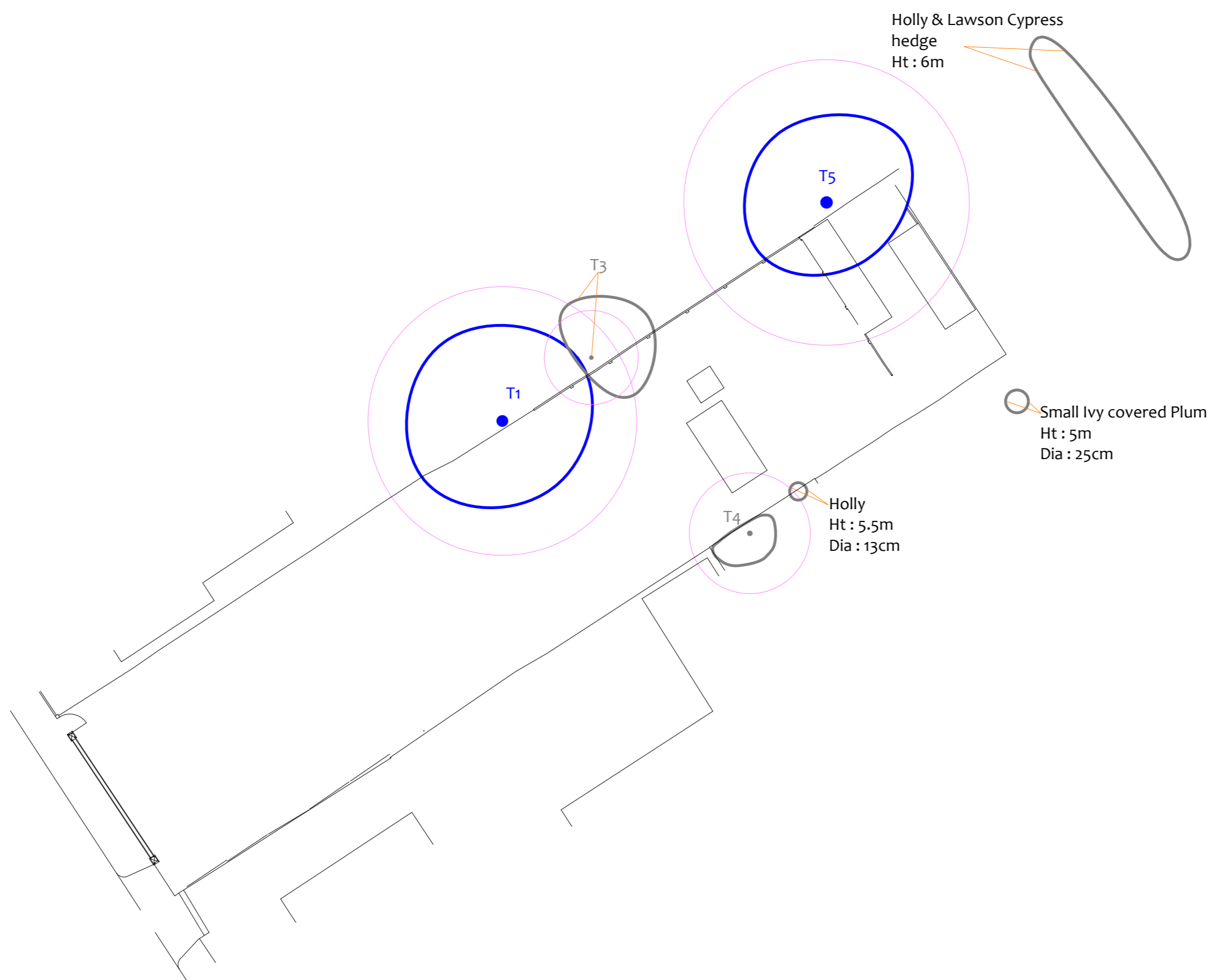




Tree Constraints Plan

(Existing Layout)



Drawing No: CCL 09521B / TCP Rev: 2

Title: Tree Constraints Plan (Existing Layout)

Site: 217 Kingston Road Teddington, TW11 9JN

Scale: 1:300 Paper Size: A2



Tree Retention Categories
Stems & canopies shown

Category A tree

Category B tree

Category C tree

Category U tree

Trees of high quality with an estimated life expectancy of 40+ years. Usually large trees with significant presence or smaller trees with excellent form. Retention of these trees is highly desirable.

Trees of moderate quality with a life expectancy of 20+ years. Usually maturing trees, or younger trees with good form. Retention of these trees is desirable though less than Category A trees

Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.

Trees unsuitable for retention due to their very poor condition.

Tree Constraints Plan

BS 5837 Root Protection Area (radius = 12xstem diameter)

Root Protection Area needing amendment due to site conditions, e.g. presence of existing road or building.

Root Protection Area having been amended to account for for site conditions

T1 = Tree No 1 G2 = Group No 2 H3 = Hedge No 3

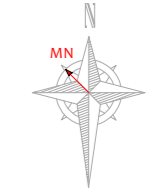
MN = Measured North:

Canopy spreads are sometimes measured to an approximate N defined by site features. Often more accurate, especially where rows of trees are not aligned N-S or E-W.

| Tree Ref. | Species | Height (m) | Root Protection Area | | |
|-----------|---------------------|------------|----------------------|----------------|------------|
| | | | Radius (m) | m ² | Square (m) |
| T1 | Sycamore | 17 | 9.6 | 290 | 17.0 |
| T2 | Cherry (removed) | 4 | 1.2 | 5 | 2.1 |
| T3 | Sycamore | 7 | 3.4 | 35 | 6.0 |
| T4 | Plum Horse Chestnut | 4.5 | 4.3 | 59 | 7.7 |
| T5 | | 9.5 | 10.2 | 327 | 18.1 |

Excerpts from the Arboricultural Impact Assessment

Existing Layout (Blue)
Proposed Layout (Pale Green)



Impact Assessment Plan

(Existing Layout with Proposals Overlaid)

Overview

It is proposed to demolish the existing buildings and construct a new building comprising seven units to the front of the site and single dwelling with a basement to the rear of the site. Six of the units will have two bedrooms each; the final unit will have one bedroom. Parking spaces shall be installed to the rear of the building and shall be accessed by a driveway running alongside the south-eastern boundary.

The proposals are indicated on the plans in Appendix 6. The existing layout is indicated in blue, the footprint of the proposed layout is indicated in pale green.

The table below summarises the potential impact on trees due to various activities.

| Activity | Trees Potentially Affected |
|------------------------------------|---|
| Tree Removal: Retention Category A | None |
| Tree Removal: Retention Category B | None |
| Tree Removal: Retention Category C | None |
| Tree Removal: Retention Category U | None |
| Tree Pruning | T3 |
| RPA: Foundations | T4, T5 |
| RPA: New Surface | T1, T4 |
| RPA: Underground Services | None Anticipated |
| RPA: Change of Ground Levels | None |
| RPA: Soil Compaction | T1 (preventable by installing tree protection measures) |

Other potentially damaging activities often associated with construction sites include demolition or the careless use of plant machinery, hazardous materials, or fires.

All of the above potential impacts are considered in detail throughout this section. Section Error! Reference source not found. specifies the measures proposed to minimise all possible potential risks of damage to the retained trees.

Tree Removal

All trees to be removed are indicated on the Tree Removal Plan and are listed below:

- Retention Category A:** Our survey did not identify any Retention Category A trees.
- Retention Category B:** It is proposed to retain all Retention Category B trees.
- Retention Category C:** It is proposed to retain all Retention Category C trees.
- Retention Category U:** Our survey did not identify any Retention Category U trees.

Details specific to each tree can also be found in the Tree Data Schedule.

Impact on Tree Canopies

It is proposed to trim the overhanging foliage of T3, back to the boundary (or very close to it). All other tree canopies shall be unaffected by the proposals.

Impact on Tree Roots

Foundations: The proposal shall require excavation for basement/foundations within the Root Protection Areas of T4 (25.4% affected) and T5 (1.3% affected).

The impact upon the root system of T4 will be more than compensated by the recent pruning that has removed approximately 30% of its canopy. Consequently, no restrictions are proposed on foundation design within this tree's RPA.

The foundations for the new building will extend to the very edge of the Root Protection Area of T5. However, only 1.3% of the Root Protection Area shall be affected so the impact is considered to be negligible. In order to ensure a minor impact, it is proposed to install the basement in a manner that does not disturb any of the soils beyond the footprint of the basement. This may be done via contiguous piling, sheet piling, pinning or any similar method which restricts excavation to the basement footprint.

New Surfaces: The Impact Assessment Plan indicates where it is proposed to install a new surface over the Root Protection Area of T1 and T4. However, the impact on T4 is considered to be negligible (less than 2.5% affected) and consequently no restrictions are proposed on surface design over the RPAs of both trees.

In order to minimise the impact on roots of T1, the following mitigation is proposed:

- A suitable load spreading surface shall be in place at all times during demolition and construction activities.
- No excavation shall occur beneath the existing surface and its sub-base.
- Only hand tools shall be used or a mechanical excavator operating on a suitable load spreading surface and supervised by an appointed arborist.
- A gravel sub-base containing no fine particles shall be incorporated into the design. This shall be contained within a 3D cellular confinement system to ensure that the weight of vehicles will be evenly spread over a wide area. This shall prevent excessive soil compaction and reduce the depth of sub-base required.
- A porous surface and sub-base are proposed which will enable passage of oxygen and water to the soils beneath.

To summarise: The proposed new surface shall be compliant with industry best practice when installing new surfaces over tree roots (BS 5837 (2012) Section 7.4, and arboricultural Practice Note 12 'Through the Trees to Development'). So long as the surface is installed as specified in Section 11 there shall be no long term detrimental impact on tree health.

These measures are specified in Section 6 and indicated on the Tree Protection Plan.

Underground Services: No underground services are to be installed through any Root Protection Areas.

Changes in Ground Levels: No changes to ground levels are proposed over Root Protection Areas.

Summary

No trees or other significant vegetation exists within the curtilage of 217 Kingston Road.

No pruning works are required to facilitate the proposal.

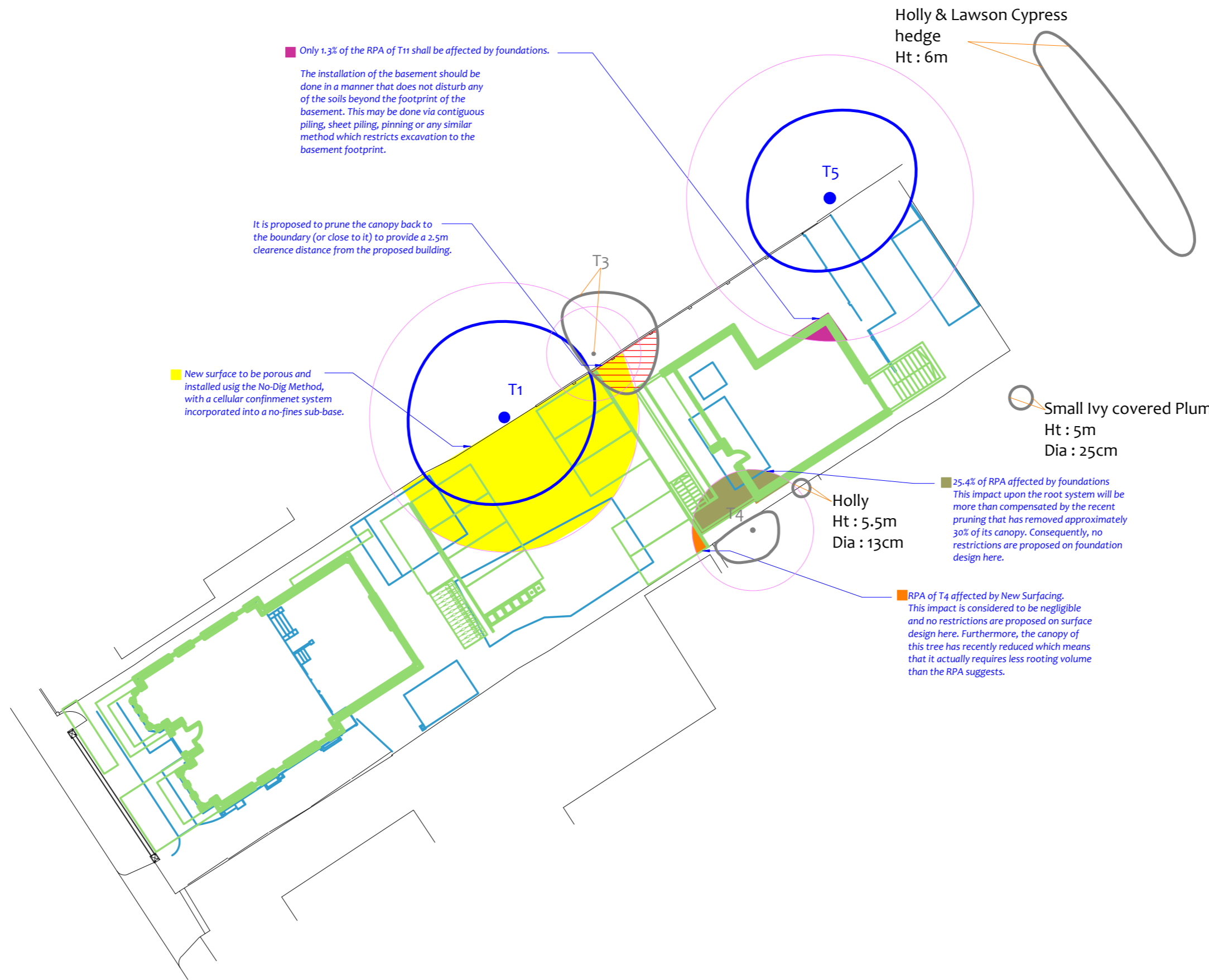
Basement foundations are proposed within the Root Protection Area of T4 and T5. However, the small extent of RPA of T5, affected coupled with the sympathetic foundation design, shall ensure no detrimental impact on this tree. A larger portion of the RPA of T4 shall be affected however this impact will be offset by the heavy crown reduction that has been recently undertaken.

A new hard surface is proposed within the RPA of T1. However, a porous surface is proposed using the No-Dig Method as per BS 5837 recommendations.

A suitable load spreading surface shall need to be maintained throughout Restricted Activity Zone A.

Tree protection measures are specified throughout Section 6 that will ensure no negative impact on retained trees due to construction activity.

Adequate space has been allowed between the proposal and all trees such that no future pressure to over-prune or remove trees shall occur as a consequence of the proposal.



| | |
|--------------|--|
| Drawing No: | CCL 09521C / IAP Rev: 2 |
| Title: | Impact Assessment Plan (Existing Layout with Proposals Overlaid) |
| Site: | 217 Kingston Road Teddington, TW11 9JN |
| Scale: 1:300 | Paper Size: A2 |



| Tree Retention Categories | |
|---------------------------|-----------------|
| Stems & canopies shown | |
| | Category A tree |
| | Category B tree |
| | Category C tree |
| | Category U tree |

| | |
|--|---|
| | Trees of high quality with an estimated life expectancy of 40+ years. Usually large trees with significant presence or smaller trees with excellent form. Retention of these trees is highly desirable. |
| | Trees of moderate quality with a life expectancy of 20+ years. Usually maturing trees, or younger trees with good form. Retention of these trees is desirable though less than Category A trees. |
| | Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration. |
| | Trees unsuitable for retention due to their very poor condition. |

Impact Assessment Plan

| | | |
|----------------|--|-----------------|
| | BS 5837 Root Protection Area (radius = 12xstem diameter) | |
| | Root Protection Area needing amendment due to site conditions, e.g. presence of existing road or building. | |
| | Root Protection Area having been amended to account for site conditions | |
| T1 = Tree No 1 | G2 = Group No 2 | H3 = Hedge No 3 |

| | |
|--|---|
| | Tree to be removed to facilitate the proposal |
| | Tree to be removed due to its low quality |
| | Proposed pruning |

MN = Measured North:

Canopy spreads are sometimes measured to an approximate N defined by site features. Often more accurate, especially where rows of trees are not aligned N-S or E-W.

| Tree Ref. | Species | Height (m) | Root Protection Area | | | |
|-----------|------------------|------------|----------------------|-----|------------|--|
| | | | Radius (m) | m² | Square (m) | |
| T1 | Sycamore | 17 | 9.6 | 290 | 17.0 | |
| T2 | Cherry (removed) | 4 | 1.2 | 5 | 2.1 | |
| T3 | Sycamore | 7 | 3.4 | 35 | 6.0 | |
| T4 | Plum | 4.5 | 4.3 | 59 | 7.7 | |
| T5 | Horse Chestnut | 9.5 | 10.2 | 327 | 18.1 | |

Excerpts from the Arboricultural Method Statement

Section B: Restrictions on Activities – Specific Zones

Construction Exclusion Zones

Within Construction Exclusion Zones (shaded purple on the Tree Protection Plan) the following restrictions shall apply:

- Fencing shall be erected and maintained throughout the entire project as indicated on the Tree Protection Plan and specified in Section 6.2 - Tree Protection Barriers.
- No construction activity whatsoever shall occur.
- No tree work, other than those specified in this report shall be undertaken.
- No alterations of ground levels or conditions.
- No chemicals or cement washings permitted.
- No excavation whatsoever.
- No temporary structures.
- No spoil shall be stored.
- No fires shall be permitted.
- All hazardous materials (including non-essential cement products) shall be forbidden.

Any hard surfaces that require removal shall be removed prior to the installation of the protective fencing or following all other major construction activity and the removal of the fencing. Surfaces shall be removed using hand tools or mechanical excavators operating from outside the Construction Exclusion Zone and marshalled by the appointed arborist.

Restricted Activity Zone A

Within this zone (indicated on the Tree Protection Plan) trees roots are likely to be present. Access will be required to facilitate construction and it is proposed to install a new driveway and car parking area. The following restrictions shall apply:

- Any resurfacing or installation of new hard surfaces shall be done strictly in accordance with the Guidelines in Section 10 - New Surfaces.
- Removal of existing structures such as, walls, steps and hard surfaces shall be undertaken using hand tools or a mechanical excavator operating from outside the Restricted Activity Zone and carefully marshalled by an appointed arborist.
- No new permanent or temporary structures shall be erected without written approval from the local authority.
- A suitable load spreading surface shall be installed and/or maintained as specified in Section 9 - Ground Protection Measures. This shall remain in place throughout the entire construction phase.
- No excavation shall occur in this zone without consulting the appointed arborist and obtaining approval from the local authority.
- Storage of materials shall be limited to that which is required for the task in hand. Heavy materials that require storage for more than two days shall be stored outside the Restricted Zone.
- No spoil shall be stored.
- No fires shall be permitted.
- All hazardous materials (including non-essential cement products) shall be forbidden.
- No machinery in excess of 2.5m tall shall pass through or operate in this zone unless carefully marshalled in order to avoid damage to branches.

Restricted Activity Zone B

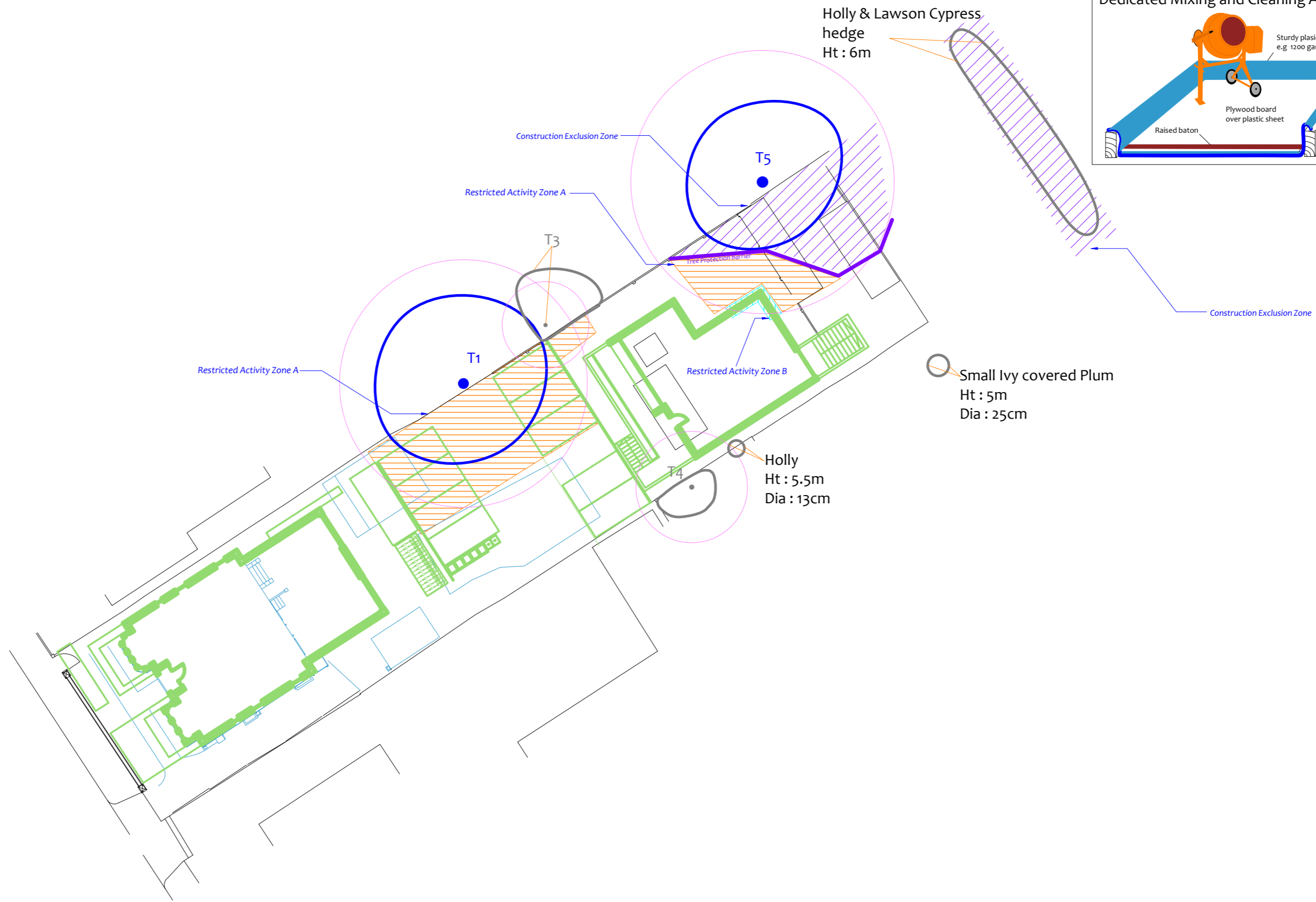
Within this zone (indicated on the Tree Protection Plan) it is proposed to excavate for the basement. Either contiguous piling (or sheet piling) shall be installed along the edge of the basement, or an alternative method shall be adopted which does not disturb soils beyond the footprint of the basement (e.g. pinning). A typical method of pinning would be to excavate to a specified depth (e.g. 1m), install shuttering and then cast the concrete basement walls. Then to excavate short sections beneath this wall and cast deeper concrete. Then to excavate in between these deeper sections and infill with concrete. In this manner excavation may continue to any specified depth without disturbing soils beyond the footprint of the build.

The specific method adopted will vary between contractors. However, the following restrictions will apply and must be adhered to:

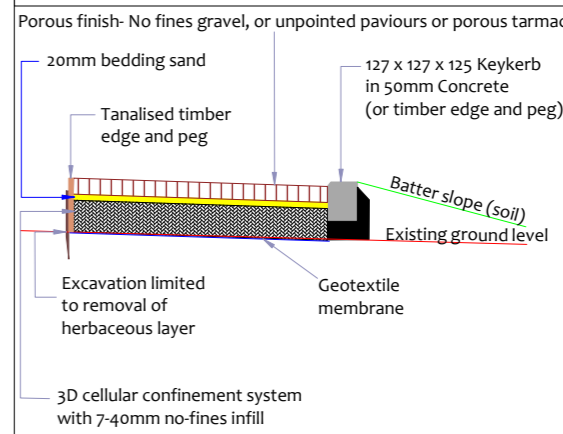
- No excavation or ground disturbance shall occur beyond the footprint of the basement.
- No large plant machinery shall operate beneath the canopy of T₅.
- Where a small excavator is used, it shall operate from within the footprint of the basement.
- The excavator shall be marshalled to ensure no contact is made with the canopy of T₅.
- The appointed arborist or local tree officer shall be invited to oversee the initial stages of excavation or piling.

See Section 6 for more restrictions that apply throughout the site

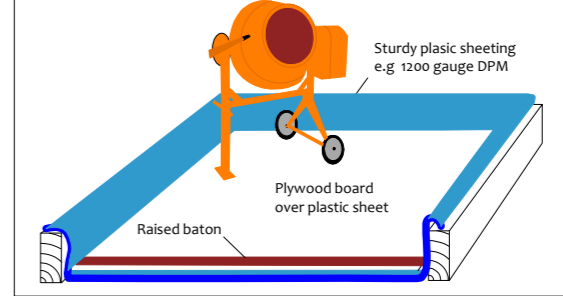
Existing Layout (Blue)
Proposed Layout (Pale Green)



Drive Construction: No-Dig Method



Dedicated Mixing and Cleaning Area

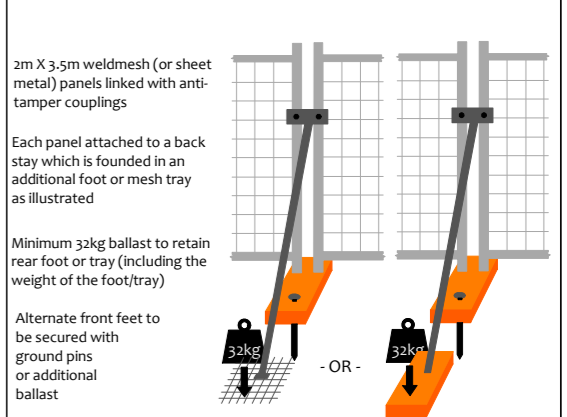


Tree Protection Plan

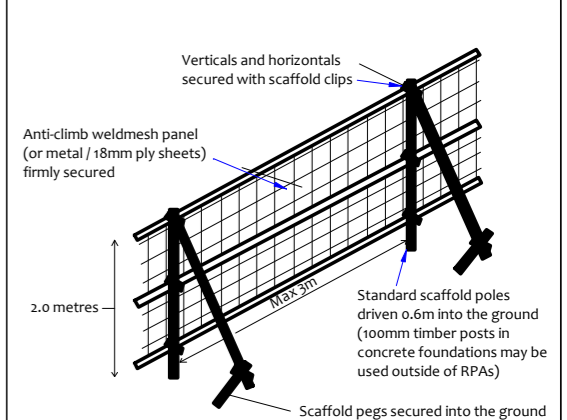
Tree Protection Barriers:

| | |
|---|--|
| Fixed protective barrier: The 'In-Ground System' or the 'Backstay System'. To remain in place for all construction activity | Construction Exclusion Zone Stem protected to a height of 2.5m with thick cloth & wire Tree Protection Boxing 1.2 x 1.2 x 2.4m high 25mm plywood |
| Moveable protective barrier: The 'Backstay System'. To remain in place except when approved works are being undertaken in the Restricted Zone | Orange Barrier Mesh Fencing. Ht 1m, on steel fencing pins and wooden posts To remain in place throughout all construction activity |

The 'Back Stay System'



The 'In-Ground' System



Construction Exclusion Zone

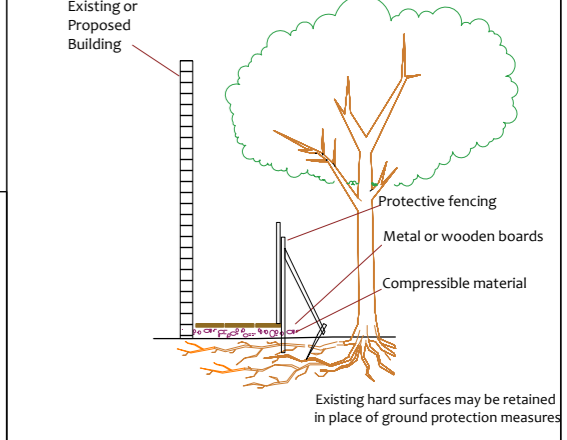
Within this area the following restrictions shall apply:
No excavation or land regrading whatsoever.
No storage of materials, rubble, soil or spoil.
No fires within the exclusion zone or within 10m of any tree canopy.
No site cabins or other temporary structures.
No discharge of polluted water, cement or chemicals of any kind.
No use of any machinery, or passage or parking of vehicles.
No tree works without council consent.

Restricted Activity Zones

Restrictions are detailed within the accompanying Method Statement



Ground Protection in Restricted Activity Zone



| | |
|-------------|---|
| Drawing No: | CCL 09521C / TPP Rev: 4 |
| Title: | Tree Protection Plan |
| Site: | 217 Kingston Road Teddington, TW11 9JN |
| Scale: | 1:300 |
| Paper Size: | A2 |



| Tree Retention Categories | |
|---------------------------|-----------------|
| Stems & canopies shown | Category |
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| | Category B tree |
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- Unremarkable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.
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Tree Protection Plan

| | |
|----------------|--|
| | BS 5837 Root Protection Area (radius = 12xstem diameter) |
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