

31 MILTON PARK
N6 5QB

ARBORICULTURAL
IMPACT
ASSESSMENT &
METHOD
STATEMENT

(Including Tree Survey Schedule)

for

MR
MATTEO MILAN



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1. Introduction

- 1.1. ACD Environmental was instructed in March 2023 to prepare the following Arboricultural Impact Assessment and Method Statement by Mr Matteo Milan. Reference should be made to the latest revision of the corresponding Tree Protection Plan (ACD ref: PRI24183-03).
- 1.2. This Method Statement is to be made available to all operatives on site during the construction process, so that they understand the scope and importance of the measures set out for tree protection. Implementation of the protection methods and other details within this report are integral to ensuring protection for the retained trees.
- 1.3. For details of trees to be retained, and locations and types of special protection methods, reference should be made to the latest revision of Tree Protection Plan (ref: PRI24182-03), which should be displayed prominently on site for all staff to see.
- 1.4. To ensure accuracy and avoid future costly adjustments, the Tree Protection Fence must be set out by a surveyor/engineer with all node points being marked clearly on site for the fencing contractor to work to. The AutoCAD version of the Tree Protection Plan is available on request.
- 1.5. This report is based on the recommendations given in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- 1.6. The controlling authority is Haringey Council London Borough who can be contacted at:

Address: Haringey Council London Borough, Planning, Regeneration & Economy, Level 6, River Park House, 225 High Road, Wood Green, N22 8HQ

Email: development.control@haringey.gov.uk

Telephone: 02084891478
- 1.7. No details have been supplied or sought of any statutory protection which may cover the subject trees.
- 1.8. Any questions relating to the content of this report should be directed in the first instance to: ACD Environmental, 4 & 5 The Old Mill, Fry's Yard, Bridge Street, Godalming, Surrey GU7 1HP, 01483 425714, quoting the site address and report reference number.
- 1.9. The following abbreviations have been used throughout this document:
 - Root Protection Area – RPA
 - Construction Exclusion Zone – CEZ
 - Tree Protection Plan – TPP
 - Tree Protection Fencing – TPF

2. Scope and Method of Survey

- 2.1. The survey has been carried out in accordance with BS5837:2012 Trees in Relation to design, demolition, and construction - Recommendations and the trees are assessed objectively and without reference to any site layout proposals. Categories are based on each tree's health and condition, together with an assessment of its life expectancy if its surroundings were to be unchanged. An explanation of the categories can be found at appendix 1.
- 2.2. This report is based on the recommendations given in BS5837:2012 and is not a health and safety survey. Detailed tree inspection including decay mapping, aerial inspection, soil analysis, etc. was not undertaken.
- 2.3. No discussions took place between the surveyor and any other party.
- 2.4. The reference numbers of surveyed trees and groups of trees are shown on the Tree Survey Plan, which is based on the supplied survey drawing and appended to this report. The prefix 'G' has been used to indicate a group of trees, and 'H' for hedges. Stem locations within groups may be estimated, and indicative of canopy only.
- 2.5. The tree survey was carried out from ground level only.
- 2.6. Where trees are located on neighbouring land an estimated appraisal has been made of their quality and dimensions. Where stems or branches are obscured by Ivy or other materials a full assessment of those parts will not be possible.
- 2.7. Tree heights were measured with a clinometer or estimated in relation to those measured with the clinometer. If individual tree heights are of particular concern, for example in shading calculations, then they are measured using a clinometer.
- 2.8. Trunk diameters were measured or, where inaccessible, estimated. Single stemmed trees are measured at 1.5m from ground level. Multiple stemmed trees are measured according to section 4.6 of BS5837:2012. For groups of trees the diameter may be an estimated average or a maximum.
- 2.9. Tree canopies, where markedly asymmetrical, were measured (or estimated by pacing) in four directions using a laser measure. Symmetrical canopies are measured in one direction only, with dimensions in the remaining directions assumed to be similar. The canopy of tree groups will be indicated by measuring the maximum canopy radius for each compass point (more complicated groups will have further notes taken and an accurate representation will be shown on the plan).
- 2.10. No soil assessment was carried out at the time of survey. According to the National Soil Resources Institute online mapping service at <http://www.landis.org.uk/soilscapes> the soil on site is expected to be: *"Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils"*.

3. Arboricultural Impact Assessment

- 3.1. The site is currently a residential dwelling with existing cellar, garage side building and landscaped garden. The proposed development is the demolition of the garage building and the construction of a new side extension mainly within the existing development foot print as well as a new access to the existing cellar space.
- 3.2. This impact assessment is intended to evaluate the direct and indirect impacts on the trees on the site in relation to the proposed development. Any potential tree impacts are identified as per BS5837:2012 section 5.4, and details are given of proposed mitigation.
- 3.3. Any potentially damaging activities proposed in the vicinity of retained trees are identified, such that mitigation to significantly reduce or avoid this impact can be detailed in the Arboricultural Method Statement and Tree Protection Plan as recommended in BS5837:2012 section 5.4.2.
- 3.4. The development proposals are in accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. Adequate protection can be provided to ensure all retained trees are protected throughout the development.
- 3.5. The tree survey schedule for the site is at Appendix 2 of this report.
- 3.6. This assessment is based upon the supplied ground floor and basement layout drawings by Scenario Architecture, references: PR-A1.01 and PR-A1.02 respectively.
- 3.7. **Evaluation of impact of proposed tree losses**
 - 3.7.1. A single 'C' category tree is to be removed as part of the development proposals.
 - 3.7.2. T9 is a small garden Bay Laurel (*Laurus nobilis*) located in a raised planter, adjacent to the rear entrance.
 - 3.7.3. The tree to be removed is shown with a red dashed canopy outline on the Tree Protection Plan ACD reference PRI24183-03.
 - 3.7.4. T9 is not of a significance or quality whereby its removal should present a constraint to the proposed development of the site, and its removal could be easily replaced through nursery stock.
- 3.8. **Trees to be pruned**
 - 3.8.1. No pruning works are required to implement the development, and tree surgery works are not anticipated (excluding tree removals). Should any become necessary it should comply with BS3998:2010 Tree Work or more recently accepted arboricultural good practice and be approved by the LPA and project arboriculturist prior to any commencement.
 - 3.8.2. Access facilitation pruning may be conducted where canopy growth begins to encroach beyond the development footprint over time. Such pruning should be kept to an absolute bar minimum and be carried out by a qualified professional.

3.9. Protection for retained trees

- 3.9.1. BS5837:2012 section 6.2.1. states: 'All trees that are being retained on site should be protected by barriers and/or ground protection (see 5.5) before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences.
- 3.9.2. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of a tree's RPA, appropriate ground protection should be installed (see 6.2.3).' As such, protection for all retained trees is shown on the Tree Protection Plan according to this specification.
- 3.9.3. Due to the significant amount of surrounding hard surfacing and existing development it is not possible to accurately offset a projected RPA for the retained trees surrounding the site, therefore these has been shown on the plan as a standard circles with an even radius from the respective stem locations, however it is expected that when within the footprint of an existing development, especially those of construction foundations, that root growth will have been significantly restricted with roots systems having established in more favourable soil conditions.
- 3.9.4. Trial-pits and sensitive excavation are to be conducted after the demolition phase of the development to confirm the level of rooting systems present in area where more significant development is proposed than that of the existing is to occur. This includes a section of the proposed side extension which passes through an area which is currently only hard surfacing, and the location of the new cellar stairwell which will require excavation into the soil below the current garage building.

3.10. Barriers

- 3.10.1. BS5837:2012 figure 2 recommends a default specification for protective barrier. This is a weld mesh panel design, mounted upon a well braced scaffold framework. This is perfectly adequate for this site where there are to be areas of high intensity development.
- 3.10.2. Given the scale of this site, where it is likely there will be much lower pressure in terms of construction activity and machinery access, it is suggested that 1.2m chestnut pale fencing (or similar) mounted on secure upright posts set into the ground and clearly indicated as Tree Protection Fencing by signage would be entirely adequate.
- 3.10.3. The corresponding Tree Protection Plan shows the proposed location of all TPF to be erected onsite, positioned along the edge of the raised planting areas to protect the area of exposed soft ground within the projected RPA of multiple retained trees.
- 3.10.4. All tree protection fence should be erected before any works start on site whatsoever.

3.11. Ground protection

- 3.11.1. Due to the limited amount of available space onsite and the presence of existing hard landscaping elements within the site boundaries, the current hard surfacing is to act as adequate ground protection for the duration of the construction of the development proposals to prevent potential impact to retained rooting systems caused by foot traffic and associated development works.
- 3.11.2. Areas of current hard surfacing to act as adequate ground protection within retained RPAs are shown on the corresponding Tree Protection Plan.
- 3.11.3. Should at any time the existing hard surfacing be removed, then a temporary adequate ground protection must be laid over any exposed soft ground or the area fenced off.
- 3.11.4. A specification for adequate ground protection can be seen within the Method Statement below and also on the Tree Protection Plan

3.12. Demolition

- 3.12.1. To ensure damage does not occur to trees highlighted for retention, tree protection fencing must be erected prior to any plant machinery entering site whatsoever. This should be subject to a pre-commencement site meeting between the developer, their project arboriculturist and a representative from the Local Authority to check that the fencing has been erected to a suitable standard and in the correct location prior to the start of development.
- 3.12.2. The existing garage building is to be sensitively excavated to prevent damage occurring to any of the retained trees surrounding the development, this will include folding the existing construction in on itself and the use of hand tools to break up and remove the floor and foundations.
- 3.12.3. Any plant required to assist with the demolition phase of construction must be located on adequate ground protection when within the projected RPA of any retained tree.

3.13. New Hard Surfaces within RPAs

It is confirmed that no hard surfaces are proposed within the RPAs of retained trees where there is currently un-developed land or soft rooting medium.

3.14. Construction within RPAs

- 3.14.1. BS5837:2012 states at section 5.3.1: 'The default position should be that structures (see 3.10) are located outside the RPAs of trees to be retained. However, where there is an overriding justification for construction within the RPA, technical solutions might be available that prevent damage to the tree(s) (see Clause 7). If operations within the RPA are proposed, the project arboriculturist should:
 - a) Demonstrate that the tree(s) can remain viable, and that the area lost to encroachment can be compensated for elsewhere, contiguous with its RPA:
 - b) Propose a series of mitigation measures to improve the soil environment that is used by the tree for growth.'
- 3.14.2. The construction of the proposed side extension is within the footprint of existing development and hard surfacing from the current building, however a section to the

south with require deeper foundation than the current hard surfacing in the area. To ensure that impact to the surrounding trees is kept to a minimum a sensitively excavated trial-pit is to be made along the outer foundation line to confirm the level of rooting systems passing into the proposed foundation footprint. This is shown on the Tree Protection Plan where required.

- 3.14.3. The results of the trial pit will influence the type of foundation required – if significant or structural rooting systems over 25mm diameter are found then a specialist foundation design (such as piling) may have to be considered where root pruning is not judged acceptable.
- 3.14.4. The construction of a new basement access stairwell is located within the existing footprint of the garage building; however, such a construction feature will require deeper excavation than what exists currently. To minimise impact to any potential underlying roots all excavation of this feature, especially that of the western-most excavation profile, should be conducted under direct supervision of the project arboriculturist.
- 3.14.5. Root pruning may be considered appropriate for any roots under 25mm diameter within any fully approved development footprint, however this will require assessment and conduction by the project arboriculturist. Any root pruning will be documented, and Haringey council informed accordingly.

3.15. **Shade and future pressure to prune**

The site layout has been assessed in terms of shading and future pressure to prune. Given the orientation of the site, and the relationship between the current buildings and the retained trees, the juxtaposition of the proposals is not wholly dissimilar to that of the existing relationship with the trees. As a result, it is considered unlikely that there would be any undue pressure to remove trees, or excessively prune from any future occupants outside of the existing cyclical pollarding regime currently employed for the Lime trees after completion of the development.

3.16. **Services**

- 3.16.1. It is fundamental to tree protection that infrastructure design is sensitively approached, as trenching close to trees may damage roots and affect tree health and stability. Details of services have not been provided at the time of writing. The Tree Protection Plan, showing the constraints posed by retained trees will be passed to the infrastructure engineers to inform their design, ensuring that all services avoid areas of potential conflict. As per BS5837:2012 Figure 1, once further details become available as part of the detailed/technical design for the site, the TPP and AMS will be revised to incorporate these details for services for inclusion in the Tender documentation.
- 3.16.2. Full details of the service and utility provisions for the site remain to be finalised. It is fundamental to tree protection that infrastructure design is sensitively approached, as trenching close to trees may damage roots and affect tree health and stability. Constraints posed by retained trees must be passed to the infrastructure engineers to inform their design, ensuring that all services avoid areas of potential conflict.

3.17. Levels and Landscaping

Full details of any changes in ground levels on site remain to be finalised. Any alterations to levels close to trees may damage roots and affect tree health and stability. Unless no-dig methodology or sensitive excavation is proposed for installation of surfaces or construction features within RPAs, then the original levels in these areas must be noted, retained, and integrated into the engineering design of the site. Landscaping operations within the RPAs of retained trees must be carried out in a sensitive manner and be subject to a detailed method statement and arboricultural supervision.

3.18. Boundaries

All plot boundaries will need to be designed, positioned, and installed to avoid damage to retained trees. When within RPAs, this will include hand excavation of all post holes, and the lining of any post holes with a non-porous membrane to stop leachates from the concrete damaging tree roots.

3.19. Supervision & monitoring

The development process should be subject to arboricultural supervision for certain element where incursion into the RPA of retained trees is required. Therefore, a pre-commencement site meeting is advised with additional site visits to review the proposed trial pit and to supervise the sensitive excavation of the proposed basement stairwell.

4. Arboricultural Method Statement

TO BE READ IN CONJUNCTION WITH THE APPENDED TREE PROTECTION PLAN REFERENCE: PRI24183-03

4.1. Phasing of operations for tree protection

- 4.1.1. Implementation of tree protection measures on the site must be carried out in the following order
- 1) Tree removals and tree surgery.
 - 2) Line of tree protection fence to be set out to node points by surveyor.
 - 3) Pre-commencement site meeting with project arboriculturist, Local Authority Tree Officer, site manager and groundworkers to ensure accurate erection of tree protection measures and confirmation of specialist or sensitive methodologies required for the site.
 - 4) Site accessible to construction/demolition traffic.
 - 5) Demolition/site clearance.
 - 6) Trial-pits excavated.
 - 7) Construction.
 - 8) Removal of tree protection fencing.
 - 9) Remedial tree surgery (if required).
- 4.1.2. The above phasing must not be changed without approval from the project arboriculturist and agreement with the Council.

4.2. Site supervision

- 4.2.1. The development process will be subject to arboricultural supervision where construction work inside the construction exclusion zone is required, and for the installation of any special detail or methodology. Therefore, input and supervision from the project arboriculturist will be required at the following stages:
- 1) Pre-commencement site meeting with project arboriculturist, Local Authority Tree Officer, site manager and groundworkers to ensure accurate erection of tree protection measures and confirmation of specialist or sensitive methodologies required for the site.
 - 2) Review of excavated trial pits.
 - 3) Supervision of sensitive excavation for basement stairwell.
 - 4) Any additional or unplanned works within a retained RPA.
- 4.2.2. Arboricultural supervision is to be carried out to ensure detailed tasks are carried out as per the approved methodology, and during any other, unplanned incursions into protection areas, for whatever reason to ensure no significant impact is sustained to the retained trees.
- 4.2.3. Supervision will usually require the arboriculturist to be present throughout the task, to ensure all the arboricultural objectives are met, however if the task is to take a long period of time, and provided the arboriculturist is satisfied with the previous conduct and attitude of those involved, after an additional 'tool-box talk' the supervision may be reduced to telephone contact and photographic updates between the site foreman/contractor and arboriculturist.

4.3. Tree protection areas

- 4.3.1. Based on tree survey data, tree protection areas have been determined for every retained tree. These areas are designed to protect at least a functional minimum of tree root mass in order to ensure that the trees survive the construction process.
- 4.3.2. If trees on this site are subject to statutory protection by either a Tree Preservation Order (TPO) or Conservation Area (CA), any unauthorised damage or destruction to them is a criminal offence and is also contrary to planning conditions that, if breached, could lead to all work on site being stopped by the local authority, with the possibility of an unlimited fine.
- 4.3.3. It is the responsibility of everyone engaged in the construction process to respect the tree protection measures and observe the necessary precautions within and adjacent to them.

4.4. Restrictions within tree protection areas

- 4.4.1. Inside the exclusion area of the fencing, the following shall apply:
 - No mechanical excavation whatsoever without prior permission from Harringay Council.
 - No excavation by any other means without arboricultural site supervision.
 - No hand digging without a written method statement having first been approved by the project arboriculturist.
 - No lowering of levels for any purpose (except removal of grass sward using hand tools).
 - No storage of plant or materials.
 - No storage or handling of any chemical including cement washings.
 - No vehicular access.
 - No fire lighting.
- 4.4.2. In addition to the above, further precautions are necessary adjacent to trees:
 - No substances injurious to tree health, including fuels, oil, bitumen, cement (including cement washings), builders' sand, concrete mixing and other chemicals shall be stored or used within or directly adjacent to the protection area of retained trees.
 - No fire shall be lit such that flames come within 5m of tree foliage.

4.5. Avoiding damage to stems and branches

- 4.5.1. Care shall be taken when planning site operations in proximity of retained trees to ensure that wide or tall loads, or plant with booms, jibs, and counterweights, can operate without coming into contact with retained trees. Such contact can result in serious injury to them and might make their safe retention impossible.
- 4.5.2. Consequently, any transit or traverse of plant in proximity of trees shall be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is at all times maintained. In some circumstances, it may be impossible to achieve this without pruning works known as 'access facilitation pruning'.
- 4.5.3. Access facilitation pruning shall be kept to the barest minimum necessary to facilitate development and shall be carried out in strict accordance with the guidance below (Tree Surgery). Under no circumstances shall construction personnel undertake any tree pruning operations.

4.6. **Tree protection fencing**

4.6.1. The Tree Protection Plan (see the latest revision of: PRI24183-03) shows the alignment of Tree Protection Fencing (TPF), which is to be installed prior to any of the following taking place:

- Demolition.
- Plant and material delivery.
- Soil stripping.
- Utility installation.
- Construction works
- Landscaping.

4.6.2. Stages for installation of TPF:

- 1) Hand clearance of any vegetation to allow clear working access.
- 2) Setting out of fencing points.
- 3) Fencing erected.
- 4) Site accessible to demolition/construction traffic.

4.6.3. To ensure accuracy and avoid future costly adjustments, the Tree Protection Fence must be set out by a surveyor with all node points being marked clearly on site for the fencing contractor to work to.

4.6.4. Once erected, all TPF will be regarded as sacrosanct, and will not be removed or altered without prior recommendation by the project arboriculturist and approval of the local planning authority.

4.6.5. The typical TPF construction is suitable for areas of high intensity development, and shall comprise of interlocking weld-mesh panels, well braced to resist impacts by attachment to a scaffold framework that is set firmly into the ground. A detailed specification can be found on the TPP.

4.6.6. Should any alternative method of barrier construction be proposed, consultation with the project arboriculturist will be obtained to clarify the efficacy of the revised design prior to informing the local planning authority and obtaining their consent.

4.6.7. Once the exclusion zone has been protected by barriers and/or ground protection, construction work can commence.

4.6.8. All weather notices should be erected on the barriers (for example see figure below).



Figure 1: Tree Protection Sign (digital copies available for download at: www.acdenvironmental.co.uk)

4.7. Ground protection

- 4.7.1. The specification for Ground Protection is shown on the Tree Protection Plan. Any alternative specification to be installed must be capable of supporting the expected loads and avoiding rutting, compaction, and damage to the soil. As advised in BS5837:2012 section 6.2.3:
- 4.7.2. 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:
- a)** 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.
 - b)** 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:
 - c)** for wheeled or tracked construction traffic exceeding 2 t 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 likely loading to which it will be subjected.

4.7.3. Stages for ground protection installation¹:

- 1) Discuss procedure with project arboriculturist.
- 2) Dismantle primary TPF and re-erect in secondary location as shown on TPP.
- 3) Any shrubs, saplings, or trees to be removed, are to be cut, or ground out to just below ground level rather than grubbed or winched out, which can damage roots of retained trees.
- 4) Lay woven geotextile over existing ground surface by hand.
- 5) Cover the area with compressible layer, woodchip for example, using hand tools only.
- 6) Cover compressible layer with side butting scaffold boards or plywood boards.
- 7) Confirm surface is acceptable for use with project arboriculturist.
- 8) Area ready for construction access.

4.7.4. To ensure accuracy and avoid future costly adjustments, the Ground Protection must be set out by a surveyor with all node points being marked clearly on site for the fencing contractor to work to.

4.7.5. There is to be no-excavation within ground protection area whatsoever. This includes installation of services and associated utilities.

4.8. **Site storage, parking, welfare facilities**

4.8.1. The site will require provision for; site storage, contractor parking, welfare facilities, temporary services/drainage, material drop of points, etc.

4.8.2. No details of these provisions are available at the time of writing of this report.

4.8.3. None of the above provisions will be sited within RPAs of retained trees without the input or the project arboriculturist and the consent of the Local Authority.

4.9. **Tree surgery and removal**

4.9.1. Those trees which are to be removed are shown with a red dashed canopy outline, and a dashed emblem around the trunk on the latest revision of the corresponding Tree Protection Plan ACD reference PRI24183-03.

4.9.2. The following surgery works are to be carried out:

Tree number	Species	Operation
T9	Bay Laurel	Remove to ground level and dig/grind out remaining stump

4.9.3. All trees to be removed are indicated on the Tree Protection Plan.

4.9.4. If any further surgery works are proposed, it will be submitted to, and approved by Haringey Council London Borough, before being carried out.

4.9.5. All work will be carried out in accordance with BS 3998:2010 Recommendations for Tree Work, industry best practice and in line with any works already agreed with the Council.

4.9.6. The tree surgery contractor is responsible for carrying out any relevant health and safety risk assessment, and insurance, prior to any work being carried out.

¹For protection from foot traffic only

- 4.9.7. The statutory protection afforded by the Wildlife and Countryside Act and Countryside and Rights of Way Act will be adhered to. If further advice is required, particularly if bats are discovered during tree work, it will be obtained from Natural England or other competent persons and recommendations adhered to.
- 4.9.8. The stumps of any trees removed from within the Construction Exclusion Zone or the RPAs of retained trees will be either; cut flush to ground level and left in situ, removed using hand tools, or ground out using a stump grinder – they will not be winched out.
- 4.9.9. All operations shall be carefully carried out to avoid damage to the trees being treated or neighbouring trees. No trees to be retained shall be used for anchorage or winching purposes.

4.10. **Installation of underground services**

- 4.10.1. If for whatever reason installation within RPAs is required, the project arboriculturist and local authority must be notified prior to any tree protection barrier removal and the following details adhered to.

- 4.10.2. Stages for installing services within tree protection areas:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
 - 2) Remove just enough tree protection fencing to allow access to area and facilitate trenching.
 - 3) Remove any surface vegetation or existing hard surfaces using hand tools.
 - 4) Using an air-pick excavate the trench, keeping to minimum dimensions required.
 - 5) If roots over 10mm diameter are encountered, they will be retained and kept damp by covering with hessian (re-wetted as required).
 - 6) Feed in services.
 - 7) Back fill trench with 200-300mm depth of excavated soil, or a mixture of excavated and imported top-soil (to BS3882:1984), firming down with heels.
 - 8) Repeat step 7 until trench is filled.
 - 9) Re-erect tree protection fencing as per approved plan.
- 4.10.3. An alternative to the method of excavation above, for trenching within RPA's, is by using an 'air-spade' or similar. This tool utilises compressed air to remove soil from around tree roots causing minimal damage and can be run off a typical site compressor. ACD can provide details of contractors supplying air-spade services if required.
 - 4.10.4. Alternatively, trenchless technology such as thrust boring can be used in some instances and is particularly effective as it can pass directly under the tree, at a depth which is likely to avoid almost all impact on roots of the subject tree. As no access/thrust pits will be located within the RPAs of the subject trees, the need for arboricultural supervision is limited.
 - 4.10.5. Reference can be made to National Joint Utilities Group Publication Volume 4 (NJUG Vol 4) for guidance, but any approach must be approved by the project arboriculturist and brought to the attention of the local authority tree officer.

4.11. Demolition close to trees

4.11.1. All TPF to be installed as per approved Tree Protection Plan prior to any plant arriving on site.

4.11.2. Sensitive demolition will occur under supervision from the project arboriculturist

4.11.3. Stages for demolition within tree protection areas:

No plant machinery to be sited on any exposed rooting area

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Dismantle any fencing to allow work to proceed.
- 3) Buildings to be folded in on themselves.
- 4) Removal debris by hand or with plant machinery not located on any exposed rooting area.
- 5) Floor to be broken up with hand held breaker and pieces removed by hand. Slab floor can be lifted carefully by machinery if appropriate.
- 6) Underlying ground levels to be retained. No excavation to occur.
- 7) Any exposed roots and surrounding newly exposed areas to be covered with up to 100mm of topsoil, from elsewhere on site, or imported topsoil (to BS3882:1984). Soil may be placed in area by plant but must be spread by hand.
- 8) Tree protection fencing to be erected in final position as shown on plan.

4.11.4. No reduction in levels of the underlying soil surface will occur.

4.11.5. At no point are any heavy machinery permitted within the RPA.

4.11.6. Contamination of the soil by fuel and lubricant leaks must be avoided at all costs. If such a situation arises the project arboriculturist must be notified to assess the situation and prescribe remedial measures.

4.12. Sensitive excavation within retained RPAs

4.12.1. All excavations within retained RPAs to be carried out using the following sensitive methodology:

- 1) Pre-start meeting between project arboriculturist and groundworkers.
- 2) Removal of Tree Protection Fencing where required to allow access to working area.
- 3) RPA radius of retained trees within proposed area of work to be measured and marked out with line-marker or pegs to inform areas of sensitive excavation.
- 4) Soil within marked out area to be excavated using hand-tools and/or air-spade.
- 5) Where suitable soil can be scrapped away carefully under direct supervision of project arboriculturist using an excavator located outside of the RPA or on adequate ground protection using 'toothless' grading bucket.
- 6) Upon discovery of any large rooting systems (diameter of over 25mm), remaining soil will be removed using either hand tools or with use of an air-spade.
- 7) Once area is excavated as required an assessment is to be made in regards to any significant roots discovered as to the feasibility of root retention and significance of potential impact to vitality and stability of retained trees from root pruning.
- 8) If root pruning is viable, then it shall be undertaken by the project arboriculturist as access facilitation pruning and documented for review by the Local Planning Authority.
- 9) If impact of root pruning is considered too significant then approval must be gained for further tree removal prior to continuation of works within the RPA of affected tree.

- 10) During any delay between exposure of roots and agreement of either removal or pruning works, exposed rooting structures must be covered with soil or a damp material (e.g. Hessian) which is to be re-wetted as required to prevent dehydration of fibrous root-hairs.
- 11) Re-erection of Tree Protection Fencing following completion of works or between daily work intervals.

4.13. Hard surface removal

4.13.1. No hard surface removal within RPAs will occur without arboricultural supervision.

4.13.2. Stages for hard surface removal within tree protection areas:

No plant machinery to be sited on any exposed rooting area

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Dismantle fencing as required to access area.
- 3) Plant machinery to run only on existing hard surfaces with consent from arboriculturist.
- 4) Plant may be used to carefully peel up existing tarmac and concrete.
- 5) Other surfaces are to be removed by hand (paving etc.).
- 6) Where any subbase is not likely to contain roots, and only on approval from project arboriculturist, it may also be carefully removed.
- 7) Underlying ground levels to be retained. No excavation to occur.
- 8) Any exposed roots² and surrounding newly exposed areas to be covered with up to 100mm of topsoil, from elsewhere on site, or imported topsoil (to BS3882:1984). Soil may be placed in area by plant but must be spread by hand.
- 9) Tree protection fencing to be erected in final position as shown on plan.

4.13.3. If the area around the retained trees is to be left following the removal of the existing hard surface, before a new hard surface is laid or soft landscaping implemented, then the line of protective fencing MUST be correctly re-established immediately the hard surface removal work has been completed.

4.13.4. If, for whatever reason there is a delay before the area is left exposed prior to awaiting a new surface, then a temporary surface must be implemented, or the area fenced off.

²Should any roots over 25mm diameter, have grown above the final soil level and be a hindrance to any new surface installation, their removal will only be carried out under arboricultural supervision and with the approval of the LPA.

4.14. No-dig building construction

4.14.1. Structure to be installed as per engineers approved specification.

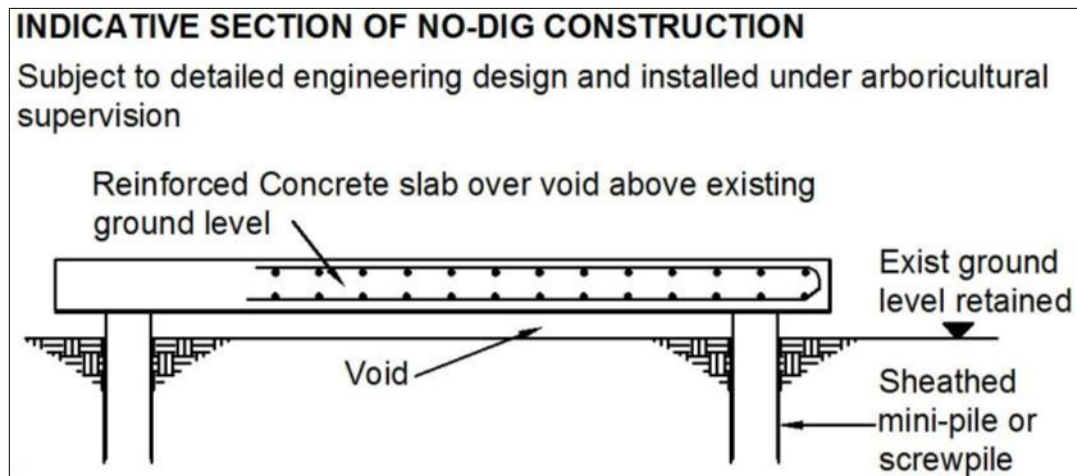


Figure 2: Indicative section of no-dig construction

4.14.2. Stages for construction:

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Dismantle TPF and re-erect in secondary location as shown on TPP.
- 3) TPF to be taken down only when commencement of work is imminent.
- 4) Grass sward to be removed as necessary using hand tools or low ground-pressure plant (e.g., Bobcat or similar).
- 5) Excavation to establish root free sites for piles or pads. To be carried out by hand or with an air excavation tool.
- 6) Piles installed using mini rig with very low ground pressure: rig must be approved for use by project arboriculturist.
- 7) Void form material installed.
- 8) Slab base cast onto void form material.
- 9) Void form material removed to create void under slab.
- 10) Remaining construction built on slab with no further excavation.
- 11) TPF to be re-erected in secondary position.

4.14.3. This specification must be designed to meet the following performance criteria:

- Construction will be above current ground (removal of grass sward/leaf litter by hand only).
- It will provide adequate resistance to applied loads, avoiding compaction of the soil.
- Provision will also be made for resistance to or tolerance of deformation by tree roots.
- Allowance will be made for oxygen diffusion according to seasonal demand.
- Water throughput to meet seasonal demand will also be possible (can be achieved by redirection of captured rainwater into hand dug land drains).

4.14.4. Any supports (such as a pile and beam construction may require) will be sited around any significant root masses. Sensitive air excavation prior to design will identify ideal locations.

- 4.14.5. Such techniques, for example: pile and beam foundations, must be designed to cause minimal impact to the tree's root system. This will include building above the current soil grade and using floating or cantilevered floors within the structure.
- 4.14.6. No plant machinery can be sited within the RPA. The use of back-acters or diggers to deposit construction materials within the area is acceptable, provided this can be achieved without causing damage to the trees canopy, and only under arboricultural supervision. The exception to this rule is when the use of piling rigs is required. In most cases it will not be possible to site a normal sized rig under the trees canopy and a 'mini rig' will be required. To facilitate use of such a rig within the RPA without causing soil compaction, ground protection must be used. This can be in the form of large metal plates or trackway placed on a substantial compressible layer (for example: woodchips).
- 4.14.7. Arboricultural supervision will be employed during all work within the RPA
- 4.14.8. Contamination of the soil by fuel and lubricant leaks must be avoided at all cost. If such a situation arises the project arboriculturist must be notified to assess the situation and prescribe remedial measures.

4.14.9.

4.15. **Installation of boundary fencing within protected areas**

4.15.1. Stages for installing wooden fence posts:

No plant machinery to be used in the area for whatever reason

- 1) Contact project arboriculturist to hold pre-start site meeting and 'toolbox' talk before starting work.
- 2) Remove TPF to allow access to area.
- 3) Dig post holes using hand tools, avoiding damage to the protective bark covering larger roots. Roots smaller than 25mm diameter may be pruned back using either secateurs or a hand saw, leaving a clean cut.
- 4) Damage or severance of roots above 25mm diameter must be avoided. If roots of this size are discovered, the hole should be relocated. If there are a large number of such roots it may be necessary to relocate the hole by half a fence panels length and adjust the fence panels accordingly.
- 5) Line hole with non-porous lining, for example durable polythene bag.
- 6) Insert post and fill post hole with concrete to ground level.
- 7) Trim polythene to ground level.

Henry Pinn *Arb L4 (ABC)*
Senior Arboriculturist

27 March 2023

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Appendix 1: Summary of Categories BS5837:2012

BS5837:2012 Table 1 - Cascade chart for tree quality assessment			
Category and definition		Criteria (including subcategories where appropriate)	
Trees unsuitable for retention (see Note)			
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	*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 other category U trees (e.g., where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) *Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline *Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>		
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation
Trees to be considered for retention			
Category A Trees of high quality 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 of significant conservation, historical, commemorative or other value (e.g., veteran trees or wood-pasture)
Category B Trees of moderate quality 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
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	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

SITE: 31 Milton Park, Hornsey, London, N6 5QB
CLIENT: Mr Matteo Milan
DATE: 09th March 2023

SURVEYOR: Henry Pinn

TAGGED? No

Appendix 2: Tree Survey Schedule

No.	Name	Ht (crown)	Dia (stems)	Crown spread (NESW)	Life stage	ERC	Comments	BS Cat
T1	Prunus avium (Wild Cherry)	6(2)	330(1)	4, 5.4, 3.2, 3.2	M	10+	Offsite Street tree. Slight Northwards lean. Historic branch removal wounds to the North. Cambium damage to North of stem consistent with vehicle damage. Crossing and rubbing branches throughout crown.	C2
T2	Betula pendula (Silver Birch)	17(4)	360(1)	5.7, 5.8, 4.4, 3.4	M	20+	Offsite Street tree. Historically pruned away from adjacent building to South. Tensile unions visible throughout.	B2
T3	Tilia sp. (Lime)	18.5(6)	710(1)	5.5, 5.5, 5.5, 5.5	M	40+	Significant tree located on boundary. Ivy smothered stem. Stem grows with an Eastern bias until 3m. Stem bifurcates St 3m with obscured union. Cavity on stem North-side at approx. 30cm long x 10cm wide x 5cm deep. No significant decay visible within, reactive growth collar present. Historically pollarded tree with approx. 2.5m regrowth at time of survey.	A2
T4	Tilia sp. (Lime)	7(2.5)	450(1)	3, 3, 3, 3	M	40+	Offsite tree along boundary. Historically topped with crown of regrowth. Stem base inaccessible and obscured - all dimensions estimated.	C2
T5	Tilia sp. (Lime)	8.5(2.5)	450(1)	3, 3, 3, 3	M	40+	Offsite tree along boundary. Historically topped with crown of regrowth. Ivy smothered. Stem base inaccessible and obscured - all dimensions estimated.	C2
T6	Tilia sp. (Lime)	8.5(3)	450(1)	3.3, 3.3, 3.3, 3.3	M	40+	Offsite tree along boundary. Historically pollarded with crown of regrowth. Stem base inaccessible and obscured - all dimensions estimated.	C2
T7	Tilia sp. (Lime)	8.5(3)	450(1)	3.3, 3.3, 3.3, 3.3	M	40+	Offsite tree along boundary. Historically pollarded with crown of regrowth. Stem base inaccessible and obscured - all dimensions estimated.	C2
T8	Tilia sp. (Lime)	8.5(3)	450(1)	3.3, 3.3, 3.3, 3.3	M	40+	Offsite tree along boundary. Historically pollarded with crown of regrowth. Stem base inaccessible and obscured - all dimensions estimated. Stem bifurcates at 2.5m with stem compression growing up.	C2

Notes: **Dia (stems):** trunk diameter in mm at 1.5m above ground level (number of stems) | **HT (crown):** Tree height (crown clearance) | **Life stage:** **Y:** Young (obviously planted within the last three years (unless as a heavy or extra-heavy standard)). **SM:** Semi mature (recently planted and yet to attain mature stature; up to 25% of attainable age.). **EM:** Early mature (almost full height, crown still developing and seed bearing; up to 50% of attainable age.). **M:** Mature (full height, crown spread, seed bearing; over 50% of attainable age.). **OM:** Over mature (full size, die-back, small leaf size, poor growth extension.) | **FSB:** First significant branch (& compass bearing) | **ERC:** Expected remaining contribution in years- <10, 10+, 20+, 40+ (assuming that there will be no physical changes to its immediate environment) | **BS Category:** Refer to appendix 1 of this report or BS5837:2012 Table 1 for detailed descriptions.

SITE: 31 Milton Park, Hornsey, London, N6 5QB
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No.	Name	Ht (crown)	Dia (stems)	Crown spread (NESW)	Life stage	ERC	Comments	BS Cat
T9	Laurus nobilis (Bay)	6(1.5)	90(1)	1.7, 1.7, 1.7, 1.7	EM	20+	Small garden tree located in raised planter.	C2
H10	Ligustrum vulgaris (Privet)	2(0.1)	70(1)	0.5, 0.5, 0.5, 0.5	M	20+	Boundary hedge growing alongside wall.	C2

Notes: **Dia (stems):** trunk diameter in mm at 1.5m above ground level (number of stems) | **HT (crown):** Tree height (crown clearance) | **Life stage:** **Y:** Young (obviously planted within the last three years (unless as a heavy or extra-heavy standard)). **SM:** Semi mature (recently planted and yet to attain mature stature; up to 25% of attainable age.). **EM:** Early mature (almost full height, crown still developing and seed bearing; up to 50% of attainable age.). **M:** Mature (full height, crown spread, seed bearing; over 50% of attainable age.). **OM:** Over mature (full size, die-back, small leaf size, poor growth extension.) | **FSB:** First significant branch (& compass bearing) | **ERC:** Expected remaining contribution in years-<10, 10+, 20+, 40+ (assuming that there will be no physical changes to its immediate environment | **BS Category:** Refer to appendix 1 of this report or BS5837:2012 Table 1 for detailed descriptions.



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