

Contract C11600

Dunsbury Hill Farm, New Highway Development



Client



Portsmouth
CITY COUNCIL

Client's Representative

N/A



Construction Phase Tree Protection Plan

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Workspace
Document
Reference

C11600 – 11.9 – Construction Phase Tree Protection
Plan

Issue
-

DOCUMENT	C11600 – 11.9 – Construction Phase Tree Protection Plan				
Client	Portsmouth City Council				
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-	19/12/14	First draft	C Duffy	Project Manager	

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Introduction

This document sets out how the trees that are to be retained at this site are to be protected during the construction process. The principles follow the recommendations of BS 5873:2012.

A tree survey report has been undertaken by Atkins on behalf of Portsmouth City Council. The report assesses the tree stock along the project route detailing amongst other information, the species, height, stem diameter, age, condition and BS category of the trees affected by the proposals. Certain trees have been removed under licence and those that remain are planned to be retained throughout and following completion of the project. Throughout the tree removal works Atkins have had competent on-site supervision to ensure tree removal in accordance with the licence. A competent project arboriculturist will be available throughout the project.

Prior to site works commencing a site meeting to ensure the proposals as laid out in this document are adhered to. In addition, prior to any works commencing, staff and operatives working on site shall be briefed on the significance of trees and how to work in the vicinity of the trees to avoid any damage. The issue of trees will be covered in the site induction for all people attending site and toolbox talks will be delivered also (See appendix A for samples)

Appendix B contains drawings showing the trees to be protected and the arrangements to protect and / or restrictions while working in proximity to them. The following is the basis for these summary drawings in appendix B

Notwithstanding the protection measures outlined below, in the event of any damage to trees scheduled for retention, the damage should be reported to the project arboriculturist to enable remedial measures to be carried out immediately and if possible.

Physical Tree Protection Measures

The **Root Protection Area (RPA)** is a critical dimension that sets out the minimum area within which existing soil conditions must remain undisturbed around a tree or group of trees.

The radius of the RPA is estimated as follows;

$$\text{Stem diameter (m) measurement at 1.5m height (breast height) } \times 12$$

The RPA when calculated forms the basis for setting out a **Construction Exclusion Zone (CEZ)**, which is the area around the retained tree that is fenced off to exclude construction work

Barriers

All trees that are in close proximity to the working area of the site shall be protected by barriers that are fit for purpose appropriate to the degree and proximity of work taking place, in accordance with BS 5837:2005 Paragraph 6.2.2.1. Barriers will be in place before any materials or machinery is brought onto site. Once in place, barriers will be left in situ and not be altered or removed without prior authorisation by the project arboriculturist and if necessary, approval of the local planning authority. Any barriers will be checked routinely by the site supervisor to ensure the CEZ is not breached.

Protective fencing is erected along the line of the CEZ to prevent encroachment within the RPA where there is a likelihood of this. The limit of protection has been set out on the tree protection drawing, appendix B.

Where the likelihood of encroachment is reasonable or around specific Category A trees, protective fencing is to comprise of a vertical and horizontal framework at least 2m high, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. Weldmesh panels, such as Heras, will be securely fixed to this framework. Similar type full height protective fencing can be used as long as it prevents impact.

At locations where the site is bordered with trees, but a sufficient distance away, hi visibility plastic fencing will be placed to delineate the extent of the site and as a warning to site personnel to keep clear of that area.

The tree protection plan drawing shall be mounted at key areas of the site to ensure that all site staff have a point of reference for tree protection issues. Should protective fencing be damaged to impair its function, all work shall cease near the damage until the fence has been returned to standard.

Ground Protection

Where it is agreed that vehicular or pedestrian access for construction purposes is necessary within the RPA, ground protection measures will be required to prevent damage to the soil structure within the RPA. Vehicular ground protection measures will be designed by an engineer.

For pedestrian access within the RPA, the installation of ground protection in the form of a single thickness of scaffold boards over a compressible layer laid onto a geotextile, or supported by scaffold, is likely to be acceptable

For vehicle access within the RPA the ground protection should be designed by an engineer to accommodate the likely loading and may involve the use of proprietary systems or reinforced concrete slabs. The structure must use a no-dig design to prevent root severance and must prevent localised soil compaction by distributing the load across the track width. Such a system may include the use of three dimensional cellular confinement systems (CCS) as a component of the sub-base, to act as a load suspension layer.

Once the construction exclusion zone (CEZ) has been implemented through the respective solution construction can take place.

Restrictions Relating to the Construction Exclusion Zone (CEZ)

Inside the Construction Exclusion Zone (CEZ) of the protective fencing the following prohibitions shall apply:

No mechanical digging or scraping

Only hand digging as agreed in specific areas and under the supervision of an arboriculturist

No storage of plant, equipment or materials

No vehicular or plant access, unless suitable ground protection has been implemented

No fire lighting

No washing down of vehicles or machinery

No handling, discharge or spillage of any substances, including cement washings

No action likely to cause localised water-logging

No change in ground levels unless an arboriculturist has been consulted

No construction of a hard surface unless the method of construction has been agreed with an arboriculturist

No earthworks unless agreed with the arboriculturist

In order to inform people of the purpose of the fencing, information notices shall be fixed to the fencing at regular intervals. These notices shall be of all-weather construction and shall be replaced when necessary.

In addition to the above, further precautions are necessary adjacent to trees outside the CEZ:

Materials that will contaminate the soil, e.g. concrete, diesel and vehicle washings should not be discharged onto the ground. This would potentially pollute groundwater and contravene the Water Resources Act 1991.

Fires should not be lit on site due to the potential for damage to trees. Notice boards, telephone cables or other services should not be attached to any part of the tree.

Necessary Excavation within the RPA

Any excavations (for example installation of new service routes) which have to be undertaken within the root protection area should be carried out carefully, avoiding damage to the protective bark covering larger roots. Roots, whilst exposed, should be wrapped in dry, clean Hessian sacking to prevent desiccation and to protect from rapid temperature changes. Roots smaller than 25mm diameter may be pruned back, preferably to a side branch and using a proprietary cutting tool. Roots larger than 25mm should only be severed following consultation with an arboriculturist, as they may be essential to the tree's health and stability.

Backfilling of trenches should be carried out using the excavated soil, which should be worked in around roots and lightly "tamped" not compacted and preserving the original soil profile. The backfill should be left proud of surrounding levels to allow for settlement.

Trenches must not be left open overnight, and arboricultural supervision should be provided during excavation of trenches through protected zones. If the trench is to remain open for any period during the day to prevent the roots from drying out, it is advised that moist

Hessian sacking be wrapped around the exposed roots, and/or trench to prevent desiccation from occurring.

Avoiding Branches / Crown of Tree

Trees that have been identified as posing an obstruction to safe working have been pruned in accordance with the licence.

Site operations will be planned to ensure that wide or tall loads or plant with booms, jibs and counterweights, could operate without coming into contact with retained trees. Mechanical damage from large plant can be significant make their safe retention impossible. Any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure adequate clearance from trees is maintained at all times.

Appendix A

Sample Toolbox Talks

Why are controls needed?

Any tree can provide a valuable habitat, especially if it used by protected species such as bats. On the whole, native trees are of greater value because, all things being equal, they support a broader range of animal life, especially invertebrates. Mature trees will usually be more valuable than younger specimens.

Hedgerows are close rows of shrubs or trees serving as a fence or barrier and can come in many types, shapes and sizes. All can have conservation value, depending on their situation, age and what chooses to live in them.

It is an offence to cut down, uproot, top, lop, wilfully damage or destroy a tree under a Tree Preservation Orders (TPO) without the consent of the Local Planning Authority (LPA).

Landowners and/or tenants are to submit a hedgerow removal notice to the LPA before the removal of a hedgerow.

What controls are needed?

Any on site retained vegetation including trees protected by TPO must be marked on the 'Site Plan'.

Exclusion zones must be established taking into consideration any root systems that may be damaged. Minimum distances to be protected around trees of various sizes and vigour are defined in BS5837, but as a simple rule of thumb the fencing should be placed no closer than the outermost limit of branch spread or at a distance equal to half of the tree height, whichever is the greater.

Any works that do affect a tree under a TPO must have an approved method statement agreed with a qualified Arboriculturalist.



Fencing and signage around protected tree



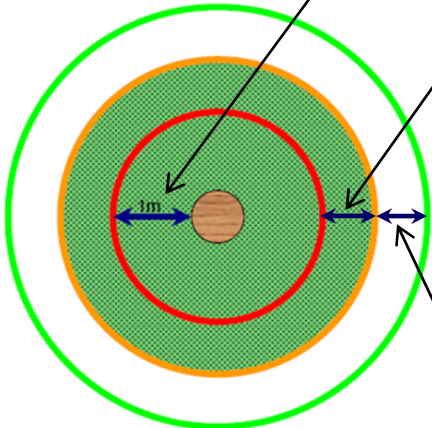
Hedgerow

Working around Trees

September-2012

TOOL BOX TALK

Trees and hedgerows are an important part of the environment & country side providing vitally important habitat for wildlife. Trees can be protected by TPO (Tree Preservation Order) and are offered protection if in a Conservation Area. Trees can also be protected through the planning process. This is enforced by the local authority. During certain times of the year – February to September trees and hedgerows may contain nesting birds. It is against the law to disturb nesting birds.

 • Avoid storing any materials or plant within the canopy • Avoid any tracking or plant movement within the canopy • Fence off the tree if necessary	Tree Protection Zones Prohibited Zone - 1m from the trunk ✗ Excavations of any kind must not be undertaken within this zone unless full consultation with the Local Authority Tree Officer is undertaken. Material, plant & spoil must not be stored in this zone. ✓ Hand dig around roots only. ✓ Do protect any exposed roots uncovered within this zone with dry sacking. ✓ Backfill with a suitable inert granular & topsoil material mix as soon as possible on completion of works. Precautionary Zone - 4 x tree circumference (outside the 1m prohibited zone) ✗ Where excavations must be undertaken within this zone the use of mechanical excavation plant should be prohibited unless on hardstanding. Precautions should be undertaken to protect any exposed roots – do not cut roots over 25mm (finger thickness). Materials, plant & spoil should not be stored within this zone including chemicals and fuels. Consult with Local tree Officer if in any doubt. ✓ Prune roots with a clean cut that are < 25mm making as small a wound as possible. ✓ Do backfill with a suitable inert granular & topsoil material mix as soon as possible on completion of works. ✓ Compact with care around roots using suitable backfill material – if in doubt consult tree officer or Environmental manager. Permitted Zone - outside of precautionary zone Excavation works may be undertaken in this zone. However caution must be applied & the use of mechanical plant is limited. Exposed roots should be protected. ✗ Do not cut roots over 25mm unless advise has been sought from the Local Tree Officer. ✓ Use extreme caution if it is absolutely necessary to use mechanical plant with in the zone. Canopy Protection • Watch for nesting birds – typically between February & September. If you notice any nests in the canopy contact your Environmental Manager or Tree officer – do not disturb. • Ensure you do not damage any branches – plan ahead and use a tree surgeon to remove any overhanging branches with consultation with your Environmental Manager or Tree officer. • If you do cause any minor damage to branches cut back using a saw and let your tree officer or Environmental manager know. Do not leave damaged. For extended guidance refer to BS5837 – Trees in Relation to design, demolition & construction – Recommendations and NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees.
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Appendix B

Tree Protection Drawings