Arboricultural Survey, Appraisal and Recommendations

10/06/2018

Report Reference: QUEENDR001

Longacre Professional Arboricultural Consultancy

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1. Executive summary

This report has been compiled to analyse the trees within the grounds of 68-70 Queens Drive N4, with respect to their potential to be influential on adjacent structure. An NHBC 4.2 analysis, *British Standard 5837* and *ISA* level two inspection has been undertake on all trees documented within this report. All private trees within the vicinity of the area of impact have been analysed for their potential to bare effect on structure.

This investigation will include:

- The site context and observation
- Tree survey data obtained during a site inspection undertaken 10/06/2018
- Analysis of data and evaluation of potential to effect structure
- Discussion
- Conclusion
- Tree works recommendation

2. Report limitations

Trees on this site were surveyed using *British Standard 5837* methodology. Recommendations will be based upon analysis of data obtained during the site inspection. This report is limited to the analysis of established arboricultural features designated by the client. For tree location in relation to this property please see map reference: APPENDIX B. All trees within this report have been inspected using recognised tree risk assessment methodology in keeping with 'Tree Risk Assessment': Levels of Assessment (*E. Thomas, el al. Matheny, Lilly)*. This report can be used in correlation with an application / notification for tree works for a tree under protection order and/or tree works within a conservation zone.

3. Site context and observations

The trees detailed within this document are situated within the grounds of 68-70 Queens Drive N4, on a soft landscape feature that provides a screen that segregates the block from two adjacent roads. All trees that have a potential impact radius encroaching on adjacent property have been documented. EverTree has been provided with no information relating to conservation or protected status for any trees within this report.

The structure appear to be of an age pre-dating the arboricultural features, within the last 60 years being the most likely age range of construction.

The soil base is London Clay formation, as confirmed on the *Great Britain Geological* website (see appendices / topography) and therefore has a potential to shrink through vegetative water extraction and periods of drought. All trees appear to be well managed with no visual evidence of major or recent tree surgery.

4. Professional Standard References

I have used and/or referred to the following standards and Act's as a framework to ensure good practice and tree evaluation in relation to trees throughout this project:

Arboriculture Association and Forestry Commission / D. Lonsdale: Principles of Tree Hazard Assessment and Management. 1999.

British Standard 5837:2012 (Trees in relation to design, demolition and construction: recommendations) as a good practice guide for trees in relation to structure.

International Society of Arboriculture: Tree Risk assessment 'Levels of Assessment'. 2012

NHBC Standards Chapter 4 Foundations April 2010: Potential impact areas for arboricultural features.

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5. Summary of tree data and dimensions*

Tree Ref	Species	Age	Height (est-m)	Radial Spread (m) (N/E/S/W)	DBH / 1.5m (est) (mm)	Condition	BS5837 Category	NHBC 4.2 Radial zone of potential influence (m)	Distance from property (m)
T1	*Prunus schmitii*	E	1.5	1/1/1/1	450	Good	B	1.125	6
T2	*Prunus schmitii*	E	2.6	1/1/1/1	50-100	Good	B	1.95	6
T3	*Tilia x europea*	SM	7	2/2/2/2	150-180	Poor	C	5.25	6.5
T4	*Tilia x europea*	SM	6	2/2/2/2	210	Poor	C	4.5	6.5
T5	*Tilia x europea*	SM	5.5	2/2/2/2	260	Poor	C	4.125	4
T6	*Tilia x europea*	SM	5	2/2/2/2	200	Very Poor	U	3.75	1.5
T7	*Fraxinus excelsior*	SM	7.5	3.5/3.5/3.5/3.5	180	Good	B	5.625	6.5
PT1	*Carpinus betulus*	SM	9	4/4/4/4	160	Good	B	4.5	6
PT2	*Carpinus betulus*	SM	9	4/4/4/4	150	Good	B	4.5	6

* See tree data key in appendices

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6. Discussion

This site has been identified as having structural movement as a result of vegetative water extraction.

Using NHBC 4.2 guidelines as a way to inform of trees that fall within an influence zone of structure, the following trees have the potential to be influential and should be managed for that potential:

Tree ref	Species
T6	*Tilia sp*
T7	*Fraxinus sp*

BS5837 Document states:

'Indirect damage is usually associated with the abstraction of moisture by tree roots from the soil below the foundations. This process may result in shrinkage of the soil and structural instability in buildings.

The presence of shrinkable clays and usually a soil moisture deficit is required for this type of damage to occur'

This would be qualified, in evidence, by:

- Crack monitoring evidence.
- Level monitoring evidence.

Neither of the above has been supplied to EverTree for scruitny, in addition to this:

- No root analysis evidence has been supplied.
- The client has been advised that vegetative management is necessary to mitigate structural related issues.
- No drainage report has been supplied.

Water extraction can be managed in many ways; from crown volume management to the introduction of root barrier (to influence root proliferation in a different direction and limit water extraction). When adjacent to any structure and in order to control water extraction potential it is advisable that trees are managed. In addition to crown volume management the use of localised root barriers across the respective root protection areas could be considered, this could be used to control water extraction from a specific area. A proprietary brand can be supplied from arb specialists such as Green Blue Urban and Geosynthetic, but must be implemented with the direction of an arboriculture specialist or structural engineer.

http://www.geosyn.co.uk/product/rootblock-root-barrier/

http://www.greenblue.com/gb/type/root-management/

7. Conclusion

No evidence has been supplied to directly connect the presence of the trees listed within this report and any damages to the property 68-70 Queens Drive N4, that does not mean that evidence does not mean that evidence does not exist, just that it has not been provided for scrutiny. However there is the potential for trees to be influential, which needs to be managed in accordance good practice guidelines. If the trees were influential then removal of those within the area of influence without a heave calculation could potentially cause property damages. As a heave calculation has not been supplied by the claimant, and no official evidence has been supplied connecting the trees with damages this leaves only management options with regards to potential to be associated with damages. With that in mind I recommend the following:

8. Works recommendations

T1-T2: No action required
T3-T5: Remove all epicormic growth (do this annually), allow crown to develop for one more year and then re-pollard back to knuckles
T6: Remove due to physiological related issues (SEE Appendix B)
T7: Manage at current dimensions, do not allow to exceed.
PT1-PT2: Notify local authority of potential to become influential on property structure.
Site recommendation – Apply mulch to T1 and T2, consider removal and replacement of T3 to T5 due to general condition of specimens.

All works undertaken as part of the recommended schedule should be with diligence towards ALL relevant British standards including BS3998, ACOP's and legislation. Any recommendations contained within are just that and should be undertaken by professionals with relevant experience, qualifications and insurances. With respect to any protection orders consent from the relevant authority must be obtained before works can progress.

Recommended inspection schedule after works recommendations have been implemented - survey 16/01/2017

All retained trees	12 months due to footfall and proximity to structure

APPENDICES

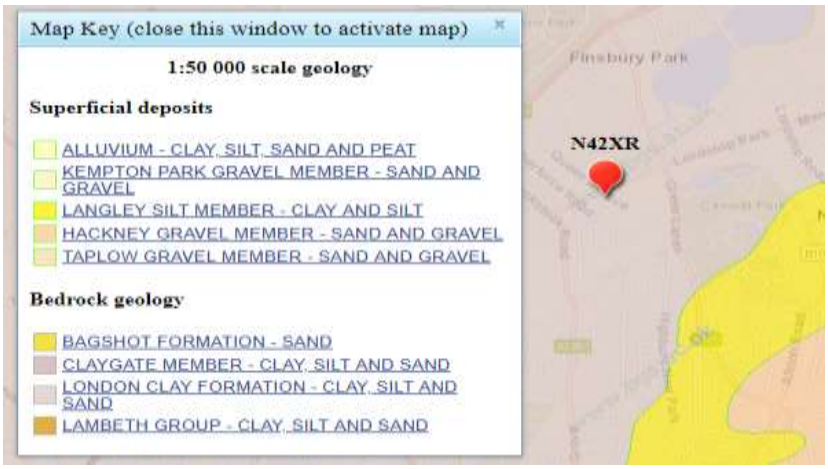
Appendix A

Tree data key

T = Tree reference number in relation to map provided
TPO = Tree Preservation Order
PT = Private Tree
E = Early
EM = Early-Mature
SM = Semi-Mature
M = Mature
n – North
e – East
s – South
w – West

Appendix B

Topography



Status Code:	Full
Age range:	Ypresian Age (GY) — Ypresian Age (GY)
Lithological Description:	The Claygate Member comprises dark grey clays with sand laminae, passing up into thin alternations of clays, silts and fine-grained sand, with beds of bioturbated silt. Ferruginous concretions and septarian nodules occur in places. Fossils from the Claygate Member at Willesden Green are recorded by Wrigley (1921).
Definition of Lower Boundary:	The Claygate Member is distinguished from the underlying Sheppey Member by the laminated character and relative abundance of sand in the Claygate Member. The boundary is drawn at the base of the lowest sand bed, conformable on silty clay with common sandy clayey silt interbeds. In practical terms, it is taken at the 'lowest sandy horizon mappable in the field' (Lake et al., 1986). In London, and further to the west, sand beds appear lower in the sequence and here the base of the Claygate Member is based on other criteria including grain size and glauconite content (Ellison et al., 2004).
Definition of Upper Boundary:	Drawn at conformable upward passage from silt and fine-grained sand of the Claygate Member to the Bagshot Formation. The Claygate Member is distinguished from the overlying Bagshot Formation by containing finer sand without cross-bedding, and in the relative abundance of clay and silt in the Claygate Member.
Thickness:	Average thickness of 16m in London area; 17m to 25m in Essex.
Geographical Limits:	The Claygate Member occurs in the axial zone of the London Basin, where preserved from erosion
Parent Unit:	London Clay Formation (LC)
Previous Name(s):	Claygate Beds (-4549) Passage Beds (-3236)
Alternative Name(s):	*none recorded or not applicable*

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Appendix C

T6 Details

Crown	Poor / Bad crown development
Stem	Poor / Cavity at 2m
Base	Poor / Root-ball degradation
Root crown	Poor / Limited by adjacent structure
SULE	0-5years

Comments:

This specimen has a poor structure and is likely to fail if allowed to regenerate to any significant potential. Its proximity to structure and (advised) association to structural damages leave it longevity in question.

Appendix D

Images from site:

T1

T2

T3

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T4

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T5

T6

T7

PT1

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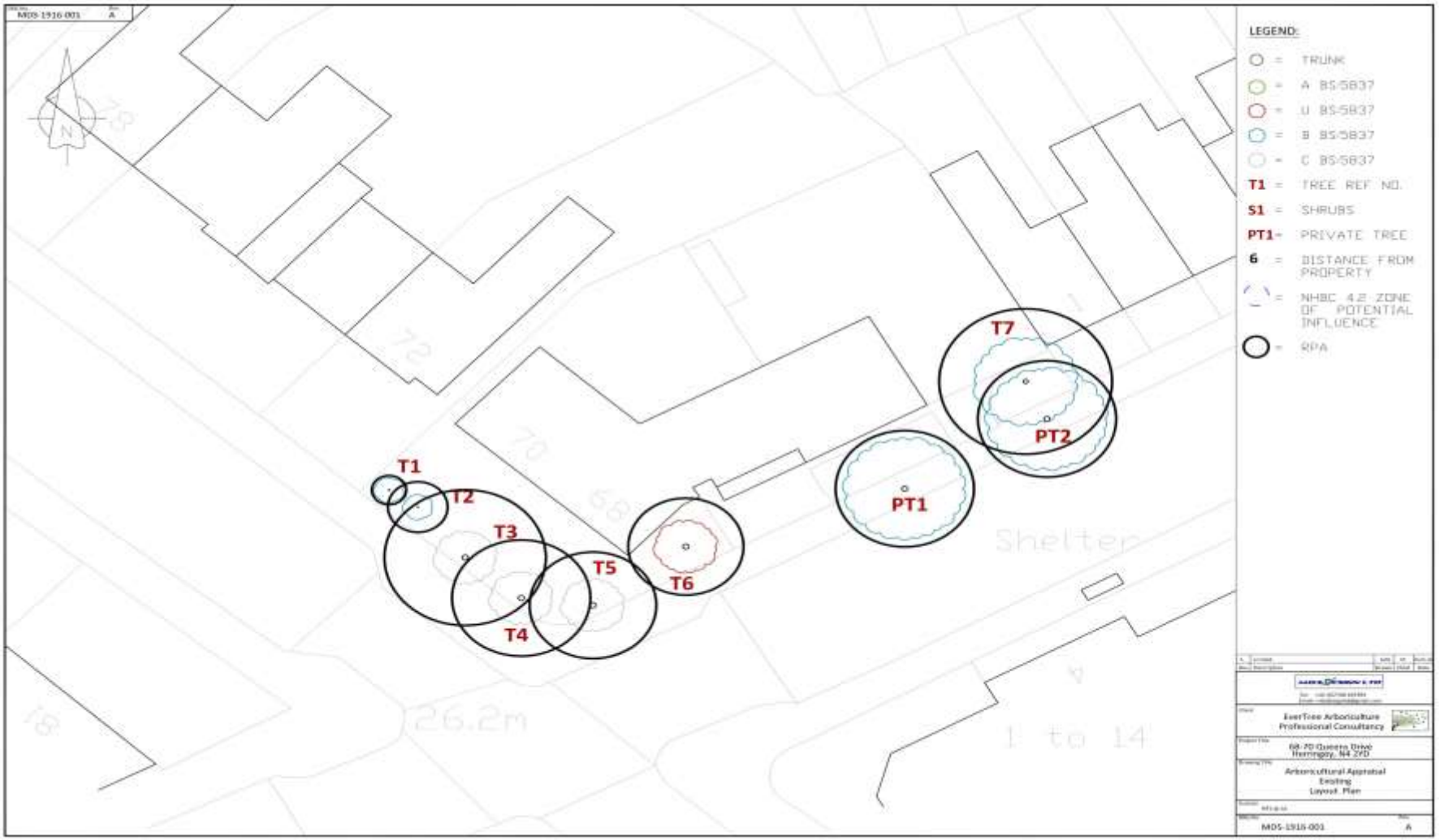
PT2

Appendix E



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Unless otherwise stated this arboricultural report is valid for a period of no longer than one year. Should there be any period of extreme weather, construction or excavation works within the arear of influence of any trees stated within this document a structural analysis will be required to validate this period of time. Should this report be submitted as part of a planning application it is valid to be submitted for a period of six months only. Should this report be coordinated with a mortgage application then only the information provided by the client and a site survey will be incorporated. Should this report contain recommendations as a result of potential property structural related issues then it is highly recommended that a structural engineers report be obtained to validate removal or reduction options. The rest is based on experience and standards compiled by governing bodies and professional recommendations.

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