

Arboricultural Method Statement

Dover Street Optometry Building

Manchester

July 2009

christians

Introduction

This Method Statement has been drawn up to assist the Local Authority and the developer in overseeing the construction of the proposed development at the University of Manchester, Manchester.

This document seeks to describe the site and its tree cover, list those trees which are proposed for removal and discuss any tree constraints and implications.

It describes the proposals for ensuring that the trees that are to remain would survive the development and thrive after the development has taken place.

The development and timing of construction operations are described, together with materials which would be used in order to maximize tree protection.

The document also includes a section of useful telephone numbers and addresses.

This statement will be included as part of the specification and schedule of works issued to the building contractor and will form part of the contract. The accompanying arboricultural statement, plans will be available on site for inspection along with this method statement.

Tree Removal/Works

The following trees are recommended for removal because of:

-Their position in relation to the development

-Category B Trees (19)

-Category C Trees (18)

-Their low potential for future contribution.

-Category B Trees (6, 9, 13, 14)

-Category C Trees (10, 11, 12)

-Groups (G1)

All arboricultural operations on site including tree removal must be carried out by an arboricultural contractor that is able to comply with British Standards 3998.

All arboricultural contractors should be insured to a minimum of £5 million and able to show competency by means of relevant certification and health and safety policy.

Because of the location of this site and characteristics of certain trees it is recommended that the arboricultural contractors have relevant experience of working with protected species, namely bats. Any qualifications or certification of competency should be sort at the tender stage.

A list of suitable contractors can be supplied by Christians Arboriculture.

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Works Near Trees

Prior to the commencement of works in the vicinity of retained trees a meeting will be called, to which the local authority's tree officer will be invited. This is in order to agree that the methods and new position of the tree protection fencing are adequate and meet with the local authority's approval.

The remainder of the tree removal, excavation, and landscaping works including installation of paths and minor structures within the Root Protection Areas shall be monitored by the developer's arboriculturalist on a regular and frequent basis. Depending on the length of time required to carry out works this may not require a permanent presence but as a minimum they shall be present at the commencement of the following stages of work: (i) tree removal, (ii) excavations, (iii) landscaping, installation of paths and minor structures.

Any excavation works within the Root Protection areas should only be carried out with consent and instruction from both the developer's arboriculturalist and the local authority's tree officer.

Any excavation works within the Root Protection areas should only be carried out using non destructive techniques, the use of an air spade is recommended for this.

Protective Fencing

Following the completion of any tree works and prior to machinery entering the site for any building, levelling or site clearance purposes, all trees listed to be retained within the development will be fenced off in a continuous line around their specified root protection areas in accordance with British Standard 5837: 2005 clause 7.1 and 7.2

The fencing will be constructed with a framework of scaffolding poles driven 600mm into the ground, braced together and backstays will then be added at 3m centres. Onto this will be attached a continuous line of welded mesh panels (alternatively Ply or corrugated sheet metal panels may be used) to be securely fixed with wire or scaffold clamps in accordance with British Standard 5837:2005. For sample see appendix

Site Notices on fencing will be used in the form of pre-printed laminated waterproof signsA3 in size fixed securely to fencing panels on each enclosure at 9m intervals. The signs will clearly read:

Protected Tree Zone

No Storage or Operations Within Fenced off Areas

Failure to comply with the above requirements could lead to enforcement action, including the issuing of a Stop Notice, until the matter has been remedied. Where damage has occurred to legally protected trees, the owner of the site may be liable for prosecution.

A copy of a appropriate tree protection sign is included within the Appendix, a copy can be supplied direct from Christians Arboriculture upon request.

A diagram/plan of fencing design is included within the Appendix

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Site Storage, Cement Mixing and Washing Points

All site storage areas, cement mixing and washing points for equipment and vehicles must be outside the RPA's and it is recommended that this area is extended to 10 metres away from the protective fencing in respect to the above. Where there is a risk of polluted water runoff into RPA's, heavy duty plastic sheeting and sandbags must be used to contain any spillages and prevent contamination

Special Construction Measures

TO BE READ IN CONJUNCTION WITH THE SPECIAL CONSTRUCTION PLAN

In order to construct a section of the hard landscaping, access roads /footpath/pedestrian areas the use of a cellular confinement system will need to be put in place in order to ensure compaction/damage to tree roots does not take place.

These areas will first need to be carefully excavated using small hand use based machinery to remove the top layers of existing hard landscaping.

Once the hard landscaping is removed the use of a root friendly excavation tool (AIRSPADE) should be used for ground levelling/preperstion and the removal of any further items/foreign objects

Any roots which are to be left exposed for more than six hours should be covered in damp straw and/or hessian covers. Also note that if temperatures exceed 16c this time should be reduced to one hour before roots should be protected.

No pruning of roots over a diameter of 45mm should be undertaken unless permission of the council tree officer is given.

Any damaged roots should be cleaned and pruned back to an appropriate place

During the above excavation and hard landscaping stages an appointed arboriculturalist should be on site to oversee the operations, give instructions and deal with any root damage that may occur. At the end of each day the tree officer should be provided with a short report on the operations accompanied with photographic evidence.

See the special construction measures plan for further detail.

See the following section for further information on the above.

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Special Construction Measures 2

TO BE READ IN CONJUNCTION WITH THE SPECIAL CONSTRUCTION PLAN

The following can be used on projects where a cellular confinement system is being installed as a permanent hard surface, a sub-base, or as temporary root protection during construction works.

The installation procedure can be utilised by the Local Authority (LA) tree officer to ensure that a cellular confinement system that is being used for tree root protection, will be effectively installed. Alternatively, it may be more appropriate to request that the installation is certified by arboricultural consultants who are experienced in the installation of cellular confinement systems and who can offer installation certification.

The completion of the cellular confinement installation in accordance with this procedure will enable planning conditions to be successfully signed off on completion of the project.

Stage 1 Initial site meeting to assess tree protection requirements in line with the Arboricultural Method Statement (AMS) produced by the developer's arboricultural consultant.

•Check the ground conditions, including the presence of compaction or made ground. Is any remedial work required, such as the removal of old hard surfaces and rubble or soil decompaction?

•Compare the existing ground levels with the new levels proposed in the development. Do the new levels allow for the depth of hard surfaces installed with a cellular confinement foundation without excavation? Will excavation be required to achieve the proposed levels or to enable site drainage or integration with other water management solutions?

•Assess the suitability of tree protection proposals, including the fencing and ground protection that will be used throughout the demolition and construction phases of development. Can a cellular confinement system be used as ground protection throughout the development period and also form the foundation for final hard surfaces? Is a temporary cellular confinement system installation needed to enable site access for construction traffic over an area designated as requiring tree root protection?

•Consider how other water management solutions for the site can be integrated with cellular confinement system including porous hard surfaces, drainage and underground storage. Has a combined and integrated water management plan been designed that considers retained trees? Do the water management solutions for the site consider the water requirements of retained trees? Do the storage solutions allow for the slow release of water into areas of the site accessible by tree roots, while also dealing with potential soil pollutants from surface water run-off?

•How are the developers going to ensure that the cellular confinement system is specified and installed effectively?

Stage 2 Approval of the cellular confinement system site-specific installation method statement, which should include:

•Details of the sensitive removal of existing hard surfacing.

•Details of any remedial de-compaction work required.

•Root investigation procedures where site level changes require limited excavation to allow the installation of cellular confinement system.

•A scaled site plan illustrating where the cellular confinement system will be installed that includes both existing and proposed levels.

•Details of how the cellular confinement system tree root protection system will be integrated with other traditional hard surface foundations on site.

•An integrated water management site plan illustrating working porous surfaces, drainage and water storage solutions, with consideration of the physical presence of roots and tree water requirements.

•Details of the cellular confinement system load limit specifications, with site-specific information

•Engineering drawings showing the cellular confinement system specification.

•An engineering design indemnity policy based on a site-specific soil assessment.

Stage 3 Site visit before cellular confinement system installation to check that the ground has been prepared in accordance with the AMS. Check:

•Soil bulk density (compaction) CBR has been maintained

•Completion of any site remedial work required before the installation of cellular confinement system.

Stage 4 Site visit to check that materials supplied for installation comply with the installation method statement and AMS specifications. Check:

•The specification of the geotextile underlay.

•The specification of the cellular confinement system (depth and product used).

•The specification of the fill material (4/20, 20/20 or 20/40 washed angular stone with site-specific pH if required and appropriate structural load rating).

Stage 5 Site visit to check that the installation methodology meets the manufacturer's specification and is in accordance with the AMS. Check:

•The minimum cell size

•The orientation of the sheet layout.

•There is sufficient fill to form a cell structure.

•The upper geotextile has been installed to maintain the cellular confinement system sandwich.

Stage 6 Site visit to check that the final surface installation meets the porosity specification in the installation method statement and the AMS.

Stage 7 Project sign off.

The landscaping within the above mentioned trees root protection areas should be carried out in accordance with the Landscaping Within The Tree Canopies section of this report. Also refer to British Standards BS 4428. (this section is below)

Site Inspection

After the above works have been completed (and following erection of the protective fencing), the developer's arboriculturalist will visit the site. The reasons for this visit are firstly to check that the work to any trees is satisfactory, secondly to check the protective fencing, and thirdly to meet with the local authority's tree officer to ensure that they are also satisfied.

Any necessary amendments and improvements to the protective fencing agreed at this meeting will be undertaken following confirmation of the agreed changes in writing.

Supervised Excavations

TO BE READ IN CONJUNCTION WITH THE SPECIAL CONSTRUCTION PLAN

Four separate areas will require supervised digging due to their close proximity to trees to be retained.

The first 600mm depth of any proposed excavation is to be dug by hand using spades and forks and is possible an 'air-spade' under direct arboricultural supervision.

If the arboricultural consultant deems it necessary then this depth may be altered to reflect specific site conditions. This area is likely to contain roots that it is necessary to protect, therefore:

- Any roots that are less than 25mm diameter are to be pruned back, preferably to a side branch, using sharp cutting tools i.e. secateurs or hand saw
- Roots larger than 25mm shall only be severed following consultation with the on site arboriculturalist
- Avoid damaging the protective bark of larger roots.
- Exposed roots to be covered in dry hessian sack to protect from dehydration and temperature flux.
- Prior to backfilling, hessian wrapping to be removed and retained roots to be surrounded with sharp sand before soil is replaced. Builders sand is NOT to be used due to its high salt content which is toxic to tree roots.
- A professional arboriculturalist will supervise all excavations in these areas.
- A photographic record will be kept of the excavations and simple report outlining the operations will be submitted to the councils tree officer.

Development Phase

After all the tree works and protective fencing has been completed, the developer can commence the on-site preparation works and construction can begin.

During the development phase the developer's arboriculturalist will visit the site on a regular basis to check the protective fencing and make any recommendations on any maintenance required to it.

The local authority's tree officer will have reasonable access to the site to report any problem areas directly to the developer's arboriculturalist who will then visit the site and make recommendations to the developer on how best to rectify the situation.

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Services

All service runs will be aligned to pass beneath the surface of the roads and pavements where possible. The location of some services may need to pass within other locations of site; all efforts will be made to keep these outside of the tree protection areas.

Should the need arise to dig within the protective fence lines at any time, the developer's arboriculturalist will liaise with the local authority's tree officer in order to implement non destructive trenching methods (open trenching by use of air spade or a mole dig system).

All work to services on site will be undertaken in line with the NJUG "Guidelines for Planning, Installation and Maintenance of Utility Services in Proximity to Trees".

Removal Of The Protective Fencing

When the development is complete, all drainage and service runs are in place and the main site machinery has been removed, temporary protective fencing will be dismantled. This must be done with great care and will need to be supervised to avoid heavy machinery being used

Landscaping Within The Tree Canopies

A number of trees will be subject to some form of replacement planting or seeding beneath the canopy after the main development phase has been completed. At this stage it is inevitable that the protective fencing will have to be removed.

In view of this, the planting will need to be carried out in such a way as to avoid level changes, deep digging and rotovating. Such details will be specified within the landscape design and contract; work will be supervised where appropriate by the developer's arboriculturalist.

Completion Meeting

Upon completion of all the works specified above and procedures also specified, the developer's arboriculturalist will invite the local authority's tree officer to meet on site to discuss the process and to agree any final remedial works which may be required.

Useful Names and Telephone Numbers

The Arboricultural Consultants –

Christians Arboriculture, Warwick Mill Business Village, Warwick Bridge, Carlisle, Cumbria, CA4 8RR - Tel: 0845 4742905

Christians Arboriculture, Technology House, Salford University Business Park, Lissadel St, Salford, Manchester, M6 6AP - Tel: 0845 3883685

- Emergency Number: 07925 142793



Tree Protection Plan

Dover Street Optometry Building

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Tree Protection Area Warning Signs

To be placed on protective fencing in positions as shown

Tree Age	Tree Vigour	Trunk Diameter (mm)	Minimum Distance (m)
Young	Normal	<200	2.0
		200 – <350	3.0
		350 – <500	4.0
		500 – <650	5.0
		650 – <800	6.0
Young	Low	<200	2.0
		200 – <350	3.0
		350 – <500	4.0
		500 – <650	5.0
		650 – <800	6.0
Mature	Normal	<200	2.0
		200 – <350	3.0
		350 – <500	4.0
		500 – <650	5.0
		650 – <800	6.0
		800 – <950	7.0
		950 – <1100	8.0
		1100 – <1250	9.0
		1250 – <1400	10.0
	Low	<200	2.0
		200 – <350	3.0
		350 – <500	4.0
		500 – <650	5.0
		650 – <800	6.0
		800 – <950	7.0
		950 – <1100	8.0
		1100 – <1250	9.0
		1250 – <1400	10.0
Mature	Normal	<200	2.0
		200 – <350	3.0
		350 – <500	4.0
		500 – <650	5.0
		650 – <800	6.0
		800 – <950	7.0
		950 – <1100	8.0
		1100 – <1250	9.0
		1250 – <1400	10.0
	Mature + Low	<200	2.0
		200 – <350	3.0
		350 – <500	4.0
		500 – <650	5.0
		650 – <800	6.0
		800 – <950	7.0
		950 – <1100	8.0
		1100 – <1250	9.0
		1250 – <1400	10.0

Trees to be removed prior to construction phase

N

Tree Protective Fencing/Barrier

Retained Trees

Tree Protective Warning Sign

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Project Name: School Of Optometry	Client: Manchester University	Drawing Number: MUOPTOM-TPP-001	Revision:
Drawing Title: Tree Protection Plan	Scale: @A1 Size	Date: 4th August 2016	



Special Construction Plan

Dover Street Optometry Building

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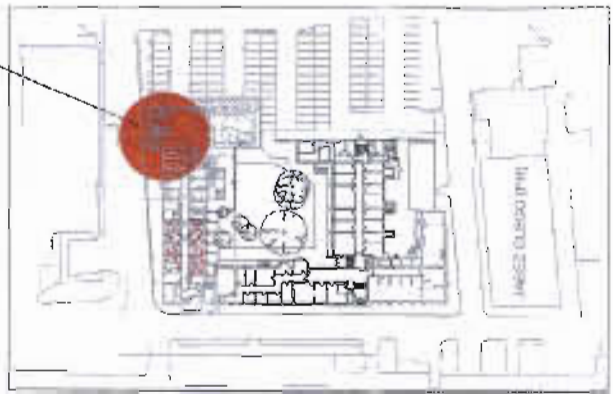
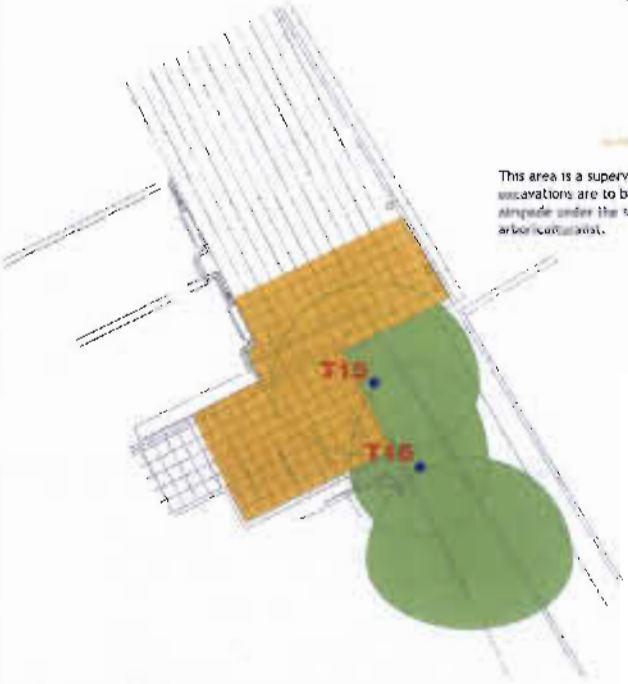
Location Of
Special Construction Measures





This area is a supervised dig area and all excavations are to be carried out by use of an airspade under the supervision of an arboriculturalist.

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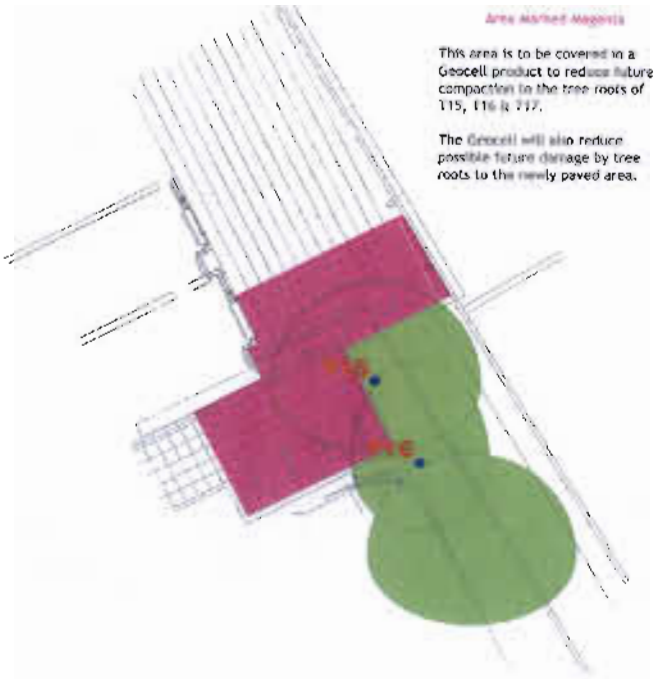
Area Marked Magenta

This area is to be covered in a Geocell product to reduce future compaction to the tree roots of T15, T16 & T17.

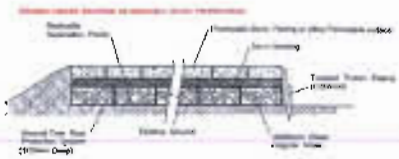
The Geocell will also reduce possible future damage by tree roots to the newly paved area.

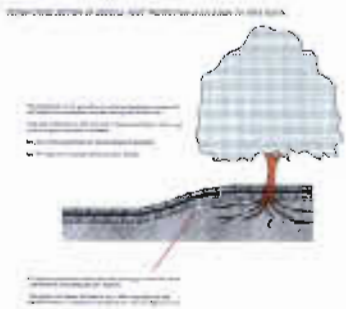


Area Marked Cyan

This area is a supervised dig area and all excavations to install street furniture are to be carried out by use of an airspade under the supervision of an arboriculturalist.









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			Drawing Title: Special Construction Plan	Agent: Buro Four	Date: 4th August 2009	