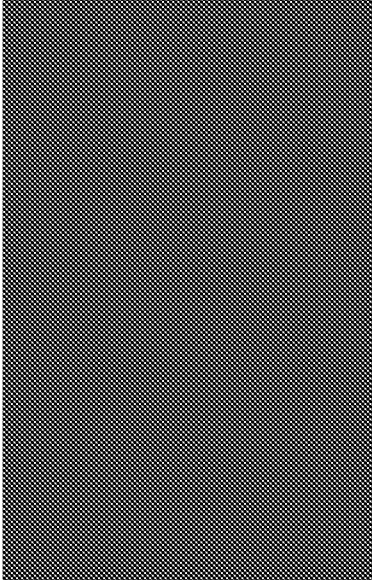


**Arboricultural Assessment & Method Statement**  
Land off Toddington Lane, Littlehampton, West Sussex  
(Southern Lymminster Bypass)

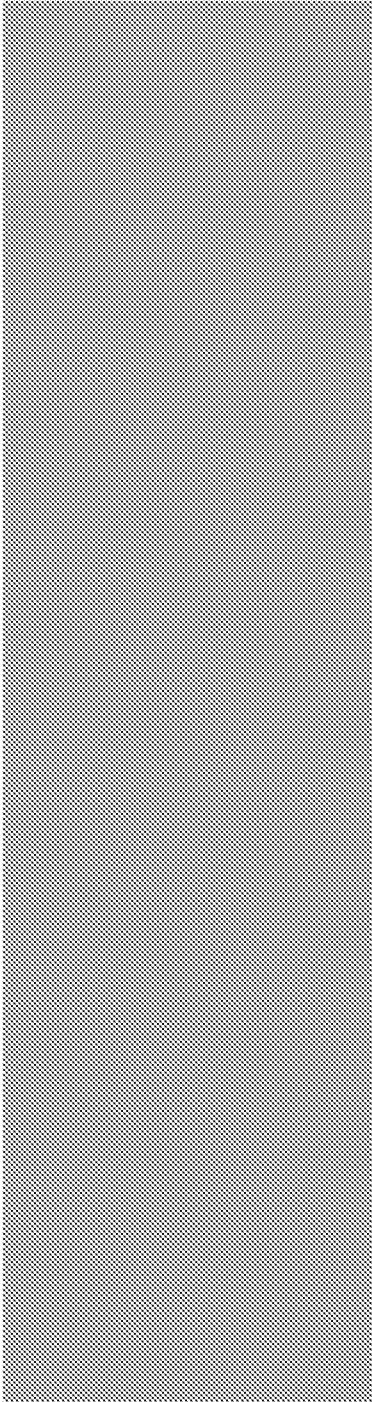
Jeremy Barrell BSc FArborA DipArb CBiol FICFor FRICS

26<sup>th</sup> July 2017

16267-AA-Southern Lymminster Bypass-260717-JB



**barrell**  
TREE CONSULTANCY



## Report purpose, validation statement and tree protection plan

### Report purpose

This is a BS 5837 compliant arboricultural assessment report providing sufficient information for the Local Planning Authority ("LPA") to consider the effect of the proposed development on local character from a tree perspective. It includes an analysis of how trees will be affected and an arboricultural method statement describing how retained trees will be protected and managed during the development activity. It is fully in line with the BS 5837 advice relating to the planning application stage of the process highlighted in Table B1 reproduced below:

Table B. 1 Delivery of tree-related information into the planning system

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

### Validation statement

For LPA validation purposes, this report includes:

- a **BS 5837 compliant tree survey**, including a tree protection plan showing the location of the existing trees, their categorisation, the location of the new structures including hard surfacing, and the tree protection measures;
- an **arboricultural assessment** in Section 1, which describes how the development proposal will affect local character from a tree perspective;
- an **arboricultural method statement** in Section 2 describing the tree protection and management measures, and how they will be implemented; and
- two **appendices** in Section 3 setting out relevant background administrative information and a schedule of tree information.

## Report purpose, validation statement and tree protection plan

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### The tree protection plan

More specifically, the tree protection plan is based on the provided information and it should only be used for dealing with the tree issues. It shows:

- the existing trees numbered, with high/moderate categories (A & B) highlighted in green triangles and low/unsuitable categories (C & U) highlighted in blue rectangles;
- the circular interpretation of root protection areas ("RPAs") of category A, B and C trees (grey circles);
- the trees to be removed indicated by a red number and crown outline;
- precautionary areas where special care must be taken when working in RPAs outside the construction exclusion zone ("CEZ"); and
- the location of the CEZ, which is the area of restricted access, to be protected by temporary barriers (fencing and/or ground protection).

## Summary

### 1. The development proposal

The development proposal by Persimmon Homes Thames Valley is for the Southern Lyminster Bypass and associated infrastructure on land off Toddington Lane, Littlehampton, West Sussex.

### 2. Background administrative information

Our instructions, how we prepared this report, and other relevant background information, is explained in Appendix 1. All the trees that could be affected were inspected and that information is listed in Appendix 2.

### 3. Table 1: Summary of category A, B and C trees to be removed or protected using special precautions

|                                          | British Standard 5837 Category |                                              |                                                                                                                 |
|------------------------------------------|--------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|                                          | A (High quality)               | B (Moderate quality)                         | C (Low quality)                                                                                                 |
| <b>Remove</b>                            | -                              | 266, 267, 270, 649                           | G28 (part), G35, H50 (part), H54 (part), H61 (part), H63, H65, H66, 200, 201, 202, 203, 269, 645, 646, 647, 648 |
| <b>Protect using special precautions</b> | -                              | 264a, 271, 272, 284, 289, 290, 292, 293, 295 | -                                                                                                               |

H = Hedge; G = Group

**Note:** Category U trees are in such poor condition they would be removed irrespective of development and they are not included in this summary.

### 4. Table 2: Summary of the impact on local character of tree removal and proposed mitigation

|               | Tree numbers                                                                                                                        | Impact on local character                                                                | Mitigation                                                   |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| <b>Remove</b> | G28 (part), G35, H50 (part), H54 (part), H61 (part), H63, H65, H66, 200, 201, 202, 203, 266, 267, 269, 270, 645, 646, 647, 648, 649 | Impact limited to the immediate vicinity with no significant impact in the wider setting | Planting about 160 new trees and new boundary hedge planting |

**Note:** The detailed analysis explaining the impact on local character and mitigation is provided in Section 1 of this report.

### 5. Table 3: Extra precautions in addition to primary protection using fencing and ground protection

| Activities requiring extra precautions | Tree numbers                                 |
|----------------------------------------|----------------------------------------------|
| Pollution control near retained trees  | All trees                                    |
| Excavation in RPAs                     | 264a, 271, 272, 284, 289, 290, 292, 293, 295 |

**Note:** The detailed analysis explaining how these trees will be protected is provided in Section 2 of this report.

### 6. Enhancement of local character through sustainable new tree planting

To improve the contribution of trees to local character, a comprehensive new hedge and tree planting scheme is proposed, including about 160 new semi-mature trees. The new trees would have the potential to reach a significant size without excessive maintenance, representing an overall enhancement of sustainable tree cover in the locality.

## Summary

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### 7. Overall assessment of how the development proposal will affect local character from a tree perspective

This proposal will result in the loss of four moderate quality category B trees, and 17 low quality category C trees and hedges. Although some of these losses will be noticeable in the immediate vicinity, there will be no significant adverse impact on character because the relatively flat local topography means that none of the trees are prominent in the wider setting. To mitigate these losses, a comprehensive new tree planting scheme including new boundary hedges and about 160 substantial semi-mature trees using a variety of species planted in sustainable locations is included as part of the proposal. The size of these new trees at planting and their future growth will significantly enhance the contribution of this site to local character and more than compensate for the loss of existing trees.

# Section 1

## Arboricultural assessment

This arboricultural assessment has taken account of all the recommendations set out in 5.4 of BS 5837 (reproduced courtesy of BSI below).

### 5.4 Arboricultural impact assessment

**5.4.1** The project arboriculturist should use the information detailed in **5.2** and **5.3** to prepare an arboricultural impact assessment that evaluates the direct and indirect effects of the proposed design and where necessary recommends mitigation.

**5.4.2** The assessment should take account of the effects of any tree loss required to implement the design, and any potentially damaging activities proposed in the vicinity of retained trees. Such activities might include the removal of existing structures and hard surfacing, the installation of new hard surfacing, the installation of services, and the location and dimensions of all proposed excavations or changes in ground level, including any that might arise from the implementation of the recommended mitigation measures. In addition to the impact of the permanent works, account should be taken of the buildability of the scheme in terms of access, adequate working space and provision for the storage of materials, including topsoil.

*NOTE Scaled cross-sections and other drawings might be required to demonstrate the feasibility of the proposals (see Annex B).*

**5.4.3** As well as an evaluation of the extent of the impact on existing trees, the arboricultural impact assessment should include:

- a) the tree survey (see **4.4**);
- b) trees selected for retention, clearly identified (e.g. by number) and marked on a plan with a continuous outline;
- c) trees to be removed, also clearly identified (e.g. by number) and marked on a plan with a dashed outline or similar;
- d) trees to be pruned, including any access facilitation pruning, also clearly identified and labelled or listed as appropriate;
- e) areas designated for structural landscaping that need to be protected from construction operations in order to prevent the soil structure being damaged;
- f) evaluation of impact of proposed tree losses;
- g) evaluation of tree constraints (see **5.2**) and draft tree protection plan (see **5.5**);
- h) issues to be addressed by an arboricultural method statement (see **6.1**), where necessary in conjunction with input from other specialists.

## Section 1: Arboricultural assessment

### 8. Trees to be protected using special precautions

All the retained trees will be protected from damage using barriers (fencing and ground protection). Additionally, in the precautionary area shown on the tree protection plan with the yellow highlighting, special precautions relating to excavations near retained trees will be required. These precautions are explained in the arboricultural method statement in Section 2 of this report. If the precautions set out in this arboricultural method statement are implemented as described, these trees can be successfully retained without any adverse impact on them or on visual amenity.

### 9. Table 4: The impact of tree removal on local character

| Tree numbers                                                                                                                        | Impact of tree removal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| G28 (part), G35, H50 (part), H54 (part), H61 (part), H63, H65, H66, 200, 201, 202, 203, 266, 267, 269, 270, 645, 646, 647, 648, 649 | All these trees low quality and make no significant contribution to local character, apart from four moderate quality trees. However, due to the flat local topography, none of those four are visible from public viewpoints beyond their immediate vicinity or individually prominent in the wider setting. Although their loss will be noticeable close by in the short term, but there will be no significant impact on local character in the wider setting in the medium to long terms. For these reasons, the impact of their loss on local character will be limited to the immediate vicinity and the short term. |

**Note:** Trees categorised as U are in such poor condition that they have been assessed as needing removal for management reasons irrespective of any development proposals. Their loss will not be caused by this proposal and it should not be considered as a direct impact.

### 10. New tree planting to mitigate tree removals

To enhance local character, the project landscape architect, WYG Environment Planning Transport Ltd, has prepared a comprehensive tree planting scheme, their reference Drawing A 088461 SLB 1 & 2, submitted under a separate cover, heeding the feedback from me and the project ecologist. That proposal includes extensive new native hedge planting along the road boundaries and about 160 assorted new semi-mature trees. The species choice has been carefully selected to suit the space available for each individual tree as it matures to maximise the overall contribution to landscape character. Additionally, a varied species palette focused on ecological enhancement provides the significant benefits of high biosecurity and climate change resilience. These new trees have the potential to reach their full mature size, thus optimising the canopy cover of the site, with minimal future maintenance. This will more than mitigate the tree and hedge losses, and significantly improve the potential of the site to contribute to local character.

### 11. Summary of the impact on local character

This proposal will result in the loss of four moderate quality category B trees, and 17 low quality category C trees and hedges. Although some of these losses will be noticeable in the immediate vicinity, there will be no significant adverse impact on character because the relatively flat local topography means that none of the trees are prominent in the wider setting. To mitigate these losses, a comprehensive new tree planting scheme including new boundary hedges and about 160 substantial semi-mature trees using a variety of species planted in sustainable locations is included as part of the proposal. The size of these new trees at planting and their future growth will significantly enhance the contribution of this site to local character and more than compensate for the loss of existing trees.

# Section 2

## Arboricultural method statement

This arboricultural method statement has taken account of all the recommendations set out in 6.1 of BS 5837 (reproduced courtesy of BSI below).

### 6.1 Arboricultural method statement

**6.1.1** A precautionary approach towards tree protection should be adopted and any operations, including access, proposed within the RPA (or crown spread where this is greater) should be described within an arboricultural method statement, in order to demonstrate that the operations can be undertaken with minimal risk of adverse impact on trees to be retained.

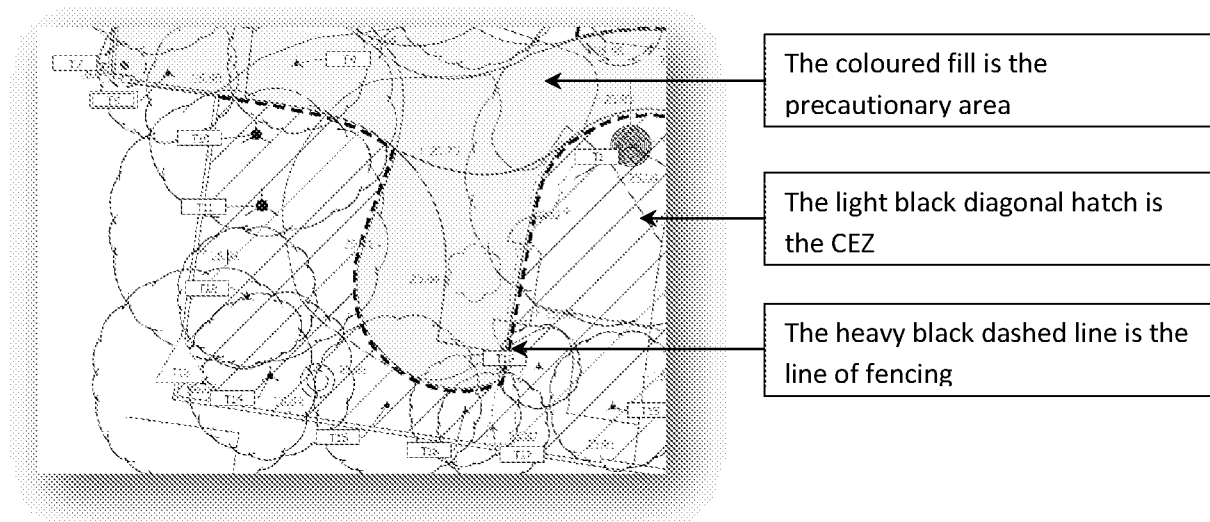
**6.1.2** The arboricultural method statement should be appropriate to the proposals and might typically address some or all of the following, incorporating relevant information from other specialists as required:

- a) removal of existing structures and hard surfacing;
- b) installation of temporary ground protection (see **6.2.3**);
- c) excavations and the requirements for specialized trenchless techniques (see **7.7.2**);
- d) installation of new hard surfacing – materials, design constraints and implications for levels;
- e) specialist foundations – installation techniques and effect on finished floor levels and overall height;
- f) retaining structures to facilitate changes in ground levels;
- g) preparatory works for new landscaping ;
- h) auditable/audited system of arboricultural site monitoring, including a schedule of specific site events requiring input or supervision.

## Section 2: Arboricultural method statement

### 12. Identification of areas to be protected

The tree protection plan (typical annotation illustrated below) shows all the areas where protective measures are necessary. The construction exclusion zone ("CEZ") boundary is shown on the plan as the heavy dashed black line, with the lighter diagonal hatching behind. If necessary, further precautionary areas outside the CEZ are shown on the plan as a coloured fill, where a high level of care is required.



### 13. Construction method statement (heads of terms summary)

A construction method statement is a description of how operations that may affect trees will be carried out to minimise any adverse impact on them. The details of how the site will be managed are construction and contractual matters that can only be finalised once the post-consent detailed planning begins. For that reason, at this stage in the planning process, BS 5837 only requires a heads of terms summary of the issues, for more detailed consideration once consent is issued. The issues that may require further clarification on this site include:

1. The order of work on site, including demolition, site clearance and building work.
2. Erection and maintenance of security hoarding near trees.
3. Who will be responsible for protecting the trees on site.
4. Detailed proposals for inspecting and supervising the tree protection, and how problems will be reported and solved.
5. How accidents and emergencies involving trees will be managed, including accidental damage to roots and their treatment.
6. Details of facilitation pruning and access into site. What size vehicles will be used under canopies and will large machinery be lifted over trees.
7. The parking arrangements for workers and visitors.
8. A schedule of emergency contact numbers.
9. Areas for loading and unloading of materials and storage of materials and plant.
10. Where site facilities will be located and when will they be installed.
11. How machinery and equipment (such as excavators, cranes and their loads, concrete pumps and piling rigs) will enter, move on, work on and leave the site.
12. Wheel washing facilities near trees.
13. Measures to control the emission of dust and dirt during construction near trees.
14. Recycling and storage of waste near trees.

## Section 2: Arboricultural method statement

15. Details of earthworks, grading and mounding and removal of spoil, including any planned lowering or raising of ground levels.
16. Method of excavation when near trees.
17. Precise services locations, including the method of excavation when near trees.
18. Proposed locations of site facilities/crane location/material storage/loading bays etc.
19. How post-construction damage through compaction to soil near existing trees and new trees will be ameliorated.

### 14. Arboricultural supervision

An arboricultural consultant should be appointed by the developer to advise on the tree management for the site and to attend:

- a pre-commencement meeting before any work starts;
- regular supervision visits to oversee the agreed tree protection; and
- further supervision visits as necessary to oversee any unexpected works that could affect trees.

More specifically, the form and purpose of the supervision should be as follows:

- **Pre-commencement meeting:** A pre-commencement meeting should be held on site before any of the site clearance and construction work begins. This would normally be attended by the site manager, the arboricultural consultant and a local planning authority ("LPA") representative. If a LPA representative declines to be present, the arboricultural consultant should inform the LPA in writing of the details of the meeting. All tree protection measures detailed in this document should be fully discussed so that all aspects of their implementation and sequencing are understood by all the parties. This should include agreeing the form and location of the most appropriate combination of fencing and/or ground protection to be used as barriers for the CEZ. Any agreed clarifications or modifications to the consented details will be recorded and circulated to all parties in writing. This meeting is where the details of the programme of tree protection should be agreed and finalised, which should then form the basis of any supervision arrangements between the arboricultural consultant and the developer.
- **General site management:** It is the developer's responsibility to ensure that the details of this arboricultural method statement and any agreed amendments are known and understood by all site personnel. Copies of the agreed documents should be available on site and the site manager should brief all personnel who could have an impact on trees on the specific tree protection requirements. This should be a part of the site induction procedures and written into appropriate site management documents.
- **Ongoing supervision of operations that could affect trees:** Once the site is active, the arboricultural consultant should visit at an interval agreed at the pre-commencement site meeting. This would normally be every two to four weeks for general supervision, but could be at a longer interval if agreed between the parties. The supervision arrangement should be sufficiently flexible to allow the supervision of all sensitive works as they occur. The arboricultural consultant's initial role is to liaise with the developer and the LPA to ensure that protective measures are fit for purpose and in place before any works start on site. Once the site is working, that role should switch to monitoring compliance with arboricultural planning conditions and advising on any tree problems that arise or modifications that become necessary.

### 15. Summary of the tree issues to be project managed by the supervising arboriculturist

In overview, it is anticipated that arboricultural input is likely to be needed for the following operations:

## Section 2: Arboricultural method statement

1. Pre-commencement meeting
2. Preliminary tree felling and pruning
3. Installation of CEZ barriers (fencing and/or ground protection)
4. Pollution control near retained trees
5. Excavation in RPAs
6. Upgrading existing soft landscaping or replacing existing surfacing or structures with new soft landscaping
7. Removal of protective measures

16. **Table 5:** Suggested programme of arboricultural supervision during the development process

| Finalising tree management details after consent, but before work starts                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Action                                                                                                                   | Arboricultural input                                                                                                                                                                                                                                                                                                                                                                                                             |
| Review of tree protection and any emerging design issues that may affect trees with the construction team                | <ul style="list-style-type: none"> <li>Meeting/discussion with relevant members of the developer's team to explain the extent of the tree constraints</li> <li>Review any post-consent layout changes that may affect trees</li> <li>Review all works within RPAs that may affect trees</li> <li>Identify any potential conflicts and work towards resolutions</li> <li>Preparation of working drawings, if necessary</li> </ul> |
| Review consented tree protection proposals for discussion at pre-commencement meeting                                    | If necessary: <ul style="list-style-type: none"> <li>prepare revised plans and specifications</li> <li>liaise with LPA to discuss modifications</li> </ul>                                                                                                                                                                                                                                                                       |
| Briefing landscape architect on restrictions imposed on new landscape design by RPAs                                     | <ul style="list-style-type: none"> <li>Advise landscape architect of the RPA locations, the restrictions to landscaping activity that applies and the details of agreed new tree planting</li> <li>Review the final landscaping proposals to identify any conflicts between tree protection and landscaping</li> </ul>                                                                                                           |
| Pre-commencement site meeting with supervising arboriculturist, site manager and the LPA representative (if appropriate) | <ul style="list-style-type: none"> <li>Meeting on site</li> <li>Agree detail of supervision requirements, i.e. frequency of visits and reporting</li> <li>Review any updated proposals</li> <li>Review tree protection, if already installed</li> </ul>                                                                                                                                                                          |
| Site operations before work starts on site                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Action                                                                                                                   | Arboricultural input                                                                                                                                                                                                                                                                                                                                                                                                             |
| Tree works carried out                                                                                                   | <ul style="list-style-type: none"> <li>Review the site requirements with the tree work contractor</li> </ul>                                                                                                                                                                                                                                                                                                                     |
| Installation of tree protection for agreement by the LPA                                                                 | <ul style="list-style-type: none"> <li>If appropriate, preparation of any revised plans and specifications for agreement by the LPA</li> <li>Photographs showing relevant aspect of installed tree protective measures</li> <li>Liaise with the contractor installing protection until satisfactorily completed</li> </ul>                                                                                                       |
| Operations that could affect trees during construction                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Action                                                                                                                   | Arboricultural input                                                                                                                                                                                                                                                                                                                                                                                                             |
| Excavation within RPAs                                                                                                   | <ul style="list-style-type: none"> <li>Meeting with contractor for briefing before installation, with further supervision visits as necessary at the discretion of the arboricultural consultant</li> </ul>                                                                                                                                                                                                                      |
| Removal of barriers and ground protection                                                                                | <ul style="list-style-type: none"> <li>Meeting with contractor for briefing before work starts, with further visits as necessary at the discretion of the arboricultural consultant</li> <li><b>NOTE:</b> This should only be authorised once there is no risk of RPA damage from the construction activity</li> </ul>                                                                                                           |

## Section 2: Arboricultural method statement

The precise order and timing of some of these operations may change due to site operating requirements, but all operations that could affect trees should remain under arboricultural supervision.

### 17. Tree works

In most situations, the tree works need to be carried out before the main construction activity starts. Tree works, based on our assessment of the proposal and the original site inspection, are set out in the work recommendations column of the tree schedule in Appendix 2. The location of each tree by number is shown on the tree protection plan and any to be removed are indicated with a red number and red crown outline. All tree works must be reassessed before any site activity starts as part of the standard risk management process.

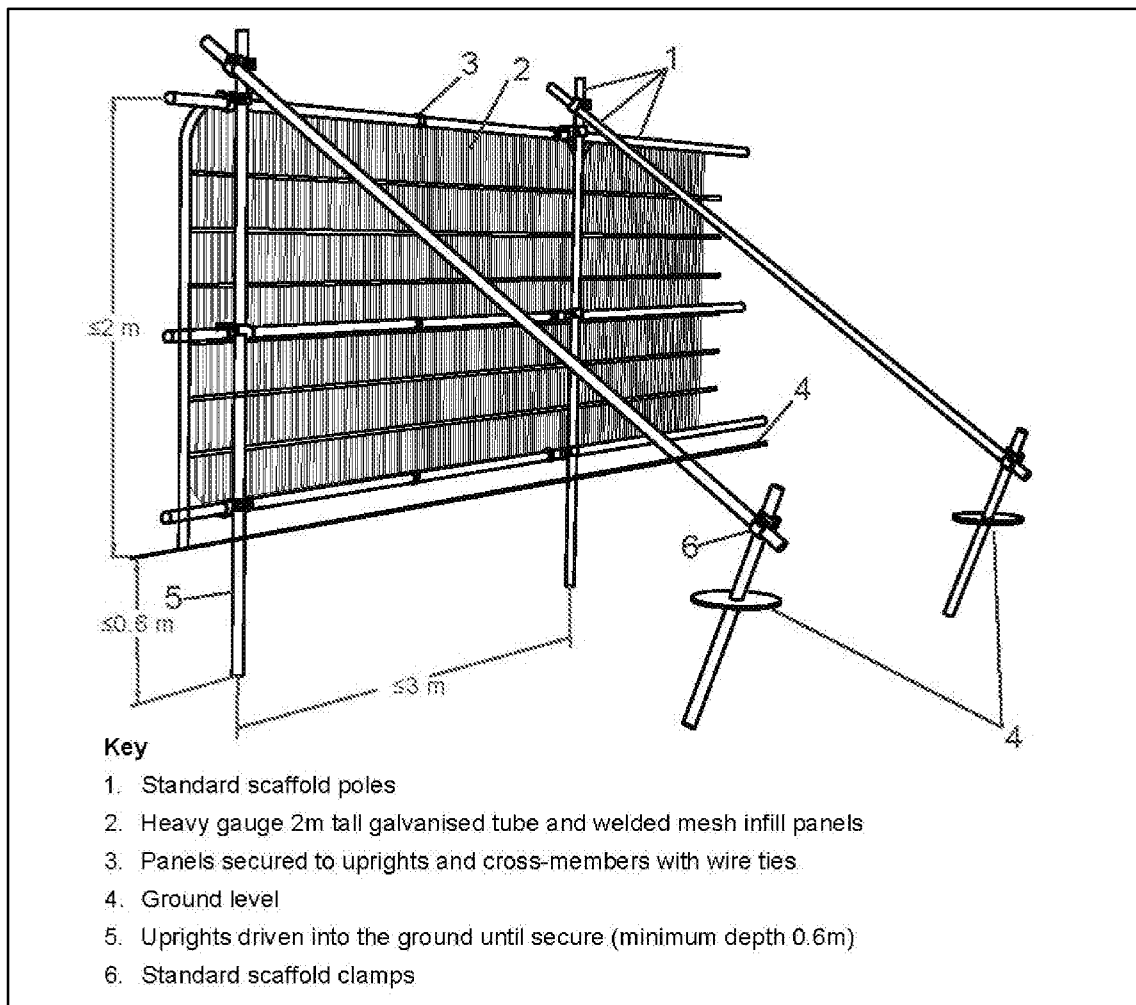
### 18. Primary tree protection using fencing

The CEZ is the RPA surrounding retained trees that must be protected from any disturbance by the construction activity. In practice, this can be done by any combination of fencing and ground protection, to be finalised and agreed at the pre-commencement meeting. Whether the CEZ is protected by fencing or ground protection, all the protective measures should be installed before the start of any site works that could affect trees. No protective measures should be removed or temporarily dismantled without consulting the supervising arboriculturist. Furthermore, the condition of all the protective measures should be regularly monitored to ensure they remain fit for purpose. The main means of preventing damage to trees and their RPAs in the CEZ are fencing, barriers and ground protection.

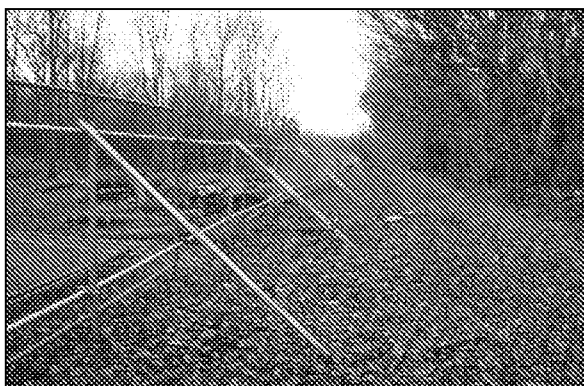
Protective fencing should be installed at the locations shown on the tree protection plan by the heavy black dashed line. If agreed with the LPA, fencing can be set back to improve access, provided the exposed ground is protected with ground protection. Various fencing options are illustrated in Fencing images 1–4. The minimum specification for the fencing should be as described in figure 2 of BS 5837 (Fencing image 1) or an equivalent design that effectively restricts access to the RPA it protects.

The precise form of the fencing can vary, provided it is fit for purpose in that it effectively restricts access and damaging activities within the RPA that it encloses. More specifically, behind the fencing, there should be no vehicular access; no fires; no storage of excavated debris, building materials or fuels; no mixing of cement; no service installation or excavation; no raising or lowering of soil levels; and no excessive cultivation for landscape planting. Any variations to these restrictions should be agreed by the supervising arboriculturist.

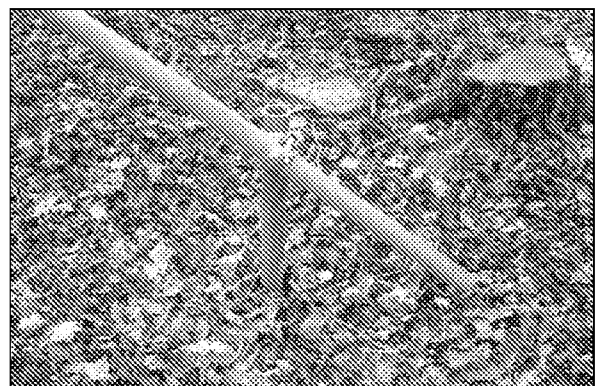
## Section 2: Arboricultural method statement



**Fencing image 1:** Recommendations taken from figure 2 of BS 5837.

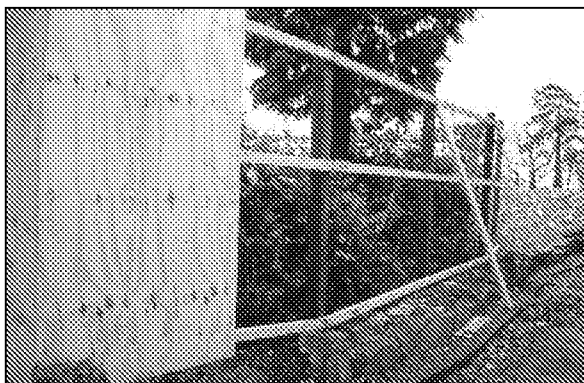


**Fencing image 2:** Heras fencing wired to scaffold braced posts is a robust and effective interpretation of the BS specification.



**Fencing image 3:** Close up of bracing detail, essential for increasing the stability of the vertical framework.

## Section 2: Arboricultural method statement



**Fencing image 4:** Board specification on secure wooden posts is a suitable alternative to the standard braced scaffold design.

### 19. Extra precautions – pollution control near retained trees

The following guidance should be applied wherever risk assessment identifies a significant risk of chemical pollution.

Spilt chemicals that can soak into RPAs will kill existing roots and may prevent new roots growing, so provision must be made to minimise the risk of contamination to soil within the normal risk management protocols for the site. This would normally include means of containing spillages and procedures for clearing them up if they occur (Pollution image 1). All cement mixing and vehicle washing points must be located outside RPAs, with provision to contain any spillages. Where the contours of the site create a risk of polluted water or toxic liquids running into RPAs, a precautionary measure of bunding or a frame, sealed with heavy-duty plastic sheeting sufficient to prevent contamination (Pollution image 2), must be used to contain accidental spillages.



**Pollution image 1:** Where fuel or other chemicals are stored on site, it is now standard practice to have emergency spillage kits available to restrict the environmental impact of accidents.



**Pollution image 2:** Soil bunding or a supporting framework covered in heavy-duty plastic sheeting is essential where there is a risk of spillages contaminating RPAs. This specifically applies to cement mixing areas and vehicle washing facilities.

### 20. Extra precautions – excavation in RPAs

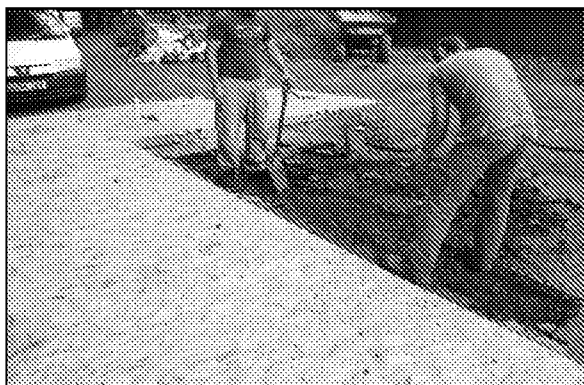
The following guidance applies to trees 264a, 271, 272, 284, 289, 290, 292, 293, and 295, which are shown on the tree protection plan with adjacent yellow precautionary areas annotated.

Precautionary areas are RPAs outside the fencing, i.e. they are areas where construction activity can take place, but it must be carried out with care to avoid damaging the sensitive rooting environment. BS 5837 (7.2) makes provision for excavating in RPAs, explaining that all excavation must be carried

## Section 2: Arboricultural method statement

out carefully using hand-held tools and preferably by compressed air soil displacement, taking care not to damage the bark and wood of any roots to be retained (Excavation images 1–4).

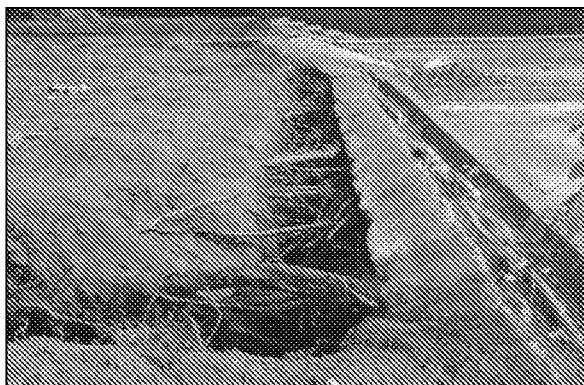
All soil removal must be done with care to minimise the disturbance of roots beyond the immediate area of excavation. Where possible, flexible clumps of smaller fibrous roots should be retained if they can be displaced temporarily or permanently beyond the excavation without damage. If digging by hand, a fork should be used to loosen the soil and help locate any substantial roots. Once roots have been located, the trowel should be used to clear the soil away from them without damaging the bark. Exposed roots to be removed should be cut cleanly with a sharp saw or secateurs 10–20cm behind the final face of the excavation. Roots temporarily exposed must be protected from direct sunlight, drying out and extremes of temperature by appropriate covering such as dampened hessian sacking (Excavation image 4). If necessary, roots less than 2.5cm in diameter can be cut cleanly without consultation with the supervising arboriculturist. Roots greater than 2.5cm in diameter should be retained where possible and only cut after consultation with the supervising arboriculturist.



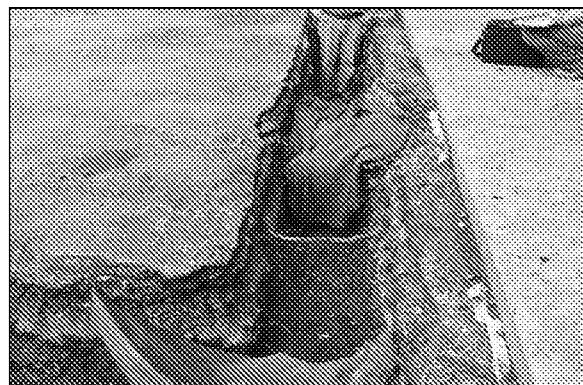
**Excavation image 1:** Careful hand-digging using conventional tools is acceptable for exposing roots in RPAs.



**Excavation image 2:** Air spades are very effective at exposing roots and services with minimal damage.



**Excavation image 3:** Air spades are particularly useful where roots are very dense.



**Excavation image 4:** Exposed roots must be protected from light, drying out and extremes of temperature by covering with hessian sacking and boards until they can be covered back with soil.

### 21. Extra precautions – soft landscaping in RPAs

This guidance applies wherever new soft landscaping, which includes the re-profiling of existing soil levels and covering the soil surface with new plants or an organic covering (mulch), is proposed near retained trees.

Soft landscaping activity after construction can be extremely damaging to trees. No significant excavation or cultivation, especially by rotovators, should occur within RPAs. Ideally, all areas within

## Section 2: Arboricultural method statement

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1m of tree trunks should be kept at the original ground level and have a mulched finish rather than grass to reduce the risk of mowing damage.

### 22. Removal of protection

All protective barriers must remain in place until the construction activity is finished and there is no realistic risk of damage to the protected soil surfaces.

# Section 3

# Appendices

## Appendix 1: Background administrative information, data collection and any additional relevant information

23. Table 6: Background administrative information

|                                       | Background administrative information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report date &amp; reference</b>    | 26 <sup>th</sup> July 2017; 16267-AA-Southern Lyminster Bypass-260717-JB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Tree protection plan reference</b> | BT4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Our instructing client</b>         | Persimmon Homes Thames Valley                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Our instructions</b>               | Visit the site to review the data for the category A and B trees, updating where necessary, and prepare a schedule of their details, describe the impact of the proposal on those trees and identify the tree protection issues, if any arise.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Provided documents</b>             | <p>Land survey, drawing number 141178,01,02,03, A089072-TCP-01 Rev A, received by email on 27<sup>th</sup> July 2016, and layout, drawing number A088461 SLB1 &amp; SLB2, received by email on 26<sup>th</sup> July 2017.</p> <p>We were provided with a previous tree survey carried out by WYG Planning &amp; Environmental dated 2<sup>nd</sup> March 2015 and agreed that this would be used as the baseline data. We re-inspected in October 2016 and updated it with recent changes and any discovered inconsistencies.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Report author and credentials</b>  | Jeremy Barrell is a Chartered Forester ( <a href="http://www.charteredforesters.org">www.charteredforesters.org</a> ) and an AA Registered Consultant ( <a href="http://www.trees.org.uk">www.trees.org.uk</a> ), and fully qualified to undertake the assessments in this report. Further details of his credentials can be found at <a href="http://www.barrelltreecare.co.uk/assets/Uploads/J-Barrell-CV.pdf">www.barrelltreecare.co.uk/assets/Uploads/J-Barrell-CV.pdf</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Report limitations</b>             | This report does not consider ecological or archaeological issues, or any other matter beyond the assessment of the trees.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Technical references</b>           | <p>In preparing the analysis in this report, detailed consideration was given to the guidance and advice in the following technical references:</p> <ul style="list-style-type: none"> <li>• Climate Change Act (2008) <a href="http://www.legislation.gov.uk/ukpga/2008/27/contents">www.legislation.gov.uk/ukpga/2008/27/contents</a></li> <li>• Town and Country Planning Act 1990 <a href="http://www.legislation.gov.uk/ukpga/1990/8/contents">http://www.legislation.gov.uk/ukpga/1990/8/contents</a></li> <li>• National Planning Policy Framework ("NPPF"), published by the DCLG <a href="http://www.gov.uk/government/publications/national-planning-policy-framework--2">www.gov.uk/government/publications/national-planning-policy-framework--2</a></li> <li>• BS 5837 (2012) <i>Trees in relation to design, demolition and construction – Recommendations</i>, BSI <a href="http://shop.bsigroup.com/">http://shop.bsigroup.com/</a></li> <li>• BS 8545 (2014) <i>Trees: from nursery to independence in the landscape – Recommendations</i>, BSI <a href="http://shop.bsigroup.com/">http://shop.bsigroup.com/</a></li> <li>• BS 3998 (2010) <i>Tree work – Recommendations</i>, BSI <a href="http://shop.bsigroup.com/">http://shop.bsigroup.com/</a></li> <li>• <i>Trees in the Townscape: A Guide for Decision Makers</i>, published by the Trees &amp; Design Action Group <a href="http://www.tdag.org.uk/">http://www.tdag.org.uk/</a></li> <li>• <i>Trees in Hard Landscapes: A Guide for Delivery</i>, published by the Trees &amp; Design Action Group <a href="http://www.tdag.org.uk/">http://www.tdag.org.uk/</a></li> <li>• National Joint Utilities Group (2007) Volume 4, Issue 2: <i>Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees</i> <a href="http://www.njug.org.uk/publications/">www.njug.org.uk/publications/</a></li> </ul> |

## Appendix 1: Background administrative information, data collection and any additional relevant information

24. Table 7: Data collection

|                                                   | Data collection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Date of site visit</b>                         | 5 <sup>th</sup> , 7 <sup>th</sup> & 12 <sup>th</sup> October 2016                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>People present during site visit</b>           | Jeremy Barrell, accompanied by Alex Needs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Weather &amp; visibility</b>                   | Clear, still, and dry, with good visibility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Limitations to observations</b>                | <ul style="list-style-type: none"> <li>• Our inspection of the trees for the purposes of assessing their condition and work requirements is made on the basis that they will be annually inspected in the future to identify any changes in condition and review the original recommendations. For these reasons, the tree assessment advice only remains valid for one year from the date that the trees were last inspected.</li> <li>• All observations were of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level.</li> <li>• Observations of trees outside the site boundaries are confined to what was visible from within the site.</li> <li>• All dimensions were estimated unless otherwise indicated.</li> </ul> |
| <b>Tree location and numbering</b>                | Each tree was inspected and the numbering scheme is indicated on the tree protection plan. If appropriate, obvious hedges and groups were identified and numbered. If important trees were found on site that were not included on the provided plan, their approximate positions and canopy extents are indicated on the plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Recording of tree data</b>                     | For each tree and any group or hedge found on site, the information collected was recorded on the tree schedule in Appendix 2 and the tree protection plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Compliance of data collection with BS 5837</b> | The data collection is fully compliant with the advice in subsection 4.4.2 of BS 5837. When collecting this information, specific consideration was given to any low branches that may influence future use, age class, physiological condition, structural condition and remaining contribution. Where appropriate, crown spreads were also noted where they differed from those shown on the provided land survey.                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Calculation of RPAs</b>                        | The recorded diameter of each tree was used to establish the radius of a nominal circle to calculate the RPA. This information is listed for each tree in the tree schedule in Appendix 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Appendix 2: Tree schedule and explanatory notes

**NOTE:** Colour annotation is A & B trees with green background; C & U trees with blue background; trees to be removed in red text.

| Tree No                     | Species             | Height (m) | Diameter (cm) @ 1.5m | Maturity | Low Branches | Category | Notes | Tree Works                                                      | RPA radius (m) | RPA area (m <sup>2</sup> ) |
|-----------------------------|---------------------|------------|----------------------|----------|--------------|----------|-------|-----------------------------------------------------------------|----------------|----------------------------|
| All retained trees & hedges |                     |            |                      |          |              |          |       | Carry out safety check and lift over site to 3–4m as necessary. |                |                            |
| T200                        | Leyland cypress     | 7          | 15–20 x 7            | Mature   | -            | C        | -     | Fell for development                                            | 5.5            | 96                         |
| T201                        | Cherry plum         | 5          | 15                   | Young    | -            | C        | -     | Fell for development                                            | 1.8            | 10                         |
| T202                        | Cherry plum         | 5          | 12 16                | Young    | -            | C        | -     | Fell for development                                            | 2.4            | 18                         |
| T203                        | Cherry plum         | 5          | 22                   | Young    | -            | C        | -     | Fell for development                                            | 2.6            | 22                         |
| T264a                       | Weeping willow      | 7          | 40                   | Maturing | -            | B        | -     | -                                                               | 4.8            | 72                         |
| T266                        | Wild cherry         | 6          | 63                   | Mature   | -            | B        | -     | Fell for development                                            | 7.6            | 180                        |
| T267                        | Wild cherry         | 6          | 27 30 27             | Mature   | -            | B        | -     | Fell for development                                            | 5.8            | 107                        |
| T268                        | Wild cherry         | 6          | 59                   | Mature   | -            | U        | -     | Fell for management                                             | 7.1            | 157                        |
| T269                        | Wild cherry         | 6          | 43                   | Mature   | -            | C        | -     | Fell for development                                            | 5.2            | 84                         |
| T270                        | Wild cherry         | 6          | 53                   | Mature   | -            | B        | -     | Fell for development                                            | 6.4            | 127                        |
| T271                        | Red oak             | 9          | 41                   | Young    | -            | B        | -     | -                                                               | 4.9            | 76                         |
| T272                        | Sycamore            | 11         | 61                   | Maturing | -            | B        | -     | -                                                               | 7.3            | 168                        |
| T273                        | Hybrid black poplar | 11         | 43 38                | Young    | -            | C        | -     | -                                                               | 6.9            | 149                        |
| T274                        | Hybrid black poplar | 14         | 36                   | Young    | -            | C        | -     | -                                                               | 4.3            | 59                         |
| T275                        | Hybrid black poplar | 17         | 47                   | Young    | -            | B        | -     | -                                                               | 5.6            | 100                        |
| T276                        | Hybrid black poplar | 8          | 33                   | Young    | -            | C        | -     | -                                                               | 4.0            | 49                         |
| T277                        | Hybrid black poplar | 13         | 35                   | Young    | -            | U        | -     | -                                                               | 4.2            | 55                         |
| T278                        | Hybrid black poplar | 14         | 53                   | Young    | -            | B        | -     | -                                                               | 6.4            | 127                        |
| T279                        | Hybrid black poplar | 14         | 30                   | Young    | -            | C        | -     | -                                                               | 3.6            | 41                         |
| T280                        | Ash                 | 9          | 23                   | Young    | -            | C        | -     | -                                                               | 2.8            | 24                         |
| T281                        | Hybrid black poplar | 16         | 57                   | Maturing | -            | B        | -     | -                                                               | 6.8            | 147                        |
| T282                        | Hybrid black poplar | 18         | 45                   | Maturing | -            | C        | -     | -                                                               | 5.4            | 92                         |

## Appendix 2: Tree schedule and explanatory notes

| Tree No | Species             | Height (m) | Diameter (cm) @ 1.5m | Maturity | Low Branches | Category | Notes | Tree Works                | RPA radius (m) | RPA area (m2) |
|---------|---------------------|------------|----------------------|----------|--------------|----------|-------|---------------------------|----------------|---------------|
| T283    | Ash                 | 7          | 17                   | Young    | -            | C        | -     | -                         | 2.0            | 13            |
| T284    | Hybrid black poplar | 22         | 97                   | Mature   | -            | B        | -     | -                         | 11.6           | 426           |
| T285    | Hybrid black poplar | 22         | 63                   | Mature   | -            | B        | -     | -                         | 7.6            | 180           |
| T286    | Hybrid black poplar | 24         | 78                   | Mature   | -            | B        | -     | -                         | 9.4            | 275           |
| T287    | Ash                 | 9          | 21                   | Young    | -            | C        | -     | -                         | 2.5            | 20            |
| T288    | Hybrid black poplar | 24         | 100                  | Mature   | -            | B        | -     | -                         | 12.0           | 452           |
| T289    | Hybrid black poplar | 24         | 80                   | Mature   | -            | B        | -     | -                         | 9.6            | 290           |
| T290    | Hybrid black poplar | 24         | 80                   | Mature   | -            | B        | -     | -                         | 9.6            | 290           |
| T291    | Hybrid black poplar | 11         | 25                   | Young    | -            | C        | -     | -                         | 3.0            | 28            |
| T292    | Hybrid black poplar | 23         | 130                  | Mature   | -            | B        | -     | -                         | 15.0           | 707           |
| T293    | Hybrid black poplar | 25         | 100                  | Mature   | -            | B        | -     | -                         | 12.0           | 452           |
| T294    | Hybrid black poplar | 24         | 82                   | Mature   | -            | B        | -     | -                         | 9.8            | 304           |
| T295    | Hybrid black poplar | 25         | 115                  | Mature   | -            | B        | -     | -                         | 13.8           | 598           |
| T296    | Lombardy Poplar     | 21         | 35                   | Young    | -            | C        | -     | -                         | 4.2            | 55            |
| T297    | Lombardy Poplar     | 21         | 37                   | Young    | -            | C        | -     | -                         | 4.4            | 62            |
| T298    | Lombardy poplar     | 21         | 23 25                | Young    | -            | C        | -     | -                         | 4.1            | 52            |
| T645    | Silver birch        | 7          | 21                   | Maturing | -            | C        | -     | Fell for development      | 2.5            | 20            |
| T646    | Goat Willow         | 7.5        | 85                   | Mature   | -            | C        | -     | Fell for development      | 10.2           | 327           |
| T647    | Pedunculate oak     | 8          | 18 35                | Maturing | -            | C        | -     | Fell for development      | 4.7            | 70            |
| T648    | Hawthorn            | 7.5        | 15                   | Maturing | -            | C        | -     | Fell for development      | 1.8            | 10            |
| T649    | Common alder        | 16         | 35                   | Young    | -            | B        | -     | Fell for development      | 4.2            | 55            |
| H50     | Leyland cypress     | 3          | 20                   | Maturing | -            | C        | -     | Fell part for development | 2.4            | 18            |
| H54     | Leyland cypress     | 10         | 20                   | Maturing | -            | C        | -     | Fell part for development | 2.4            | 18            |
| H61     | Hawthorn            | 5          | 20                   | Maturing | -            | C        | -     | Fell part for development | 2.4            | 18            |
| H63     | Hawthorn            | 5          | 20                   | Maturing | -            | C        | -     | Fell for development      | 2.4            | 18            |
| H65     | Hawthorn            | 3          | 15                   | Maturing | -            | C        | -     | Fell for development      | 1.8            | 10            |

## Appendix 2: Tree schedule and explanatory notes

| Tree No | Species                | Height (m) | Diameter (cm) @ 1.5m | Maturity | Low Branches | Category | Notes | Tree Works                | RPA radius (m) | RPA area (m2) |
|---------|------------------------|------------|----------------------|----------|--------------|----------|-------|---------------------------|----------------|---------------|
| H66     | Hawthorn & wild cherry | 6          | 20                   | Maturing | -            | C        | -     | Fell for development      | 2.4            | 18            |
| G28     | Hawthorn               | 3          | 10                   | Young    | -            | C        | -     | Fell part for development | 1.2            | 5             |
| G35     | Hawthorn               | 7          | 25                   | Young    | -            | C        | -     | Fell for development      | 3.0            | 28            |

## Appendix 2: Tree schedule and explanatory notes

### Explanatory Notes

- **Abbreviations:**

G : Group  
H : Hedge

- **Botanical tree names:**

|                     |                                                |
|---------------------|------------------------------------------------|
| Ash                 | : <i>Fraxinus excelsior</i>                    |
| Cherry plum         | : <i>Prunus cerasifera</i> 'Nigra'/'Pissardii' |
| Common alder        | : <i>Alnus cordata</i>                         |
| Goat willow         | : <i>Salix caprea</i>                          |
| Hawthorn            | : <i>Crataegus monogyna</i>                    |
| Hybrid black poplar | : <i>Populus nigra</i> X                       |
| Leyland cypress     | : <i>X Cuprocyparis leylandii</i>              |
| Lombardy poplar     | : <i>Populus nigra</i> 'Italica'               |
| Pedunculate oak     | : <i>Quercus robur</i>                         |
| Red oak             | : <i>Quercus rubra</i>                         |
| Silver birch        | : <i>Betula pendula</i>                        |
| Sycamore            | : <i>Acer pseudoplatanus</i>                   |
| Weeping willow      | : <i>Salix x chrysocoma</i>                    |
| Wild cherry         | : <i>Prunus avium</i>                          |

- **BS 5837 (2012) compliance:** All data has been collected based on the recommendations set out in subsection 4.4 of BS 5837.
- **Tree inspections and site limitations:** Each tree was subjected to a quick visual check level of inspection. Where there is restricted access to the base of a tree, its attributes are assessed from the nearest point of access. Climbing inspections are not carried out during this level of inspection and, if heavy ivy is present, tree condition is assessed from what can be seen from the ground. A separate note is recorded if further investigation may be required to clarify its status.
- **Crown spreads:** Crown spread dimensions are not listed in the tree schedule because they are illustrated on the land survey base to all the plans in this document. Where crown spreads of significant trees on site are found to deviate from those shown on the provided land survey, we have noted it in the text of the report and annotated it on our plans.
- **Dimensions:** All dimensions are estimated unless annotated with a '\*'.
- **Species:** Species identification is based on visual observations. Where there is some doubt over tree identity, sp is noted after the genus name to indicate that the species cannot be reliably identified at the time of the survey. Where there is more than one species in a group, only the most frequent are noted and not all the species present may be listed.
- **Height:** Height is estimated to provide a broad indication of the size of the tree.
- **Trunk diameter:** Trunk diameter is estimated or measured and recorded in 2.5cm increments as advised in BS 5837 Table D1. It is measured with a diameter tape unless access is restricted, direct measurement is not possible because of ivy on the trunk or the tree is assessed as poor quality. The point of measurement and the adjustments for stem variations are as advised in Figure C1 of BS 5837.
- **Maturity:** In planning context, maturity provides a simplistic indication of a tree's ability to cope with change and its potential for further growth. For the purposes of this report, young indicates a potential

## Appendix 2: Tree schedule and explanatory notes

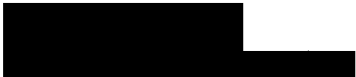
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to significantly increase in size and a high ability to cope with change, maturing indicates some potential to increase in size and a medium ability to cope with change, and mature indicates little potential to increase in size and limited ability to cope with change.

- **Low branches:** Any low branches that would not be feasible for removal during normal management and should be considered as a design constraint are noted here and explained in the notes.
- **Category:** Our assessment automatically considered tree physiological/structural condition (BS 5837, 4.4.2.5h), and so these are not listed separately in the schedule. Additionally, the category accounts for the remaining contribution (BS 5837, 4.4.2.5i) as greater than 40 years for A trees, greater than 20 years for B trees, at least 10 years for C trees and less than 10 years for U trees, so this is also not listed separately in the schedule. Category A, B and C trees are automatically listed as sub-category 1 unless otherwise stated.
- **Notes:** Only relevant features relating to physiological or structural condition and low branches that may help clarify the categorisation are recorded. If there are no notes, then the presumption should be that no relevant features were observed.
- **Tree works:** The recommended tree works are based on the quick visual check level of inspection and only intended to address significant hazards identified during that inspection.
- **Future tree safety inspections:** Due to the time that may elapse between the original survey and the start of development, all trees should be re-inspected as part of the standard risk management process before any works start on site. Our assessment of the trees was carried out on the basis that a re-inspection would be carried out within a year of the assessment visit and our advice on tree condition must be reviewed annually from the date of that visit.



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