

**TREE SURVEY REPORT  
ON BEHALF OF  
BOVIS HOMES**

**PARCEL B2A, UPPER HEYFORD.**

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**CHECKED BY**      **R Hyett**

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## **1. INTRODUCTION AND SCOPE**

- 1.1 Pegasus Group was commissioned by Bovis Homes to undertake a survey of trees on land known as Parcel B2a at Upper Heyford.
- 1.2 The scope of the assessment was to visit the site and to survey relevant trees and hedges in accordance with *BS5837:2012 'Trees in relation to design, demolition and construction – recommendations.'*
- 1.3 Pegasus Group was requested to provide the following information:
- Tree survey report
  - Schedule of tree survey data
  - Survey plan showing tree constraints

## **2. REPORT LIMITATIONS**

- 2.1 Trees are living organisms as well as self-supporting dynamic structures. Their physiological and structural condition can change rapidly in response to a wide range of biotic/abiotic factors. They have the potential to fail structurally, without prior manifestation of any reasonably observable symptoms. It is therefore not possible to categorically state that any tree is 'safe'.
- 2.2 Any management recommendations set out within this report are of a preliminary nature only and relate to trees within the context of current site use. Similarly, quality assessments of surveyed trees are relevant to the time and date of the site visit and reflect conditions encountered.
- 2.3 All surveyed trees were assessed from ground level only. No detailed investigations (climbing, boring, core sampling, ultrasound etc) were carried out.
- 2.4 In order for tree owners to reasonably comply with Duty of Care responsibilities, it is advised that an additional programme of tree risk management is implemented. This professional tree inspection process should contain a brief to evaluate the degree of risk posed by trees on the site and to specify, as well as prioritise, appropriate risk control measures as may be necessary.
- 2.5 Any physical alterations to site conditions subsequent to the date of the site survey will have the potential to change/invalidate the findings and recommendations of this report.
- 2.6 It is beyond the scope of this report to comment in relation to structural damage - direct or indirect, existing or potential - that might be associated with vegetation growth, or vegetation-related soil subsidence or heave.
- 2.7 The findings and recommendations of this report are limited to a period of 12 months from the date of this report.

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### **3. OTHER CONSIDERATIONS**

#### **Statutory Tree Protection**

- 3.1 Although there are no Tree Preservation Orders relating to the site the whole of the Upper Heyford Airbase is a conservation area. It is therefore necessary to obtain approval from Cherwell District Council before any work is carried out on trees with a diameter of over 75mm (measured at 1.5 metres above ground level).

#### **Statutory Wildlife Protection**

- 3.2 Although preliminary visual checks from ground level of likely wildlife habitats are made at the time of surveying, detailed ecological assessments of wildlife habitats are not made by the arboriculturalist and fall outside the remit of this report.
- 3.3 Trees which contain holes, splits, cracks and cavities could potentially provide a habitat for bats in addition to birds and small mammals. It is recommended that in line with any accompanying specialist advice, any tree works should only be carried out following a detailed climbing inspection of the tree to ensure that protected species or their nests/roosts are not disturbed. If any are found, the project manager, site owner or consulting arboriculturist should be informed and appropriate action taken as recommended by a Statutory Nature Conservation organisation such as Natural England.
- 3.4 It is advised that tree/hedgerow works are carried out with the understanding that birds will generally nest in trees, hedges and shrubs between March and August. However to disturb an active nest at any time of the year is an offence. Tree work operations should be avoided during this period. Any necessary work should only be carried out following a check of the vegetation immediately prior to the work and the absence of any nests has been confirmed. If any doubt exists an Ecologist should be consulted.
- 3.5 For information, the Wildlife and Countryside Act 1981 (as amended), The Countryside and Rights of Way Act 2000 (as amended) and the Conservation of Habitat and Species Regulations 2010, form the basis of the statutory legislation for flora and fauna in Britain.

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#### 4. SURVEY METHODOLOGY

##### Tree Survey

- 4.1 The tree survey was carried out with reference to methodology set out in *BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'*. Trees were not tagged.
- 4.2 Trees were surveyed individually or as groups where it was considered that they had grown together to form cohesive arboricultural features either aerodynamically (trees that provide companion shelter), visually (eg avenues or screens) or culturally (including for biodiversity).
- 4.3 Tree survey findings are recorded in the tree survey schedule (Appendix 1).
- 4.4 Within the tree survey schedule, each surveyed tree (T), group (G), or hedgerow (H) on or adjacent to the site is given a *reference number* which refers to its position on the tree survey plan (Appendix 2).
- 4.5 Also shown on the tree survey plan are quality grading and preliminary tree constraints: root protection areas.
- 4.6 Tree species are listed by common name;
- 4.7 Heights are measured in metres. They are recorded to the nearest half metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m;
- 4.8 Trunk diameters are measured in millimetres and are rounded to the nearest 10mm. Single stemmed tree diameters are measured at 1.5 metres above ground level or, where a fork or swelling makes this impractical, at the narrowest point beneath. Where trunk diameters have had to be estimated due to poor access, this is indicated with a #.
- 4.9 Branch spreads are taken at the four cardinal points to derive an accurate representation of the tree crown. They are recorded up to the nearest half metre for dimensions up to 10m and to up the nearest whole metre for dimensions over 10m;
- 4.10 Crown clearance is expressed both as existing height above ground level of first significant branch along with its direction of growth (eg 2.5m-N), and also in terms of the overall canopy. Measurements are recorded to the nearest half

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metre for dimensions up to 10m and to the nearest whole metre for dimensions over 10m;

- 4.11 Where any other measurement has had to be estimated, due to inaccessibility for example, this is indicated by a “#” suffix to the measurement as shown in the tree survey schedule;
- 4.12 Life stage is defined as Y – young (stake dependent), SM - Semi-Mature (still capable of being transplanted without preparation, up to 30cm girth and not yet sexually mature), EM – Early Mature (not yet having reached 75% of expected mature size), M – Mature (anything else up to normal life expectancy for the species), OM – Over Mature (anything beyond mature and in natural decline), V – Veteran (any tree displaying characteristics displayed by Natural England).
- 4.13 General observations are recorded in relation to a tree’s structural and/or physiological condition (eg the presence of any decay and physical defect) and /or any preliminary management recommendations that may be appropriate;
- 4.14 Structural condition is described as *Good* (without any observable biomechanical structural weaknesses), *Fair* (with minor biomechanical structural flaws. Some remedial action may be required), *Poor* (with significant biomechanical weaknesses requiring intervention particularly where risk management is required).
- 4.15 Physiological condition is described as *Good* (in optimum condition for the species), *Fair* (with minor indicators of reduced vitality. Some intervention may be required), *Poor* (with significantly impaired physiological function and appearance).
- 4.16 Useful life expectancy, or the length of time a tree’s is estimated to be able to make a useful contribution, is expressed in years as: <10, 10+, 20+, 40+;
- 4.17 Quality of individual trees, groups of trees and woodlands is assessed in terms of quality and benefit within the context of proposed development and graded into one of four categories (A, B, C and U) which are differentiated on the tree survey plan (Appendix 3) plan by the colours indicated below:

**Category A (Green)** Trees of high quality with an estimated remaining life expectancy of 40 years

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**Category B (Blue)** Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

**Category C (Grey)** Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

**Category U (Red)** Unsuitable for retention. Trees in such a poor condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

4.18 A, B and C trees have also been given a sub-category of 1, 2 or 3 which reflects their arboricultural, landscape or cultural and conservation values respectively. Each subcategory has an equal weight, for example an A1 tree has the same retention priority as an A3 tree.

4.19 In addition to the category, the tree survey schedule also describes each tree's root protection area (RPA) in terms of radius (metres) and overall area (sq metres).



**5. DESCRIPTION OF SITE AND TREES**

- 5.1 The site is located to the south of Camp Road within the Upper Heyford Airbase, and largely comprises an area of sports fields with some buildings and hard surfaces.
- 5.2 Most of the trees surveyed are located along the northern boundary adjacent to Camp Road and in the southern part of the site to the east of the athletics track.
- 5.3 It is proposed to develop the site for residential purposes.

## 6. TREE SURVEY FINDINGS

6.1 Tree survey findings are presented in schedule format at Appendix 1.

6.2 A summary of the tree survey findings in relation to tree qualities are shown in table form below:

	Total	A	B	C	U
Trees	12	0	5	7	0
Groups	6	0	1	5	0
Woodlands	0	0	0	0	0
Shrub mass	0	0	0	0	0
Hedgerows	0	0	0	0	0
<b>Total</b>	18	0	6	12	0

6.3 Most of the trees surveyed are mature with Norway maple being the dominant species. Although there is evidence that some trees have recently been pruned a number of trees exhibit faults such as bark damage and minor deadwood.

6.4 In relation to the number of surveyed items, and in the context of BS5837:2012, the site contains a majority of low quality (Category C) arboricultural features.

6.5 No high quality (category A) trees were identified.

6.6 Of the twelve individual trees surveyed seven are of low quality (Category C) and five are of moderate quality (category B).

6.7 Six tree groups were identified. One was categorised as being of moderate quality (Category B) and five groups were categorised as being of low quality (Category C).

6.8 On a site visit with Jon Brewin (Tree Officer) it was agreed that the poor quality remnant hedges in the north-west part of the site adjacent to Camp Road could be removed.

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## 7. IDENTIFICATION OF PRELIMINARY TREE CONSTRAINTS

- 7.1 In accordance with BS5837:2012, below ground constraints or root protection areas (RPAs) for the surveyed trees have been plotted onto the amended topographical survey plan. These are represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level.
- 7.2 With reference to BS5837:2012, a root protection area (RPA) is defined as "*a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority*". "*The default position [when considering design layout in relation to RPAs] should be that structures are located outside the RPAs of trees to be retained*".
- 7.3 Amendments can be made to the default circular RPA's. BS5837:2012 states (4.6.2) that, "where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced." The BS goes on to state that, "modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution," and that any deviation from the original circular plot should take into account:
- morphology and disposition of roots;
  - topography and drainage;
  - soil type and structure;
  - the likely tolerance of the tree to root damage/disturbance.
- 7.4 In this instance no amendments have been made to the RPA's in order to reflect the almost open grown (no hard surfacing or previous structures visible) nature of the trees on site.
- 7.5 Root systems can be damaged in a number of ways as follows:
- Severance of a root will destroy all parts of the root beyond that point. The larger the root severed, the greater the impact on the tree. If roots are damaged close to the trunk, the anchorage and stability of the tree can be affected.

- The root bark protects the root from decay and is also essential for further root growth. If damage to the bark extends around the whole circumference, the root beyond that point will be killed.
- Soil compaction, which may occur from storage of material or passage of heavy equipment over the root area, can restrict and even prevent gaseous diffusion through the soil, and thereby asphyxiate the roots. The roots must have oxygen for survival, growth and effective functioning.
- Lowering the soil level will strip out the mass of roots near the surface.
- Raising soil levels will have the same effect as soil compaction.
- Incorrect selection and application of herbicide
- Spillage of oils or other harmful materials

7.6 Above ground constraints posed by trees describe the capacity for trees to have an overbearing or dominating effect on new developments; usually post occupancy. Typical above ground constraints include a number or combination of inconveniences including branch spread, movement of trees during strong winds and so on. If not adequately considered, above ground constraints can lead to repeated requirements from residents of newly developed sites to fell or heavily prune retained and protected trees.

7.7 The colour-coded categorisation of tree quality is also shown on the Tree Survey Plan (Appendix 2)

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## **8. CONCLUSION AND RECOMMENDATIONS**

- 8.1 Parcel 2Ba is located to the south of Camp Road within the Upper Heyford Airbase, and largely comprises an area of sports fields with some buildings and hard surfaces.
- 8.2 Although there are no Tree Preservation Orders relating to the site the whole of the Upper Heyford Airbase is a conservation area. It is therefore necessary to obtain approval from Cherwell District Council before any work is carried out on trees with a diameter of over 75mm (measured at 1.5 metres above ground level).
- 8.3 Most of the trees surveyed are mature with Norway maple being the dominant species. Although there is evidence that some trees have recently been pruned a number of trees exhibit faults such as bark damage and minor deadwood.
- 8.4 In relation to the number of surveyed items, and in the context of BS5837:2012, the site contains a majority of low quality (Category C) arboricultural features.
- 8.5 The proposals for the site should be designed with a view to accommodating the preliminary tree constraints that are illustrated on the Tree Survey Plan. A Project Arboriculturist should be responsible for input into the on-going review of the detailed layout and design as these details come forward.
- 8.6 When the detailed designs for the site have been finalised, an arboricultural impact assessment should be carried out, in accordance with BS5837:2012, in order to evaluate the direct and indirect effects of the proposals on the site's arboricultural resource. This will include an evaluation of tree retention in comparison to any tree loss, recommendations for mitigation planting as may be necessary and a full specification for tree pruning works that may be required.
- 8.7 The tree survey data contained within this report may provide a baseline for future arboricultural risk assessments that may be required.

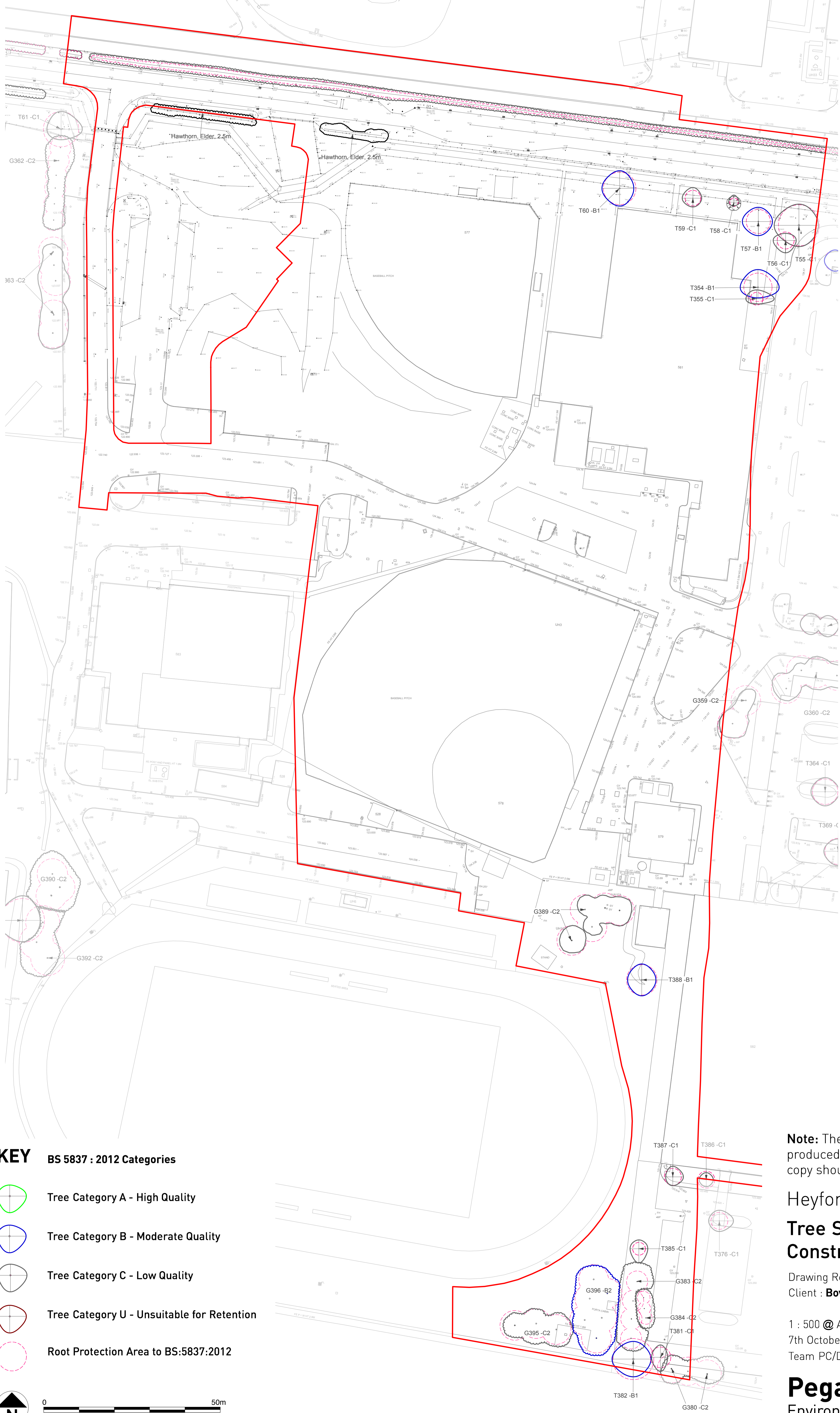
APPENDIX 1

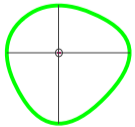
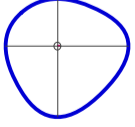
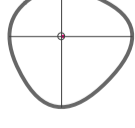
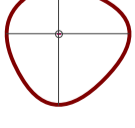

TREE SURVEY SCHEDULE

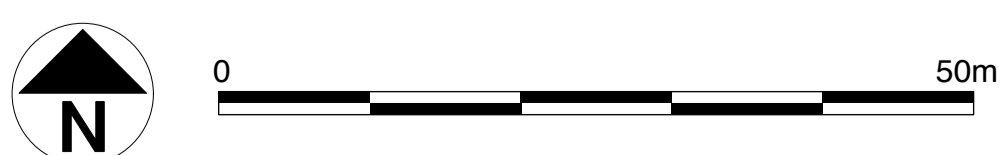
Ref	Species	Height	Est	280	Est	Spread								Crown clearance height				Life stage	General observations Physiological and structural condition. management recommendations	Preliminary	Structural Condition	Physiological Condition	ULE	RPA radius	RPA area	
						N	Est	S	Est	E	Est	W	Est	1st branch	Est	1st branch direction	Canopy									Est
T57	Maple	8.0	-	280	-	4.0	-	4.0	-	4.0	-	4.5	-	2.0	-	All round	2.0	-	EM	Exposed damaged roots. Minor amounts minor deadwood.	Medium	Medium	20+	B1	3.4	35
T58	Whitebeam	4.0	-	100	-	2.0	-	1.0	-	1.5	-	1.5	-	2.0	-	North west	2.0	-	SM	Severe bark damage at base.	Medium	Medium	10+	C1	1.2	5
T59	Whitebeam	6.0	-	180	-	3.0	-	2.5	-	2.5	-	3.0	-	1.5	-	South	2.0	-	SM	Bark damage at base.	Medium	Medium	10+	C1	2.2	15
T60	Maple	9.0	-	380	-	5.0	-	5.0	-	4.0	-	5.0	-	1.5	-	North	1.0	-	M	Exposed roots. Weak fork at 2m west.	Medium	Medium	20+	B1	4.6	65
T354	Birch (Silver)	8.0	-	331	-	5.0	-	3.0	-	6.0	-	5.0	-	3.0	-	North	1.5	-	M	Ivy on trunk. In raised bed adjacent building. Touching building to west. Would be difficult to retain if building demolished	High	High	20+	B1	4.0	50
T355	Apple	5.0	-	150	-	2.5	-	1.5	-	5.0	-	3.0	-	2.0	-	South	0.5	-	M	Heavily suppressed by building. Remove to benefit birch.	Medium	Medium	10+	C1	1.8	10
G380	Maple (Norway)	12.0	-	330	-	0.0	-	0.0	-	0.0	-	0.0	-	N/A	-	N/A	2.0	-	M	3 trees. Remove central tree to better others. Deadwood on western tree. Poor pruning techniques. Crossing branches could be removed.	Medium	Medium	20+	C2	4.0	49
T381	Maple (Norway)	10.0	-	245	-	3.5	-	4.0	-	2.0	-	2.5	-	N/A	-	N/A	0.5	-	M	Remove to benefit other trees. Suppressed, bark damage.	Medium	Medium	10+	C1	2.9	27
T382	Maple (Norway)	14.0	-	480	-	5.0	-	5.0	-	5.0	-	6.0	-	2.0	-	South	0.5	-	M	Good tree. Minor deadwood.	Medium	Medium	20+	B1	5.8	104
G383	Maple (Norway)	10.0	-	250	-	0.0	-	0.0	-	0.0	-	0.0	-	N/A	-	N/A	1.5	-	M	4 trees. Northern trees heavily infested with ivy.	Medium	Medium	20+	C2	3.0	28
G384	Maple (Norway)	7.0	-	150	-	0.0	-	0.0	-	0.0	-	0.0	-	N/A	-	N/A	0.5	-	SM	Ivy into canopy. Deadwood. Leans east. Bark damage. Poor.	Medium	Medium	20+	C2	1.8	10
T385	Maple sp. (sugar)	7.0	-	150	-	2.5	-	4.0	-	2.5	-	2.5	-	2.0	-	South	2.0	-	SM	Lost leader. Rose growing into canopy. Suckers at base.	Medium	Medium	10+	C1	1.8	10
T386	Hawthorn	4.0	-	200	-	2.0	-	2.0	-	2.0	-	2.0	-	N/A	-	N/A	0.5	-	M	Growing adjacent building. Fair.	Medium	Medium	10+	C1	2.4	18
T387	Apple	4.0	-	200	-	3.0	-	2.5	-	3.0	-	2.0	-	N/A	-	N/A	0.5	-	M	Growing adjacent building. Fair. Low branching.	Medium	Medium	10+	C1	2.4	18
T388	Maple (Norway)	12.0	-	360	-	4.5	-	4.5	-	4.0	-	4.0	-	2.5	-	North	2.0	-	M	Minor deadwood. Recent pruning.	Medium	Medium	20+	B1	4.3	59
G389	Maple (Norway)	10.0	-	350	-	0.0	-	0.0	-	0.0	-	0.0	-	N/A	-	N/A	2.0	-	M	Epicormic growth removed at base. Minor deadwood. Poor pruning techniques. 5 trees.	Medium	Medium	20+	C2	4.2	55
G395	Maple (Norway)	11.0	-	350	-	0.0	-	0.0	-	0.0	-	0.0	-	N/A	-	N/A	2.0	-	M	3 trees. Trees 1 and 2 from east poor, cambium stripped by squirrels. Poor. Monitor for decay, potentially remove.	Medium	Medium	20+	C2	4.2	55
G396	Maple (Norway)	13.0	-	350	-	0.0	-	0.0	-	0.0	-	0.0	-	N/A	-	N/A	2.0	-	M	6 trees. Southern tree has a weak fork at 2m, and bark damage in upper canopy. Pruning wounds and deadwood throughout. Work required, individually fair, as a cohesive group better.	Medium	Medium	20+	B2	4.2	55

APPENDIX 2  
TREE SURVEY PLAN





- KEY** BS 5837 : 2012 Categories
-  Tree Category A - High Quality
  -  Tree Category B - Moderate Quality
  -  Tree Category C - Low Quality
  -  Tree Category U - Unsuitable for Retention
  -  Root Protection Area to BS:5837:2012



**Note:** The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

Heyford Park - Parcel B2A

## Tree Survey and Constraints Plan

Drawing Ref: **B.0285\_61-A**  
Client : **Bovis Homes**

1 : 500 @ A1  
7th October 2013  
Team PC/DP

**Pegasus**  
Environmental