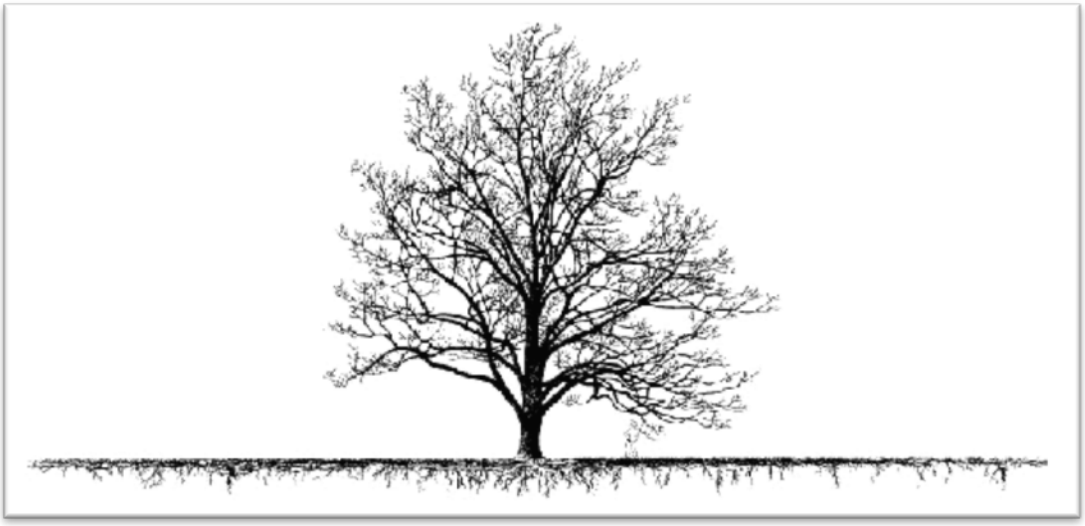

Arboricultural Method Statement for the Demolition of Stephenson House, Hampstead Road, London NW1

PREPARED BY:	DATE:	REVIEWED:
MARK CLEWS	08/08/18	

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Contents

Appended Documents:

1. Protective fencing diagram
2. Protective fencing signage
3. Protective fencing checklist
4. Ground protection detail
5. Ground protection checklist

1. Introduction.

1.1 My name is Mark Clews and I am an arboriculturist, trained to degree level (Dip. Arb (RFS)). I have twenty-three years professional experience in providing arboricultural advice for development projects of all sizes.

1.2 I have been instructed to provide an arboricultural method statement, as part of a tree protection strategy in relation to the demolition and subsequent construction of Stephenson House, Hampstead Road, NW1. This method statement & its associated tree work & tree protection plans covers the demolition phase of the project only.

1.3 The Method Statement & accompanying tree work & protection plans also satisfy the requirements and standards laid out in BS5837:2012 (Trees in relation to design, demolition and construction – Recommendations).

1.4 Please note that this report will need to be read & understood in conjunction with tree work & tree protection plans. The plans itemised below are required to fully understand the tree protection strategy.

Reference drawings:

AIA180808-003-A-work	Tree Work/Removal plan
AIA180808-004-A-protect	Tree Protection Plan

ARBORICULTURAL METHOD STATEMENT

Reference documents: As above

1. Introduction

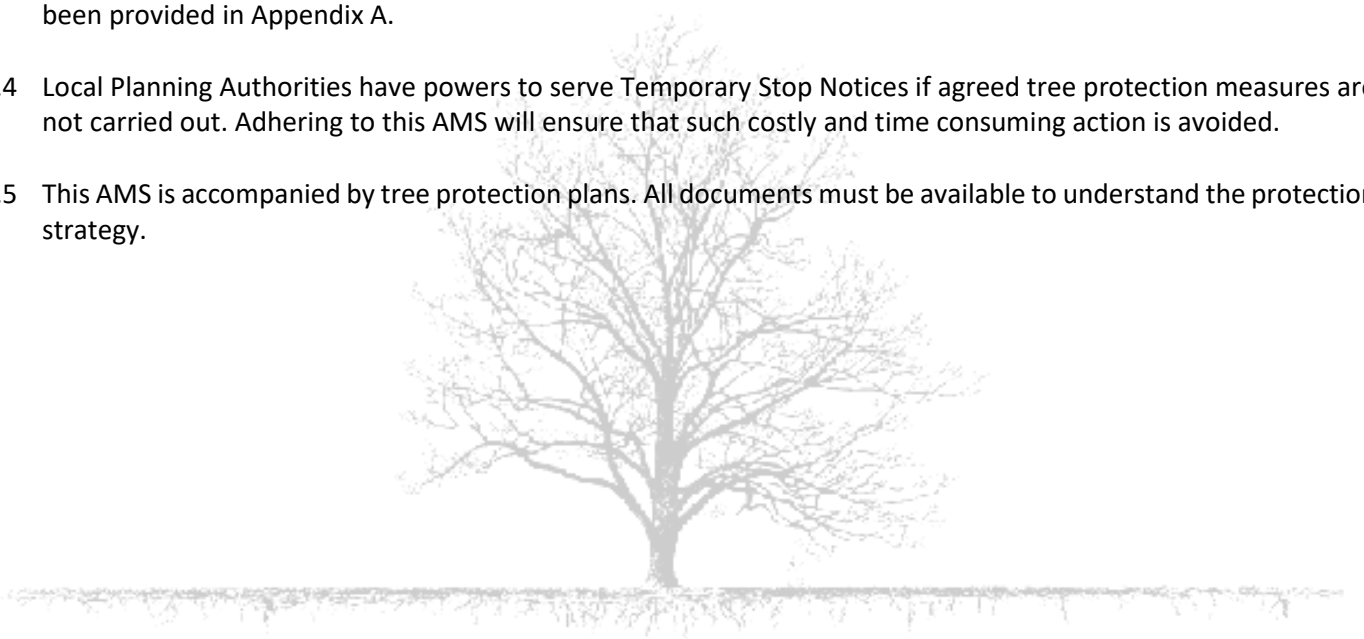
1.1 To safeguard the retained trees on the site during the development works, it is necessary to implement a tree protection strategy as outlined below. The following arboricultural method statement is to provide a protection methodology for trees to be retained throughout the intended work required by the demolition phase of the project. The method statement needs to be read in conjunction with any accompanying tree work/removal plan & tree protection plans. Together, these documents will protect the above and below ground parts of retained trees, as well as their rooting medium and preserve the soil structure of areas which may also have been allocated for new planting.

1.2 A copy of this AMS shall be maintained on site at all times and made available to all site personnel.

1.3 All stakeholders should be made aware of the strategic importance of appropriate tree protection, as well as of their respective liability with regard to its implementation. To this end, a table of delegated responsibilities has been provided in Appendix A.

1.4 Local Planning Authorities have powers to serve Temporary Stop Notices if agreed tree protection measures are not carried out. Adhering to this AMS will ensure that such costly and time consuming action is avoided.

1.5 This AMS is accompanied by tree protection plans. All documents must be available to understand the protection strategy.



2. Frequently used key terms and abbreviations

Tree Preservation Order	TPO
Arboricultural Method Statement	AMS
British Standard 5837 2012	BS 5837
Root Protection Area/Root Protection Areas	RPA/RPAs
Construction Exclusion Zone	CEZ
Local Planning Authority	LPA
Tree Protection Plan	TPP
Project Arboriculturist	PA

3. Contact details of key arboricultural personnel

Principle Arboricultural Contacts:

Name	Role	Contact details
Mark Clews	Project arboriculturist	09750481175
	LA Tree Officer	
	Client/Client Agent	
	Main Contractor	

4. Limitations

4.1 A full risk assessment of the trees (including the detailed assessment of decay or defects and their implications), has not been undertaken as this is considered beyond the scope of this protection strategy. Any significant hazards and defects have been identified in the Tree Survey Schedule and appropriate works recommended for immediate action.

4.2 No assessment has been made on the ecological value presented by the trees surveyed, neither has any comprehensive survey been carried out for priority species/EPS by the author of this statement. Detailed Priority species surveys have been undertaken by others.

5. Preliminary

5.1 The methodology of the tree protection measures roughly follows a logical sequence of development events. Variations to the sequence could significantly reduce the efficiency of the tree protection measures.

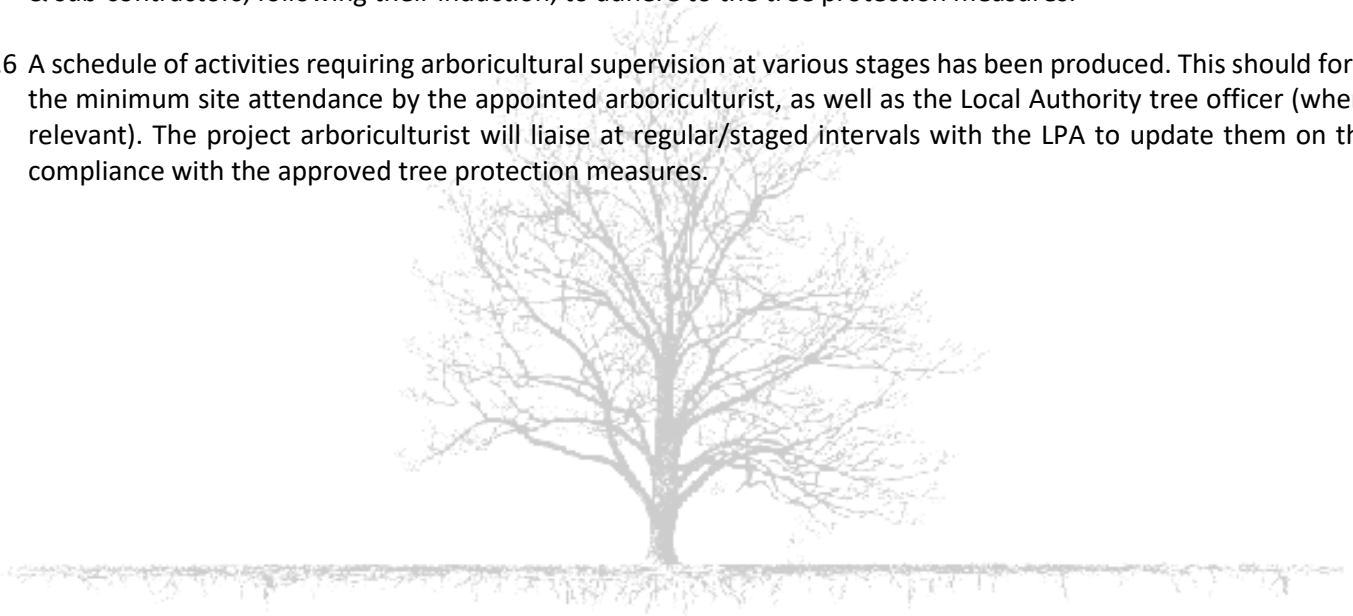
5.2 The LPA will be given notice in writing 5 full working days prior to the date of commencement of development to check all tree protection in place & is fit for purpose.

5.3 All development works within the RPA of any retained tree will be carried out strictly in accordance with the arboricultural method statement.

5.4 It is recommended that works within any RPA, as well as the installation & modification of all tree protection measures, are carried out under supervision by an arboriculturist. It is the responsibility of the client to appoint a project arboriculturist prior to commencement of the project. It is the responsibility of the client to agree with the project arboriculturist, the level of involvement required by the project arboriculturist.

5.5 It is principally the responsibility of the main contractor & the client to ensure the tree protection strategy is adhered to at all times throughout the life of the project. It is the responsibility of all employees of the contractor & sub-contractors, following their induction, to adhere to the tree protection measures.

5.6 A schedule of activities requiring arboricultural supervision at various stages has been produced. This should form the minimum site attendance by the appointed arboriculturist, as well as the Local Authority tree officer (where relevant). The project arboriculturist will liaise at regular/staged intervals with the LPA to update them on the compliance with the approved tree protection measures.



6. Pre-commencement

6.1 A pre-commencement site meeting, involving representatives from the main contractor, the client/client agent, the project arboriculturist and the LPA Tree Officer (if requested), will be held to ensure that all aspects of the tree protection measures are understood and agreed.

6.2 Where it has been identified that changes to the protection plans are required, the required changes will be shown on a modified set of tree protection plans & submitted to the LPA for their information prior to commencement on the project.

6.3 In order for tree protection to work, arrangements will be put in place prior to commencement of the relevant phases of the project, for the responsibility for management of the tree protection & its enforcement. To this end a table of delegated responsibilities and authority to halt works will be produced & agreed to by all involved in the supervision of the project (Appendix A).

6.4 A system of communication will be agreed at the pre-commencement meeting, between all those involved with tree protection. Contact details will be disseminated & arrangements for notification periods agreed. This information will be recorded by the project arboriculturist & submitted to the LPA for their information.

7. Induction

7.1 All contractors & sub-contractors involved in the construction/external works will accept they have a duty to comply with all the specified tree protection measures. All contractors involved in the development project will be given an induction on the protection measures to be used on the site. A copy of this method statement will be given to all present & they will be required to sign a statement confirming they have understood the protection measures. A copy of the statement is appended to this AMS. The role & responsibility of the site manager in the tree protection measures will be explained at this stage & he/she will be required to sign a statement confirming their acceptance of the role as site manager.

8. Access facilitation tree work.

8.1 Any recommended tree work & removals will be undertaken prior to commencement of demolition/construction work.

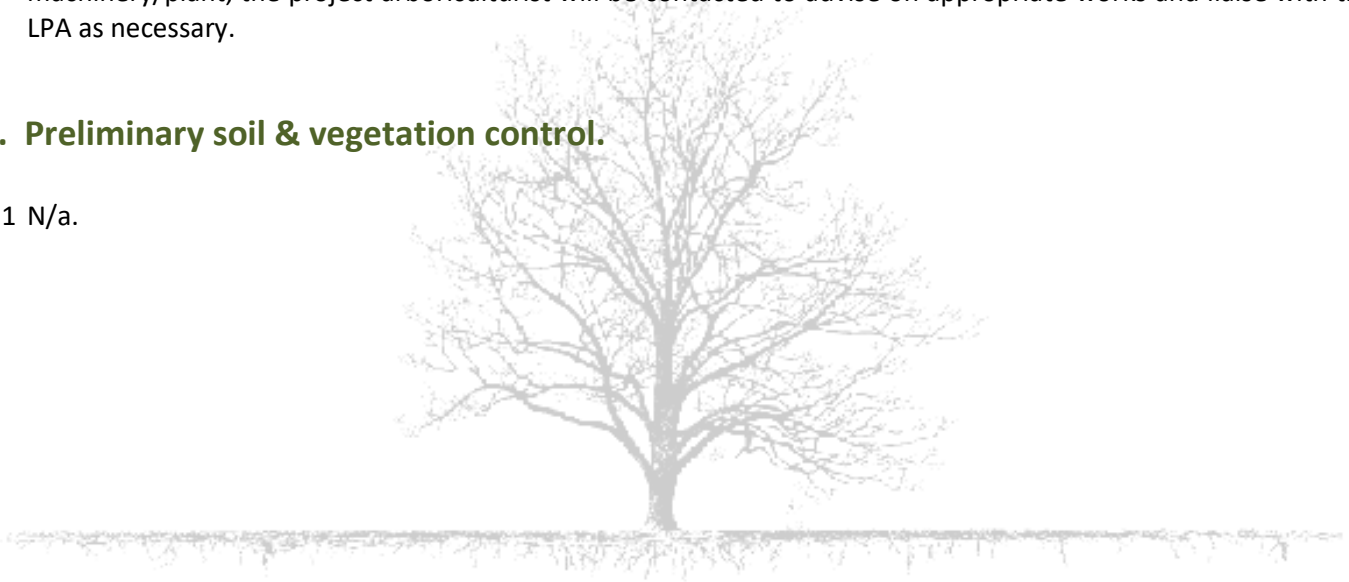
8.2 Prior to carrying out any tree work, all trees recommended for tree work including their immediately adjacent trees, will be inspected for bird nests (wholly and partially built ones) & for bat roosts. In the event bird nests are found (normally between April-September), the tree work will not be carried out until the trees are found to be free of the nesting birds & their young. In the event bat roosts are found, the work will be halted & advice taken from the project ecologist on how to proceed.

8.3 All tree work will be carried out in accordance with BS3998:2010 (please see appended schedule & tree removal/work plan for required tree work) and to current arboricultural best practice. They will also be carried out without harming the adjacent retained trees. Tree works will be carried out by a suitably qualified and experienced Arboricultural Contractor holding the necessary insurance cover. This contractor will carry out the relevant site specific risk assessments and record such information prior to commencement of tasks and work in accordance with current health and safety standards, practices and legislation.

8.4 If additional pruning of trees is later identified as required to facilitate the required works or access for machinery/plant, the project arboriculturist will be contacted to advise on appropriate works and liaise with the LPA as necessary.

9. Preliminary soil & vegetation control.

9.1 N/a.



10. Preliminary tree protection methods.

Unless otherwise stated, everything in this section will be undertaken prior to contractors commencing construction and external works phases of the project. The tree protection measures will be undertaken to the satisfaction of the LA tree officer prior to any work commencing, unless the LA delegates this approval to the project arboriculturist (this delegation will have been previously confirmed at the pre-commencement meeting).

Mulch

10.1 N/a.

Compaction monitoring

10.2 N/a.

Tree Protection Fencing

10.3 Tree protection fencing/hoarding is used to ensure that the RPAs of retained trees are safeguarded.

10.4 Protection fencing/hoarding of the type shown in the protection plans will be placed in the positions indicated on the protection plan. Note that these plans are to scale and can be scaled off. The fencing will be permanently fixed to the ground as shown in the plans using scaffold, or fixed to a permanent feature. Weatherproof signs will be attached to the fencing, stating their purpose and that they should not be moved. The protective fencing will create a construction exclusion area and will be considered immovable for the duration of the specified phase of the project, unless otherwise stated in this AMS. The positioning & installation of the protective fencing will be supervised by the project arboriculturist. Informative diagrams detailing the requirements for protective fencing have been appended to this document.

10.5 Protection fencing/hoarding will be maintained & inspected on a weekly basis by the site manager. Inspections will be recorded on an inspection form. All damage to protective fencing or accidental damage to trees will be reported to the site manager immediately. Works occurring within the incident vicinity will cease immediately until adequate tree protection measures are re-established. A record of the damage will be made by the site manager and, in consultation with the project arboriculturist, remediation measures carried out. A weekly inspection record form is appended to this method statement.

Ground Protection

10.6 Not required.

Restricted work areas

10.7 N/a.

11. General Arboricultural Methods and restrictions during any phase of development:

11.1 The fencing comprising the construction exclusion zone will not be moved, except if specified in the tree protection plans. All staff on site will understand the need for protection fencing, as well as any ground protection and to keep strictly within the designated access routes, when moving in/out of the site.

Storage:

11.2 No materials and/or plant will be stored within the designated root protection area of any of the trees and/or within the construction exclusion areas and/or under their canopies. Any liquid materials to be stored on site, will be located where, in any event of spillage, will allow for natural run-off to be away from the designated root protection areas and buffer zones and/or stored within a pre-constructed spillage containment area.

11.3 Fuel storage & charging areas will be bunded to avoid any contamination of the soil.

11.4 No dry construction materials will be stored within the RPAs of the retained trees, unless adequate ground protection (approved by the appointed arboriculturist), has been installed within the storage area.

11.5 No soil, construction debris, waste, or any other arisings will be stored within the RPAs or under canopies of the retained trees, whichever is the greater.

Contractor welfare facilities & parking:

11.6 The positions of all site facilities & contractor parking will be located outside any canopy areas & RPAs of any retained trees, unless otherwise stated in this AMS & indicated on the protection plans.

11.7 The location of all welfare units & parking areas will be identified at the pre-commencement meeting. If the agreed locations of these require a material change to the tree protection measures, or implicate additional trees, the protection plans will be revised to reflect this & submitted to the LPA for their information prior to any commencement of development.

Site access:

11.8 If the agreed construction access routes are to differ from those currently proposed, then a new protection plan will be produced & agreed to by the LPA.

11.9 The ingress, egress and internal movements of any diggers/cranes/plant, delivery vehicles (including their booms) & additional site traffic will be carried out without damage to any part of the retained trees. Where heavy plant equipment will be located under the canopies of retained trees to aid construction, these operations will be closely monitored by the project arboriculturist.

11.10 The construction & dismantling of any scaffold (if used), will be carried out without harm to any parts of the retained trees. If additional tree pruning is required to accommodate scaffold access, advice will be sought from the appointed arboriculturist prior to any branch cutting.

11.11 The movement of construction materials in close proximity to the canopies of retained trees will be supervised by the project arboriculturist to ensure no harm comes to these canopies

11.12 Where cranes/MEWPs may be used, crane/MEWP operatives will ensure no harm arises to the canopies of multiple protected trees through collisions with them by materials or any part of the plant in use, by ensuring adequate observation & controls at all times. This may require more than one slinger for the use of a crane.

General site activities:

11.13 The mixing of any concrete and mortar will be performed outside any root protection areas, in such an area where in the event of any spills, any liquid will drain away from the root protection areas and any buffer zones and/or within a pre-constructed spillage containment area.

11.14 Where concrete will be used to form foundations & may fall within the rooting area of any retained tree, impermeable barriers will be used to protect tree roots & rooting medium from wet concrete.

11.15 No ground level changes will occur (no grading/levelling/raising), within any RPAs of the retained trees, unless consented to by the LPA & supervised by the appointed arboriculturist. Any previously agreed (by the LPA), changes to the ground levels within RPAs of retained trees will follow the advice of the appointed arboriculturist at the time of excavation.

11.16 No additional tree work will be carried out unless consented to in writing by the LPA.

11.17 No fires will be lit within 20 metres of any RPAs or canopies of retained trees, whichever is the greater.

11.18 For the purposes of this method statement, significant roots referred to, constitute individual roots of diameters of 25mm and above, as well as dense fibrous root masses. The significance of both will be determined by the project arboriculturist upon discovery of either.

11.19 If for some reason roots 20mm and smaller in diameter are damaged that belong to retained trees, these should be cut cleanly and covered in damp Hessian or soil. If roots 25mm and larger are damaged or if a large number of smaller roots are damaged, these should be covered in damp Hessian or soil & advice should be sought from the project arboriculturist prior to treating them. Where roots have been covered in Hessian, this will be removed immediately prior to backfilling.

11.20 Notice boards, signs, telephone cables or any other services will not be attached to any parts of retained trees

Underground services:

11.21 Where feasible, all underground services & their inspection chambers will be routed & installed outside the notional Root Protection Areas of all retained trees. This may require review of the current proposals.

11.22 Where excavations are required within the root protection areas & the ground has ground protection installed, only the ground protection necessary to access the intended excavation areas will be removed & only then immediately prior to commencement of operations. Upon completion of operations, the ground protection will be restored, unless otherwise advised by the project arboriculturist.

11.23 Where it is impossible to divert existing services or the installation of new service & their inspection chambers outside the root protection areas, the necessary excavation works will be undertaken using hand tools only, to a minimum depth of 1m & under arboricultural supervision. In the absence of significant roots to this depth, plant equipment can then be used to excavate further, but still under arboricultural supervision.

11.24 Excavated soil will not be stored within root protection areas unless on ground protection & any exposed roots will not be left exposed for more than 48 hours.

11.25 Where backfilled soil is required to be load bearing within the root protection areas, CU soil will be used as the backfill around tree roots.

Pilot excavations within RPAs:

11.27 Not required.

General excavations within RPAs:

11.32 Not required.

12. Additional Construction/external works Controls:

12.1 None required.

Boundary treatments/fencing/decking posts within RPAs:

Level Changes:

12.6 Not required.

13. Landscape operations:

13.1 Not part of this phase

14. Site Supervision:

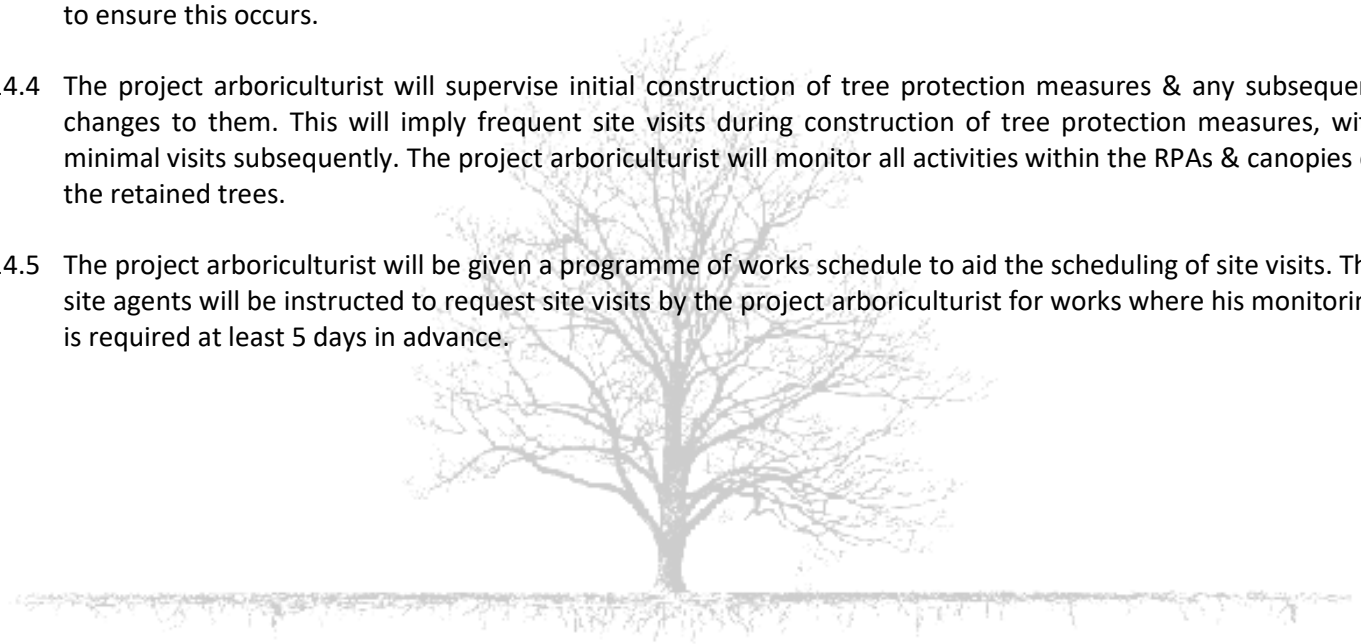
14.1 Effective tree protection relies on following a logical sequence of events and arboricultural inspection/supervision. BS5837:2012 recommends site supervision at regular intervals, as well as an auditable system of overall development site arboricultural supervision. A schedule of site activities requiring supervision has been produced.

14.2 Works which have the potential to affect retained trees will be supervised by the project arboriculturist at all times. Regular unannounced inspection visits may also be undertaken to ensure that tree protection measures are being adhered to. The final details of supervision and the frequency of inspection visits will be agreed at the pre-commencement meeting. The Project Arboriculturist will make a record of visits, which will be attached to the site copy of the AMS for inspection and communicated in writing to the LPA. An example of the Site Inspection Record is found appended to this document. A minimum level of reporting to the LPA would be monthly via email.

14.3 The site supervisor will be required to undertake daily inspections of the tree protection fencing & ground protection prior to commencement of the work for the duration of the project. The inspection will be recorded on a schedule and forwarded to the project arboriculturist. It is the responsibility of the client & the site manager to ensure this occurs.

14.4 The project arboriculturist will supervise initial construction of tree protection measures & any subsequent changes to them. This will imply frequent site visits during construction of tree protection measures, with minimal visits subsequently. The project arboriculturist will monitor all activities within the RPAs & canopies of the retained trees.

14.5 The project arboriculturist will be given a programme of works schedule to aid the scheduling of site visits. The site agents will be instructed to request site visits by the project arboriculturist for works where his monitoring is required at least 5 days in advance.



15. Activities in breach of tree protection

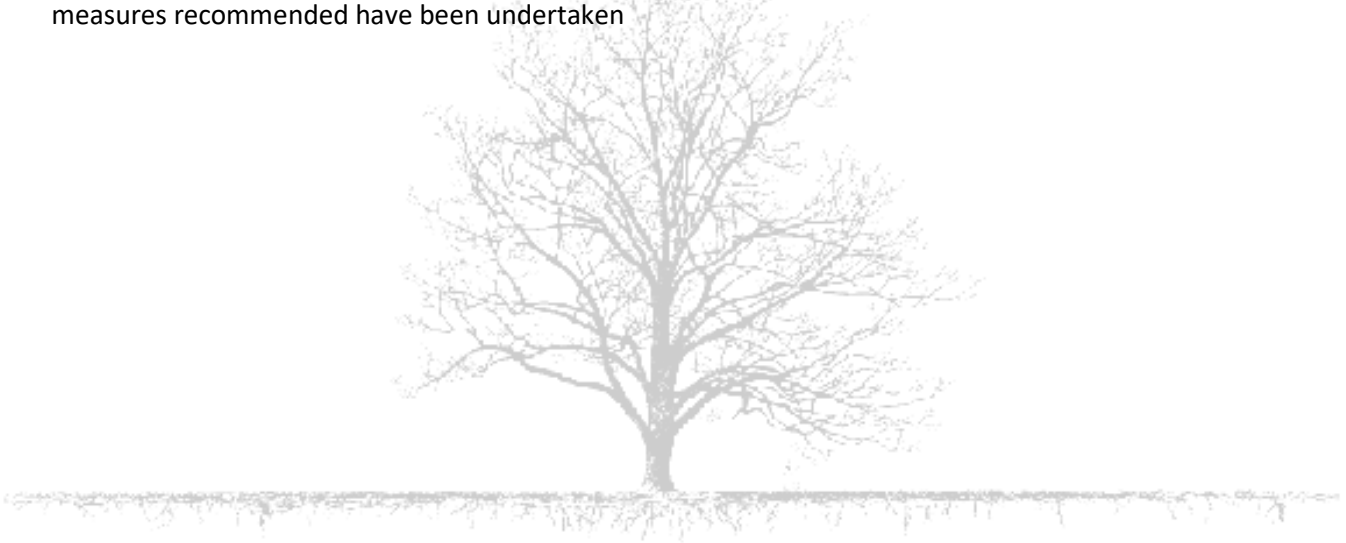
15.1 Where activities occur in breach of the tree protection measures, the project arboriculturist will be immediately advised of such & work halted until he has assessed the event & any mitigation measures recommended have been undertaken.

15.2 If the project arboriculturist detects breaches of tree protection measures during the project, he will immediately advise the site supervisor & the client. At his discretion, he will inform the LPA. All site activities will cease until any recommended mitigation measures have been undertaken. A record will be made of the event.

15.3 Where activities have been carried out without adequate tree protection, the site activities will be halted until the project arboriculturist has assessed the event & provided mitigation measures.

15.4 Where the above ground parts of the retained trees have been damaged, construction activities will cease until the project arboriculturist has assessed the damage & any mitigation measures recommended have been undertaken.

15.5 Where the below ground parts of the retained trees have been damaged (including soil compaction), construction activities will cease until the project arboriculturist has assessed the damage & any mitigation measures recommended have been undertaken



16. Amendments

16.1 Issues sometimes arise on development sites which require amendments to the previously agreed tree protection details. Any amendments to this AMS will be discussed with the project arboriculturist and approved by the LPA prior to being implemented. Copies of paperwork relating to any amendments shall be attached to the site copy of the AMS to provide a definitive record of what has been agreed. Revised tree protection plans will be submitted to all stakeholders in the project prior to assuming revisions.

16.2 It is possible that modifications to the current tree protection measures shown, will be required. Where these are arboriculturally acceptable, the modifications will be shown on an updated plan/s & submitted to the LPA for their information prior to commencement.

This concludes the method statement.

Mark Clews.

Sequencing, Supervision & delegated responsibilities:

The following table lays out the requirements & level of arboricultural supervision at various stages & who should be responsible for it.

GENERAL SUPERVISION SCHEDULE FOR THE SPECIFIED PHASE OF PROPOSED DEVELOPMENT

PART	Action	Person responsible	Stage	Date (if Possible)
1	Issue initial tree protection plans & arboricultural method statement to all contractors involved in project	Client/Project manager	At tender stage & again pre-commencement	TBA
2	Give project Arboriculturist (PA) at least a fortnight notice of pre-commencement meeting	Client/Developer	Pre-commencement	TBA
3	Pre-commencement meeting	Site Manager, Tree Officer and Project Arboriculturist	Pre-commencement	TBA
5	Arboricultural induction	All Contractors	Pre-commencement/entrance to site by all contractors	TBA
6	Carry out preliminary/access facilitation tree works	Project Arboriculturist to post inspect / Project Arboriculturist to undertake	immediately prior to construction of tree protection measures	TBA
7	Erect tree protection fencing & install any mulch areas	Site manager to supervise / Project Arboriculturist to inspect	Immediately following from preliminary tree work & prior to contractor entering site	TBA
8	Inform LPA on completion of protection measures for specified phase of work	Project Arboriculturist	Following construction of initial tree protection measures	TBA
9	Monitor condition of tree protection fencing for duration of phase	Site manager to monitor / Project Arboriculturist to audit	Weekly	Ongoing
11	Modify/remove tree protection measures (if required at all) to facilitate construction/external works/landscape phase of project	Site manager to supervise / Project Arboriculturist to audit	when nearing completion of existing phase	TBA
13	Post development inspection of trees & RPAs & inform client on any required remediation work	Project Arboriculturist	Post construction & prior to Handover	TBA

Appendix A - Table of delegated responsibilities

Table of delegated responsibilities to effect adequate tree protection & authority to halt work

Name	**Position**	**Role**	**Authority**	**Responsibility**
	Client/ client representative	Owner of the land/agent for owner of the land	Power to halt work	To ensure tree protection measures stipulated, are undertaken to satisfaction of LPA.
	Arboricultural officer (Local authority	Local authority	Power to halt work	To ensure tree protection measures are undertaken.
	Construction company representative	Senior manager	Power to halt work	Company charged with the discharge of tree protection conditions. Responsibility to act on advice provided by project arboriculturist
	Site manager/project manager	Supervisor of construction operations on site	Power to halt work	To undertake all stipulated tree protection measures in the sequence provided. To act on recommendations provided by project arboriculturist. To ensure all site staff are aware of tree protection requirements & consent to their constraints. To give project arboriculturist 5 days advanced notice of all work within canopies/RPAs of retained trees. To ensure all construction & landscape works are compliant with arboricultural constraints. To cease work until adequate tree protection measures are applied to the satisfaction of project arboriculturist. To halt all work when a breach of tree protection/damage to a retained tree occurs, until project arboriculturist is satisfied work can resume
Mark Clews	Project arboriculturist	To provide arboricultural supervision	Advisory only. Power to enter site, once initial site induction is completed.	Monitor all tree protection measures. Supervise all demolition/construction activities within RPAs/canopies of retained trees. To advise site agent/client on additional protection measures where required. To provide mitigation measures following breach of tree protection in timely manner. To advise LPA of breach to tree protection. Report back to LPA on protection measures, to the satisfaction of LPA.

Appendix B- Supervision report form

Arboricultural Site Supervision – Inspection Sheet	
Site Inspected by: Client: Site Agent:	Date of Inspection: Time of Inspection:

Tree Protection fencing
Comments/Actions
Specified ground protection
Comments/Actions:
Additional remedial works

Additional General Comments

Appendix C - Induction Form for all Site Personnel:

Site Name:

Date:

Statement	**Tick to confirm statement**
I have had explained to me by the Site Manager the key implications of the Arboricultural Method Statement relating to the development at the above site.	
I am aware that the tree protective fencing must remain in its original position and must not be moved without the approval of the project arboriculturist.	
I am aware that any ground protection for the trees must remain in its original position and must not be moved without the approval of the project arboriculturist.	
I have had explained to me & I have understood that there are some usual working practices that are prohibited on this site, to protect the retained trees. I have understood where these relate to my role as a contractor	
I understand that certain operations must be supervised by the project arboriculturist and that these operations must not start until the arboriculturist is present or has given approval.	
I confirm that I will bring any concerns about potential damage to trees to the attention of the Site Manager.	
As the site manager, I understand my responsibility in protection of the trees during the construction project.	

I am aware that I must not cause damage to any of the retained trees on or adjacent to the site. Damage may be caused by direct means (i.e. physical damage caused to roots or the trunk/branches of the tree) or by indirect means (e.g. by fire or toxic materials entering the rooting environment of the tree).

Print Name:

Signature:

Appendix D – tree work/removal schedule for project:

Please refer to accompanying tree work & removal plan for tree locations

SCHEDULE OF TREES REQUIRED FOR SOME SORT OF FACILITATION WORK

IDENTIFIED TREES

REFERENCE	Species	Common Name	Category	Recommendations
TREE 1	Metasequoia glyptostroboides	Dawn Redwood	U	Replace
TREE 2	Metasequoia glyptostroboides	Dawn Redwood	C1/2	Raise lower canopy over road to 5.5m & over public footpath to 3m
TREE 3	Metasequoia glyptostroboides	Dawn Redwood	B1/2	Raise lower canopy over road to 5.5m & over public footpath to 3m
TREE 4	Metasequoia glyptostroboides	Dawn Redwood	B1/2	Raise lower canopy over road to 5.5m, over public footpath to 4m & lower west canopy by up to 1m to appropriate side growth
TREE 5	Metasequoia glyptostroboides	Dawn Redwood	C1/2	Deadwood

Appendix E – Root Protection Area schedule of retained site trees:

Please refer to accompanying tree work & removal plan for tree locations

ROOT PROTECTION AREA SCHEDULE OF RETAINED NEARBY TREES

SURVEYED TREES

REFERENCE	Species	Common Name	Stem Diameter	Number of Stems	RPA Radius	RPA Area	Category
TREE 2	Metasequoia glyptostroboides	Dawn Redwood	0.12m	1 No. Stems	RPA r = 1.5m	7m²	C1/2
TREE 3	Metasequoia glyptostroboides	Dawn Redwood	0.18m	1 No. Stems	RPA r = 2.1m	14m²	B1/2
TREE 4	Metasequoia glyptostroboides	Dawn Redwood	0.4m	1 No. Stems	RPA r = 4.8m	72m²	B1/2
TREE 5	Metasequoia glyptostroboides	Dawn Redwood	0.37m	1 No. Stems	RPA r = 4.5m	64m²	C1/2
TREE 6	Metasequoia glyptostroboides	Dawn Redwood	0.28m	1 No. Stems	RPA r = 3.3m	34m²	B1/2
TREE 7	Metasequoia glyptostroboides	Dawn Redwood	0.23m	1 No. Stems	RPA r = 2.7m	23m²	B1/2

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markclews@arborhelp.co.uk

Notes:
1. Unless otherwise stated, all measurements are given in metres
2. RPA = an area of ground surrounding a tree that is required to be protected. Unless otherwise stated, the RPA radius is given, without modification for known site features that will have modified this radius
3. BS5837 category is the tree quality classification system used in the BS standard. The colours indicated are representative of those quality categories & are also reflected in the tree survey plans
4. Tree Work Recommendations on this schedule, is based solely on sound arboricultural management
5. Physiological & structural condition fields are basic fields with more detail sometimes provided in the notes field

BS5837:2012 Calculation of stem diameters & root protection areas (RPA):

Trees with single stems = Stem dia x 12 = RPA radius

Trees with 2 - 5 stems = $\sqrt{(stem\ dia\ 1)^2+(stem\ dia\ 2)^2 \ldots (stem\ dia\ 5)^2}$ = stem dia x 12 = RPA radius.

Trees with 6+ stems = $\sqrt{(mean\ stem\ dia)^2 x\ number\ of\ stems}$ = stem dia x 12 = RPA radius

Initial tree survey schedule of trees surveyed outside Stephenson House, Hampstead Rd, NW1

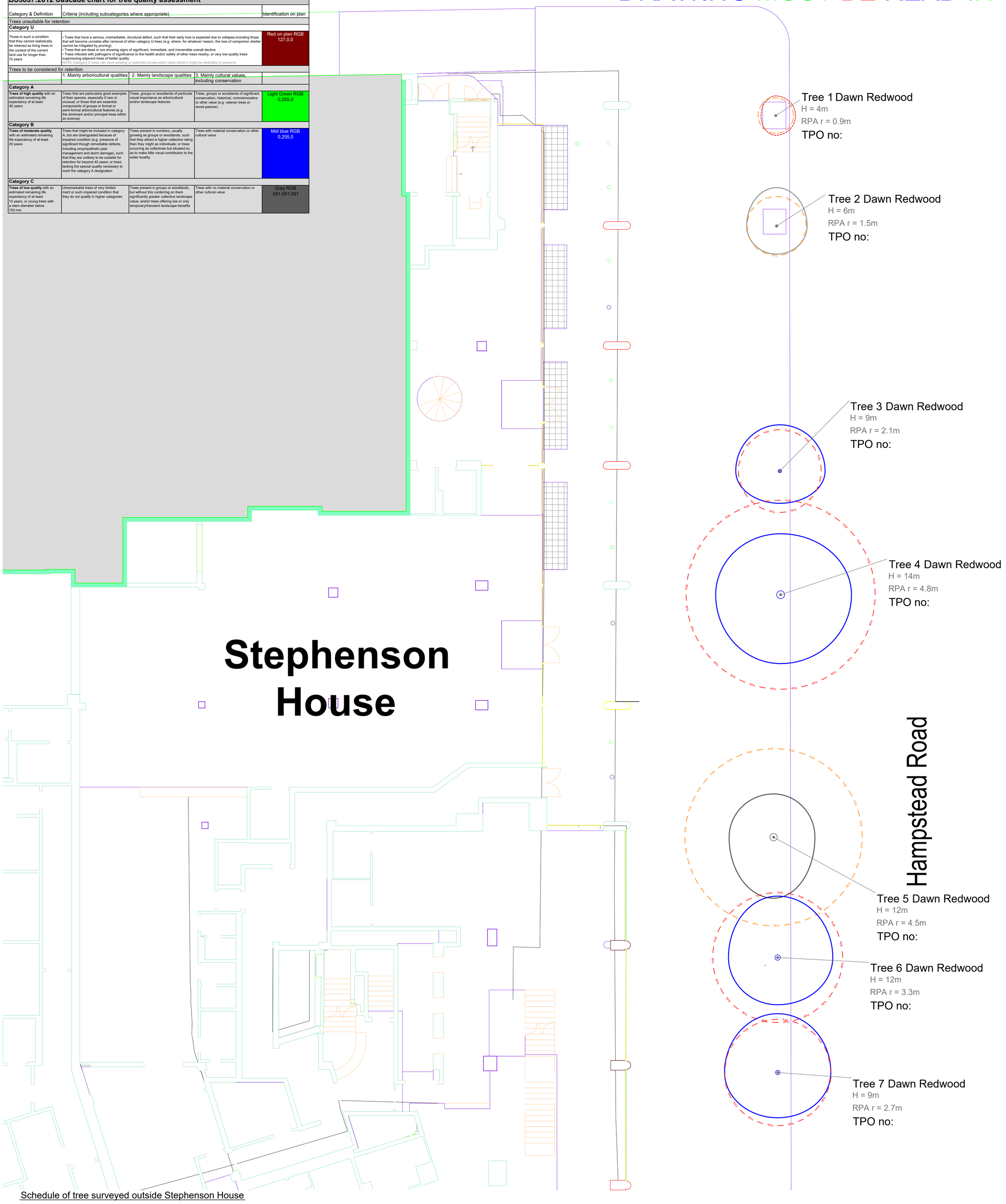
Tree quality & hence values have been based principally on amenity contribution. While other values exist, such as ecological values, these have not been used as the primary factor in determining the surveyed tree values

Date	Reference	Species	Common Name	Height	Stem Diameter	Number of stems	RPA Radius	RPA area (in m²)	Canopy NESW	Crown Clearance	First Sig Branch height (m)	First Sig Branch Direction	Age Class	Physiological Condition	Structural Condition	Est. Remaining Contribution	BS5837 Category	Recommendations	Notes
02/08/2018	Tree 1	Metasequoia glyptostroboides	Dawn Redwood	H = 4m	0.07m	1 No. Stems	RPA r = 0.9m	3m²	1N 1E 1S 0.75W	1.6m	0m	N/A	3 Young	10 dead	4 Generally Poor	4 <10 years	U	Replace	Tree is dead
02/08/2018	Tree 2	Metasequoia glyptostroboides	Dawn Redwood	H = 6m	0.12m	1 No. Stems	RPA r = 1.5m	7m²	1.95N 1.55E 1.43S 1.52W	2.3m	0m	N/A	4 Early Mature	2 Good	2 Good	2 20 - 40 years	C1/2	None	Of moderate landscape contribution
02/08/2018	Tree 3	Metasequoia glyptostroboides	Dawn Redwood	H = 9m	0.18m	1 No. Stems	RPA r = 2.1m	14m²	2.35N 2.3E 1.64S 2.24W	4m	0m	N/A	5 Mature	2 Good	2 Good	2 20 - 40 years	B1/2	None	Multiple bark lesions from vehicle strikes on east lower mid stem. Of moderate landscape contribution
02/08/2018	Tree 4	Metasequoia glyptostroboides	Dawn Redwood	H = 14m	0.4m	1 No. Stems	RPA r = 4.8m	72m²	3.1N 3.6E 3.5S 3.3W	3m	0m	N/A	4 Early Mature	1 Very Good	2 Good	2 20 - 40 years	B1/2	None	Rootplate lifting surrounding hard surface. Has also broken out the kerbs. Of moderate to high landscape contribution
02/08/2018	Tree 5	Metasequoia glyptostroboides	Dawn Redwood	H = 12m	0.37m	1 No. Stems	RPA r = 4.5m	64m²	2.2N 2.1E 3.1S 2.26W	5m	0m	N/A	4 Early Mature	4 Generally Poor	2 Good	3 10 - 20 years	C1/2	Deadwood	Is physiologically compromised. Most lower laterals dying back - no immediately obvious reason why. Of limited remaining contribution
02/08/2018	Tree 6	Metasequoia glyptostroboides	Dawn Redwood	H = 12m	0.28m	1 No. Stems	RPA r = 3.3m	34m²	3.12N 2.8E 2.4S 2.5W	5m	0m	N/A	4 Early Mature	2 Good	2 Good	2 20 - 40 years	B1/2	None	Of moderate landscape contribution. Also starting to displace kerbs
02/08/2018	Tree 7	Metasequoia glyptostroboides	Dawn Redwood	H = 9m	0.23m	1 No. Stems	RPA r = 2.7m	23m²	2.99N 2.7E 2.3S 2.7W	3m	0m	N/A	4 Early Mature	2 Good	2 Good	2 20 - 40 years	B1/2	None	Of moderate landscape contribution

DRAWING MUST BE READ IN COLOUR

BS5837:2012 Cascade chart for tree quality assessment

Category & Definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U				
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse,including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve			Red on plan RGB 127,0,0
Trees to be considered for retention				
	1. Mainly arboricultural qualities	2. Mainly landscape qualities	3. Mainly cultural values, including conservation	
Category A				
Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Light Green RGB 0,255,0
Category B				
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	Mid blue RGB 0,255,0
Category C				
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey RGB 091,091,091



Schedule of tree surveyed outside Stephenson House

Surveyed Trees

Date Surveyed	Reference	Species	Common Name	Height	Stem Diameter	Number of Stems	RPA Radius	RPA Area	Canopy NESW	Crown Clearance Height	First Significant Branch Height	First Significant Branch Direction	Age Class	Physiological Condition	Structural Condition	Est. Remaining Contribution	Category	Recommendations	Notes
2/8/2018	Tree 1	Metasequoia glyptostroboides	Dawn Redwood	H = 4m	0.07m	1 No. Stems	RPA r = 0.9m	3m²	1N 1E 1S 0.75W	1.6m	0m	N/A	3 Young	10 dead	4 Generally Poor	4 <10 years Years	U	Replace	Tree is dead
2/8/2018	Tree 2	Metasequoia glyptostroboides	Dawn Redwood	H = 6m	0.12m	1 No. Stems	RPA r = 1.5m	7m²	1.95N 1.55E 1.43S 1.52W	2.3m	0m	N/A	4 Early Mature	2 Good	2 Good	2 20 - 40 years Years	C1/2	None	Of low to moderate landscape contribution - height above ground is over footpath
2/8/2018	Tree 3	Metasequoia glyptostroboides	Dawn Redwood	H = 9m	0.18m	1 No. Stems	RPA r = 2.1m	14m²	2.35N 2.3E 1.64S 2.24W	4m	0m	N/A	5 Mature	2 Good	2 Good	2 20 - 40 years Years	B1/2	None	Multiple bark lesions from vehicle strikes on east lower mid stem. Of moderate landscape contribution
2/8/2018	Tree 4	Metasequoia glyptostroboides	Dawn Redwood	H = 14m	0.4m	1 No. Stems	RPA r = 4.8m	72m²	3.1N 3.6E 3.5S 3.3W	3m	0m	N/A	4 Early Mature	1 Very Good	2 Good	2 20 - 40 years Years	B1/2	None	Rootplate lifting surrounding hard surface. Has also broken out the kerbs. Of moderate to high landscape contribution
2/8/2018	Tree 5	Metasequoia glyptostroboides	Dawn Redwood	H = 12m	0.37m	1 No. Stems	RPA r = 4.5m	64m²	2.2N 2.1E 3.1S 2.26W	5m	0m	N/A	4 Early Mature	4 Generally Poor	2 Good	3 10 - 20 years Years	C1/2	Deadwood	Is physiologically compromised. Most lower laterals dying back - no immediately obvious reason why. Of limited remaining contribution
2/8/2018	Tree 6	Metasequoia glyptostroboides	Dawn Redwood	H = 12m	0.28m	1 No. Stems	RPA r = 3.3m	34m²	3.12N 2.8E 2.4S 2.5W	5m	0m	N/A	4 Early Mature	2 Good	2 Good	2 20 - 40 years Years	B1/2	None	Of moderate landscape contribution. Also starting to displace kerbs
2/8/2018	Tree 7	Metasequoia glyptostroboides	Dawn Redwood	H = 9m	0.23m	1 No. Stems	RPA r = 2.7m	23m²	2.99N 2.7E 2.3S 2.7W	3m	0m	N/A	4 Early Mature	2 Good	2 Good	2 20 - 40 years Years	B1/2	None	Of moderate landscape contribution

August 2018

Key:

- BS5837 A CLASS TREE. HATCHED CANOPY DENOTES REMOVAL/REPLACEMENT
- BS5837 B CLASS TREE. HATCHED CANOPY DENOTES REMOVAL/REPLACEMENT
- BS5837 C CLASS TREE. HATCHED CANOPY DENOTES REMOVAL/REPLACEMENT
- BS5837 U CLASS TREE. HATCHED CANOPY DENOTES REMOVAL/REPLACEMENT
- BS5837 ROOT PROTECTION ZONE FOR TREES THAT SHOULD NORMALLY BE CONSIDERED FOR RETENTION, THEREBY *POTENTIALLY* PRESENTING CONSTRAINTS TO THE DESIGN & CONSTRUCTION OF THE PROPOSAL
- BS5837 ROOT PROTECTION ZONE FOR TREES THAT ARE OF LOW QUALITY / VALUE AND DO NOT NORMALLY PRESENT CONSTRAINTS TO THE DESIGN & CONSTRUCTION OF THE PROPOSAL
- SUBJECT PROPERTY

NORTH

BS5837:2012 Calculation of stem diameters & Root Protection Areas:

Trees with single stems = Stem dia x 12 = RPA radius

Trees with 2 - 5 stems = √ (stem dia 1)² + (stem dia 2)²... + (stem dia 5)² = Stem dia x 12 = RPA radius

Trees with 6+ stems = √ (mean stem dia)² x number of stems = Stem dia x 12 = RPA radius

Notes;

Plan showing existing tree survey data for trees adjacent Stephenson House, Hampstead Road

Drawing accuracy;

a. *The non-arboricultural parts of this drawing have been produced using spatial data derived from a survey undertaken by others. No responsibility can be taken for incorrect site features. If any arboricultural mistakes are identified, inform the arboriculturist.*
b. *Unless otherwise stated, do not scale off drawing. Dimensions shown must be used. Any shown dimensions are in meters.*

Tree Survey data;

c. *Survey plan indicates tree positions, canopy dimensions & BS5837 tree quality categories through colour of canopies.*
d. *For detailed information on the trees shown, please read the accompanying tree survey schedule.*
e. *Supplementary information on the surveyed trees may be found in an accompanying arboricultural report.*
f. *Trees with stem diameters below 7cm will not have been recorded, unless specifically requested.*

PLEASE NOTE: *A significant number of additional trees exist on this site or immediately adjacent to it, but have not been included in the survey. This will be either due to their proximity to the implicated area, or their stem diameters exclude them from inclusion in the survey. A small number of trees may be up to 2m outside their actual location due to dense vegetation obstructing accurate plotting.*

5 4 3 2 1 0 5 10 15m

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Site: Stephenson House, Hampstead Road

Plan Title: Tree survey/constraints plan

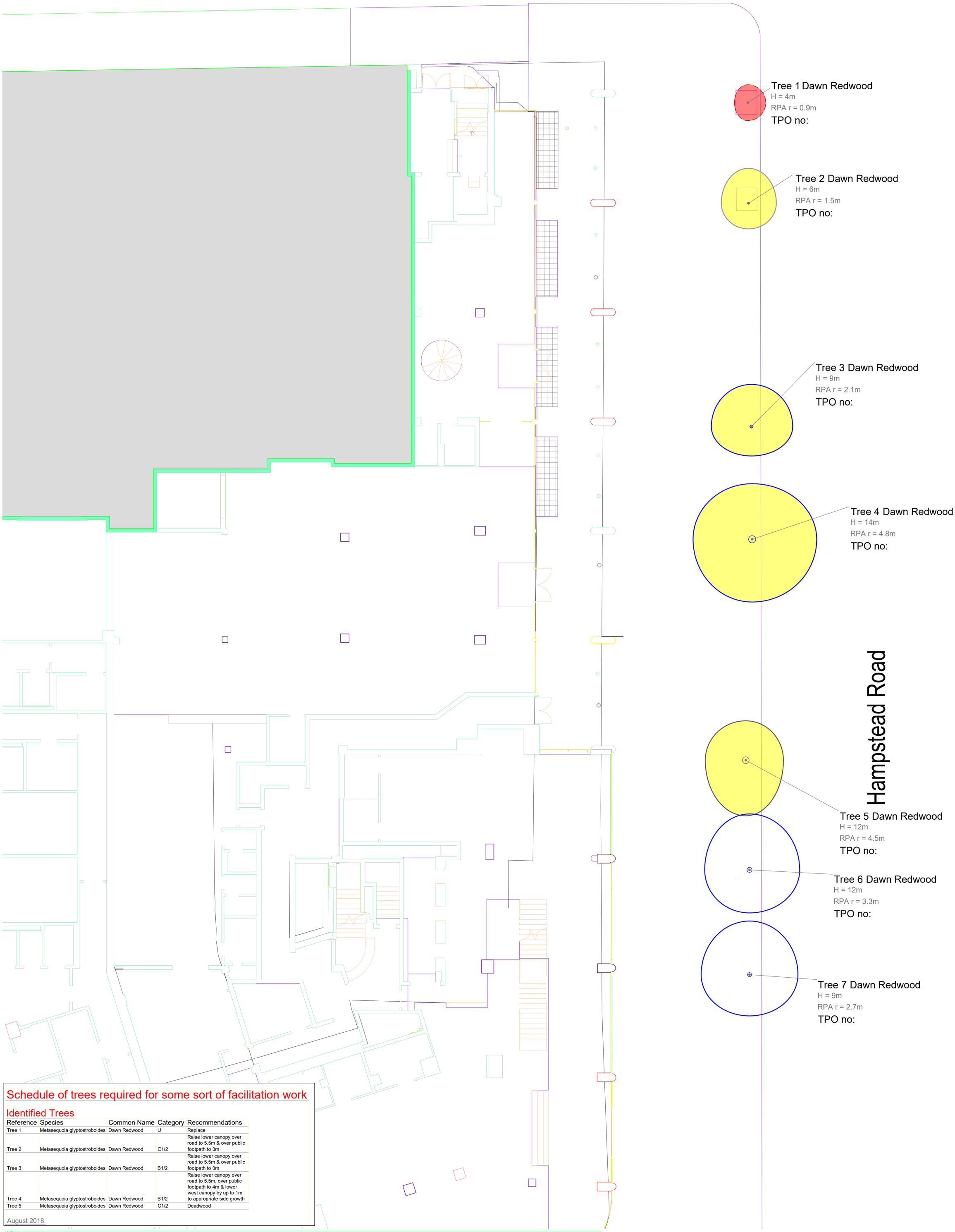
Client: 8 Build

Scale	Date	Issue Status
1:100@A1	08/8/18	ISSUED

Drawing No. AIA20180808-001-A-survey

Revision A

DRAWING MUST BE READ IN COLOUR



Schedule of trees required for some sort of facilitation work

Identified Trees

Reference	Species	Common Name	Category	Recommendations
Tree 1	Metasequoia glyptostroboides	Dawn Redwood	U	Replace
Tree 2	Metasequoia glyptostroboides	Dawn Redwood	C1/2	Raise lower canopy over road to 5.5m & over public footpath to 3m
Tree 3	Metasequoia glyptostroboides	Dawn Redwood	B1/2	Raise lower canopy over road to 5.5m & over public footpath to 3m
Tree 4	Metasequoia glyptostroboides	Dawn Redwood	B1/2	Raise lower canopy over road to 5.5m, over public footpath to 4m & lower west canopy by up to 1m to appropriate side growth
Tree 5	Metasequoia glyptostroboides	Dawn Redwood	C1/2	Deadwood

August 2018

Key:

- BS5837 A CLASS TREE. HATCHED CANOPY DENOTES REMOVAL/REPLACEMENT
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- BS5837 ROOT PROTECTION ZONE FOR TREES THAT ARE OF LOW QUALITY / VALUE AND DO NOT NORMALLY PRESENT CONSTRAINTS TO THE DESIGN & CONSTRUCTION OF THE PROPOSAL

- PROPOSED EXTENSION FOOTPRINTS
- APPROXIMATE PROPOSED PATIO AREA

- TREE WORK RECOMMENDED (SOUND MANAGEMENT ONLY)
- TREE REQUIRED FOR REMOVAL TO FACILITATE PROPOSAL

Notes;

Plan showing required tree work & any tree removals to facilitate project.

Drawing accuracy;

a. *The non-arboricultural parts of this drawing have been produced using spatial data derived from a survey undertaken by others. No responsibility can be taken for incorrect site features. If any arboricultural mistakes are identified, inform the arboriculturist.*
b. *Unless otherwise stated, do not scale off drawing. Dimensions shown must be used. Any shown dimensions are in meters.*

Tree Survey data;

c. *Survey plan indicates tree positions, canopy dimensions & BS5837 tree quality categories through colour of canopies.*
d. *For detailed information on the trees shown, please read the accompanying tree survey schedule.*
e. *Supplementary information on the surveyed trees may be found in an accompanying arboricultural report.*
f. *Trees with stem diameters below 7cm will not have been recorded, unless specifically requested.*

5 4 3 2 1 0 5 10 15m

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Site: Stephenson House, Hampstead Road

Plan Title: Specific Tree work/removal plan

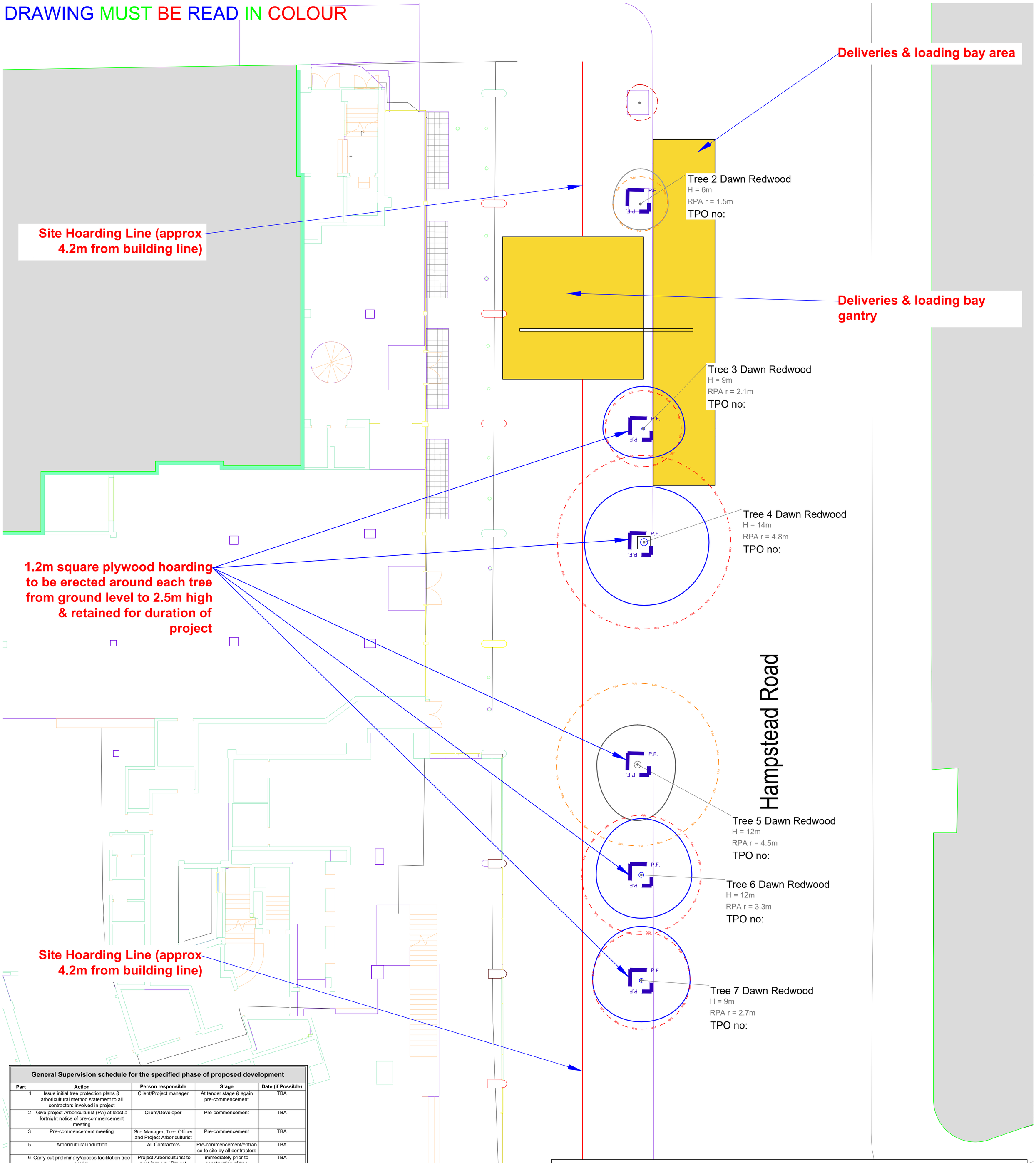
Client: 8 Build

Scale	Date	Issue Status
1:100@A1	20/8/18	ISSUED

Drawing No. AIA200818-003-A-work

Revision C

DRAWING MUST BE READ IN COLOUR



General Supervision schedule for the specified phase of proposed development				
Part	Action	Person responsible	Stage	Date (if Possible)
1	Issue initial tree protection plans & arboricultural method statement to all contractors involved in project	Client/Project manager	At tender stage & again pre-commencement	TBA
2	Give project Arboriculturist (PA) at least a fortnight notice of pre-commencement meeting	Client/Developer	Pre-commencement	TBA
3	Pre-commencement meeting	Site Manager, Tree Officer and Project Arboriculturist	Pre-commencement	TBA
5	Arboricultural induction	All Contractors	Pre-commencement/entrance to site by all contractors	TBA
6	Carry out preliminary/access facilitation tree works	Project Arboriculturist to post inspect / Project Arboriculturist to undertake	immediately prior to construction of tree protection measures	TBA
7	Erect tree protection fencing & install any mulch areas	Site manager to supervise / Project Arboriculturist to inspect	Immediately following from preliminary tree work & prior to contractor entering site	TBA
8	Inform LPA on completion of protection measures for specified phase of work	Project Arboriculturist	Following construction of initial tree protection measures	TBA
9	Monitor condition of tree protection fencing for duration of phase	Site manager to monitor / Project Arboriculturist to audit	Weekly	Ongoing
11	Modify/remove tree protection measures (if required at all) to facilitate construction/external works/landscape phase of project	Site manager to supervise / Project Arboriculturist to audit	when nearing completion of existing phase	TBA
13	Post development inspection of trees & RPAs & inform client on any required remediation work	Project Arboriculturist	Post construction & prior to Handover	TBA

Root Protection Area schedule of retained nearby trees

Surveyed Trees

Reference	Species	Common Name	Stem Diameter	Number of Stems	RPA Radius	RPA Area	Category
Tree 2	Metasequoia glyptostroboides	Dawn Redwood	0.12m	1 No. Stems	RPA r = 1.5m	7m²	C1/2
Tree 3	Metasequoia glyptostroboides	Dawn Redwood	0.18m	1 No. Stems	RPA r = 2.1m	14m²	B1/2
Tree 4	Metasequoia glyptostroboides	Dawn Redwood	0.4m	1 No. Stems	RPA r = 4.8m	72m²	B1/2
Tree 5	Metasequoia glyptostroboides	Dawn Redwood	0.37m	1 No. Stems	RPA r = 4.5m	64m²	C1/2
Tree 6	Metasequoia glyptostroboides	Dawn Redwood	0.28m	1 No. Stems	RPA r = 3.3m	34m²	B1/2
Tree 7	Metasequoia glyptostroboides	Dawn Redwood	0.23m	1 No. Stems	RPA r = 2.7m	23m²	B1/2

August 2018.

Key:

- BS5837 A CLASS TREE. HATCHED CANOPY DENOTES REMOVAL/REPLACEMENT
- BS5837 B CLASS TREE. HATCHED CANOPY DENOTES REMOVAL/REPLACEMENT
- BS5837 C CLASS TREE. HATCHED CANOPY DENOTES REMOVAL/REPLACEMENT
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- BS5837 ROOT PROTECTION ZONE FOR TREES THAT ARE OF LOW QUALITY / VALUE AND DO NOT NORMALLY PRESENT CONSTRAINTS TO THE DESIGN & CONSTRUCTION OF THE PROPOSAL
- PROPOSED EXCAVATIONS & CONSTRUCTION OF RETAINING WALL ALONG SITE BOUNDARY
- PREVIOUS CANOPY DIMENSIONS OF TREES EITHER REMOVED OR VERY HEAVILY REDUCED
- RESTRICTED METHOD ZONE. GROUND WORKS IN THIS AREA TO BE UNDERTAKEN USING AGREED EQUIPMENT ONLY & UNDER ARBORICULTURAL SUPERVISION
- TREE PROTECTION FENCING. CONSTRUCTION TO COMPLY WITH EMBEDDED DETAIL
- RESTRICTED WORK AREA - WORKS WITHIN THIS ARE TO BE SUPERVISED
- ROUTE FOR PROPOSED UNDERGROUND SERVICES
- CONSTRUCTION ACCESS ROUTE
- CONTRACTORS WELFARE AREA
- +55.97 EXISTING LEVELS
- TREE PROTECTION FENCING DIMENSIONS (WHERE SHOWN), OTHERWISE TO FOLLOW NATURAL FEATURES AS INDICATED
- MULCH AREA REQUIRED - TO 50-100MM DEPTH

Notes:

Tree protection plan indicating position of tree protection measures for the demolition Phase of the project.

This protection plan MUST BE READ IN CONJUNCTION WITH the accompanying Arboricultural Method Statement & tree work plans.

Drawing accuracy;

a. *The non-arboricultural parts of this drawing have been produced using spatial data provided by the client. No responsibility can be taken for incorrect site features. If any arboricultural mistakes are identified, inform the arboriculturist.*
b. *Dimension measurements for protection measures are only accurate to within 1 metre or so.*

Tree Protection Fencing:
Protection fencing details will be strictly adhered to, along with signs attached to them.

Ground protection:
Any ground protection specified may vary according to intended loading. Where in doubt, default protection will comprise of heavy duty protection.

Mulch areas:
Where mulch has been applied, this will be retained & allowed to break down naturally.

5 4 3 2 1 0 5 10 15m

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Site: Stephenson House, Hampstead Road

Plan Title: Tree protection plan

Client: 8 Build

Scale	Date	Issue Status
1:100@A1	08/06/2018	ISSUED

Drawing No. AIA200818-004-A-protect

Revision A

Specification for tree protection hoarding

- Hoarding to be constructed using marine grade ply & sufficiently sized uprights to create a robust, stable structure

- Footings/uprights to be carefully driven into ground, unless significant root development prohibits this. In this case, uprights to be rested on the ground

- Hoarding to encompass stem & all exposed buttresses

- Hoarding to extend to 2m in height as a minimum

- Hoarding to be constructed using hand tools only

Induction Form for all Site Personnel:

Site Name:

Date:

Statement	Tick to confirm statement
I have had explained to me by the Site Manager the key implications of the Arboricultural Method Statement relating to the development at the above site.	
I am aware that the tree protective fencing must remain in its original position and must not be moved without the approval of the appointed Arboricultural Consultant.	
I am aware that any ground protection for the trees must remain in its original position and must not be moved without the approval of the appointed Arboricultural Consultant	
I have had explained to me & I have understood that there are some usual working practices that are prohibited on this site, to protect the retained trees. I have understood where these relate to my role as a contractor	
I understand that certain operations must be supervised by the appointed Arboricultural Consultant and that these operations must not start until the consultant is present or has given approval.	
I confirm that I will bring any concerns about potential damage to trees to the attention of the Site Manager.	
(For Site Manager) I confirm that I have had explained to me my role in ensuring the approved tree protection measures are complied with on site. I understand where my responsibilities are in monitoring the protection measures	

I am aware that I must not cause damage to any of the retained trees on or adjacent to the site. Damage may be caused by direct means (i.e. physical damage caused to roots or the trunk/branches of the tree) or by indirect means (e.g. by fire or toxic materials entering the rooting environment of the tree).

Print Name:

Signature:

Site:

Date:

Present:

Induction checklist for tree protection measures		
Task	Accomplished	Amendments required:
1. Tree protection plans present in site offices		
2. Arboricultural method statement present in site offices		
3. Roles & responsibilities of various staff explained		
4. Protective fencing explained		
5. Ground protection explained		
6. Method statement explained		
7. Induction forms signed		
8. Weekly Inspection forms handed to site manager		

Site manager:

Contact Phone:

Contact email: