



London Borough of Tower Hamlets Tree Management Plan 2020-2025

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Executive Summary

The London Borough of Tower Hamlets and its trees in the public realm make a significant contribution to London's reputation as one of the world's greenest cities. Trees not only contribute greatly to the aesthetics of an area, but they also provide important health, social, environmental and economic contributions to our city.

The mandate for a *Tree Management Plan* has been identified in Tower Hamlets' *Open Spaces Strategy*, to ensure that the council adopts a consistent approach to the planting and management of trees across the Borough. This document has been developed in accordance with the *Tower Hamlets Local Plan 2031*.

It is intended to define the council's approach to planting and maintaining a safe tree stock across the public realm and where appropriate replacing and increasing the Borough's tree population. It also includes the council's approach to tree management on private land, for trees protected by Tree Preservation Orders, Conservation Area status or Planning Law. This document is Tower Hamlets' overall Tree Strategy.

This document establishes the basis for working in collaboration with Tower Hamlets' partners, all of whom have an important role to play in achieving the council's goal of improving Tower Hamlets' environment. Together, we will ensure that Tower Hamlets' tree stock is managed and planted in accordance with arboricultural best practice, and careful consideration of its relationship with the surrounding townscape, amenity and biodiversity.

1. Introduction

- 1.1 Trees were formally introduced into British streets approximately 250 years ago. This is in contrast to a long tradition of urbanisation that started in London in the 6th Century AD. The development of garden squares in the mid-18th Century, the subsequent adoption of the French concept of boulevards, the evolution of the Arcadian suburb from the 1830s, together with evolving styles and approaches to residential amenity, all emphasised the important role of and desire for trees in London.
- 1.2 Trees are now an integral and historic component of Tower Hamlets' townscape. Their appearance adds to local character, helping to define a sense of place, softening and enhancing the built environment, contributing to our physical, cultural and spiritual well-being. They need to be managed, and new trees planted, to maximise spatial attributes and minimise potential undesirable effects such as obscuring important views, conflicting with pedestrians and vehicles, and causing subsidence to buildings.
- 1.3 The mandate for a Tree Management Plan has been identified in Tower Hamlets' *Open Spaces Strategy*, to ensure that the council adopts a consistent approach to the planting and management of trees across the Borough. This document puts trees and their relationship with Tower Hamlets' built environment into context and is designed to contribute towards achieving the wider aims of the *London Plan*.
- 1.4 The London Borough of Tower Hamlets currently manages around 25,000 trees, of which approximately 19,000 are located in parks and open spaces, 6,000 are street trees and many more exist across the Borough in private ownership. It should be recognised that Tower Hamlets' parks, open spaces and streets are generally well stocked with trees, with few remaining opportunities for new planting. Emphasis should be placed on maintaining and establishing a range of trees of all ages, to increase the aesthetic value and longevity of our tree stock. Native tree species are preferred for their improved biodiversity outcomes and will be prioritised for planting wherever suitable. Although many of our streets that can or should be planted on have been, the council will investigate any new requests for tree planting on public land with a view to increasing the public tree stock. The council will also proactively seek to identify suitable new tree planting locations that do not detract from existing amenity, ecology, townscape character or have negative community safety implications.

2. Purpose and Aims

- 2.1 This document seeks to define the approach to the planting and maintenance of trees managed by the council, to ensure a consistent approach across the Borough and to act as a guide for good tree management in line with best practice. This includes all public realm parks and open space trees and all public realm street trees, excluding those on Transport for London (TfL) red routes. Its purpose can be summarised in the following statement:

To define the council's approach to tree planting and management across the public realm in order to ensure a safe and healthy tree stock and replace and increase the Borough's tree population, with careful consideration of its relationship with townscape, amenity and biodiversity.

- 2.2 In contrast to trees on private land which are often governed by requirements for planning permission or Tree Preservation Orders, there is little formal regulation of trees in the public realm. The guidance contained within this document is designed to establish a consistent approach to tree management across the public realm and provide guidance for residents, businesses and developers when making decisions pertaining to trees. Whilst the council has limited control over trees managed by other agencies, such as TfL, it aims to encourage collaborative working with our partners by applying the principles of this management plan.
- 2.3 The wider policy context of this document, including national, regional and local policies, is set out in Appendix A. The council will make informed decisions based on these policies when managing and planting trees in streets, open spaces and other areas which have an impact on the public realm.

- 2.4 In order to fulfil this purpose, this document has six aims:

1. To promote an awareness of the value of trees across Tower Hamlets.
2. To provide a practical guide for the sustainable management of all trees managed by Tower Hamlets council.
3. To provide a best practice guide for tree management to promote the intrinsic health, social, environmental and economic benefits of trees across Tower Hamlets.
4. To provide a practical guide to Tower Hamlets' townscape to ensure the continuity of the positive contribution that trees make to its character.
5. To promote an understanding of urban design principles to ensure that trees are planted in the right places.
6. To promote an understanding of practical site considerations to ensure that trees are not planted in the wrong places.

- 2.5 All of these considerations should be taken into account when making tree management decisions. Further information on each is provided in the following six sections of this report.

3. The Value of Trees

3.1 Trees in cities provide a range of benefits which have considerable impact on those who live and work there. There are also several less obvious benefits that can sometimes be difficult to quantify.

3.2 **Environmental benefits**

Heavy traffic, commercial and domestic heating systems and other background sources all contribute to poor air quality in Tower Hamlets. Concentrations of particulate matter and nitrogen dioxide currently exceed air quality standards across the Borough. Whilst there is still a degree of uncertainty over their interaction with pollution, trees absorb and filter gaseous pollutants (ozone, sulphur dioxide, carbon monoxide and nitrogen dioxide) through their leaves. The physical properties of trees can also have a direct influence on pollution levels in the area they are planted, for instance through acting as windbreaks and reducing dispersion.

3.3 Trees can have a positive effect on the environment by:

- Cooling the city and benefiting micro-climate and humidity. The shading properties of trees will become increasingly important in light of the trends shown in recent UK climate change predictions and will help mitigate the urban heat island (UHI) effect. A UHI is an urban area which is significantly warmer than its surrounding rural area as a result of human activity.
- Sequestering (temporarily holding) carbon dioxide, the main greenhouse gas found in cities.
- Trapping dust and particulate matters on all aerial parts, which are then washed away by rainfall. Conifers are the most effective in capturing particulates, followed by deciduous trees with coarse, hairy leaves.
- Producing oxygen as a bi-product of photosynthesis.
- Reducing localised extremes in temperatures (cooling in the summer, warming in the winter – countering urban heat island effects).
- Reducing the effects of flash flooding.
- Providing important habitats and food sources for an extensive range of biodiversity.
- Creation of wildlife corridors across urban landscapes, which provide important links between rural habitats.
- Acting as a buffer to reduce noise pollution.

3.4 **Health and Social Benefits**

The most obvious contribution trees can make to an area is through their aesthetic value. Trees can be planted to enhance the look of an area and create the illusion of space. Trees can also be objects of beauty in their own right and have numerous interests, such as their differing shapes and sizes, bark colour and texture, leaf colour and shape, flowers, blossoms, fruits and berries. It is these qualities that can help to create an attractive and comfortable street that will encourage people to linger and make contact with others.

3.5 Trees can also assist by:

- Providing historic continuity – trees can live for several centuries and provide an emotional and physical link to past events and planned townscapes.
- Marking the changing seasons through leaf changes and floral displays.

- Acting as landmarks when mature.
- Providing screening.
- Providing shade and contributing towards reducing local temperature and increasing comfort levels.
- Reducing stress and illness by softening the built environment, delivering scents and aromas and providing a link to nature.
- Increasing productivity.

3.6 **Economic Benefits**

Trees can enhance spaces and encourage investments through providing an attractive environment for businesses, leisure, tourism and residents.

3.7 Other economic benefits may include:

- Reducing carbon emissions by minimising fuel costs for heating and cooling buildings.
- Providing a sustainable source of compost (leaf litter) and mulch (wood chip).
- Providing employment through all aspects of the arboricultural industry.
- Forming part of the council's green infrastructure as a valued capital asset.

3.8 **Biodiversity Benefits**

Trees provide important habitats, food sources and protection for an extensive range of biodiversity.

3.9 Trees provide wildlife corridors across urban landscapes, which can provide important links between rural habitats.

4. Tower Hamlets Townscape

4.1 Geography

Tower Hamlets covers an area of less than 8 square miles. The Thames forms the southern boundary (the London Boroughs of Greenwich, Lewisham and Southwark are Tower Hamlets' riparian neighbours) with the London Boroughs of Newham to the east, Hackney to the north and the City of London to the west. Tower Hamlets has a population of over 295,000 and has one of the highest population densities in London. This is projected to rise to approximately 365,000 by 2026.

4.2 Building and Development

Its proximity to the City of London and the emergence of Canary Wharf as an international financial, which has attracted major residential development, has meant that the Borough's economy and built environment has undergone transformational structural change. A large proportion of development in London is now taking place in Tower Hamlets, building on the success of Canary Wharf. The *London Plan* anticipates that a large number of new jobs will be created in the area over the next 10 years. GLA Economics indicates that jobs have increased by 121,000 between 2001 and 2016. This is set to continue with the continued expansion of Canary Wharf, the City Fringe and Leaside resulting in one of the highest daytime workforce densities in the UK.

Consequently, Tower Hamlets is a heavily developed area characterised by a significant number of large scale developments, where new homes on brownfield (predominantly industrial sites) are higher rise, denser developments. Around 90% of households do not have access to a private garden.

4.3 Parks and Open Spaces

There are 140 parks and open spaces managed by Tower Hamlets council, which comprise approximately 19,000 trees. A key feature of many of the Borough's parks is the Victorian and Georgian legacy, with their historic character defined by large London Plane trees within squares and along avenues. Tower Hamlets is among the most deficient Boroughs in London for open spaces. This, partnered with approximately 90% of households not having access to a private garden, means the council considers the conservation of existing trees and the provision of a stable and well managed tree stock to be critical to improving the environment of the Borough.

4.4 Highways Tree Population

There are 6,000 highways trees managed by the council. Given available space, the number of suitable pavements in which to plant are limited and the ability to establish new trees is levelling off. The Highway's tree stock is 'young', with 70% of trees recorded as being less than 60 years old. The most widely planted tree on our roads is the London Plane (30%) followed by Cherry (17%). Overall, the younger tree stock is more diverse as a result of the council planting a much wider range of tree species over the last 10 years.

4.5 Church, Cemetery and Closed Site Tree Populations

The majority of trees within closed cemeteries and Church sites are mature, with 42% over 60 years in age. This is expected as mature London Plane trees are prominent on these historic sites.

5. Tree Maintenance

5.1 Tree Inspections

Trees are dynamic living organisms and as a result can pose a risk to public health and safety. Whilst the council cannot remove all risk associated with its tree stock, the council aims to implement procedures to ensure these risks are adequately mitigated.

5.2 To ensure a safe, healthy tree stock and to maintain trees to proportions appropriate to their context, all trees are cyclically inspected by a qualified Arboriculturalist.

5.3 The frequency of these inspections differs dependent on the location of the tree and its target area. This was recently reviewed and amended in light of the case law ruling in *Cavanagh vs Witley Parish Council*, which indicated there is an expectation that large trees in falling distance of the public realm should be inspected every two years and where possible, during alternating seasons to ensure key tree health and safety indicators can be assessed.

5.4 To ensure all trees are appropriately managed in accordance with this case law ruling and Health and Safety Executive (HSE) guidance on tree management, an overall assessment of risks from trees has been carried out to identify groups of trees by their position and degree of public access. As a result, all trees have been marked as either high target or low target trees.

5.5 High target trees are defined as trees within falling distance of a public highway or play equipment and are inspected by a qualified Arboriculturalist every 18 months or sooner. Play equipment is defined as all outdoor equipment managed by the private sector or any play equipment managed by the council in line with the Register of Play Inspectors International (RPII).

5.6 Low target trees are defined as all other trees managed by the council which do not meet the requirements to be managed as a high target tree. These trees are inspected by a qualified Arboriculturalist every 36 months or sooner.

5.7 In cases where trees need to be inspected more frequently than their associated inspection schedule due to them posing a higher health and safety risk, this is 'flagged' on the council's arboricultural management software and a more appropriate inspection schedule is recommended considering the trees health, condition, position and degree of public access.

5.8 This is particularly applicable for trees which have been recorded as having Oak Processionary Moth (OPM) or Massaria.

OPM: All trees recorded as having OPM are inspected twice a year. Each of the council's infected trees are sprayed by the Forestry Commission in May to try to mitigate caterpillar emergence. This is currently fully funded by the Forestry Commission. In June, the council receives a statutory notice from the Forestry Commission enforcing the removal of OPM nests of all known infected trees. In July, the council inspects all the Oak trees which we know to be infected and record any OPM nests. In August, an order is raised with an accredited service provider to remove all OPM nests. This is funded using the council's tree maintenance budget. In September we provide the Forestry Commission with all the necessary documentation

required to meet our statutory obligation. Should Forestry Commission requirements change, we may reconsider this approach (Appendix D).

Massaria: All trees recorded as having Massaria are inspected annually. The council is currently keeping a record of all trees with Massaria. This is a flexible record, which is continuously updated as trees are inspected in line with the council's cyclical tree inspection schedule. These trees are then placed on a 12 month cyclical inspection schedule to monitor each tree's health and condition. This is a visual inspection carried out from the ground by a qualified Arboriculturalist. Each inspection will inform any necessary tree works which are to be carried out as a priority. Recommendations include, but are not limited to, a crown clean to remove all dead, diseased and defected branches from throughout the crown and a climbing inspection report, which is used to confirm the presence and/or severity of Massaria in the crown if not possible from the ground (Appendix D).

5.9 The Tower Hamlets tree inspection frequency table explains this below:

	Play Areas	Highways	Other
18 Months	Yes	Yes	-
36 Months	-	-	Yes

5.10 All tree inspections are recorded using arboricultural software, used specifically to manage a large tree stock. This provides the council with a platform to plot and store information for all council managed trees across the Borough. This specialist software also provides the council with a comprehensive database to refer to when making future tree management decisions.

5.11 Tree Works Recommendations

All tree works recommendations are made by a qualified Arboriculturalist, with a minimum Arboricultural qualification of a level 3 or equivalent, following a comprehensive visual tree inspection. All tree inspections are carried out from the ground. Where necessary, an aerial inspection will be carried out to further assess areas of the tree which cannot be reasonably assessed from the ground.

5.12 All recommendations are made and recorded using specialist arboricultural software and the *Tree Hazard Rating Evaluation and Treatment System (THREATS)*, an arboricultural risk assessment tool, is used to help prioritise when these works should be carried out. This enables a consistent approach to tree management decisions and ensures that all works are carried out within an adequate timeframe and in line with arboricultural best practice. All recommended tree works are carried out within 12 months of being inspected.

5.13 The council's tree works service provider is tasked with carrying out all tree works on council owned and managed trees. It is important that the service provider has adequate insurance cover. The council requires the following insurance as a minimum to ensure that they and the council are adequately covered when carrying out tree works across the Borough.

- Employers liability: £10m
- Public liability: £5m
- Professional Indemnity: £5m

5.14 All works are carried out in line with *British Standard 3998 Tree Work Recommendations*. The council's Arboricultural Officers are responsible for quality checking a sample of all works issued on a monthly basis. The sample of works checked will amount to a minimum of 20% of the total invoice amount submitted by the service provider each month.

5.15 Pruning Trees

The council prunes its tree stock to ensure they are healthy and safe, to maintain them to proportions appropriate to their context and to ensure they are compliant with all relevant legislation.

5.16 Where trees have been managed as pollards, these trees will be cyclically pruned every 3 years. Pollarding is a tree management technique used to reduce and maintain a trees size through the cyclical cutting of new growth back to the original pollard point. Once a pollarding cycle has been instigated, it is important that it is regularly maintained (pruned every 2-4 years in line with industry best practice) as regrowth is dense and rapid. As a result of this, branch unions can be weaker leading to a higher likelihood of failure if the regrowth is not appropriately maintained.

5.17 It is recommended that tree pruning is carried out during the dormant season (during the winter). The council endeavors to achieve this where possible, as this ensures optimum conditions for tree health and growth. This also reduces the impact on residents, lowers the cost of waste removal and mitigates the impact on surrounding wildlife, particularly nesting birds.

5.18 The bird nesting season officially runs from March until August inclusive and it is recommended that where possible tree works are carried out outside of the nesting season.

5.19 Where this is not possible, a pre-works survey is carried out by a competent person prior to any tree works being undertaken to avoid impacting on nesting birds and infringement of the *Wildlife and Countryside Act 1981* and breaching the *European Habitats Directive 1992* and *Nesting Birds Directive*.

5.20 As a general rule, it is always assumed that birds are nesting in trees and it is the responsibility of the tree works service provider to inspect, record and confirm that all works carried out on trees and other vegetation has not disturbed actively nesting birds.

5.21 In the event that nesting birds are identified in a tree where works have been recommended to be carried out, these works will be postponed until after the bird nesting season has finished. A re-survey of the tree will then be carried out prior to works commencing.

5.22 The council does not carry out works on trees with actively nesting birds, except in safety critical circumstances.

5.23 The council does not routinely prune trees for the following reasons:

- To reduce tree litter e.g. falling leaves, fruit, blossom.
- To increase light levels.
- To mitigate litter from insects and birds e.g. bird droppings, honeydew/sap.

- To improve satellite/TV reception.
- To mitigate hay fever by reducing pollen levels.

5.25 However, the Council strives to maintain good relations with its residents and business users and manage all trees in a positive and proactive way. Therefore, this will be reviewed on a case by case basis, where sufficient mitigating evidence has been provided.

5.26 **Why we remove trees**

The council has a duty under the *Town and Country Planning Act* to protect valuable trees. This duty is informed by the *National Planning Policy Framework*, the *London Plan* and the *London Mayor's Urban Forest Plan* and *Woodland Framework*. Together, these policies and guidance documents place a significant value on mature, large canopy trees.

5.27 The council's Arboricultural section receives many requests to remove healthy trees which are not upheld based on this legislation, national policy and guidance.

5.28 Where the council removes trees and the removal is not urgent i.e. the tree does not pose an imminent threat of failure, tree felling notices are erected a minimum of 1 week prior to the felling being carried out. Notices are attached on or near to the tree in question and outline the planned works and the date in which they are going to be carried out.

5.29 The council will only routinely remove trees for the following reasons:

- Where a tree is dead or dying and poses a significant health and safety risk.
- Where a health and safety defect can only be addressed through removal, such as disease or infection caused by a pathogenic decay fungus.
- The tree is proven to be causing structural damage and its removal is recommended in consideration of financial risk to the council.
- The tree is proving obstructive to or is substantially damaging the footpath and no alternative engineering solution exists. A cost comparison using the *Capital Asset Value for Amenity Trees (CAVAT)* tool to value the tree will be used in these circumstances.
- In the interests of maintaining good arboricultural practice for woodland areas or groups e.g. Woodland thinning.
- Where the tree is causing harm to important non-woodland wildlife habitats.
- As part of a Planning Application where suitable mitigation is provided, impact on amenity is minimal and results in a net gain or overall improvement in tree cover and is fully compliant with *Local Plan policy D.ES3*.
- As part of Highway Improvement Scheme where suitable mitigation is provided, impact on amenity is minimal and results in a net gain or overall improvement in tree cover.

5.30 Where street trees with a stem diameter of 8cm or greater are scheduled to be removed, the council has a Duty to consult as set out in the *Environment Bill*. The consultation period will last 6 weeks and notification of any proposed works will be advertised on the tree itself and on the council's website, using a Forestry Commission pro-forma.

5.31 This duty to consult is only applicable for street trees, which are defined as any tree located on a public highway which has street lighting or has a speed limit of 30mph or greater.

5.32 Where the following exemptions are applicable, the council will not be required to consult. This decision will be at the discretion of the council's Senior Arboricultural Officer:

- Dead trees.
- Diseased trees causing an immediate health and safety risk.
- Where a Plant Health Notice has been served.
- Where planning consent has been granted to remove the tree.
- Where a tree is causing an obstruction in contravention of the Highways Act 1980 and the Equality Act 2010 and all engineering solutions have been exhausted.
- Trees with a stem diameter at breast height of <8cm.

5.33 **Subsidence**

The council will not consider the removal of trees in relation to alleged subsidence without tangible evidence that the tree is causing, or significantly contributing to, the damage. The council follows the London Tree Officer's Association *Joint Mitigation Protocol* and expects that claimants adhere to the same. Suitable evidence and geo-technical assessment are required and will usually include all or some of the following:

- Independent geotechnical survey including trial pit and soil profiles.
- Independent report upon level of and nature of foundations of structures involved.
- Soil moisture tests at various depths below foundation level.
- Independent evidence of soil desiccation.
- Independent evidence of the implicated trees live roots being present below the level of depth of the foundation.
- An independent structural report providing evidence of actual damage including crack monitoring records.
- Evidence of progressive building movement.
- Details of other vegetation within the potential zone of influence.

5.34 **Capital Asset Value for Amenity Trees**

The *Capital Asset Valuation for Amenity Trees* (CAVAT) tool is designed to provide councils and other Public Authorities with a basis for managing publicly owned trees in the UK as public assets rather than liabilities. It is designed not only to be a strategic tool and to aid decision-making in relation to the tree stock as a whole, but also to be applicable to individual cases, where the value of a single tree needs to be expressed as a monetary value.

5.35 Where the council has agreed a compensation package following a CAVAT valuation, all monies received are to be used to adequately offset any loss resulting from the removal of trees.

6. Tree Planting

6.1 Urban Design Principles

New planting should be considered within the local urban context. Trees can have a profound effect on the appearance, character and function of an area. Therefore, new planting should consider the design and use of location and adhere to the Right Place Right Tree principle.

6.2 Composition and Spacing

It is important to consider how newly planted trees will relate to and impact on the surroundings. Street trees planted give the streetscape visual identity and can enhance the street scene, framing desirable views and hiding undesirable views.

6.3 Scale and Proportion

The size and number of trees, when fully grown, will have an impact on the surrounding townscape.

6.4 The height of any immediately adjacent buildings should be considered. The Department for Transport's publication, *Manual for Streets (2007)*, states that streets with the height: width ratio under 1:1.4 are generally unsuitable for tree planting. This is an urban design principle the council will follow when selecting tree planting locations.

6.5 Site Considerations

Tower Hamlet's public realm is required to support an increasing range of activities and intensity of use. Trees have an integral place within the public realm, but are not appropriate in all circumstances.

6.6 In parks and open spaces, constraints on tree planting may include the presence of other vegetation or important wildlife habitats and the proximity of buildings or infrastructure, such as CCTV.

6.7 On the highway, trees should not be planted where they will obscure street furniture or sight lines, where they will cause obstruction to the free movement of people and vehicles, or where they will infringe on surrounding buildings and infrastructure.

6.8 To ensure this, the following considerations will be made prior to selecting an appropriate street tree planting location and species:

- Overall tree size, canopy shape and canopy density.
- Position and intended function of street furniture.
- Pedestrian flows.
- Highway traffic.
- Pavements widths.
- Proximity of buildings or infrastructure.

6.9 Where new highway layouts take place, consideration will be given to providing adequate space to plant large growing trees.

6.10 Pavement Width

The council will ensure there is sufficient pavement width to allow the unimpeded passage of people, including those using prams, wheelchairs or mobility scooters. The

minimum path width of 2 meters will be adhered to, in accordance with the guidance in *Manual for Streets*. The tree pit can be included in this measurement if it is surfaced with resin-bonded gravel which provides a smooth, level and useable surface.

6.11 Narrower, historic streets exist in Tower Hamlets with narrow pavements where modern dimensions may not be achievable. Exceptions on such streets are possible, where pedestrian traffic is low, although a minimum footway width of 1.2 meters will be maintained.

6.12 Private land, such as pavement lights, or forecourts, cannot be included in this measurement as permitted development rights can allow the land to be removed from highway use.

6.13 Streets in retail areas have much higher levels of pedestrian traffic than residential streets. The requirement to maximise unimpeded pavement width is therefore paramount in these locations.

6.18 Residential Amenity

The amenity of residents will be considered when identifying planting locations and choosing tree species, including the impact on windows of residential living rooms, bedrooms and kitchens. Mature trees can block daylight and sunlight, particularly to windows on lower floors and in basements, lowering the quality of life for residents.

6.19 Where possible, trees will be located on the boundary lines between buildings, to avoid the blocking of windows in residential buildings. In addition, the council will avoid planting directly outside doors, gates or entrances onto the pavement.

6.22 Services

Any excavation in Tower Hamlets should be planned and carried out with caution. A visual appraisal of the site will give an indication of the services beneath the surface. However, the absence of above ground apparatus must not be taken as evidence that no services are present.

6.23 In all instances, a trial pit should be dug to determine the presence of services and any encountered will be recorded. A viable tree pit will be free from services. Trees will not be planted above or adjacent to power cables, to avoid potentially fatal incidents.

6.29 Tree Species Selection

Urban street trees are subject to greater stresses than undisturbed trees. Stresses include higher temperatures; disturbed soils contaminated with road salt; restricted root runs; mechanical damage to roots, trunks and branches; and poor supplies of water. All these factors can shorten a trees expected life span.

6.30 This section considers some of the characteristics to be considered when selecting a species to plant. More detailed information on tree species used in Tower Hamlets is provided in Appendix C.

6.31 Native Tree Species

Parks, cemeteries and housing estates provide the space and conditions for the creation of native habitat. Native trees, such as Birch, may be suitable for street tree planting however native species with suitable characteristics for street planting are limited. Therefore, it is likely that a significant proportion of new street tree planting will comprise non-native species.

6.33 **Overall Size, Shape and Form**

Selecting the right size of tree for the site is essential. This is particularly important in residential areas where trees can dominate adjacent residential properties and create excessive shade.

6.34 A variation in the shape and form of trees should be prioritised. Where there is greater abundance of space a single large, impressive 'landmark tree' would be preferred.

6.35 Another important consideration is canopy density. 'Open canopy' trees such as Silver Birch possess relatively small leaves that are carried on well-spaced branches. The result is a canopy that is partially transparent, allowing dappled light to filter through.

6.36 'Closed canopy' trees tend to have closer branching and larger leaves. Trees such as Whitebeam have fully opaque canopies that cast dense shade, making them suitable for screening but in some environments can create a gloomy atmosphere and block views.

6.37 **Pests and Diseases**

Well-grown, healthy trees are less susceptible to disease than trees in poor health or under stress. The optimisation of good growing conditions should therefore be prioritised. Appropriate species selection aids this, as some species are less prone to pests and disease. It is therefore important to avoid tree species which are known to host pests and diseases harmful to human and animal health, such as Oak Processionary Moth or that have expensive ongoing management costs, such as Massaria.

6.38 **Ecologically Harmful Species**

Some tree species, including Tree of Heaven and False Acacia, are identified as invasive non-native species. Other species can be harmful to wildlife in other ways, for example most non-native limes have nectar that is toxic to bees. These species will not be planted.

6.39 **Other Characteristics**

Some trees produce an excess of fruits that create street litter and can be poisonous, aggravate asthma or irritation, or produce unpleasant smells. The council will avoid planting trees such as these, and trees that produce thorns, on the public footway.

6.40 Tree species with well-known propensity for 'brittle branches', such as narrow-leaved Ash, will be reserved for sheltered sites or low target areas.

6.41 **Tree Planting Methodology**

All tree planting is carried out during the planting season, which runs from October to April each year.

6.42 The minimum stock size planted across the Borough is heavy standard, in line with BS3936. These trees are approximately 3m high when planted, with a stem diameter at breast height of approximately 14cm.

6.43 In parks trees are planted and secured with four wooden stakes and ties and a wire mesh cage, with bark mulch spread around the base.

6.44 For highways trees a bespoke tree pit specification has been engineered in collaboration with the council's Arboricultural and Highways Teams and Green Blue

Urban, an independent urban tree planting specialist (Appendix E) and in line with Policy 7.20 of the *Local Plan* to ensure the provision of accessible services are accessible to those with physical impairments. This has been designed to improve young tree establishment rates, increase the number of viable locations for street tree planting across the Borough, help reduce localised flooding and mitigate costs to the council from tree root growth.

6.45 A summary of how this will be achieved is set out below:

6.46 An increase in young tree establishment rates:

A larger 2m³ tree root space will be created for each tree and filled with a high grade soil mix. This area will be enclosed by a cage to prevent heavy compaction from footfall, vehicles and machinery and is designed to encourage root growth into the favourable rooting areas and away from the highway and services. A hard standing, resin bound, permeable surface finish on the footpath and an aerated curb inlet, will encourage water run-off from the footpath and road into the tree pit, which will significantly improve each tree's access to water and nutrients.

6.47 Increased number of viable street tree planting locations:

The hard standing, resin bound surface finish used with this design will significantly reduce the hard standing surface area required to plant a standard tree. This will help provide new tree planting locations in areas that have previously been ruled out due to narrow path widths.

6.48 Reduction in localised flooding:

A hard standing, resin bound, permeable surface finish on the footpath and an aerated curb inlet, will encourage water run-off from the footpath and road into the tree pit at surface level. This will maximise the potential for the tree pit to trap and attenuate a reasonable volume of water run-off, which in turn will water the tree and reduce the pressure on the conventional surface drainage system. This will contribute significantly to the council's flood risk mitigation plan, outlined in the *Local Plan*.

6.49 Mitigate costs incurred by the council from tree root growth:

The installation of a tree root director and root barrier will direct roots into a favourable root space area underground and away from the highway and nearby structures and properties. This will mitigate the number of personal injury and property damage claims the council receives and significantly reduce the costs incurred by the council each year to repair damage caused to the highway by tree root growth.

6.50 Where possible, planting in containers should be avoided as climate change will exacerbate the inherent problems of the lack of available moisture in the small soil volumes without artificial, unsustainable irrigation.

6.51 Irrigation

All newly planted trees are regularly watered by the council's service provider during their first 3 years, to help them to establish in their new location. Each tree receives 50L of water per week, from the beginning of April to the end of September. Watering is split 50:50 between the irrigation tube and watering bag.

6.52 Tree Replacement Schedule

The council will endeavour to replace all council owned and managed trees that are removed each year. Where like for like replacements are unsuitable, an appropriate species and/or location will be chosen for replanting.

6.53 Where young trees fail to establish, these are replaced the following planting season by the council's service provider at no additional cost to the council.

6.54 Ceremonial Planting

The council provides a Ceremonial Tree Planting Service across all parks and open spaces in the Borough. This service includes tree purchase, planting, staking and a three year tree maintenance plan to help the tree to establish. The tree maintenance plan includes watering, formative pruning, the loosening of stakes and ties and tree replacement in the event a tree fails to establish within its first 3 years.

6.55 Tree species, planting location and the date and time of planting are all to be agreed with the council's Arboricultural Officer. Once these have been agreed a Ceremonial Tree Planting Request Form is to be completed and returned. This is provided by the council's Arboricultural Officer.

6.56 The council does not allow plaques or flowers to be left at the tree in any of our parks and open spaces.

6.57 Tree Donations

The council does not accept tree donations. Whilst the council is grateful for the offer of donated trees from individual members of the public and companies, due to our duties under the *Plant Health Act (2009)* and the Government's *Tree Health Management Plan (2004)*, the council will only plant trees grown at a reputable nursery which meet the relevant bio-security policy.

7. Trees and Planning and Development

7.1 Trees and Planning and Development

All planning decisions pertaining to trees will be made in line with policy D.ES3: Urban Greening and Biodiversity in the Tower Hamlets *Local Plan* and policy G7: Protection and enhancement of trees and woodlands in the *London Plan*.

- 7.1 The council will apply stringent, professional arboricultural principles to all Planning and Development Applications and Tree Works Applications relating to trees protected by either Conservation Area status or by a Tree Preservation Order (TPO).
- 7.2 The council will insist on the retention or replacement of all trees for all planning and development proposals. Any trees lost as a result of development will be adequately mitigated for through replacement planting upon completion of the development.
- 7.3 The council requires a minimum tree replacement ratio of 1:1 for developments which result in the removal of trees. Tree replacement may be required at a higher ratio to ensure adequate mitigation. All replacement planting will be located within the development boundary. However, where this cannot be achieved suitable locations near to the development will be identified. Replacement species and tree numbers will be made using the Urban Greening Factor in policy G4: Local green and open space and considering the Local Biodiversity Action Plan (LBAP), the protection of protection of *Sites of Importance for Nature Conservation* (SINC's) and to ensure net gain biodiversity as set out in policy G6: Biodiversity and access to nature of the *London Plan*.
- 7.4 If a development results in the removal of council owned trees and suitable replanting cannot be achieved, a payment will be made to the council using the Capital Assets Valuation of Amenity Trees (CAVAT) valuation system. This is a nationally recognised methodology of valuing amenity trees, to give them a monetary value. Payments received using this methodology will be used for replacement planting and associated establishment costs in the Borough.
- 7.5 To ensure that due protection is given to important and high value trees, the council requires all applications for Planning and Development to provide the following information, in accordance with British Standard 5837:2012 *Trees in relation to design, demolition and construction* and the *National Planning Policy Framework* (NPPF).

Pre-application stage

- Tree survey
- Tree retention/removal plan
- Consideration for protected wildlife species

Planning Application stage

- Tree survey
- Arboricultural Impact Assessment (AIA)
- Tree retention/removal plan, detailing retained trees and their Root Protection Areas
- Any proposed level changes
- Hard and soft landscape design plans including any replacement tree planting

- Arboricultural Method Statement (AMS)
- Details of all special engineering within RPAs
- Details of utility apparatus and installation
- Schedule of works to retained trees
- Arboricultural site monitoring schedule
- Post construction remedial works

7.6 **Tree Works Applications**

The council requires notification of all tree works proposed for trees protected by conservation area status or by a Tree Preservation Order.

7.7 **Trees in Conservation Areas**

In conservation areas, the local planning authority must be given six weeks' notice of any proposals to carry out works on trees that have a stem diameter of more than 75mm when measured at 1.5m from ground level.

7.8 Notification should be submitted via a S211 Tree Works Application Form which can be found on the Tower Hamlets [website](#) and on the online [Planning Portal](#). Alternatively this form can be requested from the council's Planning Development Control team. The council will register, assess and respond to all notifications within 6 weeks.

7.9 The council will review the application and respond in one of three ways;

- Allow the proposed works
- Negotiate and agree alternative works
- Serve a Tree Preservation Order to prevent the proposed works

7.10 Anyone who has not received a response to their application within the six week period is advised to contact the Planning Department to ensure they operate within the law.

7.11 **Tree Preservation Orders**

Anyone wishing to undertake works to a tree subject to a Tree Preservation Order are required by law to make a formal application to the Borough. The relevant forms can be [downloaded](#) or requested from the council's Planning Department. Forms that are incomplete or lacking sufficient information to determine the proposal will not be registered. Once the application has been registered, it will be assessed and a decision notice will be issued within 8 weeks detailing the outcome of the process.

7.12 Tree owners carrying out permitted development to their property adjacent to protected trees may also require permission before starting work. This would usually be restricted to when development is likely to lead to the severing of roots or branches to facilitate the build. It is recommended that residents seek advice from the Local Authority Planning Department prior to carrying out any works.

8. Sustainability Considerations

8.1 It is important to consider the effect trees have on the urban landscape and the role they play in mitigating the effects of climate change. This section considers some of the opportunities across the Borough where trees can help create a more sustainable urban environment. An urban tree is defined as a tree which is growing within a city or town.

8.2 Below are some of the key benefits of urban trees:

- Urban Landscaping with trees can help improve the aesthetics of an area.
- Trees act as filters for pollutants and fine particles, helping to reduce respiratory disease and illness.
- Trees can help to mitigate climate change through Carbon sequestration. This is a process which removes carbon dioxide from the air during the photosynthetic process.
- Spending time near trees can improve physical and mental health and wellbeing.
- Strategically placed trees help reduce the 'urban heat island' effect by creating important shaded areas. Urban areas have a much higher core temperature than surrounding rural areas due to human activity and increased shading from trees helps to reduce this and subsequently mitigate climate change.
- Trees are used as a buffer to reduce noise pollution.
- Trees provide important habitats and food sources for an extensive range of biodiversity. They also create wildlife corridors across urban landscapes which provide important links between rural habitats.

8.3 Biodiversity

Trees native to the UK are best for biodiversity, as they generally support a wider range of species than introduced trees. Large and older trees will support more plant and animal species than small or young trees of the same species. Veteran trees are particularly important for biodiversity as they have the potential for bat and bird roosts, owing to cracks and holes that develop in the tree from decay over time.

8.4 Non-native tree species can also be of biodiversity benefit, especially those that produce nectar-rich flowers and/or fruit. Double-flowered cultivars of trees are generally less valuable for biodiversity because they produce little or no nectar or fruit.

8.4 Our parks, open spaces and cemeteries offer the greatest opportunity for the planting of native species, as there are few native species which are suitable for street tree planting. Where possible and without conflict to other design intentions, native trees should be considered for street tree planting.

8.5 Where possible the council will retain deadwood for habitat. This includes 'dead sticks' or monoliths (dead trees left standing with their main limbs and branches removed), the stems of felled trees left in situ and deadwood left within the canopies of trees. Consideration of the potential risk associated with falling stems or logs rolling out of place will determine where this is viable. This will only be possible in secluded locations such as woodland areas, where there is a low risk to the public.

8.6 The council does not offer tree related products, such as wood chip, to the general public as these are reused by the service provider at their convenience. This is of benefit to the council as it removes the associated storage and waste disposal costs.

8.7 **Climate Change**

The current climate in the UK is characterised by the absence of extremes of heat and cold. There is a consensus amongst experts that temperatures will increase, summers will be hotter and drier, winters will be warmer and wetter and there will be an increase in the number of storms and floods.

8.8 The *London Climate Change Adaptation Strategy* predicts that “climate change will affect London’s trees in a number of ways. It has the potential to increase mortality, particularly amongst newly planted trees, from heat and drought. Increasing soil moisture deficit may lead to increased (and frequently unjustified) concern about the impact of mature trees on the foundations of adjacent buildings. Increased winter rainfall may raise water tables enough to kill roots. The predicted rise in temperature would extend the range of pests and diseases and favour insect development and their winter survival”.

8.9 As a consequence of warmer and shorter winters, trees are not having a sufficiently long period for dormancy, at which time they can shut down and absorb moisture from the winter rain. A shortage of winter rain has compounded this. Trees in enclosed pits may begin to struggle to find sufficient water to remain healthy and certain species, such as beech, birch and ash may not cope well with these climatic changes.

8.10 The *London Climate Change Adaptation Strategy* states that mature, existing woodlands are relatively robust, and in the medium term climate change is not likely to have a serious adverse impact on existing trees, albeit increased drought stress may shorten their lifespan. Over time, the species composition of London’s forests may change as the changing climate benefits some species and hinders others. There may be little that can be done to prevent the gradual ecological change and species composition in woodlands.

8.11 It is likely that urban areas will warm more than rural areas. This is known as the ‘heat island effect’. Buildings and hard surfaces absorb heat from the sun and reradiate the stored heat energy back into the atmosphere. The result of this can be higher temperatures, particularly at night, and in enclosed areas (including under tree canopies) in comparison to suburban and rural areas. The current maximum surface temperature of woodlands is 18oC, compared to 31.2oC in town and city centres.

8.12 Periods of unusually high temperatures are predicted to become more frequent and last longer, with town and city centres predicted to experience a bigger temperature rise than rural areas. Green infrastructure, in the form of street trees, parks, and private gardens have a significant role to play in reducing the urban heat island effect.

8.13 Shade provided by trees can keep hard surfaces cooler than unshaded areas by several degrees, especially when located close to buildings. They also act as natural cooling systems through the process of evapotranspiration.

8.14 While it is recognised that not every street is suitable for trees both in terms of practicality and urban design, maximising the opportunities to plant larger growing shade trees will assist in the moderation of high summer temperatures.

8.15 **Air Quality**

A green, clean city requires an integrated design and trees with appropriate qualities have a role to play in improving air quality in Tower Hamlets. A good mix of trees (and other plants) is best to minimise this and the principle of “right tree, right place” needs to be implemented when making selections. Species selection should consider future pressures, such as excessive shade and litter once fully established and trees will be of a shape and form which will allow them to reach their intended proportions without significant ongoing pruning.

Appendix A

Details of national, regional and local policy framework for Arboriculture.

National Policy Framework

Occupiers Liability Act 1957 and 1984

This Act lays down a duty for occupiers (landowners or managers) to take reasonable steps to ensure that premises (including woodland) are reasonably safe for visitors permitted to be there. Reasonable steps are usually taken to mean that the Council (in this case), will conduct a regular inspection of tree health and condition and carry out any necessary remedial works. The amount and timing of remedial work is usually considered as that which is reasonably practicable to achieve.

Highways Act 1980

The Act covers laws associated with the public highway. Section 154 deals with trees and shrubs located on private land; it gives the Council powers to serve a notice on the owners of trees, which are deemed to constitute a danger to the users of the highway. This includes dangerous trees that could fall on to the road, or trees and hedges that block a driver's view or interfere with the light level from adjacent streetlamps.

Health and Safety at Work Act 1974

The Health and Safety at Work Act 1974 places a duty on employers and the self-employed to ensure, as far as is reasonably practicable, that their work does not affect the health, safety and welfare of others. The control of risks that may affect the health and safety of the public may lead to the temporary exclusion from general areas where tree work is being conducted. Risks would not only apply to use of chainsaws and heavy machinery, but would also apply to noise and control of harmful substances hazardous to health, such as fuel or emissions

Miscellaneous Provisions Act 1976

This Act contains legislation in sections 23 and 24 that enables the Council to deal with dangerous trees on private property. This legislation would only be applicable if a tree was dangerous and the owner refused to make it safe. The Council can serve notice upon the owner to make the tree safe. If the notice is ignored, the Council can enter on to private property in order to make safe the offending tree(s).

Town and Country Planning Act 1990 (TCPA)

This Act contains legislation, which imposes a duty upon the Council to protect trees or tree groups and woodlands by the serving of Tree Preservation Orders (TPO). The TPO prevents anyone from pruning or felling protected trees without first obtaining permission from the LA; anyone considering felling or pruning without such permission should consider a potential unlimited fine, which the courts could impose. Without this legislation many of our mature trees would have been lost. Additionally, the TCPA prevents the immediate pruning and felling of trees growing within conservation areas. Conservation areas provide special architectural or historic interest identified by the Council under the Planning (Listed Buildings & Conservation Areas) Act 1990. There is a statutory duty to preserve and enhance the character or appearance of such areas. Unlike private residences, the Council is exempt from the requirement to submit a notice for works to work upon its own trees, which grow within conservation areas.

Equalities Act 2010

This Act contains legislation in section 20 that requires the Council to make reasonable adjustments to ensure obstacles, such as trees, are removed or altered or a reasonable means of avoiding an obstacle is provided which does not disadvantage anyone.

Health and Safety Executive

This document provides guidance for HSE Inspectors and LA Enforcement Officers on the management of the risk of falling trees or branches and outlines:

- The standards for managing the risk from trees, including risk assessment and where appropriate, routine checks by a competent person. Duty holders should have such systems in place to control risks from trees to their employees, contractors and members of the public.
- Handling these issues and approaching enforcement decisions in accordance with the principles and expectations of the HSE Enforcement Policy Statement (EPS).

Environmental Bill 2020: Policy Statement

The Environment Bill has introduced a 'Duty to Consult' which will give the public the opportunity to understand why a street tree is being felled and express any concerns regarding this.

Well-Maintained Highways (2005)

This Code of Practice for highways maintenance management states that the appropriate frequency of inspections and works required for each individual street or mature tree should be based on assessment of respective risks.

“Roots and Routes” Department of transport

Annex C (informative) Government circular 52/75 Inspection of Highway Trees

Trees should be examined regularly for any signs of injury or decay which could lead to their becoming a hazard. The period between inspections and the degree of examination will depend upon age and history of the trees, surgery, disease, accidents.

Plant Health and Bio Security

Defra's Tree Resilience Plan is being developed to provide a structured approach to the assessment of risks to tree stock arising from pests and diseases. This plan will also include the prioritisation of actions to mitigate those risks. As this document is updated and published, the Council will review and implement relevant risk control measures.

The Arboricultural Association's Biosecurity Statement provides a clear suite of principles and actions that the professional tree sector should follow to reduce the risk of pest & disease introduction and spread. The Council and their Contractors will adhere to the principles set out in the document.

BS 8545: Trees: from nursesey to independence in the landscape

BS 8545 gives recommendations for transplanting young trees, with a view to achieving their eventual independence in any landscape. It specifically covers planning, design, production, planting and management of young trees.

BS 5837: Trees in relation to design, demolition and construction

BS 5837:2012 provides recommendations relating to tree care, with a view to achieving a harmonious and sustainable relationship between new construction/existing structures and their surrounding trees.

BS 3998: Tree work. Recommendations

This standard gives general recommendations for tree work. It gives guidance on management options for established trees (including soil care and tree felling) and overgrown hedges. The principles of this standard may also be applied to some shrubs, which can have similar characteristics to trees. This standard considers the impact of work on an individual tree in relation to neighbouring trees, but does not cover overall management of tree populations. The need for tree work will sometimes become self-evident to tree owners and site managers during their regular duties. Tree work ideally forms part of a planned programme of management, which includes the successional planting of trees well-suited to their surroundings. Principles for assessing the potential advantages and disadvantages of various aspects of tree work are stated, where appropriate, in this standard. Where work is required, it is important for clients to be aware of both the advantages and disadvantages before deciding the course of action to follow.

BS 3936: Nursery stock. Specification for trees and shrubs

This standard sets out the quality and stock size standards for nursery trees.

Regional Policy Framework

The London Environment Strategy

The London Environment Strategy aims to protect and enhance the natural habitats of London and its broad variety of species, to secure and promote biodiversity. The overall goal of the strategy is to;

- Implement positive measures to encourage biodiversity action and promote the management, enhancement and creation of valuable green space.
- Incorporate biodiversity into new developments.
- Create further access to nature and environmental education.
- Increase tree canopy cover across London by 10% by 2050

London Tree and Woodland Framework

The London Tree and Woodland Framework is part of the Environment Strategy of the Greater London Authority. The overall goal of the framework is to ensure that;

- Existing tree stock and woodlands are managed and maintained to safeguard their current and future value to London.
- There is an increased awareness of the value of trees and woodlands to the health and wellbeing of all Londoners.
- The contribution of trees and woodlands to London's sustainability and quality of life for its visitors and residents is maximised.
- Natural regeneration and new planting in appropriate locations is encouraged to further enhance the contribution of trees and woodlands to London life.

The Urban Forest Strategy

The Strategy provides the vision and strategic direction for long-term education, planning, planting, protection and maintenance of trees, woodlands, green space and related resources in the City of London.

The London Plan 2016

Policy 5.10 Tackling the Effect of Climate Change, Policy 2.18 Green infrastructure: the multi-functional network of green and open spaces and Policy 7.21 which sets out the Mayor's policies and priorities in regard to trees and woodlands. It states that Trees and woodlands should be protected, maintained, and enhanced, following the guidance of the London Tree and Woodland Framework. It requires that high value trees should be retained and tree planting should be incorporated into new developments. It also sets the Mayor's target to plant 2 million new trees by 2025.

Emerging London Plan 2020

The emerging London Plan, which is due to be adopted in 2021, includes Policy G4: Local green and open space, which outlines provisions to protect and enhance local green and open space, particularly in areas of deficiency. Policy G5: Urban greening, which outlines provisions for major developments to contribute to the greening of London, including the Urban Greening Factor (UGF) which is a tool used to identify the appropriate amount of urban greening required in new developments. Policy G6: Biodiversity and access to nature, outlines provisions for Sites of Importance for Nature Conservation (SINC's) to be protected and for biodiversity enhancements which result in a net gain for biodiversity on new development sites. Policy G7: Trees and woodlands, outlines provisions for trees and woodlands to be appropriately protected to increase the extent of London's urban forest and increase overall canopy cover. This includes the new target to increase tree canopy cover in London by 10 per cent by 2050.

Local Policy Framework

Local Plan 2031

The Local Plan 2031 was adopted by full council on 15 January 2020 and supersedes the Core Strategy and Managing Development Document. Policy D.ES3 Urban Greening and Biodiversity includes a requirement for developments to protect and increase the provision of trees, through protecting all trees, including street trees, incorporating native trees, where possible and providing replacement trees where the loss/impact on a tree in a development is considered acceptable. This includes Policy 7.20 An Inclusive Environment where the design of the built environment and the provision of accessible services are accessible to those with physical impairments.

Policy SOWSI: Creating a network of open spaces, seeks to protect and enhance the Borough's valuable network of open spaces as well as promote the creation of new publicly accessible open spaces which are better connected and provide a wide range of opportunities for local communities and visitors in line with the Local Biodiversity Action Plan and the Open Space and Green Grid Strategies.

Tower Hamlets Strategic Plan

Priority Two: A Borough that our residents are proud to live in. Outcome 5: People live in a Borough that is clean and green. Use tree planting to improve our public realm including our parks and open spaces, so that they are more attractive and better used, including

improving local air quality by implementing the actions set out in our Air Quality Action Plan.

Tower Hamlets Open Spaces Strategy 2017-2022

The Tower Hamlets parks and open spaces strategy aims to ensure that the borough's parks and open spaces reflect the shared vision of the council and its partners: to improve the quality of life for everyone living and working in Tower Hamlets.

Tower Hamlets Local Biodiversity Action Plan

The Local Biodiversity Action Plan aims to protect and enhance Tower Hamlets' wildlife and biodiversity. It identifies priority habitats and species, sets objectives and targets for their conservation, and sets out how the Council and other stakeholders can help to deliver these targets. The habitats and species with relevance to Arboriculture are the planting of 3 or more native tree species per location, the planting of native black poplar species, the enhancement or creation of new woodland and the enhancement or creation of new orchards. These key aims will be considered and reported to the council's Biodiversity Officer as part of all tree planting initiatives the council undertakes.

Tower Hamlets Conservation Strategy 2017 - 2027

This strategy has been produced to support the Tower Hamlets Local Plan and aims to protect and enhance the Borough's heritage. This helps to protect Tower Hamlet's most important trees and ensures appropriate tree planting is carried out, which is in keeping with local design and heritage.

Tower Hamlets Air Quality Action Plan 2017-2022

Improve air quality across the Borough by improving green infrastructure in polluted areas by linking in with the Green Grid and Open Spaces Strategies and through improved planting schemes on development to ensure that no development will lead to any significant adverse air quality impacts.

Mayor of Tower Hamlets Liveable Streets Programme Pledge

The Liveable Streets programme aims to improve the look and feel of public spaces in neighborhoods' across the borough and make it easier, safer, and more convenient to get around by foot, bike and public transport. We also want to reduce people making 'rat runs' and shortcuts through residential streets to encourage more sustainable journeys and to improve air quality and road safety.

This includes plans to improve the green infrastructure of the borough, by significantly increasing tree numbers and canopy cover, contribute towards the Mayor of London's aim to increase tree canopy cover across London by 10% by 2050, as set out in the London Environment Strategy.

Mayor of Tower Hamlets Manifesto Pledge to Plant 1000 New Street Trees

The council is planting 1000 new street trees across the Borough as part of the Mayor of Tower Hamlets Manifesto Pledge to plant 1000 new street trees across Tower Hamlets and will contribute towards the Mayor of London's aim to increase tree canopy cover across London by 10% by 2050, as set out in the London Environment Strategy.

It is well evidenced that trees provide numerous health, social, economic and environmental benefits. This pledge aims to significantly increase the number of street trees across Tower Hamlets, in an attempt to combat poor air quality and improve health, social, economic and environmental outcomes across the Borough.

Where possible, tree species native to the UK will be planted and will be of a suitable size, shape and form to allow them to reach their intended proportions without significant or regular pruning. Other considerations, such as excessive shade and litter once fully established, have also been made when deciding tree species.

All the trees will be planted as Heavy Standard stock sizes, which are approximately 2-4m high when planted and will be on a 3 year maintenance schedule to help them to establish. This includes regular watering, formative pruning and the loosening and removal of stakes and ties when required.

All the newly planted trees will also be added to the council's cyclical tree inspection programme. This will ensure that each tree is inspected every 18 months by a qualified Arboricultural Officer to ensure they are safe and to recommend any necessary tree works.

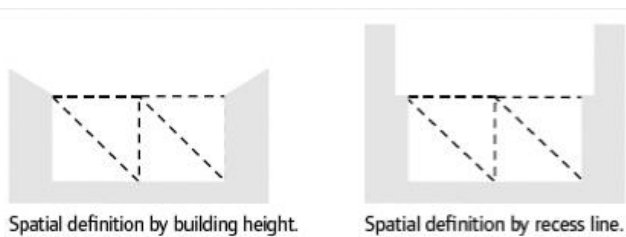
All tree works are carried out by the council's tree works service provider in line with British Standard 3998. This will ensure all the trees are healthy, safe and maintained to their correct proportions.

Appendix B

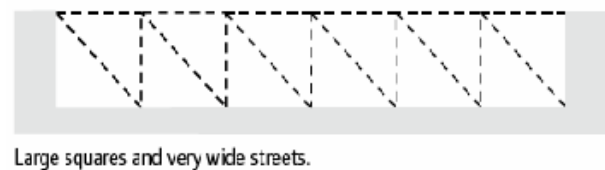
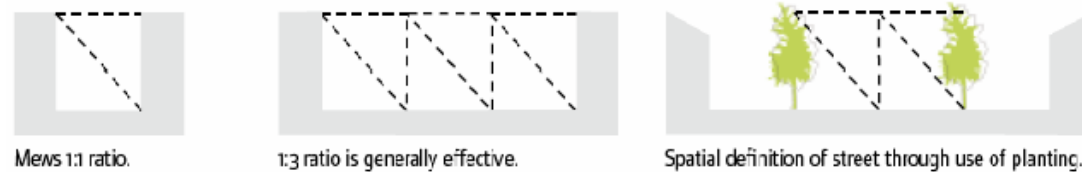
Minimum Streetscape Standards for Street Tree Planting

Height to width ratios

The basic urban design principles can be found in the Department for Transport's publication, *Manual for Streets 2 (2010)*. The public realm is defined by height as well as width – or, more accurately, the ratio of height to width. This is ascertained by taking the height of the building as it is perceived by users of the street - the illustration below shows a couple of examples. The width of the street should be measured from façade to façade in the widest and narrowest points, and an average taken.



The height of buildings (or trees where present in wider streets) is in proportion to the width of the intervening public space (1:2) to achieve a comfortable sense of enclosure. This is a fundamental urban design principle. The actual ratio depends on the type of street or open space. The height-to-width enclosure ratio illustrated below serves as a guide.



These required minimums are very useful when planning the development of large sites, with new streets, but Tower Hamlets has few areas where such development is likely to occur in the short or medium term. Many of our existing streets were not designed to modern standards, and there is simply insufficient width to provide a minimum of 2m clear for pedestrians. Nevertheless, this is our aim, balanced against the benefits of providing street trees, in order to avoid not only inconvenience, but danger that can occur by encouraging stepping into the carriageway.

Where this is not practical, we revert to The DfT's *Inclusive Mobility*, which states: "A clear width of 2m allows two wheelchairs to pass one another comfortably. This should be regarded as the minimum under normal circumstances. Where this is not possible because of physical constraints 1.5m could be regarded as the minimum acceptable under most circumstances, giving sufficient space for a wheelchair user and a walker to pass one another. The absolute minimum, where there is an obstacle, should be 1m clear space. The maximum length of restricted width should be 6 metres. If there are local restrictions or

obstacles causing this sort of reduction in width they should be grouped in a logical and regular pattern to assist visually impaired people.

It is also recommended that there should be minimum widths of 3m at bus stops and 3.5m to 4.5m by shops though it is recognised that available space will not always be sufficient to achieve these dimensions.”

Trees therefore will never be planted in the footway when the tree (taking account of any expected incremental enlargement of the trunk) is likely to reduce pedestrian clearances to less than 1m. The tree pit itself cannot be included in the measurement of clear width unless the surface is useable by a wheelchair. If resin-bound aggregate is used as a pit surface, then it can be classed as clear width, otherwise the measurement must be taken from the edge of the pit to the edge of the public highway (not necessarily the building façade).

Trees should not obstruct pedestrian sightlines. In general driver sightlines also need to be maintained, although avenue planting can be used as a tool to increase perceptions of speed and thereby limiting traffic speeds.

New planting should consider the function of existing street furniture such as streetlights and CCTV cameras, as foliage can block lights and images. Tree planting should respect these primary functions, and where street furniture cannot be relocated, the location of planting should be reconsidered.

When choosing a specific location in these streets an important consideration is how content the tree will be. This includes how close to its natural proportions can it grow (it should be able to grow to at least look ‘natural’), and what will it contribute to, or harm, in the street scene when fully grown, for example shade, pedestrian impediment, colour, obstruction of views or important buildings, or habitat for particular fauna.

The ability of the tree to co-exist alongside services is a crucial factor. The size of the space available above and below ground will be a key factor in species choice. Pit dimensions should provide the tree with as much space to become established as far as is possible and practical given its location. New planting techniques have been developed to assist street tree planting where there are space limitations, as is the case in much of Westminster. Such techniques include the use of root barriers, or specially formulated topsoil allowing the creation of larger planting pits, essential for the planting of what could become a characterful tree.

Appendix C

Commonly used tree species in Tower Hamlets

London Plane (*Platanus x hispanica*)

A magnificent, large deciduous tree growing to 20m+ with a large spreading canopy and flaking grey and cream bark. Grows well in all well drained soil types. It produces large palmate leaves to 20cm in width and inconspicuous flowers are followed by clustered, burr-like fruits.

Silver Birch (*Betula pendula*)

An elegant medium-sized deciduous tree, growing to 12m+, with slender drooping twigs. It grows well in all well drained soil types. It has white bark, becoming black and rugged at the base and produces green ovate leaves turning yellow in autumn.

Cherry species (*Prunus sp.*)

Prunus sp. are an attractive deciduous or evergreen tree with a bushy habit, growing to 12m tall when full grown. It grows well in all well drained soil types. It produces showy flowers in spring, and often good autumn foliage colour. Some have edible fruit in autumn and a few species have ornamental bark.

Fastigiated Hornbeam (*Carpinus betulus 'Frans Fontaine'*)

An attractive medium-sized deciduous tree, to 50ft/15m tall when fully grown, with a compact pyramidal habit. It is easy to grow and suitable for heavy, wet and chalky soils. It responds well to pruning and can be used for hedging, topiary and pleaching. It produces decorative catkins in spring and golden yellow autumn leaf colour.

Callery Pear (*Pyrus calleryana 'Chanticleer'*)

A tried and tested street tree, to 40ft/12m tall, with a narrow, triangular habit, white flowers in spring and glossy green deciduous leaves that turn burgundy and claret in autumn. This ornamental pear produces small, non-edible fruits in summer. It is suitable for most soils, very hardy and tolerant of drought conditions.

Small leaved Lime cultivar (*Tilia cordata 'Greenspire'*)

This is a hardy cultivar of our native small-leaved lime and it grows into a perfectly shaped street tree of upright habit with a narrowly oval crown. The eventual height is about 49ft 15m. It produces heart-shaped leaves, glossy green above and pale green, almost white beneath. *Tilia cordata* is less prone to aphid honeydew than other limes.

Crab apple (*Malus tschonoskii*)

This easily grown, deciduous, ornamental crab apple is the perfect tree for street planting in confined spaces. It has an erect conical habit and may reach 40ft/12m tall. It is hardy and produces white flowers in spring, greenish-yellow small apple-like fruits in summer and stunning orange, yellow, purple and scarlet leaf colour in autumn.

Turkish Hazel (*Corylus colurna*)

Turkish hazel is a striking deciduous tree, to 65ft/20m tall, with a symmetrical, pyramidal form which, in maturity, has corky corrugated bark similar to cork oak. It produces long yellow catkins in spring and clusters of frilly covered hazelnuts in autumn. It grows well in compacted soils and does not mind having its roots paved over. It thrives in all soils including chalk and clay.

Maidenhair (*Ginkgo biloba*)

This primitive tree is known from fossil evidence to have existed on Earth 300 million years ago. It is related to conifers but produces deciduous, fan-shaped leaves. In recent years it has become very popular for street planting. It is resistant to pretty much all pests and diseases, copes well with pollution, perfectly hardy and suitable for growing in most soils. It has a narrow, columnar habit and may reach 65ft/20m tall.

Fastigate Norway Maple (*Acer platanoides* ‘*Columnare*’)

This slow-growing cultivar of Norway maple may reach 65ft/20m tall and grows well in all soils including chalk. It is also very hardy and tolerant of air pollution and drought. It produces an oval compact form and makes a superb street tree because it requires virtually no pruning. In autumn its leaves turn a clear butter-yellow, sometimes splashed with red before falling.

Field Maple cultivar (*Acer campestre* ‘*Elsrijk*’)

Named after the park in Holland where it was discovered, this cultivar of our native field or hedge maple makes a regular, compact, oval-headed small tree, to 40ft/12m tall and is ideal for street planting. It grows well in all soils and is tolerant of soil compaction, air pollution and drought. Its small deciduous leaves turn a golden yellow in autumn.

Dawn Redwood (*Metasequoia glyptostroboides*)

This fast-growing deciduous conifer has become popular for street planting in recent years. It grows well in wet, well drained or chalky soils and is very tolerant of urban pollution. Although relatively recently introduced into Britain (post Second World War) some specimens have already reached 65ft/20m tall. However, with its narrow conical habit and light branching it casts little shade and requires no maintenance.

Chinese Privet (*Ligustrum lucidum*)

Chinese privet is a perfectly hardy, medium-sized (to 33ft/10m tall) evergreen tree with attractive, large, glossy, pointed leaves and long panicles of fragrant white flowers, which are borne in autumn. It produces a symmetrical compact dense head of light branches and readily responds to clipping and shaping. It grows in any well-drained soil (sand, loam or chalk) in either sun or partial shade and is disease-free.

Appendix D

Common and emerging tree pests and diseases in Tower Hamlets

Common Diseases

Massaria

A large proportion of Tower Hamlets' London plane trees are suffering from *Massaria*. *Massaria* is a fungal infection which is extremely difficult to identify from the ground, as the visible symptom of the disease is the formation of large lesions on the upper surfaces of branches. Plane trees infected by *Massaria* can suffer from rapid dieback of branches, which can cause branch drop.

Oak Processionary Moth (OPM)

OPM has been identified on a number of oak trees across Tower Hamlets, most notably at Mudchute Farm, Victoria Park and Tower Hamlets Cemetery. Trees known to have been infected are sprayed each spring to try to prevent the infestation and spread of the pest and all nests are removed and disposed of each autumn.

OPM is not only a threat to trees, but also to people and animals:

- Threat to Trees

OPM caterpillars can threaten the health of several species of oak trees (*Quercus* species) because they feed on the leaves. Large populations can defoliate, or strip bare, large parts of oak trees, leaving them vulnerable to attack by other pests and diseases, and less able to withstand stresses such as drought and flood. They will only feed on other trees if they run short of oak leaves to eat, and have been seen on hornbeam, hazel, beech, sweet chestnut and birch trees.

- Threat to people and animals

The caterpillars' thousands of tiny hairs which contain an urticating, or irritating, substance called thaumetopoein. Contact with the hairs can cause itching skin rashes and, less commonly, sore throats, breathing difficulties and eye problems. This can happen if people or animals touch the caterpillars or their nests, or if the hairs are blown into contact by the wind. The caterpillars can also shed the hairs as a defense mechanism, and lots of hairs are left in the nests, which is why nests should not be touched without protective clothing.

Ash Dieback

This is a serious disease of ash trees caused by the fungus *Hymenoscyphus fraxineus* (previously known as *Chalara fraxinea*). This disease causes leaf loss and crown dieback leading to decline and death, particularly in younger trees.

Acute Oak Decline (AOD)

Acute Oak Decline (AOD) is a new disease mainly affecting native oak trees in Britain and considered to have first made a presence in Britain 3035 years ago. It affects mostly English or pedunculate oak (*Quercus robur*) and sessile oak (*Quercus petraea*).

Affected trees have vertical, weeping fissures that seep black fluid down the trunk (stem bleeds). In the live tissue beneath the bleeds a lesion is formed. This is a sign of tissue decay. Some trees die four to six years after onset of symptoms.

“Bleeding Cankers” on Horse Chestnut trees

This is currently thought to be due to the bacterium *Pseudomonas syringae* and is widespread in the Borough. Although diseased trees can remain viable and structurally sound, trees in advanced stages of the disease are susceptible to branch or stem failure. The Council will assess diseased trees on a case by case basis, but will fell the tree if necessary, and may consider pre-emptive felling in high risk areas such as playgrounds.

Sweet Chestnut Blight

Sweet Chestnut blight is a plant disease caused by the ascomycete fungus *Cryphonectria parasitica*. This pathogen has caused severe epidemics resulting in the death and dieback of American sweet chestnut (*Castanea dentata*) in North America and European sweet chestnut (*C. sativa*) in continental Europe. It was first identified in North America in the early 20th century, in Europe (in Italy) in 1938, and in the UK (southern England) in 2011. *C. parasitica* infection is usually fatal to European and North American sweet chestnut trees.

Brown Tailed Moth

The larvae are dark brown and hairy with a series of white marks down the side and a characteristic pair of orangey-red ‘warts’ at the rear end. They spend the winter months in tough webbing nests and emerge in spring to feed communally until around the end of May.

Although occasionally found on oaks, brown-tail moth larvae are much more common on hedgerow trees such as blackthorn and hawthorn or on scrubby plants, especially bramble. The hairs of these larvae can provoke an allergic reaction, so contact with the larvae or their nests should be avoided. The Council will remove nests and treat out breaks.

Emerging Pest and Diseases

Emerald Ash borer

Emerald Ash Borer (*Agilus planipennis*) is an exotic beetle pest. It is a member of the beetle family Buprestidae and causes significant damage to ash trees (*Fraxinus sp.*).

Although there is no evidence to date that EAB is present in the UK, the increase in global movement of imported wood, wood packaging and dunnage poses a risk of its accidental introduction.

Plane tree wilt / canker stain of plane

The ascomycete fungus *Ceratocystis platani* originates from the eastern United States, and causes canker stain on a range of plane species including London plane (*Platanus x acerifolia*) and its parents, *P. orientalis* and *P. occidentalis*. *C. platani* is a wilt pathogen causing pronounced xylem staining and severe wilting and tree death.

The pathogen was accidentally introduced on infected crating material from the eastern United States through a number of southern European ports during World War II and spread rapidly through Italy and into Switzerland. Although its progress through France was initially slower, recent reports confirm the fungus is spreading northwards at a much faster rate than in the previous decade. It was also recently reported in Greece.

Xylella fastidiosa

Xylella fastidiosa is a bacterium which causes disease in a wide range of woody commercial plants such as grapevine, citrus and olive plants, several species of broadleaf trees widely grown in the UK, and many herbaceous plants.

Xylella fastidiosa affects its host plants by invading their water-conducting systems, moving both upstream and downstream. In so doing, it restricts or blocks the movement of water and nutrients through the plant, with serious consequences, including death, for some host plants. Although *Xylella* is not known to be present in the UK, there is a heightened risk of its being accidentally introduced since it was first discovered in Italy in 2013 and since then in mainland France, Portugal and Spain, as well as Corsica and Majorca.

Appendix E

Highways Tree Pit Specification

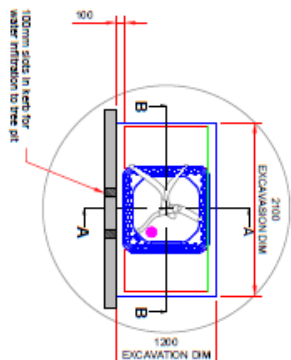
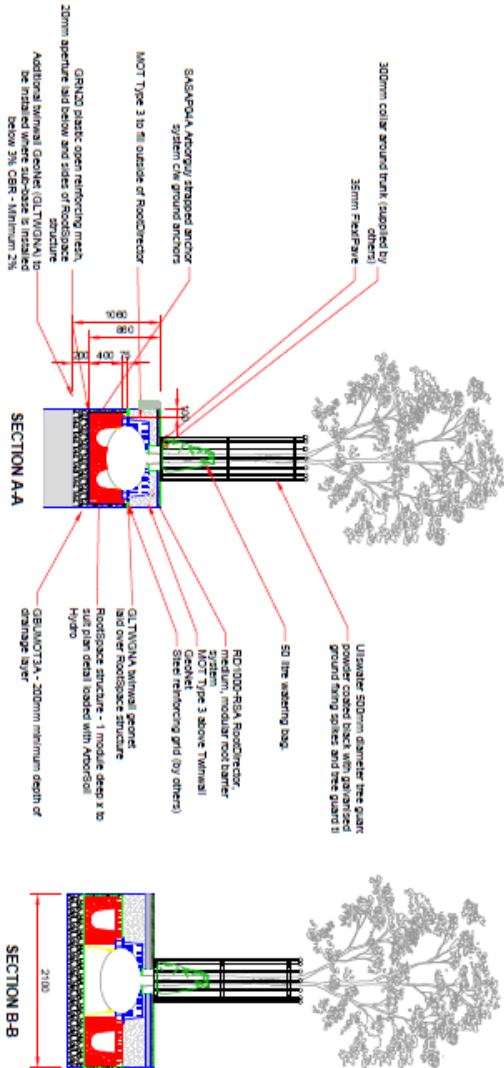
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 *Please note due to the soil volumes being sub-optimal GreenBlue Urban cannot be held liable for any failures to the trees. GreenBlue Urban do not recommend the tree pit design as a long term solution. The trees should only be planted in to soft landscape strips with hard paving around the perimeter.

Installation instructions

- Excavate to minimum 1.0m depth - plan tree pit size to be minimum of 2.1m x 1.2m in plan at the base
- Put MOT type 3 in base of pit for drainage and stability - 800mm from finished surface level and completely flat level
- Lay GRN20 open reinforcing mesh over base of pit
- Install RootSpace legs which are 1.0m apart for root ball zone (exclude RootSpace lids at this stage)
- Use perimeter of pit with GRN20 open reinforcing mesh - to come up to surface level
- Install the ArborGuy anchor pit system to base of pit and the ends up so they don't get buried.
- Build up MOT type 3 around external perimeter of pit on outside of GRN20 and then Hydrosoil topsoil (specification important for managing of water run off) inside pits trodden in lightly within the pit in layers. Up to top of RootSpace leg level
- Place lids onto RootSpace units
- Place RootDirector into tree pit zone (with Guy wires inside)
- Place GLTWIGNA twin walled geonet over RootSpace and lap up outside of RootDirector slightly
- Backfill inside RootDirector with Hydrosoil topsoil (specification important for managing of water run off) and on outside of RootDirector with MOT type 3 ready for Flexipave surface.

Note:

It is important that the Flexipave surfacing is not laid right up to the trunk of the tree to allow for long term growth.



PROJECT
 TOWER HAMLET STREET TREE PROGRAMME
 DRAWING TITLE
 TREE PIT SYSTEM INSTALLATION SMALL VOLUME TREE PIT ROOTSPACE - CWV SUDS CAPABILITY

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 LB0TH
 DRAWING NUMBER
 03606-003607-003

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 DATE
 JAN 20
 SCALE
 1:50 @ A3
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Appendix F

References and Contacts

Royal Parks, Why are trees so important?

<https://www.royalparks.org.uk/parks/the-regents-park/things-to-see-and-do/gardens-and-landscapes/tree-map/why-trees-are-important>

London Plan 2016, updated 2017:

https://www.london.gov.uk/sites/default/files/the_london_plan_2016_jan_2017_fix.pdf

Emerging London Plan, publish date March 2020:

<https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/intend-publish-london-plan-2019>

Forest Research, Oak Processionary Moth (*Thaumetopoea processionea*):

<https://www.forestresearch.gov.uk/tools-and-resources/pest-and-disease-resources/oak-processionary-moth-thaumetopoea-processionea/>

London Tree Officers Association, A practical management guide to Massaria Disease of Plane:

<https://www.ltoa.org.uk/resources/pest-diseases/massaria-disease-of-plane-mdp>

Health and Safety Executive, Management of the risk from falling trees or branches:

https://www.hse.gov.uk/foi/internalops/sims/ag_food/010705.htm

National Tree Safety Group, Witley Parish Council v Cavanagh EWCA Civ 2232:

<http://ntsgroup.org.uk/123-2/>

FLAC, THREATS Tree Hazard: Risk Evaluation and Treatment System:

<http://www.flac.uk.com/wp-content/uploads/2010/07/THREATS-GN-June-2010.pdf>

The Arboricultural Association, A brief guide to legislation for trees:

<https://www.trees.org.uk/Help-Advice/Public/A-brief-guide-to-legislation-for-trees>

British Standards Institution. 1990. BS3998:2010 Tree Work. *Recommendations for citing and referencing published material*. Milton Keynes: BSI.

The Tree Council, Section 5: Managing and Caring for Trees:

https://www.treecouncil.org.uk/Portals/0/TCHandbook_5_Care.pdf

Highways Act 1980, Section 154:

<http://www.legislation.gov.uk/ukpga/1980/66/section/154>

Highways Act 1980, Section 41:

<http://www.legislation.gov.uk/ukpga/1980/66/section/41>

Wildlife and Countryside Act 1981, Chapter 69 Part 1 Wildlife Protection of birds:

<http://www.legislation.gov.uk/ukpga/1981/69>

European Habitats Directive 1992, Species protected under the Habitats Directive:

https://ec.europa.eu/environment/nature/conservation/species/habitats_dir_en.htm

The Birds Directive:

https://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

Register of Play Inspectors International:

<https://www.playinspectors.com/about-us/>

Town and Country Planning Act 1990, Tree Preservation Orders and trees in conservation areas:

<https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas>

National Planning Policy Framework:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

London Mayor's Urban Forest Plan:

<https://www.london.gov.uk/what-we-do/environment/parks-green-spaces-and-biodiversity/trees-and-woodlands>

London Environment Strategy:

https://www.london.gov.uk/sites/default/files/london_environment_strategy_0.pdf

The London Trees and Woodland Framework:

<https://ltoa.org.uk/documents-1/tree-strategy-guidance/47-jim-smith-london-trees-and-woodland-framework-manager/file>

Capital Asset Valuation for Amenity Trees (CAVAT):

<https://www.ltoa.org.uk/resources/cavat>

Environment Bill 2020, policy statement:

<https://www.gov.uk/government/publications/environment-bill-2020/30-january-2020-environment-bill-2020-policy-statement>

London Tree Officers Association, *Joint Mitigation Protocol*:

<https://www.ltoa.org.uk/resources/joint-mitigation-protocol>

Westminster City Council, Trees and the Public Realm: Draft Supplementary Planning Document 2009.

Department for Transport, Manual for Streets 2007:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/341513/pdfmanforstreets.pdf

Equality Act 2010, Maintaining and protecting public rights of way and Access and equality for disabled users:

<https://www.gov.uk/guidance/public-rights-of-way-local-authority-responsibilities#maintaining-and-protecting-public-rights-of-way>

British Standards Institution. 1990. BS8545:2014 Trees: From nursery to independence in the landscape. *Recommendations for citing and referencing published material*. Milton Keynes: BSI.

British Standards Institution. 1990. BS3936:1992 Specification for trees and shrubs. *Recommendations for citing and referencing published material*. Milton Keynes: BSI.

British Standards Institution. 1990. BS5837:2012 Trees in relation to design, demolition and construction. *Recommendations for citing and referencing published material*. Milton Keynes: BSI.

Plant Health Act 1967:

<https://www.gov.uk/guidance/tree-health-legislation>

Tree Health Management Plan 2014:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/307299/pb14167-tree-health-management-plan.pdf

Planning Portal:

https://www.planningportal.co.uk/info/200126/applications/60/consent_types/14

London Environment Strategy, Chapter 8: Adapting to climate change:

https://www.london.gov.uk/sites/default/files/adapting_to_climate_change.pdf

London Climate Change Adoption Strategy 2010:

<https://www.cityoflondon.gov.uk/services/environment-and-planning/sustainability/Documents/climate-change-adaptation-strategy-2010-update.pdf>

Department for Communities and Local Government, *Guidance on high hedges*:

<http://www.communities.gov.uk/planningandbuilding/planning/treeshighhedges/highhedges/>

Green Blue Urban, Building Green Cities:

<https://www.greenblue.com/gb/green-infrastructure/forest-vs-city/>

Green Blue Urban, Benefits of Urban Trees:

<https://www.greenblue.com/gb/green-infrastructure/benefits-urban-trees/>

Green Blue Urban, Sustainable Urban Drainage:

<https://www.greenblue.com/gb/green-infrastructure/sustainable-urban-drainage/>

Green Blue Urban, Trees & Climate Change:

<https://www.greenblue.com/gb/green-infrastructure/trees-climate-change/>

Occupiers Liability Act 1957:

<http://www.legislation.gov.uk/ukpga/Eliz2/5-6/31/section/2>

Occupiers Liability Act 1984:

<http://www.legislation.gov.uk/ukpga/1984/3>

Health and Safety at Work Etc. Act 1974:

<http://www.legislation.gov.uk/ukpga/1974/37>

Miscellaneous Provisions act 1976, Sections 23 and 24:

<https://www.legislation.gov.uk/ukpga/1976/57>

Greater London Authority, Right Trees for a Changing Climate:

<http://www.right-trees.org.uk>

The Value of Different Tree Species for Invertebrates and Lichens:

http://www.countrysideinfo.co.uk/woodland_manage/tree_value.htm

Patterson, A (2003) *Best Trees for your Garden*. Firefly Books. Royal Horticultural Society

Uk Roads Liaison Group, Well-maintained Highways 2005:

<http://www.ukroadsliaisongroup.org/en/UKRLG-and-boards/uk-roads-board/wellmaintained-highways.cfm>

“Roots and Routes” Department of transport

Annex C (informative) Government circular 52/75 Inspection of Highway Trees

Defra Tree Health Resilience Plan 2018:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/710719/tree-health-resilience-strategy.pdf

The Arboricultural Association’s Biosecurity Position Statement:

<https://www.trees.org.uk/Trees.org.uk/media/Trees-org.uk/Documents/AA-Biosecurity-Policy.pdf>

Tower Hamlets Local Plan 2031:

<https://www.towerhamlets.gov.uk/Documents/Planning-and-building-control/Strategic-Planning/Local-Plan/Final-Local-Plan-v10.pdf>

Tower Hamlets Core Strategy:

<https://www.towerhamlets.gov.uk/Documents/Planning-and-building-control/Strategic-Planning/Local-Plan/Core-Strategy-and-MDD/Core-Strategy-low-resolution.pdf>

Tower Hamlets Managing Development Document:

<https://www.towerhamlets.gov.uk/Documents/Planning-and-building-control/Strategic-Planning/Neighbourhood-Planning/Managing-Development-Document-April-2013.pdf>

Tower Hamlets Local Biodiversity Action Plan:

<https://democracy.towerhamlets.gov.uk/mgConvert2PDF.aspx?ID=152854>

Tower Hamlets Open Spaces Strategy:

https://www.towerhamlets.gov.uk/lgnl/leisure_and_culture/parks_and_open_spaces/open_space_strategy.aspx

Trees and shrubs native to Britain:

<https://www.rhs.org.uk/advice/profile?PID=848>

Fruit trees choosing the best:

<https://www.rhs.org.uk/advice/profile?pid=972>