



Arboricultural Impact Assessments

– Tree Surveying – Tree reports – Arboricultural Contracting

Arboricultural Impact Assessment

Client:	Mr Richard Carwana and Mrs Kellie Carlton
Address:	Yaffles, Beech Hill Road, Spencers Wood, Reading RG7 1HT
Arboricultural Consultant:	Paul Griffin Tel. 07714 597715 Email. symatreetld@consultant.com
Date:	24/02/21

View of Yaffles front/side access:



Baird Cottage, Pamber Road, Charter Alley, Tadley, Hampshire, RG26 5PZ.

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1.0 Introduction

1.1

The Arboricultural Impact Assessment (AIA) is for the proposed design at Yaffles, Beech Hill Road, Spencers Wood.

1.2

The Tree survey was conducted on the 07/01/21, trees were viewed from the ground in good weather conditions with a light breeze.

1.3

This is an AIA of the implications that the proposed development will have on the site and tree stock based on the proposed drawings supplied by Mr Nick Rule. This AIA will highlight specific areas of potential conflict to trees and woody plants with ways to mitigate those particular implications.

1.4

Any building techniques such as foundations, surfacing and service installations with a potential to impact on the health or structure of trees will be identified.

1.5

Impacts on Trees and woody plants will be highlighted with any necessary protection advised and systems required to be put in place according to BS5837:2012.

2.0 Scope and purpose of the report

2.1

The AIA considers implications the proposed design will have upon the existing tree stock, and also provides solutions to any implications, to ensure the safe and healthy retention of any trees considered worthy, taking into account life expectancy and their value within the environment. The existing tree stock was assessed by a qualified arboriculturist in accordance with BS5837:2012. The results of the species identification has been plotted on the tree constraints plan (see 6.0).

2.2

Any Root Protection Areas for the trees identified, as a result of the proposed development are laid out according to BS:5837 in the following AIA. The AIA only considers the implications of the works which are illustrated on the drawing provided to Symatree Ltd on the 15/12/20. Any alterations to the proposed layout must be notified and further advice should be sought.



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3.0 Definition of Root Protection Area (RPA)

3.1

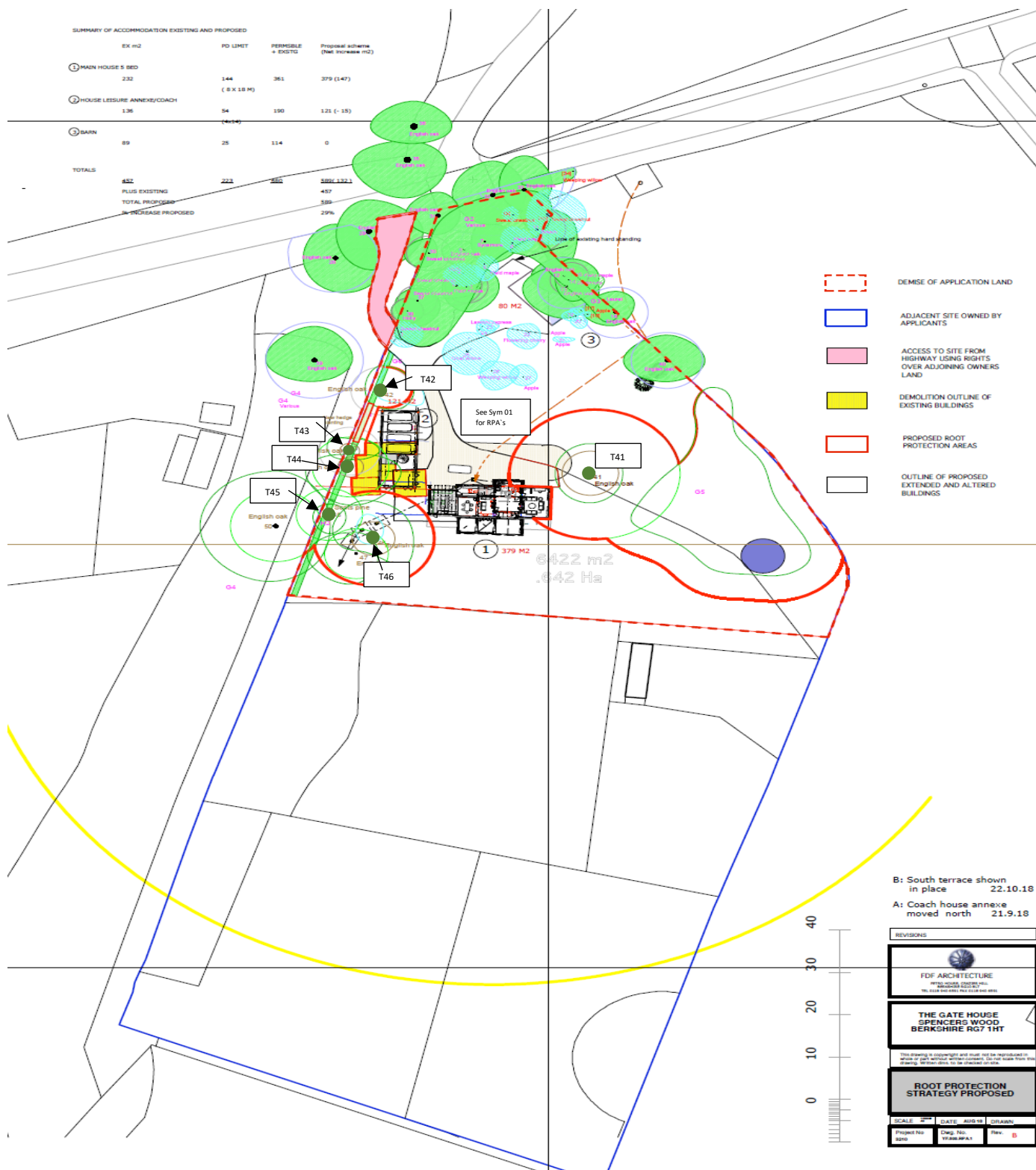
The RPA of a tree is defined in BS5837:2012 as a *“layout design tool indicating the minimum area around the tree deemed to contain sufficient root and rooting volume to maintain the tree’s viability, and where the protection of the roots and soil structure is treated as a priority”*. This is calculated as an area based on the stem diameter of the tree. It is usually considered to be a circular shape centred on the trunk of the tree, unless an arboriculturist considers site factors may affect this.

4.0 Tree Preservation Order Status

4.1

The address is not within a Conservation Area. There are no Tree Preservation Orders at the address.

5.0 Previous Site Plan from 26/10/18:



Baird Cottage, Pamber Road, Charter Alley, Tadley, Hampshire, RG26 5PZ.



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Key to tree colours:

-  Category U = Those in such a condition that they cannot be realistically be retained as living trees in the context of the current land use for longer than 10 years.
-  Category A = Trees of high quality with an estimated remaining life expectancy of at least 40 years.
-  Category B = Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
-  Category C= Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

1 = Mainly arboricultural qualities

2 = Mainly Landscape qualities

3 = Mainly cultural values, including conservation

Categories are stated in SYM 01

5.0 Arboricultural Impact Assessment

5.1

The proposed development site is at present having the garage block rebuilt as my previous AIA reflects dated 26/10/18. Building works are currently underway with construction materials and machinery on site. This Report is in addition to the previous Tree Protection Plan linked with the garage development. The majority of trees are unaffected as the proposed development to the main house is to the rear elevation and far away from them. The extension to the kitchen area is larger, however this does not encroach into any Tree`s RPA.

5.2

The trees currently protected, will need to have all protection measures in place with the time scale extended into the work duration of the new development. Oak Trees nearest to the proposed extension, are T41 and T46; however their RPA`s are outside of the proposed house extension.



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5.3

T45 is a mature Pine tree. The RPA is outside the development plans and with the protection measures described at 9.0 in place, the tree will be unaffected by works.

5.4

T41, being a large mature Oak tree is close to the house and has its RPA compromised by the main property. The proposed development has no negative impact on the tree if all protective measures are adhered to as stated in section 9.0 of this report. **Additional mitigation measures are stated in the Arboricultural Method Statement concerning the scaffold base plates, Balcony supports and driveway installation.**

5.5

All other trees and groups of trees plotted on the plans will be unaffected by works if all protective measurements are put in place (see 9.0) and adhered to. Particular emphasis on the movement of vehicles and storing, mixing of materials should be made aware to all people working on site. Details of this are in the following Tree Protection Plan 9.0 and Method Statement 10.0.

5.6

Scaffold required within the RPA of T41, will be done above ground and with only the use of hand tools. **Scaffold base supports will be placed on load bearing timbers to ensure no root damage during the proposed development is undertaken.**

5.7

The ground conditions for T41 will be improved as tarmac is to be removed and a permeable material incorporated, allowing rain water to drain freely; and permit better metabolic root functions.

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6.0 Tree constraints plan

Tree No.	Height (m)	Crown spread (m)	Crown (m) clearance	Physical condition	Age Class	Life (years) expectancy
T41 Oak	15	N:6 E:6 S:6 W:6	3	Swelling of lower main stem, reaction growth.	Mature	40+
T42 Oak	12	N:5 E:4 S:3 W:1	3	Canopy one sided. Heavy lean towards Northerly direction.	Young	40+
T43 Oak	22	N:1 E:5 S:5 W:3	9	Ivy covered. Growing close to T44. High crown lift	Young	40+
T44 Oak	22	N:4 E:6 S:8 W:4	6	More canopy spread to the south as a result of T43.	Young	40+
T45 Pine	18	N:3 E:3 S:3 W:3	10	Ivy present. Dead wood hanging. Generally good condition.	mature	40+
T46 Oak	15	N:7 E:5 S:6 W:2	3	Crown spread concentrated to the east. Holly trees growing close and into the lower canopy	mature	40+

7.0 SYM 01:

Tree No.	Species	Trunk diameter (mm)	BS5837: 2012 Root protection area (m ²)	BS5837: 2012 Radial protection distance (m)	Category class
T41	Oak	1200	651.4	14.4	A2
T42	Oak	350/200	55.4	4.2	A2
T43	Oak	400	72.4	4.8	A2
T44	Oak	600	162.9	7.2	A2
T45	Pine	400	72.4	4.8	A2
T46	Oak	800	289.5	9.6	A2

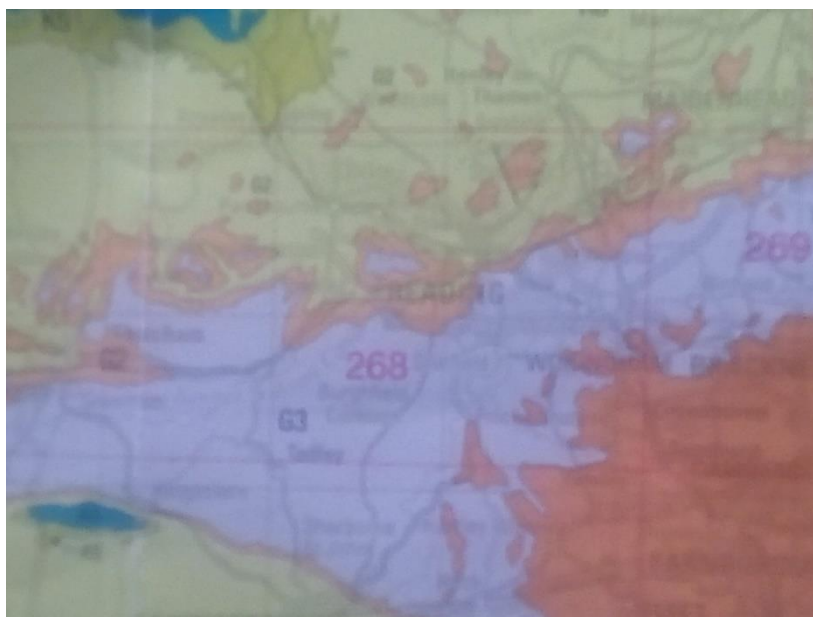
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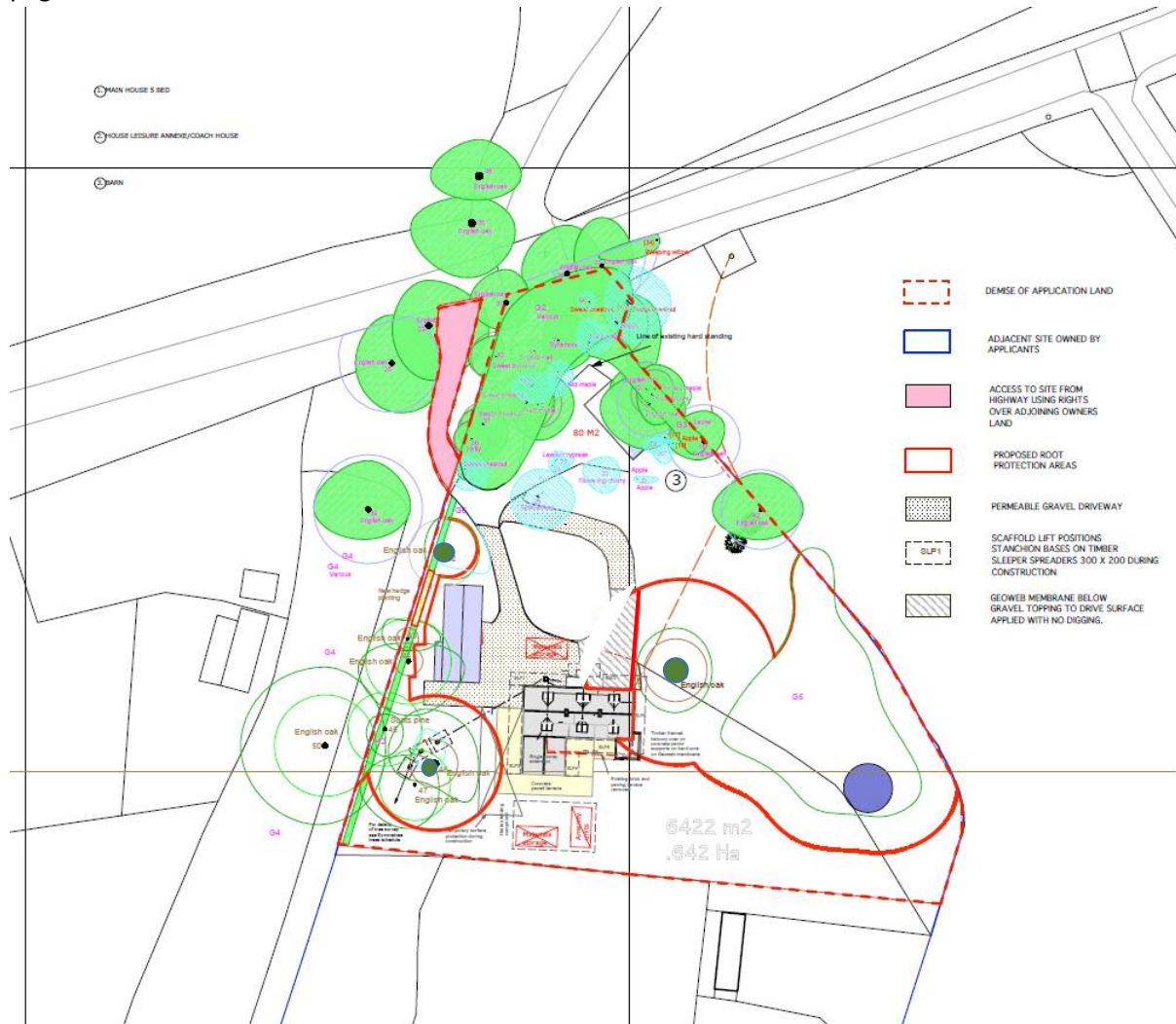
The British Standard advises at 4.3.1 that soil type should be considered when designing foundations. It appears (G3) from the British Geological survey map (figure 1 below) that the site is underlain by a silty clay and sandy clay (Thames Gp).

Figure 1



9.0 Tree Protection Plan

The following plan shows the positioning of the RPA fencing with distances from trees calculated in SYM01, and to be read in conjunction with page 07. The construction of fencing is shown in figure 2, page 11.



9.1

Trees can be easily damaged during construction activities, such as digging, ground compaction by traffic and machinery passing over root areas, and branches being broken. The majority of roots are to be found in the upper 600mm of soil and as a result even shallow trenches can sever the majority of nutrient carrying roots being so vital for tree health.

9.2

Tree roots carry out the function of hydraulic conductivity through complex systems transporting water and nutrient to the stems harbouring osmotic forces, pushing and pulling water around the living structure by sources and sinks. This is all a delicate balance whereby a break in the supply of moisture can have serious and long-term detrimental effects on tree health, along with wounding to tissues. Spillages of toxic materials can have a similar adverse effect on tree roots and vitality. Soil levels must not be built up around stems and roots of trees, as this will damage anaerobic conditions, as does removing / reducing levels and soil compaction. Adequate protection, both above and below ground is therefore essential for trees that are to be retained in the development. The British Standard 5837: 2012 Trees in relation to design, demolition and construction – Recommendations advise that there should be a root protection area (RPA) around trees which is kept free of all construction activities by means of an exclusion zone enforced by protective fencing and/or ground protection. The RPA is calculated as the area equivalent to a circle with a radius of 12 times the trunk diameter at a height of 1.5 m above ground level. Based on my survey data, protection areas have been calculated and are illustrated in table format (SYM 01), see point 7.0 on page 7. To eliminate damage to tree roots, all construction activities and excavations must be undertaken outside of the RPA.

Protective fencing and ground protection

9.3

The positions of protective fencing must be erected before any groundworks take place or any materials are delivered on site. Fencing will remain in place throughout the construction and will only be taken down to allow final landscaping. For distances calculated see the table SYM 01, Page 7. To mitigate risk of damaging trees any access into the site and storage of materials must also be outside any exclusions zones.

9.4

The 2 m high protective fencing will consist of a scaffold framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3 m (Figure 2, page 11). Onto this, weld mesh panels or 2 m high shuttering board will be securely fixed with wire or scaffold clamps. Weld mesh panels on rubber or concrete feet will NOT be used as these are not resistant to impact and are too easily removed by site operatives. High visibility all weather notices on a yellow background will be securely attached to the barrier around each protection zone with wording as shown in Figure 3, Page 11. Where long lengths of barrier are erected a sign will be attached at intervals of no less than 6m.

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Figure 2

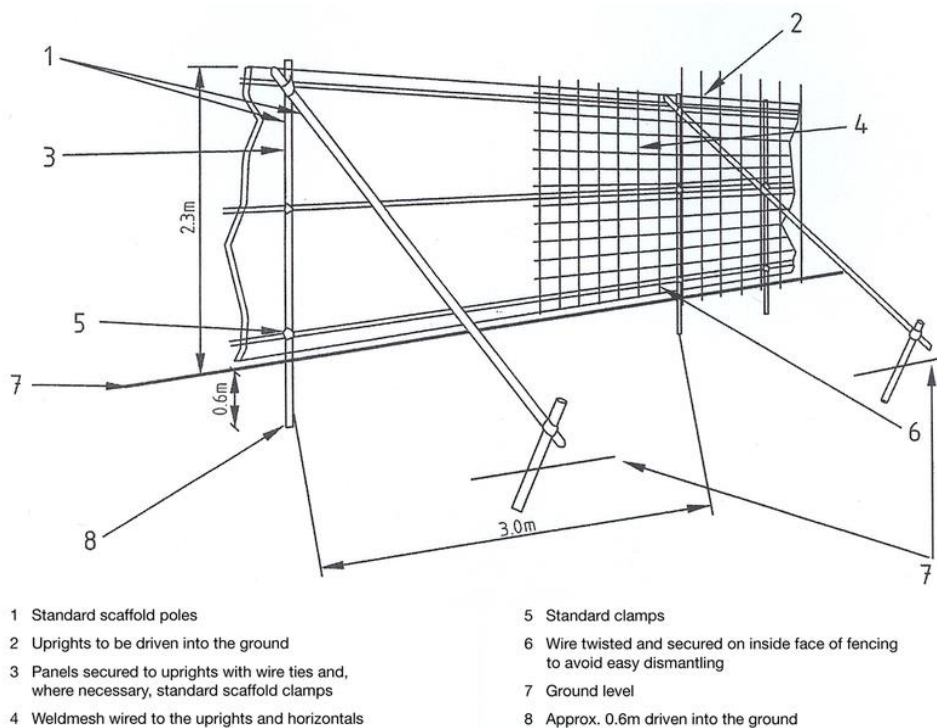


Figure 3





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Burning of waste

9.5

No fires will be lit on site within 3 m of root protection areas due to the danger of scorching of leaves and branches of overhanging trees.

Changes in level

9.6

No changes in soil levels are proposed. Digging activities for driveway construction and any soil level changes above or below tree roots as a result of works is prohibited within RPA's. This will damage tree health if roots are severed or soil is built up around the root areas, or at further detriment to tree health any organic material directly around the main stems. Soil must be removed from site, or kept outside of all RPA's.

Space for machinery, parking of vehicles, storage of materials, site huts and services

9.7

Consideration should be given in the contractor's method statement of how to get machinery onto the site without damaging trees. Further to this, how materials and will be delivered and stored within the site, outside root protection areas. Provision for site huts and parking of vehicles outside root protection areas should also be considered in the method statement. A ground protection material such as Geoweb should be incorporated and used where necessary. See SYM 02: Case study for more information.

9.8

New services will be installed outside the root protection areas.

Site supervision

9.9

It is recommended that this report should be made available to and read by all professionals involved with tendering for and implementing any planning consent obtained before construction activities commence on site. The owner or site manager should inform operatives of the content of this or any subsequent tree report and be responsible for implementing and enforcing its recommendations. Considerations should be given in cost estimates to engaging the services of a competent project arboriculturist to be consulted on tree protection prior to the commencement of and for the duration of construction works.

It is recommended that prior to works commencing on site a contractors method statement should be prepared dealing with the procedures necessary to avoid damage to tree roots and/or branches. The method statement should deal with the timing and method of installation of tree protection and will need to state that this will be put in place and be checked by a competent person prior to the commencement of any construction works. It should also state that tree protection will not be removed under any circumstances until works on site have been completed to the satisfaction of a competent arboriculturist.

10.0 Arboricultural Method Statement

10.1

Ensure this is read by all contractors working on site:

- **After the installation of protective fencing and prior to any works commencing; the ground protective driveway material such as Geoweb must be installed within the RPA of T41, solely by the use of hand tools. This must be the first development to be actioned.**
- Tree Protection fencing will be installed prior to all works commencing as specified in the Tree Protection Plan. See 9.0 previously stated.
- The work site must be planned prior to any construction works commencing, ensuring site amenity is organised and placed in accordance with this method statement. All routes around the site are arranged to be away from all tree Root Protection Area`s.
- The delivery and storage of building materials will only be actioned outside of all tree Root Protection Area`s. Areas are allocated on the Site Plan at 9.0. Access will be through the main gate at the front of the property, already a sealed surfaced drive way. The sealed driveway continues on to the side of the property
- The mixing and preparation works of all materials will solely be undertaken outside of all trees RPA`s. Areas are allocated on the Site Plan at 9.0.
- Machinery must be kept outside of all RPA`s, and no works undertaken within any Root Protection Area. Access in and out of work areas are to be planned in the contractors method statement, prior to works beginning; ensuring access is not within any of the trees RPA`s.
- Soil or materials arising from works must not be stored or moved within any tree RPA.
- No soil level changes are permitted within any Tree`s RPA.



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- Scaffold will be erected solely by the use of hand tools, and be above ground where there is encroachment into the RPA of T41. **To further ensure no damage to roots all scaffold base plates will be supported at ground level within the RPA onto load bearing railway sleeper timbers, designed to tolerate large loads. They will spread the weight of the scaffold base areas. The Timbers will be fitted at scaffold load bearing sections by hand, no digging permitted; and using only hand tools when working within the RPA of T41.**
- Materials will be removed from the scaffold outside the RPA of T41. No materials are to be stored, or machinery be used in any RPA; instead use the designated areas to store materials for waste disposal, and deliveries of new materials.
- No Access will be made through the RPA of T41, Instead routes around the RPA will be made; ensuring to make passages around the protective fencing. **Ensure no access to the scaffold is within the RPA of T41.**
- **The first floor balcony support timber within the RPA of T41 must be transported to location and constructed only by the use of hand tools. No digging will be undertaken to install the upright timber, an above ground fitting will be implemented with a base slab 600mm x 600mm being load bearing above ground level.**
- Where the proposed driveway extends into the RPA of T41 a “honeycomb” style support structure like Geoweb will be implemented with gravel incorporated to ensure no ground compaction within the RPA. The construction of this is to be actioned solely with use of hand tools within the RPA. This must be undertaken prior to any other works to ensure the ground protection required for T41.



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11.0 Conclusion

11.1

A survey and Arboricultural Impact Assessment at the private residence, Yaffles, Beech Hill Road, Reading has been carried out in accordance with BS 5837: 2012 Trees in relation to design, demolition and construction- recommendations. Six trees were surveyed.

11.2

Methods ensuring protection of the trees to be retained have been described, including a case study of GEOWEB, see SYM 02, Page 15. Trees have been surveyed with data shown in a tabular format see 7.0, Page 7.

11.3

T41 has a RPA currently within the property footprint. No further encroachment will be as a result of the proposed development **with exception to one above ground post and an area of above ground “geoweb” style driveway. This is in my opinion offset by a large area of tarmac being removed to the front of the property within the RPA of T41, and instead a permeable material installed. Where scaffold needs to be within the RPA of T41, only hand tools will be used and a support timber implemented.** No materials will be stored within the RPA. No access points will be made through the RPA of T41, instead ensuring routes around the RPA will be made.

11.4

All other trees RPA's are outside the proposed development and with the use of protection laid out in this AIA there is no threat to them being damaged as a result of works undertaken.

11.6

Ways to potentially mitigate from damaging root areas are by piling foundations. For driveway construction, the use of a Geoweb style material will help prevent root damage and soil compaction.

SYM 02: Geoweb UK case study

Critical Root Zone/ Tree Protection Zone is the minimum area beneath a tree that must remain undisturbed to preserve a sufficient amount of root mass in order to give a tree a chance of survival. Used extensively in civil engineering construction for over 30 years, the GEOWEB system is a three dimensional structure that:

- Provides strength to confined soils
- Distributes loads laterally, not vertically
- Reduces point loads
- Reduces compaction of the subsoil
- Protects tree roots

The GEOWEB Tree Root Protection system is an economical solution for reducing construction vehicle impact to the tree root zone.

Slope, Channel and Shoreline Protection

The GEOWEB confines, reinforces and restrains the upper soil layer and infill controlling down-slope movement and slippage due to hydrodynamic and gravitational forces. In a channel application the Geoweb will also provide protection against low-to-high flows.



Typical Application

- Embankment slopes
- Geomembrane protection
- Abutment protection
- Swales and drainage ditches
- Tree Root Protection
- Load Support

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Site Photos:





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If you have any queries do not hesitate to contact me.

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