

Ref	Species	Measurements	Spread	General Observations	Retention Category	RPA	Recommendations	Measurements2	Reinspect
T01	Horse Chestnut ( <i>Aesculus hippocastanum</i> )	Height (m): 20 Stem Diam (mm): 1120 Spread (m): 10N, 12E, 11S, 9W Crown Clearance (m): 6 Lowest Branch (m): 6(NW) Life Stage: Over Mature Rem. Contrib.: 40+ Years	N:10 E:12 S:11 W:9	Previously Pollarded More recently crown reduced Good ground clearance. Some epicormic growth from 2 to 8m. Onset of leaf minor	A3	Radius: 13.4m Area: 564 sq m.	During construction: Protect trees with protective barriers - as shown on plan. Ground protection for pedestrian operated plant up to 2 tonnes.	Physiological Cond: Fair Structural Cond: Fair Bat Habitat: Medium	3 Yrs.
T02	Laurel Cherry ( <i>Prunus laurocerasus</i> )	Height (m): 5 Stem Diam (mm): 80 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 2 Lowest Branch (m): 1(W) Life Stage: Semi Mature Rem. Contrib.: 10+ Years	N:2 E:2 S:2 W:2	Growing against the house..	C1	Radius: 1.0m. Area: 3 sq m.	Remove this tree to enable site access.	Physiological Cond: Good Structural Cond: Fair Bat Habitat: None	N/A
T03	Cabbage palm ( <i>Cordyline australis</i> )	Height (m): 5 Stem Diam (mm): 230 Spread (m): 2N, 2E, 2S, 2W Crown Clearance (m): 4 Lowest Branch (m): 5(SW) Life Stage: Semi Mature Rem. Contrib.: 20+ Years	N:2 E:2 S:2 W:2	No significant observations	B1	Radius: 2.8m. Area: 25 sq m.	During construction: Protect trees with protective barriers - as shown on plan.	Physiological Cond: Good Structural Cond: Good Bat Habitat: None	3 Yrs.
T04	Cabbage palm ( <i>Cordyline australis</i> )	Height (m): 5 5 stems, diam(mm): 170, 140, 140, 80, 70 Spread (m): 2N, 2E, 2S, 3W Crown Clearance (m): 4 Life Stage: Semi Mature Rem. Contrib.: 20+ Years	N:2 E:2 S:2 W:3	Multi stemmed counted as one tree.	B1	Radius: 3.4m. Area: 36 sq m.	During construction: Protect trees with protective barriers - as shown on plan.	Physiological Cond: Good Structural Cond: Good Bat Habitat: None	3 Yrs.
T05	Osier ( <i>Salix viminalis</i> )	Height (m): 5 6 stems, avg.(mm): 50 Spread (m): 3N, 3E, 3S, 3W Crown Clearance (m): 1.5 Life Stage: Semi Mature Rem. Contrib.: 10+ Years	N:3 E:3 S:3 W:3	No significant observations	C1	Radius: 1.5m. Area: 7 sq m.	During construction: Protect trees with protective barriers - as shown on plan.	Physiological Cond: Good Structural Cond: Fair Bat Habitat: None	3 Yrs.
T06	Sweet Gum ( <i>Liquidambar styraciflua</i> )	Height (m): 7.5 Stem Diam (mm): 170 Spread (m): 4N, 4E, 4S, 3W Crown Clearance (m): 4 Lowest Branch (m): 5(SW) Life Stage: Semi Mature Rem. Contrib.: 20+ Years	N:4 E:4 S:4 W:3	Street tree No significant observations	B1	Radius: 2.0m. Area: 13 sq m.	No Action Required at this time (NAR).	Physiological Cond: Good Structural Cond: Good Bat Habitat: Low	3 Yrs.
T07	Sweet Gum ( <i>Liquidambar styraciflua</i> )	Height (m): 7.5 Stem Diam (mm): 190 Spread (m): 3.5N, 4E, 4S, 3.5W Crown Clearance (m): 4 Lowest Branch (m): 5(W) Life Stage: Semi Mature Rem. Contrib.: 20+ Years	N:3.5 E:4 S:4 W:3.5	Street tree No significant observations	B1	Radius: 2.3m. Area: 17 sq m.	NAR	Physiological Cond: Good Structural Cond: Good Bat Habitat: Low	3 Yrs.
T08	Sycamore ( <i>Acer pseudoplatanus</i> )	Height (m): 15 2 stems, diam(mm): 500, 450 Spread (m): 8N, 6E, 8S, 7W Crown Clearance (m): 5 Life Stage: Early Mature Rem. Contrib.: 40+ Years	N:8 E:6 S:8 W:7	Previously crown reduced Good ground clearance.	B1	Radius: 8.1m. Area: 206 sq m.	During construction: Protect trees with protective barriers - as shown on plan.	Physiological Cond: Good Structural Cond: Fair Bat Habitat: Medium	3 Yrs.

### 8 Demolition

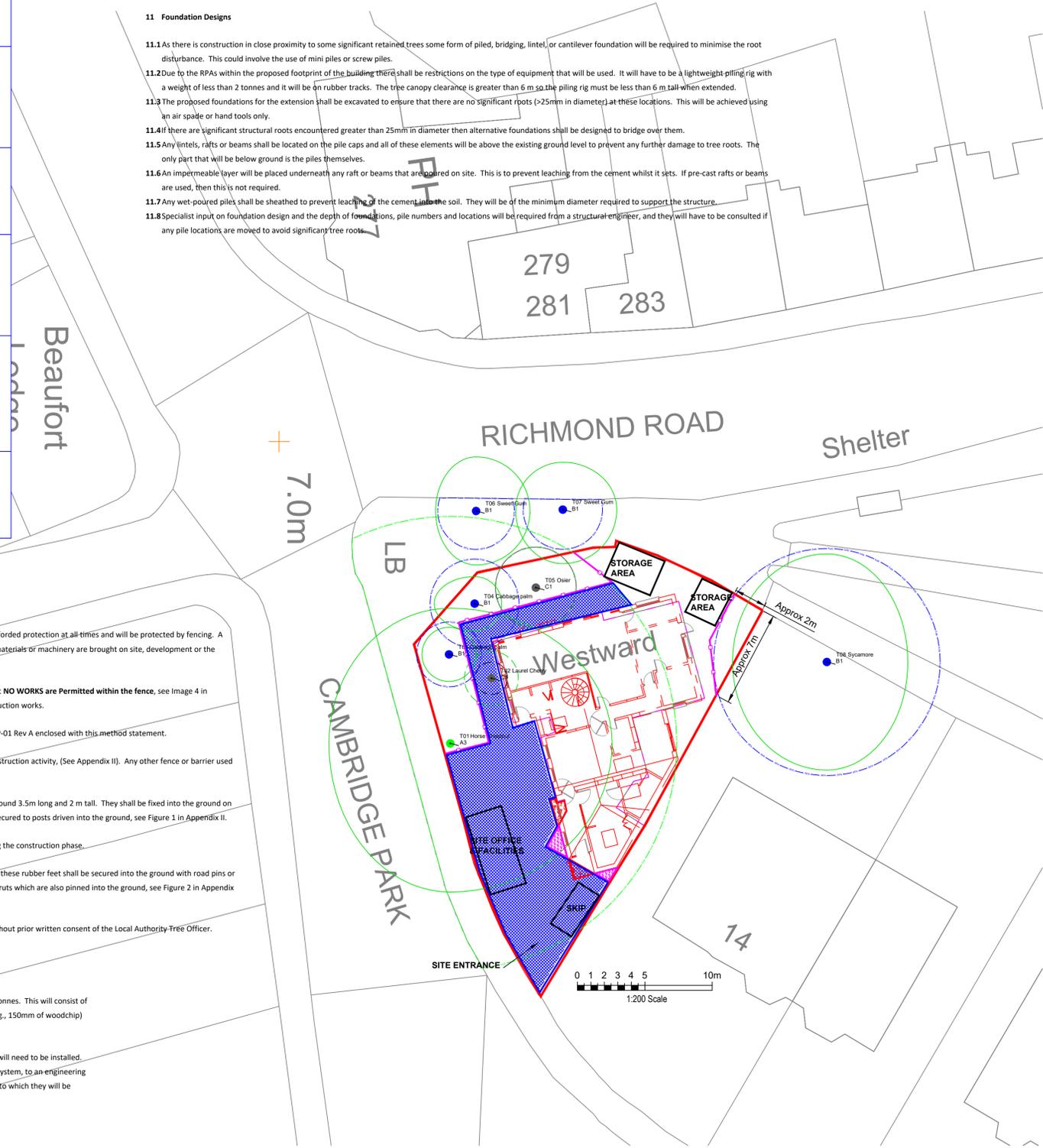
- 8.1 Demolition of the existing building in two small section on the south-eastern corner of the site shall take place as the first phase of the construction process to enable access to the development site. The tree protection fencing, constructed as per Figure 2 in Appendix II and BS 5837 (2012) and the ground protection measures as per Section 2 of this method statement and Appendix II shall be installed prior to any demolition works commencing and shall be fit for excluding construction activity. This forms the CEZ and shall remain fit for purpose for the duration of the construction and associated site works.
- 8.2 The demolition of the existing buildings will be undertaken with care, using only hand tools to prevent damage to any tree roots or the compaction of the soil. There will be no storage of spoil or building materials within the root protection area (RPA) of Tree 1. This is with the exception of the material put in the small skip to the east.
- 8.3 The ground protection measures shall be installed around the existing footprint and once the demolition and removal are completed will be extend to the edge of the proposed footprint.

### 10 Construction within the RPA (No-dig)

- 10.1 The only incursions into the RPAs of retained trees are the small extension to the south in two areas, and the section to the rear. With regard to the section to the rear it is the modified RPA of T01 that extends into it, but this runs underneath the entire existing building, so unlikely to have any roots extending that far back under the building.
- 10.2 The foundations at the front of the proposed extension shall be hand dug and either bridged over these areas or piled. Consequently, there will be no below ground impact beyond the footprint of the existing building, and no penetration of the ground other than the piles themselves.
- 10.3 Following the demolition of the existing building and removal of all the materials there will be a careful excavation of the area of the proposed foundations. This will be undertaken using either air spade equipment or using hand tools only. This will be undertaken to establish whether there are any significant structural tree roots, i.e., greater than 25mm or whether there are any dense fibrous mats of feeder roots.
- 10.4 If any individual roots less than 25mm are encountered or small numbers of fibrous roots these may be severed using sharp secateurs leaving a clean cut of the smallest possible diameter. If no significant structural roots are encountered, then the foundations will continue as proposed in the original plans.
- 10.5 The new foundations shall be installed following the installation of a non-permeable membrane that will prevent contamination of the adjacent soil from substances leaching out from the foundations.

### 11 Foundation Designs

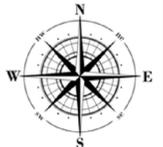
- 11.1 As there is construction in close proximity to some significant retained trees some form of piled, bridging, lintel or cantilever foundation will be required to minimise the root disturbance. This could involve the use of mini piles or screw piles.
- 11.2 Due to the RPAs within the proposed footprint of the building there shall be restrictions on the type of equipment that will be used. It will have to be a lightweight piling rig with a weight of less than 2 tonnes and it will be on rubber tracks. The tree canopy clearance is greater than 6m so the piling rig must be less than 6m tall when extended.
- 11.3 The proposed foundations for the extension shall be excavated to ensure that there are no significant roots (>25mm in diameter) at these locations. This will be achieved using an air spade or hand tools only.
- 11.4 If there are significant structural roots encountered greater than 25mm in diameter then alternative foundations shall be designed to bridge over them.
- 11.5 Any lintels, rafts or beams shall be located on the pile caps and all of these elements will be above the existing ground level to prevent any further damage to tree roots. The only part that will be below ground is the piles themselves.
- 11.6 An impermeable layer will be placed underneath any raft or beams that are located on site. This is to prevent leaching from the cement whilst it sets. If pre-cast rafts or beams are used, then this is not required.
- 11.7 Any wet-poured piles shall be sheathed to prevent leaching of the cement into the soil. They will be of the minimum diameter required to support the structure.
- 11.8 Specialist input on foundation design and the depth of foundations, pile numbers and locations will be required from a structural engineer, and they will have to be consulted if any pile locations are moved to avoid significant tree roots.



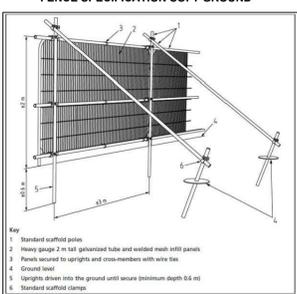
### Legend

- CATEGORY A TREE
- CATEGORY B TREE
- CATEGORY C TREE
- CATEGORY U TREE
- ROOT PROTECTION AREA (RPA)  
Coloured by Tree Category
- MODIFIED ROOT PROTECTION AREA (MRPA)
- CROWN SPREAD
- TREE TO BE REMOVED
- PROTECTIVE FENCING
- TEMPORARY GROUND PROTECTION
- "NO-DIG" CONSTRUCTION
- CEZ CONSTRUCTION EXCLUSION ZONE
- ◆ NEW TREE
- ▲ SOIL TEST
- SHADE (CURRENT)
- SHADE (FUTURE)
- LOW BRANCH DIRECTION
- HAND-DIG EXCAVATION

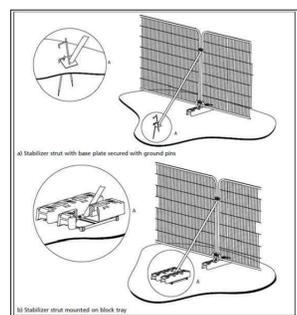
### Notes:

### FENCE SPECIFICATION SOFT GROUND



### FENCE SPECIFICATION HARD GROUND ONLY



### 1 Construction Exclusion Zone

- 1.1 No works will be undertaken within any Construction Exclusion Zone (CEZ). The CEZs are to be afforded protection at all times and will be protected by fencing. A protective fence shall be erected prior to the commencement of any site works e.g., before any materials or machinery are brought on site, development or the stripping of soil commences.
- 1.2 The fence shall have signs attached to it stating that this is a Construction Exclusion Zone and that **NO WORKS are Permitted within the fence**, see image 4 in Appendix II. The tree protection fencing may only be removed following completion of all construction works.
- 1.3 The fence is required to be sited in accordance with the Tree Protection Plan ref AC.2021.434 TPP-01 Rev A enclosed with this method statement.
- 1.4 They must be constructed as per Figures 1 and 2 in BS 5837 2012 and be fit for excluding any construction activity, (See Appendix II). Any other fence or barrier used must be fit for the purpose.
- 1.5 The fencing unless otherwise agreed with the tree officer shall consist of Heras fencing panels, around 3.5m long and 2 m tall. They shall be fixed into the ground on scaffold poles driven at least 0.6m into the ground. They shall be supported by rear struts also secured to posts driven into the ground, see Figure 1 in Appendix II.
- 1.6 All bolts shall be secured from inside the fencing to prevent easy removal from the outside during the construction phase.
- 1.7 Where there are existing hard surfaces, then rubber feet can be used to support the fencing, but these rubber feet shall be secured into the ground with road pins or other robust metal pins, to prevent the fencing being moved. This shall also be secured by rear struts which are also pinned into the ground, see Figure 2 in Appendix II.
- 1.8 All tree protection fencing shall be regarded as sacrosanct and will not be removed or altered without prior written consent of the Local Authority Tree Officer.

### 2 Ground Protection Measures

- 2.1 The ground protection measures will be for pedestrian operated plant up to a gross weight of 2 tonnes. This will consist of proprietary interlinked ground protection boards placed on top of a compression-resistant layer (e.g., 150mm of woodchip) laid on a geotextile membrane. Alternatively Piling Mats can be used.
- 2.2 If site vehicle access is required into the site, then more substantial ground protection measures will need to be installed. These shall consist of either metal road plates or precast reinforced concrete slabs or a proprietary system, to an engineering specification, designed in conjunction with arboricultural advice, to accommodate the likely loading to which they will be subjected. This is in accordance with BS5837 (2012).

**Arbor Cultural Ltd.**  
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36 Central Avenue, West Molesey, Surrey, KT8 2QZ  
T 0333 577 5523 M 07899 984162  
E: admin@arbor-cultural.co.uk W: www.arbor-cultural.co.uk

Client: Mr Nick Taylor of Imby3 Ltd.

Project: Westward, Cambridge Park, Twickenham, Middlesex TW1 2PF

Title: TREE CONSTRAINTS PLAN  
TREE PROTECTION PLAN

Date: 10/12/21 Scale: 1: 200 Original Paper Size: A1

Drawn: IST Checked: - N/A Job Ref: AC.2021.498

Drawing Number: **TPP-01** Rev: **A**

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