brockhall Village and Mr David Hewitt, countryside officer at Ribble Valley BC, in order to discuss the development proposals. Weather conditions during my initial survey were overcast and very cold with snow on the ground.
- 2.2 During my survey I identified fourteen individual trees (prefixed 'T'), three groups of trees (prefixed 'G') and one hedge (prefixed 'H'). Tree data collected on site is set out in the attached tabulated Tree Survey Schedule (TSS) at Appendix One which, for ease of interpretation, should be read in conjunction with the associated BS5837:2005 Table 1, also at Appendix One. The trees have been numbered on the appended plans. The plans are based on a topographical site plan with the proposal overlaid that was provided in AutoCAD format by MD Projects (NW) Ltd plan and, for the purpose of this report, I presume the drawing detail to be accurate.
- 2.3 It should also be noted that my tree survey was preliminary in nature and was carried out from ground level without the use of invasive investigation methods, and the disclosure of hidden defects, in particular where they may be above a reachable height, cannot therefore be expected. As such, where a more detailed assessment is considered necessary then appropriate recommendations are set out in the TSS.
- 2.4 My observations and recommendations relate only to the site and the trees as they were at the time of inspection and, unless otherwise stated in the TSS, all trees should be re-inspected annually in order to appraise their mechanical integrity and their physiological condition. Any changes in site conditions (e.g. a development that changes the land usage and increases access frequency) would require the trees to be re-assessed in the context of such changes. The occurrence of severe weather incidents would also require the trees to be re-assessed in order to ensure an acceptable and continuing level of safety.
- 2.5 This report does not consider any potential influence that trees may have upon load bearing soils beneath existing or proposed structures through the abstraction of water by their roots

(i.e. soil shrinkage and expansion and subsequent building subsidence and heave). The advice of a structural engineer should be sought with regard to appropriate foundation depths for new buildings with reference to NHBC Standards Chapter 4.2 (NHBC, 2008).

3.0 STATUTORY PROTECTION IN RESPECT OF TREES AND ASSOCIATED WILDLIFE

Tree Preservation Orders and Conservation Area Designations

- 3.1 Section 198 of the Town & Country Planning Act (the Act) 1990 and associated Regulations empower Local Planning Authorities (LPAs) to protect trees in the interests of amenity by making Tree Preservation Orders (TPOs). Section 211 of the Act also affords protection for trees of over 75mm diameter that stand within the curtilage of a Conservation Area (CA). Subject to certain specified exemptions, an application must be made to the LPA in question to carry out works upon or to remove trees that are subject to a TPO, whilst six weeks notice of intention must be given to carry out works upon or remove trees within a CA and not protected by a TPO. However, in certain situations where detailed planning permission has been granted and protected trees directly affect the implementation of the approved development, then it is permissible to carry out any works necessary to said trees in order to implement said development.
- 3.2 I understand that several of the trees standing within the site boundaries are the subject of a TPO but, as of yet, I have not been provided with a copy of the document or informed of its title and/or number. Nonetheless, as such, an application must be made to the planning department of Ribbles Valley BC to carry out any works to the protected trees.

Protected Species

- 3.3 Nesting birds are afforded statutory protection by the Wildlife & Countryside Act (1981) (as amended). As such, consideration should be given to the presence of nesting birds when clipping hedges, pruning or removing trees or removing ivy or other climbing plants. Hedges provide valuable nesting sites for a wide range of birds and clipping should therefore be avoided during the months March to July. Trees, hedges and ivy should be inspected for nests prior to pruning or removal and any work likely to destroy or disturb active nests should be avoided until the young have fledged.
- 3.4 In Britain all species of bat are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and under Schedule 2 of the Conservation (Natural Habitats) Regulations 1994 (as amended). In England, under current legislation, it is an offence to:
- deliberately capture, injure or kill a bat;
 - deliberately disturb in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
 - damage or destroy a bat roost (note - this is an 'absolute' offence whereby intent or recklessness does not have to be proved);
 - possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat;
 - intentionally or recklessly disturb a bat at a roost; and
 - intentionally or recklessly obstruct access to a roost.
- 3.5 In this respect it should be noted that it is possible that unidentified bat habitat features may be located high up in tree crowns and all personnel subsequently carrying out tree works at the site should therefore be vigilant and mindful of the possibility that roosting bats may be present in trees with such features. If any bat roosts are identified then it is essential that works are halted immediately and that a qualified and an experienced ecologist investigate

them prior to works continuing.

Felling Licences

- 3.6 Subject to certain exemptions, as discussed below, the Forestry Act (1967) requires that a 'Felling Licence' be obtained to fell growing trees. Felling Licences are administered by the Forestry Commission and contravention of the associated controls can incur substantial penalties. However, a Felling Licence is not needed for the removal of trees immediately required for the purpose of carrying out a development authorised by detailed planning permission granted under the Act (1990).

4.0 COUNCIL POLICY IN RESPECT OF TREES AND DEVELOPMENT

- 4.1 The site stands within the administrative boundaries of Ribble Valley BC and, as such, my arboricultural appraisal considers the proposed site development against the relevant Council policies. The Ribble Valley BC Districtwide Local Plan (Ribble Valley BC, 1998) includes only one Policy (below) specific to trees in relation to this site; 'Policy ENV13 - Landscape Protection'.

POLICY ENV13 - LANDSCAPE PROTECTION

The Borough Council will refuse development proposals which harm important landscape features including traditional stone walls, ponds, characteristic herb rich meadows and pastures, woodlands, copses, hedgerows and individual trees other than in exceptional circumstances where satisfactory works of mitigation or enhancement would be achieved, including rebuilding, replanting and landscape management.

Reasoned Justification

It is important to protect the existing landscape features which add to the character of the Borough. The woodland coverage of the borough whether large woods, small groups, or individual trees, together with hedgerow coverage forms an important part of the landscape quality. In addition valuable ecological, recreational and economic functions arise from these features.

- 4.2 Ribble Valley BC also have a Supplementary Planning Policy for Trees, of which paragraph 5.5 states that the "Local Authority will ensure that the right trees are maintained, protected and correctly managed".

5.0 THE SITE AND THE SURROUNDINGS

- 5.1 I am of the understanding that the site under consideration has been allocated for housing by the Council. The site is located in an area of suburban character in Brockhall Village, a private gated community approximately 6.5 kilometres to the south-west of the town of Clitheroe. It is roughly square in shape, approximately 0.4006 hectares in size and consists of a disused bowling green to its southern section, a large group of trees to its north-western section, several areas of maintained grass with individual trees to the north-west and a tarmac footpath running through it in roughly a north-south direction. Topography throughout the southern section of the site is relatively level but there is a minor incline down to the road to the north starting just north of the bowling green.
- 5.2 The site is bordered to the north by Cherry Drive, a low usage private residential access road, to the east by a garage block a parking area and the 'Old Fire Station', to the south by several private residential properties with gardens and to the west by a childrens' nursery. A foot path runs from Cherry Drive to the north to a neighbouring site with planning permission for a residential property to the south-west. Trees and shrubs, between small and large in size, stand as individuals and as groups throughout the northern and eastern sections of the site.



Fig 1: The site, looking from the north-west to the south-east with group G2 in view

- 5.3 I did not carry out a detailed landscape character appraisal of the locality as part of this assessment. However, I did make a general appraisal of the visual amenity that the trees standing within the site confer in the locality based on their visual prominence and overall contribution to the landscape, as discussed in paragraph 6.1.

6.0 THE TREE POPULATION

- 6.1 Fourteen individual trees, three groups of trees and shrubs and one hedge were surveyed for this assessment. The surveyed individual trees are of several deciduous broadleaf species including ash, sycamore, purple leaved plum and common alder. Tree ages range from semi-mature to mature whilst sizes range from small to large. The trees under consideration are visible from various public vantage points and neighbouring properties to variable degrees with the larger trees at the road frontage to the site's north being highly visible and those internal to the site being only partially visible. As such, the trees at the road frontage collectively confer a high visual amenity in the immediate local landscape whilst those internal to the site confer a low visual amenity (see Fig. 1, above and Fig. 2, overleaf).
- 6.2 The attached TSS (Appendix One) includes various relevant items of detailed information on each of the surveyed trees along with comments on their physiological and/or structural condition and any subsequent recommendations for works. In respect of the TSS it should be noted that tree quality and value is categorised within the existing context without taking into account any site development proposals. However, it should also be noted that the recommendations made take the proposed development into consideration where there are clearly definable potential impacts upon trees.
- 6.3 The TSS includes a column ('Cat. Grade') listing the trees' respective retention values, where they are rated either 'A', 'B', 'C' or 'R', as per BS5837:2005 Table 1 (Appendix One). 'A' category trees are those considered to be of 'high quality and value' and, accordingly, the most suitable for retention and 'B' category trees are those considered to be of 'moderate quality and value'. 'C' category trees are those considered to be of 'low quality and value' which, as stated in BS5837:2005 Table 1, "*will usually not be retained where*

they would pose a significant constraint on development". In turn, 'R' category trees are those that are in relatively poor condition whereby they should be removed for reasons of sound arboricultural management regardless of any plans for the site.



Fig. 2: The site as seen from the path close to the south-western corner and looking north with group G2 visible

- 6.4 As such, only trees classed either 'A' or 'B' are of a quality and value whereby they may be considered as a potential material constraint in the development process. However, it should be noted that the guidance does not state that trees identified as 'A' or 'B' category have to be retained at all costs. Rather, a more pragmatic approach should be taken whereby the retention values of such trees are considered against the merits of the planned land use changes and they are subsequently afforded appropriate weight in the context of such proposals, with suitable compensatory planting offered for any necessary losses should this course of action be seen to be the acceptable.
- 6.5 As detailed in Table One (below) one group of twenty trees (G2) was allocated a high value of 'A', three individual trees (T2, T9 and T12) were allocated moderate retention values of 'B', and 10 individual trees (T1, T3 to T6, T8, T10, T11, T13 and T14) and two groups of trees and shrubs (G1 and G3) were allocated low retention values of 'C'. In addition one tree (T7) was allocated an 'R' category grade and, as such, is therefore recommended for removal in accordance with prudent arboricultural management regardless of site proposals.

Table One: BS5837(2005) Retention Values of the Site's Tree Population

	Retention Categories	Tree Numbers	Totals
Trees/groups of a moderate or high quality & value that should be afforded appropriate consideration in the context of development	'A'	G2	20 Trees in Total
	'B'	T2, T9, T12	3 Individual Trees
Trees/groups of a quality & value that should not be considered a material constraint to development	'C'	T1, T3, T4, T5, T6, T8, T10, T11, T13, T14, G1, G3	20 Trees (and Shrubs) in Total
Trees/groups that should be removed for sound management reasons regardless of site plans	'R'	T7	1 Individual Tree
			= 44 Trees in Total

7.0 THE DEVELOPMENT PROPOSAL, ITS PROJECTED ARBORICULTURAL IMPACTS AND PROPOSED MITIGATION

- 7.1 The proposal is to construct six blocks of residential units consisting of between two and four two-storey properties with associated outdoor amenity space and hard-standing, as per job/drawing number 08-115 P01, prepared by MCK Associates Limited. A new vehicular access point is proposed to the north of the site off Cherry Drive, several metres to the west of the existing footpath access. In order to identify the impacts that the development would potentially have upon the trees the proposal has been overlaid with the tree survey and constraints information in order to produce a Tree Impact Plan (TIP) (appended at Plan One) and a Tree Protection Plan (TPP) (Plan Two) detailing:
- The proposed development, including the proposed unit and vehicular access locations;
 - Trees proposed for removal in order to construct the development;
 - Trees proposed for retention and their respective RPAs; and
 - The proposed temporary protective fencing locations based on tree CEZs.
- 7.2 As detailed on the TIP and in Table Two (below) construction of the proposed development will require the removal of three moderate quality 'B' category individual trees, ten low quality 'C' category individual trees and three 'C' category groups of trees and shrubs and one 'R' category individual tree.

Table Two: Arboricultural Impacts of Proposed Development & Other Tree Removals

	Retention Categories	Removals necessary to implement development	Removals recommended for non-development related reasons	Total number of tree removals
Trees/groups of a moderate or high quality & value that should be afforded appropriate consideration in the context of development	'A'	-	-	-
	'B'	T2, T9, T11	-	3 Individual Trees
Trees/groups of a quality & value that should not be considered a material constraint to development	'C'	T1, T3, T4, T5, T6, T8, T19, T11, T13, T14, G1, G3	-	= 20 Trees (& Shrubs) Total
Trees/groups that should be removed for sound management reasons regardless of site plans	'R'	-	T7	1 Individual Tree
Totals		= 23 Trees (& Shrubs) Total	= 1 Tree in Total	= 24 Trees (& Shrubs) in Total

Mitigation for Projected Development Related Tree Losses

- 7.3 The projected tree losses were discussed with the Council's Countryside Officer, Mr Hewitt, during the site meeting of 18 January and it was provisionally agreed that the projected tree losses can, in accordance with the relevant Council Policy (ENV13), be adequately mitigated for through the provision of high quality new tree planting. It is my opinion that native species such as silver birch (*Betula pendula*) and rowan (*Sorbus aucuparia*), which grow to be small to moderate in size, would be an appropriate for planting within the associated outdoor amenity space of the proposed properties whilst larger growing native species, such as common alder (*Alnus glutinosa*) and small-leaved lime (*Tilia cordata*), would be suitable for planting within group G2, thereby helping ensure its long-term continuation. It was also discussed with Mr Hewitt that further mitigation planting can be provided in other areas of the wider Brockhall Village site if considered necessary, in particular as part of an avenue reinstatement scheme along the access road. Suitable species and locations should be agreed with the Council as part of an approved landscape

scheme for the site and as part of a detailed long-term management plan for group G2, both of which can be conditioned to a planning approval.

8.0 RECOMMENDATIONS FOR SUCCESSFUL TREE RETENTION IN THE CONTEXT OF DEVELOPMENT

Root Protection Areas and Construction Exclusion Zones

- 8.1 Adequate protection of retained trees during construction is essential if their long-term viability is to be assured and BS5837:2005 provides guidance in respect of tree Root Protection Areas (RPAs). The RPAs, which are calculated through a method provided in BS5837:2005, are ground areas that are to be protected by temporary protective fencing as Construction Exclusion Zones (CEZs) throughout the development process thereby keeping the trees' root zones free from disturbance. Consequently, these distances give an idea of the on site below ground constraints in respect of trees and assist in planning for appropriate tree retention in relation to feasible development. It should, however, be noted that, in certain situations, there is a limited degree of flexibility in the RPA and CEZ positioning.
- 8.2 The TSS includes two columns listing the RPAs of the individually surveyed trees and, where applicable, the largest of the trees in any surveyed groups as overall areas in square metres and as radial distances. The radial RPAs are indicated as broken magenta coloured circles on the TPP. With regards CEZs the design, materials and construction of the fencing should be appropriate for the intensity and type of site construction works, should conform to section 9 of BS5837:2005 and should be agreed with the LPA. A temporary fencing specification is included at Appendix Two and the extents and locations of the CEZs are detailed on the TPP.

9.0 OTHER RECOMMENDATIONS

Non-Development Related Tree Works

- 9.1 'R' category tree removals and any general management pruning works for retained trees that are stated to be non-development related, as detailed in the TSS, are recommended in accordance with prudent arboricultural management and should therefore be carried out regardless of any site plans and potential changes in land usage.

Tree Work Related Consents

- 9.2 No tree pruning or removal works should commence on site until necessary consents have been obtained from the LPA as part of a planning approval or in respect of any statutory protection.

Arboricultural Contractors

- 9.3 All tree works should be carried out by suitably qualified and experienced arboricultural contractors carrying appropriate public liability insurance cover and be implemented to the minimum current CE and UK industry standards and in accordance with industry codes of practice. Only certificated personnel should, in accordance with The Control of Pesticides Regulations, apply any pesticides

- 9.4 Contractors should be made aware that, should any significant tree defects become apparent during operations that would not have been immediately obvious to the surveyor, then such defects should be notified immediately to the client and subsequently confirmed to the consultant within five working days.

New Tree Planting

- 9.5 New tree planting should be implemented in mitigation of any tree removals required for development purposes and subsequent loss of associated habitats and amenity and is discussed in more detail in paragraph 7.3. New tree planting proposals should be agreed with the LPA and included in a landscape design plan for the site. All tree planting should be carried out in accordance with BS4428:1989 - Code of Practice for General Landscape Operations, BS3936-1:1992, Nursery Stock – Part 1: Specification for Trees and Shrubs and BS4043:1989, Transplanting Root-Balled Trees where applicable.

Future Tree Management

- 9.6 Any tree risk management appraisal and subsequent recommendations made in this report were based on observations and site circumstances at the time of my survey. Trees are dynamic living organisms whose structure is constantly changing and even those evidently in good condition can succumb to damage and/or stress. In this respect I would note that, under the Occupiers' Liability Act (1957 & 1984), site occupants have a duty of care to take reasonable steps to prevent or minimise the risk of personal injury and/or damage to property from any tree located within the curtilage of the land they occupy. It is accepted that these steps should normally include commissioning a qualified and experienced arboriculturist to survey their trees in order to identify any risk of harm to persons or damage to property that they may present and, where unacceptable risks are identified, taking suitable remedial action to negate those risks.

10.0 SUMMARY AND CONCLUSIONS

- 10.1 Fourteen individual trees, three groups of trees and one hedge were surveyed in respect of the proposed development of 16 residential units over four blocks, along with an associated access road.
- 10.2 The trees in question confer between a low and a high visual amenity in the local landscape, dependent on their location on site. 45.5% of the 44 trees and shrubs were allocated high retention values, 7% were allocated moderate retention values, 45.5% were allocated low retention values and 2% were recommended for removal regardless of site proposals. Various trees at the site are reportedly subject to statutory protection, although the TPO's coverage has not been clarified.
- 10.3 23 trees are proposed for removal in order to construct the proposed development, with three being of moderate quality and 20 being of low quality. The majority of the trees proposed for removal confer a low visual amenity in the local landscape whilst a small number confer a moderate visual amenity. Overall, it is my opinion that their loss can be adequately compensated for through new tree planting as part of a landscape scheme in agreement with the LPA.
- 10.4 All the remaining trees, which form a high value group and important landscape feature, can be retained and protected in the context of the proposed development in accordance with government recommendations.

- 10.5 In consideration of the above I therefore conclude that the scheme is fully in compliance with the requirements of relevant Council Policy ENV13

REFERENCES

- BS4428:1989 - Code of Practice for General Landscape Operations. BSI British Standards, London.
- BS3936-1:1992, Nursery Stock – Part 1: Specification for Trees and Shrubs. BSI British Standards, London.
- BS3998:1989 - Recommendations for Tree Work. BSI British Standards, London.
- BS4043:1989 - Transplanting Root-Balled Trees. BSI British Standards, London.
- BS5837:2005 - Trees in Relation to Construction – Recommendations. BSI British Standards, London.
- National House Building Council (2008). NHBC Standards Chapter 4.2 - Building Near Trees. NHBC, Amersham.
- National Joint Utilities Group (2007). Volume 4: NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) – Operatives Handbook.
- Ribble Valley Borough Council (1998). Ribble Valley Borough Council Districtwide Local Plan.

APPENDIX ONE

TREE SURVEY SCHEDULE & BS5837:2005 - TABLE 1

PHILL HARRIS – ARBORICULTURAL CONSULTANT

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL

Site: The Bowling Green, Brockhall Village
Client: MD Projects (NW) Limited

Surveyor: Phill Harris – Chartered Arboriculturist
Assessment Date: 11 January 2010
Job Reference: BAC116

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No.	Species	Height	Stem Diam.	Branch Spread	Height of C.C.	Age	PC	Comments on Condition, etc.	Management Recommendations	ERC	Cal. Grade	RPA (m²)	RPA Radius (m)
T1	Holly (<i>Ilex aquifolium</i>)	17	260	N 3.5 E 2.5 S 3 W 2.5	2	EM	M/G	- Growing below crown of T2. - Slightly sparsely foliage cover and slightly small leaves in upper crown.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	10-20	C1	30.59	3.12
T2	Ash (<i>Fraxinus excelsior</i>)	10	540	N 5 E 7 S 9 W 6.5	2.5	EM	G	- Moderate amount of dead wood to approximately 20mm diameter. - Adventitious shoot growth to topside of several branches. - Several occluded pruning wounds to stem and branches.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	40	B1	131.93	6.48
T3	Purple Plum (<i>Prunus cerasifera</i>)	9	390	N 4 E 3.5 S 4 W 4.5	1	M	G	- Stem divides into multiple primary branches at a height of approximately 1.4m with several included bark unions. - Growing partially below crown of T2.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	10-20	C1/2	47.79	3.90
T4	Purple Plum	9	450	N 4 E 7 S 2.5 W 5	0	M	G	Stem divides into multiple primary branches at a height of approximately 1.0m with several included bark union.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	10-20	C1/2	63.63	4.5
T5	Purple Plum	8.5	400	N 2 E 4 S 5.5 W 4.5	1	M	M/G	- Stem divides into multiple primary branches at a height of approximately 1.0m with several included bark union. - Several areas of decay at this point, evidently resultant of previous branch failures.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	10-20	C1/2	50.27	4.0
T6	Wild Cherry (<i>Prunus avium</i>)	10.5	510	N 6.5 E 6.5 S 5.5 W 6.5	1	M	G	- Stem bifurcates into primary branches at a height of approximately 1.6m. - Moderate to severe curvature of several primary branches.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	10-20	C1/2	117.68	6.12
T7	Purple Plum	7.5	410	N 4 E 4 S 3 W 3	0.5	M	M/G	- Stem divides into multiple primary branches at a height of approximately 1.2m. - One of these primary branches has died back and is covered in fungal fruiting bodies.	Fell due to short projected remaining safe life expectancy.	10	R	52.82	4.10

HEADINGS & ABBREVIATIONS

No. - Common and botanical name in brackets where appropriate
Species: - In metres - where possible approximately 80% are measured using an electronic clinometer and the remainder estimated against the measured trees. In the case of Groups and Woodlands the measurement listed is that of the highest tree
Height: - Stem diameter in millimetres - measured or estimated at a height of approximately 1.5 metres above ground level or just above the root flare for multi-stemmed trees. MS = multi-stemmed, TS = thin-stemmed
Branch Spread: - Crown radius measured (or estimated where considered appropriate) from the four cardinal points (north, east, south and west) to derive an accurate representation of the crown
Height of CC: - Height of crown clearance in metres - measured at lowest point above adjacent ground level - to inform on crown to height ratio, potential for shading, etc
Age: - Estimated age class - Y = young, SM = semi-mature, EM = early-mature, M = mature, PM = post-mature
PC: - Physiological Condition - a measure of the tree's overall vitality. L = Dead, MD = Moribund, P = Poor, M = Moderate, G = Good
Comments on Condition, etc: - Comments relating to the tree's overall condition and any other pertinent factors including structural defects, current and potential direct structural damage, physiological decline, poor form, etc
Management Recommendations: - Either Preliminary or In Consideration of the Proposal - In the case of Arboricultural Constraints Surveys the recommended management works only take existing site and tree circumstances and conditions into account and not proposed developments. Arboricultural Impact Assessment and Method Statement related Surveys take the proposed development into consideration with recommendations made accordingly. More than one option may be given if considered appropriate
ERC: - Estimated Remaining Contribution - In years as per BS5837:2005 (i.e. less than 10, 10-20, 20-40, more than 40)
Cal. Grade: - Category Grading - tree retention value listed as R or A to C - broadly in line with BS5837:2005 table 1
RPA m²: - Root Protection Area in m² - calculated area around the tree that must be appropriately protected throughout the development process in order to avoid root damage
RPA Radius (m): - Root Protection Area Radius - in metres measured from the centre of the stem to the line of tree protection

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TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL

Site: The Bowling Green, Brockhall Village
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No.	Species	Height	Stem Diam.	Branch Spread	Height of CC	Age	PC	Comments on Structural Condition, etc.	Management Recommendations	ERC	Cal. Grade	RPA (m ²)	RPA Radius (m)
T8	Sergeants' Cherry (<i>Prunus sargentii</i>)	9	500	N 6 E 6 S 5 W 3	1.5	M/P M	G	- Stems divide into multiple primary branches at a height of approximately 2.0m, at point where evidently tree was evidently originally bottle grafted. - Several cankers to secondary branches. - Slightly biased crown to north-east due to partial suppression by neighbouring tree.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	10-20	C1/2	113.11	6.0
T9	Common Alder (<i>Alnus glutinosa</i>)	13	580	N 7 E 5 S 6 W 5.5	1.5	EM	M	- Number of well established adventitious shoots to base. - Crown showing signs of a minor to moderate reduction in vitality.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	20-40	B1/2	152.20	6.96
T10	Purple Plum	8	410	N 3.5 E 6.5 S 4 W 4.5	0.5	M	G	Stem divides into multiple primary branches at a height of approximately 1.2m with several included bark unions.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	10-20	C1/2	52.82	4.1
T11	Sycamore (<i>Acer pseudoplatanus</i>)	9	240	N 0 E 4.5 S 4.5 W 4.5	2	Y/S M	G	- Growing below crown of T12. - Highly biased crown to south. - Severe lower stem curvature.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	40	C1	26.06	2.88
T12	Small-Heaved Lime (<i>Tilia cordata</i>)	20	700	N 2 E 8.5 S 9 W 6.5	1	M	G	- Part of group with interconnecting crowns. - Severely biased crown to south due to partial suppression by neighbouring trees.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	40	B1/2	221.7	8.4
T13	Common Alder	15.5	340	N 0 E 3 S 3 W 0	8	SM	M	- Part of a group with interconnecting crowns. - Highly biased crown to south-east due to suppression by neighbouring trees. - Limited future potential.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	10-20	C1/2	52.3	4.08
T14	Sycamore	16.5	420	N 5 E 6 S 3 W 4	6	SM	M	- Part of a group with interconnecting crowns. - Ivy up stem. - Stem bifurcates into co-dominant primary branches at a height of approximately 4.0m with an included bark union. - Crown showing signs of a moderate reduction in vitality.	- Fell in order to construct development. - Plant replacement tree as part of mitigation package.	10-20	C1	79.81	5.04
G1	2no. Leyland Cypress	≤ 150	≤ 5.5	N ≤ 1 E ≤ 1.5 S ≤ 1.5 W ≤ 1.5	≥ 0	Y	G	- Tree to west has two stems arising at ground level. - Very low landscape value.	- Fell in order to construct development. - Plant replacement trees as part of mitigation package.	40	C1/2	≤ 7.07	≤ 1.5

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PHILL HARRIS – ARBORICULTURAL CONSULTANT

TREE SURVEY SCHEDULE FOR ARBORICULTURAL IMPACT APPRAISAL

Site: The Bowling Green, Brockhall Village
Client: MD Projects (NW) Limited

Surveyor: Phill Harris – Chartered Arboriculturist
Assessment Date: 11 January 2010
Job Reference: BAC116

No.	Species	Height	Stem Diam.	Branch Spread	Height of CC	Age	PC	Comments on Structural Condition, etc.	Management Recommendations	ERC	Cat. Grade	RPA (m²)	RPA Radius (m)
G2	7no. Horse Chestnut, 6no. Sycamore, 5no. Small-Leaved Lime, 1no. Common Alder, 1no. Ash	≤ 22	≤ 510	N ≤ 6 E ≤ 6 S ≤ 6 W ≤ 6	≥ 0.5	SM-EM	MP-G	- Moderately closely spaced group close to road frontage. - Group traverses property boundary, extending to neighbouring nursery land. - High landscape value. - Several Horse Chestnuts have signs of infection by bark killing disease and one has extensive bark loss. - Of a relatively uniform age group and new planting therefore necessary in order to ensure long-term continuity.	- Retain and protect throughout development. - Prepare and instigate management plan in order to ensure group's long-term continuity. - Monitor vitality of Horse Chestnuts. - Infill plant new trees within available spaces and to north and eastern edges of group.	40	A2	≤ 117.68	≤ 6.12
G3	Approx. 4no. Cherry Laurel, 4no. Portugal Laurel	≤ 6.5	≤ 400	N ≤ 4 E ≤ 4 S ≤ 4 W ≤ 4	≥ 0	M	G	- Group made up of two sections. - All multi-stemmed from ground level, low landscape value.	- Fell in order to construct development. - Plant replacement trees as part of mitigation package.	10-20	C1/2	≤ 50.27	≤ 4.0
H1	Privet (<i>Ligustrum ovalifolium</i>)	≤ 2.5	N/A	≤ 1.5 Wide	N/A	SM	G	Maintained hedge around bowling green.	Fell in order to construct development.	40	C1/2	N/A	≤ 1.0

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APPENDIX TWO

TEMPORARY PROTECTIVE FENCING SPECIFICATION

- TEMPORARY PROTECTIVE FENCING SPECIFICATION -

Construction Exclusion Zones (CEZs), enclosed by Temporary Protective Fencing, as detailed below and to be agreed with the Local Planning Authority (LPA), shall:

1. be protected throughout the development process, as specified in the 'Temporary Protective Fencing Construction' section below and detailed in BS5837:2005 Fig. 2 (overleaf) and, if applicable, as defined by area on the Tree Protection Plan (TPP);
2. be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project;
3. preclude any delivery of site accommodation and/or materials and/or plant machinery;
4. preclude all construction related activity, with the sole exception of specified arboricultural works and any other works to be carried out under supervision that have been agreed by all parties; and
5. preclude the storage of all development related materials and substances including fuels, oils, additives, cement and/or any other deleterious substance.

Any incursion into CEZs must be by prior arrangement, following consultation with the LPA.

Temporary Protective Fencing Construction

1. Temporary protective fencing panels shall be of at least 2.1 metres in height and, in agreement with the LPA, be either weldmesh "Heras" panels or 18mm thick exterior grade plywood boards.
2. The panels shall butt together and be securely fixed to a scaffold framework, as per 3 to 5 below.
3. The scaffold framework shall comprise of upright poles of at least 3.0 metres in length driven no less than 0.6 metres into the ground at maximum 3.0 metre centres with horizontal and diagonal poles fixed to the uprights, as per 4 to 5 below.
4. The two horizontal rail poles shall be attached to the uprights at heights of 0.6 and 1.8 metres with 3 no. clamps to each joint.
5. The diagonal scaffold pole struts be clamped to the top rail of the scaffold framework at a 45° angle and extend back into the CEZ and clamped to a 0.7 metre length of scaffold tube that shall be driven no less than 0.5m into the ground.
6. No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts.
7. A 600mm x 300mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (Fig. 1) shall be fixed to every 10.0 metre length of protective fencing.
8. On completion and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the Consulting Arborist shall inspect the Temporary Protective Fencing.

– CONSTRUCTION EXCLUSION ZONE – KEEP OUT!

(TOWN & COUNTRY PLANNING ACT 1990)
THE TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR SUBJECTS OF A 'TREE
PRESERVATION ORDER', THE CONTRAVENTION OF WHICH MAY
LEAD TO CRIMINAL PROSECUTION

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:

- THE PROTECTIVE FENCING MUST NOT BE MOVED
- NO PERSON SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE
- NO MACHINE, PLANT OR VEHICLES SHALL ENTER THE EXCLUSION ZONE
- NO MATERIALS SHALL BE STORED IN THE EXCLUSION ZONE
- NO SPOIL SHALL BE DEPOSITED IN THE EXCLUSION ZONE
- NO EXCAVATION SHALL OCCUR IN THE EXCLUSION ZONE
- NO FIRES SHALL BE LIT IN THE EXCLUSION ZONE

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

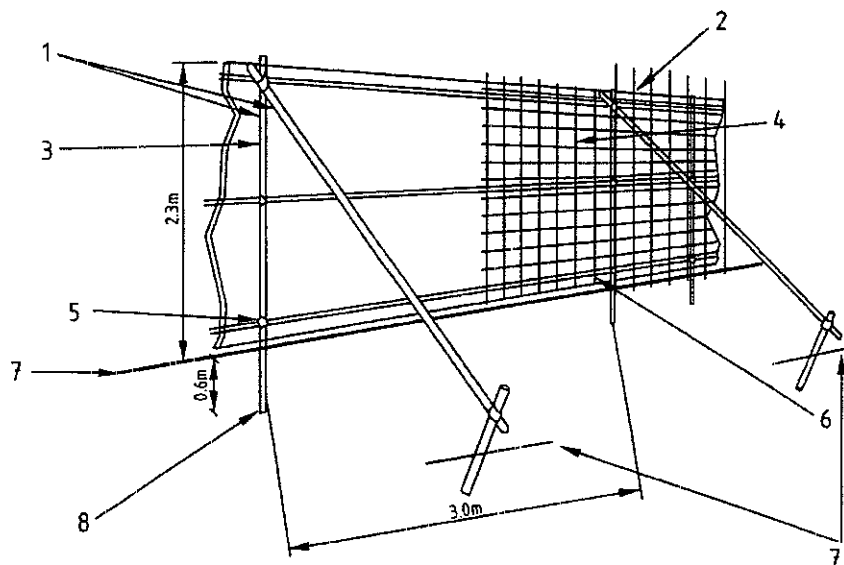


Fig 2: BS5837:2005 Temporary Protective Fencing construction

- 1 Scaffold poles
- 2 Uprights driven into ground at a maximum 3.0m spacing with cross members and brace as appropriate
- 3 Wooden panels secured with wire ties or scaffold clamps where necessary
- 4 Weldmesh "Heras" type clamped to uprights and horizontals.
- 5 Scaffold clamps.
- 6 Wire twisted and secured to inside face of fencing
- 7 Ground level
- 8 Scaffold poles driven approximately 0.6m into the ground.

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APPENDIX THREE:

GLOSSARY OF ARBORICULTURAL TERMS

Abscission. The shedding of a leaf or other shortlived 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 nonliving 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 singlecelled 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 peglike 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

Bottlebutt. 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 sublateral branches
- *Sublateral.* 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

Brownrot. 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 buttresslike 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

Compartmentalisation. 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 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 (CEZ). 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. Branch or stem wood bearing no live tissues. Retention of deadwood provides valuable habitat for a wide range of plant and animal 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

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, the description of gills which run some distance down the stem, rather than terminating abruptly

GLOSSARY OF ARBORICULTURAL TERMS

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

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

Endophytes. Microorganisms 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

Excrecence. 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)

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

Flushcut. 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/falseheartwood/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 rewetting 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 windrocked rootplate

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 microorganism 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 sidebranches 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 degraded at about the same rate

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 microorganism which causes disease in another organism

Photosynthesis. 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. 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 repollard 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 to BS5837 (2005) Trees in Relation to Construction Recommendations.

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.

Ramshorn. 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).

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.

Rootcollar. The transitional area between the stem/s and roots.

Rootcollar examination. Excavation of surfacing and soils around the rootcollar to assess the structural integrity of roots and/or stem.

Root Protection Area (RPA). An area of ground surrounding a tree that contains sufficient rooting volume to ensure the tree's survival. Calculated with reference to BS5837 (2005).

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 wellbeing 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 (whiterot) 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 whiterot. A kind of wood decay in which lignin and cellulose are

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 source; e.g. the weight of the structure itself or wind pressure growing point.

Softrot. 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 lifeforms; 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 whiterot. 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

Whiterot. 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

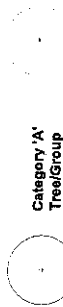
Woundwood. Wood with atypical anatomical features, formed in the vicinity of a wound

KEY

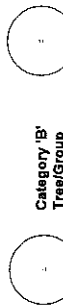
T = SURVEYED INDIVIDUAL TREE
G = SURVEYED GROUP OF TREES
H = SURVEYED HEDGE

Please refer to associated Tree Survey Schedule and BS5837:2005 Table 1 for specific details in respect of items detailed below:

TREE CATEGORISATIONS:



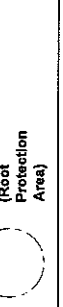
Category 'A'
Tree/Group



Category 'B'
Tree/Group



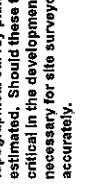
Category 'C'
Tree/Group



Category 'R'
Tree/Group

Note: Canopies marked with a Broken Line Indicate Trees Proposed for Removal

ROOT PROTECTION AREAS:



Radial RPA
(Root
Protection
Area)

Note: The stem locations of individual trees T11, T13 and T14 and groups G1 and G3 were not included on the original topographical survey plan provided and were therefore estimated. Should these trees subsequently be seen to be critical in the development appraisal process then it will be necessary for site surveyors to record their locations accurately.

Project:

THE BOWLING GREEN
BROCKHALL VILLAGE
OLD LANGHO
LANCASHIRE

Client:

MD PROJECTS (NW) LTD

Title:

TREE IMPACT PLAN

Scale:

1:200@A1

Date:

January 2010

Drawn by:

PH

Checked by:

PH

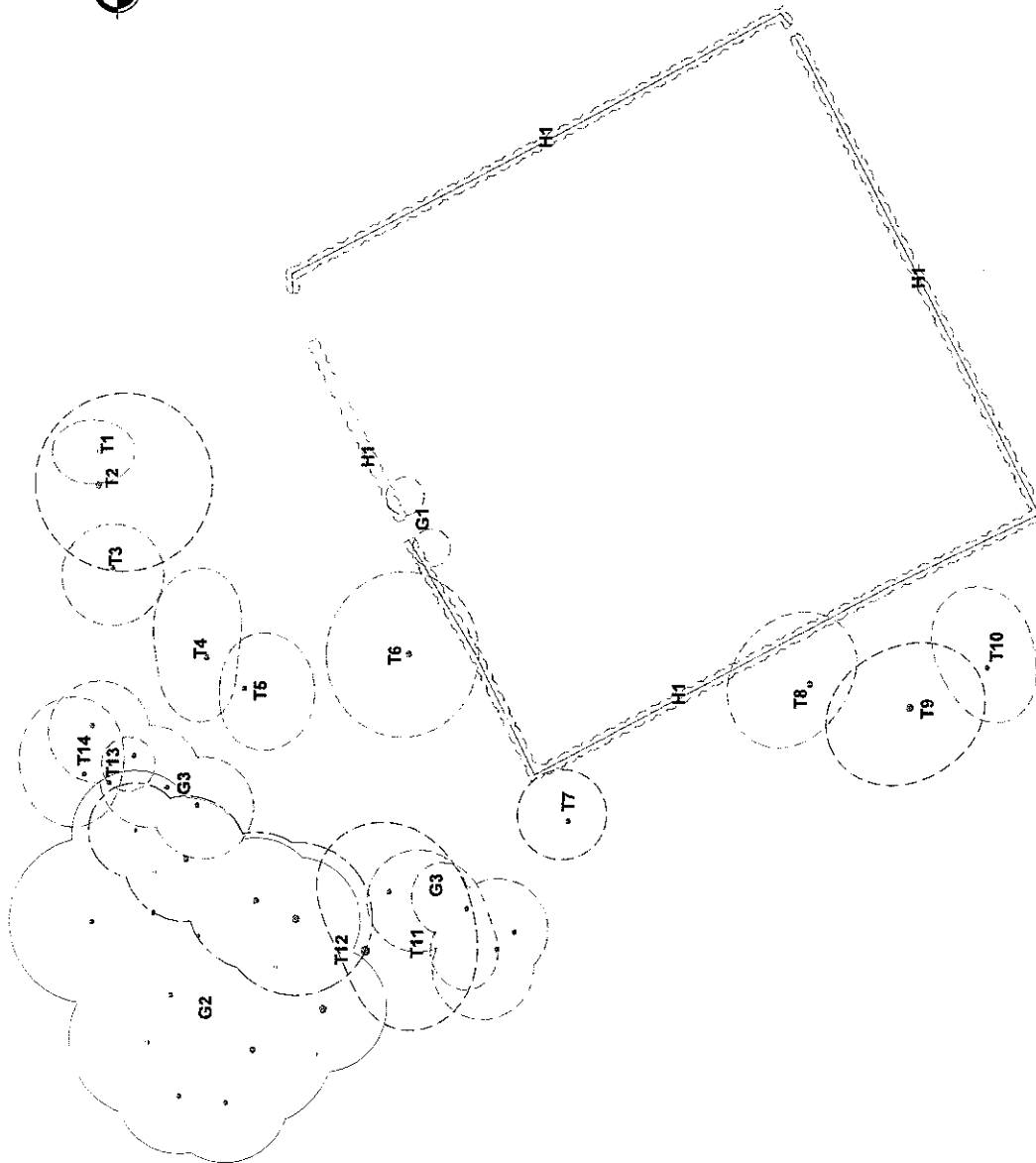


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Job Ref: BAC116-TIP

Rev: P



KEY

T = SURVEYED INDIVIDUAL TREE
G = SURVEYED GROUP OF TREES
H = SURVEYED HEDGE

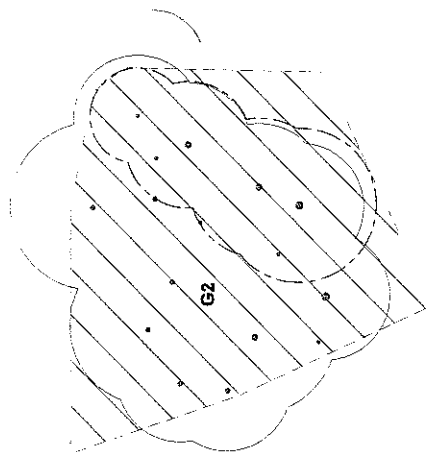
Please refer to associated Tree Survey Schedule and BS5837:2005 Table 1 for specific details in respect of items detailed below:

TREE CATEGORISATIONS:

	Category 'A' Tree/Group		Category 'C' Tree/Group
	Category 'B' Tree/Group		Category 'R' Tree/Group

ROOT PROTECTION AREAS & CONSTRUCTION EXCLUSION ZONES:

	Radial RPA (Root Protection Area)		CEZ(s) to be Enclosed by Temporary Protective Fencing
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Project:

THE BOWLING GREEN
BROCKHALL VILLAGE
OLD LANGHO
LANCASHIRE

Client:

MD PROJECTS (NW) LTD

Title:

TREE PROTECTION PLAN

Scale:

1:200@A1

Date:

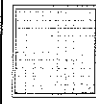
January 2010

Drawn by:

PH

Checked by:

PH



PHILL HARRIS
ARBORICULTURAL CONSULTANT

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Job Ref: BAC116-TPP

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