

Arboricultural Method Statement

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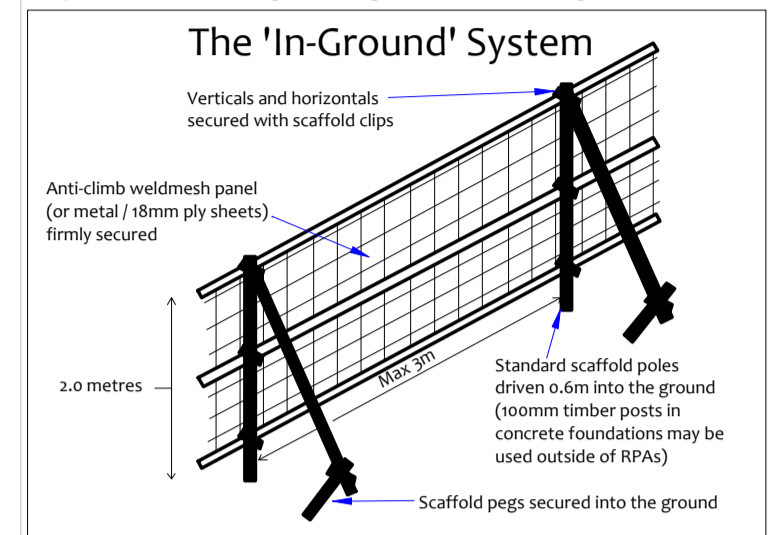
Tree Protection Barriers

The purpose of tree protection barriers is to keep construction activity away from Restricted Activity Zones or Construction Exclusion Zones. They should be appropriate to the nature and proximity of activity within the site. The barriers should be erected prior to the commencement of all activities including demolition, soil stripping and delivery of materials and demolition (except where existing structures require demolition to be installed). Barrier systems are specified below and should be installed according to the legend on the Tree Protection Plan.

The In-Ground System

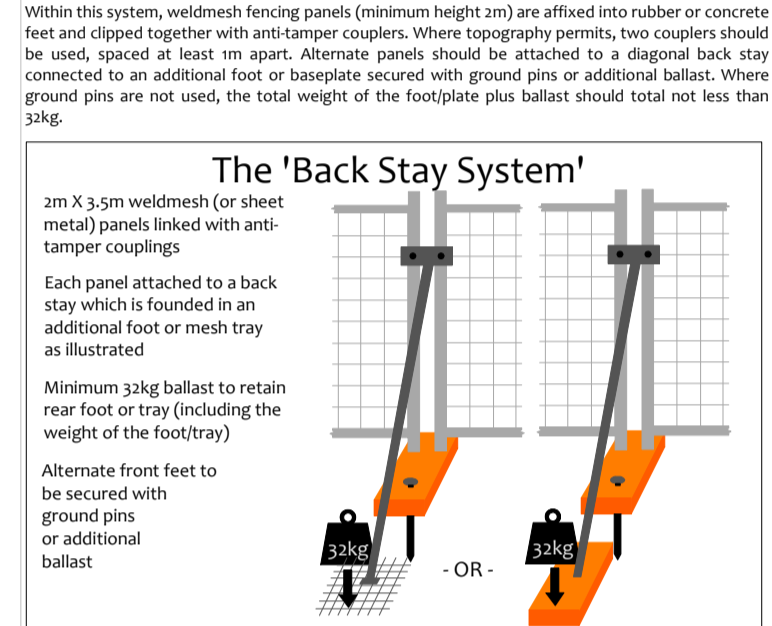
This system may be installed where indicated by a dashed purple line on the Tree Protection Plan. It should be robust enough to withstand occasional knocks by plant machinery and, once installed, shall remain in place throughout the entire construction phase.

Vertical scaffold poles are driven into the ground, onto which are affixed horizontal scaffold poles and diagonal bracing struts. Widthmesh panels (or similar - e.g. Hiera type fencing panels, or 18mm thick boards) are secured to this scaffold framework using sturdy clips (e.g. standard scaffold clips). The system is illustrated in the diagram on the right and is based on BS 5837 guidelines.



The Back-Stay System

This system may be installed where indicated by a solid or dashed purple line on the Tree Protection Plan. It is more practical over existing hard surfaces or where the fencing needs to be moved to enable permitted activities within a Restricted Activity Zone. This system should be able to withstand occasional knocks by machinery and should not be relocated except with the consent of the SR manager and the approval of the local authority.



Notices

Suitable weather-proof notices should be displayed to identify tree protection zones. They should state the purpose of the fencing and that it should not be moved, or traversed, other than by authorised personnel.

Restrictions on Activities – Specific Zones

Construction Exclusion Zones

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

- Tree Protection Barriers shall be erected and maintained throughout the entire project as indicated on the Tree Protection Plan and under the Header Tree Protection Barriers.
- These shall remain in place at all times except when authorised landscaping works are being undertaken. At such times, all restrictions that apply to the Restricted Activity Zone shall apply. Furthermore, the project arborist shall be informed prior to any works being undertaken in these zones.
- No construction activity whatsoever shall occur.
- No excavation whatsoever shall occur.
- No vehicles or plant machinery shall be driven or parked.
- No tree works other than those specified in this report shall be undertaken.
- No alterations of ground levels or conditions.
- No chemicals or cement washings permitted.
- No temporary structures shall be installed.
- No spoil shall be stored.
- No fires shall be permitted.
- All hazardous materials (including non-essential cement products) shall be forbidden.
- Removal of hard surfaces or turf shall be done using hand operated tools only.

Restricted Activity Zone A

Within this zone trees roots are likely to be present where access will be required to facilitate construction. The following restrictions shall apply:

- No vehicles or plant machinery shall park or operate unless a suitable load spreading surface is in place. The load spreading surface shall be installed and/or maintained as specified under the heading **Construction Protection Measures**. This shall remain in place throughout the entire construction phase or until any new permanent hard surfacing is installed. Any pedestrian activity other than very occasional shall also require a suitable load spreading surface.
- Removal of existing structures such as walls, steps and hard surfaces (where applicable) shall be undertaken using hand tools or a mechanical excavator operating from outside the Restricted Activity Zone and carefully marshalled by the project arborist.
- No excavation shall occur beneath any existing hard surfacing and its sub-base or beneath the foundations of any structure such as walls, steps or paths.
- No further excavation shall occur in this zone without consulting the project arborist and obtaining approval from the local authority.
- Existing ground levels shall be retained undisturbed or raised by no more than 100mm. Ground levels may only be raised using granular topsoil (not rich in clay) or where new surfacing is proposed.
- No new permanent or temporary structures shall be erected other than those shown on the planning application documents unless approved by the local authority.
- Underground services shall not be installed in this area without prior consultation with the project arborist and a methodology agreed and approved by the local authority.
- If roots are encountered in excess of 25mm diameter, they shall be retained wherever possible and protected with damp sacking during times that they are unearthed. Any roots in excess of 10mm that need to be severed shall be neatly pruned with secateurs.
- Storage of materials and spoil shall be avoided unless it has been agreed with the project arborist that the ground protection measures are adequate to ensure no soil compaction or contamination occurs. All hazardous materials (including non-essential cement products) shall be forbidden.
- No fires shall be permitted.

Restricted Activity Zone A (Continued)

When removing/replacing an existing hard surface the following additional restrictions shall apply:

- Hand operated tools shall be used to lift existing surface wherever practicable.
- Where this is not practicable, plant machinery may be used. However, the project arborist shall be consulted first to agree on methodology and supervision requirements. Plant machinery should operate from outside the Restricted Activity Zone wherever possible.
- The surface should be removed in as small sections as practicable.
- The project arborist shall be made aware and shall oversee all significant excavation and resurfacing.
- Any excavation beneath the existing hard surface shall be kept to an absolute minimum and shall be carefully undertaken using hand tools. No excavation shall occur beneath the existing aggregate.
- If any roots in excess of 10mm are encountered, they shall be retained and, if necessary, finished ground levels shall be raised close to trees.
- All soil to 10mm roots shall be retained, unless the project arborist deems that they may be removed. In which case they shall be neatly pruned.
- Roots between 10mm and 25mm that need to be removed shall also be neatly pruned with sharp secateurs.
- Exposed roots shall be protected with damp soil or hessian sacking.
- Where ground grating has occurred immediately below a proposed hard surface, fertile soil shall NOT be used to backfill.
- Following removal of the existing surface but prior to installation of the new surface, all plant machinery shall drive, operate or park until a suitable or mechanical load spreading surface is installed as specified under the heading **Construction Protection Measures**.

Ground Protection Measures

Within the Restricted Activity Zone, soils containing roots may be subject to compaction due to general construction activity (including pedestrian activity and use of plant machinery). In order to ensure compaction, it is proposed to ensure that a suitable load-spreading surface is in place at all times.

Any existing hard surfacing may be retained and reinforced (where applicable and adequate), otherwise suitable new ground protection measures shall be installed. The ground protection shall need to be able to adequately spread the load of construction traffic. Where existing hard surfacing is to be retained, it shall not be necessary to install additional ground protection measures. However, the hard surfacing shall be firm enough to spread the load of any traffic passing overhead.

Where only pedestrian traffic will occur, the ground protection measures may be as simple as timber boards, or scaffold planks installed directly onto a geotextile fabric on the ground. The ground should be made even by raking, or by adding a few centimetres of sand or woodchips. Alternatively the boards may be supported by a scaffold framework. The scaffold may be founded on poles driven into the ground and/or onto blocks (to raise the scaffold) with additional couplings to make the framework secure.

Where only light vehicles are to operate (e.g. barrows, trolleys or occasional cars), thick wooden boards or scaffold planks should also suffice, though at least 150mm of compressible woodchips will need to be installed first to help spread the load. Sturdier systems are specified below.

Where cars will regularly park or heavier vehicles/plant machinery will occasionally operate, sturdier ground protection measures will be required such as metal road plates, or purpose built synthetic road mats over a compression resistant layer such as 150mm of woodchips or 100mm of a 3D cellular confinement system infilled with 7-40mm angular gravel (e.g. Cellweb®).

A temporary concrete slab may also be considered as a suitable load spreading platform. Where a pile driver needs to operate, a concrete slab may be the preferred option.

Where existing structures need to be removed, this shall be done with temporary ground protection measures in place to enable this to be achieved without compacting soils.

The ground protection measures shall be installed and approved before commencement of demolition and construction activity and before the arrival of plant machinery or materials. They shall remain in place until all heavy construction activity is complete or until they are to be replaced with a new surface.

General Restrictions – Throughout the Site

Preparatory Works

No demolition, removal of surfaces, or soil stripping shall commence until the protective fencing and ground protection measures are installed to the satisfaction of the local authority.

Fires

No fires shall be permitted beneath any tree canopy or within 5m of any tree stem, branch or foliage. No fires shall be permitted in or on the Restricted Activity Zone or Restricted Activity Zone A. No fires shall be permitted in the vicinity of any exposed tree roots.

Canopy Protection

In order to protect tree canopies the following restrictions shall apply throughout the site:

- No machinery in excess of 2m shall pass beneath the canopy of any tree being worked carefully marshalled in order to ensure that no branches are damaged.
- If materials require installation or removal, the excavation shall cease and the use of overhead cranes.
- If materials are to be installed or delivered close to tree canopies (but not beneath them) and a crane is required, they shall be carefully marshalled in order to ensure that branches are not accidentally damaged.

Underground Services

No underground services (including soak-aways) shall be located in any part of the Construction Exclusion Zones or Restricted Activity Zones unless done so in a manner detailed in a specific Method Statement and approved by the local authority.

Storage of Spoil and Materials

Storage of materials and spoil shall be avoided in any Construction Exclusion Zones and Restricted Activity Zones unless it has been agreed with the project arborist that the ground protection measures are adequate to ensure no soil compaction or contamination occurs. All hazardous materials (including non-essential cement products) shall be forbidden.

Hazardous Materials

Any mixing of cement based materials shall take place outside the Construction Exclusion Zones and Restricted Activity Zones. Where cement is to be mixed at considerable distances from trees and water runoff cannot enter Root Protection Areas, then no further special measures are required. Otherwise, provision shall be made to ensure that the mixing area is contained so that no water runoff enters the Root Protection Area of any trees (see diagram for example). Mixers and barrows shall be cleaned within this area.

All other chemicals hazardous to tree health, including petrol and diesel, shall be stored in suitable containers as specified by current COSHH Regulations, and kept away from Root Protection Areas.

Further General Restrictions – Throughout the Site

Site Hoarding

If site hoarding shall be installed over the Root Protection Area of any tree, the following restrictions wherever possible and protected with damp sacking during times that they are unearthed. Any roots in excess of 10mm that need to be severed shall be neatly pruned with secateurs.

- Ground levels shall be maintained as existing.
- Post holes shall not exceed 300mm x 300mm.
- No post hole shall be excavated within 15m of any stem.
- Post holes shall be excavated using hand tools or by a post-hole auger attached to plant machinery sited outside of Root Protection Areas.
- Roots in excess of 30mm shall be retained wherever possible.
- Roots in excess of 10mm shall be pruned with sharp secateurs.
- Pruning shall be minimal and only undertaken where absolutely necessary to facilitate the site hoarding. It shall be undertaken by a reputable tree surgeon working to BS 3998 (2019).

Siting of Cabins

Cabins shall be located outside of Construction Exclusion Zones and Restricted Activity Zones unless agreed otherwise by the project arborist. Where this is being considered, the project arborist shall be consulted and specific tree protection measures agreed. The following general restrictions will apply:

- All services to and from site cabins shall be installed above ground through any Root Protection Areas.
- No excavation shall occur within Root Protection Areas to enable cabins to be installed.
- The cabins shall be founded on a suitable load spreading surface.

Fence Posts or Decking Posts

If permanent fencing or decking is to be installed within Root Protection Areas, the following restrictions shall apply:

- All post holes shall be excavated by hand and kept as narrow as possible (maximum diameter 300mm).
- Exploratory post holes shall be dug before committing to post / panel positions. If any roots in excess of 50mm are encountered they are to remain intact and the post hole shall be relocated slightly. The fencing system must permit such flexibility (i.e. where fixed panel widths are used, all post holes must be excavated before committing to the final location).
- Any roots in excess of 10mm which are severed shall be neatly pruned back with secateurs. This will encourage healing and reduce the likelihood of infection.

Walls shall be avoided over Root Protection Areas unless their foundations may be spanned over roots using a beam system.

Hedges may be planted within Root Protection Areas using hand tools to minimise excavation.

New Surfaces

No-Dig Surface: Ground Preparation

This section specifies the No-Dig Method which must be used when installing any new hard surface surfaces in Restricted Zones.

Ground Preparation: Existing Hard Ground

- Where a hard surface already exists this shall be carefully removed in as small sections as possible and overseen by the project arborist.
- Small plant machinery (such as a Bobcat) may be used if carefully marshalled by the project arborist. If possible, the machinery should operate from outside of RPAs. Otherwise, suitable ground protection should be installed to prevent soil compaction over tree roots.
- The aggregate sub-base may be retained & reused. Otherwise it shall be carefully removed using hand tools so that it does not contain any roots in excess of 25mm diameter.

Ground Preparation: Existing Soft Ground

- Shrubs and perennials should be removed. Turf may be lifted to a depth of 50mm using a hand operated turf lifting machine or a spade. Mechanical excavators shall not be used.
- Herbaceous roots may be removed using hand tools such as a garden fork or hand trowel. If any shrubs or trees have been removed, their roots may also be removed using hand tools.
- If the soils are firm enough all excavation should then cease and the new hard surface sub-base installed over a geotextile.
- However, the upper soil horizons should be carefully removed using hand tools to a depth of 100mm maximum if engineers deem that the soils are too rich in organic matter and therefore do not have the required load bearing capacity. This should be done using hand tools only, in strata of 50mm and overseen by the project arborist.
- However, all woody roots in excess of 25mm diameter (belonging to retained trees) shall remain intact. Smaller diameter roots (less than 25mm) that lie immediately beneath the proposed surface may be pruned if deemed appropriate by the project arborist.
- If roots in excess of 25mm diameter are encountered, the excavation shall cease and levels shall be built up accordingly using a reduced fines aggregate. At least 25mm of coarse sand should cover any unearthed roots prior to the installation of a geotextile and reduced fines aggregate. Such exposed roots should be covered and protected soon after discovery.

Installing the Surface

Surface Edgings

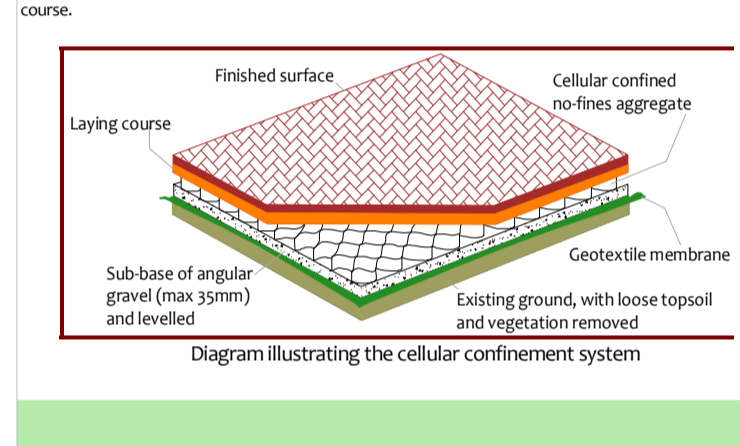
Edging solutions requiring further excavation (e.g. kerbstones set in a trench) will not be used. Instead, an above ground system shall be installed such as a tanalised timber edge retained by narrow pags driven into the ground, railway sleepers or custom made steel edgings held in place by ground pins or by the surface subbase. The specific system adopted shall be agreed with the appointed arborist.

If preferred, batter slopes may be installed to lie in with existing ground levels (max 1:3 gradient, maximum no more increase in ground level). However, no increase in ground level may occur immediately adjacent to any tree stem or exposed buttress roots.

The sub-base

Once the edgings are in place, a geotextile membrane shall be laid down to prevent root penetration into the road surface. A thin layer (10 to 25mm) of angular gravel or crushed aggregate gravel (reduced fines or no fines) may then be laid over the membrane and levelled off.

A 3 dimensional cellular system should then be installed. This may either be a confinement system (flexible or rigid) which incorporates an aggregate, or a raft system that requires no aggregate. These three systems are all considered suitable for use over tree roots and are specified below:



Installing the Surface – Continued

3) Raft System (e.g. Arborat™)

In this system, 89mm or 150mm deep polypropylene box structures are connected together to form a raft which sits above the ground and beneath the finished surface.

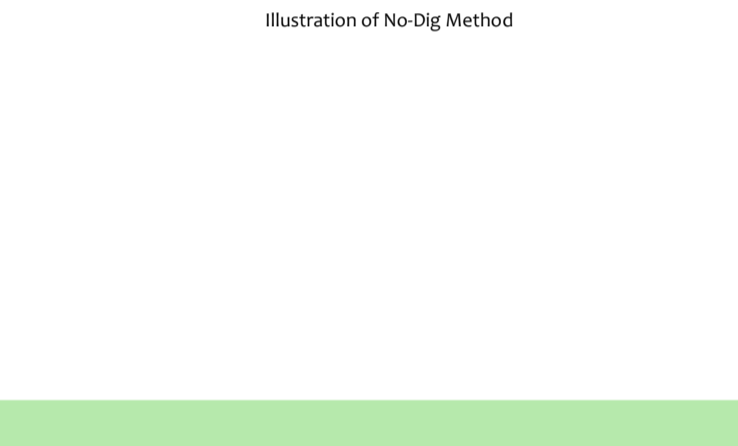
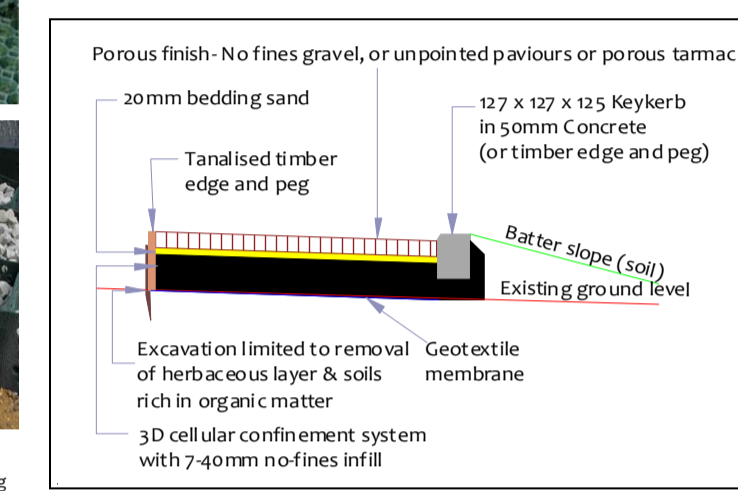
The Finished Surface

The following surfaces are acceptable over rooting areas:

- No fines gravel:** This option offers the maximum permeability. However, loose gravel should be avoided close to the site entrance as it has a tendency to spill out into the adjacent public footway. Reinforced gravel may be acceptable if it is shown to be sufficiently porous to enable rainwater to easily pass through to the sub-base below.
- Block paving:** This is a good alternative as it allows a fair degree of permeability. Blocks with extra wide nicks shall be utilised to enable maximum infiltration of water between the blocks. Blocks shall be jointed with 1mm - 4mm clean hard crushed stone (no fines) brushed over the spaces and settled with the aid of a vibrating plate compactor.
- Porous asphalt to BS EN 12108 (previously British Standard BS 4987 - 1 & 2):** This offers a degree of permeability and is preferred over concrete or asphalt containing fines (e.g. Stone Matrix Asphalt (BS EN 12108-5) or Hot Rolled Asphalt (BS EN 12108-4)). This surface may require a porous binder course. Actual specification will vary according to ground conditions and expected load, and should be agreed with a highways Engineer or Geotechnical engineer.
- Concrete:** Concrete is impermeable so is only suitable for very small areas e.g. narrow paths where oxygen and rainwater runoff will be able to penetrate beneath the surface from the sides. It is possible to engineer a fully concrete solution whereby a concrete slab is supported by narrow piles with a ventilated void beneath. This is effectively a bridge over the Root Protection Area and needs to be specified by an appropriately qualified engineer. This system can provide an excellent solution but is rarely adopted due to the prohibitive cost.

Porous finish: no fines gravel, or unpainted pavements or porous tarmac

20mm bedding sand
Tanalised timber edge and peg
Excavation limited to removal of herbaceous layer & soils rich in organic matter
3D cellular confinement system with 7-40mm no-fines infill
127 x 127 x 125 Kerb (or timber edge and peg)
50mm Concrete (or timber edge and peg)
Batter slope (soil)
Existing ground level



Timing of Operations

Activity within the site shall be phased according to the following chronology:

Order	Phase	Activity
1st.		Planning conditions relating to trees to be identified and discussed with the Project arborist and site manager.
2nd.		All specified tree removal and pruning to be undertaken (see Header -Tree Works Schedule).
3rd.	Pre-Construction Phase	Install the tree protection barriers (fencing and ground protection boards - see Headers -Tree Protection Barriers and Ground Protection Measures).
4th.		Pre-Commencement site meeting: Tree protection barriers inspected. Additional protection measures to be agreed. Variances to be agreed. Location of underground services to be agreed. Boundary treatments to be agreed. Extents of excavation to be agreed. Scaffold restrictions to be agreed. Scope of future inspections / monitoring to be agreed.
5th.		Arboricultural Method Statement to be revised and approved.
Protection measures confirmed acceptable by the local authority		
6th.	Construction Phase	Demolish existing structures and remove existing surfaces where applicable.
7th.		Install new buildings, hard surfaces and services taking into account restricted activities as specified in this Arboricultural Method Statement.
8th.		Site meeting with project arborist. Landscaping restrictions to be agreed. Condition of retained trees to be assessed and mitigation agreed. Ground conditions to be assessed and ground remediation to be agreed.
9th.	Post-Construction Phase	Remove protective barriers (fencing and ground protection measures as applicable).
10th.		Undertake restricted landscaping operations within Root Protection Areas, including (where applicable) boundary treatments, pedestrian surfaces, decking and any proposed tree planting.

Site Monitoring Accountability

This section of the Arboricultural Method Statement should be completed prior to the pre start meeting.

Position	Name	Contact Phone & email	Roles
Project Manager	Insert Details	Insert Details	Liaising with site manager & project arborist regarding any potential issues relating to trees. Oversight of this monitoring schedule. Instructing the project arborist and arranging access. Liaising with local authority regarding discharge of planning conditions and variances to the Arboricultural Method Statement. Familiarity with Arboricultural Method Statement. Implementation of the tree protection measures. Day-to-day compliance with Tree Protection Measures. Informing the Project Manager of Tree Protection variances & issues affecting trees.
Site Manager	Insert Details	Insert Details	Inspect tree works and report to the project manager. Inspect tree protection measures and report to Project Manager.
Project Arborist	Crown Tree Consultancy	08000 14 13 30 0203 797 7449 Info@crowntrees.co.uk	Oversee excavations in RPAs, provide mitigation advice, undertake root pruning. Monthly site monitoring and reporting to the Project Manager on tree protection and variances.
Local Authority			Liaising with the project arborist and project manager regarding tree protection issues relating to planning conditions. Advice and assistance with the discharge of planning conditions relating to trees.
Additional Contact	Insert Details	Insert Details	
Additional Contact	Insert Details	Insert Details	

Site Monitoring Schedule

Inspection	Site Attendees	Comments
Pre-Start Desk-top To occur prior to any works taking place on the site.	N/A.	Project Manager and Site manager to study this Method Statement & contact the Project Arborist to agree all protection measures.
Pre-Start Meeting After tree works completed & tree protection barriers / ground protection measures installed. Prior to any other activity.	Site manager, project arborist, Tree Officer invited.	Tree protection fencing locations & specification checked. Additional ground protection measures / restrictions agreed.
All ground disturbance in Restricted Zones & Construction Exclusion Zones including demolition, soil stripping, removal of hard surfaces, excavation for new surfacing, foundations, service trenches etc.	Site manager, project arborist, Tree Officer invited.	Two week's notice to be given prior to excavation. Excavation to be specified in this Method Statement. Mitigation measures to be recorded and photographed. Mitigation measures to be employed specified by the project arborist.
Intermediate Inspection and Reporting Throughout the demolition and external construction phase.	Site manager and project arborist	Project manager, site manager and project arborist to liaise regarding any issues which may affect trees. To occur at least once per month.
Post-Construction Meeting Post external construction activity but prior to removal of fencing & landscaping operations.	Site manager, project arborist, Tree Officer invited.	Retained trees inspected. Ground conditions assessed and mitigation measures agreed where appropriate. Further landscaping operations and restrictions to be agreed.
Post Landscaping Meeting After completion of all hard and soft landscaping.	Site manager, project arborist, Tree Officer invited.	Confirm landscaping and mitigation planting is acceptable.
* Where agreed with the L.A. it may be acceptable to supply photographs of the fencing to avoid the necessity for a site visit.		

Tree Work Specification

The following table specifies the tree works which will be required prior to the commencement of construction activity:

Tree Reference	Action Required	Notes
G2, T13, T14, G15 the hollies south of T7 and small apple trees in the rear garden	Remove.	Stumps of trees within the RPAs of retained trees shall be removed with a stump grinder NOT a mechanical excavator.

Additional works: Any recommendations specified in the Tree Data Schedule (but not replicated in the above table) are intended to maintain the tree population in an acceptable condition. They are made for reasons of good arboricultural practice regardless of development proposals. However, they do not form part of this planning application. Where these trees are protected by a tree preservation order or are in a conservation area, consent must be sought from the local authority. Only the works listed in the table above form part of this planning application whereby no additional consent will be required if planning permission is granted.

Lawson Cypress hedge

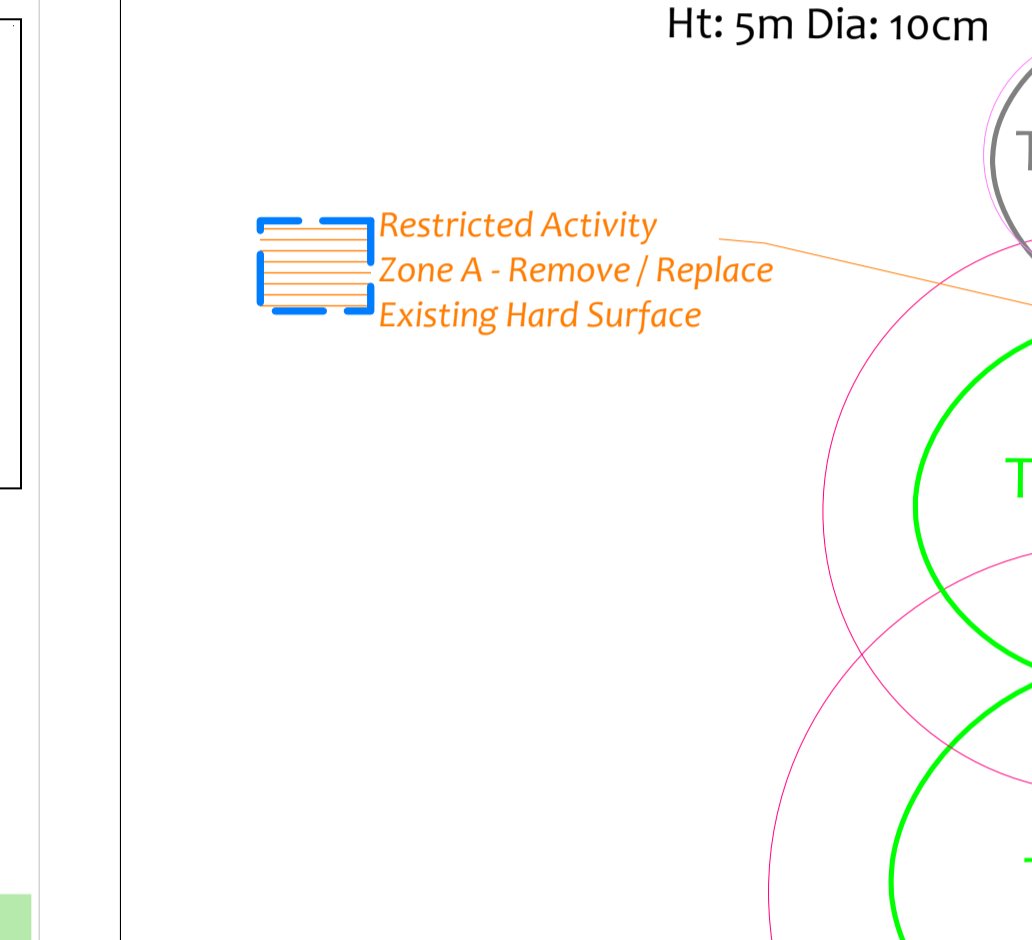
Ht: 4m

Young Eucalyptus

Ht: 4.5m
Multi-stemmed

Italian Cypress

Ht: 5m Dia: 10cm



Tree Retention Categories

Category	Description
Category A 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/condition of these trees is highly desirable.
Category B tree	Trees of moderate quality with a life expectancy of 20+ years. Usually mature trees with good form/condition of these trees is desirable though less than Category A trees.
Category C tree	Unremovable trees of low quality and merit. Individual specimens are not considered to be a material planning consideration.
Category U tree	Trees unsuitable for retention due to their very poor condition.

