

Tree Survey & Arboricultural Impact Assessment

Site: Down Lane Park
Park View Road
London, N17 9AU

Client: London Borough of Haringey

Report Reference: UTC-0705-AIA
21 September 2023
Revision A – 17 October 2023

DATA & SUMMARY TABLE

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Previous Input	Previously issued tree constraints information to inform feasibility and design options. Additional input into the design and construction required to surfaces close to trees.		
Site Visit(s)	July 2022; weather clear with no visibility or data collection issues.		
Limitations to Survey	- Where access to trees was limited by site conditions or materials, or where ivy growth or other vegetation prevented full assessment, this is highlighted in the tree schedule. - Observations were from ground level only and of a preliminary nature, and no detailed investigations were carried out. - Observations of trees outside the site boundaries are confined to what was visible from within the site, unless noted in the comments. - No safety inspection of trees has been carried out, although any obvious defects and any need for further investigations, has been noted. - Comments relating to engineering solutions are for their suitability from an arboricultural perspective. Specification and suitability for use is the responsibility of the engineer and/or architect. - Comments relating to ecology are those of an informed layperson. A qualified ecologist should be consulted where necessary.		

EXECUTIVE SUMMARY

This report considers the impact of the proposed development on existing trees, evaluates the significance of impacts, and makes recommendations for methods to control the impacts. It also informs the client, design team and contractors of their options and responsibilities when designing and constructing structures close to trees. It contains the information required by the local planning authority to demonstrate that trees have been properly considered throughout the process.

A baseline survey has identified key arboricultural features, highlighting constraints and benefits. It follows the principles of British Standard *BS 5837:2012, Trees in relation to design, demolition and construction - Recommendations*.

- There are 560 trees and 2 groups of trees.
- Three of these trees are of A (high) value, 245 trees and 2 groups of B (moderate) value, 289 trees of C (low) value, and 23 trees of U (unsuitable for retention) value.
- Thirty-one trees are to be removed as part of the proposal. Most are U Category, with 5 C Category and 4 B Category trees to be removed.
- Works are proposed within the root protection area of some trees to be retained and specialist methods of design and construction are proposed as mitigation.
- New hard surfacing will be designed and constructed using a permeable, no-dig or minimal dig system; therefore, this will have a minimal impact on the trees.
- Tree protection measures have been specified which are achievable and sufficient to protect trees during the proposed works.
- Extensive landscaping and tree planting is to be carried out.
- The overall impact on trees and the local landscape will be positive.

Further to confirmations received from the LBH Nature Conservation Officer, the UGF/BNG assessments have been undertaken on a park-wide basis. However, the masterplan below confirms that planning permission is sought for the redline covering part of the south of the park and community hub building only.

-  Planning Application boundary
-  Permitted Development boundary
-  Entrances & Boundaries
-  New park entrance
 -  Improved existing park entrance
 -  School street
 -  Breaking-down park edge boundary
 -  Cycle routes connecting wider area
-  Community Space
-  Community hub space with outdoor cafe overspill
 -  Enclosed community garden space
 -  Back of House / Service Yard
-  Sports & Play
-  Upgraded outdoor gym
 -  New play area
 -  Existing artificial grass pitch
 -  New accessible Multi Use Games Area(basketball, netball)
 -  Existing retained tennis courts
 -  Perimeter activity route - Running, walking, cycle training (approx 0.85km)
-  Ecology & Biodiversity
-  Greening of southern area
 -  Biodiverse selectively mown meadow grass
 -  Sustainable urban drainage
 -  Mown grass / glades within planting
 -  New viewing mounds



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1 INTRODUCTION

INSTRUCTION & TERMS OF REFERENCE

- 1.1 Underhill Tree Consultancy (UTC) was instructed in July 2023 by Levitt Bernstein, on behalf of the London Borough of Haringey, to provide a tree survey and Arboricultural Impact Assessment (AIA) to accompany a planning application for a proposed development. This was to include a site visit, collection and preparation of tree details, preparation of constraints details, an assessment of the impact, both direct and indirect, of the proposal on trees, tree protection requirements and a preliminary arboricultural method statement.

THE DEVELOPMENT

- 1.2 The masterplan for the park's renewal has evolved through a process of co-design which started in spring 2022 with a client team from Haringey Council combining both Parks and Regeneration. Plans to improve Down Lane Park have been created in partnership with the Community Design Group (CDG) who's agreed focus is to shape proposals, inform engagement and build support for designs by channelling feedback from residents and groups using the park.
- 1.3 Proposals include significant new tree planting to reinforce the existing canopy cover, combining with a new range of planting styles which offer climate change resilience, support sustainable urban drainage interventions and respond to available maintenance budgets. A strong new offer for play will be distributed across the park with two landmark provisions supported by 'play on the way' and playful landscape interventions. A new community hub building will sit at the heart of the new masterplan with new active sports, play and leisure uses clustered around it. The facility will include a café, celebration spaces, LBH Park's office space, publicly accessible toilets and a community garden directly adjacent. Inclusive design and accessibility are prioritised with enhanced entrances, footpath connections, lighting and natural surveillance to improve safety.
- 1.4 The following documents have been reviewed by UTC when preparing this report:

Document Title	Document/Drawing Number
Topographical survey	4254
Landscape General Arrangement	3862-LB-ZZ-XX-D-L-200001 Rev P1

PURPOSE & SCOPE OF THIS REPORT

- 1.5 This report's purpose is to allow the local planning authority (LPA) to assess the tree information as part of the planning submission to develop Down Lane Park, Haringey (the 'Site'). Following the initial survey, constraints information was supplied to the architect and design team to inform layout.
- 1.6 Trees are a material consideration for a Local Planning Authority (LPA) when determining planning applications, whether or not they are afforded the statutory protection of a Tree Preservation Order (TPO) or Conservation Area (CA).

- 1.7 The methodology of assessment applied in the site survey and production of this report follows current best practice and guidance, including British Standard *BS 5837:2012, Trees in relation to design, demolition and construction - Recommendations* (BS 5837)¹. This document gives guidance and recommendations on categorising the quality of trees, the protection of retained trees, and any operations with the potential to affect trees. It aims to guide decision making towards sustainable design and tree cover on all new developments.
- 1.8 The site survey establishes a baseline assessment of trees to enable an evaluation of negative, positive, or neutral impacts from the proposal, and the significance of any impact. The AIA section of this report assesses the impact the proposed development has on trees, as well as any adverse impacts caused by trees. Methods to avoid or mitigate impacts are assessed, along with identifying remediation and enhancement opportunities. Additionally, it informs the client and design team of tree constraints, opportunities and responsibilities when designing and constructing structures close to trees. It demonstrates to the LPA that trees have been properly considered throughout the process, and it includes the information required for the LPA to make a decision. It also includes an Arboricultural Method Statement Heads of Terms and a Tree Protection Plan in draft form describing in principle how trees will be protected and managed during the development. This follows the recommendations in BS 5837 and the LPA may place a planning condition requiring a detailed Arboricultural Method Statement to be produced following planning consent. This is because at the planning submission stage there is usually insufficient detail known of the design and construction method of structures and hard surfaces to be built where they may affect trees. If no works, or only minor works with low impact on trees, are proposed within root protection areas, the information contained within this report may suffice.

2 PLANNING POLICY & LEGAL CONSIDERATIONS

- 2.1 National and local planning policies have been considered in relation to the arboricultural impacts from the development proposals as trees are a material consideration in the planning process and these policies will guide the decision-making process of the local planning authority.

NATIONAL PLANNING POLICY

- 2.2 The government's National Planning Policy Framework (NPPF)² was revised in July 2021 and replaced previous versions. At the centre of the NPPF is a presumption in favour of sustainable development including recognising the wider benefits of ecosystem services and to move from a net loss of biodiversity to achieving net gains for nature.
- 2.3 When determining planning applications, Local Planning Authorities should apply the following principles from the NPPF:

131. Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure

¹ British Standards Institution (2012) BS 5837: Trees in relation to design, demolition and construction – Recommendations, BSI <https://shop.bsigroup.com/>

² National Planning Policy Framework (NPPF), published by DCLG, <http://www.gov.uk/government/publications/national-planning-policy-framework--2>

that new streets are tree-lined⁵⁰, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible.

180.c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused unless there are wholly exceptional reasons and a suitable compensation strategy exists.

180.d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.”

- 2.4 The trees subject to this report are not considered to be part of ancient woodland or aged or veteran trees, and therefore this aspect of NPPF is not considered applicable.

THE LONDON PLAN

- 2.5 Under the UK planning system, local planning authorities have a statutory duty to consider the protection and planting of trees when granting planning permission. Trees are a material consideration under the UK planning system, whether statutorily protected or not. The space required for any proposed new trees to become established is an important consideration.

2.6 Policy G1 Green infrastructure

- London's network of green and open spaces, and green features in the built environment such as green roofs and St trees, should be protected, planned, designed and managed as integrated features of green infrastructure.
- Boroughs should prepare green infrastructure strategies that integrate objectives relating to open space provision, biodiversity conservation, flood management, health and well-being, sport and recreation.
- Development plans and opportunity area planning frameworks should:
 1. Green infrastructure assets, their function and their potential function
 2. identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions
- Development proposals should incorporate appropriate elements of green infrastructure that are integrated into London's wider green infrastructure network.

2.7 Policy G5 Urban greening

- Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design comment, and by incorporating measures such as high-quality landscaping (including trees) green roofs, green walls and nature-based sustainable drainage.
- Boroughs should develop an urban greening factor UGF to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in table 8.2 but tailored to local circumstances. In the interim, the mayor recommends a target score of 0.4 for developments that are predominantly residential,

and the target score of 0.3 for predominantly commercial development. (excluding B2 and B8 uses).

- Existing green cover retained on site should count towards developments meeting the interim target scores set out in (B) based on the factors set out in Table 8.2.

2.8 Policy G7 Trees and woodlands

- London's urban forest and Woodlands should be protected and maintained, and new trees and Woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest - the area of London under the canopy of trees.
- In their development plans, Boroughs should:
 - a. Protect veteran trees and ancient woodland where these are not already part of a protected site
 - b. Identify opportunities for tree planting in strategic locations
- Development proposals should ensure that, wherever possible, existing trees of quality are retained (Category A and B). If planning permission is granted that necessitates the removal of trees, there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT or another approved valuation system. The planting of additional trees should generally be included in new developments- particularly large canopy species which provide a wider range of benefits because of the larger surface area of their canopy.

LOCAL PLANNING POLICY

2.9 Under the UK planning system, local planning authorities have a statutory duty to consider the protection and planting of trees when granting planning permission. Trees are a material consideration under the UK planning system, whether statutorily protected or not. The space required for any proposed new trees to become established is an important consideration.

2.10 Haringey Council's Strategic Policies 2013-2026, Development Management DPD and their emerging Local Plan sets out policies in relation to trees.

2.11 Relevant documents which have been considered include:

- Policy SP13: Open Space and Biodiversity
- Policy DM19: Nature Conservation
- Policy DM20: Open Space and Green Grid
- Tree Strategy (now out of date, but considered)

2.12 Down Lane Park is a Local SINC (Site of Importance for Nature Conservation).

2.13 The London Plan and its implications for trees has also been considered.

TREE PRESERVATION ORDERS (TPO) & CONSERVATION AREAS (CA)

2.14 London Borough of Haringey have tree protection information on their website. A search shows there are no Tree Preservation Orders covering any of the subject trees.

2.15 The site is not within a Conservation Area.

- 2.16 BS 5837 does not make a distinction between trees subject to statutory protection, such as a TPO, and those trees without. This is principally because all trees are a material consideration and works to implement full planning consent overrides any TPO protection. Therefore, we do not seek to offer any comparison between, or imply any difference in the quality or importance of trees covered by a TPO and other trees.
- 2.17 The tree protection status is correct at the time of report production but can be subject to change. It is therefore the responsibility of any persons undertaking tree works operations to the trees which are the subject of this report and in accordance with our recommendations, to undertake their own statutory tree protection checks with the local planning authority, to include TPO, Conservation Area and planning conditions prior to works commencing. Tree work necessary to implement full planning consent overrides the need to apply separately although pre-commencement planning conditions may need to be discharged first. Wilful damage or destruction of TPO/Conservation Area trees can result in prosecutions for companies or individuals and fines can be up to £20,000 (County Court fines are unlimited).

ECOLOGICAL CONSIDERATIONS

- 2.18 It is important that any tree removals or works to trees does not harm or disturb protected species.
- 2.19 Although outside the specific scope of this report, tree removal and tree work have the potential to cause harm to wildlife, and this should be considered at the planning stage. Additionally, some wildlife which uses trees is legally protected: the Wildlife and Countryside Act 1981, as amended, The Conservation of Habitats and Species Regulations 2010 and the Countryside and Rights of Way Act 2000, provide statutory protection to species of flora and fauna including birds, bats and other species that are associated with trees. These could impose significant constraints on the use and timing of access to the site. It is the responsibility of the main contractor and tree surgery contractor to ensure that no protected species are harmed whilst carrying out site clearance or tree surgery works. Unless competent to do so, the advice of an ecologist must be sought. It is generally considered that birds nest between March and August but it must be understood that birds and active nests are protected irrespective of the time of year and some species can nest in any month. Therefore, due diligence must be observed towards nesting birds whenever tree works are carried out.

3 SITE APPRAISAL & TREE INFORMATION

THE SITE

- 3.1 The site is a public park that includes several buildings used for community use. It is a park of two distinct halves with differing but established landscape characters.
- 3.2 The topography of the site is predominantly level although there are significant localised changes in levels around some trees in the southern section of the park and this can have implications for trees if levels are to be changed as part of the development. Any reduction in soil levels will remove important roots, along with the topsoil they need for survival; however, raising soil levels can be just as harmful as even a modest increase disturbs the ability of water,

and particularly air, to move into and out of the root zone, therefore, roots can suffocate from a lack of oxygen or a build-up of carbon dioxide.

SOIL CONDITIONS

- 3.3 Soil conditions have a significant effect on tree growth, including rooting depths and available soil volume that can be used by roots, and therefore the likely tolerance of trees to soil disturbance. In addition, soil type will influence the species that will grow successfully.
- 3.4 The British Geological Survey online Geology Map indicates the soils on site are London Clay Formation – Clay, Silt and Sand.
- 3.5 Typically, trees have relatively shallow but wide spreading roots with around 80-90% in the top 60-100cm of the soil profile. Tree root depth is limited by their water requirements which primarily come from above (rain), and the need for air to diffuse in and out of the soil. Some soils, particularly clays, limit this movement. Tree roots are opportunistic and will grow deeper if conditions allow. Trees growing in previously developed urban situations sometimes utilise disturbed ground, rubble, old drains or foundations etc., therefore having roots at far greater depth than in more natural, undisturbed settings.
- 3.6 Damage to soil structure and roots is by far the most common, significant and unseen way trees are damaged during development and the main purpose of tree protection and working methods close to trees is to avoid this.
- 3.7 Precautions to prevent soil compaction to rooting zones of retained trees will be particularly important on this site due to the presence of clay.

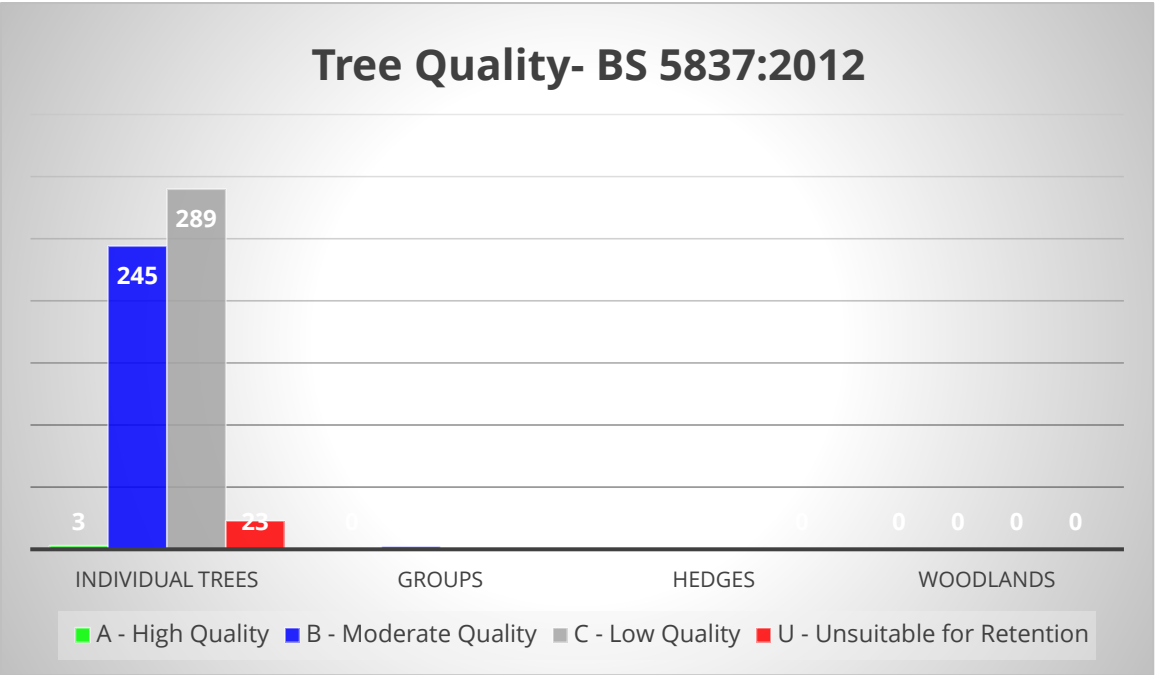
THE SUBJECT TREES

- 3.8 The survey recorded 560 individual trees and 2 groups. Tree numbers used correspond to an earlier survey for consistency. Two trees recorded at the earlier survey were not present when this survey was carried out. I understand two more trees have since been removed. The relevant information can be found in the survey sheets. A breakdown of the quality and value of each tree is given in Table 1 below. Survey details can be found at Appendix B, with locations on plans at Appendix A.
- 3.9 Tree position is based on the supplied plans unless stated otherwise and is presumed to be accurate. Measurements given are to the nearest metre. If measurements are estimated, this will be stated alongside the relevant measurement.

TREE QUALITY

- 3.10 Trees have been assessed using the tree categorisation method in BS 5837. This identifies the quality and value (non-fiscal) of existing trees to allow an informed decision to be made concerning which trees should be removed or retained as part of the development proposal. Appendix B includes an explanation of the BS 5837:2012 categorisation process.

Table 1: Tree quality



| ZXC

KEY ARBORICULTURAL FEATURES

- 3.11 The arboricultural resource within, and adjacent to, the site is dominated by tree groups and lines of trees which either form the boundaries to the park, or groups within the park. Most of the groups are of smaller trees, with the majority of the larger trees forming the structural planting around the perimeters and alongside the main paths. The arboricultural features provide a strong green framework throughout the site.
- 3.12 Lime trees constitute most of the larger trees, particularly those planted in rows. There are a few large, specimen trees mostly growing in the southern section of the park.
- 3.13 Many of the smaller trees are in quite poor condition, partly as a result of the density of the original planting. This has resulted in considerable dieback and deadwood on many of the trees, particularly the cherry trees.

OAK PROCESSIONARY MOTH

- 3.14 Oak processionary moth caterpillars and nests were found on several young oak trees during the tree survey.
- 3.15 Caterpillars of oak processionary moth are pests of oak trees and a hazard to human and animal health. OPM was accidentally introduced to England in 2005 and is subject to a government-led programme of survey and control to minimise its population, spread and impacts.

3.16 Health Precautions:

- Do not touch or approach OPM nests or caterpillars;
- Do not let children or animals touch or approach nests or caterpillars;
- Do not try removing nests or caterpillars yourself; and
- Avoid or minimise time spent under or downwind of infested oak trees, especially on windy days in summer.

3.17 The Forestry Commission currently recognises three areas or zones described below:

- Area free from the pest
This area is officially designated free from the pest and covers most of the country. In this area government funds an extensive programme of surveillance to monitor for OPM. If OPM is found in the area free from the pest, government will take robust actions to eradicate it.
- Buffer zone
In this area there is an annual OPM programme of surveillance and control, led by Forestry Commission. This programme involves detecting the pest and treating infested oak trees (and those trees in close proximity). If you own an infested oak tree in the buffer zone, the Forestry Commission may issue you with a Statutory Plant Health Notice (SPHN) asking you to take action. In most cases support will be available from the Forestry Commission for treatment of trees within this zone. The SPHN document will explain what action is needed.
- Established area
This is the area where OPM is established in the South-East of England. In this area landowners are responsible for the management of OPM on their land, however guidance is available on the [OPM hub](#). If you own an infested oak tree in this area it is recommended you find a professional on the [Arboricultural Association website](#) to treat and remove any hazardous nest material if necessary. You should still check for OPM every year.

3.18 Down Lane Park is within the Established area.



Picture 1- Oak processionary moth caterpillars in web on trunk. Found on several young oak trees.



Picture 2-London plane T27. One of the largest trees in the park.



Picture 3-Copper beech T35. Another of the large, specimen trees. The soil mound visible is to be reprofiled and extreme caution and specialist methods must be employed to minimise the impact on this tree.



Picture 4-Base of copper beech T35 showing exposed roots. Great care will be required when working close to this tree.

4 ARBORICULTURAL IMPACT ASSESSMENT

- 4.1 Trees can present constraints to development both above and below ground. The above ground constraints comprise the physical extent of tree crowns, both in height and spread, including their ultimate height and spread. Additionally, certain species characteristics can cause issues. The below ground constraints comprise the roots and are expressed in terms of the Root Protection Area (RPA³).
- 4.2 This section evaluates the direct and indirect impacts of the proposals on trees on and adjacent to the site. The main areas of consideration are:
- Trees to be removed and trees to be retained
 - Remedial or facilitative tree work to retained trees to allow development and ensure trees form a harmonious element of the development
 - Appropriate methods of protection trees during all stages of development
 - Specialist methods of engineering or construction to allow development close to trees, particularly within RPAs.
- 4.3 The buildability of the project is considered, including access, site facilities, plant movement, parking etc. Where appropriate, areas requiring remediation and enhancement opportunities

³ A Root Protection Area (RPA) is a layout design tool indicating the minimum area surrounding the tree that contains sufficient rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

are identified. The Tree Protection Plan indicates graphically the location and extent of many of the areas described.

TREE REMOVAL

- 4.4 Thirty-one trees are to be removed as part of the development. Twenty-two of these trees are dead, or virtually dead and 4 others are of low value. Most or all these trees would be recommended for removal irrespective of development. Their removal allows for new planting.
- 4.5 Two B category trees and 2 B category groups are to be removed to facilitate the development. The 2 individual trees are both whitebeams and the groups are two rows of hornbeams. These appear to have been planted as hedges but lapsed maintenance has allowed them to grow into trees.



Picture 5-Whitebeam T14 to be removed



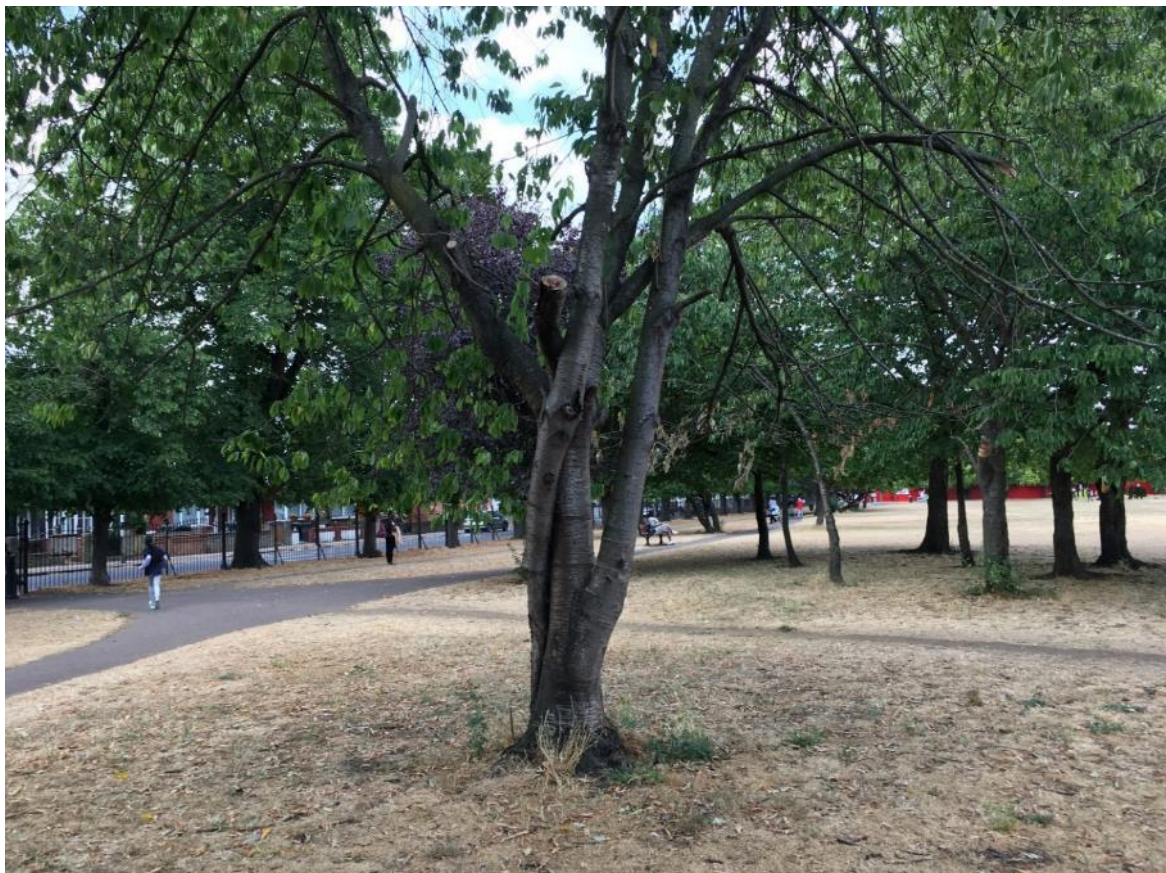
Picture 6-Hornbeam in group G1 to be removed



Picture 6- Hornbeam in group G2 to be removed



Picture 7-T335 cherry plum collapsing



Picture 8-One of several cherries in very poor condition



Picture 9-One of several small, dead cherries



Picture 10-T416 Japanese cherry which has been ring-barked

- 4.6 Table 2 is not a specification for works but an indication of likely works required as part of the development. A detailed specification should form part of a detailed Arboricultural Method Statement produced in response to a planning condition issued as part of planning permission.

Table 2 – Tree removals summary

BS 5837 Category	A High quality	B Moderate quality	C Low quality	U Unsuitable for retention
Individual trees	0	T10, 14	T8, 31, 32, 37, 303	T165, 173, 335, 365, 376, 379, 389, 397, 398, 412, 416, 419, 432, 443, 445, 480, 481, 482, 506, 508, 552, 554
Groups	0	G1, 2	0	0
Hedges	0	0	0	0
Woodlands	0	0	0	0
<u>Removed/Total</u>	0/3	4/247	5/289	022/23

IMPACTS OF TREE REMOVALS

- 4.7 The loss of trees will be minor due to the mostly poor condition of the majority of trees concerned, and the high tree population on the site. Only 2 B Category trees and 2 B Category groups are to be removed out of a total of 244 B Category trees.

TREE WORKS OTHER THAN REMOVAL

- 4.8 Facilitation pruning such as crown lifting of lower branches to allow for vehicular or pedestrian access, or the removal of dead branches for safety reasons, may be required. The exact specification will depend on a detailed assessment of site usage etc. and should be dealt with in the Arboricultural Method Statement produced following planning consent, where necessary. Dead branches should only be removed where there is an identifiable risk as they are a valuable ecological resource. The removal of ivy may be specified where it is deemed important to enable a close inspection of parts of a tree currently hidden, or because the ivy is causing problems for the tree by competing for light or adding excessive weight which could result in limb or tree failure. Routine severing and removal of ivy is not recommended as ivy has high ecological value as a nesting site and nectar source.



Picture 11-One of several lime trees T58 to T78 with deadwood in upper crowns



Picture 12-Another example of lime trees T58 to T78 with deadwood in upper crowns

- 4.9 Tree surgery works to be undertaken in accordance with *BS 3998:2010 Recommendations for tree works*⁴, or industry best practice. The Arboricultural Association run an Approved Contractor scheme and provide details of assessed contractors <https://www.trees.org.uk/Find-a-professional>.
- 4.10 The majority of arisings from tree felling and pruning are to be retained on site as dead hedges and ecological features. The advice of the project ecologist should be sought.

IMPACTS OF OTHER TREE WORKS

- 4.11 The impact of any pruning of trees will be minor due to the likely need for minor crown lifting and deadwood removal only.

ROOT PROTECTION AREA INCURSIONS

HARD SURFACING

- 4.12 Conventional hard surfacing using a sub-base requiring excavation, is damaging to tree roots and is not acceptable within RPAs where the impact will be significant. Above-ground, or no-dig principles, using permeable materials, will be followed. This usually results in higher finished levels and this must be considered during design. Further details in Appendix C and on the Tree Protection Plan.
- 4.13 Some new hard surfacing will be within RPAs. During design, every effort has been made to avoid RPAs. In places, there are existing hard surfaced footpaths already within RPAs and some of these are being replaced or enlarged. In many places, the encroachment is minor and the use of conventional construction will be acceptable. Where the ingress is more significant, specialist engineering design and construction will be used to minimise the impact on trees.
- 4.14 During construction, all excavation within RPAs will be supervised by the Project Arboriculturist.
- 4.15 It is understood that porous asphalt is to be used. It is important that the subbase is also of materials that retain porosity over a long time period and once compacted.
- 4.16 New hard surfacing must stop a minimum of 500mm from the trunk of retained trees. This is to allow for incremental growth of the trunk and prevent materials/debris building up at the base of the trunk, which can have detrimental impacts on tree health.

UNDERGROUND SERVICES

- 4.17 The exact location of services is often difficult to establish until construction is in progress. New lighting is proposed as part of the development. The principle should be no new services to be installed within RPAs. When existing services within RPAs require upgrading or where it can be demonstrated that it is unavoidable to install new services in RPAs, conventional excavation techniques are unacceptable and great care must be taken to minimise any disturbance. Trenchless installation should be the preferred option but if that is not feasible, any excavation

⁴ British Standards Institute (2010) BS 3998: Tree work – Recommendations, BSI <https://shop.bsigroup.com/>

must be carried out by hand or using a compressed air lance under arboricultural supervision or by following the methodology in Appendix C.

- 4.18 It is unknown whether there may be a requirement to excavate soil as part of investigation or remediation works not directly connected to the development, such as archaeological investigations, contaminated soil or Japanese knotweed control etc. This has the potential to be very damaging to trees which must be considered in any proposals and the Project Arboriculturist should be consulted on any excavation within RPAs.

SITE ACCESS & FACILITIES

- 4.19 It is important that space is allocated during the design stage for temporary welfare buildings, site storage, car parking etc., as this must be outside RPAs. Exceptions can sometimes be made for carefully sited and supported temporary buildings where agreed with the LPA. Where agreed during the design phase, these spaces will be shown on the Tree Protection Plan.

IMPACTS OF RPA INCURSIONS

- 4.20 Provided all works within RPAs uses appropriate design and construction methods outlined in this report, the impact on trees will be minimal. Full details of design and construction is an important part of an Arboricultural Method Statement.

CHANGES TO GROUND LEVELS

- 4.21 During design, consideration should be given to changes in ground levels. This should be dealt with in the detailed AMS, however, it is important at the planning stage to recognise any significant changes. Even where this occurs outside the RPA of a retained tree it still has the ability to impact on the tree, particularly in respect to changes in water availability, and methods of dealing with the change in levels such as retaining walls, slopes etc. should be assessed by the Project Arboriculturist. An existing mound of soil in the southern part of the site is to be removed and some of this is within the RPA of the copper beech, T35. It is critical that any works close to this tree are carefully planned and carried out. The methodology and extent of soil removal should be covered in detail in an Arboricultural Method Statement.

PROTECTION OF RETAINED TREES

- 4.22 All retained trees will be protected during every stage of development by establishing a Construction Exclusion Zone (CEZ) around their RPAs. An RPA is a layout design tool to indicate the minimum area around a tree deemed to contain sufficient roots and soil to maintain a tree's viability. A CEZ protects this area, although this may vary from the RPA based on site conditions. Tree protection measures, in the form of barriers and/or ground protection, must be in place before any works, including site clearance or demolition, begin, and stay in place for as long as a risk of damage remains. The location and specification of protection is shown on the Tree Protection Plan together with the RPR (root protection radius) which is the minimum distance protection barriers or ground protection are to be positioned from the trunks of retained trees. See Appendix C. Further details on tree protection should form part of a detailed Arboricultural Method Statement produced after planning approval.

- 4.23 The type of barriers should match the level of activity around the retained trees. Appendix C gives further details.
- 4.24 Due to the extent of the site, large numbers of trees, and the low risk of impact on many of the trees, the use of the default tree barriers as specified in BS 5837, is not considered necessary for all trees. The use of a lower specification barrier is shown on the Tree Protection Plan for much of the site, with the BS 5837 specification shown where impacts are expected to be greater. In addition, public access is to be maintained during the works and works are to be phased, so tree protection will also be employed on the areas currently subjected to construction activity.
- 4.25 Protective barriers must carry signs indicating their purpose and that the protection must not be moved or removed without the consent of the LPA or their approved arboriculturist. Signs should be at least A3 size. An example can be found at Appendix C.

MONITORING AND SUPERVISION OF WORKS CLOSE TO TREES

- 4.26 Most damage to trees on development sites occurs inadvertently and to ensure continued protection during development a system of site monitoring is good practice.
- 4.27 It is recommended that a Project Arboriculturist is appointed to oversee tree protection for the duration of the construction contract. This may be conditioned by the LPA. Part of the Project Arboriculturist's role is to monitor compliance with arboricultural conditions and advise on any tree problems that arise or modifications that become necessary. This will usually involve regular site visits, following which a report will be sent to the local authority tree officer and the client/developer as an audit trail of compliance (ref. subsection 6.3 of BS 5837).
- 4.28 On this site, the following monitoring and supervision are likely to be needed:
- A visit following installation of tree protection prior to any works commencing on site to confirm that it is fit for purpose.
 - Any agreed works in Root Protection Areas.
 - Any time there are potential conflicts with tree protection.
 - A visit at the completion of construction works to confirm tree protection can be removed to enable final landscaping.

- 4.29 A site supervision and monitoring schedule is often conditioned as part of planning consent and would form part of the detailed Arboricultural Method Statement.

TREE PLANTING, ESTABLISHMENT AND AFTERCARE

- 4.30 Much of the new proposal is for large scale landscaping works, including considerable tree planting. Planting locations should be determined at the planning stage and protected during the development to preserve soil structure. The suggested selection of species, size, method of planting and location are outside the scope of this report, however, the general principles should be for bigger (mature size, not size at planting) tree species to be chosen which have the potential to reach their ultimate height and spread without the need for excessive management. This must be balanced with available site-specific space, both above and below

ground. Tree planting and establishment should follow the principles laid out in *BS 8545 Trees: from nursery to independence in the landscape - Recommendations*⁵.

- 4.31 Landscape operations have the potential to damage existing trees if not carried out appropriately; in addition, the removal of protective barriers to carry out landscape operations may allow other contractors in previously protected areas. Appropriate measures should form part of the Arboricultural Method Statement.

⁵ British Standards Institute (2014) BS 8545: Trees: from nursery to independence in the landscape – Recommendations, BSI <http://shop.bsigroup.com/>

5 ARBORICULTURAL METHOD STATEMENT – HEADS OF TERMS

An Arboricultural Method Statement (AMS) describes how operations which may affect trees will be carried out to minimise any adverse effect on them. Details of site management, detailed construction methods, materials etc., can only be finalised once detailed design begins post planning permission. The table below contains an Arboricultural Method Statement heads of terms as recommended in Table B1 of BS 5837. This recommends that a detailed Arboricultural Method Statement is produced in response to a planning condition following planning consent. **Appendix C** contains general protection information, such as tree barriers and ground protection which are common to most developments. Additionally, principles for working close to trees are given. On straightforward sites and where no works are proposed within RPAs, this may be sufficient. Where there are complex interactions between the development and trees, or work is proposed within RPAs, a detailed Arboricultural Method Statement is likely to be conditioned as part of planning consent.

The table below identifies areas likely to need covering in a detailed AMS following planning permission. Not all operations are relevant to all projects, and for some sites, this report will contain sufficient information.

Table 3 – AMS heads of terms

OPERATION	DETAILED INFORMATION
Pre-commencement meeting – all relevant parties to agree tree protection measures and contact details	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
Auditable system of arboricultural site monitoring and supervision – to ensure compliance with tree protection measures and planning conditions	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
Tree felling and pruning	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
Other pre-commencement works with ability to affect trees – soil/archaeological investigations, contaminated soil removal, Japanese knotweed control, or any other works within RPAs	Full information to be in detailed Arboricultural Method Statement, produced post planning permission, if relevant.
Installation of tree protection barriers and any ground protection – precise location and specification	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.

OPERATION	DETAILED INFORMATION
Site clearance and demolition - including the removal of hard surfaces in Root Protection Areas.	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
Site set-up – site access, welfare facilities, parking, storage of materials etc.	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
Pollution control near trees – location of concrete washings or other contaminants which may affect trees	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
Operation of cranes and piling rigs where there is potential to impact trees	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
Soil level changes - details of changes in soil levels, grading, mounding and removal of spoil and details of retaining structures	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
Any excavations within RPAs – services/utilities, foundations, hard surfacing etc. – all will require specialist methods if within RPAs	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
New structures - specialist foundation design if within RPAs	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
New hard surfacing - specialist, no-dig systems and permeable substrates and surface materials will be required if within RPAs, which may result in higher finished levels	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.
Services - if within RPAs, guidelines within <i>NJUG Volume 4: Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees</i> , will be followed	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.

OPERATION	DETAILED INFORMATION
Landscaping works – has the potential to damage trees if not carried out appropriately; in addition, the removal of protective barriers to carry out landscape operations may allow other contractors in previously protected areas	Full information to be in detailed Arboricultural Method Statement, produced post planning permission, if relevant.
Root zone amelioration – may be required where compaction or other rooting zone issues have been identified	Full information to be in detailed Arboricultural Method Statement, produced post planning permission, if relevant.
Removing tree protection	Full information to be in detailed Arboricultural Method Statement, produced post planning permission.

6 CONCLUSIONS

- 6.1 The proposed development complies with local planning policy. Trees have been properly considered throughout the design of the proposals, to minimise the impact of development on them. Where retention of trees is not possible, the loss of trees will be offset with new tree planting as part of the landscaping proposals.
- 6.2 An Arboricultural Constraints Plan has been produced to inform design and the majority of trees are to be retained.
- 6.3 To implement the design proposal, 29 individual trees and 2 groups of trees will be removed. Of these, 22 are U Category and 5 are C Category.
- 6.4 The overall impact on trees will be minimal given the high tree population (562) and the quality of the trees to be removed.
- 6.5 Various works will be within the root protection area of trees to be retained. To ensure these do not adversely impact on trees, design and construction methods must be carefully planned. As recommended in Table B.1 of BS 5837, this report includes a Heads of Terms Arboricultural Method Statement. A detailed Arboricultural Method Statement should be produced in response to a planning condition, and this should cover all works within root protection areas.
- 6.6 New hard surfacing within the root protection areas will have a permeable subbase and surface and be of a minimal, or no-dig construction, utilising the depth of the existing hard surface and its subbase.
- 6.7 Tree protection will be a combination of the default BS 5837 specification, and lower specification barriers for areas of lower impact.

7 RECOMMENDATIONS

- 7.1 To ensure the retention and protection of trees on site, the LPA can include a suitably worded planning condition requiring a detailed Arboricultural Method Statement including site monitoring and supervision of tree protection and key activities during site clearance, demolition and construction works.
- 7.2 The routes of proposed services should be assessed by the Project Arboriculturist and a detailed Arboricultural Method Statement produced in conjunction with the services engineer and contractor if services are to be routed within root protection areas.
- 7.3 The Project Arboriculturist should review proposals for any archaeological investigations, contaminated soil remediation or Japanese knotweed control, that may be required, to assess any impact on retained trees and if there is a conflict, advise on mutually acceptable solutions.

APPENDIX A – PLANS

TREE CONSTRAINTS PLAN (UTC 0705-TCP)

TREE RETENTION & REMOVAL PLAN (UTC 0705-TRP)

TREE PROTECTION PLAN (UTC 0705-TPP-1 of 2)

TREE PROTECTION PLAN (UTC 0705-TPP-2 of 2)