Greengage

Springwell School, Barnsley

Tree Survey Report

Report for Barnsley Partnership for Learning
(Laing O'Rourke)

May 2009

Institute of Chartered Foresters

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SUMMARY

Greengage Arboriculture & Ecology was commissioned to carry out a tree survey on Springwell School, Barnsley. The site is proposed for improvement, with construction of a new school building and associated facilities as part of the Building Schools for the Future programme. The site was visited during April 2009 and the trees assessed in accordance with BSS5837:2005 '*Trees in relation to construction – Recommendations*'.

The site contains a large number of trees, the majority of which are middle-age and early-mature trees growing in belts close to the boundaries. The most common trees are sycamore, silver birch, Himalayan birch and various *Sorbus* species, including rowan, hybrid service tree and Swedish whitebeam. To the south and east of the site is Spring Wood, a plantation of mixed broadleaves and scrub, which adjoins the site boundary.

A small number of trees on the site are protected by Tree Preservation Order. These are two black poplar, an ash and a pear tree, all located close to the northern boundary.

Two trees of high quality and value (A category) have been identified on the site. These are the two protected black poplar trees. Both are large mature trees in good condition that are likely to make a substantial contribution to public amenity for a period of at least forty years.

Thirty two individually surveyed trees and one group of trees have been assigned to the moderate quality and value category (B category). These include a significant number of middle-age and early-mature sycamore and silver birch, plus a number of *Sorbus* and a single ash, manna ash and pear tree. All of these trees are likely to make a significant contribution over a period of at least twenty years.

Sixty five individually surveyed trees have been assigned to the low quality and value (C category). These include younger and smaller trees that are easily replaced, those with significant structural defects and wounding (which nevertheless have a safe useful life expectancy of more than ten years) and trees of poor form. The majority of groups of tree and shrubs on-site and all hedges have been assigned to this category.

Seven trees are in a poor condition and require felling because of their condition, irrespective of any development proposal (R category). Many of these are birch trees with significant bark wounds and associated decay at the stem bases.

Trees on the site represent a constraint that should be taken into account when designing future development. It is recommended that significant consideration is given to the retention of all the high and moderate quality and value trees. Where retained, these should be provided with sufficient space to protect their root protection areas and provide sufficient space for future development without causing a nuisance. Where possible, low quality and value trees should be retained, but their presence should not represent a significant constraint on the design.

1. INTRODUCTION

1.1 Scope and brief

This arboricultural report was commissioned by Laing O'Rourke on behalf of Barnsley Partnership for Learning. Laing O'Rourke have been appointed by Barnsley Metropolitan Borough Council (Barnsley MBC) to design and construct new school buildings and facilities under Phase 2 of the Barnsley Building Schools for the Future (BSF) programme.

The report was prepared by Guy Morrison, Principal Arboriculturist and Partner of Greengage Arboriculture & Ecology. He is a Chartered Forester and Registered Consultant with the Institute of Chartered Foresters. He is also a Professional Member of the Arboricultural Association and holds the Royal Forestry Society Professional Diploma in Arboriculture.

The scope of the report was to prepare a tree survey report for the site in accordance with BSS5837:2005 '*Trees in relation to construction – Recommendations*' (BSi, 2005). This would determine the size, condition and value of trees and provide recommendations for remedial work and root protective distances to ensure the future health and stability of retained trees.

Tree survey reports have been commissioned for the three sites that form Phase 2 of the Barnsley BSF programme. These are Springwell School, Greenacre School and land to the west of Engine Lane, near Shafton. The former two sites are existing schools proposed for improvement, while the latter site is farmland proposed for development as a new school. This report relates to the Springwell School site.

1.2 Proposed development

A sketch masterplan (SK06 Rev. C) for the site's redevelopment has been developed. This shows the construction of a new school building in the north-eastern end of the site, with an energy centre, multi-use games area (MUGA) and five-aside football pitch to the west of this. The existing buildings and facilities are proposed for demolition and replacement with a football pitch, access road and car-parking.

The tree survey and assessment that forms this report was based on arboricultural characteristics alone, without reference to any specific development proposal.

2. SITE DESCRIPTION

2.1 Location and boundaries

Springwell School is a local authority pupil referral unit. The site is located at St Helen's Boulevard, Carlton Road, Barnsley, S71 2AT (site centre OS grid ref. SE358087). The red line boundary plan in Appendix E shows the extent of the site.

The site is an L-shaped parcel of land with an area of approximately 2.4ha. The existing school buildings and associated parking, access and tarmac playground all lie in the southern half of the site. The northern half of the site is a grass playing field. The site is accessed from St Helen's Boulevard to the south.

The site is bounded to the south by St Helen's Boulevard and to the west by a bowling alley and the B6132 Carlton Road. Immediately beyond the northern boundary is a small footpath, with the rear gardens of houses on Aldbury Close beyond that. Immediately beyond the eastern boundary and beyond St Helen's Boulevard to the south is Spring Wood (also named Whinns Wood), an area of plantation woodland and scrub, managed by Barnsley MBC.

2.2 Topography

The site is located approximately 90-100m above sea level.

The majority of the site area is essentially flat. It has been levelled in the past and there are short steep banks (to 3m height) on the western, northern and eastern boundaries. The surrounding land slopes down relatively steeply in Spring Wood to the east of the site.

2.3 Geology and soils

The ground investigations report (CC Geotechnical, 2006) states that the site is located on sandstone and mudstone of the Upper Carboniferous Middle Coal Measures geology. A significant proportion of the site is made ground, with an overlying layer containing brick, clay, gravel and sand to 2.5m. Elsewhere soils overlie the natural geology and solid rock lies at a depth of 0.6-2.5m below ground level.

The ground investigations report does not identify significant groundwater, but notes that it accumulated to 0.85m below ground level in some trial holes and that water infiltration rates are poor.

The ground investigations report does not investigate soil biological properties and soil investigation was not carried out as part of the tree survey. However vegetation growth and composition indicates that soils are relatively fertile and apparently adequately-drained over most of the site.

It is assumed that the soils present do not represent a significant constraint on the root development and healthy growth of the tree and shrub species present.

2.4 Vegetation

The school contains a large number of trees, the majority of which are middle-age and early-mature trees growing close to the boundaries.

At the southern entrance to the site are a group of early-mature silver birch and hybrid service trees, plus a single rowan and manna ash, all growing in mown grass.

The western boundary of the site has a narrow belt of middle-age and early-mature sycamore, silver birch and Himalayan birch trees planted on an embankment. To the north-west of this is a group of younger middle-age mixed broadleaved trees, which are also planted on an embankment.

Close to the northern boundary are two mature black poplar trees, plus a number of early-mature sycamore and ash, with goat willow, a group of planted young rowan and single mature pear tree.

There are very few trees growing on-site close to the eastern boundary, other than solitary early-mature Swedish whitebeam, silver birch and sycamore trees. Beyond the eastern boundary and to the south of St Helen's Boulevard is Spring Wood. This has been planted with mixed broadleaves including alder, Norway maple, ash and wild cherry. There are also scrub areas with naturally regenerated hawthorn and goat willow.

To the north and west of the site is a residential area with a low tree density. There are very few large mature trees in the surrounding landscape as most of the trees are either small ornamental species planted in gardens and amenity greenspace, or relatively young trees, such as those in Spring Wood.

2.5 Site access and visibility

Despite the restricted access to the school grounds, there is a relatively high public visibility of many of the trees on the site. These are visible from surrounding public viewpoints, including the B6132 Carlton Road, bowling alley and St Helen's Boulevard. At the end of St Helen's Boulevard is a footpath that runs close to the eastern boundary. This joins a footpath running along the northern boundary, where there are additional views of trees on the site from houses on Aldbury Close.

Given the relatively high public visibility of the site, many of the trees on the site have the potential for significant public amenity value.

3. STATUTORY TREE PROTECTION

The Local Planning Authority (LPA) has confirmed (e-mails dated 27/04/09 and 28/04/09) that there are a number of trees on the site protected by TPO. Barnsley MBC TPO 20/1973 protects the trees numbered 88-91, plus a number of individual trees in the off-site woodland area G116. Further details are given in the survey schedule (Appendix A). The LPA have confirmed that site is not located in a Conservation Area.

Tree Preservation Orders (TPOs) place various restrictions on the felling, pruning or damaging of trees, subject to various exemptions (DETR, 2000; DCLG, 2008). Permission is required from the LPA to fell or prune trees covered by the TPO, or to carry out any other operations that may damage the trees. There are a number of exemptions, such as the felling of dead, dying and dangerous trees, but it is recommended that the LPA is consulted on all planned works to agree on whether a formal application for permission is required.

Tree felling on non-residential land is also controlled by the need to obtain a Felling License from the Forestry Commission before felling more than $2m^2$ of timber (or $5m^2$ if timber is not sold) per three month period, subject to various exemptions (FC, 2005).

There is an exemption from the above statutory controls on tree felling and pruning for works strictly necessary to implement development that has received full planning permission. It is recommended that no tree felling is carried out until full planning permission has been gained and that trees to be felled are clearly shown on a plan (see section 6.4) that is submitted and approved by the LPA.

4. METHODOLOGY

4.1 Survey methodology

The site was visited over several days during April 2009 to carry out a survey and assessment in accordance with BS5837:2005.

A topographical survey was supplied (Malcolm Hughes Land Surveyors - drawing number: 9986/1&2) identifying the position of the trees and this formed the basis of the Tree Constraints Plan (Appendix F).

The following information was collected for each tree: species, age class (see Table 1), height, stem diameter at 1.5m above ground level, crown spread in the four cardinal directions and crown clearance height above the ground (excluding basal sprouts and epicormic branches).

Table 1. Age class categories

Age class	Proportion of life expectancy
Young (Y)	< 1/3
Middle-age (MA)	1/3 - 1/2
Early-mature (EM)	1/2 - 2/3
Mature (Mat)	>2/3
Over-mature (OM)	>2/3 (and crown retracting as a result of age)

Where multi-stemmed trees and shrubs were identified, the stem diameter was measured close to ground level, immediately above the root buttress flare. Where clusters of stems joining below ground level prevented the measure of a single basal stem diameter, the single stem equivalent diameter was calculated, based on the total basal area:

$$d_{BA} = \sqrt{\sum d^2}$$

d_{BA} is the single stem equivalent diameter (at 1.5m)
d is the measured diameter of each stem (at 1.5m)

An assessment was made of the trees' physiological and structural condition, noting any disorders or biomechanical features that present an obvious hazard to present or future users of the site or affect the trees' life expectancy.

Preliminary management works are proposed in order to either remove/reduce hazards or promote good future growth of the tree. These recommendations do not take account of any development proposals at this stage.

The trees' overall quality and value for retention was assessed in accordance with BS5837:2005 Table 1 (Appendix C). This was dependent on the trees' physiological and structural condition, safe useful life expectancy and arboricultural, landscape, cultural and ecological value. Arboricultural and landscape value takes account of the trees' amenity value, which was determined by tree size, prominence, visibility, appropriateness, attractiveness and screening value.

The root protection area (RPA) radius and area for each tree was calculated in accordance with BS5837:2005. The RPA is an area of ground that provides sufficient soil rooting volume to ensure the survival of the tree. Where there are no likely impediments to rooting, a circular RPA is shown on the Tree Constraints Plan. Where restrictions on rooting are likely, a non-circular shape with an identical area has been plotted. RPA has not been plotted extending beneath buildings or beyond tall retaining walls. Where hard surfaces are present and the trees are open-grown, the RPA has been partially off-set (by up to 20%) away from this to reflect the fact that some rooting beneath the surface is likely, but the tree is likely to have responded to the poor quality of the soil environment beneath the hard surface by increased rooting into adjacent soft-surfaced areas.

4.2 Survey limitations

Trees were assessed visually from ground level. No climbed inspection or detailed investigation of decay was made. These are identified within the *schedule* where further action is necessary to fully assess the tree.

Tree condition can change significantly over a relatively short period of time, and therefore the results and recommendations of this survey can only be held to be valid for a period of 12 months following the survey date. The trees should be re-inspected at this time by a competent person.

5. SURVEY RESULTS

The full survey results are shown in the survey schedule in Appendix A.

The survey assessed 106 individual trees and shrubs, six groups of trees (831m^2 total on-site area) and five hedges (67m length).

The composition and distribution of species, age classes, size (height and stem diameter) and quality and value categories for individually surveyed trees and shrubs are summarised in Figures 1-5 below.

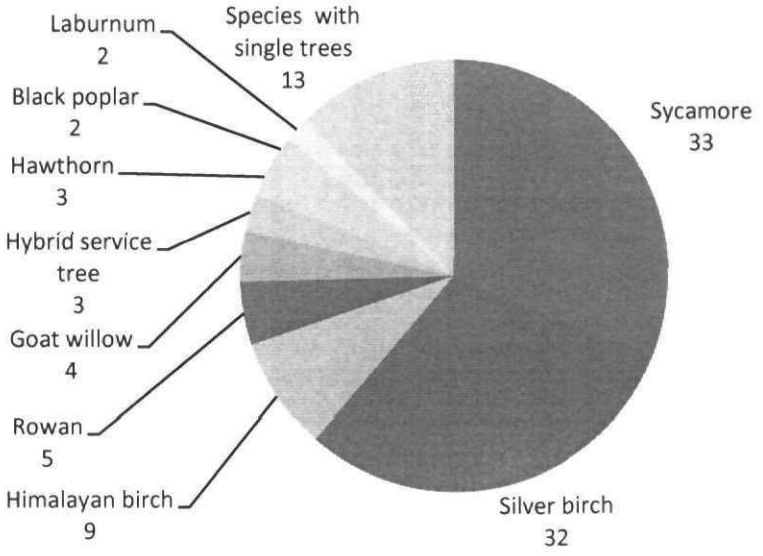

Fig. 1. Species distribution of individually surveyed trees and shrubs

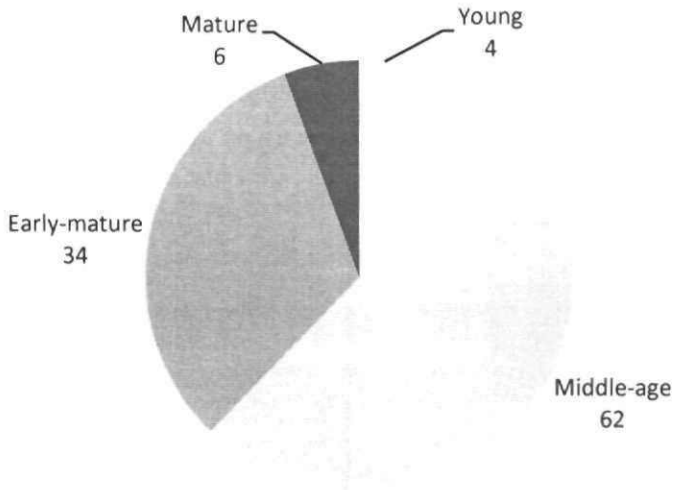

Fig. 2. Age-class of distribution of individually surveyed trees and shrubs

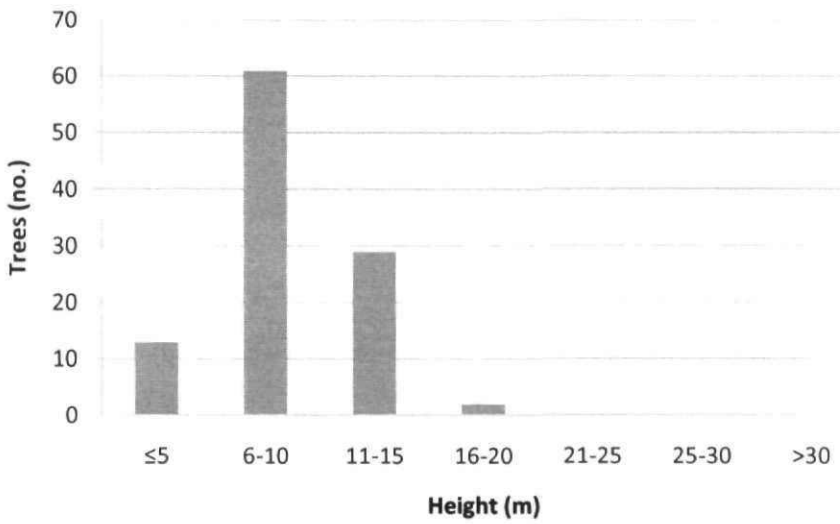

Fig. 3. Height distribution of individually surveyed trees and shrubs

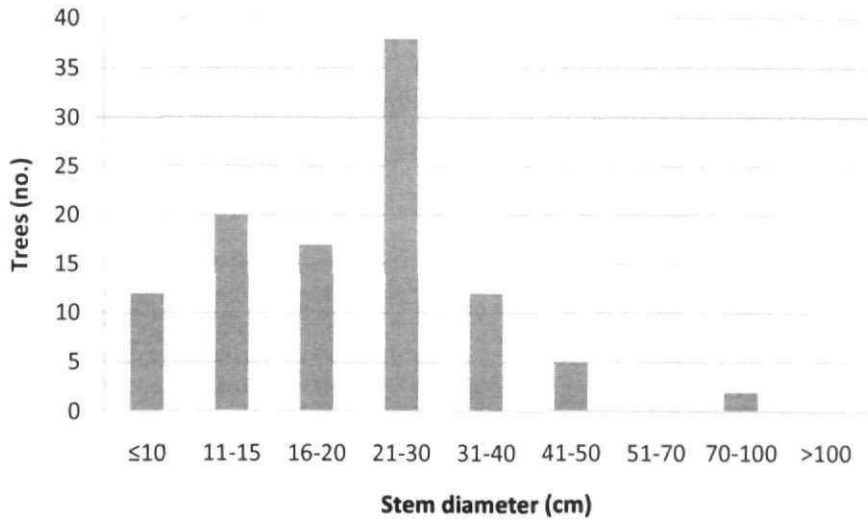

Fig. 4. Stem diameter distribution of individually surveyed trees and shrubs (includes basal diameter and single stem equivalent diameter (d_{BA}) for multi-stemmed trees and shrubs)

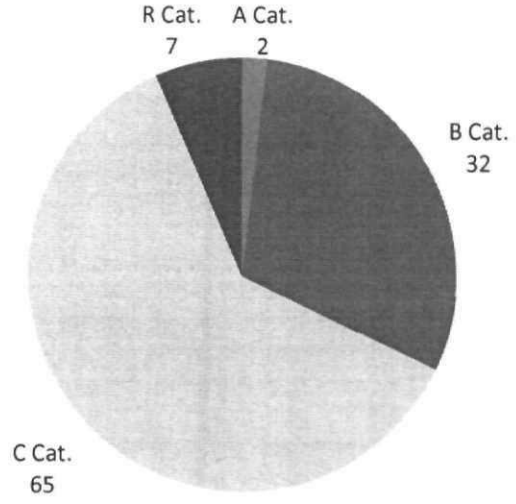

Fig. 5. Quality and value category representation of individually surveyed trees and shrubs

Two trees of high quality and value (A category) have been identified on the site. These are the two black poplar trees (no.s 89 and 90) located close to the site's northern boundary. Both are large mature trees in good condition that are likely to make a substantial contribution to public amenity for a period of at least forty years. Both trees are protected by TPO.

Thirty two individually surveyed trees have been assigned to the moderate quality and value category (B category). These include a significant number of middle-age and early-mature sycamore and silver birch trees growing in the belt close to the western boundary. Other trees in this category include early-mature and mature sycamore, ash and pear growing close to the northern boundary and early-mature silver birch and assorted *Sorbus* species growing adjacent to the existing buildings and close to the southern boundary. All of these trees are likely to make a significant contribution over a period of at least twenty years.

Sixty five individually surveyed trees have been assigned to the low quality and value (C category). These include younger and smaller trees that are easily replaced, those with significant structural defects and wounding (which nevertheless have a safe useful life expectancy of more than ten years) and trees of poor form, such as multi-stemmed trees or those with strongly leaning stems and very irregular crowns.

Seven trees are in a poor condition and require felling because of their condition, irrespective of any development proposal (R category). Many of these are birch trees with significant bark wounds and associated decay at the stem bases, which appear to have been caused by mower and strimmer damage. It was noted that all trees growing in areas of grass have been sprayed with a ring of herbicide, which should reduce future grounds maintenance-related damage to the trees.

Of the six on-site groups of trees surveyed, one (G68) has been assigned to the moderate quality and value category (B category). This group is composed of young middle-age trees that has an important role in screening the site. The groups of trees and shrubs that adjoin the site and form part of Spring Wood (G116 and G1117) have also assigned to the moderate quality and value category. All other groups of trees on the site have been identified as the low quality and value (C category), generally because of their small area, limited visibility or because they are composed of relatively small-growing and easily replaced ornamental shrubs.

All surveyed hedges on the site have been planted with Lawson cypress and all have been identified as being of low quality and value (C category). The main hedge on the site has been planted on the western boundary. This is located behind a belt of trees and does not make a significant contribution to public amenity or the screening of the site.

6. RECOMMENDATIONS

6.1 Preliminary work recommendations

The survey schedule (Appendix A) contains preliminary work recommendations. These recommendations do not take account of development proposals and it is

likely additional felling and pruning would be necessary to accommodate any development proposals (see section 6.4).

No urgent works are proposed and all the preliminary work recommendations could be postponed for up to 12 months until a development proposal is finalised and receives planning permission.

All works carried out should comply with BS3998:1989 *'British Standard Recommendations for Tree Work'* (BSi, 1989), or its replacement standard.

Appropriate permission should be sought were works are planned to trees protected by TPO (see section 3.0 and Appendix A).

6.2 Tree quality and value retention

Trees on the site represent a constraint that should be taken into account when designing future development. Of these, the greatest constraint is represented by the two high quality and value (A category) trees and it is strongly recommended that significant consideration is given to retaining these within the development. The 32 moderate quality and value (B category) trees also represent a constraint and it is recommended that significant consideration is given to retaining these within the development. All retained trees should be retained with sufficient space to avoid construction damage and allow their future development.

Where possible, low quality and value (C category) trees should be retained, but their presence should not represent a significant constraint on the design. It should be noted that although the individual loss of low value trees will not have an impact, the cumulative loss of a large number of low value trees could produce a local landscape and ecological impact due to a loss of overall tree cover. Under these circumstances, consideration should be given to providing space for mitigation planting as part of the landscaping of the development scheme.

The seven poor quality and value (R category) trees of trees requiring removal irrespective of the development proposal should obviously not represent a constraint.

6.3 Sustainable tree retention

In order to allow for the long-term sustainable retention of trees, two requirements need to be met. The first is that there is no adverse physical impact on the trees. This can be met by ensuring that no adverse construction takes place within the RPA given in the survey schedule (Appendix A) and shown on the Tree Constraints Plan (Appendix F). Where construction or demolition works are required to take place in the RPA, special care and design will be required to reduce the impact on the trees and it is recommended that additional advice is sought from an arboriculturist.

In addition to reducing the physical impact on the tree, it is also important to allow the space for trees to grow and develop without causing significant nuisances such as severe loss of light to adjacent properties that will lead to pressure for their future felling or severe pruning. The Tree Constraints Plan (Appendix F) shows the existing provisional shade profiles (marked as a segment from north-west to east, with radius equivalent to current tree height, in accordance with BS5837:2005). Very few of the trees on the site are mature trees that have grown to their maximum height and account should be taken of potential future growth. Provisional maximum heights are given in Appendix B and it is recommended that this information is taken account of during the design process.

It is understood that it is intended to commission an arboricultural implications assessment. This report should identify the direct and indirect impacts of the development proposal on the trees. In addition to the proposed layout, the assessment of impact should also consider changes to levels and proposed service routing. It should also provide outline recommendations for mitigation works where required and identify where revisions to the layout and standard construction methodologies could reduce arboricultural impact.

6.4 Construction phase tree protection and works

It is recommended that all retained trees on or immediately adjacent to the site should be protected by protective fencing during the site demolition and construction phases. This construction exclusion zone should protect the RPA and ensure that trees to be retained and their essential rooting zone is not damaged during the works. All potentially damaging operations should be excluded from within the construction exclusion zone, including: excavation, changes to levels, temporary access, vehicle parking or movements, fires and the storage, disposal or mixing of materials and chemicals.

It is understood that it is intended to commission an arboricultural method statement. The method statement should detail procedures and methods to be adopted to protect trees and their rooting environment during the construction and demolition works. The method statement should be produced once the detailed design of the proposed development is finalised.

The method statement should be accompanied by a tree protection plan. The plan should show the location and detailing of the protective fencing and other tree protection measures, such as ground protection, both in relation to the existing and proposed layout. It should also show trees to be retained and removed.

The method statement should be accompanied by a schedule and specification for facilitation works to trees that are necessary in order to accommodate the proposed development, as well as remedial works necessary to improve tree

condition and reduce risk to an acceptable level within the context of the proposed site layout and use.

6.5 Protected species

Trees on the site may be used for nesting by birds during the spring and summer. Nesting birds and their nests are legally protected and wherever possible the felling or pruning trees should be avoided between 1 March to 30 August to avoid an impact on nesting birds. Where it was necessary to carry out the work during this period then advice should be sought from an ecologist.

Trees may be used by bats for roosting, and both bats and their roosts are legally protected. Bat roosts within trees are usually associated with features such as cavities, cracks, loose bark and dense ivy. A formal bat roost potential survey has not carried out, but it was noted that trees numbered 88-91 are mature trees with a small number of potential bat roosting features. It is strongly recommended that advice is sought from an ecologist if it is intended to fell or carry out works to these trees or any other trees containing potential bat roosting features.

It is understood that an ecological survey will be commissioned at Stage 2 of the project. It is recommended that this determines the presence or absence of bats and any other protected species associated with the trees on the site. Observations and recommendations from the ecological survey should be incorporated into the arboricultural implications assessment (see section 6.3) and method statement (see section 6.4).

7. REFERENCES

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APPENDIX A – TREE SURVEY SCHEDULE

Table A1. Tree Survey Schedule

No.	Species	Age class	Stem diameter (cm)	Stem no.	Height (m)	Crown clearance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Remaining contribution (yrs)	Category grade	RPA radius (m)	RPA area (m^2)
								Physiological	Structural						
1	Sycamore	MA	24	1	9	1.7	N 2 E 3.5 S 3 W 3	G	G	Retaining wall located 2.0m to the S of tree.	No action	>40	B_2	2.88	26
2	Sycamore	MA	23	1	11	1.5	N 2 E 5 S 2.5 W 3.5	G	G	None	No action	>40	B_2	2.76	24
3	Sycamore	MA	17	1	9	2	N 1 E 4 S 1.5 W 1.5	G	G	None	No action	>40	C_{123}	2.04	13
4	Sycamore	MA	24	1	9	1.7	N 3 E 2.5 S 2.5 W 3.5	G	G	None	No action	>40	B_2	2.88	26
5	Sycamore	MA	23	1	11	3.5	N 4.5 E 3 S 3.5 W 2.5	G	G	None	No action	>40	B_2	2.76	24
6	Hybrid service tree	EM	26	1	9.5	2	N 3.5 E 3.5 S 3 W 1.5	G	G	Minor bark wound at the stem base. Stone tightly wedged into main fork.	Dislodge stone wedged in fork at 2m.	20-40	C_{123}	3.12	31
7	Stump	MA	15 @base	1	0		NA	G	G	Very decayed stump.	No action	0	R	NA	NA

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
8	Himalayan birch	MA	13	1	7	1.7	N 2 E 2 S 1 W 2	F	G	Crown density and vigour slightly reduced.	No action	20-40	C_{123}	1.56	8
9	Himalayan birch	MA	11	1	7	2	N 2 E 2.5 S 2 W 1.5	F	G	Crown density and vigour slightly reduced.	No action	20-40	C_{123}	1.32	5
10	Himalayan birch	MA	12	1	8	1	N 2 E 3.5 S 2 W 0.5	G	F	Significant bark wound at SW stem base. Early decay established. Bowed stem leans east. Crown density and vigour slightly reduced.	No action	10-20	C_{123}	1.44	7
11	Himalayan birch	MA	10	1	7	1.5	N 1.5 E 1.5 S 2 W 1.5	F	F	Significant bark wound at stem base and damage to surface roots. Early decay established. Crown density and vigour slightly reduced.	No action	10-20	C_{123}	1.20	5
12	Himalayan birch	MA	10	1	7	1.8	N 0.5 E 0.5 S 2 W 2	F	F	Small bark wound at S stem base. Crown density and vigour slightly reduced.	No action	10-20	C_{123}	1.20	5

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
13	Himalayan birch	MA	12	1	9	2.5	N 0.5 E 2.5 S 1.5 W 0	F	P	Major bark wounds at S and SE stem base. Wounds cover 1/4 of stem circumference. Significant decay will develop. Crown density and vigour reduced.	Fell tree	<10	R	NA	NA
14	Sycamore	MA	24	1	10.5	2	N 1.5 E 4.5 S 4 W 1.5	G	G	Suppressed by tree no. 15, which has caused an irregular crown.	No action	>40	C_{123}	2.88	26
15	Sycamore	MA	28	1	10	2	N 2 E 4 S 3 W 4	G	G	None	No action	>40	C_{123}	3.36	35
16	Sycamore	MA	16	1	10.5	2	N 1 E 2.5 S 2 W 0.5	G	G	Suppressed by tree no. 17, which has caused an irregular crown.	No action	>40	C_{123}	1.92	12
17	Sycamore	MA	31	1	11.5	2	N 4.5 E 5.5 S 2.5 W 5.5	G	G	None	No action	>40	B_2	3.72	43
18	Sycamore	MA	22	1	11.5	2.5	N 3 E 4 S 0.5 W 1.5	F	G	Crown density and vigour slightly reduced.	No action	20-40	C_{123}	2.64	22

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diameter (cm)	Stem no.	Height (m)	Crown clearance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Remaining contribution (yrs)	Category grade	RPA radius (m)	RPA area (m^2)
								Physiological	Structural						
19	Himalayan birch	MA	14	1	9.5	1.8	N 0.5 E 2 S 1.5 W 0.5	F	P	Major bark wounds at SW stem base and NW stem at 1.5m. Significant decay will develop. Crown density and vigour reduced.	Fell tree	<10	R	NA	NA
20	Silver birch	EM	22	1	12	1	N 2.5 E 4 S 2.5 W 1.5	G	G	None	No action	20-40	B_2	2.64	22
21	Silver birch	EM	20	1	11	1.8	N 1.5 E 2.5 S 2 W 3	G	G	None	No action	20-40	B_2	2.40	18
22	Sycamore	MA	23	1	8.5	2	N 2 E 3.5 S 2.5 W 4	G	G	Located close to drainage manhole. Dog rose growing through tree crown.	No action	>40	B_2	2.76	24
23	Sycamore	MA	26	1	9.5	2	N 4 E 4 S 3.5 W 4.5	G	G	None	No action	>40	B_2	3.12	31
24	Silver birch	EM	27	1	12	1.5	N 4.5 E 5.5 S 4 W 0.5	G	F	Suppressed by tree no. 23, which has caused a bowed stem and irregular crown. Significant bark wound at W stem base.	No action	10-20	C_{123}	3.24	33

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W - west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diameter (cm)	Stem no.	Height (m)	Crown clearance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Remaining contribution (yrs)	Category grade	RPA radius (m)	RPA area (m^2)
								Physiological	Structural						
25	Silver birch	EM	26	1	11	0.5	N 3.5 E 3.5 S 2 W 4	G	G	None	No action	20-40	B_2	3.12	31
26	Silver birch	EM	21	1	9	1.5	N 2 E 3 S 2.5 W 3.5	G	F	Major bark wound on stem at 1.5m NW. Wound covers 1/4 of stem circumference. Significant decay will develop. Former branch snap at 2.5m has caused a wound and site of potential decay. Crown density and vigour reduced.	Fell tree	<10	R	NA	NA
27	Sycamore	MA	15	1	7	1.8	N 1.5 E 1.5 S 2.5 W 2.5	G	G	None	No action	>40	$C_{1,3}$	1.80	10
28	Sycamore	MA	27	1	11	1	N 3 E 4.5 S 2.5 W 5	G	G	None	No action	>40	B_2	3.24	33
G29	Mixed broadleaves	Y	≤8	1/MS	≤5	≥0	≤2	G	G	Understorey of mixed trees and shrub species including: wild cherry, goat willow, silver birch, Swedish whitebeam and flowering currant.	No action	>40	$C_{2,3}$	CS	CS

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diameter (cm)	Stem no.	Height (m)	Crown clearance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Remaining contribution (yrs)	Category grade	RPA radius (m)	RPA area (m^2)
								Physiological	Structural						
H30	Lawson cypress cv	Y	≤10 @base	MS	2-2.5	0.5	0.5	G	G	Untrimmed hedge on boundary. Cultivar unknown, but appears to be of relatively low vigour.	No action	20-40	C_{23}	CS	CS
31	Sycamore	MA	22	1	10	2.5	N 2 E 4.5 S 2.5 W 4	G	G	None	No action	>40	B_2	2.64	22
32	Silver birch	EM	31	1	12.5	1	N 3 E 3.5 S 4 W 2	G	P	Major bark wound on stem at 0.5m SW. Wound covers 1/5 stem circumference. Significant decay will develop.	Fell tree	<10	R	NA	NA
33	Sycamore	MA	30	1	10	1.8	N 4 E 3.5 S 4 W 5	G	G	None	No action	>40	C_{123}	3.60	41
34	Silver birch	MA	19	1	12	2.5	N 2.5 E 2 S 1.5 W 1	G	F	Bowed stem. Surface roots damaged.	No action	20-40	C_{123}	2.28	16
35	Himalayan birch	MA	14	1	8	2.5	N 2.5 E 2.5 S 1.5 W 2	F	G	Crown density and vigour slightly reduced.	No action	20-40	C_{123}	1.68	9
36	Laburnum	MA	14 @base	1	4	1.5	N 2.5 E 1 S 1 W 2.5	G	G	None	No action	20-40	C_{123}	1.40	6

Age class: Y - young MA - middle-age EM - early mature Mat - mature OM - over-mature **Branch spread:** N - north E - east S - south W - west **Condition:** G - good F - fair P - poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
37	Silver birch	EM	27	1	13	1.8	N 4.5 E 4 S 2.5 W 2	G	G	None	No action	20-40	B_2	3.24	33
38	Hawthorn	MA	17 @base	2	6	0	N 2 E 2.5 S 2 W 2.5	G	G	Located 0.1m from drainage manhole.	No action	20-40	C_{123}	1.70	9
39	Silver birch	MA	10	1	9.5	1	N 1 E 2 S 2.5 W 0.5	G	G	None	No action	>40	C_{123}	1.20	5
40	Silver birch	MA	12	1	11	0.5	N 2 E 2.5 S 1.5 W 0.5	G	G	None	No action	>40	C_{123}	1.44	7
41	Sycamore	MA	13+11 +11+1 0+8	5	8	0.5	N 2 E 3.5 S 3.5 W 3.5	F	F	Cluster of stems, including 1 dead stem.	Select the single largest and best-formed stem. Remove all other stems to improve the tree's future form.	>40	C_{123}	2.88	26
42	Laburnum	MA	21 @base	2	4	1.2	N 2 E 1.5 S 2 W 2.5	G	G	None	No action	20-40	C_{123}	2.10	14
43	Sycamore	MA	13+12 +12	3	3.5	0.5	N 1 E 2.5 S 2 W 3.5	G	F	Multi-stemmed tree.	Select the single largest and best-formed stem. Remove all other stems to improve the tree's future form.	>40	C_{123}	2.57	21

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diameter (cm)	Stem no.	Height (m)	Crown clearance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Remaining contribution (yrs)	Category grade	RPA radius (m)	RPA area (m^2)
								Physiological	Structural						
44	Silver birch	MA	36 @base	2	11	1.8	N 3 E 3 S 4 W 2	G	P	Twin-stemmed from fork at the base. E stem has a significant bark wound at 1.5m. E stem has previously lost leader at 3.0m. Decay established.	Remove E stem.	10-20	C_{123}	3.60	41
45	Silver birch	MA	17	1	12	2	N 1 E 3 S 2 W 0	F	P	Major bark wound and decay strips on stem from base to 1.2m S.	Fell tree	<10	R	NA	NA
46	Sycamore	MA	10+10+10+10+7+7+7+7	7	9	1	N 4 E 3 S 3 W 4	G	F	Multi-stemmed tree.	Select the single largest and best-formed stem. Remove all other stems to improve the tree's future form.	>40	C_{123}	2.93	27
47	Sycamore	MA	10+8+8+5+5+5	6	10	0.5	N 1.5 E 3.5 S 3 W 1.5	G	F	Multi-stemmed tree.	Select the single largest and best-formed stem. Remove all other stems to improve the tree's future form.	>40	C_{123}	2.09	14
48	Sycamore	MA	12+10+8+8+7+7+7	7	10	0.5	N 2.5 E 4 S 3 W 4	G	F	Multi-stemmed tree.	Select the single largest and best-formed stem. Remove all other stems to improve the tree's future form.	>40	C_{123}	2.73	23

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
H49	Lawson cypress cv	Y	≤10 @base	MS	1.5-2	0.5	0.5	G	G	Untrimmed hedge on boundary. Cultivar unknown, but appears to be of relatively low vigour.	No action	20-40	C_{23}	CS	CS
50	Silver birch	MA	15	1	8	1.5	N 0.5 E 2.5 S 3.5 W 1	F	F	Suppressed by tree no. 49, which has caused a bowed stem and irregular crown.	No action	20-40	C_{123}	1.80	10
51	Sycamore	MA	14+8+ 8+7+7	5	9	0.5	N 1 E 7 S 2.5 W 2.5	G	F	Multi-stemmed tree. Stem has fallen, but remain growing ton the E.	Select the single largest and best-formed stem. Remove all other stems (including the fallen stem) to improve the tree's future form.	>40	C_{123}	2.47	19
52	Sycamore	MA	17	1	10.5	1.5	N 2 E 2 S 3.5 W 1.5	G	G	None	No action	>40	C_{123}	2.04	13
53	Himalayan birch	MA	10	1	9	0.5	N 2 E 2.5 S 2.5 W 0.5	G	F	None	No action	20-40	C_{123}	1.20	5
54	Sycamore	MA	13	1	8	1	N 0 E 1 S 1.5 W 2.5	F	G	None	No action	>40	C_{123}	1.56	8

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	*Preliminary* management recommendations	*Rema-ining* contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
55	Sycamore	MA	17	1	11.5	1.5	N 1.5 E 3 S 2 W 2	G	G	None	No action	>40	C_{123}	2.04	13
56	Hawthorn	EM	21 @base	5	6	0.3	N 2 E 1.5 S 2 W 2.5	G	G	None	No action	20-40	C_{123}	2.10	14
57	*Silver birch*	EM	25	1	12.5	2.5	N 2 E 3 S 4 W 3	G	G	None	No action	20-40	B_2	3.00	28
58	Silver birch	MA	11	1	11	6	N 1.5 E 2 S 1.5 W 0	F	G	Suppressed by adjacent trees, leading to a narrow crown and drawn form.	No action	20-40	C_{123}	1.32	5
59	Silver birch	EM	16	1	11.5	3.5	N 1.5 E 3.5 S 2 W 0	G	G	Leaning stem.	No action	20-40	C_{123}	1.92	12
60	Silver birch	EM	19	1	10.5	0.5	N 2 E 5 S 3.5 W 0.5	G	G	Suppressed by tree no. 54, which has caused an irregular crown.	No action	20-40	C_{123}	2.28	16
61	Silver birch	Y	11 @base	MS	3	0.3	N 2.5 E 2.5 S 1.5 W 0.5	G	G	Suppressed by tree no. 57.	No action	20-40	C_{123}	1.10	4

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
62	Silver birch	EM	22	1	12	3	N 2.5 E 4 S 2.5 W 2	G	G	None	No action	20-40	B_2	2.64	22
63	Sycamore	MA	14+8+5	3	8	1	N 3 E 3 S 2.5 W 2	G	G	Multi-stemmed tree.	Select the single largest and best-formed stem. Remove all other stems to improve the tree's future form.	>40	C_{123}	2.03	13
64	Silver birch	EM	13	1	10	2.5	N 2.5 E 2.5 S 1 W 1.5	G	G	None	No action	20-40	C_{123}	1.56	8
65	Silver birch	EM	22	1	10.5	1.8	N 2.5 E 3 S 2.5 W 2	G	G	None	No action	20-40	B_2	2.64	22
H66	Lawson cypress cv	Y	≤10 @base	MS	1-2.5	0.5	0.5	G	G	Untrimmed hedge on boundary. Cultivar unknown, but appears to be of relatively low vigour.	No action	20-40	C_{23}	CS	CS
H67	Lawson cypress cv	Y	≤10 @base	MS	2-3	0.5	0.5	G	G	Untrimmed hedge on boundary. Cultivar unknown, but appears to be of relatively low vigour.	No action	20-40	C_{23}	CS	CS

Age class: Y – young MA – middle-age EM - early mature Mat - mature OM - over-mature **Branch spread:** N – north E - east S - south W - west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diameter (cm)	Stem no.	Height (m)	Crown clearance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Remaining contribution (yrs)	Category grade	RPA radius (m)	RPA area (m^2)
								Physiological	Structural						
G68	Mixed broadleaves	Y	≤10	1/MS	≤9	≥0	≤2.5	G	G	Group of planted mixed broadleaved species, including: silver birch, alder, field maple, bird cherry, rowan, hazel and common lime. Includes small group of Leyland cypress.	No action necessary immediately. Densely planted group requires thinning by 33% within 5 years.	>40	B_2	CS	CS
69	Goat willow	MA	28 @base	MS	6	2	N 3 E 3 S 3 W 3	G	G	None	No action	20-40	C_{123}	2.80	25
70	Alder	MA	16	1	8	1	N 2.5 E 2.5 S 1.5 W 3.5	G	P	None	No action	>40	B_2	1.92	12
71	Silver birch	EM	30	1	11	0.5	N 3 E 4 S 3.5 W 3.5	G	G	Stem split at 7m, with damaged branch hanging in crown.	Remove split hanging branch. Reduce split stem to main fork 1.0m below split.	20-40	C_{13}	3.60	41
72	Sycamore	EM	46	1	14	1.8	N 5 E 5.5 S 5 W 5	G	F	None	Remove basal sprouts to improve tree form.	>40	B_1	5.52	96
73	Goat willow	EM	18+15 +15+1 5+10	5	7.5	0	N 3 E 3 S 5 W 6	G	G	Multi-stemmed tree. Minor bark wound.	No action	20-40	C_{123}	3.98	50

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
74	Sycamore	EM	28	1	9	2	N 4 E 4 S 4 W 3.5	G	F	Significant stem bark wound at 1.0m W. Wound occluding well. Monitor decay development.	Remove basal sprouts to improve tree form.	20-40	C_{123}	3.36	35
75	Goat willow	EM	20+15 +15+1 4+14	5	7.5	0	N 2 E 4 S 6.5 W 5	G	G	Multi-stemmed tree.	No action	20-40	C_{123}	4.23	56
76	Goat willow	EM	20+18 +18+1 5	4	9	0	N 4 E 2.5 S 6.5 W 3.5	G	G	Multi-stemmed tree. Minor bark wound.	No action	20-40	C_{123}	4.28	58
77	Sycamore	EM	30	1	9	1.5	N 5 E 6 S 5 W 4	G	G	None	Remove basal sprouts to improve tree form.	>40	B_1	3.60	41
78	Sycamore	MA	19 @base	MS	8	1	N 3 E 0 S 4.5 W 3	G	G	Tree of poor form *suppressed by tree no. 79.*	Consider felling tree to *improve the form and* development of tree no. 79.	20-40	C_{123}	1.90	11
79	Sycamore	EM	38	1	10.5	1.8	N 5 E 5 S 5 W 5	G	G	None	No action	>40	B_1	4.56	65
G80	Mixed broadleaves	Y/MA	≤10	1/MS	≤7	≥0.5	≤4	G	G	Small group of mixed broadleaved species, including wild cherry, sycamore and goat willow.	No action	>40	C_{23}	CS	CS

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
81	Rowan	MA	9	1	5.5	1.8	N 1.5 E 1.5 S 1.5 W 1.5	G	P	Relatively recently planted tree. Significant stem wound caused by rubbing redundant stake.	Remove stake.	20-40	C_{13}	1.08	4
82	Rowan	MA	9	1	5.5	1.8	N 1 E 1.5 S 1 W 1	G	F	Relatively recently planted tree. Stem compressed by redundant tie. Mower / strimmer damage to stem base.	Remove stake and tie.	20-40	C_{13}	1.08	4
83	Rowan	MA	9	1	5	2	N 1.5 E 1.5 S 1.5 W 1.5	G	F	Relatively recently planted tree. Minor stem wound caused by rubbing redundant stake. Mower / strimmer damage to stem base.	Remove stake.	20-40	C_{13}	1.08	4
84	Rowan	MA	8	1	5	1.8	N 2 E 1.5 S 1 W 2	G	F	Relatively recently planted tree. Minor stem wound caused by rubbing redundant stake. Mower / strimmer damage to stem base.	Remove stake.	20-40	C_{13}	0.96	3

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
85	Unknown	Y	7 @base	1	3	1	N 1 E 1 S 1.5 W 1.5	G	G	Relatively recently planted tree. Unknown species resembling mulberry. Confirm species when in leaf.	No action	>40*	C_{13}	0.70	2
86	Weeping willow	Y	8 @base	1	2.5	0.3	N 1 E 1.5 S 1 W 0.5	P	F	Relatively recently planted tree. Significant stem cankers and shoot die-back. Mower / strimmer damage at base.	Fell tree	<10	R	NA	NA
87	Aspen	Y	10	1	5.5	1.2	N 2 E 2 S 2 W 2	G	G	Relatively recently planted tree.	No action	>40	C_{13}	1.20	5
88	Ash	EM	49	1	15	1.2	N 6 E 6 S 6 W 6	F	F	Crown vigour slightly reduced. Storm damage with hanging and split branches. Minor bark wounds and decay pockets on stem. Tree protected by TPO (Barnsley MBC TPO 20/1973 G6).	Remove split and hanging branches. Consult LPA before carrying out work to confirm proposed works are exempt from the need to obtain permission.	20-40	B_1	5.88	109

Age class: Y - young MA - middle-age EM - early mature Mat - mature OM - over-mature **Branch spread:** N - north E - east S - south W - west **Condition:** G - good F - fair P - poor VP - very poor

No.	Species	Age class	Stem diameter (cm)	Stem no.	Height (m)	Crown clearance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Remaining contribution (yrs)	Category grade	RPA radius (m)	RPA area (m^2)
								Physiological	Structural						
89	Black poplar	Mat	90	1	20	1.8	N 7 E 5.5 S 7 W 5	G	G	Large prominent tree. Minor decay associated with former removal of lower branches. Minor deadwood in crown. Tree protected by TPO (Barnsley MBC TPO 20/1973 G6 or T9).	No action	>40	A_1	10.8	366
90	Black poplar	Mat	92	1	20	0.5	N 6 E 6 S 4 W 3	G	G	Large prominent tree. Minor deadwood in crown. Tree protected by TPO (Barnsley MBC TPO 20/1973 G6 or T9).	No action	>40	A_1	11.04	383
91	Pear	Mat	48	1	7	1	N 3 E 2.5 S 3 W 3	G	F	Cavity at base with fire damage. Decay not structurally significant due to small tree size. Stem cavity at 1.8m N. May be potential bird nesting hole. Basal growth of rootstock. Tree protected by TPO (Barnsley MBC TPO 20/1973 G5).	No action	20-40	B_1	5.76	104
92	Swedish whitebeam	EM	35	1	7.5	2	N 4 E 4 S 4 W 3.5	G	G	NB: Temporary classroom and tarmac surfacing to the S not shown on plan.	No action	20-40	B_2	4.20	55

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diameter (cm)	Stem no.	Height (m)	Crown clearance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Remaining contribution (yrs)	Category grade	RPA radius (m)	RPA area (m^2)
								Physiological	Structural						
93	Silver birch	Mat	31+26 +13	3	12	1.5	N 3.5 E 5.5 S 3.5 W 3	G	G	Twin-stemmed tree growing on steep bank. NB: Temporary classroom and tarmac surfacing to the W not shown on plan.	No action	20-40	B_1	5.10	82
94	Sycamore	MA	24+24 +16+1 6+14+ 12+10 +8+8	10	10	1.5	N 4.5 E 4.5 S 6.5 W 4.5	G	F	Multi-stemmed tree growing on steep bank. NB: Temporary classroom and tarmac surfacing to the W not shown on plan.	Select the single largest and best-formed central stem. Remove all other stems to improve the tree's future form.	>40	C_{13}	5.67	101
95	Silver birch	Mat	35	1	11	1.2	N 4 E 5 S 5.5 W 4.5	G	G	NB: Temporary classroom and tarmac surfacing to the N not shown on plan.	No action	20-40	B_1	4.20	55
96	Hawthorn	EM	30 @base	MS	6	1	N 3 E 3 S 3 W 3	G	G	Off-site tree.	No action	20-40	C_{13}	3.00	28
97	Silver birch	MA	13	1	8	1.8	N 1.5 E 2 S 2 W 1	G	G	NB: Tarmac surfacing to the E not shown on plan.	No action	>40	C_{13}	1.56	8
98	Silver birch	MA	19 @base	1	7	1.6	N 2 E 2.5 S 1.5 W 2	G	F	Stem bark wound at 1.6m occluding. NB: Tarmac surfacing to the E not shown on plan.	No action	>40	C_{13}	1.90	11
99	Silver birch	MA	12	1	8.5	1.8	N 2.5 E 2 S 2 W 2.5	G	G	NB: Tarmac surfacing to the E not shown on plan.	No action	>40	C_{13}	1.44	7

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
100	Cherry laurel	EM	13+12 +10+8 +8	5	7	0	N 2.5 E 3.5 S 3 W 1	G	G	Off-site shrub. Several stems broken at approx. 2m.	*Coppice shrub.*	20-40	C_{13}	2.79	24
101	Sycamore	MA	24 @base	3	6.5	2	N 3 E 2 S 2.5 W 2.5	G	F	Twin-stemmed tree with weak main fork with included bark. Branches obstructing adjacent lamp.	Consider felling tree of poor form and position. *If retained, remove* secondary stem and prune clear of lamp.	20-40	C_{13}	2.40	18
102	Wild cherry	MA	15	1	7	1.5	N 3 E 3 S 3 W 3	G	G	None	No action	20-40	C_{13}	1.8	10
G103	Ornamental shrubs	Mat	NA	MS	≤2	0	≤1.5	G	G	Mixed small and medium-growing ornamental shrubs, including: *Prunus laurocerasus 'Otto Luyken', Lonicera pileata, x Fatshedera lizei, Cotoneaster horizontalis, Rosemarinus officinalis, Potentilla fruticosa, Escallonia, Brachyglottis* and *Spiraea.*	Prune shrubs clear of adjacent bench.	20-40	C_{23}	CS	CS
104	Cabbage palm	EM	14	1	4	3	N 1 E 1 S 1 W 1	G	G	Stem wound resulting from former branch loss at 1m E.	No action	20-40	C_{13}	1.68	9

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
105	Hybrid service tree	Mat	36	1	9	2	N 3.5 E 3.5 S 3.5 W 3	G	G	None	No action	20-40	B_1	4.32	59
106	Hybrid service tree	EM	26	1	7	1.8	N 2.5 E 5 S 2.5 W 1	G	F	Strong stem lean E.	No action	20-40	C_{13}	3.12	31
107	Manna ash	MA	20	1	8.5	1.6	N 4 E 4 S 3.5 W 3.5	G	F	Broken branch at 1.5m.	Remove broken branch at 1.5m.	>40	B_1	2.40	18
108	Silver birch	EM	32	1	12	1.5	N 4.5 E 5 S 4 W 3	G	G	None	No action	20-40	B_1	3.84	46
109	Rowan	EM	24	1	6.5	1.2	N 4 E 4 S 3.5 W 3	G	G	None	No action	20-40	B_1	2.88	26
110	Silver birch	EM	31	1	12.5	1	N 4 E 4 S 3.5 W 3.5	G	G	None	No action	20-40	B_1	3.72	43
111	Silver birch	EM	28	1	12	1.5	N 4.5 E 5 S 3.5 W 4	G	F	Stem wound resulting from former branch loss at 6m. Wound occluding. Minor bark damage at stem base and on surface roots.	No action	20-40	B_1	3.36	35

Age class: Y – young MA – middle-age EM - early mature Mat – mature OM - over-mature **Branch spread:** N – north E - east S - south W – west **Condition:** G – good F – fair P – poor VP - very poor

No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
H112	Lawson cypress	MA	NA	1	1.5	0	0.5	F	F	Hedge recently topped at 1.5m.	Consider removal of poor quality hedge.	20-40	C_{23}	CS	CS
113	Dog rose	MA	NA	1	2.5	0.5	N 1.5 E 1.5 S 1.5 W 1.5	G	G	None	No action	20-40	C_{13}	CS	CS
114	Silver birch	MA	11	1	6	2	N 1.5 E 2 S 2 W 0.5	F	F	Crown vigour relatively low. Bark wounding at stem base.	No action	10-20	C_{13}	1.32	5
115	Silver birch	EM	25	1	11	1.6	N 2 E 3 S 1.5 W 2.5	G	G	None	Remove branch stubs at 2m.	20-40	B_1	3.00	28

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No.	Species	Age class	Stem diam-eter (cm)	Stem no.	Height (m)	Crown clear-ance height (m)	Branch spread (m)	Condition		Comments	Preliminary management recommendations	Rema-ining contri-bution (yrs)	Categ-ory grade	RPA radius (m)	RPA area (m^2)
								Physi-olog-ical	Struc-tural						
G116	Mixed broadleaves	Y/MA	≤15	1/MS	≤10	≥0	≤4	G	G	Spring Wood. Off-site woodland adjacent to the E boundary. Managed by Barnsley MBC. Contains young plantation, with mixed broadleaved species, including: ash, wild cherry, sessile oak, rowan, goat willow, crack willow and guelder rose. Also naturally regenerated scrub, with hawthorn, sycamore, damson, elder and dog rose. Contains individual trees protected by TPO (Barnsley MBC TPO 20/1973 T11 (hawthorn), T12 (apple), T13 (hawthorn) and T14 (elm).	No action	>40	B_2	CS	CS
G117	Mixed broadleaves	MA	≤20	1/MS	≤12	≥0	≤4	G	G	Spring Wood. Off-site woodland adjacent to the SE boundary. Managed by Barnsley MBC. Contains established semi-mature plantation, with mixed broadleaved species, including: Norway maple, ash, wild cherry hawthorn and goat willow.	No action	>40	B_2	CS	CS

Age class: Y - young MA - middle-age EM - early mature Mat - mature OM - over-mature **Branch spread:** N - north E - east S - south W - west **Condition:** G - good F - fair P - poor VP - very poor

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APPENDIX B – SPECIES LIST AND POTENTIAL TREE HEIGHT

Table B1. Potential ultimate height for tree and large shrub species and cultivars on the survey site

Species	Common name	Potential mature tree height (m)		
		Estimated for site*	UK (NHBC, 2006)**	UK (More & White, 2003)***
Acer campestre	Field maple	12		14
Acer platanoides	Norway maple	22	18	25
Acer pseudoplatanus	Sycamore	28	22	35
Alnus glutinosa	Alder	20	18	25
Betula pendula	Silver birch	18	14	25
Betula utilis	Himalayan birch	15		20
X Cupressocyparis leylandii	Leyland cypress	25	20	40
Chamaecyparis lawsoniana	Lawson cypress	25	18	40
Chamaecyparis lawsoniana cv.	Lawson cypress cultivar	15		≤20 (variable)
Cordyline australis	Cabbage palm	8		12
Corylus avellana	Hazel	12	8	15
Crataegus monogyna	Hawthorn	12	10	15
Fraxinus excelsior	Ash	25	23	30
Fraxinus ornus	Manna ash	12		16
Laburnum anagyroides	Common laburnum	9	12	9
Populus nigra	Black poplar	25	25	25
Populus tremula	Aspen	18		25
Prunus avium	Wild cherry	18	17	25
Prunus insititia	Damson	8	10	6
Prunus laurocerasus	Cherry laurel	6	8	6
Prunus padus	Bird cherry	10		10
Pyrus communis	Pear	12	12	≤15
Quercus petraea	Sessile oak	28		30
Ribes sanguineum	Flowering currant	4		
Rosa canina	Dog rose	6		
Salix sepulcralis 'Chrysocoma'	Weeping willow	16	16	20
Salix caprea	Goat willow	10		10
Salix fragilis	Crack willow	22	24	25
Sambucus nigra	Elder	6		
Sorbus aucuparia	Rowan	12	11	15
Sorbus intermedia	Swedish whitebeam	12		15
Sorbus x thuringiaca 'Fastigiata'	Hybrid service tree	10		10
Tilia x europaea	Common lime	28	22	40

Viburnum opulus	Guelder rose	4		

* - Maximum height of trees and shrubs growing under similar conditions in the local area. Estimate takes account of site exposure and ground conditions.
** - Average height attained by healthy trees growing in favourable ground and environmental conditions.
** - Height generally attained by healthy open-grown trees growing in their appropriate conditions and climatic range.

APPENDIX C – TREE QUALITY AND VALUE CATEGORIES

Table C1. Tree quality and value assessment categories (from BS5837:2005, Table 1 – 'Cascade chart for tree quality assessment')

TREES FOR REMOVAL		
Category and definition	***Criteria***	***Plan colour***
Category R Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.	• Trees that have a serious, irreversible, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category tree (ie: where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees (eg: Dutch elm disease) or very low quality trees suppressing adjacent trees of better quality • NB: Habitat reinstatement may be appropriate (eg: R category tree used as a bat roost: installation of bat box in nearby tree).	Dark red

TREES TO BE CONSIDERED FOR RETENTION				
Category and definition	***Criteria - Subcategories***			***Plan colour***
	1. Mainly arboricultural values	**2. Mainly landscape values**	**3. Mainly cultural values, including conservation**	
Category A Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (eg: the dominant and/or principal trees within an avenue).	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (eg: avenues or other arboricultural features assessed as groups).	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (eg: veteran trees or wood-pasture).	Light green
Category B Those of moderate quality and value: in such a condition as to make a significant contribution (a *minimum of 20* years is suggested).	Trees that might be included in the high category, but are downgraded because of impaired condition (eg: presence of remedial defects including unsympathetic past management and minor *storm damage*).	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as *individuals but which are* not, individually, essential components of formal or semi-formal arboricultural features (eg: trees of moderate quality within an avenue that include better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality.	Trees with clearly identifiable conservation or other cultural benefits.	Mid blue
Category C Those of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 *years is* suggested), or young trees with a stem diameter below 150mm.	Trees not qualifying in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.	Trees with very limited conservation or other cultural benefits.	Grey
	NB: Whilst C Category trees will usually not be retained where they impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.			

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APPENDIX D – SITE PHOTOGRAPHS

Photo.1 – Sycamore, hybrid service and Himalayan birch trees 1-9, viewed from the east.

Photo.2 - Sycamore, silver birch and Himalayan birch trees 16-24, viewed from the south-east.

Photo.3 – Silver birch and sycamore trees 28-32 and 114-115, viewed from the south-east.

Photo.4 – Mixed broadleaved group of trees G68, viewed from the north-east.

Photo.5 – Sycamore tree 72, viewed from the east.

Photo.6 – Sycamore trees 78-79, viewed from the south-west.

Photo.7 – Black poplar trees 89-90, viewed from the south.

Photo.8 – Pear tree 91, viewed from the south-west.

Photo.9 – Spring Wood (off-site group G116), viewed from the west

Photo.10 – Swedish whitebeam tree 92, viewed from the north.

Photo.11 – Hybrid service tree 105, viewed from the north-east.

Photo.12 – Silver birch trees 108 and 110-111, viewed from the north-east.

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APPENDIX E – SITE BOUNDARY PLAN

(Barnsley MBC drawing no. ED 1942/)

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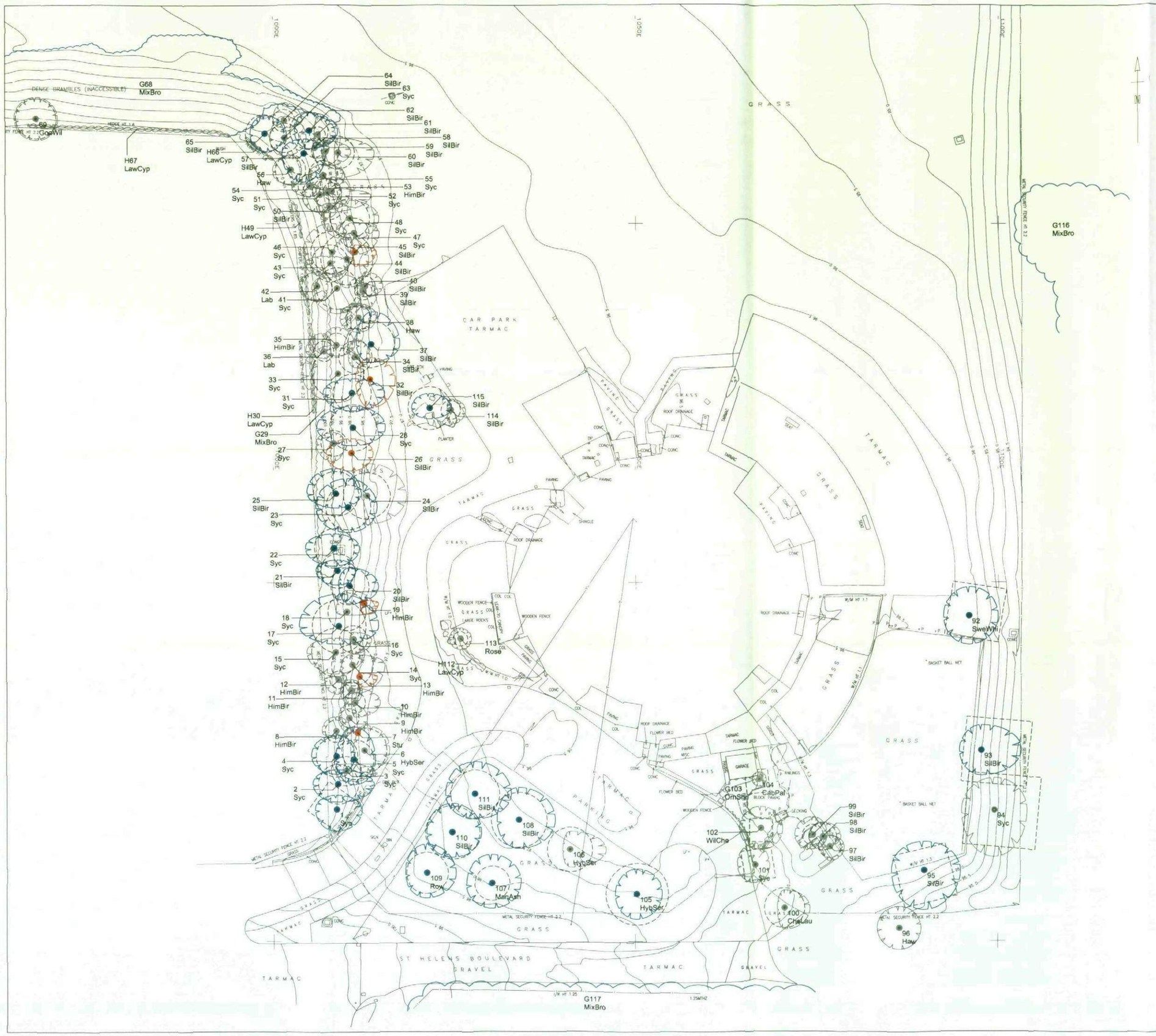
APPENDIX F – TREE CONSTRAINTS PLAN

(Greengage drawing no.s 011/02/01-3)



Key

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- Tree or shrub of moderate quality and value (Category B)
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- Tree or shrub of poor quality and value (Category R)
- Root Protection Area (RPA) (Categories A-C and individual trees only)
- Indicative shade profile based on exisiting height (Categories A-C and individual trees only)
- Group of trees and/or shrubs (Quality and value category as colour. RPA as crown-spread)
- Hedge (Quality and value category as colour. RPA as crown-spread)

Notes

1. *Survey carried out according to BS5837:2005 'Trees in relation to* construction - Recommendations'.
2. Refer to accompanying tree survey report for full survey details.
3. Plan based on topographical survey drawing no. 9986-1&2 Rev-.
4. The positions of trees 96, 100, 102, 115 have been plotted by the arboriculturist based on measured off-sets. The extent of groups G29, G116 and G117 have been visually plotted by the arboriculturist. Positions to be re-confirmed by topographical survey if accurate position required.

Species

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Ash - Ash (Fraxinus excelsior)
Asp - Aspen (Populus tremula)
CabPal - Cabbage palm (Cordyline australis)
CheLau - Cherry laurel (Prunus laurocerasus)
BlaPop - Black poplar (Populus nigra)
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Lab - Common laburnum (Laburnum anagyroides)
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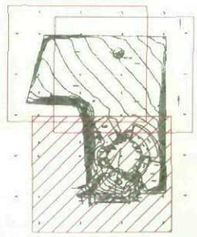
OrnShr - Ornamental shrubs
Pear - Pear (Pyrus communis)
Rose - Rose species (Rosa spp)
Row - Rowan (Sorbus aucuparia)
SilBir - Silver birch (Betula pendula)
Stu - Stump
SweWhi - Swedish whitebeam (Sorbus intermedia)
Syc - Sycamore (Acer Pseudoplatanus)
Unk - Unknown species
WeeWil - Weeping willow (Salix 'Chrysocoma')
WilCha - Wild cherry (Prunus avium)



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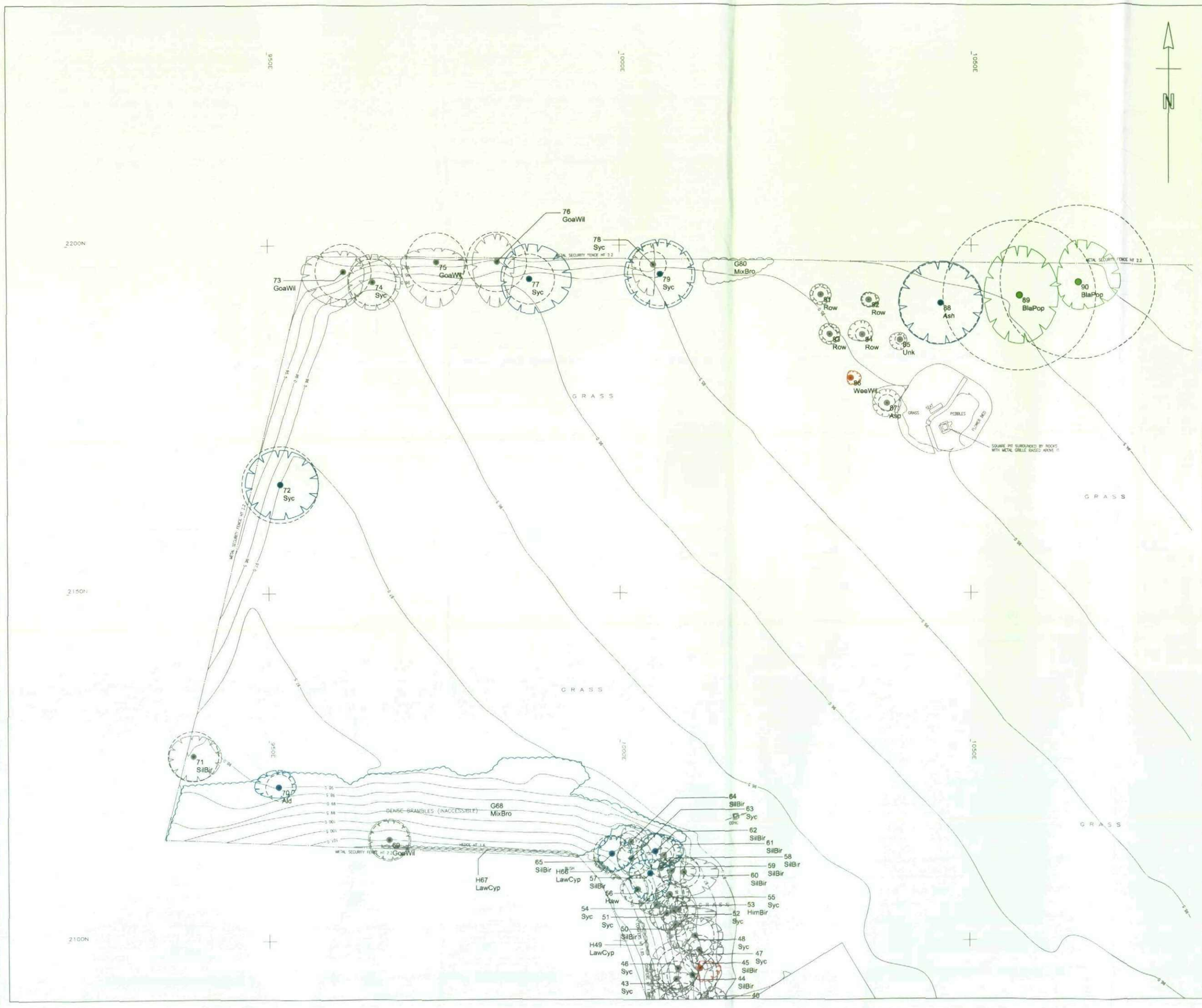

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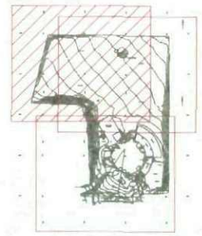

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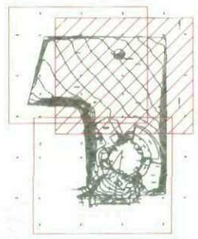

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