

**Barnsley Hospital
Pogmoor Road, Barnsley
– BS 5837 Tree Survey**



Report prepared by:
Ecus Ltd.
Brook Holt
3 Blackburn Road
Sheffield
S61 2DW
0114 266 9292

August 2013

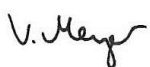
Ecus Ltd

Report to: **Beaumont and Cowling
15 Collegiate Crescent
Sheffield
South Yorkshire
S10 2BA**

Report Title: **Barnsley Hospital, Pogmoor Road, Barnsley
Tree Survey Report**

Revision: **V02**
Issue Date: **August 2013**
Report Ref: **4684**

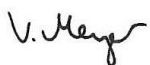
Originated By:



**Verena Meyer
Consultant Landscape Architect**

Date: August 2013

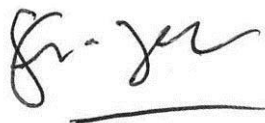
Reviewed By:



**Verena Meyer
Consultant Landscape Architect**

Date: August 2013

Approved By:



**Steve Frazer
Senior Landscape Architect**

Date: August 2013

Prepared by:
Ecus Ltd.
Brook Holt
3 Blackburn Road
Sheffield
S61 2DW
0114 2669292

The report and the site assessments carried out by Ecus on behalf of the client in accordance with the agreed terms of contract and/or written agreement form the agreed Services. The Services were performed by Ecus with the skill and care ordinarily exercised by a reasonable Environmental Consultant at the time the Services were performed. Further, and in particular, the Services were performed by Ecus taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between Ecus and the client.

Other than that expressly contained in the paragraph above, Ecus provides no other representation or warranty whether express or implied, in relation to the services.

This report is produced exclusively for the purposes of the client. Ecus is not aware of any interest of or reliance by any party other than the client in or on the services. Unless expressly provided in writing, Ecus does not authorise, consent or condone any party other than the client relying upon the services provided. Any reliance on the services or any part of the services by any party other than the client is made wholly at that party's own and sole risk and Ecus disclaims any liability to such parties.

This report is based on site conditions, regulatory or other legal provisions, technology or economic conditions at the time of the Service provision. These conditions can change with time and reliance on the findings of the Services under changing conditions should be reviewed.

Ecus accepts no responsibility for the accuracy of third party data used in this report.

Contents

1. INTRODUCTION	4
2. METHODOLOGY	5
2.1 TREE SURVEY	5
2.2 ROOT PROTECTION AREA (RPA)	6
3. SURVEY RESULTS	7
3.1 GENERAL SITE DESCRIPTION	7
3.2 RESULTS OF TREE SURVEY	7
3.3 TREE DESIGNATIONS	7
4. ARBORICULTURAL IMPACT ASSESSMENT AND METHOD STATEMENT ...	8
4.1 ARBORICULTURAL IMPACT ASSESSMENT	8
4.2 ARBORICULTURAL METHOD STATEMENT (AMS)	8
5. TREE MANAGEMENT	9
6. APPENDIX 1 – TABLES AND FIGURES.....	12
APPENDIX 1: BS5837 TREE SCHEDULE	13
7. APPENDIX 2 - SITE PHOTOGRAPHS	16

Table 1 – Tree Survey Schedule

Figure 1 – Location Plan (within report text)

Figure 2 – Default specification for protective barrier (within report text)

Figure 3 – Tree Survey and Tree Constraints Plan (L4684/01)

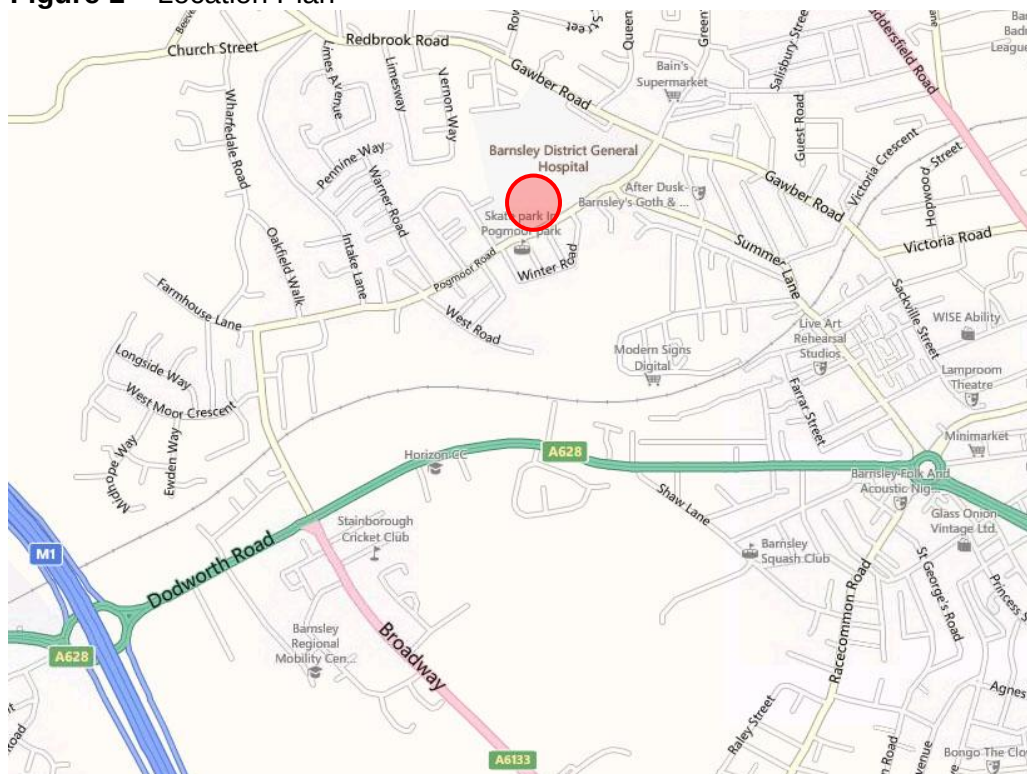
Figure 4 – Tree Protection Plan (L4684/02)

1. Introduction

1.1.1 Ecus Limited were commissioned by Beaumont and Cowling Architects Ltd. to undertake a tree survey of the nurses accommodation site at Barnsley Hospital, off Pogmoor Road in Barnsley, South Yorkshire. The site location is shown on Figure 1 below.

1.1.2 The survey and report sets out the findings of the survey and recommendations have been made for preliminary tree work that may be required.

Figure 1 – Location Plan



2. Methodology

2.1 Tree Survey

2.1.1 Ecus carried out the tree survey in August 2013 when the trees were in leaf. The tree survey was a ground based visual inspection carried out by an arboriculturist. The trees were not tagged as part of the survey.

2.1.2 The following characteristics were recorded:

- Species
- Stem diameter at 1.5m above ground level (mm).
- Estimated height (m)
- Approximate crown diameter (m) as North, South, East and West measurements.
- An estimate of the number of years that the tree is likely to remain suitable for retention.

<10 = less than 10 years

10+ = 10-20 years

20+ = 20-40 years

40+ = more than 40 years

- Age class

YNG = Young trees age less than 1/3 life expectancy

SM = Middle age trees 1/3 – 2/3 life expectancy

M = Mature trees over 2/3 life expectancy

OM = Over mature – declining or moribund trees of low vigour

- Condition category in accordance with *BS5837: Trees in relation to the design, demolition and construction recommendations (2012)*. The categories listed are defined as per BS5837:2012 and briefly are:

U = Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

A = Those of high quality and value - best trees with a long expected safe life

B = Those of moderate quality and value

C = Those of low quality and value and trees less than 15cm diameter

- Value subcategories in accordance with *BS 5837:2012*. The subcategories listed are defined as per BS5837:2012 and briefly are:

1 = Mainly arboricultural values

2 = Mainly landscape values

3 = Mainly cultural values, including conservation

- General notes about physiological and structural condition and any management recommendations.

2.1.3 A full topographic survey of the site was provided; this was used as the basis for producing the tree survey plan. The topographic survey did not pick up all tree locations within the development site, therefore approximate locations are shown.

2.1.4 The survey also included identification of any existing designations affecting trees on site such as Tree Preservation Orders and Conservation Area status by consulting with Barnsley Metropolitan Borough Council officers.

2.2 Root Protection Area (RPA)

Below ground constraints to development are represented by the root plate around a tree which needs protecting in order for the tree to be incorporated into a proposed scheme, without adverse harm to the tree or structural integrity of any proposed foundation structures. This area is illustrated by the Root Protection Area (RPA) and is calculated according to the formulae set out in BS5837:2012 clause 4.6.1.

3. Survey Results

3.1 General Site Description

- 3.1.1 The site is a small site currently occupied by blocks of accommodation for nurses west of Barnsley Hospital. It includes car parking and a small area of grassland along Pogmoor Road to the South.
- 3.1.2 The majority of trees are located along the south boundary of the site. Two young trees form part of a small area of ornamental shrub planting within the car park. One tree is located in the north of the site.

3.2 Results of Tree Survey

- 3.2.1 Table 1 describes the results of the tree survey and includes preliminary management recommendations. The table should be read in conjunction with Figure 3 Tree Survey and Tree Constraints Plan. This drawing illustrates the location of the trees surveyed, the extent of their canopies as well as the root protection areas (RPA) of each tree and tree group.
- 3.2.2 Sixteen individual trees have been surveyed within the site. They are mainly early mature sycamores (*Acer pseudoplatanus* var.) along the Pogmoor Road frontage. Two rowans (*Sorbus aucuparia*) and one Norway maple (*Acer platanoides*) are located within the site and to the north respectively.
- 3.2.3 The sycamores (T1- T13) along Pogmoor Road form the west section of a long row of red and green varieties having been planted in an alternating pattern. Individually they are of low amenity value, however, as part of a group along a main road designed frontage, they merit a higher amenity value and are therefore classed as Category B trees (moderate value)
- 3.2.4 The two rowans T14 and T15 are of low amenity value. Norway maple T16 is of low amenity value, however, it has significant symptoms of a *Phytophthora* infection and will require removal. It is therefore "unsuitable for retention" (Category U).

3.3 Tree Designations

- 3.3.1 The Arboricultural/Tree Officer at Barnsley Metropolitan Borough Council confirmed that there are no Tree Preservation Orders on any of the trees surveyed. The site is not within a Conservation Area.

4. Arboricultural Impact Assessment and Method Statement

4.1 Arboricultural Impact Assessment

- 4.1.1 An Arboricultural Impact Assessment of the proposed site plan has been undertaken to assess the likely impact of the development on existing trees and tree groups. This assessment is based on the development plan provided by the architect (ref: Beaumont and Cowling drawing ref. 3336/20 dated July 2013).
- 4.1.2 The client proposes the demolition of one block of accommodation and to extend the existing car park. The work will also require a temporary site access road off Pogmoor Road into the site.
- 4.1.3 The development plan indicates that all trees within the red line site boundary will be retained, however, T16 should be removed for safety reasons and to prevent the spread of Phytophthora.

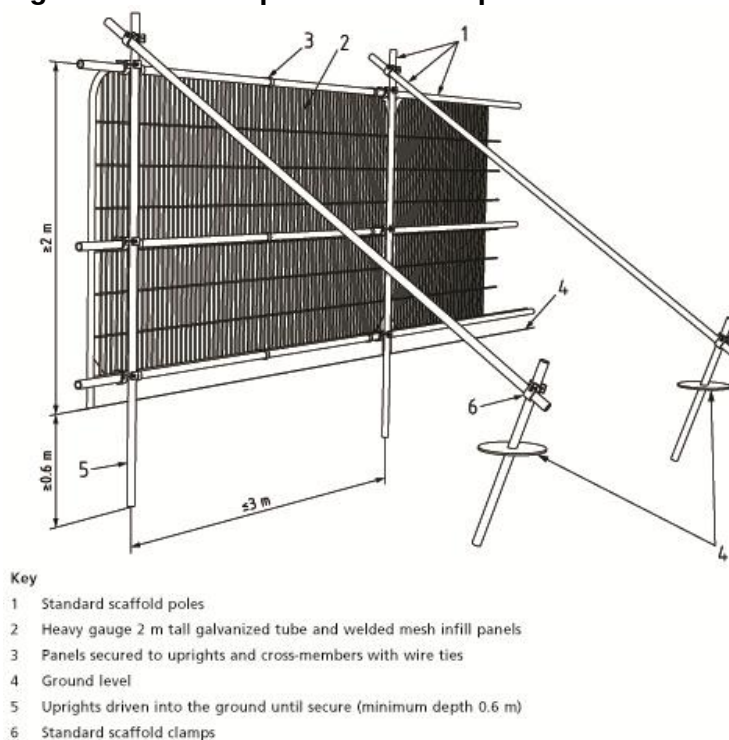
4.2 Arboricultural Method Statement (AMS)

4.1.4 Protective Barrier

The development design prepared for the site indicates that all trees are being retained. The RPA's of the trees within, or adjacent to, the development and/or the temporary access road are proposed for protection with fencing during the development works to BS 5837 (2012). The remaining trees to be retained are not close to the development activity and additional measures of protection are not considered appropriate.

- 4.1.5 Trees for removal do not need protection. The individual trees to be removed should be identified and marked by an arboricultural consultant.

Figure 2: Default specification for protective barrier to BS 5837 (2012)



5. Tree Management

- 5.1.1 The following section provides some general guidance as to how retained trees could best be protected during construction. More detailed guidelines for tree protection during construction are given in BS5837: Trees in relation to the design, demolition and construction recommendations (2012).
- 5.1.2 Any development proposals should seek to safeguard category A and B trees and trees growing offsite as well as their root protection areas (RPA). In addition refer to specific management recommendations in Appendix 1 for any other trees to be retained.
- 5.1.3 Any trees being retained during a proposed development will need to be adequately protected during any approved development works. As a general rule at this site, measures to protect trees should follow the best practice principles set out in BS5837: Trees in Relation to design, demolition and construction – recommendations (2012).
- 5.1.4 Any tree roots severed during site clearance works should be wrapped or covered with hessian sheets as an immediate protection measure against rapid temperature changes. This should be removed prior to backfilling which should be carried out as soon as possible.
- 5.1.5 Table 1 lists any preliminary management recommendations for each tree which include monitoring or maintenance works necessary to maintain the tree's health and structural integrity and ensure the safety of people using the site and the public, irrespective of any development proposals.
- 5.1.6 Prior to any construction or development work proceeding, the RPA's of individual trees to be retained should be marked out using the distances provided in the table within Appendix 1. Marking out should be completed by a person with arboricultural or horticultural expertise as individual trees will have root zones that may be affected by local conditions and allowances will need to be made to accommodate this. The best practice principles have been broadly summarised below:
- All trees retained adjacent to the site should be protected by barriers or ground protection around the calculated Root Protection Area (RPA) and as indicated on any Tree Protection Plan (TPP) that may be produced in association with the assessment.
 - Any fencing required should be erected prior to commencement of construction and before demolition including erection of any temporary structures. Once set up fences should not be removed or altered without prior consultation with the arboricultural advisor.
 - Arrangements should be made for an arboriculturist to supervise works and tree protection where trees are particularly vulnerable or sited close to access points.
 - Pre-development works may be undertaken prior to the installation of fencing with the agreement of the local planning authority.
 - All tree works should follow best practice procedures as set out in BS 3998 (2010). All trees should be maintained in good condition on site and be inspected annually (where overall condition requires) or every 2 years and after any major storm events, with safety a priority.
 - Fencing should be clearly visible and suitable for the location, type and

proximity of construction activity.

- It may be appropriate on some sites to use temporary site offices as components of the protection barriers.
- Where it has been agreed and shown on a Tree Protection Plan, construction access may take place within the RPA if suitable ground protection measures are in place (e.g. existing surfaced car park areas). In other areas this may comprise single scaffold boards over a compressible layer laid onto geo-textile materials for pedestrian movements. Vehicular movements over the RPA will require the calculation of expected loading and may require the use of proprietary protection systems.
- Once areas around trees have been protected by fencing, any works on the remaining site area may be commenced providing activities do not impinge on protected areas. Notices should be placed on fencing to indicate that operations are not permitted within the fenced area.
- Wide or tall loads etc. should not come into contact with retained trees. Banksman should supervise transit of vehicles, jibs, booms etc. where this is in close proximity to retained trees.
- Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree bole. No concrete mixing should be done within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.
- No fires will be lit where flames are anticipated to extend to within 5m of tree foliage, branches or trunk, taking into consideration wind direction and size of fire.
- Notice boards, telephone cables or other services should not be attached to any part of a retained tree.
- Where it is deemed necessary to operate a wide or tall load, plant bearing booms, jibs and counterweights or other such equipment, as part of construction works, and such equipment would have potential to cause injurious contact with crown material i.e. low branches and limbs, of retained trees within the RPA fencing, it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any obvious problem branches. This is classed as 'Facilitation Pruning' within BS 5837 (2012). Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturalist.
- It is advised that a Pre-Commencement Site Meeting is held with contractors who are responsible for operating machinery, as described above. To firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.
- In the event of having caused any such branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with BS 3998 (2010) Recommendations for Tree Work, to correct the damage, upon completion of development.

- All of the above precautionary measures should be applied to minimise the effect of any damage to long-term tree health and safety.

It is recommended that any trees that require removal or significant canopy works, should be checked in advance of works by an ecologist to ensure there is no possibility of any disturbance to nesting birds or roosting bats. None of the trees assessed have significant potential for roosting bats.

6. Appendix 1 – Tables and Figures

Table 1 - Tree Survey Schedule

Appendix 1: BS5837 Tree Schedule					
Key:	<u>Measurements</u>	<u>Age – Class</u>	<u>Overall Condition</u>	<u>BS 5837 2005 : Cascade Chart for Quality Assessment/Retention Category</u>	<u>Symbols:</u>
	MS – Multi-stemmed	YNG-MAT-Young Mature	G – Good	A – High	< = less than
	Ht - Height in metres	SM – Semi-mature	F – Fair	B – Moderate	~ = approximately
	Stem – Stem Diameter at 1.5m in mm	Mat – Mature	P – Poor	C – Low	> = greater than
	Crown – Crown spread in metres	OM – Over mature	D - Dead	U – Unsuitable for retention	
	TD - Trunk division (height in metres)	<u>Est Yrs</u> – estimate of years remaining (>40 years; >20 years; >10 years, 0-10 years)		Sub-categories: 1 = mainly arboricultural values 2 = mainly landscape values 3 = mainly cultural values.	
RPA = Root protection area (equivalent to a circle with a radius 12 x the stem diameter of single stem trees or 12 x the notional stem diameter of multi stemmed trees as per BS 5837:2012 clause 4.6).					

Tree No	Species	Ht (m)	Stem Diam cm@ 1.5m (mm)	Canopy Spread (m) N- E- S- W	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Management Recommendations	BS 5837 Category	RPA Radius (m)	RPA (m ²)
T1	Acer pseudoplatanus 'Royal Red'	6	350	4-3.5-4-4.5	4	EM	40+	Fair	Some old stem wounds	-	C2	4.20	55.42
T2	Acer pseudoplatanus 'Royal Red'	6	250	4-3-4-3	4	EM	20+	Poor	Lopped at 6m height, slight lean	-	C2	3.00	28.27
T3	Acer pseudoplatanus 'Royal Red'	6	280	4.5-4-4-3	2.5	EM	40+	Good	Bark damage at 2m	-	C2	3.36	35.47
T4	Acer pseudoplatanus 'Royal Red'	6	200	4.5-4-3-3	2.5	EM	40+	Good	-	-	C2	2.40	18.10

Tree No	Species	Ht (m)	Stem Diam cm@ 1.5m (mm)	Canopy Spread (m) N- E- S- W	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Management Recommendations	BS 5837 Category	RPA Radius (m)	RPA (m²)
T5	Acer pseudoplatanus 'Royal Red'	6	220	4.5-3-4-3	3	EM	40+	Fair	TD with third stem removed leading, included bark at TD	-	B2	2.64	21.90
T6	Acer pseudoplatanus var.	6	300	4.5-4-4-4	3	EM	20+	Fair	TD at 1.6m with included bark	Monitor TD	B2	3.60	40.72
T7	Acer pseudoplatanus 'Royal Red'	6	250	5-4-4-3	3	EM	40+	Good	-	-	B2	3.00	28.27
T8	Acer pseudoplatanus var.	6	230	4-3.5-4-3	2.5	EM	40+	Good	TD at 2m with crossing branches	Remove 2nd lowest branch	B2	2.76	23.93
T9	Acer pseudoplatanus 'Royal Red'	6	260	3.5-3.5-3.5-3	2.5	EM	40+	Good	TD at 1.8m	-	B2	3.12	30.58
T10	Acer pseudoplatanus var.	6	270	3-2-2-2	3.5	EM	20+	Fair	TD at 1.8m, some dead wood, included bark	-	B2	3.24	32.98
T11	Acer pseudoplatanus 'Royal Red'	6	200	2.5-3-2.5-2	2.5	EM	40+	Fair	-	-	B2	2.40	18.10
T12	Acer pseudoplatanus var.	6	130	3-2.5-2.5-2.5	3	EM	10+	Poor	Sparse leaf cover	-	B2	1.56	7.65
T13	Acer pseudoplatanus 'Royal Red'	6	200	3.5-2.5-3-3	3	EM	40+	Fair	Bark damage at base	-	B2	2.40	18.10
T14	Sorbus aucuparia	3	100	2-2-2-2	1.5	SM	40+	Good	-	-	C2	1.20	4.52

Tree No	Species	Ht (m)	Stem Diam cm@ 1.5m (mm)	Canopy Spread (m) N- E- S- W	Height of Crown Clearance	Age Class	Est yrs	Overall Condition	Structural condition	Management Recommendations	BS 5837 Category	RPA Radius (m)	RPA (m ²)
T15	Sorbus aucuparia	3	90	1.5-1.5-1.5-1.5	1.7	SM	40+	Good	-	-	C2	1.08	3.66
T16	Acer platanoides	8	400	5.5-6-3-5	1.5	M	10+	Fair	Significant symptoms of Phytophthora infection, including bark lesions and rusty red patches on stem.	Remove	U	4.80	72.38

7. Appendix 2 - Site Photographs



Sycamores T1- T13 along Pogmoor Road



Rowans T14 and T15 within the car park



Norway maple T16



Bark lesions and rusty patches on T16

