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Arboricultural Supervision Report - BS5837:2012
in relation to implemented development:

Date:

7th February 2017

Site:

1-44 Denyer House
Grove End Lodge
College Lane
London
NW5 1BJ

Client details:

London Borough of Camden
c/o
Whymark & Moulton Chartered Surveyors
14 Cornard Road
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Prepared by:

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1. Introduction

1.1 *Marcus Foster Arboricultural Design & Consultancy* have previously been appointed to provide arboricultural supervision to the development at 1-44 Denyer House Grove End Lodge, College Lane, London, NW5 1BJ which is currently under construction. An Arboricultural Impact Assessment & Method Statement prepared on 8th August 2016 by Marcus Foster highlighted the site constraints and working methods in relation to trees required when implementing the proposed development.

1.2 The first Arboricultural Supervision meeting was undertaken as follows:

Wednesday 7th December 2016 - 11am

with findings summarised in a report submitted 14th December 2016. The site meeting was undertaken to ensure that tree protection measures were being implemented as highlighted within the previously prepared Arboricultural Impact Assessment & Method Statement.

1.3 However, the condition of the tree and relating site conditions showed the tree to be in a poor state with a minimum recommendation of heavy reduction of the protected tree to ensure the safety of the tree. Consequently, taking account of the protected status of the tree and significant history relating to both tree and wall, a site meeting was recommended to be undertaken alongside the local authority Tree & Landscaper Officer, Nick Bell - London Borough of Camden.

1.4 The above meeting was held with the following in attendance at 12.00pm on Friday 27th January 2017

Consulting Arboriculturist:
Marcus Foster - Arboricultural Design & Consultancy

Tree & Landscape Officer, London Borough of Camden
Nick Bell

2. Arboricultural Report in relation to site meeting / current and undertaken development & construction site activities

2.1 The current stage of the works on attending site (27/01/17) are as follows:

- *Completion of previous ground beam (December 2016)*
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- *Setting of new boundary wall line to accommodate base / buttress and root development of Ash tree*

- *Pile foundations installed without significant root discovery*

- *Commencement of casting of new ground beam*

2.2 At the site meeting the following main issues were addressed in relation to the Arboricultural Impact Assessment & Method Statement and its current stage of implementation in relation to the health and safety of the tree:

- *Removal of existing remains of boundary wall and associated foundations in close proximity to tree previously undertaken (December 2016)*

- *Pre existing concrete slab / infill beneath base of tree relating to unstable ground beneath base of tree and impact on the safety of the tree*

- *Current condition of tree with associated development site protection and proposal of recommended works*

- *Limited future amenity value of tree in relation to proposed works to ensure safety of tree*

2.3 Removal of previous boundary wall and associated foundations in close proximity to tree (December 2016) and implementation of proposed works as current

2.3.1 The works commenced in December 2016 to the previous boundary wall included removal of the remaining wall and the foundations / ground beam associated. These works were carried out as previously documented (14th December 2016) and removed without having caused disturbance to the root plate of tree T1. However, this stage of works highlighted the following features to the area of the root plate of this tree:

- Fibrous tree roots up to 12m distance from the main stem in a westerly direction running directly parallel with the wall (within Grove End Lodge)

- An infill of honeycomb mix concrete beneath this tree likely dating to the previous re-building of this wall; further discussed in *Section 2.3*. This infill determines and limits the major root growth pattern for this tree

- The existence of a 800mm anchorage / basal root mass directly beneath the tree which develops into significant lateral / anchorage roots running parallel with the line of the boundary wall and likely within the rear garden where the tree is sited. The development of this root is curtailed by the existence of the concrete infill and the resulting lateral root spread is limited to the westerly growth as shown in the photographs without any southerly growth in the direction of prevailing winds.

2.3.2 The current works being implemented are being undertaken without damage to the tree root system or main stem of the tree. It is clear that the combined previously existing wall and ground features beneath (as described below) have provided a full barrier to the tree and although there is encroachment from the root system resulting in the deviated new boundary wall line this is very limited in relation to the root growth a tree of this age / size should have to the south and west of the tree.

2.4 *Pre existing concrete slab / infill beneath base of tree relating to unstable ground beneath base of tree*

2.4.1 The base of the tree is sited directly above a mixture of clay soil and concrete infill likely from the most recent re-building of this wall (date unknown). With the ground beam fully removed it is clear that the root system developed a significant period prior to the most recent wall. The following dimensions highlight the extent and nature of the root system and surrounding / integrated hard landscapes:

- Directly beneath the base of the tree there is an 800mm depth of anchorage and basal root mass which remains in good condition

- To the east of the main stem on the boundary line between the 2 properties the exposed ground shows the root mass / anchorage roots continuing to extend at approximately 800mm below ground level with made up ground and soil beneath this level. At the point at which the tree roots / garden meets the development the nature and extent of tree roots is not clear.

- To the west of the main stem on the boundary line this proportion of tree root / concrete base extends to the west for 2.3m at which point a 700mm depth of root mass / soil is formed on top of a 250mm concrete infill. Beneath this layer is a void where infill has either not occurred and is likely the cause of movement within the tree root system further to wind loading where uplift provides the movement of soil due to the un-compacted and unstable nature of the ground

- There exists as shown in photographs within *Section 4* further selective voids where the ground directly beneath the tree is exposed and cutting back within / under the root plate system in a northerly direction. These voids are not a result of development site works but are pre-existing from where on building of the wall previously it would have not been possible to fully infill the ground beneath the tree upon building up the height of the wall

2.4.2 The existence of this concrete slab suggests that on rebuilding the boundary wall the concrete infill has been implemented to account for loss made up ground or soil which previously existed beneath the tree root system. Taking account of the likely further movement of this infill or void beneath this tree where significant pressure is applied by the tree, the tree was initially recommended for a further reduction in height to reduce wind loading upon this tree. However having fully removed the ground beam and further inspected full removal with an appropriate replacement scheme is recommended.

2.5 Current condition of tree with associated development site protection and proposal of recommended works

2.5.1 The tree protection measures currently comprise the following which are being fully carried out:

- Exclusion of construction works from the upper level of the site where the tree is sited (Grove End Lodge)

- Retention / protection of all tree roots larger than 25mm diameter

- Construction site awareness of tree protection

- Strong awareness within all employees of tree protection required throughout process to exposed root system and main stem

2.5.2 Despite the implementation of this protection, the tree is not deemed safe for the long term and is proposed for removal. The combination of limited structural roots to the south, limiting of adventitious growth directly beneath the tree from ground features, unstable ground features and height / spread of the tree make the tree unsafe in its current condition.

2.5.2 Continued tree protection as is currently carried out is recommended in order to ensure the tree is not damaged as the tree is continued to be built in its proposed form. Despite the proposed removal any future replacement will be required to be of a significant size and would therefore require a boundary wall with capabilities of root growth / development

2.6 Limited future amenity value of tree in relation to proposed works to ensure safety of tree

2.6.1 The tree is recommended for removal as a consequence of current site conditions as highlighted within this report in conjunction with the Structural Engineers recommendations (Leslie Drew - Ref: 14004 - 30th January 2017). Obviously as previously cited (Marcus Foster - Site Supervision Notes - December 2016) significant crown reduction works would serve to reduce the current hazard posed by the tree and its associated situation / ground conditions, but this would be to the detriment of the amenity value offered.

2.6.2 This Ash tree has been retained for its large size and visual amenity and although this does still exist albeit relatively compromised by its previous reduction, this retained height and spread provides a significant hazard in relation to its proximity to 2 significant residential properties and a further block of flats. The tree requires significant reduction works which will limit lifespan and amenity value with further reductions being inevitable in the future.

2.7 Summary

Therefore in order to provide a solution in relation to both health and safety and amenity value for the long term the tree is proposed for removal with a replacement scheme implemented to specifications outlined within this report. The tree is not deemed safe within the urban location for reasons as highlighted and the re-construction of the wall will not remove the hazardous nature of the tree but only serve to provide a structural engineering solution for the short term.

3. Recommended Tree Works Specification

3.1 Tree Works Specification

Ash (T1)
Fell to ground level and grind out stump and all associated major roots within 500mm of boundary wall line and 1000mm of main stem

3.2 Tree Replacement Planting Specification

The following recommended planting specification is to provide replacement amenity value resulting from the removal of Ash tree (T1). The following planting conditions are recommended to be enforced:

1. Any tree planting work should be carried out to *BS 8545; 2012 'Trees: From Nursery to Independence in the Landscape*'

2. A Single stemmed standard specimen, at least 20-25cm girth in size should be supplied and the following species is recommended:

Liquidambar styraciflua 'Worplesdon'

3. Irrigation pipes and suitable staking implemented as part of the scheme

4. A weed suppressing bark mulch layer between 40-60mm thickness should be applied to the planted area

5. The tree planting should be accompanied with a strict watering programme for the first 2 x full season after planting, the nature of which should be agreed in writing with the Local Authority

6. Prior to the commencement of planting the ground where the previous tree has been removed should be replaced with fresh topsoil within a recommended 2000mm radius from the previous location of tree T1 (within Grove End Lodge only). This should include the removal of all pre-existing concrete infill and associated aggregates to a depth of 1500mm for the specified area

7. The replacement topsoil should be installed to standards as outlined within BS3882 (2015) Specification for Topsoil

4. Photographs

Site photographs taken by Marcus Foster - 27th January 2017 / 12.30pm

3.1 Canopy outline of tree T1 as viewed in a north easterly direction

3.2 Exposed base of tree T1 further to full removal of wall dismantling of previous foundations and casting of ground beam atop pile foundations as viewed in an easterly direction

3.2 Exposed base of tree T1 further to full removal of wall dismantling of previous foundations and casting of ground beam atop pile foundations as viewed in an westerly direction

3.4 Pre-existing concrete infill from likely previous construction of boundary wall with voids beneath to west of main stem of tree T1 as annotated

3.5 Photograph of base of tree / initial root plate where wall and associated foundations have been removed with new ground beam cast. Note void beneath tree to east also and abrupt deflection of tree root upon the concrete infill

3.5 Photograph of lateral roots to west with void beneath tree root plate to west and ad hoc cast concrete infill combined with loose topsoil

3.7 Photograph of base of tree / initial root plate where wall and associated foundations have been removed with new ground beam cast. Note void beneath tree to west also and abrupt deflection of tree root upon the informal concrete infill which exists directly beneath the tree

4. Appendices

1. *BS5837: British Standard: Trees in relation to construction - Recommendations*, British Standard (2012)

2. *Principles of Tree Hazard Assessment and Management,* Lonsdale, D. (Department for Transport, Local Government and the Regions, 1999)

3. *The Body Language of Trees*, Mattheck, C. and Breloer, H. (HMSO, 1994)

4. *Trees in Britain,* Philips, R. (Pan Books, 1978).

5. *Diagnosis of Ill Health in Trees,* Strouts, R. and Winter, (TSO, 1994)

6. *NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2),* (November 2007)
onsultant should be contacted for advice immediately.

Report Prepared by Marcus Foster 1st February 2017