



Tree Planting Scheme

Date

December 2018

Site

Upper Parliament Street
Toxteth
Liverpool

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Executive Summary

A tree landscaping plan has been designed to be read with the Arboricultural Impact Assessment. This document aims to advise and guide a tree planting scheme that will ensure the continuation of the green infrastructure affected by the proposed development. The tree loss would firstly be seen from Upper Parliament Street where trees line both sides. They also currently provide screening for the residential housing to the south from the busy street.

The end product of this report would result in the replacement of the tree line that currently exists along Upper Parliament Street. In addition it will screen the existing residential housing from the proposed housing as well as greening the rear parking area. Additionally two tree lined walkways leading from the Street to the parking area would further break up the urban environment.

As a result of the proposed development 42 trees have been highlighted for removal with an additional 15 on the grounds of health and safety. Therefore, a total of 44 trees are proposed for planting around the new developments with an addition 15 in the area to the west. This proposes a total of 59 trees to be planted as a result of the proposed development.

The proposed tree planting scheme will aim to replace any previously removed vegetation providing a better low maintenance green infrastructure with greater longevity than the previous tree population. This ensures a greater green infrastructure than what currently exists enhancing a better urban environment for the future. This will focus on trees that will add aesthetics to the existing tree population to be retained, create screening for the neighbouring residents and for the potential new residents. These trees should be planted in accordance with BS 8545 2014 Trees: from nursery to independence in the landscape recommendations.

Modern day tree planting pits designed by Green Blue Urban have been proposed for use. These systems facilitate lateral growth of the roots so as to maximise the trees ability to access water and nutrients. This in turn aids and quickens the trees establishment allowing for its continuous coexistence in the urban environment. These will house the root balled or containerised containers with girths of 18-20cm and 20-25cm 1m from the ground.

The recommended tree species are Silver Birch, Fastigiated English Oak, Fastigiated Hornbeam Wild Service Tree and Columnar Lime. These have been chosen for the fastigiated form allowing for upward growth minimising maintenance and increasing the chances of longevity as they can avoid pruning which can damage the tree. They have also been selected because they are native and provide ecological and conservational benefits. Additionally providing good aesthetics with autumn colour and striking bark.

For a successful green infrastructure that will provide instant greenery the following will be required.

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1.0 Introduction

- 1.1 Survey in conjunction with BS 8545 2014 *Trees: from nursery to independence in the landscape recommendations*. To be carried out after the completion of the new development, preferably in the dormant season. The removal of the green infrastructure around the proposed developments is important to make the area safe and to facilitate the construction.

- 1.2 This tree management plan contains recommendations for preparation, tree selection, aftercare with a conclusion discussing tree selection and final choice.

Planting Methodology

- 1.3 The purpose of the tree planting is to provide good aesthetics for the new and existing residents and passing public. Providing screening, privacy and to enhance the current landscape for the residents for many years to come.

Preliminary Management Recommendations

- 1.4 The sourcing of tree stock should be taken into account; adhering to British Standards 3936 Nursery stock specification and the sourcing of local provenance, also referring to BS 8545 2014 *Trees: from nursery to independence in the landscape recommendations*.

Limitations

- 1.5 Due to global warming and current weather conditions it is difficult to assess the correct tree species for the location also 100% retention of newly planted trees can be difficult to obtain. However it should be noted that success of the newly planted trees will depend more on the follow up of post management operations than the weather.

2.0 Site Evaluation and Constraints Assessment

Site Context

- 2.1 This is a very busy urban area, especially towards Upper Parliament Street which can experience vast amounts of traffic each day. To the south of the proposed area for development are the rear gardens of several residential properties with their living accommodation beyond. Near to the proposed is a school as well as the Liverpool Womens Hospital. The wooded area to the west has been retained and will provide urban greening.

Site Constraints

- 2.2 Two areas are of concern, firstly neighbouring residential buildings, secondly Upper Parliament Street, both have above ground constraints. Therefore it is recommended that only fastigiated trees be planted near the residential properties, this avoids constant pruning and maintenance of the trees away from the building and crown raising over the car parking and public walkways. The below ground constraints exists in every area of the development and the surroundings. Therefore Green Blue Urban Strata Cell Arborsystem® is required in the areas around the proposed development. However, traditional tree planting can be carried out in the other areas such as the green walkway and wooded area to the west.

Tree Benefits

- 2.3 The benefits of the planting and the retention of existing vegetation will aim to create screening from neighbouring residential properties, from passing public along Upper Parliament Street and suppress noise and air pollution created by the railway line.

3.0 Recommendations of BS8545, Size and Species Selection

British Standards 8545 2014

- 3.1 All trees and shrubs shall conform to the British Standard for Nursery BS 8545 2014 *Trees: from nursery to independence in the landscape recommendations* as published by the BSI. They shall be nursery grown “root-balled” or “container grown”, unless otherwise specified.

Tree Types

- 3.2 Four types of trees should be planted i.e. upper and lower canopy trees. The lower canopy species are the pioneer species listed below. These are quick growing and normally have a higher success rate, additionally their presence near to an upper canopy species can protect and encourage symmetrical growth with the longer lived tree species. Their location can be seen in [Drawing 2 Tree Planting and Protective Fencing](#) and [Drawing 3 Tree Planting around the existing westerly Wooded Area](#).

Longer Lived Dominant Tree Species

- 3.3 Tree plantings will require a Semi Mature size with a required girth of 20 - 25 cm. Container grown or root balled trees will require to be staked and secured with tree ties. The recommended tree species are **Fastigiated Hornbeam (*Carpinus betulus Fastigiata*)**, **Fastigiated English Oak (*Quercus robur fastigiata*)**, **Fastigiated Hornbeam (*Carpinus betulus Fastigiata*)**, **Wild Service Tree (*Sorbus torminalis*)** and **Columnar Lime (*Tilia cordata Greenspire*)**.

Shorter Lived Pioneer Tree Species

- 3.4 These tree plantings will require an Extra Heavy size with a required girth of 18-20cm. Container grown or root balled trees will require to be staked and secured with tree ties. This species type will be **Birch (*Betula pendula*)**. The Birch trees have been chosen for their aesthetical properties in providing autumn colour and decorative bark.

Tree Size

- 3.5 Trees are to be root balled or container grown specimens. Two sizes are recommended, firstly Extra Heavy 18-20cm girth at 1m is the recommended size for the Silver birch and trees planted in the green walkway between the two developments and wooded area to the west. The second size is Semi Mature 20-25cm girth at 1m is recommended for the Fastigiated Oak, Fastigiated Hornbeam, Wild Service Tree and Columnar Lime. This size is chosen for the trees to be planted in the Green Blue Urban **Arborsystem®**.

4.0 Tree transportation, storage, pre-planting

- 4.1 The roots of the tree are an important part of the trees ability to survive. They must be kept beneath the ground to remain moist. Exposure to the elements can quickly reduce their moisture and ultimately dry out the roots and in turn kill them. The longer the exposure time to the elements the less chance of the trees success. Trees are often doomed before they are planted. Keep the roots and root ball covered up during transport or even just prior to planting.
- 4.2 Before you start to dig make sure you have checked that there are no underground utilities (eg electricity, gas etc) where you plan to plant your tree.
- 4.3 It's important to get the hole the right size. It should not be too deep - trees should always be planted with the soil at the same level as it was in the nursery. It is better to plant too high than too low. Dig the hole a little deeper and then fill it back slightly to get the tree to the right level, don't forget to take account for settling of the soil. Your hole should be wider around 3 times the diameter of the tree's root ball. On heavy soils be sure to use a fork or the edge of a spade to break up the edges of the hole.
- 4.4 The placing of tree mycorrhizas fungi can benefit tree growth and quicken establishment. These can be purchased and placed at the bottom of the planting pit just before the tree is inserted into the ground.

5.0 Underground Tree Anchoring and Planting Pits

- 5.1 Trees planted in the green walkway between the proposed developments and existing wooded area to the west where there is an existing and established tree population. It is recommended that these trees are held in with a modern underground tree anchoring system. <https://www.greenblue.com/gb/products/arborguy/> maybe used with the large anchor strap system with drive in heavy duty anchors which will accommodate trees up to 40cm girth.
- 5.2 The preparation of planting pits is to be carried out only during periods of suitable weather. All trees and shrubs are to be planted in pits of the following minimum sizes. Tree pit sizes should be increased where necessary to ensure pits are at least 300mm wider and 75mm deeper than the tree root system when fully spread. Make sure your tree is straight and start to fill the hole back up. Some people advocate inverting the soil as you do this so that the top soil goes back in first and subsoil on top. Gently firm down the soil with your heel as you go and take care not to change the levels around the base of the tree. Remember the tree should be planted at the same level that it was at in the nursery.
- 5.3 Newly planted trees need a lot watering. It is a good idea to include some sort of irrigation pipe in your planting scheme to ensure that all the water you put on the tree actually gets to the roots. Commercial products are available such as the “root rain”, or you can use a 3m length of perforated land drainpipe. Wrap it around the root ball and leave one end above ground. Otherwise a well-formed bowl of mulch around the root plate can capture the rain or hose pipe water, care not to wash away the mulch being on a slope.
- 5.4 One of the biggest threats to newly planted trees is competition from weeds. Clear an area around your new tree of any other vegetation - including grass. This should have a radius of at least 1m. You can use a layer of bark mulch or a mulch mat to help prevent weeds from growing in this area. This has the added advantage of slowing the rate of moisture loss from the soil. If you use bark or chippings take care not to heap them up around the base of the tree.
- 5.5 Installation of rabbit guards. These are biodegradable tubes installed for the first few years that are to be used on the small whips.
- 5.6 Tree planting within the new development will be installed with Green Blue Urban Arborsystem®. This system should be installed by suitably experienced staff who understand the principle of tree planting systems. Green Blue Urban carryout training and seminars on installation.

6.0 Post Planting, Mulching, Rabbit Guards, Formative Pruning & Watering

- 6.1** The after care is essential to the establishment of the newly planted tree. The planting up of new trees and species is something that should be continued in the sites tree management plan. This applies to the mulching, removing of tree stakes and formative pruning. 25% of newly planted trees die in the first year and up to 80% can end in fatality over the long term.
- 6.2** Mulching should be done every three to six months depending on the amount and quality of the mulch. Three to four inches of mulch can be applied at the base of the tree. Care should be taken not to mound the mulch up against the stem as this rots the bark and therefore becomes an entry point for fungi. This will suppress the weeds (Grass), which take up most of the nutrients and water and will also keep the moisture and the ground frost away. Newly planted trees will increase their survival rate massively by applying mulch correctly. If importing mulch in from an outside firm or tree surgeon then care must be taken. Sometimes fungal diseases, such as Phytophthora, honey fungus or other similar diseases can be within the mulch. Once these diseases are on site they can be near impossible to remove and can wipe out large areas of trees and shrubs. See appendix for standards on mulching. Tree stakes need only be in situ for two to three years to allow the roots to anchor and then they can be removed. It is common for newly planted trees to die and be strangled by their support. Trees stakes also are better attached a couple of inches from the ground as this allows the stem to flex and thicken naturally.
- 6.3** The survival and establishment of newly planted trees can be greatly improved by good maintenance. Simple plastic rabbit guards will prevent animals from eating the fresh leaves and stems of the newly planted trees. Apply mulch 3 to 4 inches thick around the root plate (care not to mound it up against the stem as this could induce rot to the newly planted tree). Replace every 6 to 12 months for a few years. The application of water in the dry summer months of newly planted trees will help new root systems develop and quicken establishment of the trees to be able to survive themselves in later years. Newly planted trees will increase their survival rate greatly by applying mulch correctly.
- 6.4** Formative pruning should be carried out to avoid any larger pruning operations when the tree is larger and mature. This would involve the removal of crossing and rubbing branches as well as the removal of co-dominant leaders to produce one central apical stem.
- 6.5** The removal of the tree stakes and cutting them away from their posts on trees which have been planted 3 years or more.

7.0 Summary of Planting

- 7.1 A number of factors for a trees general aesthetics need to be considered. Firstly, the trees have been chosen not to outgrow their location or have spreading branches that will require constant pruning. Secondly, the trees are deciduous which will provide a lush green screening in summer months, vibrant colours in autumn and still provide colours in winter with the striking white bark of the Silver Birch. Additionally Hornbeam and Oak can hold their brown leaves in winter which creates all year round screening. The prime objectives of the tree planting is to create instant screening with trees that will establish and provide good longevity. They're screening in and around the parking area and green walkway will create privacy for the existing residence's south of the proposed development. Trees planted long Upper Parliament Street will re-establish the tree line that currently exists along this busy highway. Newly planted trees in the wooded area will add to the urban greening by creating variety of new species that will enhance the aesthetics and create greater longevity. Their location can be seen in [Drawing 2 Tree Planting and Protective Fencing](#) and [Drawing 3 Tree Planting around the existing westerly Wooded Area](#).
- 7.2 The Birch are pioneer which will grow quickly and have a high chance of establishment. They will provide fruit for the wildlife, have decorative bark and good autumn colour. These are quick growing, short lived understory species of tree. **Birch (*Betula Pendula*)** are the recommended tree species to be planted in between the longer lived tree species in the area between the two proposed developments to the east.
- 7.3 The second type of tree recommended for planting are the longer lived variety that will eventually be the large dominant species. There are mostly to be a variety of fastigiated trees with columnar growth. These will not produce wide spreading crowns with limbs and branches that all too often have to be pruned away from buildings or to allow access beneath etc. Recommended tree species for the longer lived variety of semi maturity size are **Fastigiated Hornbeam (*Carpinus betulus Fastigiata*)**, **Fastigiated English Oak (*Quercus robur fastigiata*)**, **Fastigiated Hornbeam (*Carpinus betulus Fastigiata*)**, **Wild Service Tree (*Sorbus torminalis*)** and **Columnar Lime (*Tilia cordata Greenspire*)**.
- 7.4 It is recommended that all trees in the green walkway between the proposed developments and existing wooded area to the west (where there is an existing and established tree population) are supported with a modern underground tree anchoring system. <https://www.greenblue.com/gb/products/arborguy/> maybe used with the large anchor strap system with drive in heavy duty anchors which will accommodate trees up to 40cm girth. These maybe 18/20cm and 20/25 girth and either root or container grown specimens.
- 7.5 All trees planted in and around the car park and along Upper Parliament Street will require the Green Blue Urban Arborsystem® and should be carried out by experienced operators. These maybe 20/25cm girth and either root or container grown specimens.
- 7.6 Four areas have been designated for planting. These are within the existing wooded area to the west, lining Upper Parliament Street, car park and Green walkway between the proposed developments.
- 7.7 25 trees will require the Green Blue Urban Arborsystem®. These are to be used all along Upper Parliament Street and within the car park area. However, the remaining will use the traditional tree planting technique in the other areas such as the green walkway between the two developments and wooded area to the west.

- 7.8** It's a shocking fact that 25% of all urban street trees that are planted by local authority die within the first few years. This can be for reasons of poor stock, transportation, preparation, planting pits or post-planting maintenance. Therefore, it is imperative that this report be read, understood and carried out correctly for the successful establishment of the trees being planted. Watering of newly planted trees in dry periods is essential. The best time of year to plant a deciduous tree is in the dormant season, between September to March. Conifers and evergreens may be planted September/October or April/May. Out of these recommended times the establishment and success rate dramatically reduce.
- 7.9** Trees should be monitored on an annual basis. Any trees that have died should be replanted with similar species. If a large amount of a single species should fail then another tree species should be selected and planted. Trees to be purchased from a reputable company who comply with British standards. Nurseries can be recommended on request.

7.10 Diagram summarising the schedule of priority



8.0 Tree Planting Data

8.1 New Trees within the Developments Green Walkway (one Lime next to T61)

No.	Tree Species	Size	Planting	Maintenance
3	Quercus robur 'Fastigiata' Upright English Oak	20/25 cm girth Container grown	Traditional tree planting method with underground guying	Mulched with composted wood chip or equivalent to 100mm. Adjust tie after the first & second seasons, remove stakes & ties at the end of the third seasons.
6	Tilia cordata 'Greenspire' Columnar Lime	20/25 cm girth Container grown	Traditional tree planting method with underground guying	Mulched with composted wood chip or equivalent to 100mm. Adjust tie after the first & second seasons, remove stakes & ties at the end of the third seasons.
8	Betula pendula Silver Birch	18/20 cm girth Container grown	Traditional tree planting techniques with underground guying	Mulched with composted wood chip or equivalent to 100mm. Adjust tie after the first & second seasons, remove stakes & ties at the end of the third seasons.
2	Fastigiated Hornbeam Carpinus betulus Fastigiata	20/25 cm girth Container grown	Traditional tree planting techniques with underground guying	Mulched with composted wood chip or equivalent to 100mm. Adjust tie after the first & second seasons, remove stakes & ties at the end of the third seasons.

8.2 New Trees within the Development along Upper Parliament Street and with the car park

No.	Tree Species	Size	Planting	Maintenance
7	Tilia cordata 'Greenspire' Columnar Lime	20/25 cm girth Container grown	Pit Planted using Green Blue Urban Strata Arbor System	Irrigate during the growing season; remove weeds/grass as necessary.
9	Quercus robur 'Fastigiata' Fastigiated English Oak	20/25 cm girth Container grown	Pit Planted using Green Blue Urban Strata Arbor System	Irrigate during the growing season; remove weeds/grass as necessary.
4	Sorbus torminalis Wild Service Tree	20/25 cm girth Container grown	Pit Planted using Green Blue Urban Strata Arbor System	Irrigate during the growing season; remove weeds/grass as necessary.
5	Fastigiated Hornbeam Carpinus betulus Fastigiata	20/25 cm girth Container grown	Pit Planted using Green Blue Urban Strata Arbor System	Irrigate during the growing season; remove weeds/grass as necessary.
14	Tilia cordata 'Greenspire' Columnar Lime	18/20 cm girth Container grown	Pit Planted using Green Blue Urban Strata Arbor System	Irrigate during the growing season; remove weeds/grass as necessary.
5	20/25 cm girth Container grown	Fastigiated Hornbeam Carpinus betulus Fastigiata	Pit Planted using Green Blue Urban Strata Arbor System	Irrigate during the growing season; remove weeds/grass as necessary.

8.3 New Trees amongst the existing wooded area to the west

No.	Tree Species	Size	Planting	Maintenance
10	Quercus robur 'Fastigiata' Upright English Oak	20/25 cm girth Container grown	Pit Planted using Green Blue Urban Strata Arbor System	Mulched with composted wood chip or equivalent to 100mm. Adjust tie after the first & second seasons, remove stakes & ties at the end of the third seasons.
1	Sorbus torminalis Wild Service Tree	18/20 cm girth Container grown	Pit planted supported by two low stakes, cross member& single tree tie	Mulched with composted wood chip or equivalent to 100mm. Adjust tie after the first & second seasons, remove stakes & ties at the end of the third seasons.
4	Tilia cordata 'Greenspire' Columnar Lime	18/20 cm girth Container grown	Pit planted supported by two low stakes, cross member& single tree tie	Mulched with composted wood chip or equivalent to 100mm. Adjust tie after the first & second seasons, remove stakes & ties at the end of the third seasons.