



ARBORICULTURAL IMPACT ASSESSMENT, METHOD STATEMENT AND TREE PROTECTION PLAN

**St Joseph's Former School Site
46 Old Road East
Gravesend
Kent
DA12 1NR**

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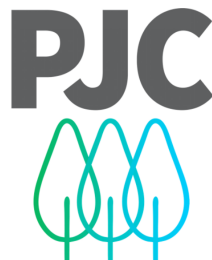
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arboriculture . ecology . landscape



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EXECUTIVE SUMMARY

PJC Consultancy has been instructed by Galliard Homes to provide an arboricultural impact assessment and arboricultural method statement to support a full planning application at 46 Old Road East, Gravesend, for conversion of an existing Victorian building, demolition of other existing buildings and development of the site to provide a mixed-use development comprising a new 3-storey GP surgery, 54no new residential dwellings with access, public open space, and landscaping.

This report complies with the recommendations of British Standard BS5837: 2012 Trees in relation to design, demolition and construction – Recommendations.

The survey was carried out by arboriculturist Clayton Dickerson on 25th July 2023. The tree constraints plan and tree survey schedule can be found at Appendix 1 and Appendix 2 respectively.

The site is located immediately south of Old Road East to the south-east of central Gravesend. The site comprises of a former school, with a collection of buildings forming the northern extents and a playing field forming the southern extents. The site is located in a heavily urbanised area and is surrounded by residential development on all aspects.

A total of 24 individual trees and four tree groups were surveyed. The majority of trees are situated throughout the site's boundaries with only three individuals located internally.

The proposed layout has been overlaid with the tree constraints plan in order to identify the impacts to the trees to inform this impact assessment and this information has formed the basis of the tree retention plan at Appendix 3 and the tree protection plan at Appendix 4.

15 individual trees and four groups of trees will require removal to facilitate the proposals. A high-quality landscaping scheme to provide an attractive setting for proposed development could readily be secured by appropriate planning condition. Initial landscape proposals indicate approximately 150 new trees to be integrated into the proposed development, which represents a significant increase compared to that being removed.

Subject to the generic and specific tree protection measures recommended within the arboricultural method statement at section 3 of this report being adhered to, I consider that the proposals represent a minor impact on the amenity of the locality in so far as it is contributed to by trees. Furthermore, as the proposed new planting establishes it will progressively make a positive contribution to the age and species diversity of trees in the area, the extent of local canopy cover and the amenity of the locality.



1 INTRODUCTION

1.1 Instruction

1.1.1 PJC Consultancy has been instructed by Galliard Homes to provide an arboricultural impact assessment and arboricultural method statement to support a full application for conversion of an existing Victorian building, demolition of other existing buildings and development of the site to provide a mixed-use development comprising a new 3-storey GP surgery, 54no new residential dwellings with access, public open space, and landscaping.

1.1.2 This report complies with the recommendations of British Standard BS5837: 2012 Trees in relation to design, demolition and construction – Recommendations (the British Standard).

1.2 Objectives of report

1.2.1 This report has been undertaken with the following objectives:

- To identify the tree removals and pruning works that will be required as a result of the proposed development and to assess the impact of the tree works.
- To assess the potential impact the proposed construction works will have on retained trees and provide recommendations for mitigation measures to reduce the impact on the trees.
- To provide a protection methodology for retained trees throughout the demolition and construction period, including the above ground and below ground parts of the trees as well as their rooting medium.

1.3 Contents of report

1.3.1 This report includes:

- A tree constraints plan and tree survey schedule at Appendices 1 & 2 respectively.
- An arboricultural impact assessment at section 2 and a tree retention plan at Appendix 3.
- An arboricultural method statement at section 3 and a tree protection plan at Appendix 4.

1.4 Documents and information provided

1.4.1 The following documents were used to aid the preparation of this report:

- PJC Initial Arboricultural Report Ref: 6376/22/-01.
- Hollaway Architect's Proposed Site Plan reference 22.112-040-P1.

1.5 Limitations of report

1.5.1 The following arboricultural impact assessment and method statement have been prepared for the proposal stated in section 1.1 and using the plans and information listed in section 1.4. The report should not be relied upon if the stated proposal or proposed design changes unless the author confirms the changes do not have a bearing on the arboricultural impacts or recommended mitigation measures.



2 ARBORICULTURAL IMPACT ASSESSMENT

2.1 Site visit

- 2.1.1 The survey was carried out by arboriculturist Clayton Dickerson on 25th July 2023. The tree constraints plan and tree survey schedule can be found at Appendix 1 and Appendix 2 respectively.
- 2.1.2 The site is located immediately south of Old Road East to the south-east of central Gravesend. The site comprises of a former school, with a collection of buildings forming the northern extents and a playing field forming the southern extents. The site is located in a heavily urbanised area and is surrounded by residential development on all aspects.
- 2.1.3 A total of 24 individual trees and four tree groups were surveyed. The majority of trees are situated throughout the site's boundaries with only three individuals located internally.

2.2 The proposals

- 2.2.1 The proposed layout has been overlaid with the tree constraints plan in order to identify the impacts to the trees to inform this impact assessment and this information has formed the basis of the tree retention plan at Appendix 3 and the tree protection plan at Appendix 4.

2.3 Tree removals

- 2.3.1 Trees to be removed for the proposed development are shown with red dashed outlines on the tree retention plan at Appendix 3 and are shaded to indicate their BS5837 tree category. A summary is listed at Table 1 below.

Table 1: Tree removals summary

Tree number	Species	Category	Reason for tree removal
T1	Sycamore	B1+2	Tree directly conflicts with a proposed building. Root protection area and crown encroachment are considered excessive and the use of engineered solutions to mitigate root harm is not feasible.
T2	Sycamore	B1+2	Tree directly conflicts with a proposed building. Root protection area encroachment is considered excessive and the use of engineered solutions to mitigate root harm is not feasible.
T3	Sycamore	B1+2	T3 has developed as a companion group with trees T1 and T2 and is mutually supported by the crown of T2. T3 is not considered feasible to retain post removal of T1 and T2.
T4	Sycamore	B1+2	Tree directly conflicts with a proposed building and private garden. The root protection area and crown of T4 is considered too close to the proposed dwelling to feasible retain.
T5	Sycamore	B1+2	Tree directly conflicts with a proposed building and private garden. The root protection area and crown of T5 is considered too close to the proposed dwelling to feasible retain.
T6	Sycamore	C1	Tree directly conflicts with a proposed building and private garden. The root protection area and crown of T6 is considered too close to the proposed dwelling to feasible retain.
T9	Sycamore	C1	Tree directly conflicts with a proposed building. Root protection area and crown encroachment are considered excessive and the use of engineered solutions to mitigate root harm is not feasible.
T11	Sessile oak	A1	Tree directly conflicts with a proposed building. T11 has been categorised a tree of high value. However, it is of small stature, and it is not considered of noteworthy landscape value.



Tree number	Species	Category	Reason for tree removal
T15	Yew	B1	Tree directly conflicts with a proposed building. Root protection area and crown encroachment are considered excessive and the use of engineered solutions to mitigate root harm is not feasible.
T16	Bay	C1	Tree directly conflicts with a proposed ground works. Root protection area encroachment is considered excessive and the use of engineered solutions to mitigate root harm is not feasible.
T17	Hazel	C1	Tree directly conflicts with a proposed building. Root protection area and crown encroachment are considered excessive and the use of engineered solutions to mitigate root harm is not feasible.
T18	Cornelian cherry	C1	Tree directly conflicts with a proposed building. Root protection area and crown encroachment are considered excessive and the use of engineered solutions to mitigate root harm is not feasible.
T21	Sour cherry	C1	Tree directly conflicts with a proposed building. Root protection area and crown encroachment are considered excessive and the use of engineered solutions to mitigate root harm is not feasible.
T22	Weeping willow	B1	Tree directly conflicts with a proposed building and road.
T23	Weeping willow	B1	Tree directly conflicts with a proposed road.
G1	Elder & Hazel	C1	Group conflicts with proposed buildings, parking bays and turning head. Root protection area and crown encroachment are considered excessive, and retention is not feasible.
G2	Mixed native	C1	Group conflicts with a proposed building and partial retention is not considered feasible.
G3	Elder	U	Group is located within the garden of a proposed residential garden. G3 is in poor condition and retention is not recommended on grounds of sound arboricultural management.
G4	Lilac & Hazel	C1	Group directly conflicts with a proposed parking bays and turning head. Root protection area and crown encroachment are considered excessive, and retention is not feasible.

2.1 Mitigation planting

2.1.1 The detailed soft landscape proposals for the proposed development are to be confirmed on the date of this report but could readily be secured by a planning condition. Initial landscape proposals indicate approximately 150 new trees to be integrated into the proposed development. This quantity of new trees represents a significant increase compared to that being removed. The detailed tree planting strategy should be designed to incorporate the 'right tree for the right location', focusing on planting as many medium to large canopy trees as possible. Medium to large canopy trees will provide the maximum future tree canopy cover across the development which will have the highest climatic and ecological benefits.

2.2 Access facilitation pruning

2.2.1 A summary of the proposed pruning required to enable the proposals is shown at Table 2 below.



Table 2: Summary of access facilitation pruning

Tree number	Species	Works required	Reason for works
T7	Hawthorn	Laterally reduce crown overhanging site back to site boundary.	To provide sufficient clearance with proposed building.
2.2.1	All works are to be carried out in accordance with BS3998: 2010 Tree works – Recommendations.		
2.2.2	Based on the information currently available, it is anticipated that the crowns of all remaining retained trees will be located a sufficient distance from proposed construction activities and expected construction access routes so as not to require pruning.		
2.2.3	Any additional requirements for pruning that cannot be predicted at this stage in the design process (e.g. for contractor compound or movement of large or specialist plant machinery) shall be discussed at the pre-commencement meeting with the project arboriculturist and agreed with the local authority arboricultural officer.		
2.3	Construction work within proximity to trees		
2.3.1	Excavation within the root protection area of T7, T10, T20 and T24 is proposed to create building foundations, the construction of new hard surfacing, and landscaping. Due to a variation of levels, the use of specialist engineered solutions to mitigate root harm is not possible and excavation within root protection areas and subsequent loss of roots/rooting medium has been assumed. All excavation within these areas of encroachment (highlighted red on the tree protection plan) shall be completed by hand and under arboricultural supervision using methodologies prescribed within the arboricultural method statement.		
2.3.2	All proposed buildings will be located outside the root protection areas of retained trees, therefore use of specialist foundations for root protection is not deemed necessary. NHBC guidelines on foundation depth in proximity to trees should be followed. This will be determined by a structural engineer and should be guided by information in this report as well as appropriate sampling to determine soil profiles at the site.		
2.4	Services		
2.4.1	Details of the routing of services for the proposed development are not currently available. All underground services should be located outside the root protection areas of retained trees and above ground services should be located outside the anticipated mature crown spreads. Sympathetic methodology to enable the installation of services within root protection areas (in certain instances) is available, however there will always be a potential arboricultural impact and arboricultural advice must be sought regarding the suitability of these methods before they are relied upon. If it is achievable, root protection areas should always be completely avoided.		
2.4.2	Once details of the routing of new services become available, prior to commencement, these shall be reviewed by the project arboriculturist. The arboriculturist shall then confirm either that no works will be carried out within root protection areas or provide details of the methodology required to ensure the works are carried out in accordance with NJUG4 ‘Guidelines for the planning, installation and maintenance of utilities in proximity to trees’ and BS5837: 2012.		



2.5 Landscaping in proximity to trees

- 2.5.1 New permanent garden fencing and boundary fencing will be installed within the root protection areas of numerous trees throughout the site. The fencing specifications are to be confirmed on the date of this report. Within root protection areas a fencing type that requires only postholes (no trenching) must be used. The level of the fences must also follow existing ground levels as there may be no re-grading of levels within root protection areas.
- 2.5.2 The detailed specification for soft landscaping is to be confirmed on the date of this report, however it is anticipated that tree/shrub planting and turfing will occur within the root protection areas of retained trees. In order to protect both tree roots and the condition of the rooting medium, these works must occur sensitively as described in the arboricultural method statement.

2.6 Post development tree pressures and management

- 2.6.1 The proposed development has been assessed to determine the likely impact of tree shade, and also the likely future pressure to prune or remove additional trees.
- 2.6.2 None of the proposed dwellings are expected to be shaded to the extent that it inhibits future residents reasonable use or enjoyment of the properties, thereby leading to pressure to fell or severely prune the trees in a manner the local planning authority could not reasonably resist.



3 ARBORICULTURAL METHOD STATEMENT

3.1 General requirements

- 3.1.1 The arboricultural method statement and tree protection plan shall remain on site for the duration of demolition, construction and landscaping works and be available to site operatives at all times. All operatives at the site shall be briefed about tree related factors as part of their site induction.
- 3.1.2 Any variation from the methodology described in this method statement shall be discussed with the supervising arboriculturist and agreed with the local authority arboricultural officer.

3.2 Phasing of works

- 3.2.1 To ensure trees are protected throughout the development, the proposed development shall occur in the following order:

Table 1: Phasing of works

Works Order	Operation	Notes
1	Initial tree works.	The tree works contractor shall undertake the tree removals and access facilitation pruning specified in the arboricultural impact assessment. Completion of these works will be required to enable the installation of tree protection barriers.
2	Installation of tree protection barriers.	Tree protection fencing shall be installed in the locations shown on the tree protection plan and to the specification described in this method statement.
3	Pre-commencement meeting.	The project arboriculturist shall attend a site meeting with the site manager. The local authority arboricultural officer shall be notified so they may also attend. The above pre-start arboricultural works shall be signed off by the project arboriculturist during the meeting. The meeting shall occur before any plant activity, ground works or demolition/construction activities begin.
4	Demolition phase.	The tree protection barriers shall be maintained, and the construction exclusion zones observed throughout the demolition phase.
5	Construction phase.	The tree protection barriers shall be maintained, and the construction exclusion zones observed throughout the construction phase. Excavation shall be undertaken sensitively within the root protection areas of T7, T10, T20 and T24 as described in this method statement.
6	Soft landscaping phase.	The tree protection barriers shall be dismantled when external construction and hard landscape operations have been completed and plant machinery or excess construction materials have been removed from site. Soft landscape operations shall occur sensitively as described in this method statement.

3.3 Initial tree works

- 3.3.1 The tree removals and access facilitation pruning specified in the arboricultural impact assessment shall be carried out as the first stage of development. Any requirements for access facilitation pruning which have not been anticipated on the date of this report shall



be discussed at the pre-commencement meeting with the project arboriculturist and be communicated to the local authority arboricultural officer.

- 3.3.2 Tree stumps and vegetation located within the root protection areas of retained trees shall be cleared with controlled hand tools (e.g. stump grinder/brush cutter). Plant machinery shall not be used to scrape vegetation, 'grub out' stumps within root protection areas, or access the site until the tree protection barriers have been installed.
- 3.3.3 If bonfires are lit to dispose of arisings from the vegetation or tree clearance works, an assessment of wind direction and strength shall be made to ensure flames cannot extend within 5m of any part of a retained tree. No bonfires shall be lit within a root protection area.
- 3.3.4 Trees should be checked for protected species before works are undertaken. It is against the law to disturb bats or their roosts under the Conservation of Habitat and Species Regulations. Nesting birds are protected by the Wildlife and Countryside Act. If protected species are discovered, Natural England should be contacted for advice.
- 3.3.5 The tree works contractors should carry out all tree works to BS3998: 2010 Tree works – recommendations as modified by research that is more recent. They should also carry relevant, adequate and up to date insurance.
- 3.3.6 It is suggested that an Arboricultural Association approved contractor carry out all tree works. Approved contractors are expected to work to industry best standards. The Arboricultural Association website (www.trees.org.uk) contains contact details and information on engaging a suitable contractor.

3.4 Tree protection barriers

- 3.4.1 The root protection areas of retained trees must be left free from disturbance, and protected from contamination or compaction during the proposed works. Protection shall comprise of tree protection fencing.
- 3.4.2 The tree protection fencing shall be installed and signed off by the project arboriculturist before any plant activity, ground works or demolition/construction activities commence at the site. They shall be maintained in situ until the soft landscaping phase of development when all other construction activities in the vicinity have been completed, and excess construction materials and plant machinery have been removed from site. Any damage that occurs to the tree protection barriers during the construction period must be rectified immediately, prior to other construction activities recommencing in the vicinity.
- 3.4.3 Tree protection fencing shall be installed in the locations shown on the tree protection plan. The specification for tree protection fencing shall be metal welded mesh panels (e.g. Heras panels), in concrete or rubber feet. The panels shall be supported by metal stabiliser struts mounted on either a base plate secured by ground pins, or in a block tray (refer to Appendix 5). Any variation from this specification for tree protection fencing shall be discussed with the project arboriculturist and agreed in writing with the local authority arboricultural officer.
- 3.4.4 Signs shall be affixed to the fencing as shown in Appendix 6 to explain its purpose. The signs shall be affixed at a reasonable size and frequency to ensure they are easily visible to operatives at the site.
- 3.4.5 The areas protected by tree protection fencing (highlighted yellow on the tree protection plan) or temporary ground protection shall be referred to as the construction exclusion zones. The following restrictions shall apply within the construction exclusion zones:
 - No vehicular access shall be permitted unless on adequate temporary ground protection measures that have been agreed with the project arboriculturist.



- Regular pedestrian access shall be restricted unless on suitable ground protection measures agreed with the project arboriculturist.
- No storage of construction materials shall occur.
- No storage of building spoil or construction debris (including short-term temporary stockpiling) shall occur.
- No harmful chemicals shall be stored or handled.
- No fires shall be permitted.
- No mechanical excavation including regrading of levels shall occur.
- There shall be no change in ground level unless undertaken under the supervision of the project arboriculturist.
- No construction activities including installation of new permanent hard standing shall be undertaken unless otherwise specified in this method statement.

3.5 Storage and handling of harmful chemicals

- 3.5.1 Provision must be taken to prevent the storage and handling of harmful chemicals within the root protection areas of retained trees. Harmful chemicals include fuels, oils, bitumen, builder's sand (which has a high salt content) and cement. Provision shall also be made to prevent the storage and handling of harmful chemicals in areas proposed for further planting if the existing soil is intended to be retained.
- 3.5.2 Cement mixing shall always occur outside the construction exclusion zones. If cement mixing is to occur close to the construction exclusion zones, or there is the potential for cement washings to leech into a root protection area, adequate, bunded ground protection measures must be used. This could comprise impermeable plastic sheeting under wooden boards (to prevent tears) surrounded by a raised lip.
- 3.5.3 All other chemicals that are harmful to trees must be stowed in suitable containers and stored away from the construction exclusion zones unless adequate, bunded ground protection measures are implemented to prevent spillages leeching into root protection areas.

3.6 Contractor facilities

- 3.6.1 A suitable location for site cabins, contractor parking and site facilities for operatives shall be agreed with the project arboriculturist during the pre-commencement meeting. These facilities must be located outside the root protection areas of all retained trees unless on adequate ground protection measures that have been signed off with the project arboriculturist (potentially including existing hard standing). Provision must be taken to prevent exhaust fumes or hot air from generators or kitchen facilities from damaging foliage within the crowns of retained trees.

3.7 Excavation within root protection areas

- 3.7.1 Excavation shall be completed within the root protection areas of T7, T10, T20 and T24 in the areas hatched red on the tree protection plan. The excavation in this area shall occur by hand to a depth of 600mm (unless significant roots are revealed near the base of the excavation).
- 3.7.2 Excavation within the encroachment areas shall be completed under arboricultural supervision. Roots revealed shall be cleanly pruned using secateurs to leave the smallest feasible wound. Small clean pruning wounds require less energy from the tree to heal and reduce the chance of infection by tree pathogens. The supervising arboriculturist shall undertake the pruning of roots over 25mm diameter. They shall assess the potential impact on the host tree and recommend remedial actions to mitigate root loss should this be deemed necessary.



3.8 Services

- 3.8.1 The routing of new services for the development is not available on the date of this report. These must be signed off by the project arboriculturist before implementation. Wherever possible, the services must completely avoid the root protection areas of retained trees. Where this is not feasible, the arboriculturist shall provide an arboricultural method statement (to be signed off by the local authority arboricultural officer before implementation) detailing any sympathetic methodologies that are required to minimise damage to tree roots (as described in NJUG4 'Guidelines for the planning, installation and maintenance of utilities in proximity to trees' and BS5837: 2012).

3.9 Installing new permanent fencing within root protection areas

- 3.9.1 Installation of permanent fencing within root protection areas will require access into the construction exclusion zones. Only pedestrian access will be permitted into the construction exclusion zones and scaffold board pathways shall be used in wet conditions. Ideally these works shall occur during the soft landscaping phase of development when it is safe to dismantle the tree protection fencing.
- 3.9.2 The fencing specification is to be confirmed on the date of this report. Within root protection areas a fencing type that requires only postholes (no trenching) shall be used. The level of the fences must follow existing ground levels as there should be no re-grading of levels within root protection areas.
- 3.9.3 The postholes shall be hand excavated with care taken to avoid damaging or severing roots with a diameter greater than 25mm. Ideally the postholes shall be pre-dug to ensure significant roots can be avoided. The postholes shall be sleeved with impermeable sheeting before any concrete is added to prevent alkaline burn to retained roots. Cement mixing shall occur outside the construction exclusion zones.

3.10 Soft landscaping within root protection areas

- 3.10.1 Soft landscaping within the root protection areas of retained trees shall occur as the final phase of development, when all other construction activities in the vicinity have been completed and it is safe to dismantle the tree protection barriers. The detailed specification for soft landscaping is to be confirmed but will potentially include turfing and tree/shrub planting within root protection areas.
- 3.10.2 All planting stock, topsoil and other soft landscaping materials shall be stockpiled outside the root protection areas of retained trees. When the tree protection barriers have been dismantled, the extents of the root protection areas shall be made clear to operatives at the site by other means (e.g. ground marker paint or similar). The standard restrictions to works within the construction exclusion zones will still apply during the soft landscaping phase of development.
- 3.10.3 Where new turf or grass seed is to be laid within the root protection areas of retained trees, topsoil will likely need to be imported. The existing soil may be lightly tilled by hand but use of rotavators or plant machinery will be prohibited. A maximum increase of 100mm of topsoil may be introduced to a root protection area to avoid suffocating existing root growth. Care must be taken to prevent soil being piled against tree buttresses or buttress roots.
- 3.10.4 When soil or other materials are transported across a root protection area in wet conditions, scaffold board pathways must be used to prevent compaction of the rooting medium. It should be noted that even pedestrian traffic can compact the soil in wet conditions.



- 3.10.5 All planting pits within root protection areas shall be individually hand excavated (no trench planting). Care must be taken to avoid severing or damaging roots with a diameter greater than 25mm.

3.11 Pre-commencement arboricultural consultancy input

- 3.11.1 Prior to the commencement of works, arboricultural input will be required for the following aspects of development:

1. The construction management plan.
2. The routing of utility services.
3. The routing of drainage services.
4. Final levels based on the detailed design.
5. The detailed landscaping plan including tree planting strategy.

- 3.11.2 If these aspects of the project have a material impact on the guidance in this method statement, the arboricultural method statement shall be updated and the revised information submitted to the local authority tree officer for approval.

3.12 Pre-commencement meeting

- 3.12.1 A pre-commencement meeting shall be held between the contractors and the project arboriculturist. The local authority arboricultural officer shall be given reasonable notice of the pre-commencement meeting so they may also attend. The purpose of the pre-commencement meeting shall be:

1. To clarify the tree protection methodology with the site manager.
2. To sign off that the pre-commencement tree works have been completed as specified in the arboricultural impact assessment, and to discuss any requirements for any further pruning which had not been anticipated prior to the meeting.
3. To sign off that the tree protection fencing has been installed in the correct locations and to the agreed specification. To agree revised locations subject to the phasing of the development.
4. To agree with the local authority arboricultural officer the type and timings of arboricultural monitoring necessary.

- 3.12.2 Following this meeting, if the local authority arboricultural officer has not been able to attend, an email outlining the actions discussed will be sent to the tree officer for approval. If necessary, a revised tree protection plan and method statement will be issued for approval.

3.13 Arboricultural supervision

- 3.13.1 The project arboriculturist shall supervise:

- All excavation within the root protection areas of trees as shown with red hatching on the tree protection plan.

3.14 Arboricultural monitoring

- 3.14.1 In addition to the above, a system and programme of onsite monitoring by the appointed arboricultural consultant shall be agreed with the Local Authority Arboricultural Officer. The form and frequency of site monitoring shall be agreed at the pre-commencement meeting.



3.15 Process if an unforeseen issue relating to trees arises

- 3.15.1 If significant root growth is disturbed during construction activities that are not within the scope of this report, the work shall cease until the project arboriculturist has been consulted. Roots greater than 25mm in diameter or dense/matted fibrous roots shall be considered significant root growth. It should be remembered that whilst root protection areas are part of industry best practice, tree root growth is influenced by a number of factors and may not conform to expected ideals.
- 3.15.2 If at any time during the construction process, damage is inadvertently caused to a tree, the project arboriculturist shall be notified to assess the likely implications and to prescribe potential remedial measures to be implemented. Damage can be in the form of chemical or fuel spillage, mechanical damage to either the above ground parts of the tree or the roots, fire or any other unforeseen circumstance.
- 3.15.3 The supervising arboriculturist shall be appointed by the contractor. It will be necessary for the arboriculturist to report to the local planning authority on the outcome of the site visits as well as any unforeseen tree related issues.



Appendix 1: Tree Constraints Plan



- Key:**
- Root protection area for category A* tree
 - Root protection area for category B* tree
 - Root protection area for category C* tree
 - Root protection area for category U* tree
 - Tree canopy
 - Approximate tree shade
 - Topographical survey feature
 - Site boundary

* Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

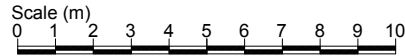
Tree survey schedule contained within the arboricultural report ref. PJC/6376/23/01 Rev - contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Tree shadows plotted using guidance set out in BS5837: 2012 - Trees in relation to design, demolition and construction - Recommendations. The trees existing height is used to calculate the radius of the shadow segment, plotted from north west to east as an arc.

Please note the plotted shadows represent shadow cast throughout the typical day, and not the total shadow cast at a given moment. Groups with an average height of less than 5m has not been provided a shade arc.



Drawing no: PJC/6376/23/A Rev: - Sheet number: 1 of 2

Client and site:
Galliard Homes
St Joseph' Former School Site
46 Old Road East
Gravesend
DA12 1NR

Drawing title: Tree Constraints Plan

Date drawn: 17/07/2023

Scale: 1:500 at A3

Drawn by: CD **Checked by:** LW



- Key:**
- Root protection area for category A* tree
 - Root protection area for category B* tree
 - Root protection area for category C* tree
 - Root protection area for category U* tree
 - Tree canopy
 - Approximate tree shade
 - Topographical survey feature
 - Site boundary

* Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

Tree survey schedule contained within the arboricultural report ref. PJC/6376/23/01 Rev - contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Tree shadows plotted using guidance set out in BS5837: 2012 - Trees in relation to design, demolition and construction - Recommendations. The trees existing height is used to calculate the radius of the shadow segment, plotted from north west to east as an arc.

Please note the plotted shadows represent shadow cast throughout the typical day, and not the total shadow cast at a given moment. Groups with an average height of less than 5m has not been provided a shade arc.



Drawing no: PJC/6376/23/A Rev: - Sheet number: 2 of 2

Client and site:
Galliard Homes
St Joseph' Former School Site
46 Old Road East
Gravesend
DA12 1NR

Drawing title: Tree Constraints Plan

Date drawn: 17/07/2023

Scale: 1:500 at A3

Drawn by: CD **Checked by:** LW



Appendix 2: Tree Survey Schedule

Site: St Joseph's Former School Site, 46 Old Road East,
Gravesend, DA12 1NR.

Survey date: 25th July 2023

Surveyor: Clayton Dickerson *Tech.Arbor.A*

Tree Survey Schedule



Tree ref.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T1	Sycamore (<i>Acer pseudoplatanus</i>)	18	734	N: 6 E: 5 S: 3 W: 5	Crown: 5 east Branch: 4 north	Mature	Good	Good	Access inhibited by undergrowth, multi stem from base, proliferation of basal epicormics, enclosed by fencing, provides screen to residential properties.	None at time of survey.	B1+2	243.8	8.8
T2	Sycamore (<i>Acer pseudoplatanus</i>)	18	600	N: 3 E: 8 S: 2 W: 5	Crown: 7 east Branch: 4 north	Mature	Good	Good	Access inhibited by undergrowth, multi stem from base, proliferation of basal epicormics, enclosed by fencing, provides screen to residential properties.	None at time of survey.	B1+2	162.9	7.2
T3	Sycamore (<i>Acer pseudoplatanus</i>)	18	848	N: 3 E: 8 S: 3 W: 4	Crown: 7 east Branch: 4 east	Mature	Good	Good	Access inhibited by undergrowth, multi stem from base, proliferation of basal epicormics, enclosed by fencing, provides screen to residential properties.	None at time of survey.	B1+2	325.4	10.2
T4	Sycamore (<i>Acer pseudoplatanus</i>)	18	1000	N: 5 E: 8 S: 3 W: 7	Crown: 6 east Branch: 4 east	Mature	Good	Good	Access inhibited by stem from base, proliferation of basal epicormics, enclosed by fencing, provides screen to residential properties.	None at time of survey.	B1+2	452.4	12.0
T5	Sycamore (<i>Acer pseudoplatanus</i>)	17	447	N: 2 E: 7 S: 7 W: 7	Crown: 5 east Branch: 5 east	Mature	Good	Good	Access inhibited by undergrowth, twin stem from base, proliferation of basal epicormics, enclosed by fencing, provides screen to residential properties.	None at time of survey.	B1+2	90.4	5.4
T6	Sycamore (<i>Acer pseudoplatanus</i>)	14	400	N: 6 E: 6 S: 6 W: 6	Crown: 5 Branch: 5	Mature	Good	Good	Access inhibited by dense ivy to crown break, provides screen to residential properties, topped in recent years.	None at time of survey.	C1	72.4	4.8

Site: St Joseph's Former School Site, 46 Old Road East,
Gravesend, DA12 1NR.

Survey date: 25th July 2023

Surveyor: Clayton Dickerson *Tech.Arbor.A*

Tree Survey Schedule



Tree ref.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T7	Hawthorn (<i>Crataegus monogyna</i>)	6	200	N: 3 E: 3 S: 3 W: 3	Crown: 4 east Branch: 5 north	Mature	Good	Good	Third party tree, open habit, typical form for species.	None at time of survey.	C1	18.1	2.4
T8	Corkscrew willow (<i>Salix tortuosa</i>)	9	300	N: 3 E: 3 S: 3 W: 3	Crown: 0 Branch: 0	Semi-mature	Good	Good	Third party tree, single stem, open habit, typical form for species.	None at time of survey.	B1	40.7	3.6
G1	Elder (<i>Sambucus</i>) Hazel (<i>Corylus avellana</i>)	5	335	N: 3 E: 3 S: 3 W: 3	Crown: .5 Branch: .5	Semi-mature	Good	Good	Mixed species group, companion canopy, managed coppice stools, provides screening between school and residential properties.	None at time of survey.	C1	50.8	4.0
T9	Sycamore (<i>Acer pseudoplatanus</i>)	10	663	N: 5 E: 5 S: 5 W: 5	Crown: 4 north Branch: 2 north	Semi-mature	Good	Good	Pollarded at approximately 1.5 m, ivy clad, upright habit, provides screening to neighbouring properties.	None at time of survey.	C1	198.9	8.0
T10. PA	Eucalyptus spp	9	400	N: 3 E: 3 S: 3 W: 3	Crown: 5 north Branch:	Semi-mature	Good	Good	Third party tree, open habit, typical form for species.	None at time of survey.	B1	72.4	4.8
T11	Sessile oak (<i>Quercus petraea</i>)	6	260	N: 6 E: 6 S: 5 W: 5	Crown: 0 Branch: 1.5	Young	Good	Good	Single stem tree, with an open habit, of good form for species.	None at time of survey.	A1	30.6	3.1

Site: St Joseph's Former School Site, 46 Old Road East,
Gravesend, DA12 1NR.

Survey date: 25th July 2023

Surveyor: Clayton Dickerson *Tech.Arbor.A*

Tree Survey Schedule



Tree ref.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T12 PA	Tree of heaven (<i>Ailanthus altissima</i>)	5	150	N: 4 E: 4 S: 4 W: 4	Crown: 2 east Branch: 2 east	Semi-mature	Fair	Fair	Third party tree, maintained as pollard, epicormic grow from base.	None at time of survey.	C1	10.2	1.8
T13 PA	Cotoneaster spp	4	150	N: 4 E: 4 S: 4 W: 4	Crown: .5 Branch: 1.5 east	Mature	Good	Good	Open habit, third party tree, of good size for species.	None at time of survey.	C1	10.2	1.8
T14 PA	Crab apple (<i>Malus spp</i>)	5	240	N: 3 E: 3 S: 3 W: 3	Crown: 1.5 North Branch: 1.4 north	Mature	Good	Good	Multistem from base, open habit, form typical of species, third party tree.	None at time of survey.	C1	26.1	2.9
G2 PA	Field maple (<i>Acer campestre</i>) Elm (<i>Ulmus procera</i>) Domestic plum (<i>Prunus domestica</i>) Elder (<i>Sambacus nigra</i>) Eucalyptus spp	6	169	N: 3 E: 3 S: 3 W: 3	Crown: 0 Branch: 0	Semi-mature	Good	Good	Mixed group, providing dense screening,	None at time of survey.	C1	12.9	2.0
T15	Yew (<i>Taxus baccata</i>)	7	424	N: 5 E: 5 S: 5 W: 5	Crown: .5 Branch: .5	Mature	Good	Good	Twin stem from base, part of dense screen, slight crown bias to east.	None at time of survey.	B1	81.3	5.1

Site: St Joseph's Former School Site, 46 Old Road East,
Gravesend, DA12 1NR.

Survey date: 25th July 2023

Surveyor: Clayton Dickerson *Tech.Arbor.A*

Tree Survey Schedule



Tree ref.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
T16 PA	Bay (<i>Laurus nobilis</i>)	6	169	N: 2 E: 2 S: 2 W: 2	Crown: .5 Branch: .5	Semi-mature	Good	Fair	Multi stem from base, part of dense screen, ivy clad.	None at time of survey.	C1	12.9	2.0
T17 PA	Hazel (<i>Corylus avellana</i>)	6	600	N: 3 E: 3 S: 3 W: 3	Crown: 2 west Branch: 2 west	Mature	Good	Fair	Multistem coppice stool, open habit, third party tree, provides screening.	None at time of survey.	C1	162.9	7.2
T18 PA	Cornealian cherry (<i>Cornus mass</i>)	6	530	N: 3 E: 3 S: 3 W: 3	Crown: .5 west Branch: 2 west	Mature	Good	Good	Open habit, spreading crown, third party tree, provides screening, multi stem from base.	None at time of survey.	C1	127.1	6.4
T19. PA	Norway maple (<i>Acer platanoides</i> 'Crimson King' Tree)	10	400	N: 5 E: 5 S: 5 W: 5	Crown: 2 west Branch: 3 west	Mature	Good	Good	Single stem tree with open habit, managed pollard, third party tree.	None at time of survey.	B1	72.4	4.8
G3	Elder (<i>Sambucus</i>)	5	120	N: 3 E: 3 S: 3 W: 3	Crown: .5 Branch: .5 west	Mature	Poor	Poor	Companion group, large sections of deadwood wood, epicormic from base.	Fell to ground level irrespective of any proposed development.	U	6.5	1.4
T20	Walnut (<i>Juglans regia</i>)	10	329	N: 5 E: 5 S: 5 W: 5	Crown: .5 south Branch: 2 south	Semi-mature	Fair	Good	Open habit on a single stem, third party tree, exudation on main stem, typical form for species.	None at time of survey.	B1	49.0	3.9

Site: St Joseph's Former School Site, 46 Old Road East,
Gravesend, DA12 1NR.

Survey date: 25th July 2023

Surveyor: Clayton Dickerson *Tech.Arbor.A*

Tree Survey Schedule



Tree ref.	Species	Height (m)	Stem diameter (mm)	Branch spread (m)	Crown clearance (m)	Age class	Physiological condition	Structural condition	Comments	Preliminary management recommendation	Category grading	Root Protection Area (m ²)	Root Protection Radius (m)
G4. PA	Lilac (<i>Syringa sp</i>) Hazel (<i>Corylus avellana</i>)	5	530	N: 4 E: 4 S: 4 W: 4	Crown: 0 Branch: 0	Mature	Fair	Fair	Multistem from base, split limbs, significant aerial deadwood, provides screen.	Remove significant aerial deadwood and split limbs.	C1	127.1	6.4
T21	Sour cherry (<i>Prunus cerasus</i>)	5	286	N: 4 E: 4 S: 4 W: 4	Crown: .5 east Branch: 2 west	Semi-mature	Good	Fair	Co-dominant from base, included bark, exudation on main stem, natural bracing present.	None at time of survey.	C1	37.0	3.4
T22	Weeping willow (<i>Salix babylonica</i>)	6	380	N: 3 E: 4 S: 4 W: 3	Crown: .5 Branch: 2 south	Semi-mature	Good	Good	Open habit, stem bifurcates at 1.5m, minor deadwood in crown, form typical of species.	None at time of survey.	B1	65.3	4.6
T23	Weeping willow (<i>Salix babylonica</i>)	7	502	N: 7 E: 7 S: 5 W: 6	Crown: .5 Branch: 1.4 east	Mature	Good	Good	Open habit, stem bifurcates at 1m, minor deadwood, form typical of species.	None at time of survey.	B1	114.0	6.0
T24 PA	Western red cedar (<i>Thuja plicata</i>)	7	200	N: 2 E: 2 S: 2 W: 2	Crown: 0 Branch: 0	Semi-mature	Good	Good	Third party tree, provides screening.	None at time of survey.	C1+2	18.1	2.4



Appendix 3: Tree Retention Plan



- Key:**
- Root protection area for category B* tree to be retained
 - Root protection area for category C* tree to be retained
 - Canopy of retained tree
 - Approximate tree shade
 - Topographical survey feature
 - Site boundary
 - Location of category B* tree to be removed
 - Location of category C* tree to be removed
 - Section of retained tree canopy to be pruned

* Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

Tree survey schedule contained within the arboricultural report ref. PJC/6376/23/01 Rev - contains further information for each tree.

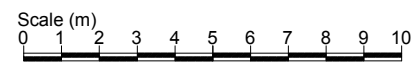
This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

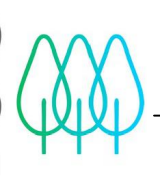
Tree shadows plotted using guidance set out in BS5837: 2012 - Trees in relation to design, demolition and construction - Recommendations. The trees existing height is used to calculate the radius of the shadow segment, plotted from north west to east as an arc.

Please note the plotted shadows represent shadow cast throughout the typical day, and not the total shadow cast at a given moment. Groups with an average height of less than 5m has not been provided a shade arc.

This drawing should be read in conjunction with Hollaway Architects Proposed Site Plan reference 22.112-040-P1.



Drawing no: PJC/6376/23/B	Rev: -	Sheet number: 1 of 2
Client and site: Galliard Homes St Joseph' Former School Site 46 Old Road East Gravesend DA12 1NR		
Drawing title: Tree Retention Plan		
Date drawn: 11/12/2023		
Scale: 1:500 at A3		
Drawn by: CD	Checked by: LW	



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- Key:**
- Root protection area for category B* tree to be retained
 - Root protection area for category C* tree to be retained
 - Canopy of retained tree
 - Approximate tree shade
 - Topographical survey feature
 - Site boundary
 - Location of category B* tree to be removed
 - Location of category C* tree to be removed
 - Section of retained tree canopy to be pruned

* Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

Tree survey schedule contained within the arboricultural report ref. PJC/6376/23/01 Rev - contains further information for each tree.

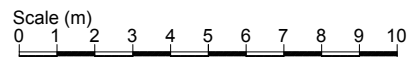
This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

Tree shadows plotted using guidance set out in BS5837: 2012 - Trees in relation to design, demolition and construction - Recommendations. The trees existing height is used to calculate the radius of the shadow segment, plotted from north west to east as an arc.

Please note the plotted shadows represent shadow cast throughout the typical day, and not the total shadow cast at a given moment. Groups with an average height of less than 5m has not been provided a shade arc.

This drawing should be read in conjunction with Hollaway Architects Proposed Site Plan reference 22.112-040-P1.



Drawing no: PJC/6376/23/B Rev: - Sheet number: 2 of 2

Client and site:
Galliard Homes
St Joseph' Former School Site
46 Old Road East
Gravesend
DA12 1NR

Drawing title: Tree Retention Plan

Date drawn: 11/12/2023

Scale: 1:500 at A3

Drawn by: CD **Checked by:** LW



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Appendix 4: Tree Protection Plan



- Key:**
- Root protection area for category B* tree to be retained
 - Root protection area for category C* tree to be retained
 - Canopy of retained tree
 - Topographical survey feature
 - Site boundary
 - Tree protection fencing
 - Construction exclusion zone
 - Area of excavation completed by hand and under arboricultural supervision

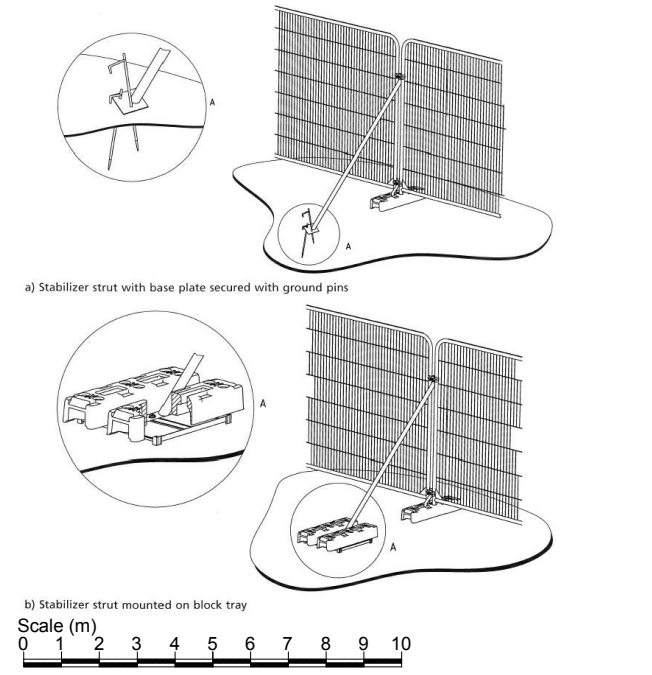
* Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

Tree survey schedule contained within the arboricultural report ref. PJC/6376/23/01 Rev - contains further information for each tree.

This drawing should be viewed in colour.
Tree numbers suffixed with PA indicate the tree position is approximate.

This drawing should be read in conjunction with Hollaway Architects Proposed Site Plan reference 22.112-040-P1.

Tree Protection Fencing Specification



Drawing no: PJC/6376/23/C	Rev: -	Sheet number: 1 of 2
Client and site: Galliard Homes St Joseph' Former School Site 46 Old Road East Gravesend DA12 1NR		
Drawing title: Tree Protection Plan		
Date drawn: 11/12/2023		
Scale: 1:500 at A3		
Drawn by: CD	Checked by: LW	



- Key:**
- Root protection area for category B* tree to be retained
 - Root protection area for category C* tree to be retained
 - Canopy of retained tree
 - Topographical survey feature
 - Site boundary
 - Tree protection fencing
 - Construction exclusion zone
 - Area of excavation completed by hand and under arboricultural supervision

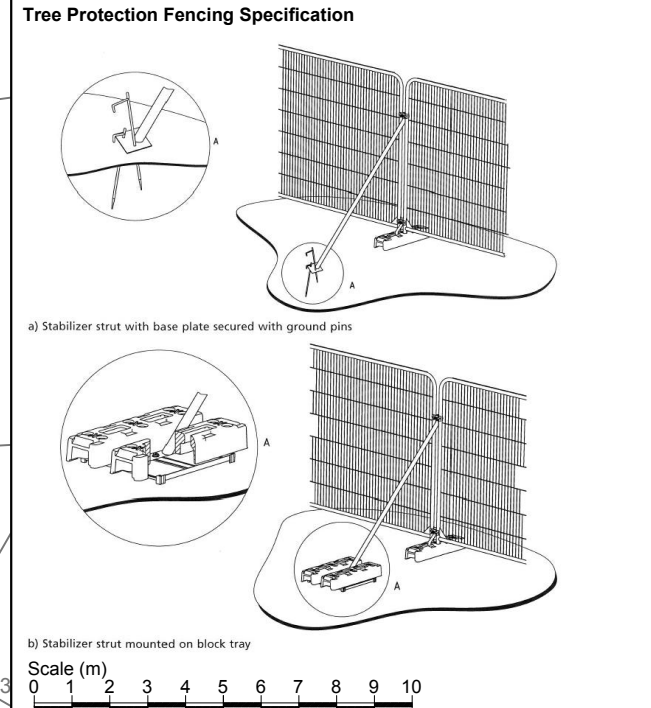
* Tree categorised in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.

Tree survey schedule contained within the arboricultural report ref. PJC/6376/23/01 Rev - contains further information for each tree.

This drawing should be viewed in colour.

Tree numbers suffixed with PA indicate the tree position is approximate.

This drawing should be read in conjunction with Hollaway Architects Proposed Site Plan reference 22.112-040-P1.



Drawing no: PJC/6376/23/C Rev: - Sheet number: 2 of 2

Client and site:
Galliard Homes
St Joseph' Former School Site
46 Old Road East
Gravesend
DA12 1NR

Drawing title: Tree Protection Plan

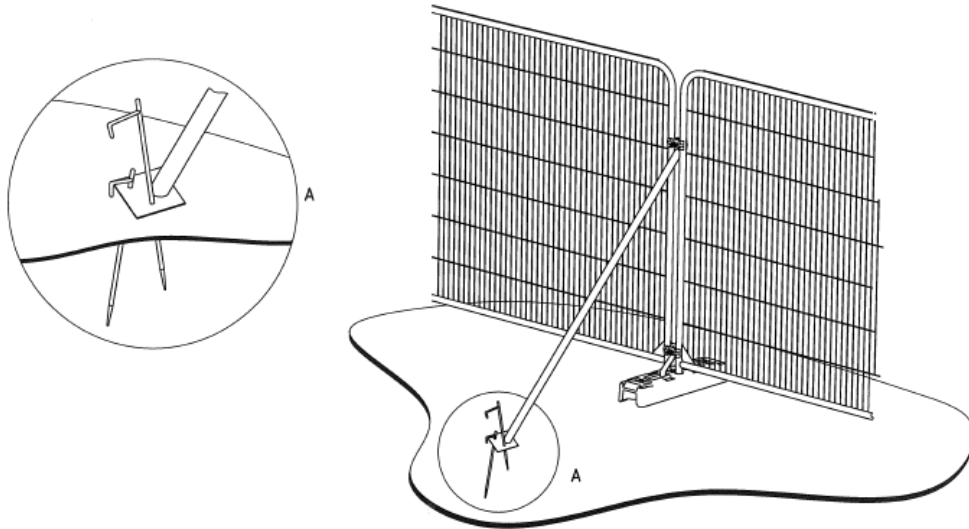
Date drawn: 11/12/2023

Scale: 1:500 at A3

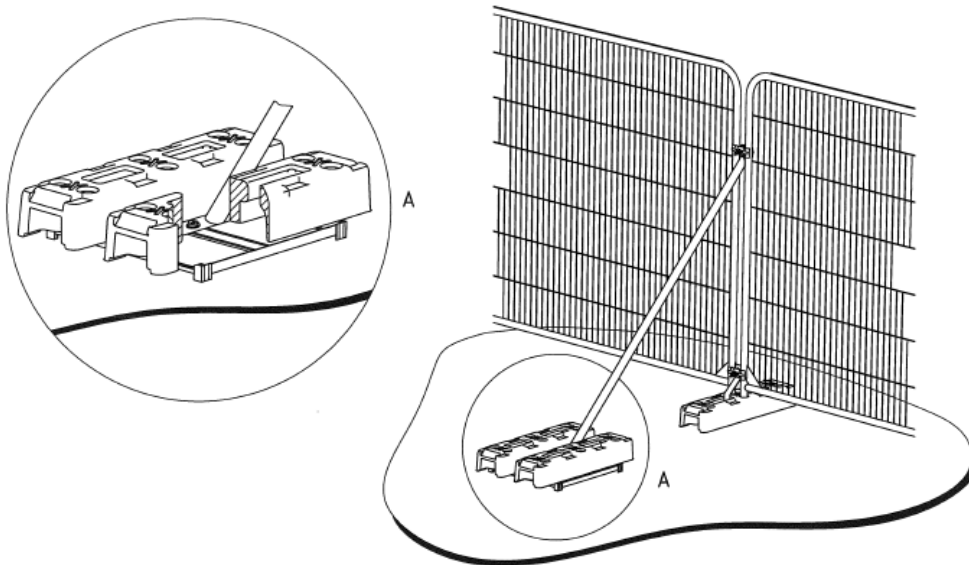
Drawn by: CD **Checked by:** LW



Appendix 5: Tree Protection Fencing Specification



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray



Appendix 6: Example Protective Fencing Sign





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