Site Specific Arboricultural Method Statement

Land at St. Pancras Cruising Club, St. Pancras Yacht Basin, Camley Street, London N1C 4PN

A report to: St. Pancras Cruising Club FAO: Terry Garland

Date: 19th January 2017

Report No: WAS62 -AMS/2017

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Report Verification

This method statement has been undertaken in accordance with British Standard 5837:2012 "Trees in relation to design, demolition and construction - Recommendations".

Disclaimer

The contents of this report are the responsibility of Wassells Arboricultural Services Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Wassells Arboricultural Services Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

Validity of Data

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified and experienced arboriculturist to assess any changes to the trees and groups on site and to inform a review of the conclusions and recommendations made.

It should be noted that trees are dynamic living organisms that are subject to natural changes as they age or are influenced by changes in their environment. As such following any significant meteorological event or changes in the growing environment of the trees they should be re-assessed by a suitably qualified and experienced arboriculturist.

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Introduction and Scope of Method Statement

This document has been produced to provide a method statement to ensure the protection of all retained trees that could potentially be affected by construction activity on the site.

This document shall be used to discharge condition 5 of the planning consent for the site:

Ref: 2014/4871/P – London Borough Camden dated 9th October 2014

The scope of this report follows the recommendations and guidance described within ***BS 5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations*** which set out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.

This AMS will also recommend any required tree works to enable access and also to mitigate potential damage from construction activity and for the future well being of the trees concerned.

Abbreviations:

RPA = root protection area

CEZ = construction exclusion zone

CWA = construction working area (including materials storage)

AMS = arboricultural method statement

AS = Arboricultural Supervision

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Arboricultural Method Statement

Pre-commencement of project

- A pre-commencement site meeting is to be arranged by the site manager to ensure all tree protection measures are in place as described below
- Above meeting should involve local planning authority tree officer, site manager and project arboricultural consultant

Excavation within RPA of Retained Trees

Ref: Addendum 1

*** Please see addendum 1 section on Excavation within RPA of retained trees.**

- The agreed development of the site is to demolish the existing club house and remove old foundations and build a new single storey club house on the same footprint as the existing.
- The new foundations are to be a 250mm thick slab on micro piles
- Care shall need to be taken when removing the old foundations closest to trees T1 to T3
- The proposed new brick paviour path is to replace the existing concrete path. The proposed construction of this is only likely to be slightly deeper than the existing and is unlikely to impact the 3 Sycamore trees
- Arboricultural supervision (AS), as below in that section, shall be required **IF** tree roots of 25mm and above are encountered when removing the old foundation and constructing the new foundations

Tree Protection Barriers & Construction Exclusion Zone

Ref: Addendum 1

- **The CEZ is to be the whole of the garden area to the south of the club house and including where the 3 Sycamore trees are growing**
- **The tree protection barrier is to be specification as shown in figure 3 of addendum 1**
- **The barrier shall be erected along the edge of the existing path between the existing club house from garden shed to the towing path and returned along the edge of the garden next to the towing path**
- **The above tree protection fencing is to be erected prior to starting on site as part of the initial site start up and is to be retained until completion of the project.**
- **Notices as shown in addendum 1 below are to be erected on all tree protection panels as information for demolition and construction staff**

Ground Protection of Existing Surfaces within Root Protection Area (RPA) of Nearby Trees

Ref: Addendum 1

*** Please see addendum 1 section on Ground Protection System**

- None required

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Access Facilitation Pruning & Tree Surgery/Removal Works

Schedule of Tree Works

Tree Number	Tree Species	Diameter Class mm	RPA radius metres	Height metres	Grading Category	Tree work recommendations
T1	Sycamore	600	7.2	14	B 2 as part of group of 3	Reduce crown back to previous points of reduction Remove all epicormic growth and deadwood Thin crown of tree by 15%
T2	Sycamore	450	5.4	14	B 2 as part of group of 3	Reduce crown back to previous points of reduction Remove all epicormic growth and deadwood Thin crown of tree by 15%
T3	Sycamore	375	4.5	12	B 2 as part of group of 3	Reduce crown back to previous points of reduction Remove all epicormic growth and deadwood Thin crown of tree by 15%

Tree work to be carried out to the following standards and guidelines:

- BS 3998:2010 Recommendations for Tree Work
- Tree pruning cuts will be carried out using the 'Natural Target Pruning' technique as defined by: *BS 3998:2010 section 7.2.5 and Fig. 2 The Pruning of Trees, Shrubs and Conifers: George E. Brown & Tony Kirkham – 2nd edition revised & enlarged 2004 and Section 3.1.27 of The Arboricultural Association Specification for Tree Works June 2008.*

- Crown clean involves removal of dead, diseased & dying wood from tree crown, thinning of overcrowded crown, and removal of Ivy and all epicormic growth within crown including stem & basal epicormic growth.

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Site Access and Construction Working Area (CWA)

- CWA is all areas of site outside of tree protection barriers and the CEZ

Site Storage and Accommodation

- Not within the CEZ

Installation of Services

- Arrangements for this element of the development of the site are unknown as at time of writing this AMS but are likely to remain as existing
- Changes to the service routes will be carefully considered using the AS below to advise on protection of nearby trees prior to commencement on site of any new services routes

Arboricultural Supervision (AS)

- AS shall be required during work within and adjacent to the RPA of retained trees. It must be undertaken at regular intervals with a written record of the meetings maintained with suitable photographic record in support.
- The AS must include a pre-construction commencement site visit, to be arranged by the Site Manager under instruction from Architects, and thereafter at specific events that affect the retained trees on site to enable sign-off by the AS. These are typically as follows:

1. Erection of tree protection fencing/barrier
2. Installation of ground protection to retained trees whose RPA are affected by the CWA
3. Start of Excavation/piling of foundations within the RPA of retained trees
4. Tree pruning requirements to prevent crown damage from construction activity
5. Start of Excavation/installation of paths, roads and car parking within RPA of retained trees
6. Installation of underground services within the RPA of retained trees
7. Tree condition survey on completion of construction work

Conclusion

Provided the recommendations shown above and the methodology for protection of any retained trees are followed, there will not be an effect on the current or future condition of those trees that are retained as part of this scheme.

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References

1. BS 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations
2. BS3998:2010 Tree Work – Recommendations
3. NJUG Volume 4 Issue2 2007 – Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.
4. NHBC Standards – Section 4.2 Building Near Trees
5. British Geological Survey – London & the Thames Valley
6. Principles of Tree Hazard Assessment – Lonsdale 2001
7. Diagnosis of Ill Health in Trees – Stouts & Winter 2004
8. Proposed plan – drawing 01-101 rev. P2

Declaration

This AMS is written and checked by Richard Wassell of Wassells Arboricultural Services Ltd. and provided without prejudice as an objective and professional assessment of the trees and site conditions described.

Signed: R.J.Wassell Date: 19. 01. MMXVII

Richard Wassell. Director

MCIHort MArborA NDArb (RFS) Kew Diploma NEBOSHlevel3

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Addendum 1 – Tree Protection

Ref: BS 5837:2012 in Tables C.1 & D.1of annex C & D

Protecting Root Zone of Trees (BS 5837:2012 section 6.2 Figs. 2 & 3):

The Root Protection Area (RPA)

This is the area surrounding a tree that is deemed to contain sufficient roots and rooting volume to maintain the trees viability in the future. The root system is typically concentrated in the uppermost 600 – 1200mm of the soil and is not necessarily symmetrical around the tree, being dependant on a number of factors such as water, nutrients, oxygen, soil penetrability and physical obstructions such as existing foundations or changes in level (terracing).

The RPA is a design layout tool that is deemed to be a minimum area around a tree where the protection of roots and soil structure are treated as a priority. This area is envisaged as and portrayed with a circle around each tree but where there appears to be restrictions to root growth the circle is reshaped to reflect more accurately the likely distribution of the rooting area of the tree concerned.

Key Points

1. AVOID building works within the RPA if at all possible but if not then carefully consider the following: where the RPA is likely to be severely affected because of site design constraints then felling and planting replacement(s) trees in a more suitable location on the site will need to be considered.
2. Where possible do not use strip foundations within the RPA, if absolutely necessary consider using a trenching saw or excavate by hand to avoid 'shatter damage' to the root system.
3. Consider using piling techniques for foundations @ maximum 350 mm diameter with ground beams on or above the surface of the root zone.
4. Unless unavoidable, do not exceed entering the root zone by more than one fifth of RPA radius.
5. Do not trench tangentially across the root zone for footings and services unless it cannot be avoided.
6. Consider 'no dig' techniques for services installation, with radial service lines being preferable to tangential across the root zone. Where this is undertaken then boring must be carried out below 600mm deep.
7. Any hard surfacing, paths and roads need to have the same considerations for the RPA and as in the above points. Where possible paths and hard surfacing (patios etc) need to be surface constructed (cellular) and semi-porous to allow water penetration and gaseous exchange into the root system of trees.

Excavation within Root Protection Area of trees

Where trees are to be retained then any proposed foundation, underground services work and hard surfacing such as roads/paths falling within the RPA of trees that are to be retained shall be kept as far away from tree stems as possible(SEE NOTE 1 ABOVE). Where any such works are necessary within the RPA there will be a

requirement to dig carefully by hand and ensure any roots encountered of maximum 25mm in diameter shall be exposed and correctly pruned back by a competent Arborist. Where larger roots are encountered of above 25mm in diameter then advice from the Arboricultural Supervisor (AS) for the site must be sought prior to any work being undertaken.

Any roots exposed/ pruned back as part of the above operation shall NOT be left exposed to drying out. All roots exposed/pruned shall be either covered with damp Hessian sacking prior to backfill or backfilled/covered immediately with a suitable open and free draining compost/loam.

Site Hoarding

Site hoarding shall be no closer than 1.5 metres away from the stem of retained trees and consist of 2400mm high x 1200mm wide x 20mm thick plywood sheets supported by minimum 100mm square posts and 100 x 50mm rails with posts at 2.5 metre centres.

Post holes for site hoarding that are required within the RPA of nearby trees shall be dug by hand and are to be a maximum of 300 x 300mm and 450mm deep

Posts to be supported in the ground with 1 bag of “PostCrete” per post or use of “Meta Posts” if applicable

Ground Protection System Specification:

- Level area of RPA concerned by blinding with sharp sand at maximum depth of 50mm
- Lay geo-textile membrane such as ‘Terram’ to cover area concerned
- Cover geo-textile with maximum of 100mm MOT Type 1 sub-base
- Retain MOT type 1 with edge restraint such as 30 x 100mm edging board pegged every 2 metres to prevent migration of the sub-base
- OR
- Use 20mm minimum thickness plywood sheets instead of MOT type 1 and ensure they are secured from moving

Other manufactured ground protection systems are available such as Eve Tracking and can be used as an alternative where suitable.

6.2 Barriers and ground protection

6.2.1 General

6.2.1.1 All trees that are being retained on site should be protected by barriers and/or ground protection (see **5.5**) before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers should be erected to create a construction exclusion zone. Where, due to site constraints, construction activity cannot be fully or permanently excluded in this manner from all or part of a tree's RPA, appropriate ground protection should be installed (see **6.2.3**).

6.2.1.2 Areas of retained structural planting, or designated for new structural planting, should be similarly protected, based on the extent of the soft landscaping shown on the approved drawings.

6.2.1.3 The protected area should be regarded as sacrosanct, and, once installed, barriers and ground protection should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the local planning authority.

6.2.1.4 Where required, pre-development tree work may be undertaken before the installation of tree protection measures, with the agreement of the project arboriculturist or local planning authority if appropriate (see also **8.8.1**).

6.2.1.5 It should be confirmed by the project arboriculturist that the barriers and ground protection have been correctly set out on site, prior to the commencement of any other operations.

6.2.2 Barriers

6.2.2.1 Barriers should be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s). Barriers should be maintained to ensure that they remain rigid and complete.

6.2.2.2 The default specification should consist of a vertical and horizontal scaffold framework, well braced to resist impacts, as illustrated in Figure 2. The vertical tubes should be spaced at a maximum interval of 3 m and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed. Care should be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification should be prepared in conjunction with the project arboriculturist that provides an equal level of protection. Such alternatives could include the attachment of the panels to a free-standing scaffold support framework.

6.2.2.3 Where the site circumstances and associated risk of damaging incursion into the RPA do not necessitate the default level of protection, an alternative specification should be prepared by the project arboriculturist and, where relevant, agreed with the local planning authority. For example, 2 m tall welded mesh panels on rubber or concrete feet might provide an adequate level of protection from cars, vans, pedestrians and manually operated plant. In such cases, the fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence. The distance between the fence couplers should be at least 1 m and should be uniform throughout the fence. The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins (Figure 3a). Where the fencing is to be erected

on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

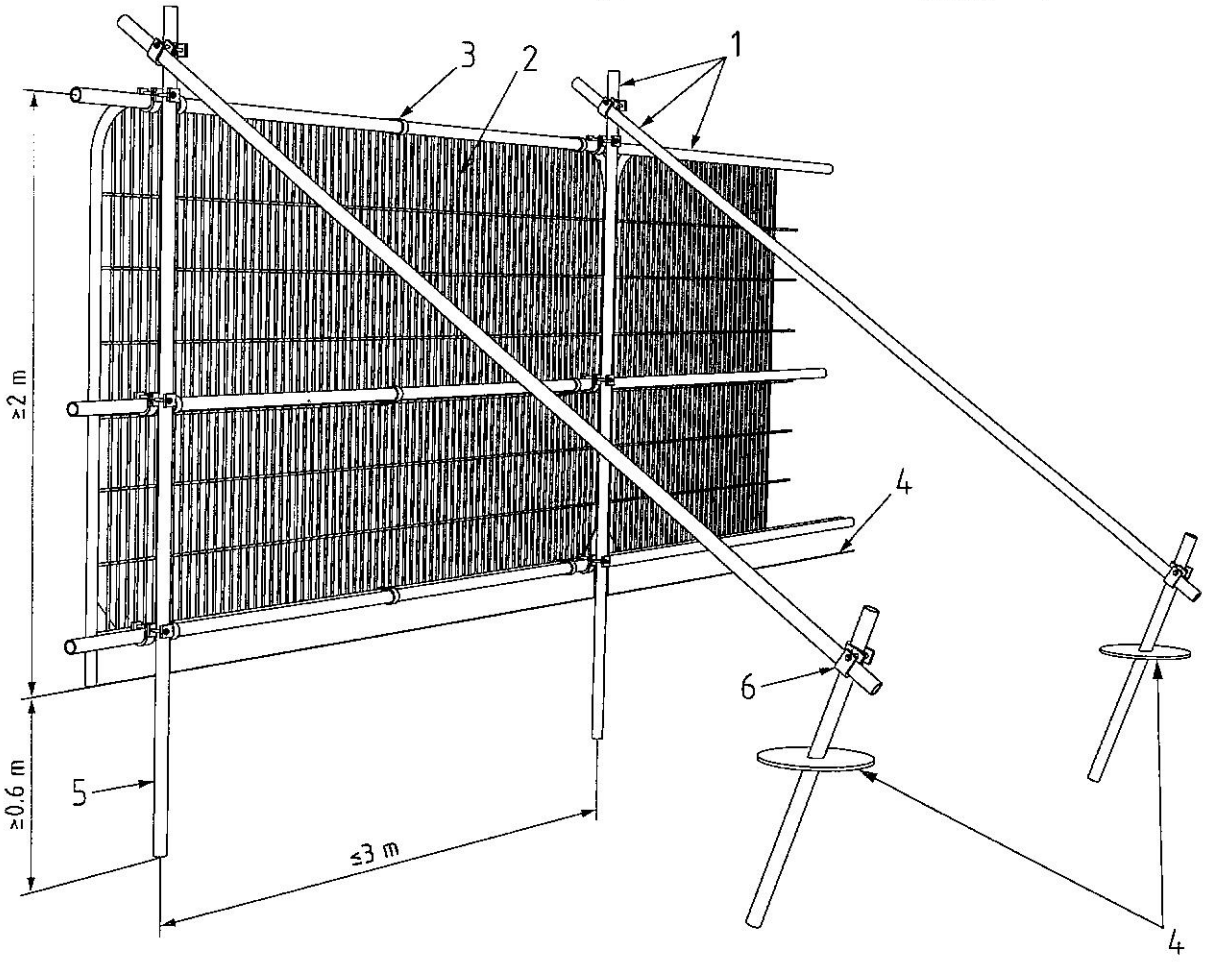
NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.

NOTE 2 It might be feasible on some sites to use temporary site office buildings as components of the tree protection barriers, provided these can be installed and removed without damaging the retained trees or their rooting environment.

6.2.2.4 All-weather notices should be attached to the barrier with words such as:

"CONSTRUCTION EXCLUSION ZONE – NO ACCESS".

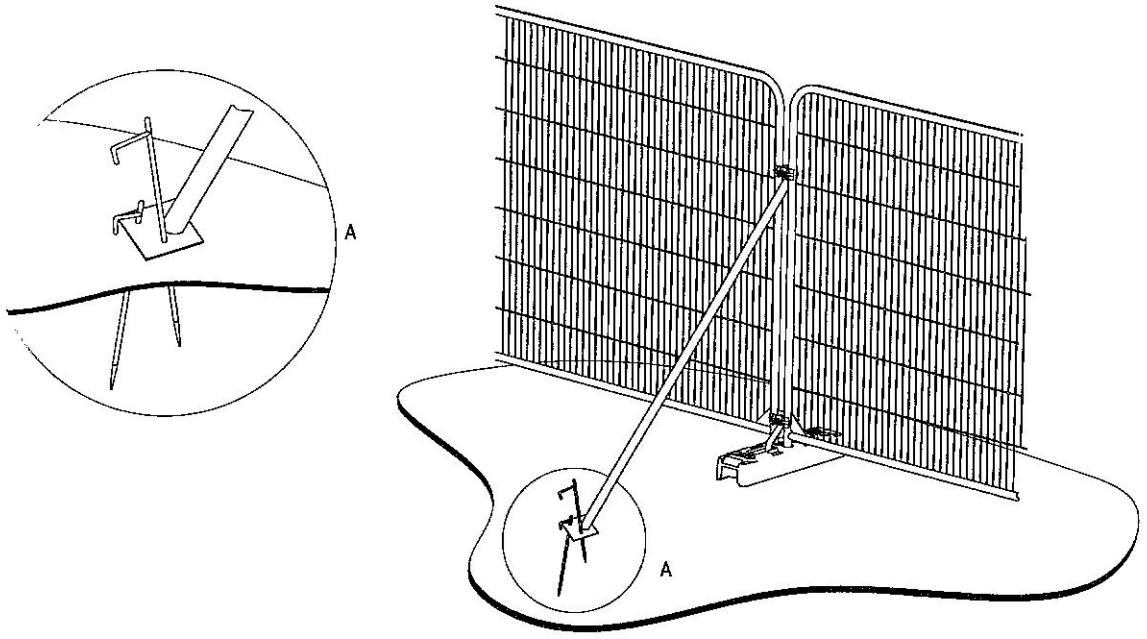
Figure 2 **Default specification for protective barrier**



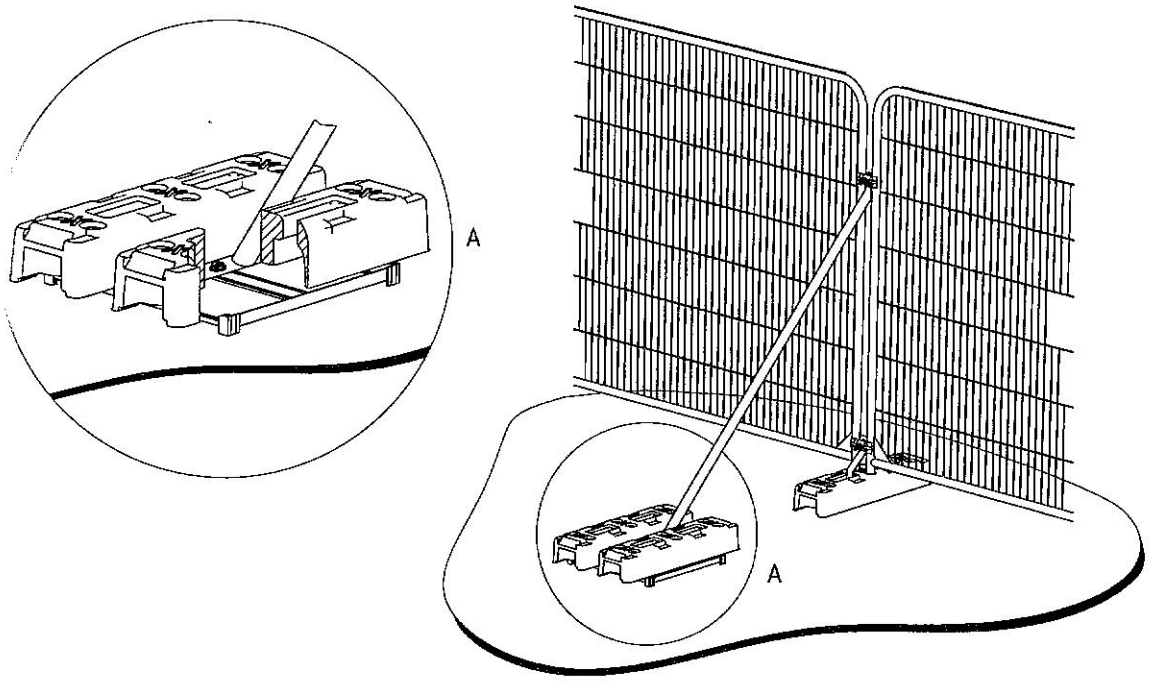
Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 3 Examples of above-ground stabilizing systems



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

6.2.3 Ground protection during demolition and construction

6.2.3.1 Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.

6.2.3.2 Where the set-back of the tree protection barrier would expose unmade ground to construction damage, new temporary ground protection should be installed as part of the implementation of physical tree protection measures prior to work starting on site.

6.2.3.3 New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.

NOTE The ground protection might comprise one of the following:

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane;

b) for pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane;

c) for wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

6.2.3.4 The locations of and design for temporary ground protection should be shown on the tree protection plan and detailed within the arboricultural method statement (see **6.1**).

6.2.3.5 In all cases, the objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.

6.2.4 Additional precautions outside the exclusion zone

6.2.4.1 Planning of site operations should take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees should be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning should be undertaken where necessary to maintain this clearance.

NOTE In some instances, local planning authority consent for pruning might be required.

6.2.4.2 Fires on sites should be avoided if possible. Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction should be taken into account when determining its location, and it should be attended at all times until safe enough to leave.

NOTE Local environmental health authorities might have specific restrictions.

6.2.4.3 Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA.

CONSTRUCTION EXCLUSION ZONE

NO ACCESS

PLEASE REPORT IMMEDIATELY ANY DAMAGE TO TREES OR FENCING TO THE SITE MANAGER

TO BE LAMINATED SIZE A3 AND FIXED TO EVERY TREE PROTECTION BARRIER PANEL WITH CABLE TIES

Addendum 2 – Plans

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— — = line of tree protection fencing

RECLAIMED STONE
TO PATH

[23.71]

existing stone canal wall capping

existing PCC slab paving

[23.72]

FLOWER BED

GRAVEL

GARDEN
STORE

WORKSHOP

[23.75]

BRUSHED
CONCRETE
[to match existing]

23.785

23.785

TEMPORARY FENCING [Heras]
TO PROTECT EXISTING TREES

T3

NEW TREES IN GARDEN AS
M&W DRAWING 772 03 201_P1

600 X 600 mm PCC SLABS
WITH RECLAIMED BLUE
BRICK EDGING TO TERRACE

[23.93]

[23.21]

DRY DOCK

BRUSHED
CONCRETE +
BLUE BRICK EDGING
[to match existing]

BRUSHED CONCRETE
[to match existing]

RECLAIMED STONE
TO BBQ PATIO

T2

23.785

CLUBHOUSE

FFL: 23.800

[23.93]

G
[23.92]

BRUSHED
CONCRETE
[to match existing]

existing concrete

existing concrete

Pump out

RED BRICK PAVING WITH
BLUE BRICK BANDS TO RAMP

RED BRICK PAVING
TO MATCH EXISTING

T1

[23.73]

CANOPY TO DIESEL TANK
AND VISITING BOATER FACILITIES

existing grass

[23.50]

[23.50]

existing red brick paving

[23.59]

existing concrete canal wall capping

St Pancras Cruising Club **Camley Street, N1C 4PN**	External layout Landscape	Scale @ A3: **1:100** Date: **29-Oct-2016**	Drg No: **01-101** Revision: **P2**

Revisions: P2 10-Nov-2016 Temp fence added; new trees noted; VBF canopy noted.

Addendum 3 – Picture Gallery

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T2
T3
T1


T2
T1
T3
Club House

Existing path showing raised garden area with trees. Height 400mm at T1 increasing to 800mm at T3