UK LAND DEVELOPMENT LTD AND HEYFORD DEVELOPMENTS LTD

CROMWELL LANE, COVENTRY

ARBORICULTURAL IMPACT ASSESSMENT

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INTRODUCTION

1.1 Brief

1.1.1 Wardell Armstrong LLP (WA) has been commissioned by UK Land Development Ltd and Heyford Developments Ltd to undertake an arboricultural survey and to assess the impacts of the proposed residential development located on land to the west of Cromwell Lane, Coventry, West Midlands (Grid Ref.: SP273772). For the purposes of this report the land in which the survey took place will be called ‘the site’ hereafter.

1.1.2 The purpose of this report is to provide an arboricultural impact assessment (AIA) based on BS 5837 tree constraints survey data from a survey undertaken by Wardell Armstrong on the 23rd of May 2016, in order to evaluate the direct and indirect effects of the proposed masterplan on the trees and hedgerows on site and those off site but within influencing distance (usually up to 15 metres) of the site. Where there are impacts on the trees and hedgerows from the development proposal, this report recommends mitigation measures to be taken to ensure that important trees are adequately protected from development activities, the site’s tree population is sustainably maintained and, where trees have to be removed, mitigation planting is proposed where feasible.

1.1.3 If planning permission is granted for the concept masterplan assessed in this AIA report, it is usual for Local Planning Authorities to condition an arboricultural method statement (AMS) at full and reserved matters stage in the planning application process. An AMS would set out the specifications and methodologies for the tree protection measures implementation and would also provide a methodology for any development works that either encroach within retained trees root protection areas (RPAs) and/ or that have the potential to result in loss or damage to retained trees. As there is not a specific detailed site layout design for the development, it would also be expedient for the LPA to condition an arboricultural impact assessment (AIA) to ensure that impacts of the specific site layout are considered.

1.1.4 This AIA report and attached tree protection plan (TPP) accords with the methodologies and guidance set out in British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations (The British Standards Institute, 2012).

1.1.5 This AIA report and attached TPP is based on the ‘Greenhatch Group’ topographical survey, Drawing Ref. 23708_T dated 11/05/2016 and the ‘Barton Willmore’ masterplan ‘Concept Plan’ Ref. 9301 Rev. C dated 22.06.2016.
1.2 Site Context

1.2.1 The site, which is approximately 11.6 ha in size, is located on agricultural land located to the west of residential housing on Cromwell Lane and Bourchier Close. To the south and west of the site is more agricultural land, whilst the northern boundary of the site is bounded by the Coventry to Birmingham railway line. The vast majority of trees are located on or adjacent to the site boundary, with many of these located within gardens adjacent to the site.

1.3 Development Proposal

1.3.1 The proposed planning application is for outline planning permission for the erection of up to 240 Class C3 residential dwellings and associated open space, with all matters reserved apart from access.

1.4 Trees and the Planning Process

1.4.1 Under the UK planning system, Local Planning Authorities (LPAs) have a legal duty to consider the protection of trees and the planting of new trees on development sites when granting planning permission. LPAs must also consider the potential effects, whether detrimental or positive, that proposed developments will have on retained trees and the effect that these trees will have on the users of the development.

1.4.2 The site is within the area covered by the Coventry City Council’s Local Planning Authority (LPA). The Coventry Development Plan 2001 includes the following relevant saved policy from this document:

- **Policy GE 14: PROTECTION OF LANDSCAPE FEATURES**

  ‘Important landscape features of value to the amenity or history of a locality, including mature woodlands, trees, hedgerows, ridge and furrow meadows and ponds, will be protected against unnecessary loss or damage’.

1.4.3 Table B.1 taken from British Standard 5837:2012 gives guidance on the level of information required by LPAs in order to make an informed decision on the impact of development on trees. The production of an Arboricultural Constraints report and plan is the first stage of assessment in the context of the planning process, which this arboricultural impact assessment covers. When the tree constraints have been considered and a site layout designed, specific site layout impacts on the trees proposed to be retained and on those adjacent to the site are considered in an arboricultural impact assessment (AIA) and arboricultural impact assessment or tree protection plan (TPP). This report fulfils the requirement to present the impacts of the
proposed outline application masterplan on the trees on and immediately adjacent to the site. If and when development is approved and where trees are present, it is common for the LPA to condition the protection of the trees on site during the construction phase. This can be achieved through the production of an Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP). These will show how the trees will be protected and also give a methodology for any works within tree(s) Root Protection Areas to ensure that tree protection conditions can be discharged. These steps accord with the recommendations in BS 5837:2012 as detailed in Table B.1 as shown in figure 1 below.

<table>
<thead>
<tr>
<th>Stage of process</th>
<th>Minimum detail</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-application</td>
<td>Tree survey</td>
<td>Tree retention/removal plan (draft)</td>
</tr>
<tr>
<td>Planning application</td>
<td>Tree survey (in the absence of pre-application discussions)</td>
<td>Existing and proposed finished levels</td>
</tr>
<tr>
<td></td>
<td>Tree retention/removal plan (finalized)</td>
<td>Tree protection plan</td>
</tr>
<tr>
<td></td>
<td>Retained trees and RPAs shown on proposed layout</td>
<td>Arboricultural method statement – heads of terms</td>
</tr>
<tr>
<td></td>
<td>Strategic hard and soft landscape design, including species and location of new tree planting</td>
<td>Details for all special engineering within the RPA and other relevant construction details</td>
</tr>
<tr>
<td></td>
<td>Arboricultural impact assessment</td>
<td></td>
</tr>
<tr>
<td>Reserved matters/planning conditions</td>
<td>Alignment of utility apparatus (including drainage), where outside the RPA or where installed using a trenchless method</td>
<td>Arboricultural site monitoring schedule</td>
</tr>
<tr>
<td></td>
<td>Dimensioned tree protection plan</td>
<td>Tree and landscape management plan</td>
</tr>
<tr>
<td></td>
<td>Arboricultural method statement – detailed</td>
<td>Post-construction remedial works</td>
</tr>
<tr>
<td></td>
<td>Schedule of works to retained trees, e.g. access facilitation pruning</td>
<td>Landscape maintenance schedule</td>
</tr>
<tr>
<td></td>
<td>Detailed hard and soft landscape design</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: BS 5837:2012 Table 1.

1.5 Statutory Legal Protection

1.5.1 There are two main sources of protection afforded to trees, which are Conservation Area control and Tree Preservation Orders (TPO).

1.5.2 Trees within Conservation Areas (CA) are protected under the Town & Country Planning Act 1990 (as amended). This affords blanket protection to trees with a stem
diameter of 75 mm and above when measured at 1.5 m from ground level. This protection is similar to that afforded to trees protected by TPO.

1.5.3 Trees may also be protected by a Tree Preservation Orders (TPO) under the Town & Country Planning Act and in England the Town and Country Planning (Trees) England Regulations 2012.

1.5.4 It is a criminal offence to carry out unauthorised works to trees protected by a TPO or within a Conservation Area, which includes:

- Cutting down, uprooting or wilfully destroying a tree, or wilfully damaging, topping or loping a tree in such a manner as to be likely to destroy it,
- Other works which contravene the provisions of a Tree Preservation Order.

1.5.5 Penalties for non-compliance of a TPO and/or Conservation Area can be unlimited if tried in a County Court and up to £20,000 if tried in a Magistrates Court.

1.5.6 It should be noted that felling of trees prior to receiving full planning permission may require a felling license from the Forestry Commission under the Forestry Act 1967. This requires any person wishing to fell 5m³ of trees within any three month period to apply for a felling license from the Forestry Commission. There are a number of exemptions to this requirement, with some of the more relevant exemptions listed below:

- Pruning of trees.
- Felling fruit trees, or trees growing in a garden, orchard, churchyard or designated public open space.
- Felling trees which, when measured at a height of 1.3 metres from the ground: have a diameter 8 centimetres or less.
- Felling trees immediately required for the purpose of carrying out development authorised by full planning permission.
- Felling necessary for the prevention of danger or the prevention or abatement of a nuisance (e.g. which may involve threat of danger to a third party). Note, the latter only applies when a real and/or immediate danger is present.
- Felling necessary to prevent the spread of a quarantine pest or disease.

1.5.7 Other legislation which affords a lesser or indirect level of protection to trees includes:
• Conservation of Habitats and Species (amendment) Regulations 2012.
• Hedgerow Regulations (1997).

1.5.8 All those listed above provide for the identification and safeguarding of flora and fauna which may be found in association with trees and woodlands.

1.6 Protected Species

1.6.1 Trees can contain features such as cavities, cracks, splits and loose bark which can offer potential habitat to species such as bats. Bats and their roosts are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) as well as the Conservation of Habitats and Species Regulations 2012 (as amended) and are also listed under Section 41 of the Natural Environment and Rural Communities Act 2006.

1.6.2 Trees provide potential nesting habitat for birds and all UK birds are protected while on the nest under the Wildlife and Countryside Act (WCA) 1981, as amended. Bird species that are listed on WCA Schedule 1 are given further protection, including increased penalties as well as protection against disturbance of their active nest(s).
2 THE SURVEY

2.1 Tree Preservation Orders or Conservation Areas

2.1.1 Wardell Armstrong contacted Coventry City Council’s planning department by e-mail to ascertain whether any trees on or immediately adjacent to the site were protected by TPO and/ or Conservation Area status. It was confirmed by the LPA by e-mail on the 10th of June 2016 that there are no TPOs on site and that the site is not within a Conservation Area.

2.2 Survey Methodology

2.2.1 The arboricultural survey was undertaken by Wardell Armstrong’s Principal Arboriculturist on the 23rd of May 2016. The weather conditions on the day of the survey was dry and sunny.

2.2.2 The trees on site were inspected from ground level and assessed in accordance with BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations (see Appendix 2).

2.2.3 Each tree was given a sequential reference number (T) and tagged, where access to the stem of the tree was not restricted. The trees were then identified by their common and/ or Latin name. Where a number of trees formed a cohesive feature, such as groups or woodlands they were recorded, assessed and plotted as groups (G). Where this was the case, a representative sample of the largest edge trees were measured in order to be able to plot the group or woodlands crown spreads and root protection areas.

2.2.4 A series of measurements were taken where appropriate, including:

- Stem diameters measured at 1.5 metres above ground level with a standard DBH tape to enable root protection areas to be calculated.
- Crown (branch) spreads measured using a Truepulse 360 laser at the four cardinal points (North, East, South and West) to enable an accurate representation of the crowns to be plotted on the Tree Protection Plan.

2.2.5 A description of the life stage of each surveyed tree is identified as follows:

- Young – Newly planted trees and self-seeded trees.
- Semi-mature – Large nursery stock that can be newly planted or self-seeded trees still in the early stages of establishment.
• Early mature – Trees in the first third of their life cycle which is characterised by their quickness of growth and subsequently significant increase in size.

• Mature – Trees in the second third of their life cycle, characterised by reaching their ultimate size and slowing of annual incremental growth.

• Late mature – Trees in the final third of their life cycle, often characterised by showing signs of decline.

• Veteran – Trees that show ancient tree characteristics irrespective of their age, such as crown retrenchment and decaying wood habitat.

2.2.6 An assessment of each tree's age class (life stage), physiological and structural condition and estimated remaining contribution in years within the context of the current site usage was undertaken and recorded.

2.2.7 The trees were then classified in accordance with the BS5837:2012 tree quality assessment categories ‘A’, ‘B’, ‘C’ and ‘U’. The category criteria and grading can be found in Appendix 3. ‘A’ and ‘B’ category trees are considered to be important enough to be considered a constraint to development and consequently should usually be retained and afforded appropriate protection during the ground works and construction phase of development. ‘C’ category trees are considered to be of lower quality due to their condition or lower amenity value and therefore are usually not considered as a constraint to development. ‘U’ category trees are those in such a poor condition that for safety reasons cannot usually be retained within the current site context for longer than ten years and thus are not usually considered a constraint to development.

2.2.8 Further details for each tree, and the groups of trees surveyed are set out in the Arboricultural Survey Data Sheets in Appendix 1 of this report and on the ‘Tree Protection’ Ref. No. ST14348 -017.

2.3 Report Limitations

2.3.1 Trees are influenced by a variety of environmental variables, which can affect the health of trees causing biomechanical and physiological changes. All comments made on tree health reflects their physical condition at the time of the survey. Due to the changeable nature of trees and other site/environmental conditions which may influence trees, this report and any recommendations made within it are valid for a period of 12 months from the date of the site survey which was 23rd of May 2016.
2.3.2 Although comments and recommendations on the safety of particular trees may have been made, this survey is not a Tree Risk Management Survey and thus should not be treated as such. All trees were surveyed from ground level only and in a solely visual inspection. Note that not all trees within groups have been individually surveyed, so trees that pose a risk in groups may not have been picked up by this survey. Where trees have been identified as presenting an imminent safety risk due to structural defects, this is brought to the attention of the client. Should trees require further detailed assessment (decay detection, aerial inspections) and do not present an imminent safety risk this is recorded within the survey schedules. Care should be taken to note any category ‘U’ trees in the schedule, as these are likely to pose the highest risk and may require imminent attention to ensure the client’s duty of care under the Occupiers Liability Act are fully complied with.

2.3.3 Any management recommendations have been made in accordance with “BS3998: 2010 Tree Works – Recommendations” and industry best practice. Works have been recommended in accordance with any statutory obligations on the landowners or occupiers.

2.3.4 This survey did not include an ecological survey of vegetation or habitat areas. Any ecological issues incidentally observed during the survey are reported on in the survey schedule.

2.3.5 For the purpose of this report no samples were attained from site for analysis or any other reason.

2.3.6 The survey did not include soil sampling to determine whether the soil is shrinkable. Such analysis should be carried out by a specialist to ensure building foundations are adequate and in accordance with current National House Building Council Guidelines NHBC.
3 SURVEY RESULTS AND EVALUATION

3.1 Tree Population

3.1.1 Twenty seven individual trees, ten tree groups and twenty three hedges were found on and immediately adjacent to the site, with these predominately being located on or just outside the site’s boundaries.

3.1.2 During the survey, full access to some of the trees was restricted due to the presence of other vegetation and/or because some of the trees were located in gardens adjacent to the site. As a result, some of the dimensions of these trees were estimated and unseen defects could not be identified or assessed.

3.1.3 The majority of the individual trees surveyed were categorised as ‘C’ quality, with these accounting for 41% of the individual tree population. Category ‘A’ trees accounted for 19% and category ‘B’ trees 34% of the population. When combined, category ‘A’ and ‘B’ trees accounted for 53% of the individual tree population. Only two ‘U’ category trees were found, which accounts for 6% of the individual tree population. Ten groups of trees were surveyed, with one (10%) categorised as ‘B’ quality, with the other nine groups (90%) categorised as ‘C’ quality. Table 1 and 2 below summarises the BS 5837 quality grading of individual and groups of trees found on and adjacent to the site during the survey. Figure 2 shows the quality of the individual trees surveyed in graph format.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total: 5</td>
<td>Total: 9</td>
<td>Total: 11</td>
<td>Total: 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>U</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>G5.</td>
<td>G1, G2, G3, G4, G6, G7, G8, G9, G10.</td>
<td>0</td>
</tr>
<tr>
<td>Total: 0</td>
<td>Total: 1</td>
<td>Total: 9</td>
<td>Total: 0</td>
</tr>
</tbody>
</table>
3.1.4 An assessment of the individual tree population age structure shows that the vast majority of the trees on and adjacent to the site are either mature (15 trees) or early-mature (4 trees), with these accounting for 71% of the individual tree population. No young individual trees were found, whilst only 5 semi-mature trees (17%) were inspected. Two veteran trees (T11, T27) and one late mature tree (T24) were found, with these accounting for 12% of the individual tree population. A visual assessment of the individual tree population age structure can be found in Figure 4. This clearly shows that the population is not sustainable in the long term as there are no young trees.
present and very few semi-mature trees. New planting as part of a landscaping scheme for the development, would help address this issue.

![Individual Trees Age Class Overview](image)

**Figure 4: Individual Trees Age Class Summary**

3.1.5 A total of twenty-three hedges were surveyed, with all except hedgerows H12, H21 and part of H11, being located on the boundaries of the site. Many of these hedgerows are located within adjacent gardens. The species composition of the hedgerows reflects the use of the land they are located on, with hedgerows within the site being comprised of native species, whilst the hedges on garden boundaries are comprised of non-native species and native species.

3.1.6 A detailed description of all trees, groups of trees and hedges surveyed and recommended works can be found in Tree Survey Schedule in Appendix 1.

3.2 **General Tree Constraints**

3.2.1 Trees impose a constraint by virtue of their rooting areas, referred to as Root Protection Areas (RPAs), their current and future size i.e. height and spread and species characteristics, particularly their foliage density, branch and fruit drop and the production of honey dew.

3.2.2 Consideration should be given during the design stages of the development for any incompatibilities between the design and tree retention, the effects on amenity value provided by existing trees, working space required during construction, infrastructure requirements for underground and or above ground apparatus and highway visibility requirements.
3.2.3 The RPA is calculated using the tree’s diameter at 1.5 m and represents the minimum area which should be left undisturbed around each retained tree, during and following development.

3.2.4 Tree root morphology is influenced by many factors including, but not limited to, past land use, the presence of roads, structures and underground services, drainage and soils. Any of these factors may result in non-uniform root growth and therefore result in a RPA represented as a polygon RPA that reflects suitable protection of the root system.

3.2.5 Tree roots are generally found within the top 600mm of soil, depending on soil types and profiles. Any disturbance or sudden changes to the rooting environment can result in damage being caused to roots and alterations to the roots physiological ability to absorb water, nutrients and gaseous exchange.

3.2.6 Where alterations have been made within the trees rooting environment, the damage can often be observed within the crown of the trees, reduced vigour or deadwood production. Trees are likely to decline progressively or in some circumstances may become a hazard where stability and structural integrity has been compromised by site operations.

3.2.7 The RPA must be protected by the installation of tree protection fencing prior to the commencement of development work on site. The fencing provides a physical barrier that is secured, to prohibit activities considered detrimental to the retention of healthy trees (e.g. excavations, soil stripping, discharge of substances harmful to trees, storage of materials, fires), and may include specialised engineered solutions for temporary ground protection.

3.2.8 No traditional construction works should take place within retained tree RPAs. However, in some circumstances and where there is an overriding requirement for construction and the retention of trees, it may be appropriate to employ techniques and use materials that allow trees to be retained, whilst enabling the construction. For hard surfacing, such as drives, roads and footways, utilising no dig construction techniques and using three-dimensional geogrids and permeable wearing courses materials may be appropriate. For built structures within RPAs, the use of pile and above grade beam foundations and/or cantilevered engineering solutions can enable structures to be constructed within RPAs. The project arboriculturist should be consulted on the appropriateness of building within retained tree RPAs, as this is not appropriate for all trees and soil types.
3.2.9 Where aerial parts of the tree crowns extend beyond the edge of the RPA, consideration should be given to protection of these parts, allowing for protection during development processes including working space. It may be appropriate to consider pruning of aerial parts to allow construction clearances and future nuisance abatement, this however must be considered by the project arboriculturist and the LPA. Where development proposals identify a need for working within the RPA/crown spread of retained trees and it can be demonstrated that retained trees remain viable, then it is important that the project arboriculturist is contacted to advise and prepare an Arboricultural Method Statement (AMS) and identify appropriate stages of supervision.
4 DEVELOPMENT IMPACT TO RETAINED TREES

4.1.1 The arboricultural survey information produced by Wardell Armstrong has been used to guide the masterplanning of the ‘Concept Plan’ Ref. 25947 Rev. F and as such the principles of BS5837:2012 have been adhered to at the masterplanning stage. In utilising the arboricultural survey information early in the design stage, major arboricultural impacts have been avoided.

4.1.2 The masterplan ‘Concept Plan’ Ref. 25947 Rev. F has been overlain over the Tree Protection Plan Ref. ST14348-017. This shows that there very few minor arboricultural impacts on the trees and hedges on and adjacent to the site.

4.1.3 The arboricultural impacts and proposed mitigation measures are shown in Table 2. As can be seen from the arboricultural impacts listed in the table, these are minimal and can be easily mitigated. The encroachment into the RPA of T3 from the proposed southern access road accounts for less than 10% of the tree’s total RPA based on the concept masterplan. However, due to the proximity of the southern access, and the engineering and excavation works associated with the construction of the access road, it is proposed to remove T3 and mitigate through provision of replacement planting elsewhere within the site. All other arboricultural impacts listed in Table 2 will not have an adverse effect on the amenity of the arboricultural assets on and off site and can be easily mitigated.
<table>
<thead>
<tr>
<th>Tree/ Group No.</th>
<th>Proposed Works</th>
<th>Impact</th>
<th>Mitigation</th>
<th>BS 5837 Quality Categorisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>T3</td>
<td>Provision of access road.</td>
<td>Removal of tree.</td>
<td>Appropriate replacement trees will be incorporated into the masterplan design.</td>
<td>A</td>
</tr>
<tr>
<td>H2</td>
<td>Provision of access road.</td>
<td>Minimal encroachment into RPA of the hedge.</td>
<td>Excavations within the hedge’s RPA to be undertaken under the supervision of the project arboriculturist, to ensure that any root severance required is undertaken in accordance with BS 3998:2010.</td>
<td>N/A</td>
</tr>
<tr>
<td>T10</td>
<td>Provision of a pedestrian access point.</td>
<td>There is currently a public right of way at this point, therefore the ground within the footprint of this will be compacted. However, there is a very small risk of damage to the tree’s root system and soil structure from construction of a more permanent footway structure.</td>
<td>Propose the use of a non-dig footway construction within the tree’s RPA. This will utilise a three dimensional geogrid for the subbase and a porous wearing course. Utilising this construction method and specification will prevent damage to the tree’s root system and associated soil structure.</td>
<td>B</td>
</tr>
<tr>
<td>H12</td>
<td>Provision of cycle/pedestrian link to Tile Hill railway station.</td>
<td>Removal of a small section of hedgerow. The hedgerow has a low amenity value and is not species diverse, thus the loss is not considered detrimental to amenity and biodiversity site.</td>
<td>Mitigation planting as part of the landscaping for the development.</td>
<td>N/A</td>
</tr>
<tr>
<td>H21</td>
<td>Provision of internal site road.</td>
<td>Removal of approximately 13.9 m of hedgerow within the footprint of the proposed road. The hedgerow has a relatively low amenity value and is not species diverse, thus the loss is not considered detrimental to amenity and biodiversity on site.</td>
<td>Mitigation planting as part of the landscaping for the development.</td>
<td>N/A</td>
</tr>
<tr>
<td>Tree/ Group No.</td>
<td>Proposed Works</td>
<td>Impact</td>
<td>Mitigation</td>
<td>BS 5837 Quality Categorisation</td>
</tr>
<tr>
<td>----------------</td>
<td>----------------</td>
<td>--------</td>
<td>------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>H20</td>
<td>Provision of internal site road.</td>
<td>Minor encroachment of road within hedgerow RPA.</td>
<td>At the detailed design stage, ensure that the design results in the road being moved out of the hedgerow’s RPA.</td>
<td>N/A</td>
</tr>
<tr>
<td>H15 and the group of small diameter shrubs and trees located within the garden curtilage</td>
<td>Provision of access road.</td>
<td>Removal of hedge H15 and small diameter trees and shrubs within the garden curtilage. Impact on amenity will be negligible.</td>
<td>Mitigation planting as part of the landscaping for the development.</td>
<td>N/A</td>
</tr>
</tbody>
</table>
4.1.4 In assessing the impacts of the proposed development on the trees and hedgerows on and adjacent to the site and in proposing mitigation for these impacts, the outline planning application for development of the site accords with the requirements of British Standard 5837:2012 and local and national planning policies for trees and development.
5 SUMMARY AND RECOMMENDATIONS

5.1.1 There are no TPOs on site and the site is not within a Conservation Area.

5.1.2 The tree population contains a good mixture of category ‘A’ and ‘B’ quality trees, however the individual tree population age structure is skewed, with it consisting predominantly early-mature and mature trees. This can be remedied by the planting of new trees as part of a landscaping plan for the development.

5.1.3 No trees on site need to be felled to enable the development to be constructed, apart from a small group of small diameter conifers within the garden curtilage of one of the proposed access roads. Very small sections of low amenity hedgerows will have to be removed to enable an internal highway and footway to be constructed. The impacts of these are negligible and can be easily mitigated for with new planting as part of a landscape scheme for the site.

5.1.4 Tree T3 will be removed to allow for access into the site. Appropriate replacement trees will be planted and incorporated within the masterplan design to mitigate for the loss of T3.

5.1.5 The masterplan design enables the largest and most important trees on site, which are the large oak trees (T25 and T26) and the veteran oak (T27) to be retained on public open space. This is a positive step, as this negates perceived issues of over-dominance and safety, which is common issue with large mature trees retained within private gardens. Tree T3 will be removed, however, appropriate replacement trees will be planted to mitigate the loss of T3.

5.1.6 As the design of the masterplan for the site stands, all significant trees and hedgerows on site can be retained and be subsequently protected with tree protection fencing, as per the recommendations set out in BS 5837:2012. An example of the type of tree protection fencing required can be found in appendix 4. Signage will also be required to ensure compliance. An example of this can be found in appendix 5.

5.1.7 If the outline application is approved, an assessment of potential impacts of the detailed site layout on the trees and shrubs on and adjacent to the site may be required if this changes at all from the masterplan. This may be conditioned by the LPA.

5.1.8 An arboricultural method statement (AMS) and a detailed tree protection plan (TPP) will also be required prior to the construction of the development to ensure tree
protection measures are fully specified and implemented. This can be conditioned by the LPA as part of approval of the reserved matters application.
6 REFERENCES


6.1.3 NJUG Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees (Issue 2:16th November 2007).


Appendix 1
Tree Survey Schedule
<table>
<thead>
<tr>
<th>Tree/ Group Ref. No.</th>
<th>Tag No.</th>
<th>Botanical Name</th>
<th>Height (m)</th>
<th>Crown Spanning (m) &amp; compass direction</th>
<th>Stem Diameter average @ 1.5 m (mm)</th>
<th>Stem Diameter @ 1.5 m (mm) Five Stems or more</th>
<th>Age Class: Y (Young), SM (Semi-Mature), EM (Early-Mature), M (Mature), LM (Late-Mature), V (Veteran)</th>
<th>Physiological Condition: G (Good), F (Fair), P (Poor), D (Dead)</th>
<th>Structural Condition: G (Good), F (Fair), P (Poor)</th>
<th>Estimated Remaining Contribution: (&lt;10, 10+, 20+, 40+)</th>
<th>BS5837 Categorisation Grading</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>1201</td>
<td>Oak (Quercus robur)</td>
<td>13.5</td>
<td>1.8 W</td>
<td>N/A</td>
<td>M G G 40+</td>
<td>B1</td>
<td>None required.</td>
<td>None required.</td>
<td>None required.</td>
<td>L 215</td>
<td>8.3</td>
</tr>
<tr>
<td>T2</td>
<td>1202</td>
<td>Scots Pine (Pinus sylvestris)</td>
<td>20.2</td>
<td>9.7 E</td>
<td>N/A</td>
<td>M G F 20+</td>
<td>B1 &amp; 2</td>
<td>Medium sized deadwood in upper crown.</td>
<td>None required.</td>
<td>None required.</td>
<td>L 174</td>
<td>7.4</td>
</tr>
<tr>
<td>T3</td>
<td>1203</td>
<td>Oak (Quercus robur)</td>
<td>21</td>
<td>2.6 W</td>
<td>N/A</td>
<td>M G G 40+</td>
<td>A1 &amp; A2</td>
<td>Significant tree. Unable to fully inspect due to surrounding vegetation.</td>
<td>Tree to be removed and appropriately mitigated.</td>
<td>None required.</td>
<td>L 538</td>
<td>13.1</td>
</tr>
<tr>
<td>H1</td>
<td>N/A</td>
<td>Mixed deciduous species, predominantly Hawthorn (Crataegus monogyna)</td>
<td>4.6</td>
<td>0</td>
<td>N/A</td>
<td>M G F 40+</td>
<td>N/A</td>
<td>Mixed species hedgerow. RPA 2 m from hedge edge.</td>
<td>None required.</td>
<td>None required.</td>
<td>U N/A</td>
<td>2 m from edge of hedge</td>
</tr>
<tr>
<td>H2</td>
<td>N/A</td>
<td>Lawson cypress (Chaemycyparis sp)</td>
<td>4.8</td>
<td>0</td>
<td>N/A</td>
<td>SM G F 10+</td>
<td>N/A</td>
<td>RPA 2.5 m from edge.</td>
<td>None required.</td>
<td>None required.</td>
<td>U N/A</td>
<td>2.5 m from edge of hedge</td>
</tr>
<tr>
<td>H3</td>
<td>N/A</td>
<td>Mixed deciduous species, predominantly Hawthorn (Crataegus monogyna)</td>
<td>8.9</td>
<td>0</td>
<td>N/A</td>
<td>M G F 20+</td>
<td>N/A</td>
<td>Mixed species hedgerow. RPA 3 m from edge.</td>
<td>None required.</td>
<td>None required.</td>
<td>U N/A</td>
<td>3.0 m from edge of hedge</td>
</tr>
<tr>
<td>T4</td>
<td>N/A</td>
<td>Cyprus species (Cupressus sp)</td>
<td>13.0</td>
<td>1.2</td>
<td>N/A</td>
<td>M F F 10+</td>
<td>C1</td>
<td>Located on adjacent land. Stem position approximate as not plotted on topographical plan.</td>
<td>N/A</td>
<td>U 92</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>T5</td>
<td>N/A</td>
<td>Elm Species (Ulmus sp)</td>
<td>7.0</td>
<td>0.4</td>
<td>N/A</td>
<td>SM G F 10+</td>
<td>C1</td>
<td>Small tree.</td>
<td>None required.</td>
<td>None required.</td>
<td>U 7</td>
<td>1.4</td>
</tr>
<tr>
<td>T6</td>
<td>N/A</td>
<td>Ash Fraxinus excelsior</td>
<td>16.4</td>
<td>3.5</td>
<td>N/A</td>
<td>M F F 20+</td>
<td>B1</td>
<td>Located on adjacent land, thus unable to fully inspect. Crown encroaching onto overhead cables.</td>
<td>Prune back from overhead cables to achieve 3 m minimum clearance.</td>
<td>U 137</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>H4</td>
<td>N/A</td>
<td>Mixed species hedgerow, including coniferous species</td>
<td>9.0</td>
<td>0</td>
<td>N/A</td>
<td>M F F 20+</td>
<td>N/A</td>
<td>Mixed species hedgerow, including coniferous species. RPA 3.5 m from edge.</td>
<td>None required.</td>
<td>None required.</td>
<td>U N/A</td>
<td>3.5 m from edge of hedge</td>
</tr>
<tr>
<td>H5</td>
<td>N/A</td>
<td>Holly (Ilex aquifolium) &amp; Hazel (Corylus avellana)</td>
<td>6.5</td>
<td>0</td>
<td>N/A</td>
<td>M G F 20+</td>
<td>N/A</td>
<td>Holly and hazel hedgerow/ group. RPA 4 m from edge of crown.</td>
<td>None required.</td>
<td>None required.</td>
<td>137 N/A</td>
<td>4.0 m from edge of hedge</td>
</tr>
</tbody>
</table>

Location: Cromwell Lane (Job. No. ST14348)
Survey Date: 23rd May 2016
Surveyor: Moray Simpson
Weather: Dry and Sunny

# = Estimated Measurement
<p>| Tree/Group Ref. No. | Tag No. Where Different from Tree No. | Botanical Name | Height (m) | Crown Clearance (m) &amp; compass direction | North | East | South | West | Stem Diameter @ 1.3 m (mm) | Five Stems or More | Age Class: Y (Young), SM (Semi-Mature), EM (Early-Mature), M (Mature), LM (Late-Mature), V (Veteran) | Physiological Condition: G (Good), F (Fair), P (Poor), D (Dead) | Structural Condition: G (Good), F (Fair), P (Poor) | Estimated Remaining Contribution: (&lt;10, 10+, 20+, 40+) | BS5837 Categorisation Grading | Comments | Preliminary management recommendations/further works | Bat potential: L (Likely), U (Unlikely) | Root Protection Area (m²) | Root Protection Area Radius (m) |
|--------------------|-------------------------------------|---------------|-----------|------------------------------------------|-------|------|-------|------|---------------------------|---------------------|-----------------------------------|---------------------------------|----------------------------------|-----------------------------------|--------------------------------------|--------------------------------|-----------------------------|---------------------------------|-------------------------|
| H6                 | N/A                                 | Cypress species (Cupressus sp) | 4.0       | 0                                        | As per aerial photography | N/A | M    | F    | F    | 10+                       | N/A                 | None required.                   | U                  | N/A                              | 3.0 m from edge of hedge.       | Cupressus hedge. RPA 3 m from edge. | None required.                   |                             | None required.                   | 3.0 m from edge of hedge. |
| T7                 | N/A                                 | Lawson cypress (Chaemcyoparis sp) | 7.8       | 0                                        | 4.0 # | 4.0 # | 4.0 # | 4.0 # | 440                       | N/A                 | None required.                   | U                  | 88                               | 5.3                             | None required.                   | None required.                   | U                            | 2.5 m from edge of hedge.       |
| T8                 | N/A                                 | Lawson cypress (Chaemcyoparis sp) | 7.8       | 0                                        | 4.0 # | 4.0 # | 4.0 # | 4.0 # | 420                       | N/A                 | None required.                   | U                  | 80                               | 5.3                             | None required.                   | None required.                   | U                            | 2.5 m from edge of hedge.       |
| H7                 | N/A                                 | Mixed species. | 2.5       | 0                                        | As per aerial photography | N/A | M    | G    | F    | 20+                       | N/A                 | Mixed species trimmed hedgerow. RPA 2.5 from edge of hedgerow. | None required.                   | U                  | N/A                              | 1.5 m from edge of hedge.       | None required.                   | None required.                   | U                            | 1.5 m from edge of hedge.       |
| H8                 | N/A                                 | Mixed species. | 2.6       | 0                                        | As per aerial photography | N/A | M    | F    | F    | 20+                       | N/A                 | Mixed species trimmed hedgerow. RPA 1.5 from edge of hedgerow. | None required.                   | U                  | N/A                              | 1.5 m from edge of hedge.       | None required.                   | None required.                   | U                            | 1.5 m from edge of hedge.       |
| T9                 | N/A                                 | Sycamore (Acer pseudoplatanus) | 13.0      | 4.2                                      | 7.0  | 5.2  | 4.0  | 4.4  | 460                       | N/A                 | Located in hedgerow on adjacent land. Stem leaning to the north. Unable to fully inspect. | None required.                   | U                  | 96                               | 5.5                             | None required.                   | None required.                   | U                            | 5.5                             |
| H9                 | N/A                                 | Holly (Ilex aquifolium) | 7.5       | 0                                        | As per aerial photography | 190 # | 120 # | 210 # | N/A | M    | F    | F    | 20+                       | N/A                 | Group of holly, which has been pruned like a hedgerow. | None required.                   | U                  | 58                               | 4.3                             | None required.                   | None required.                   | U                            | 4.3                             |
| T10                | N/A                                 | Ash (Fraxinus excelsior) | 13.8      | 2.0                                      | 7.6  | 6.5  | 5.6  | 6.0  | 420 # | 580 # | N/A | M    | F    | F    | 10+                       | B1                  | Located on adjacent land. Both stems and scaffolds covered in ivy. Unable to fully inspect. | None required.                   | U                  | 232                              | 8.6                             | None required.                   | None required.                   | U                            | 8.6                             |
| T11                | 1211                                | Common Ash | 12.8     | 3.1                                      | 3.8  | 7.9  | 7.0  | 5.1  | 690                       | N/A                 | Veteran tree. Crown retenchment and decay present in stem. Woodpecker holes evident in stem. Decay below branch union for eastern scaffold limb. | None required.                   | Y                  | 216                              | 8.3                             | Monitor and re-inspect biannually. | None required.                   | U                            | 8.3                             |
| H10                | N/A                                 | Mixed conifer hedge | 4.9       | 0                                        | As per aerial photography | N/A | M    | F    | F    | 10+                       | N/A                 | Mixed conifer hedge located on adjacent land. RPA 3.5 from edge of hedge. | None required.                   | U                  | N/A                              | 3.5 m from edge of hedge.       | None required.                   | None required.                   | U                            | 3.5 m from edge of hedge.       |
| T12                | N/A                                 | Sycamore (Acer pseudoplatanus) | 13.1      | 1.95                                     | 6.2  | 8.5  | 5.6  | 4.3  | 380 # | N/A | SM  | G    | G    | 40+                       | C1                  | Located on adjacent land. Unable to fully inspect. | None required.                   | U                  | 65                               | 4.6                             | None required.                   | None required.                   | U                            | 4.6                             |
| T13                | N/A                                 | Sycamore (Acer pseudoplatanus) | 12.0      | 2.0                                      | 5.0  | 4.0  | 5.3  | 5.5  | 540 # | N/A | M    | G    | G    | 40+                       | B1                  | Located on adjacent land. Unable to fully inspect. | None required.                   | U                  | 132                              | 6.5                             | None required.                   | None required.                   | U                            | 6.5                             |
| T14                | N/A                                 | Sycamore (Acer pseudoplatanus) | 9.8       | 0                                        | 4.0  | 4.0  | 3.9  | 4.0  | 280 # | N/A | SM  | G    | G    | 40+                       | B1                  | Located on adjacent land. Unable to fully inspect. | None required.                   | U                  | 36                               | 3.4                             | None required.                   | None required.                   | U                            | 3.4                             |</p>
<table>
<thead>
<tr>
<th>Tree/Group Ref. No.</th>
<th>Tag No. Where Different from Tree No.</th>
<th>Botanical Name</th>
<th>Height (m)</th>
<th>Crown Clearance (m) &amp; compass direction</th>
<th>North</th>
<th>East</th>
<th>South</th>
<th>West</th>
<th>Stem Diameter average @ 1.5 m (mm) Five Stems or more</th>
<th>Age Class: Y (Young), SM (Semi-Mature), EM (Early-Mature), M (Mature), LM (Late-mature), V (Veteran)</th>
<th>Physiological Condition: G (Good), F (Fair), P (Poor), D (Dead)</th>
<th>Structural Condition: G (Good), F (Fair), P (Poor)</th>
<th>Estimated Remaining Contribution: (&lt;10, 10+, 20+, 40+)</th>
<th>BS5837 Categorisation Grading</th>
<th>Comments</th>
<th>Preliminary management recommendations/further works</th>
<th>Bat potential: L (Likely), U (Unlikely)</th>
<th>Root Protection Area (m²)</th>
<th>Root Protection Area Radius (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>NA</td>
<td>Sycamore (Acer pseudoplatanus), Ash (Fraxinus excelsior) &amp; Hawthorn (Crataegus monogyna)</td>
<td>11.5</td>
<td>N/A</td>
<td>As per aerial photography</td>
<td>420 #</td>
<td>N/A</td>
<td>EM/M</td>
<td>G</td>
<td>G</td>
<td>40+ C2</td>
<td>Group of early mature sycamore and ash, with mature hawthorn. Located on adjacent land. Unable to fully inspect.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H11</td>
<td>NA</td>
<td>Mixed species, but mostly Hawthorn (Crataegus monogyna)</td>
<td>3.0</td>
<td>0</td>
<td>As per aerial photography</td>
<td>N/A</td>
<td>N/A</td>
<td>M</td>
<td>G</td>
<td>G</td>
<td>20+ N/A</td>
<td>Trimmed hedgerow. RPA 2.5 m from edge.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>2.5 m from edge of hedge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H12</td>
<td>NA</td>
<td>Mixed species, but mostly Hawthorn (Crataegus monogyna)</td>
<td>1.7</td>
<td>0</td>
<td>As per aerial photography</td>
<td>N/A</td>
<td>N/A</td>
<td>M</td>
<td>G</td>
<td>G</td>
<td>20+ N/A</td>
<td>Trimmed hedgerow. RPA 1 m from edge.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>1.0 m from edge of hedge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T15</td>
<td>NA</td>
<td>Eucalyptus niphophila</td>
<td>15.8</td>
<td>4.5 #</td>
<td>6.0 #</td>
<td>7.0 #</td>
<td>6.4</td>
<td>4.4</td>
<td>520 #</td>
<td>M</td>
<td>G</td>
<td>G</td>
<td>20+ B1</td>
<td>Located on adjacent land, thus unable to fully inspect.</td>
<td>None required.</td>
<td>U</td>
<td>122</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>T16</td>
<td>NA</td>
<td>Willow species (Salix sp)</td>
<td>6.3</td>
<td>1.5 #</td>
<td>3.5 #</td>
<td>3.5 #</td>
<td>3.5</td>
<td>3.5</td>
<td>230 #</td>
<td>270 #</td>
<td>EM</td>
<td>G</td>
<td>F</td>
<td>20+ C1</td>
<td>Located on adjacent land, thus unable to fully inspect.</td>
<td>None required.</td>
<td>U</td>
<td>57</td>
<td>4.3</td>
</tr>
<tr>
<td>T17</td>
<td>NA</td>
<td>Lawson’s Cypress (Chamaecyparis sp)</td>
<td>3.9</td>
<td>0</td>
<td>2.5 #</td>
<td>2.5 #</td>
<td>2.5</td>
<td>2.5</td>
<td>200 #</td>
<td>SM</td>
<td>G</td>
<td>F</td>
<td>20+ C1</td>
<td>Located on adjacent land, thus unable to fully inspect.</td>
<td>None required.</td>
<td>U</td>
<td>18</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>H15</td>
<td>NA</td>
<td>Laurel (Prunus laurocerasus)</td>
<td>3.9</td>
<td>0</td>
<td>As per aerial photography</td>
<td>N/A</td>
<td>N/A</td>
<td>EM</td>
<td>G</td>
<td>G</td>
<td>20+ N/A</td>
<td>Located on adjacent land. Well trimmed hedge.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>2 m from edge of hedge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T18</td>
<td>NA</td>
<td>Purple Leaf Silver Birch (Betula pendula cv)</td>
<td>8.1</td>
<td>1.4 #</td>
<td>3.0 #</td>
<td>3.0 #</td>
<td>3.0</td>
<td>3.0</td>
<td>110 #</td>
<td>SM</td>
<td>F</td>
<td>F</td>
<td>20+ C1</td>
<td>Located on adjacent land, thus unable to fully inspect.</td>
<td>None required.</td>
<td>U</td>
<td>6</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>T19</td>
<td>NA</td>
<td>Cut Leaf Silver Birch (Betula pendula cv)</td>
<td>8.5</td>
<td>2.0 #</td>
<td>3.5 #</td>
<td>3.5 #</td>
<td>3.5</td>
<td>3.5</td>
<td>160 #</td>
<td>EM</td>
<td>G</td>
<td>F</td>
<td>20+ C1</td>
<td>Located on adjacent land, thus unable to fully inspect.</td>
<td>None required.</td>
<td>U</td>
<td>12</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>H16</td>
<td>NA</td>
<td>Lawson’s Cypress (Chamaecyparis sp)</td>
<td>2.4</td>
<td>0</td>
<td>As per aerial photography</td>
<td>N/A</td>
<td>N/A</td>
<td>EM</td>
<td>F</td>
<td>F</td>
<td>20+ N/A</td>
<td>Located on adjacent land. Well trimmed hedge.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>2.5 from edge of hedge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T20</td>
<td>NA</td>
<td>Silver Birch (Betula pendula)</td>
<td>5.4</td>
<td>2.5 #</td>
<td>3.5 #</td>
<td>3.5 #</td>
<td>3.5</td>
<td>3.5</td>
<td>130#</td>
<td>EM</td>
<td>G</td>
<td>F</td>
<td>20+ C1</td>
<td>Small tree located on adjacent land.</td>
<td>None required.</td>
<td>U</td>
<td>8</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>G2</td>
<td>NA</td>
<td>Silver Birch (Betula pendula)</td>
<td>&lt; 14.0#</td>
<td>N/A</td>
<td>As per aerial photography</td>
<td>200 #</td>
<td>EM</td>
<td>G</td>
<td>F</td>
<td>20+ C1</td>
<td>Located on adjacent land, thus unable to fully inspect.</td>
<td>None required.</td>
<td>U</td>
<td>18</td>
<td>2.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G3</td>
<td>NA</td>
<td>1 Cupressus species, 4 Oak (Quercus sp), 4 Silver Birch (Betula pendula)</td>
<td>&lt; 13.9#</td>
<td>N/A</td>
<td>As per aerial photography</td>
<td>440 #</td>
<td>SM</td>
<td>M</td>
<td>G</td>
<td>F</td>
<td>20+ C2</td>
<td>Overhead cable runs through the crown of several trees in the group. Adjacent road is a constraint to regular RPAs.</td>
<td>Prune back from overhead cable to achieve a minimum of 2 metres clearance.</td>
<td>U</td>
<td>N/A</td>
<td>5.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G4</td>
<td>NA</td>
<td>5 Oak (Quercus sp) within mixed hedgerow.</td>
<td>&lt; 13.0#</td>
<td>0</td>
<td>As per aerial photography</td>
<td>480 #</td>
<td>EM</td>
<td>M</td>
<td>G</td>
<td>P</td>
<td>20+ C1</td>
<td>Oaks form relatively poor resulting pruning to clear overhead cable.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>5.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree/Group Ref. No.</td>
<td>Tag No. Where Different from Tree No.</td>
<td>botanical Name</td>
<td>Height(m)</td>
<td>Crown Clearance (m) &amp; compass direction</td>
<td>North</td>
<td>East</td>
<td>South</td>
<td>West</td>
<td>Stem Diameter average @ 1.5 m (mm)</td>
<td>Five Stems or More</td>
<td>App Class Y (Young), SM (SemiMature), EM (EarlyMature), M (Mature), LM (LateMature), V (Veteran)</td>
<td>Physiological Condition: G (Good), F (Fair), P (Poor), D (Dead)</td>
<td>Structural Condition: G (Good), F (Fair), P (Poor)</td>
<td>Estimated Remaining Contribution: (&lt;10, 10+, 20+, 40+)</td>
<td>BS5837 Categorisation Grading</td>
<td>Preliminary management recommendations/further works</td>
<td>Bat potential: L (Likely), U (Unlikely)</td>
<td>Root Protection Area (m²)</td>
<td>Root Protection Area Radius (m)</td>
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<tr>
<td>G5 (A, B, C)</td>
<td>N/A</td>
<td>3 Oaks (Quercus robur)</td>
<td>23.4</td>
<td>2.5 #</td>
<td>A) 300</td>
<td>B) 800</td>
<td>C) 600</td>
<td>M</td>
<td>F - G</td>
<td>F</td>
<td>40+</td>
<td>K1 &amp; 2</td>
<td>Significant trees in the streetscene. Inspection undertaken from adjacent highway verge. A) Laetiporus sulphureus evident on upper stem. Pruning wound on eastern side of stem is not occluded and there is a possibility of cavity at this point. B) Pruning wound on stem has not occluded and there is a potential for a cavity at this point. C) Growing under the canopy of A, resulting in poorer growth and form.</td>
<td>Aerial inspection within 6 months to inspect pruning wounds for cavity/ decay.</td>
<td>L</td>
<td>A) 367, B) 290, C) 163</td>
<td>A) 10.8, B) 9.6, C) 7.2</td>
<td></td>
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</tr>
<tr>
<td>T21</td>
<td>N/A</td>
<td>Ash (Fraxinus excelsior)</td>
<td>15.9</td>
<td>6.5 #</td>
<td>680</td>
<td>M</td>
<td>F</td>
<td>P</td>
<td>&lt; 10</td>
<td>U</td>
<td>Western scaffold limb has extensive upper dieback. Daldinia concentrica decay fungi fruiting bodies present near cut surfaces where scaffold limbs have been previously cut back. High target (road) and reasonable probability of failure. Inspection undertaken from adjacent highway verge.</td>
<td>Recommend removal of tree within three months.</td>
<td>U</td>
<td>209</td>
<td>8.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G6</td>
<td>N/A</td>
<td>Ash (Fraxinus excelsior), Holly (Ilex aquifolium), Oak (Quercus sp), Silver Birch (Betula pendula) &amp; Goat Willow (Salix caprea).</td>
<td>&lt; 10.6</td>
<td>10.6 #</td>
<td>As per aerial photography</td>
<td>450</td>
<td>EM</td>
<td>G</td>
<td>F - G</td>
<td>40+</td>
<td>C1 &amp; 2</td>
<td>Linear group of trees.</td>
<td>None required.</td>
<td>U</td>
<td>92</td>
<td>5.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T22</td>
<td>N/A</td>
<td>Aspen (Populus tremula)</td>
<td>7.8</td>
<td>2.0 #</td>
<td>3.0</td>
<td>3.8</td>
<td>2.9</td>
<td>3.1</td>
<td>380</td>
<td>20+</td>
<td>C1</td>
<td>Located on adjacent land. Tree has been previously topped. Open cavity on western stem.</td>
<td>None required.</td>
<td>U</td>
<td>65</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H17</td>
<td>N/A</td>
<td>Leylandii</td>
<td>2.5</td>
<td>0</td>
<td>As per aerial photography</td>
<td>N/A</td>
<td>M</td>
<td>20</td>
<td>20+</td>
<td>N/A</td>
<td>Trimmed hedge.</td>
<td>None required.</td>
<td>U</td>
<td>N/A 2.5 m from hedge edge</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tree/ Group Ref. No.</td>
<td>Tag No. (Where Different from Tree No.)</td>
<td>Botanical Name</td>
<td>Height (m)</td>
<td>Crown Clearance (m) &amp; compass direction</td>
<td>North</td>
<td>East</td>
<td>South</td>
<td>West</td>
<td>Stem Diameter @ 1.5 m (mm)</td>
<td>Five Stems or more</td>
<td>Stem Diameter average @ 1.5 m (mm) Five Stems or more</td>
<td>Physiological Condition: G (Good), F (Fair), P (Poor), D (Dead)</td>
<td>Structural Condition: G (Good), F (Fair), P (Poor)</td>
<td>Estimated Remaining Contribution: (&lt;10, 10+, 20+, 40+)</td>
<td>BS5837 Categorisation Grading</td>
<td>Comments</td>
<td>Preliminary management, re-visit or further works</td>
<td>Bat potential: L (Likely), U (Unlikely)</td>
<td>Root Protection Area (m²)</td>
</tr>
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</tr>
<tr>
<td>H18</td>
<td>N/A</td>
<td>Beech (Fagus sylvatica)</td>
<td>2.5</td>
<td>0</td>
<td>As per aerial photography</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td>M</td>
<td>G</td>
<td>G</td>
<td>20+</td>
<td>N/A</td>
<td>Tricked hedge.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>2.5 m from hedge edge</td>
</tr>
<tr>
<td>G7</td>
<td>N/A</td>
<td>Himalayan Birch (Betula utilis cv) &amp; Norway Maple (Acer Platanoides)</td>
<td>10.6</td>
<td>N/A</td>
<td>As per aerial photography</td>
<td>350</td>
<td>#</td>
<td></td>
<td></td>
<td>EM</td>
<td>G</td>
<td>F</td>
<td>20+</td>
<td>C1</td>
<td>Located in adjacent garden.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>4.2</td>
</tr>
<tr>
<td>G8</td>
<td>N/A</td>
<td>Various evergreen and deciduous species</td>
<td>&lt; 10.5</td>
<td>N/A</td>
<td>As per aerial photography</td>
<td>360</td>
<td>#</td>
<td></td>
<td></td>
<td>EM - M</td>
<td>F - G</td>
<td>P - G</td>
<td>20+</td>
<td>C1 &amp; 2</td>
<td>Linear group of trees and hedging shrubs located in adjacent gardens.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>4.3</td>
</tr>
<tr>
<td>H19</td>
<td>N/A</td>
<td>Various small trees and hedging plants</td>
<td>&lt; 10.0</td>
<td>N/A</td>
<td>As per aerial photography</td>
<td>350</td>
<td>#</td>
<td></td>
<td></td>
<td>SM - M</td>
<td>F - G</td>
<td>F - G</td>
<td>20+</td>
<td>N/A</td>
<td>Linear group of small trees and hedging shrubs located in adjacent gardens.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>2.5 m from crown edge</td>
</tr>
<tr>
<td>H20</td>
<td>N/A</td>
<td>Elder (Sambucus nigra), Blackthorn (Prunus spinosa), Hawthorn (Crataegus monogyna) &amp; Snowberry (Symphoricarpos albus)</td>
<td>&lt; 6.5</td>
<td>0</td>
<td>As per aerial photography</td>
<td>150</td>
<td>#</td>
<td></td>
<td></td>
<td>M</td>
<td>G</td>
<td>F</td>
<td>10+</td>
<td>N/A</td>
<td>Hedgerow.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>1.0 from hedge edge</td>
</tr>
<tr>
<td>T23</td>
<td>N/A</td>
<td>Silver Birch (Betula pendula)</td>
<td>&lt; 18.0</td>
<td>N/A</td>
<td>As per aerial photography</td>
<td>400</td>
<td>#</td>
<td></td>
<td></td>
<td>M</td>
<td>G</td>
<td>F</td>
<td>20+</td>
<td>F1</td>
<td>Located in adjacent garden. Unable to inspect.</td>
<td>None required.</td>
<td>U</td>
<td>73</td>
<td>4.8</td>
</tr>
<tr>
<td>G9</td>
<td>N/A</td>
<td>Hawthorn (Crataegus monogyna) &amp; Plum species (Prunus sp)</td>
<td>7.4</td>
<td>2.0 #</td>
<td>As per aerial photography</td>
<td>350</td>
<td></td>
<td></td>
<td></td>
<td>M</td>
<td>G</td>
<td>F</td>
<td>20+</td>
<td>C1</td>
<td>Group of five small trees.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>4.2</td>
</tr>
<tr>
<td>H21</td>
<td>N/A</td>
<td>Hawthorn (Crataegus monogyna) &amp; Hazel (Corylus avellana)</td>
<td>3.0</td>
<td>0</td>
<td>As per aerial photography</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td>M</td>
<td>G</td>
<td>F</td>
<td>20+</td>
<td>N/A</td>
<td>Small gaps in hedgerow.</td>
<td>Consider planting up gaps with hedging species.</td>
<td>U</td>
<td>N/A</td>
<td>2.5 m from hedge edge</td>
</tr>
<tr>
<td>T24</td>
<td>198</td>
<td>Ash (Fraxinus excelsior)</td>
<td>9.9</td>
<td>4.0 #</td>
<td>4.8</td>
<td>4.5 #</td>
<td>4.5 #</td>
<td>4.6</td>
<td>660</td>
<td>LM</td>
<td>P</td>
<td>P</td>
<td>&lt;10</td>
<td>U</td>
<td>95% dieback in crown. Been recently heavily reduced. Numerous cavities suitable for bird roosting. Good habitat value.</td>
<td>Retain in current condition as wildlife habitat. Re-inspect in five years time.</td>
<td>L</td>
<td>197</td>
<td>7.9</td>
</tr>
<tr>
<td>H22</td>
<td>N/A</td>
<td>Hawthorn (Crataegus monogyna), Hazel (Corylus avellana) &amp; Blackthorn (Prunus spinosa)</td>
<td>5.1</td>
<td>0</td>
<td>As per aerial photography</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td>M</td>
<td>G</td>
<td>G</td>
<td>20+</td>
<td>N/A</td>
<td>Hedgerow with side trimmed, but not the top.</td>
<td>None required.</td>
<td>U</td>
<td>N/A</td>
<td>3.5 from hedge edge</td>
</tr>
<tr>
<td>Tree/Group Ref. No.</td>
<td>Tag No.</td>
<td>Botanical Name</td>
<td>Height (m)</td>
<td>Crown Clearance (m) &amp; compass direction</td>
<td>Stem Diameter @ 1.5 m (mm)</td>
<td>Five Stems or more</td>
<td>Stem Diameter average @ 1.5 m (mm)</td>
<td>Five Stems or more</td>
<td>Crown Spread (m)</td>
<td>Condition</td>
<td>Estimated Remaining Contribution:</td>
<td>BS5837 Categorisation/Grading</td>
<td>Comments</td>
<td>Preliminary management/recommendation/further works</td>
<td>Bat potential:</td>
<td>Root Protection Area (m²)</td>
<td>Root Protection Area Radius (m)</td>
<td>Comments</td>
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<tr>
<td>T25 1213</td>
<td>1213</td>
<td>Oak (Quercus robur)</td>
<td>24</td>
<td>5.6</td>
<td>10.5 #</td>
<td>10.5</td>
<td>10.7</td>
<td>10.8</td>
<td>1300</td>
<td>M G F</td>
<td>40+</td>
<td>A1 &amp; 2</td>
<td></td>
<td>Monitor and re-inspect when out of leaf in 18 months time.</td>
<td>L 707</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H23 N/A</td>
<td>1213</td>
<td>Hawthorn (Crataegus monogyna)</td>
<td>1.7</td>
<td>0</td>
<td>As per aerial photography</td>
<td>N/A</td>
<td>M G G</td>
<td>20+</td>
<td>N/A</td>
<td>G G</td>
<td>20+</td>
<td></td>
<td></td>
<td>None required.</td>
<td>U N/A</td>
<td>2.5 m from hedge edge</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T26 1214</td>
<td>1214</td>
<td>Oak (Quercus robur)</td>
<td>20.2</td>
<td>3</td>
<td>10.0 #</td>
<td>10.8</td>
<td>10.2</td>
<td>12.7</td>
<td>1250 #</td>
<td>M G G</td>
<td>40+</td>
<td>A1 &amp; 2</td>
<td></td>
<td>If land use intensifies under crown, test deadwood over 100 mm diameter to determine risk of it falling. Remove or shorten deadwood if high risk of falling.</td>
<td>L 707</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T27 1219</td>
<td>1219</td>
<td>Oak (Quercus robur)</td>
<td>11.7</td>
<td>0.5</td>
<td>4.5</td>
<td>5.6</td>
<td>7.1</td>
<td>7.3</td>
<td>990</td>
<td>V G P</td>
<td>40+</td>
<td>A3</td>
<td></td>
<td>Monitor and re-inspect when out of leaf in 18 months time.</td>
<td>L 444</td>
<td>11.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G10 N/A</td>
<td>G10</td>
<td>Sycamores (Acer pseudoplatanus)</td>
<td>11.4</td>
<td>0.8</td>
<td>As per aerial photography</td>
<td>110 #</td>
<td>320 #</td>
<td>300 #</td>
<td>EM G P</td>
<td>20+</td>
<td>C1</td>
<td></td>
<td></td>
<td>None required.</td>
<td>U N/A</td>
<td>5.4</td>
<td></td>
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</tr>
</tbody>
</table>
Appendix 2
Survey Methodology
Appendix 2
Survey Methodology

The following features of each tree, group of trees or woodland have been recorded in the Arboricultural Data Sheets:

- Species including the common and scientific names.
- Height measured in metres from the stem base. Where the ground has a significant slope the higher ground is selected.
- Crown height is measured in metres and is an indication of the average height at which the main crown begins.
- Stem diameter is measured in millimetres at 1.5m above the adjacent ground level (upslope on sloping ground) or immediately above the root flare for multi-stemmed trees.
- Crown spread is measured in metres and taken at the four cardinal points to derive an accurate representation of the crown.
- Age class of the tree is described as young, semi-mature, early-mature, mature, or over-mature.
- Physiological condition is classed as good, fair, poor, or dead. This is an indication of the health of the tree and takes into account vigour, presence of disease and dieback.
- Structural condition is classed as good, fair or poor. This is an indication of the structural integrity of the tree and takes into account significant wounds, decay and quality of branch junctions.
- Life expectancy is classed as: less than 10 years (<10) (Very Short); 10-20 years (Short); 20-40 years (Medium); or more than 40 years (40+) (Long). This is an indication of the number of years before the removal of the tree is likely to be required.
- Comments include a brief description, if required, of the tree with comments on the form, vitality, health and any significant defects that may be present.
Appendix 3
Tree Categorisation Method
Appendix 3

Tree Categorisation Method

<table>
<thead>
<tr>
<th>Table 1 Cascade chart for tree quality assessment</th>
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<tbody>
<tr>
<td>Category and definition</td>
</tr>
<tr>
<td>Trees unsuitable for retention (see Note)</td>
</tr>
<tr>
<td>Category 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</td>
</tr>
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<td></td>
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</tbody>
</table>

NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.

<table>
<thead>
<tr>
<th>1 Mainly arboricultural qualities</th>
<th>2 Mainly landscape qualities</th>
<th>3 Mainly cultural values, including conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years</td>
<td>Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)</td>
<td>Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features</td>
</tr>
<tr>
<td>Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years</td>
<td>Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation</td>
<td>Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collections but situated so as to make little visual contribution to the wider locality</td>
</tr>
<tr>
<td>Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm</td>
<td>Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories</td>
<td>Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trees with no material conservation or other cultural value</td>
</tr>
</tbody>
</table>

A single tree, group or woodland can come under one or more sub-headings. This does not confer on it a higher value than a tree with a single value. For the purposes of this report.
Appendix 4
Tree protection Fencing
Appendix 4

Tree Protection Fencing

Key
1  Standard scaffold poles
2  Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3  Panels secured to uprights and cross-members with wire ties
4  Ground level
5  Uprights driven into the ground until secure (minimum depth 0.6 m)
6  Standard scaffold clamps
Appendix 5
Tree Protection Signage
Appendix 5
Tree Protection Signage

PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.

TREE PROTECTION AREA
KEEP OUT!
(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER. CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION
ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY
Appendix 6

Glossary of Common Terms Used in Arboriculture
Appendix 6
Glossary of Common Terms Used in Arboriculture

- Abscission. The shedding of a leaf or other short lived part of a woody plant.
- Abiotic. Pertaining to non-living agent’s e.g. environmental factors.
- Absorptive Roots. Non-woody short lived roots, generally having a diameter less than one millimetre, the primary function of which is the uptake of water and nutrients.
- Access facilitation pruning. One off pruning operation to provide access for development operation. Pruning that will not be detrimental to trees health or amenity.
- Arboricultural Method Statement. A methodology for the implementation of development where encroachment within the RPA has the potential to cause damage or loss of retained trees.
- Arboriculturist. Someone who through relevant training and experience has gained knowledge in the expertise of trees.
- Adaptive Growth. The process by where wood formation rates increasing in the cambial zone, as well as wood quality, responds to gravity and other forces acting on the cambium.
- Adaptive roots. The adaptation of existing roots; or a production of new roots in response to damage or decay.
- Adventitious buds, roots, shoots. Which grow in other than primary apical control.
- Anchorage. The process in which a tree uses its roots system to support itself within the soil structure.
- Arisings. Parts of the tree that has been removed for disposal, branches, leaves, roots etc.
- Canker. Area of dead cambium killed by overlying pathogenic tissues.
- Cavity. A hole in the woody structure of the tree; often caused through decay.
- Cleaning out. The removal of dead, diseased crossing branches, damaged branches and alien structures.
- Competent person. Person with training and experience in accordance with the proposed matter being addressed, having an understanding of a particular matter being approached.
- Condition. An indication of the physiological vitality of a tree, but not the stability of a tree.
- Construction. A site based operation that has the potential to affect retained trees.
• Construction Exclusion Zone. An area based on the RPA from which construction activity is prohibited.
• Coppicing. Removal of all aerial parts of the tree leaving a stump for regeneration of new shoot.
• Crown/canopy. The parts of the tree that supports the leaves.
• Crown lifting. The removal of limbs and small branches to a specified height above ground level.
• Crown thinning. The removal of a proportion of secondary branch growth throughout the crown to produce an even density well balanced crown structure.
• Crown reduction/reshaping. Removal in the height to a specified description to maintain a flowing crown structure.
• Deadwood. Non–functional branches which no longer support natural growing conditions of the tree, but may be beneficial for the support of habitats.
• Defect. Any area of the tree that longer has an optimal mechanical uniformity of stress, making the tree unsuitable for its location.
• Dieback. Death of woody parts of the tree starting at distal ends of the tree.
• Disease. Damage occurring to living organisms as a result of pathogenic micro-organisms.
• Distal. Furthest distance away from the main body of the tree.
• Dysfunction. In woody tissues, the loss of physiological function, especially water conduction, in sapwood.
• Epicormical growth. Growth from dormant or adventitious buds, not developing from the first shoot.
• Girdling roots. A circling root which constricts the stem or roots, with the potential to cause death and the restriction of flow within the phloem.
• Heartwood. Dysfunctional xylem which no longer has conductive properties, but which has become an integral structural part of the tree.
• Heave. The swelling of shrinkable clay soils, often when vegetation has been removed allowing soil rehydration to develop, with the potential for listing structures i.e. walls.
• Included bark/acute forks. Face to face contact of bark usually at fork unions, or branch unions.
• **Lopping/Topping.** A term used to describe the removal of large sized branches.

• **Mulch.** Material laid down over the rooting area of trees to suppress weed competition, increase moisture retention and increase some cases organic material and nutrients.

• **Pathogen.** A micro-organism that causes disease within another organism.

• **Phytotoxic.** Toxic to plants.

• **Pollarding.** The removal of the tree canopy to produce knuckles where new growth develops and is removed cyclically usually performed on young trees.

• **Pruning.** Selective removal of parts of the tree to achieve a desired outcome.

• **Root protection area.** An area around a tree identified by multiplying the stem diameter at 1.5 by 12 to produce a radial area or rooting volume around a tree to be protected. BS 5837 2012.

• **Service.** Any above and below ground structure or apparatus for utility provision.

• **Size of part.** Relating to risk assessments, identifying the size of the hazard, or parts of a tree which may cause harm if failure occurs.

• **Stem(s).** The main structure from the ground up supporting the crown.

• **Stress.** In plants, the physiological depletion as a result of environmental influences.

• **Structure.** A manufactured object, such as building, roads, path, wall or excavated structures.

• **Structural roots.** The primary larger diameter roots which hold and support the aerial parts of the tree.

• **Subsidence.** The shrinkage of soil through the absorption of water via vegetation and the sinking effects on surrounding architectural structures.

• **Targets.** In risk assessment, persons or property at risk of harm as a result of a hazard (falling tree, branch etc.).

• **Tree Protection Plan.** A scaled drawing informed by descriptive text where necessary, based upon finalised site proposals, showing trees for retention and illustrating the tree and landscape protection measures.

• **Veteran tree.** Tree that, by recognized criteria, shows features of biological, cultural or aesthetic characteristics of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

• **Windthrow.** The blowing over a tree at its roots.
Site of scrub growth (≤75mm stem diameter)

Legend:
- Site Boundary
- Hedge
- Scrub
- Small Diameter Conifers and Shrubs
- Hedge growth removed to enable development

Key:
- Treeline
- Site Boundary
- Hedge
- Scrub
- Small Diameter Conifers and Shrubs
- Hedgerow removed to enable development

Quality categories based on BS5837:2012 Trees in relation to design, demolition and construction - Recommendations

RPA - Root Protection Area
Where RPA is not visible it extends to the same distance as the canopy.

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

Category A Crown Spread
Category B Crown Spread
Category C Crown Spread
Category U Crown Spread
RPA
Tree Number

Scale Bar: Metres

50

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