ARBORICULTURAL IMPACT ASSMENT For a proposed development

At

Upper Parliament Street Toxteth, Liverpool

For Submission to

Liverpool City Council

On the Instructions of: FMBUK Ltd

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Disclaimers

General - Trees

Unless otherwise stated tree inspections have been undertaken from ground level and using non-invasive techniques only. Comments on the condition and safety of any tree relate to the condition of the tree at the time of survey. It should be recognised that tree condition is subject to change due to, for example, the effects of disease, wind or nearby development works. Changes in land use are also significant in respect of risk assessment. Trees should therefore be inspected at intervals relative to identified site risks.

Unless otherwise specified, no checks have been carried out in respect of statutory controls that may apply, e.g. Tree Preservation Orders, Conservation Areas or planning conditions. In addition, prior to undertaking any tree works, it is necessary to ensure due diligence is followed in respect of protected species and habitats.

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1. Background and Introduction

1.1 A planning application has been submitted to Liverpool City Council (LCC) for permission to develop the eastern part of a site on Upper Parliament Street in Liverpool for residential accommodation with associated car parking. This will involve the removal of a number of trees to accommodate the development. Other trees would need to be removed as part of proper arboricultural management and the removal of some of these would facilitate the proposed development. The tree avenue effect to Upper Parliament Street (Photographs 1 & 2) would be removed to accommodate the development but this would be restored by planting a new avenue of trees post development.



Photos 1 & **2**: Two views of the tree avenue frontage of the site to Upper Parliament Street: **1** looking to the west / southwest; and **2** looking to the east /northeast.

1.2 This Arboricultural Impact Assessment (AIA) has been prepared to support the submission of the planning application. The trees have been surveyed and a detailed assessment made of any impacts of the proposed development on the trees to be retained on site and solutions to any impacts are provided. This AIA Report complies with the guidance contained in the relevant British Standard, **BS5837: 2012** '*Trees in relation to design, demolition and construction – recommendations'*.

2 The Site and Surroundings

- 2.1 The site is located on the southern side of Upper Parliament Street, Toxteth in Liverpool. It is bounded to the west with Mulgrave Street and Kimberly Close; to the north by Upper Parliament Street and the Liverpool Women's Hospital across the road; to the south by residential accommodation located on Kimberley Close, Verulam Close and Carlingford Close; and to the east with Princes Primary Special School which is off Kingsley Road.
- 2.2 The site is open and maintained as a public green space. There is a formal gateway entrance off Mulgrave Street (Photograph 3), with similar gated entrances off Kimberley Close, Verulam Close, Carlingford Close and Upper Parliament Street, (Photograph 4), all of which are linked via a footpath network.



Photo 3: The formal gate entrance off Mulgrave Street.



Photo 4: The formal gate entrance off Upper Parliament Street.

- 2.3 The site contains 91 trees that can be classified as individuals none of which are the subjects of any tree preservation orders. The site is not located within a Conservation Area but it is adjacent to two, i.e. Liverpool City Council Conservation Areas, No 2 Canning Street and No 24 Princes Road. In the past the site seems to have been the location of Georgian / Victorian housing that has been demolished and is now a public green space with trees and formal footpaths. The boundary with Upper Parliament Street is a raised bund with trees that provides a buffer to the busy road beyond (Photographs 1 & 2).
- 2.4 Many of the trees on the site seem to have been planted comparatively recently (within the last 30 years or so) as they comprise small specimens of alder, apple, aspen, cherry, horse chestnut and willow. The plantings are in groups with some individually located specimens (Photographs 5, 6, 7, 8, 9 & 10).

2 The Site and Surroundings (Continued)



Photos 5 & **6**: Two representative views of the group and individual trees planted across the site; both views are of the eastern part of the site looking to the west / southwest.



Photos 7 & **8**: Two further representative views of the trees at the western end of the site.



Photos 9 & 10: Examples of individual specimen trees that are in poor condition

3 The Trees & Impacts

3.1 The tree survey identified 91 individual trees across the entire site, a third of which are outside the area proposed for development and are therefore unaffected by the proposals. The individual trees have been categorised in line with the requirements of **BS5837: 2012** as set out in Table 1 of the Standard 'Cascade chart for tree quality assessment'. The categories of tree quality are colour coded and set out as:

`Trees unsuitable for retention – Category U'; and `Trees to be considered for retention – Categories A, B & C'

The numbers of trees and groups of trees in each category are shown in Table 1 below, and the detail on each tree is set out in the attached tree survey schedule. One tree (1) is in category A'; and three (3) trees are categorised as B'; 70 trees are category C'; and 17 trees are in category U'.

Description	Cat.	Tree Numbers	Total
Trees of high quality with an estimated Remaining life expectancy of at least 40 years,	A	T60	1
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	B	T15, T21 &T54	3
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	С	T1. T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T17, T18, T19, T20, T22, T23, T24, T25, T27, T30, T31, T33, T34, T35, T36, T37, T38, T40, T43, T44, T45, T46, T47, T48, T52, T55, T57, T58, T61, T62, T63, T64, T65, T68, T69, T70, T71, T72, T73, T74, T75, T76, T77, T78, T79, T80, T81, T82, T83, T84, T85, T86, T87, T88, T89 & T90	70
Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10years	U	T16, T22, T26, T28, T29, T32, T39, T41, T42, T49, T50, T51, T53, T56, T59, T66 & T91	17

Table 1: The	numbers of	f the trees	and	aroups	in each	category
	number 5 0		unu	groups	in cuch	cutegory

3.4 As stated at §3.1 above a third of the trees are located outside the area where development is proposed, i.e. Trees **T61** to **T91**. Of these two would need to be removed for sound arboricultural reasons, i.e. **T66** a regenerating whitebeam stump and **T91** which is a regenerating crack willow stump. One tree, **T79** is a cherry with a hanging branch and this would need to be pruned out.

3.5 Fifty seven (**57**) trees would need to be removed to accommodate the development as set out in Table 2 below, and as shown in the schedule of trees attached to this report. Of these, thirteen (**13**) would need to be removed for sound arboricultural management reasons irrespective of the development. Some are in decline, while others have been damaged extensively (Photographs 11 & 12).

 Table 2: Trees that would be removed to accommodate the proposed development

 T1, T2, T3, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T33, T34, T35, T36, T37, T38, T39, T40, T41, T42, T43, T44, T45, T46, T47, T48, T50, T51, T52, T54, T55, T56, T57, T58, T59 & T60.

The trees whose condition would dictate removal in any event are shown in red boldface type



Photo 11: Damage to the lower trunk of a willow



Photo 12: Poor specimens that are stressed and not developing well

3.6 The trees on the boundary of the site with Upper Parliament Street would be removed because they are located on a bund which would have to be levelled to accommodate the development. However, the tree avenue effect would be restored post development by planting **17** trees at roughly 8m centres along the frontage with Upper Parliament Street.

3.7 **Impacts on amenity of tree removal**

- 3.7.1 Removal of **57** trees at the western end of the site to accommodate the proposed development would have an impact on the visual amenities of the area. However, this could be mitigated by planting an informal avenue of eight (**8**) trees on the frontage with Upper Parliament Street.
- 3.7.2 There would be some minor loss of visual amenity of the views from the rear gardens of the properties on Carlingford Close, but this could be mitigated by new tree planting in and around the proposed car parking area. A total of eight (8) new trees would be planted within the car park and a further four (4) trees would be planted in the areas of open space directly behind the buildings and adjacent to the disabled parking bays.

3.8 **The impacts of the proposed construction on retained trees**

3.8.1 The impacts of the proposed development of the residential units, access road and parking area on the trees retained on the site would be minimal. Any impact would be mitigated by creating construction exclusion zones (CEZ) around the trees and preventing any construction works or activity from taking place inside the CEZ. The CEZ would be defined by protective fencing that conforms to that specified in BS5837: 2012, as shown in **Figure 1** and Photographs 13 & 14 below. The proposed locations of the protective fencing are shown on the attached tree constraints drawing DTCL.119.1.AIA.03.Rev.A





a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

Fencing Specifications: Fence panels shall be 2m high x 3m long.

As Heras[®] type fencing can be easily moved; it must be mounted on rubber or concrete base plates and secured as shown in Figure 1 above. In order to provide semi-permanent protection using stabilizing struts and base plates and the Heras sections secured by 'U-Bolts' or Scaffold Clamps as shown in the photographs below.





Photo 13: This shows close up of `U-Bolts' clamping the panels together

Photo 14: This shows the fencing in place around an individual tree.

3.8.2 Because the proposed construction would come close to the RPA of **T4** (*Robinia pseudoacacia*) and **T61** (*Platanus x hispanica (acerifolia)*) temporary ground protection to protect the RPA from construction activity would be installed as shown in Figure 2 below

Figure 2 Ground Protection for Construction close to the RPA



- 3.8.3 It is anticipated that the underground services to the site would connect to existing services at Verulam Close, Carlingford Close and possibly Upper Parliament Street. Therefore the provision of services to the development would not impact any of the retained trees or their root zones
- 3.8.4 Construction access to the site would be from Carlingford Close and thus this would not have any impact on the retained trees. The construction site compound would be located just beyond the entrance to the site off Carlingford Close as shown on the attached tree protection plan drawing (DTCL.119.1.AIA.03.Rev.A).

3.9 Additional Protection for the London plane tree (T61)

- 3.9.1 In addition to the protective fencing and the ground protection set out at §3.8 above, it will be necessary to site a footpath and a bin store close to the London plane tree that is **T61**. This will require additional methods to allow the tree to be retained safely and in good health. The location of the area requiring the additional protective measures is shown on drawing DTCL.119.AIA.03.Rev.A.
- 3.9.2 Because the tree is located at the base of a mound/bund and the development will be located on the east side it will be necessary to excavate the mound/bund to accommodate the development (Photograph 14A & B).



Photo 14A: This shows the location of **T61** at the base of the mound/bund with the location of the development arrowed.



Photo 14B: This shows the juxtaposition of T61 and the excavation line (arrowed yellow) and the area on the east side the tree that will have ground protection installed, squared red.

- 3.9.3 Before excavation of the mound/bund using mechanical plant the area of the root zone to the east of the excavation line (yellow arrows in Photographs 14A & B) would be excavated using compressed air via an Air Spade to a depth of 1000mm to expose any roots, please refer to **Appendix 1** for details of the Air Spade methodology.
- 3.9.4 Once the roots are exposed and large woody roots would be cut cleanly using a purposed produced hand saw and secateurs for smaller diameter roots. The exposed face of the pruned roots would be covered with good quality topsoil and protected with a geotextile membrane as shown in **Figure 3**.





Sketch Drawing Not To Scale – for Illustrative Purposes Only

- 3.9.5 Following the excavation and root pruning, but before the installation of the ground protection the entire root zone of **T61** would be decompacted using compressed air injected into the soil with the Air Spade and released at 20 30 bars. The part of the root zone not subject to ground protection would be treated with an organic mulch of composted wood chip, forest bark or equivalent to a minimum depth of 75 cm.
- 3.9.6 The tree would be subjected to a programme of tree health care (THC) using biostimulant fertilizers, mycorrhizal suspensions and Biochar.

3.9.7 The new footpaths can be installed in proximity to **T61** using a 'no dig' methodology that utilises a proprietary cellular confinement system. The systems recommended are the CellWeb[™] or ProtectaWeb[™] confinement systems which spread the load as detailed in **Appendix 2**. The final surface for the cellular confinement system shall either porous tarmac or block paviors.

3.10 New tree planting

- 3.10.1 The frontage to Upper Parliament Street would be planted with eight (8) trees to create an informal avenue effect. The car parking area would be planted with eight (8) new trees and four (4) trees would be planted in the areas of open space directly behind the buildings and adjacent to the disabled parking bays. Therefore 20 new trees in total would be planted. The locations of the new trees are shown on drawing DTCL.119.1.AIA.04.Rev.A
- 3.10.2 Because of the proximity of the new trees to the new construction and because some would be located within the car parking area, columnar or upright species are recommended. The species that would be planted are Upright/Columnar English Oak (*Quercus robur 'Fastigiata'*); Silver Birch (*Betula pendula*) and Wild Service Tree (*Sorbus torminalis*). All three species are native and would be beneficial for wildlife. Both the fastigate English oak and the Silver Birch are widely planted in Liverpool and thus are locally native. The columnar variety of the English Oak is just that, a native variety of English Oak. The wild service tree is also known as the 'Chequer Tree' because its edible fruits are called 'chequers'. It is native to the midlands and south and in recent years is being planted in Cheshire and the North West.
- 3.10.3 The trees would be root balled or container grown specimens at 18/20cm girth at one metre above ground level. They would be pit planted using the Green Blue Urban Strata Cell Arborsystem[®] which is a soil cell planting system developed specifically for trees planted in urban locations, which is shown in **Figure 4**.

Figure 3 - Diagram of the Green Blue Urban Strata Cell Arborsystem®



This system would be implemented across the frontage and the car parking area. This will facilitate lateral growth of the roots such that the area of soil available to each tree is maximised, and results in little if any compaction in the root zones, as shown in the photograph and diagram below.









4 Conclusions and Recommendations

It is concluded that:

- 4.1 The proposed development requires the removal of 57 trees in the eastern section of the site.
- 4.2 Some of the 57 trees need to be removed in any event on account of their condition and for reasons of proper arboricultural management.
- 4.3 The remaining trees in the western part of the site would be unaffected by the proposed development except for the London plane which is **T61**.
- 4.4 Tree T61 would be retained with additional protection measures that are in line with the recommendations in B37: 2012 and current arboricultural industry best practice.
- 4.5 The trees that would be removed to accommodate the development would be replaced with an informal avenue of eight (8) trees on the Upper Parliament Street frontage; eight (8) trees within the rear car parking area; and four (4) trees in the open spaces behind the building(s).
- 4.6 The replacement trees would be 18/20cm girth root balled / container grown specimens, pit planted using the Green Blue Urban Strata Cell Arborsystem[®].
- 4.7 All tree removal work would be undertaken by a competent and qualified arboricultural contractor under the direct supervision of a consulting arboriculturist and to the requirements of **BS3998: 2010** '*Tree work Recommendations*'.

It is recommended that:

- 4.8 Planning permission is granted for the proposed development subject to a condition that requires the preparation of a detailed Arboricultural Method Statement (AMS) to be submitted to and agreed in writing by the Council.
- Attachments: Upper Parliament Street Tree Schedule Data Table Drawing DTCL.119.1.AIA.01 Drawing DTCL.119.1.AIA.02.Rev.A Drawing DTCL.119.1.AIA.03.Rev.A Drawing DTCL.119.1.AIA.04.Rev.a

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C/D/NAS/Mega/DTCL Projects/DTCL.119/Reports/Upper Parliament St.119.AIA.v0.3

APPENDIX 1

Air Spade[®] excavation for the installation of services





Picture 1: This shows the excavation process using an Air Spade



Picture 2: This shows the process of hand excavation below the root zone following the exposure of roots using an Air Spade

CellWeb[™] Root Protection System



Geosynthetics Limited Fleming Road, Harrowbrook Ind. Estate, Hinckley, LE10 3DU.

Please contact:

with the protection of trees during the The provision of car parking facilities and

access roads around trees can lead to problems culminating in the premature loss of the tree itself unless preventative measures are taken to protect the tree roots during and after construction. (fig. 1)

causing oxygen depletion and even a loss of vital nutrients. Creating an impermeable surface above tree roots by installing a compacted sub base for load support also

dimensional Cellular Confinement System that provides a load transfer blanket significantly reducing vertical loads on

Telephone: 01455 617139 Facsimile: 01455 617140 Email: sales@geosyn.co.uk

www.deosvn.co

Further details of the CellWeb™ Tree Root Protection System



The ProtectaWeb[™] Cellular Confinement System



ProtectaWeb[™] Structure



Installation of ProtectaWeb™ on site







A schematic diagram showing how a cellular confinement system allows the percolation of air & water to the roots below.



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