

Arboricultural Report Property Development based on BS5837

Property Location

39 Fernbank Avenue, Liverpool, L36 9UD

On behalf of:

Lisa Lindsay

Report Date: 24/12/2021

Survey and Report by:

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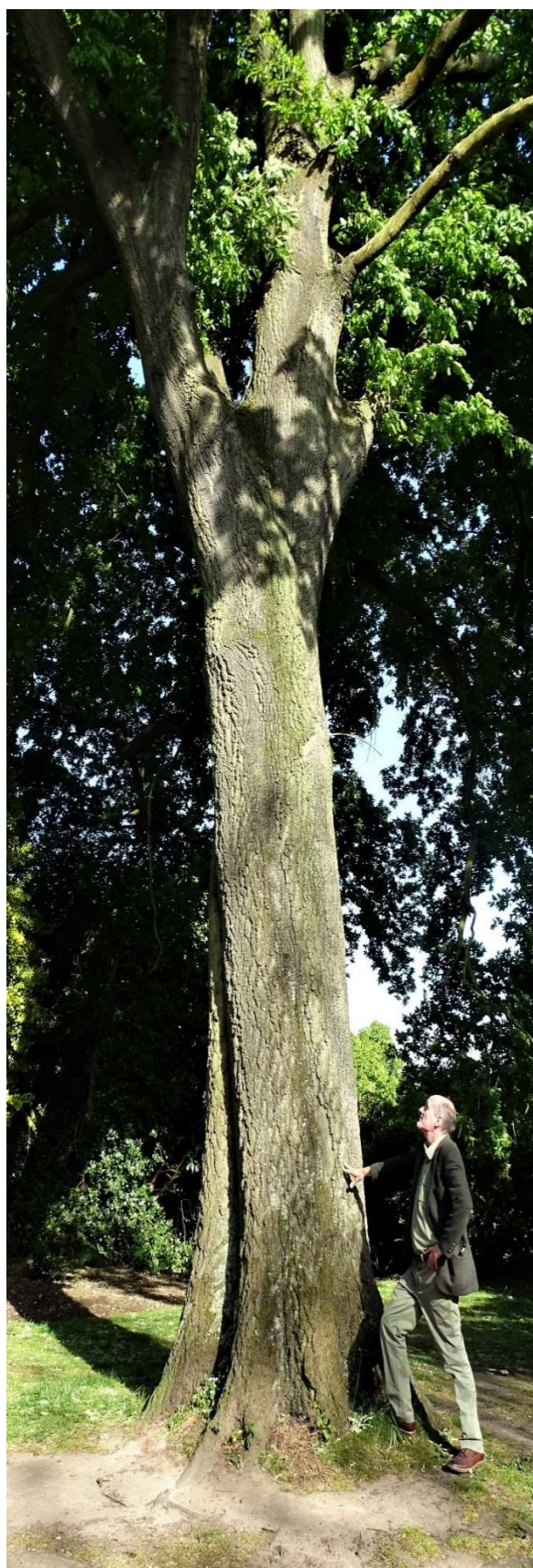
Contents

1	Purpose of report
2	Explanatory information
3	Survey methodology
4	Tree Survey
5	Site Overview
6	Soil Profile Report (NSRI)
7	Physical Soil Assessment
8	Subsidence Risk Appraisal
9	NHBC 4.2 Requirements
10	Underground Amenities
11	Tree Preservation Orders
12	Tree Notes and Recommendations
13	Constraints and Protection
14	Root Protection
15	Protective Barriers.
16	Ground Protection
17	Hazardous Materials Management
18	Impact Assessment
19	Implementation of recommendations
20	Remedial Tree Planting
21	Illustrations
22	Disclaimers and Limitations
23	Time limitation
24	Trees as living organisms
25	Biodiversity and Habitat
A1	Tree survey schedule
A2	Tree Survey Plan with RPA
A3	Tree Protection Plan with remedial planting



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1 Purpose of Report

To provide an arboricultural survey in accordance with BS5837, to the property, for the purposes of a planning application to carry out an extension to the rear of the property. The report is to include an inventory, RPA study and implications study, protection plan and if applicable a remedial planting plan.

2 Explanatory Information

Basis of Report. For the purposes of planning application this report will be based on BS5837 which sets out the guidelines for tree surveys for planning applications.

Visual Tree Assessment. This is the method of surveying trees from ground level for dimensions in accordance with BS5837 using professional laser equipment. Additional observations will have been added with regards to tree category schedule. Detailed assessment of tree health and vigour including root assessment however is not included within the scope of this report. Tree categories are limited to categories A, B, C and U. Additional numeral categories (i.e. A1, A2 and A3) will only be used in relation to veteran or very rare specimens.

Drawings are taken from OS Masterplan and include for:

Appendix 2 Tree Survey and RPA study

Appendix 3 Tree Protection Plan

3 Survey methodology

- a) Identification and visual assessment of trees from ground level within proximity to property
- b) Identification of soils profile from National Soils Research Institute
- c) Where a clay is notified, a sample may be taken from 1m depth for preliminary plasticity assessment
- d) Impact assessment plan including tree loss plan
- e) Root protection zone planning in accordance with BS5837
- f) recommendations for suggested treeworks

4 Feasibility: Tree survey and Constraints

The current existing Tree infrastructure survey is set out in table Appendix 1 and drawing Appendix 2. The BS5837 details as follows including colours as marked on drawings:

*	Category A (Green)	Trees of high quality and amenity value with estimated life expectancy of over 40 years.
*	Category B (Blue)	Trees of moderate or impaired condition with estimated life expectancy of over 20 years
*	Category C (Grey)	Trees of low quality and poor form with low life expectancy or young tree with DBH of 150mm or less
*	Category U (Red)	Trees of poor form with significant defects that would not be reasonable to retain and with very poor life expectancy

There is the further provision of additional sub-categories but are not used in this report:

- * Category 1 Of significant arboricultural interest.
- * Category 2 Of important landscape amenity value
- * Category 3 Of important cultural value

Further notes include the following references:

- * Ident - T: Tree; G: Group of Trees; H: Hedge
- * Age Assessment - Y: Young; EM: Early Mature; SM: Semi Mature; M: Mature; LM: Late Mature; V: Veteran
- * Useful Life Expectancy - H: High, G: Good, M: Moderate, P: Poor, N: Nil
- * DBH - Standard for stem diameter at 1.4m measured in cm
- * Height and Crown - measured in metres.
- * Condition - estimate of tree health: G: Good; M: Moderate; P: Poor; D: Dead
- * RPA - Root Protection Area; Radius of 12x DBH measured in metres.

Appendix 3 includes an initial Root Protection Area (RPA) assessment. This is the area as defined by BS5837 4.6.1 as being of radius 12x the stem diameter. Where there are trees with multiple stems, the area is calculated in accordance with BS5837 guidelines.

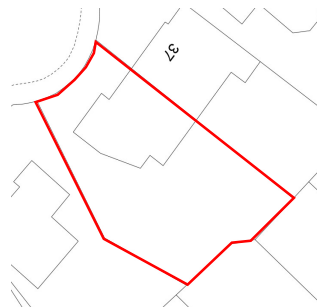
5 Site Overview

Site coordinates:

Survey area: As below.

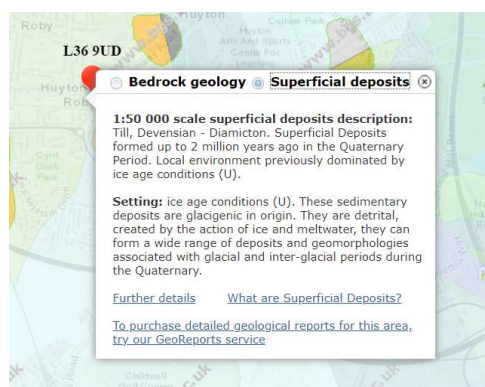
Approximate topography: Site is considered to be sloping with the rear garden to the south east elevation raised by approximately 1 metre. A detailed topographical survey would be by others.

Survey extent



6 Soil profile report (NSRI)

BGS data indicates Devensian Till over Chester Formation - Sandstone. The Till is a glacial clay deposit with high content of sand and pebble and considered to be of low plasticity.



7 *Physical Soil assessment* carried out to 1 metre depth only.

Not applicable to this survey

Soil Type	Sampling ID	pH	Moisture	Plasticity (LL)

8 *Basic Subsidence risk appraisal*

Based on the acquired knowledge of the soil profile in relation to the property and tree proximity. This is provided as a preliminary estimate only. Where there is risk of shrinkable clay, an independant geotechnical report would be required.

Preliminary estimated subsidence risk from tree influence: Nil, **Very Low**, Low, Moderate, High, Very High

Based on the BGS information, subsidence risk would be expected to be **Very Low**

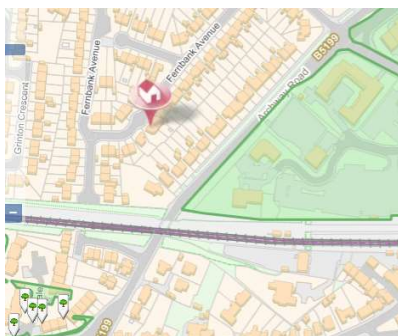
9 *NHBC 4.2 Recommendations*

Attention is drawn to NHBC 4.2 - D5 and D6 as setting out the requirements relating to foundations and clay subsoils. Where clay subsoils are present, a geotechnical survey would be required to provide accurate assessment od plasticity which should then be combined with the advice of a structural engineer to ensure compliance with NHBC requirements. Any comments provided in this report are for preliminary estimate only and should not be interpreted as a giudance for structural purposes, such being outside the scope of this report.

10 *Underground amenities*

No information on underground amenities and any associated risk has been provided. Any potential risk to amenities from root development would require a specialist survey beyond the scope of this report.

11 *Tree Preservations and Conservation areas*



The attached map from the Knowsley Council Website shows that there are no tree planning constraints affecting the property.

It should be noted that any works carried out within TPO or Conservation areas, must have planning permission from the local authority as there would be liability for substantial fines for unauthorised work. It would therefore be the responsibility of the client to confirm with the Local Authority the status and if required to obtain relevant planning. IROS Arb can assist with this.

The removal of dead and dangerous trees are exempt from planning restrictions, however in TPO and Conservation Areas, it would be normal to provide at least 5 days notice of the intended work backed by photographs demonstrating the particular issues.

12 Tree Notes and Recommendations

All notes and recommendations for any tree work to be carried out are contained within Appendix 1 including for any future inspection proposals.

13 Constraints and Protection Study

Constraints and impact planning is to take into account the RPA (underground constraints) and the above ground constraints such as tree spread and potential growth and how the development will impact on present tree infrastructure including identifying which trees would be incompatible with the development including assessing the working and access areas and the effect the proposed development may have on the tree amenity value, protection of overhanging branches including for vehicle height restrictions and evaluation of infrastructure requirements.

It should be noted that quality mature, late mature and/or veteran trees should be retained within adequate space and root protection due to their extensive and substantial amenity value and development plans need to be aware of this requirement.

With reference to proximity of structures to trees, the default position is that structures are to be located outside the RPA of trees to be retained. There is possible provision for this to be overridden where it can be demonstrated that trees can remain viable and damage mitigated or avoided considering however that close proximity of structure to trees, particularly species with large growth potential is not desirable.

14 Root Protection Area

Root Protection area (RPA) is the area of boundary radius measured as 12 x stem diameter where ground disturbance should be absolutely minimised to avoid soil compaction and root disturbance. See Appendix 2

Construction Exclusion Zone (CEZ) would normally be the same where possible as the RPA and are zones where construction activity is not permitted other than minor landscape works excluding change of soil levels. These areas are to be fenced off throughout the whole of the construction site works and the following restrictions shall apply:

- * No construction activity whatsoever.
- * No vehicles or plant machinery shall be driven or parked.
- * No tree works, other than those specified to be undertaken.
- * No alterations of ground levels or conditions.
- * No chemicals or cement working permitted.
- * No excavation whatsoever.
- * No temporary structures.
- * No spoil to be stored.
- * No fires.
- * No hazardous materials (including cement products) .

Restricted Activity Zone (RAZ). Where it is not practical to form a CEZ because of access issues or works proposed then a RAZ is imposed with monitored limitations to be placed. Temporary fencing would be required which could be moved when required. Ground protection measured would also need to be specified

- * A suitable load bearing protection system is mandatory and will remain in place except for local approved works.
- * No temporary structures to be installed
- * Ground levels shall be maintained except for 100mm of topsoil only
- * **Any excavation needed within the RAZ for the fulfillment of the construction project shall be by hand or air spade without any damage to secondary root growth of a minimum of 10mm. Roots encountered must be protected with hessian where possible. Such excavation shall be monitored and approved and must be completed with soil replaced within a period of 5 days.**
- * Storage of materials shall be limited to those needed for the completion of the works. These shall be arranged in a tidy and orderly manner. Heavy materials will need to be stored outside the RAZ.
- * No spoil or waste.
- * No fires permitted
- * No hazardous or cement based material
- * **Any required plant access shall only be permitted on load bearing protection and shall be limited to the minimum possible and without any threat of damage to trees.**

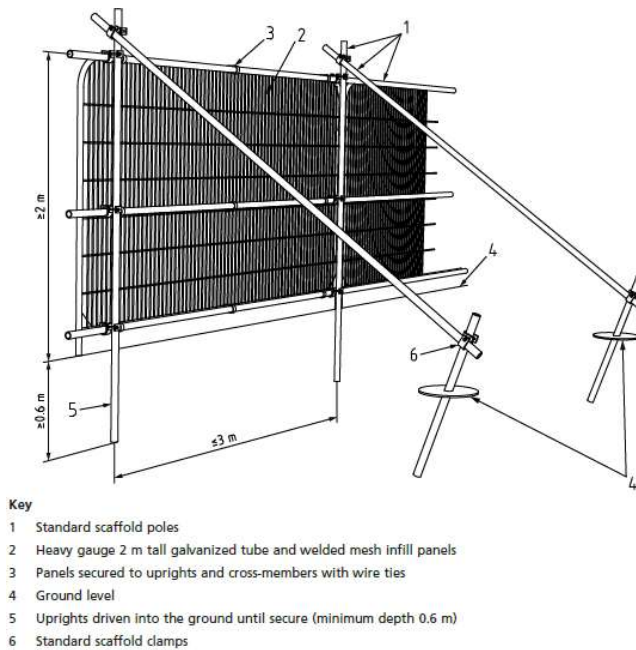
15 Protective Barriers

The purpose of protective barriers is for construction activity to be kept away from the Root Protection Areas including the Construction Exclusion Zones or Restricted Activity Zones and should be fit for the purpose required.

The barriers should be erected prior to the commencement of any site activity. Barriers should be able to withstand minor knocks from plant and other site activity and should be secure.

The barriers may be of a scaffold and wire mesh type fixed into the ground or a back stay design where a ground fix may not be practical and should be secured with anti-tamper fixings. IROS recommends CLD Fence Safe System. Barriers should be maintained and kept in good condition

Specification for fixed barrier



Example of CLD Fence Safe Temporary Barrier.



16 Ground Protection

Where temporary access or works are required within the RPA, the barriers should be set back as appropriate for the time required and protection measures established so as to avoid soil compaction and damage to the roots.

Suitable ground protection should be capable of supporting required traffic. For pedestrian traffic, scaffold boards could be lain onto 10mm of woodchip or similar over a geotextile membrane

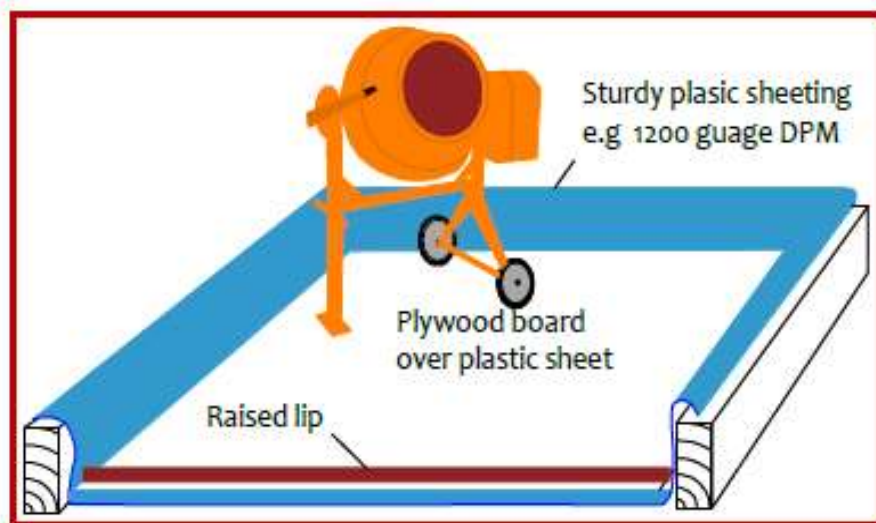
Where access is required for plant, whether hand operated or driven. IROS recommends using ground protection mats with appropriate loadings for traffic required. Again these should be lain on a bed of woodchip of 150mm over a geotextile membrane. These are available from www.groundprotection.co.uk

17 Hazardous Materials Management

The RPA, CEZ and RAZ must be kept absolutely clear from any contamination from both hazardous materials, hydrocarbons and waterlogging including cement or concrete spillages or water run offs from other areas within the site that could contain such materials

Any mixing of cement or cement based products and any hydrocarbon based products shall and will take place outside the restricted zones and shall be carried out within bunded areas to avoid unintended run off. All such processes shall be stored and carried out in accordance with COSHH Regulations and apart from protected zones.

Example of bunded area.



18 Impact Assessment

Overview	Trees affected
Tree removal: Cat A	n/a
Tree removal: Cat B	n/a
Tree Removal: Cat C	T1
Tree Removal: Cat U	T4
Tree work as recommendations	T2
RPA: Foundations	T1
RPA: New Hard Landscape	n/a
RPA: Existing Hard Landscape	n/a
RPA: New Underground Services	n/a
RPA: Soil Compaction	n/a
Other issues	n/a

For identification of trees, please refer to Appendix 1 for detail and Appendix 2 for plan layout

19 Implementation of Recommendations

All tree work must comply with BS3998 guidelines and current professional good practice by a qualified treework contractor with adequate insurance cover and taking into account statutory protection for birds, bats and any other protected species. All branch removal to be in accordance with target pruning practice and to branch bark ridge. "Topping", flush cuts and stub ends are not to professional standards and can cause extensive damage to the tree physiology. No liability can be accepted for damage and/or failure of tree structure due to unprofessional treework.

20 Remedial Tree Planting

Not applicable to this Report

ID	Standard	Species	Girth	Height	Potential
RT1	Select	Liquidambar styraciflua	10 to 12	2m	15m

Planting Study

There are many considerations when planting trees including selecting the right site and species taking into account tree growth and the effect in 50 years or more. Ideally we want trees planted to be able to establish well and grow to maturity. Considerations could include:

- * Tree Planting and maintenance to be in accordance with BS8545
- * Planting to include for GreenBlue RootRain Metro watering systems
- * Tree ties to be hessian and to be adjusted annually
- * Trees selected to be suitable for dry acidic sandy soils with low field capacity
- * Statutory clearance of overhead services
- * Local ecology including native species
- * Tolerance of local climate such as urban or coastal
- * Size and selection of stock
- * Watering must be maintained during dry periods with no rainfall within 7 days.

GreenBlue RootRain Metro Irrigation
System



www.greenblue.com

21 *Illustrations*

T3



T4



Chondrostereum purpureum



21 *Disclaimer and Limitations*

Tree report is provided subject to IROS standard terms and conditions. www.iros-uk.com . Assessment is carried out through visual assessment. Trees are inspected from ground level only. Report based on BS5837. Decay detection, soil sampling, plasticity testing or sapflow measurement or other technical information, are only included if indicated. Soils profile is provided by the National Soils Resources Institute and IROS do not accept any liability with regards to the accuracy of the information. All information is provided as preliminary and is subject to more detailed assessment and all measures are approximate only. No advice is given in relation to the structural integrity of the proposed property and underground amenities connected to the property and such advice is deemed to be outside the scope of this report. It will be deemed to be accepted that the information provided is for guidance relating to sound arboricultural management for property development projects but is not provided with regards to influencing financial decisions including mortgage or insurance providers.

22 *Time Limitation*

Any warranty shall be subject to the time limitation as set out in the Iros terms and conditions and any client, funder or insurance provider shall be deemed to have accepted unconditionally such limitations as adequate and reasonable.

23 *Trees as Living Organisms*

Trees are subject to both biotic and abiotic disorders and the health, vigour and stability of a tree can change substantially and very quickly. In particular, all trees are subject to storm damage and windthrow due to severe weather conditions and IROS Arb cannot accept any liability with regards to structural failure due to severe weather. Visual tree assessment as carried out may not identify biotic pathogens and where no external evidence is identifiable, non visual biotic disorders are deemed to be outside the scope of this report which is only preliminary for development purposes.

24 *Biodiversity and Habitat*

Trees provide extensive biodiversity habitat and are covered by statutory instruments relating to various flora and fauna with particular reference to wild bird nesting, bats, red squirrels and others. This report does not take account of such issues which shall be deemed to be outside of the scope of this report. The client accepts that a separate ecological survey would be necessary to report on related ecological issues.



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