

Arboricultural Method Statement

Protected Status Of Trees

Trees may be legally protected, this may either be in the form of a Tree Preservation Order (TPO) or that the trees are located within a Conservation area. In addition some tree felling may require a felling licence from the Forestry Commission.

Potentially large penalties may be enforced for illegally carrying out works on protected trees. It is recommended that checks are made before any works are undertaken and no work should commence until permission has been granted. Please note that there are a number of exemptions from the requirement to obtain a felling licence including land on which till planning permission has been granted by the local authority, however this exemption does not cover land where only outline planning permission has been granted, or on land which has been allocated for residential development within local authority urban and local development plans.

All About Trees has been able to ascertain with Sunderland City Council (the Local Planning Authority) on Tuesday 12th April 2021 that there are no restrictions protecting the trees on the site. Trees 1-7 are located within Area 4 Of Tree Preservation Order Reference 98. It is an offence to carry out work to these trees without receiving permission from the LPA. The approximate extent of the TPO area is indicated on the site plans by the teal coloured hatch pattern.

In addition to this site is located within the Ashbrooke Conservation Area, affording protection for groups 1 and 2. Six weeks' notice must be supplied to the Local Planning Authority for any proposed tree work, to these groups, not otherwise approved by any existing relevant planning permission. It is an offence to carry out any tree work without giving the required notice.

Tree Works

The first arboricultural works on site will be the removal of all the conflicting vegetation:

- Group 2,

which is identified on the Tree Protection Plan (TPP) by the broken black ring surrounding the coloured circle. The root habitat RPA has also been removed from this group.

The stumps may either be ground out using a stump grinding machine or removed as part of the ground excavation works.

Details of any prescribed pruning works are included within Appendix 1 of this report. The tree works should wherever possible be carried out in accordance with BS3998:2010 Tree Work - Recommendations.

Wildlife Habitats

Consideration must be given to wildlife when conducting tree works, particularly birds and bats.

Bats

All UK bats and their roosts are protected by law. The legislation protecting bats are:

- The Wildlife & Countryside Act 1981 (WCA)
- Conservation of Habitats and Species Regulations 2017

For all countries of the UK, the legal protection for bats and their roosts may be summarised as follows:

You will be committing a criminal offence if you:

1. Deliberately capture, injure or kill a bat
2. Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats
3. Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time)
4. Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat
5. Intentionally or recklessly obstruct access to a bat roost

*In a court, 'deliberately' will probably be interpreted as someone who, although not intending to capture/injure or kill a bat, performed the relevant action, being sufficiently informed and aware of the consequence his/her action will most likely have.

Penalties on conviction - the maximum fine is £5,000 per incident or per bat (some roosts contain several hundred bats), up to six months in prison, and forfeiture of items used to commit the offence, e.g. vehicles, plant, machinery.

No visual signs were found to indicate the presence of bats in the surveyed trees.

When carrying out tree works it is essential that the contractor or other competent person carries out a specific 'bats in trees risk assessment' which can be obtained from the 'Arboricultural Association or the 'Bat Conservation Trust' (BCT). If evidence of bats is found work must stop immediately and Natural England Baiting contract (0845 1300 220). A further inspection may well be required by a licensed bat handler or roost visitor.

Birds

In the UK, all wild birds, their nests and their eggs are protected by law.

In England, Scotland and Wales the legislation that protects wild birds is:

- The Wildlife and Countryside Act 1981
- The Countryside (or CROW) Act 2000

No nesting birds were seen at the time of inspection though the scope of the site, and the extent of vegetation, potential exists for birds to nest and as such caution must be exercised.

As with bats the contractor has an obligation to carry out visual checks prior to works. Where possible tree works should be carried out in the period from August to the end of February in order to avoid the bird nesting season.

Protective Barrier Erection

The protective barriers are to be erected prior to the commencement of site works including demolition, soil stripping or movement, bringing onto site of materials, supplies or machinery. Tree works can be undertaken prior to the erection of the barriers.

The barriers must be erected in the position indicated on the Tree Protection Plan (TPP) by the dark blue line and be constructed as per the following specification.

The barriers should be considered essential and should not be removed or altered without prior recommendation by an Arboriculturist and approval of the local planning authority.

Linear Barrier

The barrier should consist of proprietary 2m tall welded mesh panels mounted on rubber or concrete feet. The panels must be joined together with a minimum of two anti-tamper couplings situated at least 1m vertically apart and installed uniformly throughout the barrier so that they can only be removed from inside the barrier. The panels must be supported on the inner side by stabilising struts mounted on a block tray.

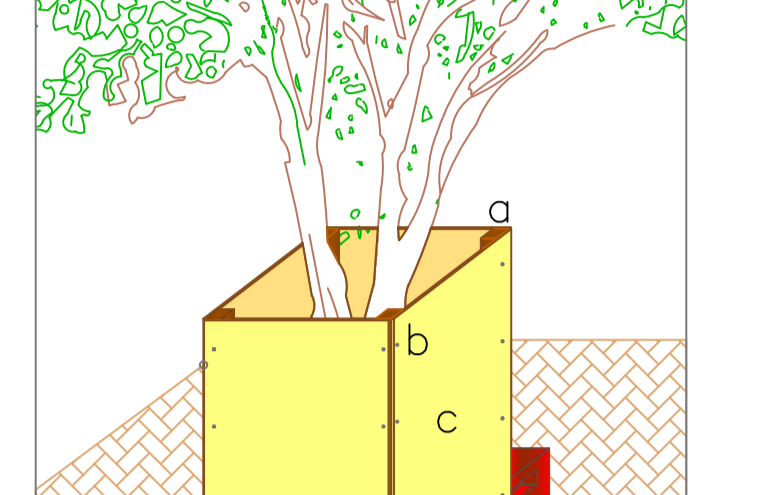
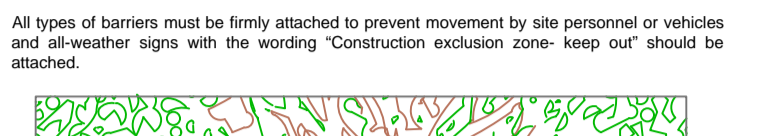
Box Protection

Due to space constraints box protection is the most suitable option to protect trees 2-4. A guideline specification is provided below:

- a - 100mm x 100mm x 2.4m galvanised post
- b - 60mm annular ring shank nails or wood screws
- c - 2400mm x 1200mm x 18mm external plywood board
- d - Weight to help prevent movement. In this example waterfilled bollards are used. Wooden sleepers or sandbags could also be used as alternatives.
- e - Undisturbed ground.

No fixing shall be made to any tree and all possible care must be taken to prevent damage to tree roots when locating the posts.

All types of barriers must be firmly attached to prevent movement by site personnel or vehicles and all-weather signs with the wording 'Construction exclusion zone- keep out' should be attached.



Location of Site Compound & Storage Areas

The contractor's site compound, storage & parking areas must be located outside of the root protection areas (RPAs) of the retained trees. This includes any trees which are located outside of the study area but not included within the survey.

All site storage areas, especially cement mixing and washing points for plant and vehicles must also be situated outside of the root protection areas (RPA). Where there is a possible risk of polluted water runoff heavy duty plastic sheeting and sand bags must be used to contain spillages and contamination.

No Dig 'Tree Friendly' Porous Surfacing

The development requires the installation of 'tree friendly' no dig porous surfacing in the areas shown by the green hatching on the TPP adjacent to trees 2-5.

If the principles of the 'no dig' construction are followed, no significant permanent damage should occur to the retained trees.

The principal rules of construction are as follows:

- 1) No roots are to be severed (except for hand digging to remove rocks or protrusions taking care not to sever any roots over 2.5cm in diameter).
 - 2) The soil must not be compacted
 - 3) Oxygen and water must be able to diffuse into the soil beneath the engineered surface
 - 4) The construction of the road, footpath or parking bay will have to be above existing ground level and at least 1m away from the trunks of the retained trees.
- The method of construction is:
- 1) Ideally construction should be undertaken between the months of May and October when the ground is at its driest and less prone to compaction
 - 2) Ground vegetation should be carefully removed with any organic material being removed from the site of the surfacing to prevent the build up of anaerobic conditions beneath the surfacing which will damage the tree roots.
 - 3) No digging should take place within the protective zone except for the careful removal of organic matter by hand tools. Any hollows must be filled with sharp sand, any digging to remove rocks or protrusions must be by hand taking care not to sever any roots over 2.5cm in diameter. Charges should be ground out rather than excavated to prevent damage to the retained trees roots.

Photo 1 - line of tree roots prior to the commencement of works. Photo 2 - stump of Fibretex material onto existing substrate

The method of providing a permeable surfacing is as follows:

- 1) Lay a Fibretex F4M Non woven geotextile material directly on the existing subgrade. Overlap dry joints by 300mm
- 2) Lay and expand the cellular confinement system (e.g. Cellweb by Geosynthetics Ltd) and anchor open during infilling. As a general indication only, a depth of at least 100mm is required for domestic traffic up to approximately 3 tons. A 200 mm depth should accommodate vehicles up to approximately 8 tons.
- 3) The three dimensional cell structure is formed by ultrasonically welding polyethylene (perforated) strips and panels together to create a three dimensional network of interconnecting cells. A high degree of frictional interaction is developed between fill and cell wall, increasing the stiffness of the system. The use of cellular confinement reduces the bearing pressure on the subgrade by stabilising aggregate surfaces against rutting under wheel loads. Comparisons between cellular confinement and traditional aggregate and grid reinforced structures demonstrate a 50% reduction in construction thickness.

Photo 3 - expanding and filling the cellular system. Photo 4 - once filled the system can support plant to vary aggregate to fill the area

- 4) Fill the cellular confinement system with a minimum of 100mm of aggregate (the amount is dependent on the depth of the Cellweb employed). The aggregate should not contain any fines and be of an inert type material such as crushed granite rather than any time based product. The angular particle dimensions should be 20-40mm. As most urban soils are already alkaline in nature, the use of dolomite, limestone or crushed concrete is not suitable for this application as it can react with rain water with the potential to change the soil pH and form impenetrable layers which impede water movement and gaseous exchange.
- It is important that the edging material used does not encroach into the protected area and the use of conventional kerbing is not possible as the depth of excavation required for their installation will sever the tree roots.
- Edging supports such as angled steel section or pinned edges are advised as shown in the following drawing although there are a number of varying kerbing options available which do not require any excavation and could be used above the existing ground level.

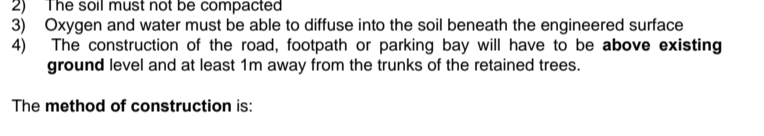


Diagram of edging construction method for retaining not damaged tree roots. Alternative edging materials shown on other side of construction. Block kerbing requires varying slopes.

Diagram showing 60mm washed aggregate, 100mm Cellweb, and Fibretex F4M Non woven geotextile separation fabric over the Cellweb sections.

Drainage Runs/ Underground Services

It is assumed that the existing service runs will be explored where possible, but if new works are required it is important that they comply with the National Joint Utilities Group (NUJUG) Guidelines for the planning, installation, and maintenance of utility services in proximity to trees and BS 5937:2012. The excavation of open trenches by machine will be unacceptable within the protective zone of any of the retained trees.

Whenever possible, services should be routed outside of any retained trees RPA. When this is not possible apparatus should be routed through in a common duct and any inspection chambers sited outside the RPA.

Acceptable techniques for the laying of services in order of preference are:

Method	Trenchless Solutions For Installation Of Underground Services	Accuracy (MM)	Max. depth (MM)	Max. subterranean length (M)	Applications	Not suitable for
Microtunnelling	<D0	100 to 300	40	Gravily fall pipes, deep apparatus, additional roadway under crossing	Low-cost projects due to relative expense	
Surface launched directional drilling	100	25 to 1200	150	Pressure pipes, cables including fibre optic	Gravily fall pipes, e.g. drains and sewers (B)	
Pipe ramming	150	100 to 200	70	Any large-bore pipes and ducts	Rocky and other heavily obstructed soils	
Impact moling (C)	50 (B)	30 to 180 (E)	40	Gas, water and cable connections, e.g. from sewer to property	Any application that requires accuracy over distances in excess of 5m.	

(A) Dependent upon strata encountered
 (B) Pil-launched directional drilling can be used for gravily fall pipes up to 20m in subterranean length.
 (C) Impact moling (also known as thrust-bore) generally requires soft, cohesive soils.
 (D) Substantial inverse relationship between accuracy and distance
 (E) Figures given relate to single pass: up to 300mm bore achievable with multiple passes

If trenchless insertion is not feasible the alternatives are detailed below in order of preference.

- **Broken trench**- by using hand dug trench sections together with trenchless techniques. It should be limited to practical access and installation around or below the roots. The trench must be dug by hand (see following comments re continuous trenching) and only be long enough to allow access for linking to the next section. The open sections should be kept as short as possible.
 - **Continuous trench**- the trench is excavated by hand and retains as many roots as possible. The surface layer is removed carefully and hand digging of the trench takes place. No roots over 2.5cm diameter or clumps of smaller roots (including fibrous) should be severed. The bank surrounding the roots must be maintained. Cutting of roots over 2.5cm diameter should not be attempted without the advice of a qualified Arboriculturist.
- If roots have to be cut, a sharp tool (defined as spade, narrow spade, fork, breaker bar, secateurs, hand saw, post hole shoveller, hand trowel) should be used.
- ### Backfilling
- Restoration of street works must comply with the code of practice New Roads and Streets Act 1991 (Specification for the reinstatement of openings in highways), but where tree roots are involved backfilling should be carefully carried out to avoid direct damage to retained roots and excessive compaction of the soil around them.
- The backfill should incorporate an inert granular material mixed with top soil or sharp sand (not builders sand) around the retained roots. This will allow a measure of compaction for resurfacing whilst creating an aerated zone around the roots.
- Roots and in particular fine roots, are vulnerable to desiccation on exposure to air. The roots are at greatest risk when there are rapid fluctuations in the air temperature around them (especially winter diurnal temperatures). It is vitally important that the roots are covered with sacking whilst the trench is open. The sacking should be removed once the trench is backfilled.
- ### Arboricultural Supervision
- The following programme of supervision is proposed to assist in the preservation and protection of the retained trees during all aspects of the proposed development.
- The supervision arrangements must be sufficiently flexible to allow for the supervision of all operative works as they occur. The Arboriculturist's initial role is to liaise with the developer and the council to ensure that the appropriate protective measures are in place before any works commence on site and once the site is active monitor compliance with the Arboricultural conditions and advise on any tree problems that may arise.

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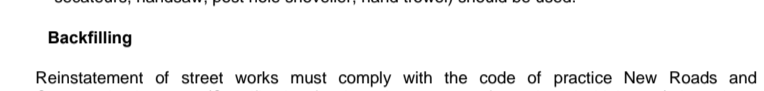


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The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

Key:

- [Symbol] Tree Number
- [Symbol] Tree Crown True Shape (Shaded Light Green)
- [Symbol] Predicted Future Growth Of Canopy (Shaded Dark Green & Surrounding Current Crown Shape)
- [Symbol] Trees To Be Removed (Broken Black Ring Surrounding Centre)
- [Symbol] Tree Quality Assessment (Centre Colours As Below)
- [Symbol] Green Centre = High Quality (Denoted By Letter A)
- [Symbol] Blue Centre = Moderate Quality (Denoted By Letter B)
- [Symbol] Yellow Centre = Low Quality (Denoted By Letter C)
- [Symbol] Red Centre = Unsuitable To Retain (Denoted By Letter U)
- [Symbol] BS Root Protection Area As Shown By The Red Circle Around The Tree
- [Symbol] Site Specific Root Protection Area (Modified According To Site Conditions. Area Remains The Same As BS Circle Representation Of RPA) Shown By Cyan Polyline.
- [Symbol] Tree / Woodland Groups (Root Protection Area Shown By Red Outline Surrounding Group)
- [Symbol] Removed Tree / Woodland Groups (Hatch Fill And Root Protection Area Removed)
- [Symbol] Position Of Protective Barrier (Continuous Blue Line)
- [Symbol] Special 'No Dig, Tree Friendly' Construction Required (Areas Indicated By Green Hatching)
- [Symbol] Area 4 Of Tree Preservation Order Reference 98 (Indicated By Teal Coloured Hatch)

Institute of Chartered Foresters
 Registered Consultant

Arboricultural Method Statement
 Tree Protection Plan (AMS TPP)

Retained Trees Shown On Proposed Layout With Protective Measures Indicated

Yuvraaj Restaurant,
 6-7 Douro Terrace, Sunderland

For
 Monwar Hussain

All About Trees Ltd
 Arboricultural & Ecological Consulting
 Chartered Arboriculturists & Environmentalists

The Old School, Quarry Lane,
 Butterknowle, Co. Durham, DL13 5LN
 Tel 0191 3739494 01388 710481
 email info@allabouttrees.co.uk www.allabouttrees.co.uk

Drawn at Durham Office By TA Checked by AW
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