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GEO-ENVIRONMENTAL CONSULTING



Arboricultural Impact Assessment & Arboricultural Method Statement

Date of Assessment

9th January 2025

Site

Victoria Ave
Manchester
M9 8PJ

Author

Carl Riva

Description

The development of air source heat pump

Client

Helmrig Ltd

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EXECUTIVE SUMMARY

I have been instructed to provide an assessment of the impact from a development proposal on the existing tree stock at Blackley Cemetery and Crematorium, Victoria Avenue, Manchester M9 8PJ. The proposal is for solar panels, services and compound work to the above address.

A tree survey has been completed in accordance with the recommendations of BS5837 (2012) Trees in relation to design, demolition and construction, and a report prepared to assess the impact of the proposal on the existing tree stock.

- Four trees and one group have been assessed as being of low quality and condition (Category C) with at least 10 years remaining contribution to the site.

The original development proposal for the ASHP recommended the removal of one tree - T001. The third survey (for services) documented T001 again as it was not being impacted by the third proposal, therefore the reports are conflicting. The remaining trees will require protecting from harm during the development phase.

The protection measures include the use of tree protection fencing as a barrier to exclude any activity within the protected zone, or through the use of materials that will shield the ground from harmful processes such as compaction or contamination.

The proposed excavations and development will be in close proximity to the root protection areas (RPA's) of retained trees. Special measures will be utilised during construction to ensure that the rooting environment is not harmed. This will be achieved by Arboricultural supervision and adopting a no-dig approach to construction within and close proximity to the root protection areas.

The foundations for the compounds will be constructed with conventional strip method, for all construction within close proximity to RPA's, excavations shall be lined and sealed to prevent any leaching of the concrete into the soil and causing desiccation of retained roots by concrete run off, this will reduce the impact on adjacent root protection areas and the surrounding soil.

There is insufficient information relating to below ground infrastructure available at present to comment as to whether or not there would be adequate space for these to be installed outside of RPAs. If services do enter RPAs the use of hand digging as detailed in the National Joint Utilities Group publication 'Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees' (NJUG 10, Volume 4, 2007) will be undertaken to minimise the impact on the tree roots.

All works will be completed by qualified arborists working in accordance with BS3998 (2010) Tree.

INTRODUCTION

Introduction

Written instruction was received from Helmrig on 2nd January 2025 on behalf of Treestyle Consultancy, to undertake a tree survey to assist in the design and impact of proposed development on the site.

Scope

The scope of the instruction was to:

- Complete a scoping survey of all trees within the historic rides at the property, including any trees in close proximity. The tree survey is to be carried out in accordance with the recommendations laid down by BS5837:2012 Trees in relation to design, demolition and construction – Recommendations ('BS5837').
- Prepare a schedule of all recorded trees and a plan of tree constraints to assist the design team understand constraints arising from trees to any development scheme.
- Provide advice to the design team on tree related issues including avoidance, mitigation and compensation measures.
- Prepare an Arboricultural Impact Assessment for submission with a planning application. This report is to include a review of statutory constraints and a review of planning policy in relation to trees.

Purpose of this report

This report is an Arboricultural Impact Assessment and is intended to provide an assessment impact that a proposed development scheme will have on the existing tree stock at the site.

This document has been prepared for submission as part of a planning application to assist in the determination of the application.

The report is intended to be read by those who do not necessarily have specialist knowledge of trees and is therefore written in non-technical language. Where the use of technical terms is unavoidable, these will be highlighted in bold when first used and a definition provided in a glossary of terms at the end of this report.

Site Description

The site is located at latitude and longitude 53.530499, -2.238000, in Blackley Cemetery & Crematorium. The site and surrounding area consist of burial sites. The site has semi mature to mature trees to the north, south, east and west of the applications site.

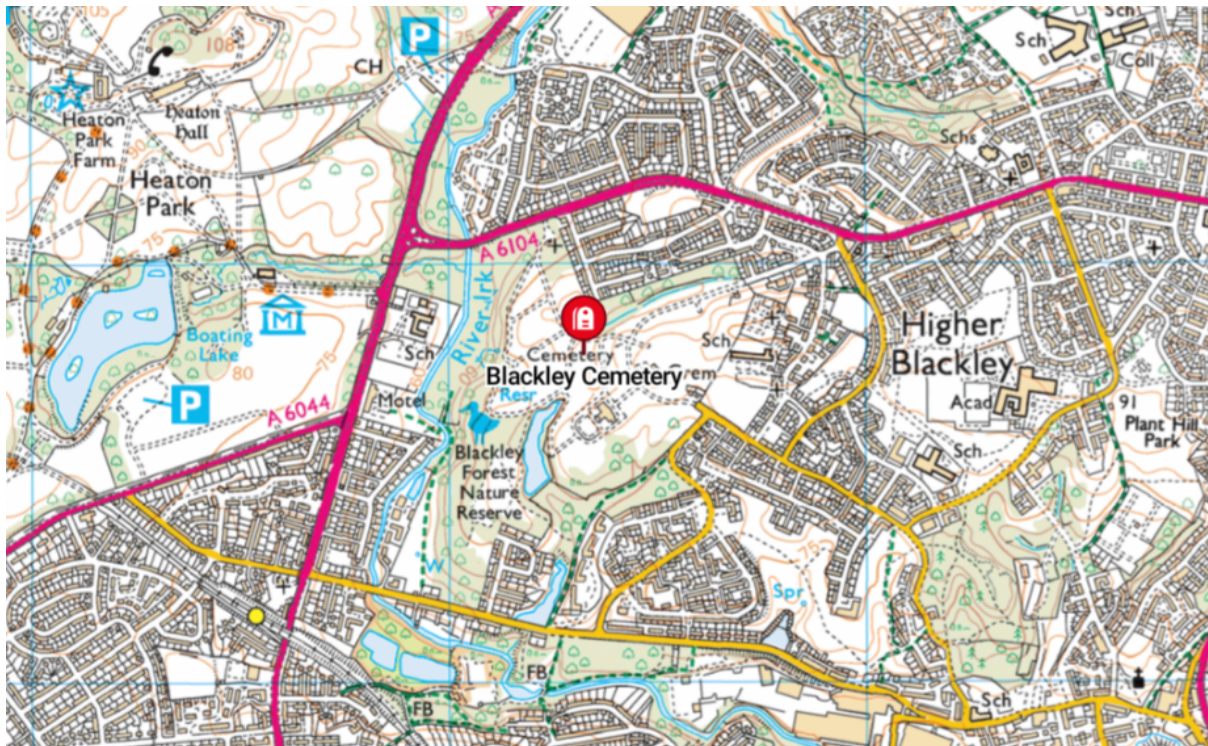


Figure 1: OS Map (Bing Maps) This content is for educational and informative purposes; so, parts of it are reproduced from BSI Global

About the author

The tree survey and this report have been completed by Carl Riva, Owner of Urban Tree Management and principal arboricultural consultant to the company.

Carl has 16 years' experience in the arboricultural sector and has a Royal Forestry Society Certificate in Arboriculture, ABC Level 6 Diploma in Arboriculture, Professional Member Arboricultural Association, LANTRA Professional Tree Inspection. Qualified and experienced to produce reports for trees in relation to design, demolition, and construction.

Caveats and Limitations

This survey has been undertaken in accordance with industry best practice recommendations and guidance. The recorded information for each tree is a snapshot of the tree at the time of the survey. The assessments have been made to assist the client in the detailed design of works and does not consist of a condition survey for health and safety purposes. Where obvious defects have been observed these are recorded and recommendations may be made for mitigation, but this does not equate to a detailed risk assessment survey.

The comments and observations made within this report will cease to be valid either within two years of the date of the survey (unless specifically stated elsewhere within the report), or when site conditions change or any works to trees take place that have not been specified within this report, whichever is the sooner.

Unless stated differently in captions, all photographs used in this report have been taken by the author at the time of the site visit.

The location of all trees and groups detailed in this report have been these have been plotted using a handheld GPS Trimble. This is not as accurate as professional grade surveying equipment, and the locations are indicative only. Any such features have been marked on the plans and schedule.

This survey has been limited to identifying arboricultural features within the site. It therefore does not include any ecological, archaeological assessment or landscape appraisal of trees, groups, woodlands or hedges beyond the scope of BS5837: 2012 Trees in relation to design, demolition and construction ('BS5837').

Although I am occasionally involved in landscape, ecological and planning issues, I have no formal qualifications in these areas and any comments made in this report to such matters are limited to the general context in view of my familiarity through my day-to-day work, and professional advice should be obtained on these matters where required.

THE DEVELOPMENT PROPOSAL

The proposed development is for the installation of new services in form of sewage diversion.

TREE SURVEY AND CONSTRAINTS

I completed a tree survey on 9th January 2025.

The survey has been carried out in accordance with the recommendations laid down by BS5837 and was a ground level survey only.

The information collected during the survey should be used to assist in the design of the site. This report includes:

- A schedule of the relevant trees to include base line data and quality assessment; and
- A plan showing the extent of constraints presented by the exiting tree stock (herein after referred to as a Tree Constraints Plan (TCP)) that provides illustrative information on the constraints, for consideration during the design of the site.

The purpose of the tree survey has been to provide an assessment as to the quality and non-fiscal value of the trees on Site. This then allows guidance to be given to the design team to inform the site design and layout.

General Data Capture

For reference, individual trees are identified with the letter T and associated number on the Tree Schedules and on a plan showing the extent of tree constraints. Where the specific data on trees has been recorded:

- The stem diameter of the trees has been recorded using a rounded down diameter tape at 1.5m above ground level and have been rounded up to the nearest 10mm.
- The height of the subject trees has been estimated in meters.
- Maximum crown spread of the subject tree was measured from the edge of the trunk to the tips of the live lateral branches taken at four compass points (N-E-S-W) using a Leica Disto digital laser measure. Crown spread measurements were taken in metres.

Tree age was estimated from visual indicators (such as tree size and appearance of bark) which is provided as a provisional guide.

Groups of trees were identified with the letter G and number on the associated schedules and plans. Crown spread was assessed using topographical data to position the extents. Stem diameter of groups of trees was set as an average stem diameter of the trees within these individual groups and a maximum height of the tallest tree within the group.

Hedges are identified with the letter H and number on the associated schedule and plans. Each hedgerow was surveyed recording the species, the maximum height and the average width of the hedge. Any individual trees present within the hedgerow were recorded as an individual tree.

Woodlands and woodland groups were identified with the letter W and number on the associated schedules and plans.

If direct access to a tree was not possible, estimations from appropriate vantage points were taken. Any limitations or estimations are presented within the survey limitations section and noted in the associated schedules. Categorisation 3.11 In compliance with Table 1 of BS5837 the trees surveyed have been categorised according to their arboricultural quality and value which is summarised in Table 1

Categorisation

Table 1 - Summary of BS5837 categorisation colours

Category	Colour	Description
A	Green	Trees of high quality with an estimated remaining life expectancy of at least 40 years
B	Blue	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years
C	Grey	Trees of low quality with an estimated remaining life expectancy of at least 20 years
U	Red	Those trees 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

Quality Assessment

A summary of the assessment on the quality of the trees can be seen in Table 2.

Table 2 - Summary of tree quality on site

	Category A	Category B	Category C	Category U	Total
Trees	None	None	4	None	4
Groups	None	None	1	None	1
Hedges	None	None	None	None	None
Total	0	0	5	0	5

Above Ground Tree Constraints

The above ground constraints posed by canopy spread are plotted as a continuous line around the tree, with the extent of the canopy spread hatched in the corresponding BS5837 retention category colour.

Root Protection Area

The Root Protection Area (RPA) is the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority. This does not account for the actual depth of the soil within the area, nor does it account for any requirement for working space during development.

The RPA of each tree has been calculated in accordance with Section 4.6.1 in BS5837. This is determined through multiplying the stem diameter of each tree, measured at 1.5m above ground level, by a factor of 12. The below ground constraints posed by the RPA have been plotted on the TCP as a magenta line with the text RPA inscribed. The size of the RPA is capped at 15m radius from the tree

The RPA of the veteran trees has been increased in line with guidance provided by the Forestry Commission and is calculated at 15x the stem diameter or 5m beyond the canopy line (whichever is greater).

OTHER CONSTRAINTS

Soils

I have not been supplied with any detailed site soil analysis or been engaged to undertake such investigations by my client. A site-specific soil assessment may inform decisions relating to the root protection area (RPA), tree protection, new planting design and foundation design to take account of retained, removed and new trees. As and when such information becomes available results should be forwarded to the project Arboricultural consultant and other relevant professionals involved in site layout, planning, and design (e.g., structural engineer, landscape architect).

Tree Preservation Orders (TPOs) & Conservation Areas

TPOs cannot always be reliably interpreted from the documentation to identify which trees are protected, especially as time passes and site conditions change from when they were originally made. It is common for TPO plans to be inaccurate and schedules often become out of date as trees die or are removed. Frequently, trees deteriorate and, although they may be technically protected by the TPO, are in such poor condition or causing such unreasonable inconvenience that their suitability for retention becomes questionable.

In a planning context, if poor trees are assessed as unsuitable for retention, then it would be inappropriate to show them as a material constraint in development planning. For these reasons, although TPOs do need to be considered, they do not form the primary basis for tree categorisation.

Poor quality trees assessed as not worthy of retention will be shown as such, irrespective of whether they are protected or not. Similarly, good quality trees that are not protected will still be shown as material constraints. The same rationale will be applied to Conservation Areas

ARBORICULTURAL IMPACT ASSESSMENT

Assessing Impacts

An Arboricultural Impact Assessment is written to inform planning decision makers as to the actual and potential impact to the existing tree stock from the proposed development scheme. Impacts can be defined as being direct or indirect, and can occur over short-, medium- and long-term time periods.

- **Direct impacts** may arise from activities that result in tree removal, or as a result of root severance, soil compaction or soil contamination, all of which may cause the tree to decline and be lost. Other direct impacts include loss of vitality and exposure to pests and disease as a result of excessive canopy pruning.
- **Indirect impacts** may arise from future pressures from trees such as future growth, daylight, shading and sunlight, tree domination and/or soil movement.

The impact of any tree loss is assessed against a criterion in relation to the arboricultural significance of the loss, the detail of which is provided in Table 3. This table is not related to the quality categories provided in BS5837 but has a closer relationship to the sub-categories through assessing the impact that tree loss may have at the Site and its setting in the wider locality. This assessment is also useful in considering the impact of any potential loss against planning policy.

Table 3: Impact Assessment definitions

Scale of Impact	Definition
Major	Total loss or major/substantial alteration to key trees/features of the baseline (pre-development) conditions such that the post development character or composition will be fundamentally changed. This would generally apply to tree(s) that are of exceptional or high quality and condition and their loss would be irreplaceable. This would also include trees that have been categorised as being Ancient or Veteran, trees are rare examples of their species and or trees that offer significant amenity value to the character and setting of the area.
Moderate	Loss or alteration to one or more key trees/features of the baseline conditions such that post development character or composition of the baseline will be materially changed. This would generally apply to tree(s) that are of good quality and condition and make a notable contribution to the setting or character of the locality (visual amenity). This may include trees that would be hard to replace but for which there could be some mitigation over a medium timeframe (20-40 years).
Minor	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but not material. The underlying character or composition of the baseline condition will be similar to the pre-development circumstances/situation. This would generally apply to tree(s) that are of low quality and condition and/or their loss would have low impact on the locality. These trees would be relatively easy to replace within a short timeframe (10-20 years).
Negligible	Very little change from baseline conditions with any change barely distinguishable. This would generally apply to tree(s) that are of low quality and condition, and/or their loss would barely be noticeable. Any replacement planting would offer an improvement to the setting of the site in a very short time frame (1-10 years)
No Change	There is no change to the baseline conditions to trees from the development proposal.

While development is generally considered in terms of the potential harm that may result to trees from construction processes or post-development pressures, there are also positive impacts that can accrue through development, and these will also be considered as part of the impact assessment.

The duration of the impact is also considered and is assessed as being long-term (20 years+), medium term (10 years+) and short-term (<10 years). This will help guide any compensation or mitigation that is required for losses or other impacts.

General Considerations

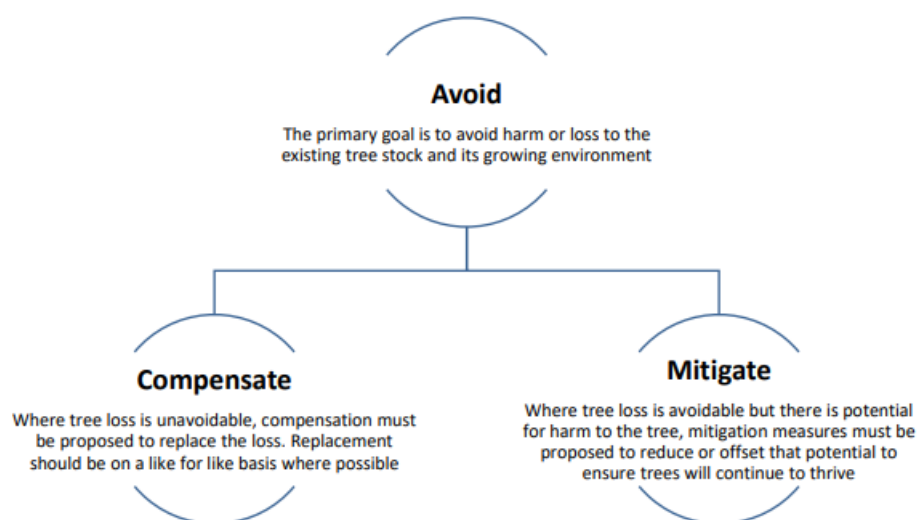
Development can have an adverse impact on trees and other woody vegetation within a site, which can result in:

- i. Immediate tree removal to facilitate the footprint of a new development.
- ii. Potential future tree loss through the early decline of trees due to soil compaction or damage.
- iii. Root disturbance and damage within a tree's rooting area; and
- iv. Canopy removal or damage due to plant movement.

Best practice guidance proposed by the arboricultural sector seeks to ensure that there is a harmonious relationship between trees and development that will ensure that both trees and structures can be retained in the long term.

Where practical, development should seek to work with the natural environment, and development schemes that might result in harm should follow a mitigation hierarchy to ensure harm is minimised.

To assist the planning decision makers, this scheme should use the following mitigation hierarchy to consider the influence that trees might have on site design while also continuing to make a positive contribution to the site and local character of the area, both during and post development:



Direct Arboricultural Impact

Tree Loss

The proposed development scheme will result in the loss of 1 trees. A more detailed summary of these losses is presented in Table 4.

All trees for removal have been highlighted in the tree schedule in red text and on the tree removal and retentions plan with a red dashed line.

	A	B	C	U	Grand Total
Partial Removal					
Group	0	0	0	0	0
Hedge	0	0	0	0	0
Woodland	0	0	0	0	0
Remove					
Group	0	0	0	0	0
Hedge	0	0	0	0	0
Tree	0	0	1	0	1
Grand Total	0	0	1	0	1

The majority (20%) of tree removals is from low quality (Category C) trees. A review of the age profile of the loss is presented in Table 5.

Table 5: Summary of tree losses by age

	A	B	C	U	Grand Total
Partial Removal					
Mature	0	0	0	0	0
Remove					
Young	0	0	0	0	0
Semi mature	0	0	1	0	0
Early mature	0	0	0	0	0
Mature	0	0	0	0	0
Over mature	0	0	0	0	0
Grand Total	0	0	1	0	1

The tree is being removed for the proposed compound on the site and due to excavation and installation of new services

Of the removals required for the new compound:

- One tree (T001) has been assessed as being of low quality (Category C)

Compensation for Tree Loss

Recommended planting scheme

- It is recommended to replant 3 new tree are to replace those that are lost.
- Ratio for replacing established trees 3:1
- Mixed species consisting of :
 - Common oak, *Quercus robur*
 - Wild cherry, *Prunus avium*
 - Silver birch, *Betula pendula*
 - 1-1.2 m in height
 - Container grown
 - Double staked

Planting to be carried out to BS 8545:2014 Trees from nursery to independence in the landscape – Recommendations.

Impact Assessment

While the proposed scheme does require the removal of a number of trees, the losses are primarily focused on those of low quality. This proposed landscape scheme will provide more new trees than are being removed and will provide an enhancement to the setting and character of the site.

A landscape scheme will be prepared with guidance from an ecological perspective to ensure that there is a net gain in the biodiversity setting of the site.

Overall, the impact of this scheme, from an arboricultural perspective is assessed as being moderate, but in a positive sense and the change will be appreciable in the medium and long term for which there could be some mitigation over a medium timeframe (20-40 years).

Damage to the rooting environment

The rooting environment can be damaged through development activities that may result in compaction of the soil, severance of roots, or soil contamination. To avoid such harm, a buffer zone (the RPA) is established around each tree or group, and this is a Construction Exclusion Zone (CEZ). The risk to the rooting environment occurs when development activities take place within the CEZ.

Retained trees will have the RPA/CEZ breached by development activity, and measures will be put in place to ensure that these trees are protected from potentially harmful activities. An overview of the protection measures is provided below and in the arboricultural method statement.

Foundations for proposed compound

For the construction of foundations, a strip method will be used. In principle, this will require the excavations to be lined with an impermeable membrane, with similar precautions to contain spillage or seepage out to into adjacent soil.

It is anticipated that adhering to this guidance will allow all trees to be retained without long term detrimental impact on tree health.

Installation of services & drainage

The location and routing of connecting underground cables are not shown on the layout Tree Constraint Plan).

Where new services are required, they shall be located outside the RPAs of retained trees where possible.

Should this not be possible then the methods of work will follow the recommendations in the National Joint Utilities Group (NJUG) guidance, in order to reduce the adverse impact to trees resulting from root damage and severance during installations; BS5837 (2012) recommends the NJUG guidance as a normative reference to be used in these circumstances.

Damage to retained tree canopy

The canopy of all the retained trees is close to the development envelope and there is not requirement for any facilitation pruning as part of this project, however, if trees require any pruning of low crowns or branches, or tying back to create space during demolition and construction, contact the supervising arboriculturist and/ or permission from LPA will be required.

Cabins and Site Facilities

The location of any site welfare facilities shall need to be considered in terms of potential impact on trees, and should all be placed outside of the protection areas of retained trees. There is ample room for the siting of cabins and storage of materials / spoil during the demolition and construction phase within the park. Where this is not possible further advice should be sought from the appointed arboriculturist and in some circumstances, it may be possible to construct temporary ground protection and adjust fencing, but this is only to be considered as a last resort.

Principles of Tree Protection

All construction activities have the potential to cause harm to the retained trees on site. It is therefore necessary that measures are employed across the site to limit the potential for such harm and prevent any long-term negative impacts on the trees.

Arboricultural Method Statement is included within this report which provides generic details on what protective measures are required, how they will be implemented and what supervision is required to ensure that the measures remain in place and fit for purpose. It has been prepared to inform the planning and the construction/ development process.

The following principles for the protection of retained trees will be adopted across the site for the duration of the project:

- All retained trees will be protected by fencing that will form the CEZ.
- Where fencing cannot provide the necessary protection measures, alternative systems will be installed that will ensure retained trees are protected. This may include the use of either temporary or permanent ground protection.
- There will be no storage of materials, or access for construction workers or machinery within any CEZ. There will be no excavation within a CEZ. All utilities and underground services will be located outside the CEZ or tap into existing service routes.
- Any storage or mixing station located outside of a CEZ will be located in a place that minimises the risk of contaminated runoff entering the CEZ and damaging the rooting environment. This may be achieved by using a non-permeable membrane on the ground, surrounded by sandbags to contain any spillage.
- There will be no fires within a CEZ.
- There will be no use of herbicides within a CEZ.

CONCLUSION

A tree survey has been carried out to determine the extent, age and quality of the tree stock across the site.

Overall, the processes of construction are highly unlikely to have a detrimental effect upon the health of the retained trees assuming recommendations made in this report, tree protection plan and described in the Arboricultural method statement.

The end use of the site is to construct ecologically friendly energy efficient systems on the application site. The balance of the building design, location and trees to be retained throughout the site is thought to be satisfactory and should only result in the loss of one tree.

Issues to be addressed by the arboricultural method statement and tree protection plan.

- Communication methods with the contractor and the appointed arboriculturist
- Tree work specifications
- Methods of Working close to trees
- Installation of tree protection barriers
- Cabins and site facilities location
- Arboricultural supervision timeline of critical activities during demolition and construction

REFERENCES

- Town and Country Planning Act 1990 www.legislation.gov.uk/ukpga/1990/8/contents
- Gov.uk (2021) National Planning Policy Framework.
- BS 5837 (2012) Trees in relation to design, demolition, and construction – Recommendations, BSI www.shop.bsigroup.com/
- BS 8545 (2014) Trees: from nursery to independence in the landscape – Recommendations, www.shop.bsigroup.com/
- BS 3998 (2010) Tree work – Recommendations, BSI www.shop.bsigroup.com/
- Trees in the Townscape: A Guide for Decision Makers, published by the Trees & Design Action Group <http://www.tdag.org.uk/>
- National Joint Utilities Group (2007) Volume 4, Issue 2: Guidelines for the planning, installation, and maintenance of utility apparatus in proximity to trees www.njug.org.uk/publications/
- British Geological Society (2022) Geology of Britain Viewer. [Available online] (Accessed 28/08/2024)

Arboricultural Method Statement for Tree Protection Throughout the Duration of Demolition and Construction Works At Blackley Cemetery & Crematorium

Arboricultural Method Statement includes a Tree Protection Plan to identify:

- Trees to be retained – identified with a continuous coloured line.
- Protective fence positions therefore the Construction Exclusion Zones
- Measurements to identify fence positioning in relation to centre of tree.
- Contractor huts and storage areas
- Design and construction method of services

PLEASE READ IN CONJUNCTION WITH TREE PROTECTION PLAN WITHIN ACCOMPANYING DOCUMENTS.

It must also be noted, to all involved with this project, that the measures contained within this arboricultural method statement and tree protection plan, once approved by the Local Planning Authority (LPA), become legally enforceable.

Responsibilities

- 1.1 It will be the responsibility of the main contractor to ensure that the planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regard to tree protection is adopted on site.
- 1.2 The main contractor will be responsible for contacting the Local Planning Authority at any time issues are raised related to the trees on site.
- 1.3 If at any time pruning works are required permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998 Recommendations for Tree Works 2010.
- 1.4 The main contractor will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position until completion of ALL construction works on the site.
- 1.5 The fencing and signs must be maintained in position at all times and checked on a regular basis by an on-site person designated that responsibility.
- 1.6 The main contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site.

Sequence of Proceedings / Supervision and Reporting

Phase One

<u>Sequence Order</u>	<u>Pre-development stage</u>	<u>Required Action by Arboriculturist</u>	<u>Duration &/or Frequency of Action</u>
1	Carry out on-site meeting with client, local authority, architect project manager and appointed arboriculturist to discuss implementation of AMS and construction proceedings.	Attend Meeting	Full duration
2	Clearly mark out construction area	Inspect	Once complete
3	Install Protective fencing in locations stated on tree protection plan (TPP) to form construction exclusion zone (CEZ) and clearly mark with correct signage (supervised by arboriculturist).	Supervised	During process
4	Restrict access using Heras style fence across entrance of site to prevent the inadvertent access of machinery.	Inspect	Once complete
5	Prepare construction material storage area.	Inspect	Once complete

Phase Two

<u>Sequence Order</u>	<u>Development stage</u>	<u>Required Action by Arboriculturist</u>	<u>Duration &/or Frequency of Action</u>
1	Ensure site is secure and all health and safety signage is in place along with information regarding tree protection and the measures that have been implemented	Inspect	Throughout construction.
2	On-site briefing with all operatives regarding tree protection and good practise.	Carried out by the Arboriculturist or site manager	At the arrival of all new operatives.
3	Access to site by construction traffic is in accordance with arboricultural recommendations and restrictions are in place	Inspection	Bi-weekly
4	Construction site storage/holding areas including delivery of skips etc. are marked and co-ordinated.	Inspection	Bi-weekly
5	Excavation / trench for new services . The immediate removal of waste from area is required. Use (TGP) mat to protect exposed ground.	Supervision	Throughout stage
6	Prepare ground ready for foundations in accordance with the guidelines set out by manufactures specifications and in arboricultural method statement. Cease work if roots greater than 25mm are discovered.	Supervision	Throughout stage
7	Installation of new services in accordance with the guidelines set out by manufactures specifications and in arboricultural method statement.	Supervision	Throughout stage
9	Construction of continued development of the site.	Inspection	Before and after installation
10	Completion.	Inspection	Once complete.

Phase Three

<u>Sequence Order</u>	<u>Post-development stage</u>	<u>Required Action by Arboriculturist</u>	<u>Duration &/or Frequency of Action</u>
1	Removal of tree protective fencing. All machinery to remain upon paved or protected surfaces	None	
2	Soft landscaping.	None	
3	Final inspection of site by local authority, client and arboriculturist	Inspection	Once complete

Communication and Changes to Procedure

Regular contact between the Client, Site Manager and the Arboriculturist allows the effective delivery of advice and additional information on any three-related problems that may occur during the development process.

Any issues identified, whether it by the appointed arboriculturist, the client, the architect, the site foreman or council representative, the local planning authority (LPA) are to be contacted immediately, and their policies and procedures implemented. This may involve the ceasing of work onsite until all issues have been addressed.

Contact Details:

Name/Company	Position	Contact
	Client	
	Tree Officer	
Carl Riva	Arboricultural Consultant	0800 222 9529
	Architect	
	Site Manger	
	Main Contractor	

Communication between all parties is important to ensure any unforeseen changes in proceedings are accounted for and the alternative solution accepted. Agreement to the changes must be sought from all interested parties and advice followed when applicable.

Tree Removals

Trees for removal have been noted on the TPP with a dashed red circle.

No trees for removal are subject to a TPO and therefore there is no requirement for additional consent to be obtained from the LPA.

Great care should be taken during the tree removal process to ensure that retained trees are not adversely impacted.

The following methodology should be adhered to at all times:

- Any machinery used during the tree removal process be sited outside the RPA of retained trees.
- The felling of trees will be undertaken to avoid damaging retained trees.
- Where the removal of stumps of felled trees is required, great care will be taken to ensure any retained trees in close proximity remain free from harm.

Protection of Retained Trees

Where practical all retained trees will be protected through the construction phase using barriers to limit the potential for harm from machinery, materials or personnel.

The primary form of protection is the use of fencing around the trees to prevent access within a protected buffer zone. This buffer zone is a Construction Exclusion Zone (CEZ) and there will be no access within it during the construction phase.

Tree Protection Fencing

Protective fencing will be erected around retained trees prior to the commencement of any site works including mobilisation of machinery and materials.

The location of the fencing has been marked on the TPP prepared for this AMS. This is shown as a “red dashed” line, and the CEZ has been highlighted as grey hatching behind the fencing.

The appropriate form of fencing for this project will be wire mesh panels that will be supported on the ground by a rubberised foot that will in turn be pinned to the ground using metal stakes driven a minimum of 500mm into the ground. An example of the fencing panel construction is provided in Fig 1. below.

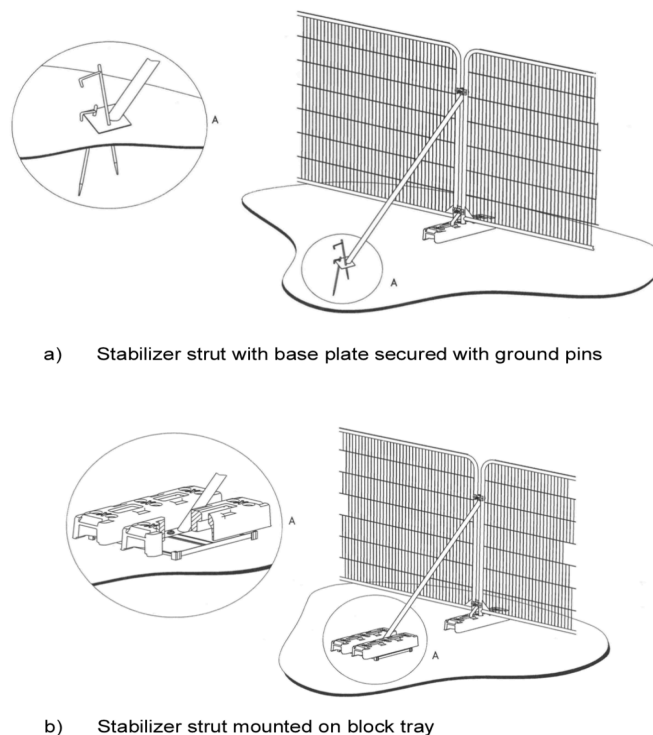


Fig 1. Tree protection fencing specification (extract from BS 5837: 2012)

Weather-proof notices shall be attached to any protective fencing located adjacent to retained trees displaying the words “Construction Exclusion Zone” and listing restrictions which apply. All personnel must be made aware of these restrictions. An example of a suitable sign for the fencing is provided in Fig 2.

Tree Protection Area **KEEP OUT**

Do not move this fence

(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS
AND/OR ARE THE SUBJECT OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL
PROSECUTION

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN
PERMISSION OF THE LOCAL PLANNING AUTHORITY

Fig 2. Example of Tree Protection Fencing Sign

Construction Exclusion Zone (CEZ)

The CEZ is the area identified by the Project Arboriculturist as the area to be protected during development from Site clearance and construction work through the use of barriers and/or ground protection to ensure the successful long-term retention of a tree. Fencing or ground protection shall not be taken down or relocated at any time without prior agreement and/or Site supervision as recommended by the Project Arboriculturist.

All areas excluded by protective tree fencing shall be treated as CEZs and the following restrictions shall apply:

- No construction activity can occur within these areas.
- No works on trees unless agreed by the Project Arboriculturist.
- No alterations of ground levels or conditions.
- No chemicals or cement washings.
- No excavation.
- No temporary structures.
- No storage of soil, rubble or other materials.

No vehicles or machinery to be used or parked without appropriate ground protection measures as per BS5837 recommendations. This will require the use of a proprietary system of reinforced concrete slabs/steel road plates on a compressible layer, or side butting scaffold boards/ 18mm plywood sheets on a compressible layer. The type of ground protection used shall be appropriate for the potential loading applied.

- No fixtures (lighting, signs etc.) to be attached to trees.
- No fires within 10 metres of the canopies of any tree or hedgerow.

*Site huts, provided they are of the “Jack Leg” type, can be sited to act as ground protection for the duration of the construction.

General Canopy Protection

Since the canopies of retained trees may be in close proximity to areas of plant operation, the following restrictions will apply:

- All plant will be sited outside the defined RPAs of retained trees / groups, and the appointed contractor will ensure all relevant personnel shall be made aware of the location of branches and the need to avoid causing damage to them.
- Prior to the implementation of lifting operations, a representative from the equipment supply company shall visit the Site and ensure all operations can be completed without causing damage to retained trees. A lifting plan will be prepared and submitted for approval prior to all lifting operations. The lifting plan will make provision for the potential for damage of retained trees.
- All lifting operations will be completed under the close direction of a qualified banksman, who will be briefed by the appointed contractor as to the need to avoid damage the stems and branches of retained trees.
- Should additionally tree removal or pruning be required the LPA Tree Officer shall be contacted and the scope of works agreed in writing.

Demolition

Any demolition works within the RPA of retained trees will be undertaken in accordance with the following methodology:

- Demolition of existing structures and foundations situated either partially or completely within RPAs of retained trees shall be undertaken with care and under the direct on-site arboricultural supervision as these areas are likely to contain roots.
- Demolition works will be undertaken using a 'top down, pull back' technique. This will minimise the potential of physical harm to retained trees.
- Where levels of dust build-up on trees are likely, remedial measures will be undertaken, e.g., hose down the trees immediately following any significant accumulation of dust.
- Care must be taken to avoid physical contact with the canopies of offsite trees during the demolition works. A banksman will be used where such conflicts could occur.
- If localised pruning is required, the LPA Tree Officer shall be contacted, and the scope of works agreed in writing.
- The foundations will be broken up using a handheld pneumatic breaker, hand tools and a wheelbarrow to break up and remove the surfacing. In some situations, and at the discretion of the arborist it may be possible to use an excavator using a hydraulic breaker and suitably sized toothless grading bucket.
- If an excavator is to be used it must be situated outside of the RPAs, on top of the hard surfacing working away from the RPAs or from ground boarding. If it is likely that there will be any collapse of the soil within the rooting environment excavation is to be stopped immediately and the trench is to be shored up to prevent loss of the rooting environment.
- Whichever system is used there is to be NO disturbance of the soil on the tree side of the foundations. If roots are found they are to be covered over with damp hessian and a layer of either sharp sand, wood chip or topsoil to prevent desiccation.
- Severance of roots over 25mm diameter should be avoided unless advised by the retained Project Arboriculturist. Secateurs and a handsaw must be available to deal with any roots that are exposed. Where roots will remain exposed for any period of time the roots must be wrapped in hessian sacking for protection.

Hard Surfacing Removal

- Removal of and or replacement of hard surfacing situated either partially or completely within the RPAs of retained trees shall be undertaken with care and under the direct on-site arboricultural supervision as these areas are likely to contain roots. Where this is necessary the wearing course will be broken up using a handheld pneumatic breaker, hand tools and a wheelbarrow to break up and remove the surfacing.
- If it is necessary to remove the sub-base this is to be undertaken using hand tools such as a fork to loosen the material and removed using shovels and wheelbarrows. In some situations, and at the discretion of the arborist it may be possible to use an excavator using a hydraulic breaker and suitably sized toothless grading bucket.
- If an excavator is to be used it must be situated outside of the RPAs, on top of the hard surfacing working away from the RPAs or from ground boarding. Whichever system is used there is to be NO disturbance of the soil beneath. If roots are found they are to be covered over with damp hessian and a layer of either sharp sand, wood chip or topsoil to prevent desiccation.

Supervised Excavation

- Excavation within and adjacent to RPAs are to be undertaken under direct on-site arboricultural supervision. Excavation will consist of a mixture of mechanical and manual excavation. Initial excavation will be undertaken by hand under to a minimum of 200mm deep of any excavation, the soil is to be loosened with the use of a fork or pick and then cleared with the aid of an air-spade, air-vac or shovel.
- There after excavation can be undertaken using an excavator with a suitably sized toothless grading bucket using a grading motion rather than digging and taking no more than 10 - 20mm deep swipes at any time, if any roots are discovered mechanical excavation will be stopped immediately and manual excavation will resume to expose the root.
- All roots to be cut will be cleanly severed with the use of a hand saw or secateurs. The edge of the excavation closest to the retained trees will be covered over with damp hessian to prevent drying out, and where necessary be shuttered to prevent soil collapse or contamination by concrete. If appropriate soil beneath the depth 600mm may be sheet piled, tegular piled or individual piles. Any deeper excavations may be undertaken by a machine provided it works form outside of the RPA or has appropriate ground protection in place to move and work upon

Construction

Prior to the construction of the proposed development, a copy of the construction method statement should have been submitted and approved by the project arboriculturist and LPA tree officer, to ensure that there is no conflict with this method statement. All excavations and construction work within or immediately adjacent to RPAs or canopies of retained trees is to be undertaken under the direct on-site supervision of an arboriculturist.

Hazardous Materials

Any mixing of cement-based materials is to take place outside the RPAs of all trees. Provision shall be made to ensure that the mixing area is contained so that no water runoff enters the RPA of any trees. All mixers and barrows shall be cleaned within this dedicated mixing area.

All other chemicals hazardous to tree health, including petrol and diesel, are to be stored in suitable containers as specified by the Control of Substances Hazardous to Health (COSHH) Regulations (HMSO, 2002: The Control of Substances Hazardous to Health Regulations 2002), and kept away from the RPAs.

Contractor compound, site huts and welfare units.

During the proposed construction works attention will be paid to the protection and wellbeing of retained trees. The site will be organised in such a manner so as to minimise the effects of the construction work on trees. The contractor's compound, all site huts, storage, welfare units and parking will be located outside the CEZ of retained trees.

Service installation overhead and underground.

The following hierarchy shall be applied to the design and installation of underground services:

1. All service trenches shall be located outside the RPA of retained trees.
2. Where it is not feasible to avoid the RPA, trenchless technology shall be utilised to minimise the impact on the rooting environment.
3. Where trenchless technology cannot be applied, excavation shall be undertaken using the less harmful methodology including hand digging or use of an air spade to dislodge soil without severing roots. All excavation must be carried out carefully using spades, forks and trowels, taking care not to damage the bark and wood of any roots. Specialist tools for removing soil around roots using compressed air may be an appropriate alternative to hand digging, if available. All soil removal must be undertaken with care to minimise the disturbance of roots beyond the immediate area of excavation. Where possible, flexible clumps of small roots, including fibrous roots, should be retained if they can be displaced temporarily or permanently beyond the excavation without damage.
4. Where it is not possible to hand dig a trench, an excavator may be used, located, if possible, outside the RPA, or sat on a load spreading surface that will minimise the potential for further harm to the rooting environment. Any operation for excavation shall be supervised by the retained Project Arboriculturist.

National Joint Utilities Group publication 'Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees' (NJUG 10, Volume 4, 2007)

APPENDIX A - BS 5837 (2012) Cascade chart for tree quality assessment

Trees unsuitable for retention (See Note)				
Category and definition		Criteria (including subcategories where appropriate)		Identification on plan
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 another 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; see 4.5.7		Red
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 See Table 2 of significant conservation, historical, commemorative or other value (e.g., veteran trees or wood-pasture)	Green
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	Blue
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
ROOT PROTECTION AREA (RPA): These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level, but the shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.		VETERAN OR ANCIENT TREE BUFFER (VTB/ ATB) In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's stem diameter.		ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW) In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required.

SPECIAL IMPORTANCE:

Trees that are particularly notable as high value trees such as ancient trees/woodland, or veteran trees. Such trees may be regarded as the principal Arboricultural features of a site, and pose a significant constraint to potential development. An ancient tree is one that has passed beyond maturity and is very old compared with other trees of the same species. Very few trees reach the ancient life-stage.

Veteran trees are often very old, but not necessarily so; they may be regarded as 'survivors' that have developed some of the characteristic features of an ancient tree but have not necessarily lived as long. All ancient trees are veterans but not all veteran trees are ancient.

An ancient woodland is an area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland (ASNW), plantations on ancient woodland sites (PAWS) and ancient replanted woodland (ARW)

QUALITY CATEGORY:

Trees are classed as category U, A, B or C, based on criteria given in BS5837:2012; summary definitions as follows (see BS5837 for further details). Categories A, B and C are further characterised by the use of sub-categories, which attempt to identify what aspect of the tree is the main source of its perceived value:

1. Arboricultural qualities
2. landscape qualities, and
3. cultural, historic or ecological/conservation qualities.

Examples of these qualities for each of the three categories are given below, although these are indicative only. Note: This is NOT a health and safety classification; the classification does not take into account any requirement for remedial tree care or ongoing maintenance apart from that which may affect the trees' general suitability for retention.

ROOT PROTECTION AREA (RPA):

These are normally represented as a circle centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level, but the shape of the RPA may be altered where site conditions dictate that there are sound reasons to do so.

VETERAN OR ANCIENT TREE BUFFER (VTB/ATB)

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone (in metres) around an ancient or veteran tree that should be at least 15 times larger than the diameter of the tree. The buffer zone should be 5m from the edge of the tree's canopy if that area is larger than 15 times the tree's stem diameter.

ANCIENT WOODLAND BUFFER (FOR ASNW, PAWS OR ARW)

In line with the Standing Advice produced by the Forestry Commission and Natural England this is a buffer zone of at least 15 metres to avoid root damage. Where assessment shows other impacts are likely to extend beyond this distance, a larger buffer zone may be required.