Arboricultural Method Statement

Proposed development comprising:

New entrance building
New pavilion
Improvements to western entrance and southern boundary footpath

at

Coram Comunity Campus
Mecklenburgh Square
London
WC1N 2QA

for

The Coram Foundation
(Dr Carol Homden)

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preamble

a A significant number of large, visually important trees stand within the boundary of the development site referred to in this method statement.

b Their Root Protection Areas (**RPA**s) as defined in *BS5837:2005 Trees in relation to construction – Recommendations,* cover most of the total site area.

c As a consequence it will not be possible to protect retained trees solely by separating them from proposed construction areas with protective fencing.

d Although this method statement specifies separation by means of protective fencing and ground protection layers wherever practicable, its primary focus is on **control** of operations through **phasing of the construction programme**, **permitting** to ensure that only relevant (and properly briefed) construction staff gain access to sensitive areas and **arboricultural supervision** to ensure that appropriate protective measures and working practices are maintained throughout the construction stage of the project.

e Phasing and permitting are issues that can only be developed in detail in co-operation with the Coram Foundation (the Client) and the Main Contractor for the project to which this method statement refers.

f As the Main Contractor appointment will not be made until after determination of the planning application in the support of which this method statement has been prepared, the **tree protection plan** in **appendix a** shows indicative phasing and tree protection measures only.

g This indicative plan shows five separate construction phases each one separated from the rest of the campus and its continuing day-to-day activities by protective fencing.

h Detailed phase-by-phase tree protection plans should be developed with the full involvement of the Main Contractor, prior to the start of works

1 introduction

1.1 This method statement sets out measures for the protection of 26 individual and groups of trees in relation to a proposed development at Coram Community Campus, Mecklenburgh Square, London WC1N 2QA, before, during and after the permitted development.

1.2 The development in question comprises:

- The construction of a new two storey entrance building at the western (Brunswick Square) end of the site and associated improvements to the configuration of the western entrance to the Coram Community Campus.
- Improvements to the footpath along the southern boundary of the campus that connects the western, Brunswick Square, side of the site to the eastern, Mecklenburgh Square, side.
- The replacement of an existing portacabin in the eastern part of the campus with a two storey pavilion, attached caretaker's accommodation and associated improvements in external circulation.

1.3 The measures contained in the statement are based on the advice and guidance set out in *BS5837: 2005: Trees in relation to construction – Recommendations.*

1.4 This method statement was commissioned Meadowcroft Griffin Architects on behalf of the client, Dr Carol Homden, the Chief Executive of The Coram Foundation..

2 scope and status

2.1 scope

2.1.1 This method statement covers the protection and retention of 26 trees within and adjacent to the proposed development area – Trees 008, 011, 012, 014, 014D, 014E, 015-031 inclusive, 034, 035 and 021A.

2.1.2 The locations of the trees are shown on the **tree protection plan** in **appendix a.** Details of their size and species are set out in tabular form in the **tree works schedule** in **appendix b** of this method statement.

2.2 status

2.2.1 This method statement forms a part of the building contract and its requirements are an integral part of the contract specification and schedule of works.

2.2.2 A copy of the method statement should be available for inspection on site.

2.2.3 All persons working on site should be aware of the importance of avoiding damage to trees and should observe the necessary precautions. A guidance leaflet is included in this method statement in **appendix c**.

3 preparatory works prior to construction

3.1 phasing

3.1.1 Prior to the start of any construction works a phased development programme will be agreed with the Client.

3.1.2 A detailed tree protection plan for each phase of the agreed development programme will be agreed with the local authority prior to start of works on the phase in question.

3.2 enabling tree works

3.2.1 Trees 032 and 033 will be removed before construction works begin. These removals are listed in the **tree works schedule** in **appendix b**.

3.2.2 Preparatory remedial works to retained trees are also listed in the **tree works schedule** in **appendix b**.

3.2.3 All works will be carried out in accordance with BS3998:2010: *Recommendations for Tree Work* by an appropriately qualified tree work contractor.

3.2.4 All arisings are to be taken off-site to an approved tip.

3.3 protective measures: existing hard surfacing

3.3.1 The Coram Community Campus is intensively used. Existing buildings and/or hard surfacing extend into the Root Protection Areas (RPAs – as defined in *BS5837:2005 Trees in relation to development – Recommendations*) of all the trees to which this method statement refers.

3.3.2 Existing hard surfaces provide protection against compaction and abrasion damage to tree roots.

3.3.3 No existing hard surface outside the footprint of proposed new buildings will be removed without the written agreement of the Client either before or during the construction period.

3.4 protective measures: ground protection layers.

3.4.1 Outside Construction Exclusion Zones (**CEZs** – see 3.5.5 &3.5.6 below) all unsurfaced areas within the RPA of any retained tree (see the **tree protection**

plan in **appendix a**) will be protected with a ground protection layer prior to the start of works.

3.4.2 Where the ground protection layer has to carry vehicular traffic, it will consist of Eve K Trakpanel heavy duty interlocking aluminium temporary road sections (or equivalent). Where necessary, local irregularities in the ground surface will be made up with Type 1 fill prior to the installation of the ground protection layer

3.4.3 Elsewhere, ground protection will consist of side butted scaffold boards laid on a geo-textile membrane and a compressible layer (10mm Miothene or equivalent). . Where necessary, local irregularities in the ground surface will be made up with Type 1 fill prior to the installation of the ground protection layer. A typical detail is included in **appendix c**

3.4.4 Tracked or wheeled equipment used for installing ground protection layers will not exceed a ground bearing pressure of 0.3kgf/cm^2

3.5 protective measures: fencing

3.5.1 The extent and location of protective fencing is illustrated on the **tree protection plan (Drawing 158.03.00)** in **appendix a,** but subsequent detailed tree protection plans covering individual phases of the construction programme (see **3.1** above) will supersede the drawing referred to in this paragraph.

3.5.2 Protective fencing must be erected before any other site works take place. It is particularly important that no demolition, soil stripping, breaking out of existing hard surfaces (see also **3.3** above), regrading or other excavation takes place before protective fencing has been erected.

3.5.3 Protective fencing will comply with the advice and guidance contained in BS 5837:2005 – *Trees in relation to development – Recommendations.*

3.5.4 The British Standard recommends a scaffold framework with braced uprights at no more than 3m intervals. Subject to the agreement of the local authority fencing using temporary steel mesh fencing panels (for example Heras Roundtop or equivalent - also sometimes referred to as GS7 or HSG 151 fencing) or exterior-grade plywood is also fit-for-purpose as long as the panels are attached to scaffold uprights driven or dug into the ground at no more than 3m spacings. A 1:20 detail of The British Standard specification for protective fencing is included in **appendix c**.

3.5.5 Each CEZ is a total exclusion area. All of the following will be excluded:

- Animals
- Pedestrians
- Vehicles and construction equipment
- Materials and equipment storage
- Contamination from materials used outside the CEZ – (for example spillage of diesel or other toxic liquids)
- Surface water runoff from outside the CEZ

3.5.6 Clearly legible, weatherproof signs will be fixed to the perimeter fencing of the CEZ clearly setting out the access restrictions set out above. An example is included at the end of this statement in **appendix c.**

3.6 protective measures: access constraints

3.6.1 The preparatory tree works listed in the **tree works schedule** in **appendix b** will increase headroom in the main construction area and along the access to Coram Campus but the overall height, width and length of vehicles and equipment entering the site will be limited by the overhanging crown of Tree 017.

3.6.2 Tree 017 has a large lateral imb originating at a height of 4m on the south side of the main stem and rising to a height of 7.0m at a point 5m to the south (measured from centre stem) above the access point from Mecklenburgh Square, effectively limiting clear headroom at the point of access to 4.5m.

3.6.3 This limb must neither be removed or damaged and the contractor's choice of materials and equipment and phasing of works must take this constraint into account

3.7 inspection prior to start of works

3.7.1 Protective fencing will be inspected prior to the start of works by the Arboricultural Consultant and the local authority's Tree Preservation Officer and approval for its location, method and standard of construction should be given in writing by the local authority.

4 works during development

4.1 storage of materials

4.1.1 Phytotoxic materials (diesel for example) will be stored in a purpose-built containment compound at least 10m from the nearest **CEZ** or retained tree stem, whichever is the closer.

4.1.2 Details of the containment area and its proposed location will be submitted to the Client for approval, prior to its construction.

4.1.3 Proposals for the storage of inert materials will be set out on the detailed tree protection plan for each phase of the programme (see **3.1** above).

4.2 safe positioning of heavy lifting and handling equipment

4.2.1 Heavy lifting and handling equipment (eg cranes and excavators) must be located in such a way that, when in use, no part extends into the crown of any retained tree.

4.3 demolition

4.4.1 Demolition of existing buildings, by machine or hand must be away from retained trees into the footprint of the to-be-demolished building ('top down: pull back').

4.4 no fires on site

4.4.1 No fires will be lit anywhere on site at any time.

4.5 working within RPAs: excavation generally

4.5.1 Work within the RPAs of retained trees for approved purposes will be by permit, issued by the Main Contractor's Site Manager in consultation with the Arboricultural Consultant.

4.5.2 Within the RPAs of retained trees any permitted excavation/vegetation clearance will be carried out using methods designed to cause minimal damage to the trees root system as set out in 4.5.3 – 4.5.9 below.

4.5.3 Unless otherwise specified in the permit to work, excavation and removal of existing hard surfaces will be undertaken using hand operated tools only.

4.5.4 Where removal of hard surfacing by tracked or wheeled equipment is specified, its ground bearing pressure will not exceed 0.3kgf/cm^2

4.5.5 Soil below existing hard surfaces and their associated sub-bases may be loosened with a hand fork or pick, but any approved excavation will be by means of a compressed air lance (Air Spade or equivalent) or other approved technique that is non-destructive to tree roots

4.5.6 All roots uncovered in excess of 25mm diameter will be retained, bridged around and treated in accordance with BS3998 (1989) Recommendations for Tree Work. Roots with a diameter less than 25mm will cut cleanly, preferably at their point of origin, with a sharp saw or loppers to minimise damage.

4.5.7 Any tree root exposed which is in excess of 50mm in diameter shall be reported to the Arboricultural Consultant within 48 hours of exposure in order that advice may be obtained with regard to adequate treatment.

4.5.8 All exposed roots must be securely wrapped in hessian sacking and kept moist with clean water.

4.5.9 Imported topsoil for backfilling must be of good quality and free of contaminants and foreign bodies, it must be well graded and friable to promote good growing conditions and perform as a suitable rooting medium. The topsoil to be used must satisfy the requirements of multipurpose topsoil as is described within BS3882:2007.

4.6 working within RPAs: underground services

4.6.1 No new underground service runs will be permitted within any RPA.

4.7 removal of protective fencing

4.7.1 When construction works are completed and all construction equipment has been removed from site, the protective fencing may be dismantled.

5.1 conflicts and remedial actions

5.1.1 The main potential sources of damage to trees are listed in **Table 1** below together with the remedial measures that should be adopted to minimise or avoid damage.

Source of damage	**Remedial actions**	**See**	**Trees at risk**
Damage to tree stems and foliage	Erect protective fencing; plan construction activities to avoid damage to overhead branches:	Sections 3.5, 3.6 and 4.2: **tree protection plans**	All
Damage by surface compaction from site traffic/storage of materials	Observe restrictions applying to **RPAs:** relieve compaction after permitted works	Section 3.3, 3.4 and **tree protection plans**	All
Damage from spillage of toxic materials	No phytotoxic materials to be stored within 10m of any **RPA**	Section 3.5, 4.1 and **tree protection plans**	All
Damage to tree roots	Use sympathetic excavation and 'no dig' construction methods in **RPAs**	Sections 3.3 -3.5, **4** and **tree protection plans**	All

Table 1: Summary of Potential Damage Sources and Remedial Measures

6 replanting

6.1 Replanting proposals are covered in a separate submission.

7 supervision and completion

7.1 Prior to the start of the works, the nominated representative of the Local Authority (hereafter referred to as the Local Authority) will meet on site with the Arboricultural Consultant, the Project Manager and the Main Contractor's Site Manager to review arboricultural protection measures before and during the contract.

7.2 Prior to the start of works, the Arboricultural Consultant will provide induction training to the Site Manager and all on-site staff directly employed by the Main Contractor, covering the following subjects:

- Damage to trees by direct mechanical damage above and below ground
- Damage to trees through spillage of phytotoxic liquids and powders and from contaminated run-off.
- The effects of soil compaction upon trees caused by the storage of heavy materials and by construction traffic
- Minimising risk through the use of safe working practices

7.3 The Site Manger will be responsible for delivering this induction training to all sub-contractors prior to their starting work on site. A guidance leaflet summarising the key points of the induction process is contained in **appendix c.**

7.4 The Main Contractor's Site Manager will have overall responsibility for the protection of retained trees from the start of works through to completion. No powers will be delegated to others in relation to this responsibility.

7.5 The Arboricultural Consultant will make site visits as necessary and in particular at the start of the following stages:

- Pre-contract tree works
- Completion of tree protection fencing (together with the Local Authority's representative)
- Excavation of foundations close to trees
- Erection of scaffolding close to trees
- Start of the external works programme

7.6 The Arboricultural Consultant will circulate notes of his inspections by email, directly to the Local Authority and to the Project Team

7.7 The Arboricultural Consultant will notify the Local Authority immediately by email of any contractvariations that may affect retained trees.

7.8 Unscheduled incidents affecting retained trees will be reported immediately, verbally and in writing, to the Arboricultural Consultant by the Site Manager. The Arboricultural Consultant will immediately forward the information to the Local Authority and the Project Manager, verbally and in writing

7.9 After notifying the relevant persons (see 7.8) the Arboricultural Consultant will visit the site and report in writing on his findings and recommendations for remedial action to the Local Authority and the Project Manager

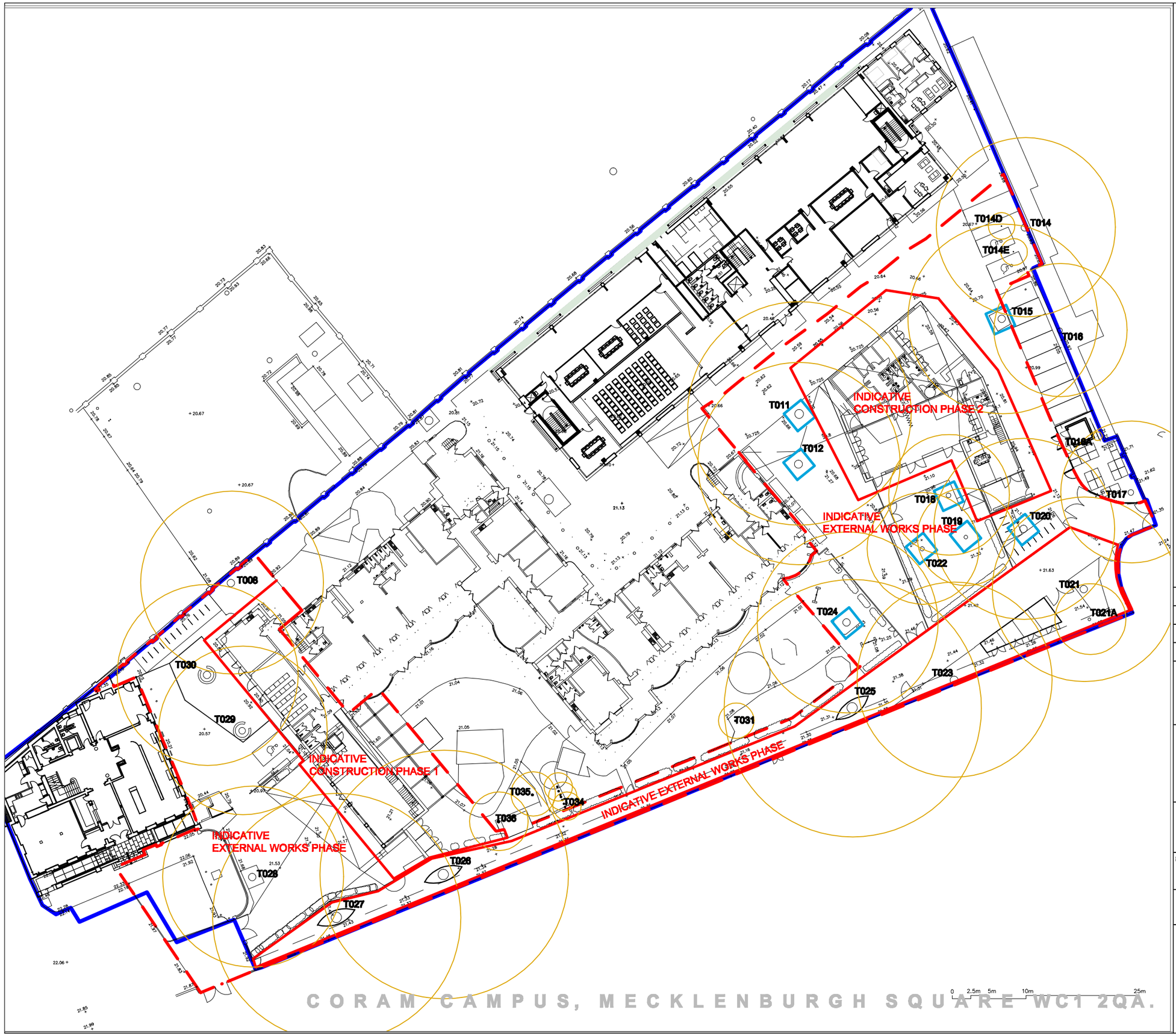
7.10 On completion, the Local Authority will meet on site with the Arboricultural Consultant, the Project Manager and the Main Contractor's Site Manager to sign-off on tree protection measures.

7.11 If post-contract remedial works are required they should be specified at the completion meeting and confirmed in writing.

7.12 After sign-off, protective fencing may be removed in its entirety.

appendix a

tree protection plan



KEY

ROOT PROTECTION AREA
as defined in *BS5837:2005*
Trees in relation to construction
- Recommendations

RED LINE BOUNDARY

SITE BOUNDARY

TREE PROTECTION FENCING

COMPOUND FENCE

GROUND PROTECTION AREA

REVISION	CHCK'D	APP'D	DATE

Client:
THE CORAM FOUNDATION

Job Title:
CORAM CAMPUS
RE-DEVELOPMENT

Drawing Title:
TREE PROTECTION PLAN
(INDICATIVE)

Drawing Number:	Scale:
158.03.00	1:500 (A3)
Date: 12.09.11	Drawn by: RS

Skerratt
arboricultural advice
GREENMOUNT 36 PRIESTTHORPE ROAD BINGLEY
WEST YORKSHIRE BD16 4LL 01274 566539

appendix b

pre-contract tree works schedule

Pre- Contract Tree Works Schedule

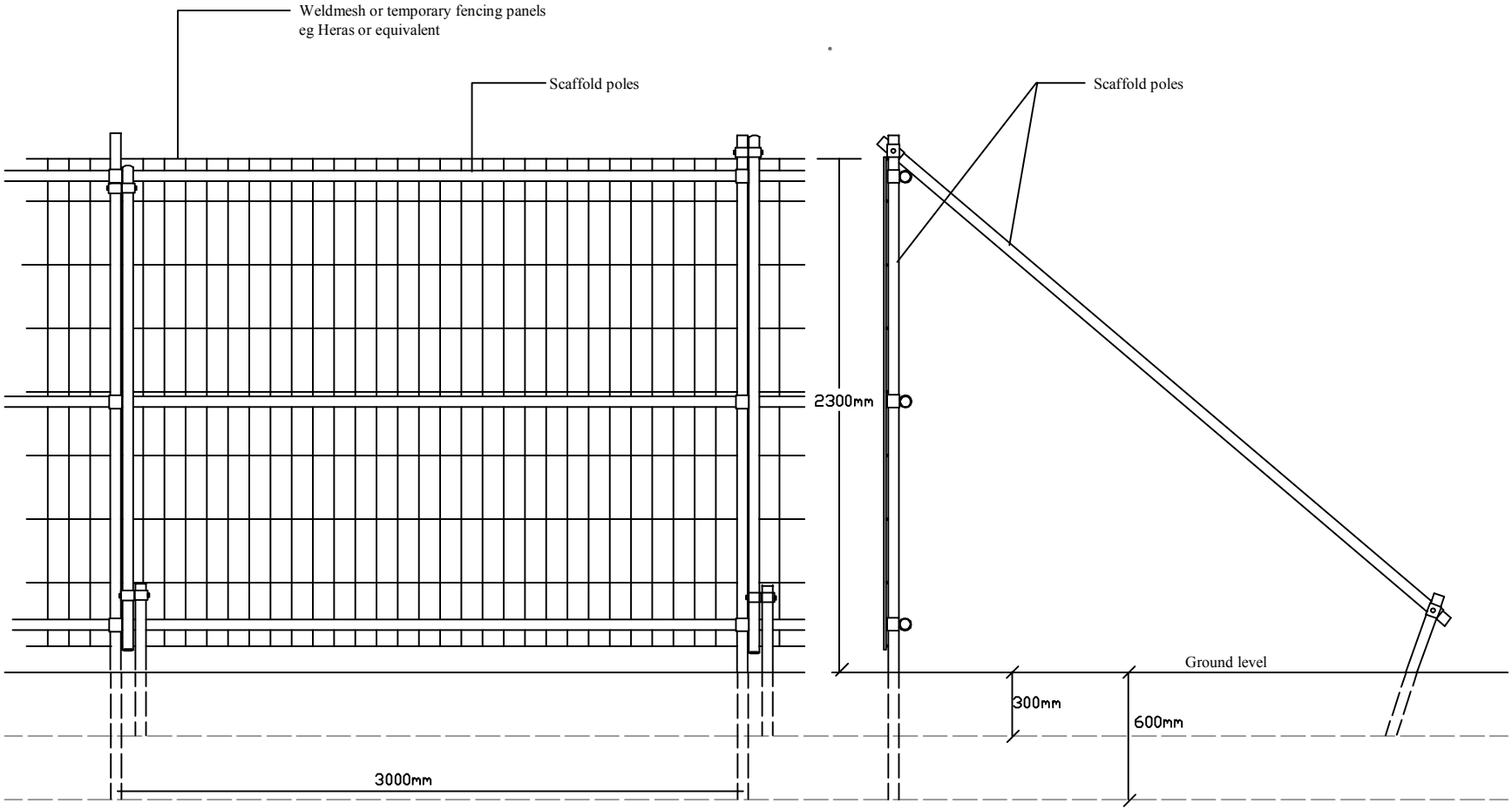
Tree No.	Species	Height (m)	Diam (cm)	Crown Spread (m)				Crown Height (m)	Item
				N	E	S	W		
008	London Plane (*Platanus x hispanica*)	23	103	5	9	6	8	9	No action reuired
014	London Plane (*Platanus x hispanica*)	30	101	8	8	5	6	6	Lift crown overhang to 6m above existing ground level, where possible within the following constraint; no limb with a diameter of more than 150mm at point of origin to be removed
014D	Holly (*Ilex aquifolium*)	6	15	3	2	1	2	1	No action required
014E	Holly (Ilex aquifolium)	6	15	3	2	1	3	1.5	No action required
015	London Plane (*Platanus x hispanica*)	36	107	9	5	11	11	7	Lift crown overhang to 6m above existing ground level, where possible within the following constraint; no limb with a diameter of more than 150mm at point of origin to be removed
016	London Plane (*Platanus x hispanica*)	29	75 est	4	7	7	7	10	No action required
017	London Plane (*Platanus x hispanica*)	24	80	8	11	12	7	2	No action required
018	London Plane (*Platanus x hispanica*)	25	68	12	10	4	6	8	Lift crown overhang to 6m above existing ground level, where possible within the following constraint; no limb with a diameter of more than 150mm at point of origin to be removed
019	London Plane (*Platanus x hispanica*)	25	55	2	4	7	4	12	Lift crown overhang to 6m above existing ground level, where possible within the following constraint; no limb with a diameter of more than 150mm at point of origin to be removed
020	London Plane (*Platanus x hispanica*)	26	102	10	6	10	3	12	Lift crown overhang to 6m above existing ground level, where possible within the following constraint; no limb with a diameter of more than 150mm at point of origin to be removed
021	London Plane (*Platanus x hispanica*)	29	104	9	7	10	9	6	No action required
021A	Lime (*Tilia x europaea*)	16	40	2	3	5	5	3	No action required
022	London Plane (*Platanus x hispanica*)	26	63	5	5	5	6	12	No action required
023	London Plane (*Platanus x hispanica*)	33	110 est	8	10	9	7	8	No action required
024	London Plane (*Platanus x hispanica*)	36	102	7	10	10	7	6	No action required

Pre- Contract Tree Works Schedule

Tree No.	Species	Height (m)	Diam (cm)	Crown Spread (m)				Crown Height (m)	Item
				N	E	S	W		
025	London Plane (*Platanus x hispanica*)	31	145	10	9	11	14	6	No action required
026	London Plane (*Platanus x hispanica*)	31	1400	10	11	10	8	3	No action required
027	London Plane (*Platanus x hispanica*)	31	140	8	11	16	10	5	No action required
028	London Plane (*Platanus x hispanica*)	27	102	11	10	10	13	6	No action required
029	London Plane (*Platanus x hispanica*)	30	95	5	10	8	10	6	No action required
030	London Plane (*Platanus x hispanica*)	31	102	10	10	5	10	12	No action required
031	Flowering Cherry (*Prunus 'Kanzan'*)	5	20 est	5	5	6	5	1.5	No action required
032	Field Maple (*Acer campestre*)	7	18 max est	4	3	3	3	2	Fell to near ground level; grind out stump to 300mm below ground level
033	Sycamore (*Acer pseudoplatanus*)	8	22	4	1	3	4	3	Fell to near ground level; grind out stump to 300mm below ground level
034	Willow (*Salix species*)	7	16 max	7	4	6	1	2	No action required
035	Kashmir Birch (*Betula jacquemontii*)	4	25 @ 1m	4	5	6	3	2.5	No action required

appendix c

BS protective fence detail
BS ground protection detail
tree protection notice
tree protection notes



Excerpt from *BS5837:2005 Trees in relation to construction - Recommendations*

Barriers should consist of a scaffold framework comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m.

Onto this, weldmesh panels should be securely fixed using wire or scaffold clamps. Weldmesh panels on concrete or rubber feet are nor resistant to impact and should not be used

NOTE: The above is preferred because it is readily available, resistant to impact, can be re-used and enables inspection of the protected area

BS5837:2005 Protective Fencing Detail
Scale: 1:20 [A4]

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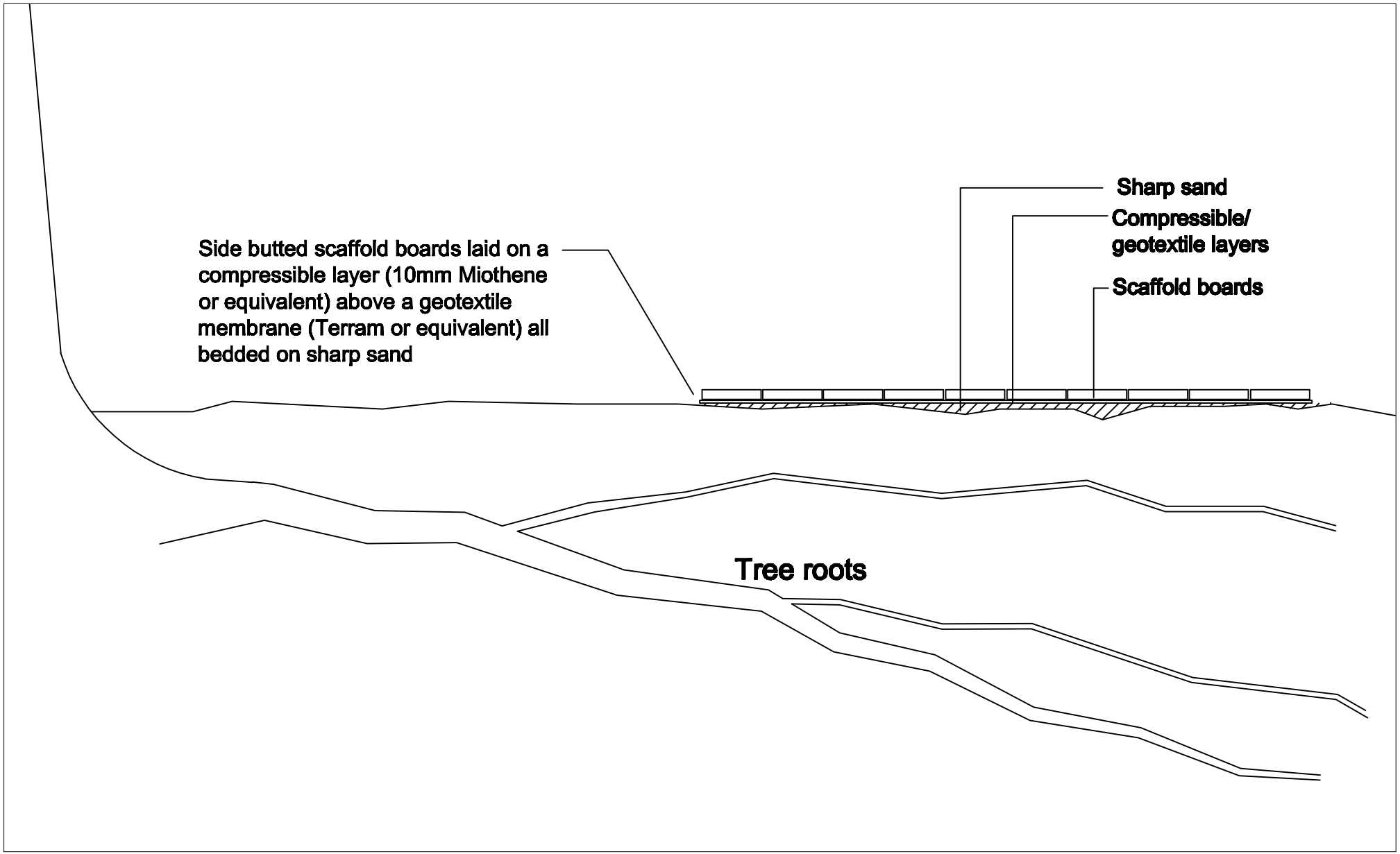
GREENMOUNT 36 PRIESTTHORPE ROAD BINGLEY
WEST YORKSHIRE BD16 4LL 01274 566539



BS5837:2005 Ground Protection Layer (General arrangement)

Scale: 1:20 [A4]

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CONSTRUCTION EXCLUSION ZONE

KEEP OUT

NO DIGGING OR TRENCHING
NO STORAGE OF PLANT AND MATERIALS
NO VEHICULAR ACCESS
NO FIRES TO BE LIT
NO CHEMICALS TO BE STORED OR HANDLED IN THE VICINTY OF THIS ZONE
AVOID PHYSICAL DAMAGE TO TREES

REPORT DAMAGE TO TREES OR FENCING IMMEDIATELY

CORAM COMMUNITY CAMPUS

CARE OF TREES

TREE PROTECTION NOTES

Trees are thin skinned and easily damaged

Their roots spread widely and run close to the ground surface.

All of the following can cause serious damage:

- Heavy traffic over and the storage of heavy materials above tree roots
- Direct damage to stems and branches from badly handled construction equipment,
- Root damage caused by unnecessary excavation
- Leakage of toxic liquids and powders above roots and close to tree stems.

Please keep the trees on site safe by following these simple rules carefully and in full.

There is a protective fence round each retained tree. These fenced-off areas are CONSTRUCTION EXCLUSION ZONES (CEZ). Don't enter any CEZ unless authorised to do so

In Construction Exclusion Zones

- Don't store any materials
- Don't use heavy machinery
- Don't handle toxic materials
- Stick to the planned work programme. Don't undertake unscheduled variations
- Don't light fires
- Report any damage to protective fencing to the Site Manager

Work Planning

Plan your work so that construction machinery does not come into contact with and cause damage to branches and stems of retained trees.

Appoint someone to supervise movement of machinery and equipment close to CEZs

Tell the Site Manager if tree pruning is needed to get machinery in, out or around the site. Don't do it yourself