



# Arboricultural Impact Assessment & Arboricultural Method Statement

In accordance with BS5837:2012 Trees in relation to design,  
demolition & construction – Recommendations

Date of Assessment

10/05/2023

Site

17 Stapeley Gardens

Liverpool

L26 9YG

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Client

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## EXECUTIVE SUMMARY

Urban Tree Management has been instructed to provide arboricultural advice and guidance to a development proposal at, 17 Stapeley Gardens, Liverpool, L26 9YG for the construction of an extension of existing dwelling. A tree survey has been completed in accordance with the recommendations of BS5837 (2012) Trees in relation to design, demolition and construction, and a report prepared to assess the impact of the proposal on the existing tree stock.

This Report includes:

- Survey of trees on the site and within influencing distance of the site without prior reference to the proposed development.
- Provide a tree constraints plan (TCP) for the site including root protection areas, canopy spreads and shading arcs if necessary (orientation dependant).
- A Tree protection plan (TPP) illustrating tree location, categories, the location of the proposed development, and the proposed tree protection measures.
- An Arboricultural impact assessment (AIA) providing an analysis of the tree issues to assist the LPA in assessing the impact on local character.
- Arboricultural method statement (AMS) describing how retained trees will be protected and managed during the development activity.

The survey recorded a total of 1 tree and 2 groups within the development area:

- 1 tree and 2 groups were recorded as being of low quality with a remaining useful contribution of at least 10 years (Category C)

The development proposal will result in the loss of 1 group G001 to enable the development to be completed. The retained trees will be protected from harm during the development. The protection measures include the use of existing boundary fencing and wall and tree protection fencing or hoarding as a barrier to exclude any activity within the protected zone or through the use of materials that will shield the ground from harmful processes such as compaction or contamination.

Any demolition and construction processes within or close to the construction exclusion zones (CEZ) will be achieved by arboricultural supervision.

The new foundation will be of strip design strip for the proposed extension, the excavation will be sealed to prevent any leaching of the concrete into the soil and causing desiccation of retained roots by concrete run off.

The proposed construction will have no impact on biodiversity or landscape character.

The retained trees will not require any remedial works. All works will be completed by qualified arborists working in accordance with BS3998 (2010) Tree Work.

## INTRODUCTION

Written instruction was received from Mr George Barr – G Architecture, (by email) to undertake, on the 2<sup>nd</sup> of May 2023 to undertake a tree survey to assist in the design and impact of the proposed development on the site.

### Site Description

(the Site') is a private home in Halewood. The site is located at postcode L26 9YG. North of the A562, t. The Site consists of dwelling with road to the front, with existing driveway, semi mature to mature trees and shrubs to the rear.

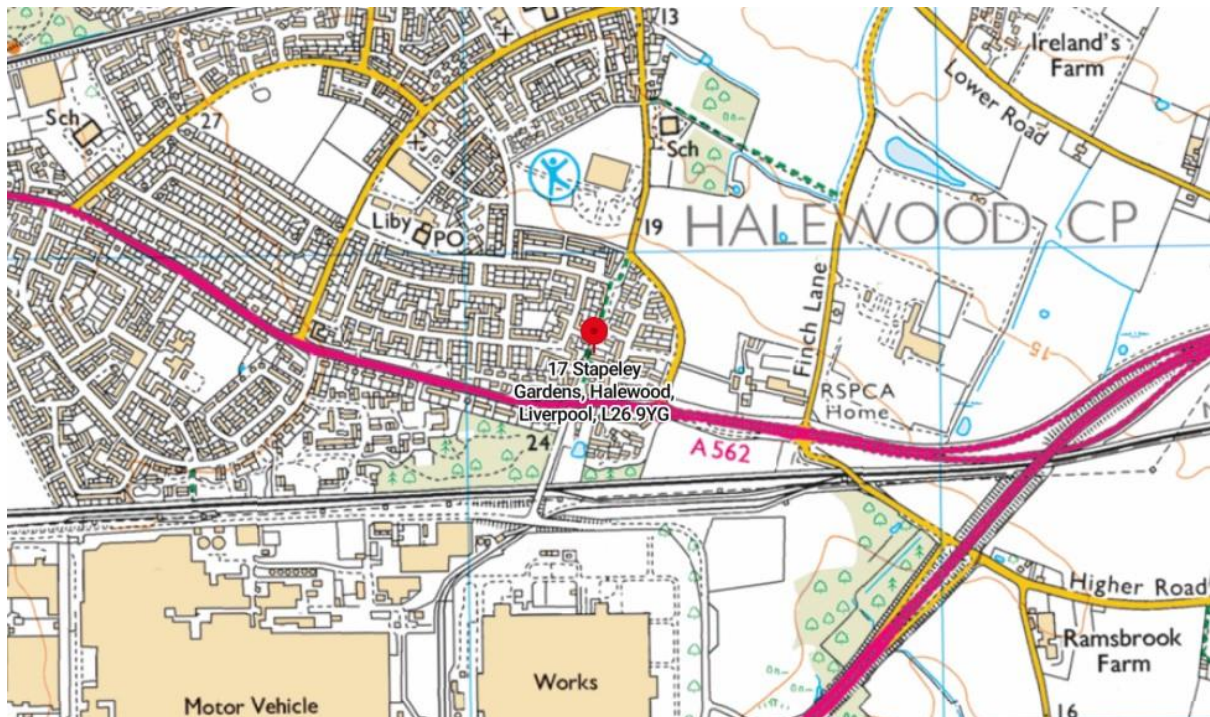


Figure 1: OS Map (Bing Maps) This content is for educational and informative purposes; so, parts of it are reproduced from BSI Global

## Caveats and Limitations

While all reasonable efforts have been made to identify defects in the subject trees, the statements made in this report do not take into account the effects of extreme weather events, vandalism or accidents, or changes to the site that may affect trees that have taken place since the date of the survey.

While the author warrants that the survey has been undertaken in accordance with industry best practice recommendations and guidance, no warranty is provided in relation to changes to the site that occur after the date of the survey that may have an impact on the tree stock present at the time of the survey.

The comments and observations made within this report will cease to be valid either within two years of the date of the survey (unless specifically stated elsewhere within the report), or when site conditions change or any works to trees take place that have not been specified within this report, whichever is the sooner.

The location of all trees and groups detailed in this report have been these have been plotted using a handheld GPS Trimble. This is not as accurate as professional grade surveying equipment, and the locations are indicative only. Any such features have been marked on the plans and schedule.

This survey has been limited to identifying arboricultural features within the site. It therefore does not include any ecological, archaeological assessment or landscape appraisal of trees, groups, woodlands or hedges beyond the scope of BS5837: 2012 Trees in relation to design, demolition and construction ('BS5837').

Unless stated differently in captions, all photographs used in this report have been taken by the author at the time of the site visit.

We have not checked if there is any statutory protection on the trees because this can delay the production of the report. If any tree works are proposed before a planning consent is given, then the possible existence of any statutory protection must be checked with the LPA.

## GENERAL ARBORICULTURAL PRINCIPLES

### General Principles

Trees are dynamic living organisms which provide essential benefits to society and the wider environment. Any development with the potential to impact on trees must take into consideration the value of trees on Site, the impact of any proposed activity along with any potential future conflicts. Suitable measures to safeguard retained trees or mitigate the loss of trees to be removed will need to be fully considered and may be a condition of planning consent. Tree branches and roots frequently grow across Site boundaries and off-Site trees can pose a significant constraint and should be carefully considered when assessing the developable space within a Site.

### Trees and Risk in the Context of Development

Tree owners/managers have a legal duty to prevent foreseeable harm. It is generally accepted that this duty can be fulfilled by undertaking proactive inspections of significant trees to identify obvious defects and by taking appropriate remedial action or gaining further advice as appropriate. Urban Tree Management can provide surveys and advice in relation to tree risk management if required. Further guidance is available from the National Tree Safety Group.

The tree survey carried out as the basis of this report is primarily for planning purposes, focusing on the quality and benefits of the trees, and is not specifically designed to assess the safety of trees on Site. However, when obvious issues have been identified recommendations have been included in the Tree Survey Schedule.

The Construction (Design and Management) Regulations (2015) states that developers and contractors have responsibilities for health and safety as a result of their actions. Should trees be left in an unstable or hazardous condition the Health and Safety Executive (HSE) could seek to prosecute those responsible along with the potential for further Civil claims for damages.

## TREE SURVEY AND CONSTRAINTS

### Tree Survey Methodology

I carried out and completed the tree survey on 10<sup>th</sup> May 2023.

The survey area refers to areas surveyed within the Site and where trees have the potential to be affected by the development.

Observations were conducted from ground level, utilising the “Visual Tree Assessment” (VTA) system as outlined in The Body Language of Trees, A Handbook for Failure Analysis Research for Amenity Trees No.4 (Mattheck and Breloer, 1994) with the aid of binoculars.

## General Data Capture

For reference, individual trees are identified with the letter T and associated number on the Tree Schedules and on a plan showing the extent of tree constraints. The stem diameter of the trees on Site was recorded using a rounded down diameter tape or a digital hypsometer, measured at 1.5m above ground level. Measurements were recorded in millimetres, rounded to the nearest 10mm. The height of the subject trees was measured to the nearest metre using a digital Haglof Laser Geo.

Maximum crown spread of the subject tree was measured from the edge of the trunk to the tips of the live lateral branches taken at four compass points (N-E-S-W) using a Leica Disto digital laser measure. Crown spread measurements were taken in metres.

Tree age was estimated from visual indicators (such as tree size and appearance of bark) which is provided as a provisional guide.

Groups of trees were identified with the letter G and number on the associated schedules and plans. Crown spread was assessed using topographical data to position the extents. Stem diameter of groups of trees was set as an average stem diameter of the trees within these individual groups and a maximum height of the tallest tree within the group.

Hedgerows were identified with the letter H and number on the associated schedules and plans. A 30m section of hedgerow was surveyed for each hedgerow, recording the number of species, average stem diameter, and the maximum height. Any individual trees present within the hedgerow were recorded as individual trees.

No woodlands were recorded on site.

If direct access to a tree was not possible, estimations from appropriate vantage points were taken. Any limitations or estimations are presented within the survey limitations section and noted in the associated schedules.

## Categorisation

In compliance with Table 1 of BS5837 the trees surveyed have been categorised according to their arboricultural quality and value which is summarised in Table 1

Table 1 - Summary of BS5837 categorisation colours

| Category | Colour | Description                                                                                                                                                |
|----------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A        | Green  | Trees of high quality with an estimated remaining life expectancy of at least 40 years                                                                     |
| B        | Blue   | Trees of moderate quality with an estimated remaining life expectancy of at least 20 years                                                                 |
| C        | Grey   | Trees of low quality with an estimated remaining life expectancy of at least 20 years                                                                      |
| U        | Red    | Those trees 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 |

## Root Protection Area

The Root Protection Areas (RPA) of the trees were calculated in accordance with Section 4.6.1 in BS5837. This is calculated from the measurement of the stem diameter as recorded in the tree schedule attached to this report and are plotted on a plan showing the extent of tree constraints (hereinafter referred to as the Tree Constraints Plan).

The RPA forms the initial Construction Exclusion Zone (CEZ) to protect the trees within and adjoining the Site and is plotted on the plan by grey horizontal lines. The shape and size of RPAs can be amended in accordance with Section 4.6.3 in BS: 5837:2012.

The default position of this proposal is that there should be no development should within the RPA of retained trees. However, where there is an overriding need for construction and associated activity with the RPA of trees arboricultural mitigation should take place to protect the trees.

## Tree Constraints

A copy of the recorded data can be seen in the tree schedule attached to this report and plotted on the Tree constraint plan.

The above ground constraints posed by canopy spread are plotted as a continuous line around the tree, with the extent of the canopy spread hatched in the corresponding BS5837 retention category colour.

The below ground constraints posed by the Root Protection Area (RPA) have been plotted as a magenta line with the text RPA inscribed.

## Assessment of Existing tree stock

A summary of the assessment on the quality of the trees can be seen in Table 2

|        | Category A | Category B | Category C | Category U | Total |
|--------|------------|------------|------------|------------|-------|
| Trees  | None       | None       | 1          | 0          | 1     |
| Groups | None       | None       | 2          | None       | 2     |
| Hedges | None       | None       | None       | None       | None  |
| Total  | 0          | 0          | 3          | 0          | 3     |

## Soils

I have not been supplied with any detailed site soil analysis or been engaged to undertake such investigations by my client. A site-specific soil assessment may inform decisions relating to the root protection area (RPA), tree protection, new planting design and foundation design to take account of retained, removed and new trees. As and when such information becomes available results should be forwarded to the project Arboricultural consultant and other relevant professionals involved in site layout, planning, and design (e.g., structural engineer, landscape architect).

## Tree Preservation Orders (TPOs) & Conservation Areas

TPOs cannot always be reliably interpreted from the documentation to identify which trees are protected, especially as time passes and site conditions change from when they were originally made. It is common for TPO plans to be inaccurate and schedules often become out of date as trees die or are removed. Frequently, trees deteriorate and, although they may be technically protected by the TPO, are in such poor condition or causing such unreasonable inconvenience that their suitability for retention becomes questionable.

In a planning context, if poor trees are assessed as unsuitable for retention, then it would be inappropriate to show them as a material constraint in development planning. For these reasons, although TPOs do need to be considered, they do not form the primary basis for tree categorisation.

Poor quality trees assessed as not worthy of retention will be shown as such, irrespective of whether they are protected or not. Similarly, good quality trees that are not protected will still be shown as material constraints. The same rationale will be applied to Conservation Areas

## ARBORICULTURAL IMPACT ASSESSMENT

This impact assessment will set out the principal direct and indirect impacts of the proposals on the trees on Site and set out suitable mitigation measures for unavoidable tree removals and to allow for the successful retention of significant trees where appropriate.

Development can have an adverse impact on trees and other woody vegetation within a site, which can result in:

- I. Immediate tree removal to facilitate the footprint of a new development.
- II. Potential future tree loss through the early decline of trees due to soil compaction or damage
- III. Root disturbance and damage within a tree's rooting area
- IV. and iv. Canopy removal or damage due to plant movement.

The design of the Site has followed a key principle of retaining the existing tree stock where possible, in particular focusing on the protection and retention of the higher quality trees, and the site layout has been amended where possible to achieve this goal.

Some tree loss is unavoidable, and the development proposes mitigation for tree loss by new planting through a landscape scheme.

The impact of any tree loss is assessed against a criterion in relation to the Arboricultural significance of the loss, the detail of which is provided in Table 3. This table is not related to the quality categories provided in BS5837 but has a closer relationship to the sub-categories through assessing the impact that tree loss may have at the Site and its setting in the wider locality.

Table 3: Impact Assessment definitions

| Scale of Impact | Definition                                                                                                                                                                                                                                                                                                                     |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Major           | The tree(s) are of exceptional or high quality and condition and their loss would be irreplaceable. This would also include trees that have been categorised as being Ancient or Veteran, trees are rare examples of their species and or trees that offer significant amenity value to the character and setting of the area. |
| Moderate        | The tree(s) are of good quality and condition and make a notable contribution to the setting or character of the locality (visual amenity). This may include trees that would be hard to replace but for which there could be some mitigation over a medium timeframe (10-15 years).                                           |
| Minor           | The tree(s) are generally of low quality and condition and/or their loss would have low impact on the locality. These trees would be relatively easy to replace within a short timeframe (5-10 years)                                                                                                                          |
| Negligible      | The tree(s) are generally of poor quality and condition, and/or their loss would barely be noticeable. Any replacement planting would offer an improvement to the setting of the site in a very short period (1-5 years)                                                                                                       |

Table 4: Summary of trees affected and protected by the proposal.

For my review of constraints and proposed layout, my assessment of impact on trees both during and after development, and these that need protection using special precautions is summarised in Table 1:

| British Standard 5837 Category    |            |            |            |            |
|-----------------------------------|------------|------------|------------|------------|
|                                   | Category A | Category B | Category C | Category U |
| Remove                            | None       | None       | G001       | None       |
| Prune                             | None       | None       | None       | None       |
| Protect using special precautions | None       | None       | T002, G003 | None       |
| Post development considerations   | None       | None       | None       | None       |

T = Tree; G = Group

Note on types of protection: All retained trees will be protected during development by using fencing and ground protection, and only these requiring special precautions to limit the impact of encroachment are listed in Table 1.

## Tree Loss

In order to facilitate the proposed development 1 low quality group trees G001, of C quality will be within the site are to be removed, their loss would have low impact on the locality and can be easily replaced.

## Tree Retention

The remaining trees within or in close proximity to the proposed development area will all be retained through the development. The primary form of protection will come through the use of existing boundary wall and fencing and tree protection fencing or hoarding, that will form a barrier, behind which there will be no access for construction machinery, materials or personnel, and the use of temporary boards to reduce the potential of compaction.

This area will be the defined Construction Exclusion Zone (CEZ). The location of the CEZ have been marked on the Tree Protection Plan prepared for this application.

The general principles of tree protection stated within this report, provide principles that will be adopted by the construction contractor and will be adhered to throughout the development process.

## Tree Pruning

At this planning stage, it is not anticipated that any trees or hedges will be pruned because of this development. Other than for normal maintenance.

## Development Impacts within the Root Protection Area

The demolition of the existing structures on the Application Site will have the potential to impact upon retained trees groups. Where these operations are to take place within close proximity to the root protection area (RPAs) of retained trees and groups, special methods of work will be required. These specific areas are highlighted, and precautionary measures outlined in the tree protection plan.

Arboricultural Supervision will be required to directly supervise all demolition and construction within or close to root protection areas.

Demolition works of existing structure will be undertaken to minimise the potential of physical harm to retained tree and group. Were levels of dust build-up, remedial measures will be undertaken, e.g., hose down the trees immediately following any significant accumulation of dust.

Retained group G003 and tree T002 have the potential for disturbance of the rooting environment through the construction of new building and foundations, there should be no severance of roots, there should be no compaction of the ground and there should be no ground contamination. These requirements are referred to as a No-Dig method of construction.

Any hard surfacing removal of and or replacement of hard surfacing situated either partially or completely within the RPAs of retained trees shall be undertaken with care and under the direct on-site arboricultural supervision as these areas are likely to contain roots.

Where this is necessary, the wearing course will be broken up using a handheld pneumatic breaker, hand tools, and a wheelbarrow to break up and remove the surfacing. If it is necessary to remove the subbase, this is to be undertaken using hand tools such as a fork to loosen the material and removed using shovels and wheels barrows.

In some situations, and at the discretion of the arborist it may be possibly to use an excavator using a hydraulic breaker and suitably sized toothless grading bucket. If an excavator is to be used, it must be situated outside of the RPAs, on top of the hard surfacing working away from the RPAs or from ground boarding. Whichever system is used, the is to be NO disturbance of the soil beneath. If roots are found, they are to be covered over with damp hessian and a layer of either sharp sand, wood chip or topsoil to prevent desiccation.

The successful retention of the retained tree and group will be dependent upon measures put in place to minimise the impact of root severance for the construction of the buildings as detailed in the Tree Protection Plan and Arboricultural Method Statement (AMS) found in of this report.

For the construction of foundations, walls and new hard surfacing, cement-based materials will be poured within proximity to RPAs on the site; if any cement-based materials were required during construction, this would need to be managed to ensure that there is no contamination through spillages or seepage out to into adjacent soil.

In principle, this will require the excavations to be lined with an impermeable membrane, with similar precautions to contain spillage. It is anticipated that adhering to this guidance will allow all trees to be retained without long term detrimental impact on tree health.

Storage of materials where feasible can be placed on existing hard standing or temporary compaction boards.

## Underground Utilities

There are no details as regards the presence or condition of any existing drainage and service runs and where new drainage and service runs will be located. Where new services are required, they shall be located outside the RPAs of retained trees.

All works in this location will be carried out following the guidance provided in Paragraph 7.7 of BS5837 and following the hierarchy proposed in paragraph 4 of NJUG Volume 4. Details of the methodology for excavations within the RPA of retained trees are provided in the Arboricultural Method Statement within this report, but in summary, the excavations will be carried out by hand under the supervision of a retained arboriculturist to ensure that there is no long-term damage to the rooting system.

## Landscaping operations

Landscaping operations will typically take place at the end of the construction period. These works will normally require the removal of protective fencing to facilitate access for works. There is a risk that plant and machinery may damage soil structure where tree roots are growing. However, these risks can be managed by maintaining good professional standards of work and working to a method statement. The principle of avoiding soil disturbance or changes in levels within the RPAs of retained trees should be followed unless arboricultural advice has been sought.

## Future growth of retained trees.

The proposed development has considered possible future conflicts between occupants and retained group and tree. Any pruning works to the tree G003, may become necessary to regularly maintain at suitable separation between tree and the proposals can be undertaken without detriment to the health or visual appearance of the tree concerned.

## Principles of Tree Protection

All construction activities have the potential to cause harm to the retained trees on site. It is therefore necessary that measures are employed across the site to limit the potential for such harm and prevent any long-term negative impacts on the trees.

Arboricultural Method Statement within this report which provides generic details on what protective measures are required, how they will be implemented and what supervision is required to ensure that the measures remain in place and fit for purpose. It has been prepared to inform the planning and the construction/ development process.

The following principles for the protection of retained trees will be adopted across the site for the duration of the project:

- All retained trees will be protected by fencing that will form the CEZ.
- Where fencing cannot provide the necessary protection measures, alternative systems will be installed that will ensure retained trees are protected. This may include the use of either temporary or permanent ground protection.
- There will be no storage of materials, or access for construction workers or machinery within any CEZ. There will be no excavation within a CEZ. All utilities and underground services will be located outside the CEZ or tap into existing service routes.
- Any storage or mixing station located outside of a CEZ will be located in a place that minimises the risk of contaminated runoff entering the CEZ and damaging the rooting environment. This may be achieved by using a non-permeable membrane on the ground, surrounded by sandbags to contain any spillage.
- There will be no fires within a CEZ.
- There will be no use of herbicides within a CEZ.

## CONCLUSION

A tree survey has been carried out at, 17 Stapeley Gardens, Liverpool, L26 9YG to determine the extent, age and quality of the tree stock across the site. The proposed development will require the removal of no trees to facilitate the proposed development.

Where impacts will occur, these are identified specifically in this report and are all demonstrably acceptable (subject to the appropriate methods of protection, which will broadly negate these impacts).

All impacts can therefore be sufficiently addressed through the Arboricultural method statement, which uses this impact assessment as the key basis for the methodologies specified.

## AUTHOR

Carl Riva (the 'Author') wrote this Report. Owner of Urban Tree Management and principal arboricultural consultant to the company, experienced in the arboricultural sector dealing with trees in relation to design, demolition, and construction.

Carl has 12 years' experience in the arboricultural sector and has a Royal Forestry Society Certificate in Arboriculture, ABC Level 4 Diploma in Arboriculture, Technician Member Arboricultural Association, LANTRA Professional Tree Inspection

If you have any queries or wish to discuss further, please do not hesitate to call. Best Regards  
0800 222 9529 - 07765858090

## REFERENCES

- Town and Country Planning Act 1990 [www.legislation.gov.uk/ukpga/1990/8/contents](http://www.legislation.gov.uk/ukpga/1990/8/contents)
- National Planning Policy Framework [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1005759/NPPF\\_July\\_2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf)
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- BS 8545 (2014) Trees: from nursery to independence in the landscape – Recommendations, [www.shop.bsigroup.com/](http://www.shop.bsigroup.com/)
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- National Joint Utilities Group (2007) Volume 4, Issue 2: Guidelines for the planning, installation, and maintenance of utility apparatus in proximity to trees [www.njug.org.uk/publications/](http://www.njug.org.uk/publications/)

## ARBORICULTURAL METHOD STATEMENT

### Overview

This Arboricultural Method Statement (AMS) provides best practice measures to be adopted protect retained trees during the development process. It has been prepared to inform the planning and the construction/ development process.

The document also provides details of general measures required to protect retained trees from potentially harmful activities such as the construction of hard surfaces within the RPA.

### Supervision

Prior to the commencement of any tree works, installation of protection measures or the mobilisation of construction machinery and materials, a qualified and independent arboricultural consultant shall be appointed as the Project Arboriculturist to provide advice to the construction team and to supervise any works that have the potential to cause harm to retained trees.

The retained Project Arboriculturist shall be the principal point of contact for the main works contractor on all matters relating to trees and shall liaise as required with the LPA tree officer.

### Tree Removals

Trees for removal have been noted on the TPP with a dashed red circle.

No trees for removal are subject to a TPO and therefore there is no requirement for additional consent to be obtained from the LPA.

Great care should be taken during the tree removal process to ensure that retained trees are not adversely impacted. The following methodology should be adhered to at all times:

- Any machinery used during the tree removal process be sited outside the RPA of retained trees.
- The felling of trees will be undertaken to avoid damaging retained trees.
- Where the removal of stumps of felled trees is required, great care will be taken to ensure any retained trees in close proximity remain free from harm.

All works will be conducted by a suitably qualified arborist working in accordance with BS3998:2010 Tree Work – Recommendations

### Protection of Retained Trees

Protection of existing tree and will be in the form of existing boundary wall and fencing and the use of tree protective fencing or hoarding which will be erected around retained trees prior to the commencement of any site works including mobilisation of machinery and materials. The location of the fencing has been marked on the TPP prepared for this AMS. This is shown as an orange dashed line, and the CEZ has been highlighted as grey hatching behind the fencing.

**Protective hoarding:**

- To be erected prior to the commencement of all works on site, and retained in place throughout construction. To comprise of (Specific size for tree) wooden site hoarding constructed upon a timber framework situated around the outside of the planting pit. Where the timber frame is constructed around the tree trunk a minimum of 4 layers of clean dry hessian is to be wrapped around the trunk to protect the bark. All weather notices should be erected at regular intervals on the weld mesh panels with words such as "Construction exclusion zone - Keep out".

**Construction Exclusion Zone (CEZ)**

The CEZ is the area identified by the Project Arboriculturist as the area to be protected during development from Site clearance and construction work through the use of barriers and/or ground protection to ensure the successful long-term retention of a tree. Fencing or ground protection shall not be taken down or relocated at any time without prior agreement and/or Site supervision as recommended by the Project Arboriculturist.

All areas excluded by protective tree fencing shall be treated as CEZs and the following restrictions shall apply:

- No construction activity can occur within these areas.
- No works on trees unless agreed by the Project Arboriculturist.
- No alterations of ground levels or conditions.
- No chemicals or cement washings.
- No excavation.
- No temporary structures.
- No storage of soil, rubble or other materials.

No vehicles or machinery to be used or parked without appropriate ground protection measures as per BS5837 recommendations. This will require the use of a proprietary system of reinforced concrete slabs/steel road plates on a compressible layer, or side butting scaffold boards/ 18mm plywood sheets on a compressible layer. The type of ground protection used shall be appropriate for the potential loading applied.

- No fixtures (lighting, signs etc.) to be attached to trees.
- No fires within 10 metres of the canopies of any tree or hedgerow.

\*Site huts, provided they are of the "Jack Leg" type, can be sited to act as ground protection for the duration of the construction.

## Temporary Ground Protection

New temporary ground protection should be capable of supporting any traffic entering or using the Site without being distorted or causing compaction of underlying soil.

Any temporary ground protection that may be required within an RPA shall conform to section 6.2.3. of BS 5837:2012, an example is shown in Figure 2. below

Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.

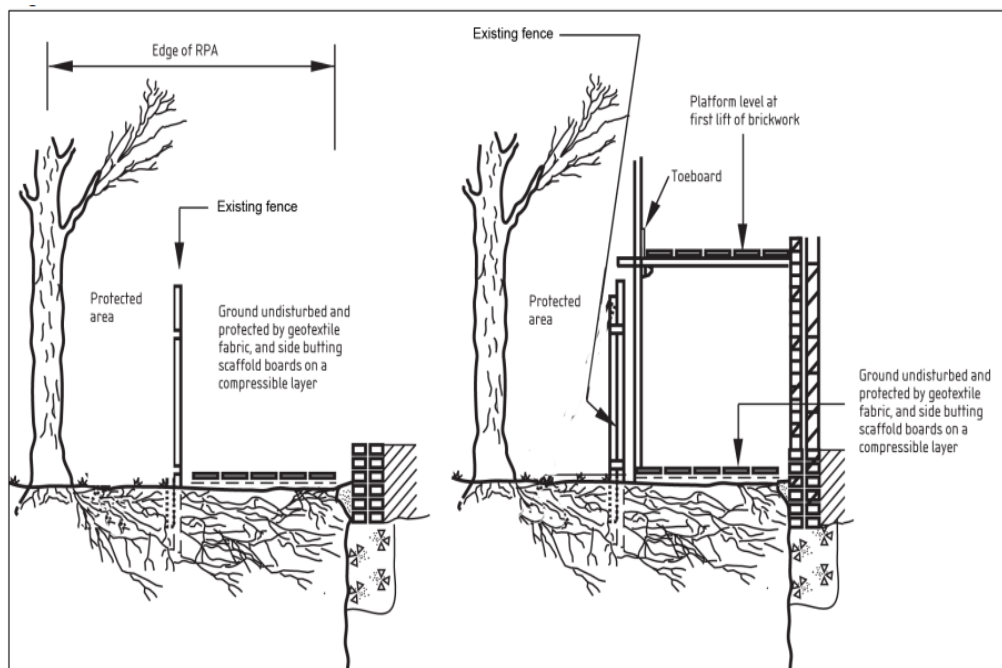


Fig 2.

Option 1 – No vehicle access required.

1. Prior to installing ground protection, the area beneath it must be lined with heavy duty polythene (1000/250 microns) to prevent contamination of the soil within the protected RPA.
2. Side butting scaffold boards shall be fitted to ensure adequate cover of the area to be protected.
3. Prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials the Arboricultural Consultant shall inspect the temporary ground protection.
4. The temporary ground protection shall remain in place until completion of the project and only removed following receipt of written permission from the LPA.

Option 2 - Vehicle access required.

In place of the above items 1, 2 and 3 the use of a temporary metal track, such as DuraDeck® ground protection mats, Mega Deck™ or Rig Mats, they should be laid on a 150mm deep layer of woodchip or sharp sand to minimise compaction and prevent damage to surface roots

New temporary ground protection should be capable of supporting any traffic entering or using the Site without being distorted or causing compaction of underlying soil. The ground protection might comprise one of the following:

- For pedestrian movements only a single thickness of scaffold boards placed either on top of a driven scaffold frame so as to form a suspended walkway or on top of a compression-resistant layer (e.g., 100 mm depth of woodchip) laid onto a geotextile membrane.
- For pedestrian-operated plant up to a gross weight of 2 t proprietary inter-linked ground protection boards placed on top of a compression-resistant layer (e.g., 150 mm depth of woodchip), laid onto a geotextile membrane.
- For wheeled or tracked construction traffic exceeding 2t gross weight, an alternative system (e.g., proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with Arboricultural advice, to accommodate the - potential loading to which it will be subjected.

### **General Canopy Protection**

Since the canopies of retained trees may be in close proximity to areas of plant operation, the following restrictions will apply:

- All plant will be sited outside the defined RPAs of retained trees / groups, and the appointed contractor will ensure all relevant personnel shall be made aware of the location of branches and the need to avoid causing damage to them.
- Prior to the implementation of lifting operations, a representative from the equipment supply company shall visit the Site and ensure all operations can be completed without causing damage to retained trees. A lifting plan will be prepared and submitted for approval prior to all lifting operations. The lifting plan will make provision for the potential for damage of retained trees.
- All lifting operations will be completed under the close direction of a qualified banksman, who will be briefed by the appointed contractor as to the need to avoid damage the stems and branches of retained trees.

Should additionally tree removal or pruning be required the LPA Tree Officer shall be contacted and the scope.

### **Scaffolding**

If scaffolding is required in (CEZ) areas, ground protection measures will be required, the protective boards shall need to remain in-situ and be strengthened and stabilised to bear the weight of scaffold poles. Prior to the installation of any scaffolding within 0.5m of any tree branches, the appointed arborist shall be consulted to specify any pruning works that may be required.

## **Hazardous Materials**

Any mixing of cement-based materials is to take place outside the RPAs of all trees. Provision shall be made to ensure that the mixing area is contained so that no water runoff enters the RPA of any trees. All mixers and barrows shall be cleaned within this dedicated mixing area.

All other chemicals hazardous to tree health, including petrol and diesel, are to be stored in suitable containers as specified by the Control of Substances Hazardous to Health (COSHH) Regulations (HMSO, 2002: The Control of Substances Hazardous to Health Regulations 2002), and kept away from the RPAs.

## **Demolition**

Any demolition works within the RPA of retained trees will be undertaken in accordance with the following methodology:

- Demolition works will be undertaken using a 'top down, pull back' technique. This will minimise the potential of physical harm to retained trees.
- Care must be taken to avoid physical contact with the canopies of offsite trees during the demolition works. A banksman will be used where such conflicts could occur.
- If localised pruning is required, the LPA Tree Officer shall be contacted, and the scope of works agreed in writing.
- All machinery used to undertake demolition works will be sited outside the RPAs of existing trees or working from on top of existing hard standing.
- Debris may be removed from the RPAs of retained trees by using machinery with a long reach or through pedestrian access. Care must be taken to avoid damage to the existing ground surface to ensure the rooting environment remains sustainable post demolition.
- The removal of existing hardstanding or foundations within the RPAs of retained trees will be undertaken using hand tools only. Appropriate tools for manually removing debris may include a pneumatic breaker, crowbar, sledgehammer, pick, mattock, shovel, trowel and fork.
- Severance of roots over 25mm diameter should be avoided unless advised by the retained Project Arboriculturist. Secateurs and a handsaw must be available to deal with any roots that are exposed. Where roots will remain exposed for any period of time the roots must be wrapped in hessian sacking for protection.

## **Construction**

Prior to the construction of the proposed development, a copy of the construction method statement should have been submitted and approved by the project arboriculturist and LPA tree officer, to ensure that there is no conflict with this method statement. All excavations and construction work within or immediately adjacent to RPAs or canopies of retained trees is to be undertaken under the direct on-site supervision of an arboriculturist.

### **Strip foundation**

All excavations and construction work within or immediately adjacent to RPAs or canopies of retained trees is to be undertaken under the direct on-site supervision of an arboriculturist.

The use of strip foundations will be used for the development extension

### **Concrete foundations/slabs**

- Prior to concrete being poured to form the foundations/slabs within or immediately adjacent to the RPAs of retained trees the excavation is to be lined and sealed to prevent any leaching of the concrete into the soil and causing desiccation of retained roots by concrete run off.

## **Contractor compound, site huts and welfare units.**

During the proposed construction works attention will be paid to the protection and wellbeing of retained trees. The site will be organised in such a manner so as to minimise the effects of the construction work on trees. The contractor's compound, all site huts, storage, welfare units and parking will be located outside the CEZ of retained trees.

## **Service installation overhead and underground**

The following hierarchy shall be applied to the design and installation of underground services:

1. All service trenches shall be located outside the RPA of retained trees.
2. Where it is not feasible to avoid the RPA, trenchless technology shall be utilised to minimise the impact on the rooting environment.
3. Where trenchless technology cannot be applied, excavation shall be undertaken using the less harmful methodology including hand digging or use of an air spade to dislodge soil without severing roots. All excavation must be carried out carefully using spades, forks and trowels, taking care not to damage the bark and wood of any roots. Specialist tools for removing soil around roots using compressed air may be an appropriate alternative to hand digging, if available. All soil removal must be undertaken with care to minimise the disturbance of roots beyond the immediate area of excavation. Where possible, flexible clumps of small roots, including fibrous roots, should be retained if they can be displaced temporarily or permanently beyond the excavation without damage.
4. Where it is not possible to hand dig a trench, an excavator may be used, located, if possible, outside the RPA, or sat on a load spreading surface that will minimise the potential for further harm to the rooting environment. Any operation for excavation shall be supervised by the retained Project Arboriculturist.

National Joint Utilities Group publication 'Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees' (NJUG 10, Volume 4, 2007)

**Project Supervision and Reporting**

All tree protection measures will remain in place throughout the development phase.

The retained Project Arboriculturist will complete site inspections through this period to ensure that protective fencing and other measures remain fit for purpose and that the sanctity of the CEZ is being maintained.

A post-inspection report will be prepared after every site visit detailing observations and any recommendations for specific measures that may be required in the forthcoming period. A copy of this report will be sent to the LPA tree officer and circulated to the project team including the site manager for the main works contractor.

**Post Development**

No fencing or other protective measures will be moved, dismantled or taken off site until the Project Arboriculturist has confirmed that all machinery has been removed from the site and any construction activity that could cause harm to retained trees has been co

## Communication and Changes to Procedure

Regular contact between the Client, Site Manager and the Arboriculturist allows the effective delivery of advice and additional information on any three-related problems that may occur during the development process.

Any issues identified, whether it by the appointed arboriculturist, the client, the architect, the site foreman or council representative, the local planning authority (LPA) are to be contacted immediately and their policies and procedures implemented. This may involve the ceasing of work onsite until all issues have been addressed.

Contact Details:

| Name/Company | Position                  | Contact       |
|--------------|---------------------------|---------------|
|              | Client                    |               |
|              | Tree Officer              |               |
| Carl Riva    | Arboricultural Consultant | 0800 222 9529 |
|              | Architect                 |               |
|              | Site Manger               |               |
|              | Main Contractor           |               |

Communication between all parties is important to ensure any unforeseen changes in proceedings are accounted for and the alternative solution accepted. Agreement to the changes must be sought from all interested parties and advice followed when applicable.

## APPENDIX A - BS 5837 (2012) Cascade chart for tree quality assessment

| Trees unsuitable for retention (See Note)                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Category and definition                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                     | Criteria (including subcategories where appropriate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                    | Identification on plan                                                                                                                                                                                                                                                                                                                         |
| <b>Category U</b><br><br>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                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"><li>Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of another category U trees.</li><li>(e.g., where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</li><li>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.</li><li>Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low-quality trees suppressing adjacent trees of better quality.</li></ul> NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see <b>4.5.7</b> |                                                                                                                                                    | <b>Red</b>                                                                                                                                                                                                                                                                                                                                     |
| Trees to be considered for retention                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                      | <b>1 Mainly arboricultural qualities</b>                                                                                                                                                                                                                                                                                                                                            | <b>2 Mainly landscape qualities</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>3 Mainly cultural values, including conservation</b>                                                                                            |                                                                                                                                                                                                                                                                                                                                                |
| <b>Category A Trees of high quality</b> with an estimated remaining life expectancy of at least 40 years                                                                                                                                                                                                             | 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)                                                                                                                           | Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Trees, groups or woodlands See Table 2 of significant conservation, historical, commemorative or other value (e.g., veteran trees or wood-pasture) | <b>Green</b>                                                                                                                                                                                                                                                                                                                                   |
| <b>Category B Trees of moderate quality</b> with an estimated remaining life expectancy of at least 20 years                                                                                                                                                                                                         | 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. | 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 collectives but situated so as to make little visual contribution to the wider locality                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Trees with material conservation or other cultural value                                                                                           | <b>Blue</b>                                                                                                                                                                                                                                                                                                                                    |
| <b>Category C Trees of low quality</b> with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm                                                                                                                                                            | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories                                                                                                                                                                                                                                                                   | 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Trees with no material conservation or other cultural value                                                                                        | <b>Grey</b>                                                                                                                                                                                                                                                                                                                                    |
| <b>ROOT PROTECTION AREA (RPA):</b><br><br>These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level, but the shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so. |                                                                                                                                                                                                                                                                                                                                                                                     | <b>VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)</b><br><br>In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's stem diameter.                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                    | <b>ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)</b><br><br>In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required. |

**SPECIAL IMPORTANCE:**

Trees that are particularly notable as high value trees such as ancient trees/woodland, or veteran trees. Such trees may be regarded as the principal Arboricultural features of a site, and pose a significant constraint to potential development. An ancient tree is one that has passed beyond maturity and is very old compared with other trees of the same species. Very few trees reach the ancient life-stage.

Veteran trees are often very old, but not necessarily so; they may be regarded as 'survivors' that have developed some of the characteristic features of an ancient tree but have not necessarily lived as long. All ancient trees are veterans but not all veteran trees are ancient.

An ancient woodland is an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS) and ancient replanted woodland (ARW)

**QUALITY CATEGORY:**

Trees are classed as category U, A, B or C, based on criteria given in BS5837:2012; summary definitions as follows (see BS5837 for further details). Categories A, B and C are further characterised by the use of sub-categories, which attempt to identify what aspect of the tree is the main source of its perceived value:

1. Arboricultural qualities
2. landscape qualities, and
3. cultural, historic or ecological/conservation qualities.

Examples of these qualities for each of the three categories are given below, although these are indicative only. Note: This is NOT a health and safety classification; the classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.

**ROOT PROTECTION AREA (RPA):**

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level, but the shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.

**VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)**

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's stem diameter.

**ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)**

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required.

# BS5837:2012 Tree Survey

# Urban Tree Management

Client: Ali Gercek  
 Project: Planning Proposed Plans & Elevations 2023  
 Survey Date: 10/05/2023  
 Surveyor: Carl Riva



Phone: 0800 222 9529  
 Mobile: 07765858090  
 urbantreemanagement@outlook.com

| Tree and Tag No<br>Species |     | Hght<br>(m) | Stems         |             | Crown         |              | Age        | RP<br>A (m²)<br>R (m) | Phys<br>Condition | Structural<br>Condition | Preliminary Recommendations |                                                                                                         |                                 | Cat<br>ERC                                            |
|----------------------------|-----|-------------|---------------|-------------|---------------|--------------|------------|-----------------------|-------------------|-------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------------------------------|
|                            |     |             | No            | Ø<br>(mm)   | Spread<br>(m) | Clear<br>(m) |            |                       |                   |                         | Survey Comment              |                                                                                                         |                                 |                                                       |
| G001                       |     |             |               |             |               |              |            |                       |                   |                         |                             |                                                                                                         |                                 |                                                       |
| A Group                    | 8   | 3           | 318           | (Eq)        | N             | 3.5          | 3          | SM                    | A: 45.7           | Fair                    | C: Good                     | Fell :: Fell and remove stump(s)                                                                        |                                 | C.2                                                   |
| - -                        |     |             |               |             | E             | 2            | 3          |                       | R: 3.81           |                         | S: Fair                     |                                                                                                         |                                 | 10 to 20<br>yrs                                       |
|                            |     |             |               |             | S             | 2.5          | 3          |                       |                   |                         | B: Good                     | Removed to facilitate development                                                                       |                                 |                                                       |
|                            |     |             |               |             | W             | 1.5          | 3          |                       |                   |                         |                             |                                                                                                         |                                 |                                                       |
| G003                       |     |             |               |             |               |              |            |                       |                   |                         |                             |                                                                                                         |                                 |                                                       |
| A Group                    | 5   | 9           | 225           | (Eq)        | N             | 5.5          | 0          | SM                    | A: 22.9           | Fair                    | C: Fair                     | No action :: No action                                                                                  |                                 | C.2                                                   |
| - -                        |     |             |               |             | E             | 1.5          | 0          |                       | R: 2.69           |                         | S: Fair                     |                                                                                                         |                                 | 10 to 20<br>yrs                                       |
|                            |     |             |               |             | S             | 5.5          | 0          |                       |                   |                         | B: Fair                     | A mix of shrubs and young trees, Laurels, Cherrys. Suppressed crowns and growth. Cross rubbing branches |                                 |                                                       |
|                            |     |             |               |             | W             | 1.5          | 0          |                       |                   |                         |                             |                                                                                                         |                                 |                                                       |
| T002                       |     |             |               |             |               |              |            |                       |                   |                         |                             |                                                                                                         |                                 |                                                       |
| Wild Cherry                | 4.5 | 1           | 330           |             | N             | 2.5          | 3.5        | M                     | A: 49.3           | Fair                    | C: Fair                     | No action :: No action                                                                                  |                                 | C.2                                                   |
| <i>Prunus avium</i>        |     |             |               |             | E             | 3            | 2          |                       | R: 3.96           |                         | S: Fair                     |                                                                                                         |                                 | <10 yrs                                               |
|                            |     |             |               |             | S             | 3            | 2.5        |                       |                   |                         | B: Fair                     | Stub cuts. Bark wounds. Occluding tissue. Historical trenching at side of stem. Cross rubbing branches. |                                 |                                                       |
|                            |     |             |               |             | W             | 2.5          | 2.5        |                       |                   |                         |                             |                                                                                                         |                                 |                                                       |
|                            |     |             |               |             |               |              |            |                       |                   |                         |                             |                                                                                                         |                                 |                                                       |
| Age Classifications:       |     | N           | Newly planted | EM          | Early Mature  |              | Condition: |                       | C                 | Crown                   | Stems:                      |                                                                                                         | Ø                               | Diameter                                              |
|                            | Y   | Young       | M             | Mature      |               |              |            |                       | S                 | Stem                    |                             |                                                                                                         | (Eq)                            | Equivalent stem diameter using BS5837:2012 definition |
|                            | SM  | Semi-mature | OM            | Over Mature |               |              |            |                       | B                 | Basal area              | ERC:                        |                                                                                                         | Estimated Remaining Contributio |                                                       |

## Report selection criteria.

### Projects.

Planning Proposed Plans & Elevations 2023

### Date Range.

Any Date

### Work types.

----> Fell :: Fell and remove stump(s)  
----> No action :: No action

### Latest Survey.

All surveys for the selected trees.  
---> Last survey for each selected tree.

### Work Completed.

---> Work Completed  
---> Work Not Completed

Number of trees in selected Project(s) **3**

Number of trees in Report selection **3**

**Age Classifications:**

|    |               |    |              |
|----|---------------|----|--------------|
| N  | Newly planted | EM | Early Mature |
| Y  | Young         | M  | Mature       |
| SM | Semi-mature   | OM | Over Mature  |

**Condition:**

|   |            |
|---|------------|
| C | Crown      |
| S | Stem       |
| B | Basal area |

**Stems:** Ø Diameter  
(Eq) Equivalent stem diameter using BS5837:2012 definition  
**ERC:** Estimated Remaining Contributio

# Urban Tree Management

0800 222 9529  
WWW.URBANTREEMANAGEMENT.CO.UK

## Tree Constraint Plan

SCALE :  
1 : 500 @ A4

DATE :  
14/05/2023

MAP FILENAME :  
17 Stapeley Gardens, Liverpool L26 9YG

N

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Category 'A'

Category 'B'

Category 'C'

Category 'U'

0

30m



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Key

Tree To Be Removed

Proposed Development

There is insufficient information relating to below ground infrastructure available at present to comment as to whether or not their would-be adequate space for these to be installed outside of RPAs. If services do enter RPAs the use of hand digging as detailed in the National Joint Utilities Group publication 'Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees' (NJUG 10, Volume 4, 2007) will be undertaken to minimise the impact on the tree roots.

# Urban Tree Management

0800 222 9529  
WWW.URBANTREEMANAGEMENT.CO.UK

## Tree ProtectionPlan

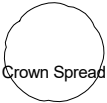
SCALE :  
1 : 500 @ A4

DATE :  
14/05/2023

N  


MAP FILENAME :  
17 Stapeley Gardens, Liverpool L26 9YG

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Crown Spread

Root Protection Area

Shading Arc

Category 'A'

Category 'B'

Category 'C'

Category 'U'

0 30m



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Key

Construction Exclusion Zone (CEZ)

Storage of Materials & Site Huts

Proposed Development

Tree Protection Fencing

Existing Wall & Fence

- Prohibition
- Mechanical digging or scraping is not permitted within a defined root protection area or within areas cordoned off by protective barrier fencing.
  - No access will be permitted within the protected areas.
  - No materials, equipment or debris will be stored within any of the fenced areas, or against the fencing.
  - Fires are not permitted within 10m of any vegetation.
  - Leaning objects against or attaching of objects to a tree is not permitted.
  - Machinery, plant and vehicles are not permitted to be washed down within 10m of vegetation. Chemicals and materials are not to be transported, stored, used or mixed within a root protection area or within areas cordoned off by protective barrier fencing.
  - Cement silos, mixing site to be situated within a bunded area to prevent pillage/leaking of chemicals harmful to trees. These areas are to be sited well clear of protected trees.
  - Refuelling of plant or machinery is prohibited within 10m of the construction exclusion zones. It is essential that allowance should be made for the slope of the ground so that damaging materials such as concrete washings, mortar or diesel oil cannot run towards trees.
  - Where machinery is to be used within 5m of retained tree canopies a banks man will be required at all times whilst setting up, moving or operating within this distance of retained trees canopies.
  - Storage of all caustic material and chemicals are to be situated well clear of protected areas and preferably on lower ground if slopes are present, or to be situated within a bonded area to prevent any spills or leaks entering the ground.