



Landscape

Chartered Landscape Architects

TREE SURVEY REPORT
PROPOSED RESIDENTIAL DEVELOPMENT
Rheda Cross, Frizington, CA26 3TA
EAST SITE

PFK PLANNING

Revision A 22.02.24

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1 INTRODUCTION

1.1 SCOPE OF REPORT

1.1.1 This report was commissioned to assess the arboricultural constraints of a potential residential development of a single dwelling at Rheda Cross estate land at Rheda Park approximately 1 mile south-east of Frizington, Cumbria. It will form part of a Planning to Copeland Borough Council.

1.1.2 Westwood Landscape, Chartered Landscape Architects (with LANTRA Professional Tree Inspector Certification) were appointed by PFK Planning on behalf of the client Dr McKay to carry out a survey and amenity value analysis of the trees on and adjacent to the proposed development site and appraise the potential impact of the development on retained trees.

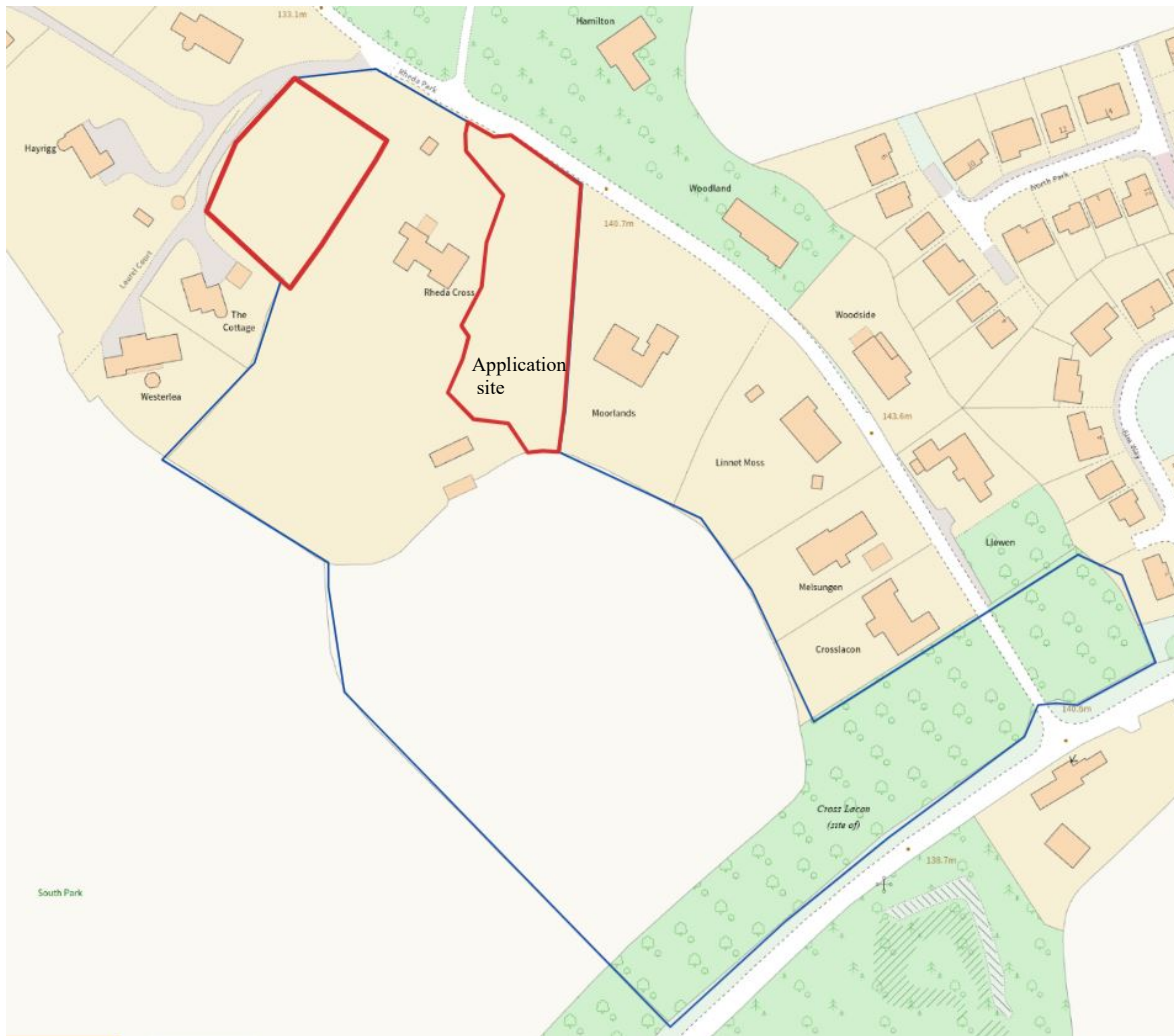
1.1.3. The surveyors were Bruce Walker BSc(Hons) MPhil CMLI and James England NDF BSc(Hons) For Mic For and the survey work was carried out in January 2023.

1.1.4. The proposed development layout is shown on Gray Associates Plan number D01-1 dated 10.12.20 which indicates preliminary rather than detailed layout.

1.1.5. The proposed development will have a single access drive from the existing estate access road.

1.1.6. Rheda Park comprises the estate of the former Rheda Mansion (now demolished) but retains features from the former estate landscaping including many trees. Rheda Cross is a 1960's bungalow built on a large plot in the centre of Rheda Park. The application site is situated on the former Rose Garden of the estate. The site is currently an area of grass clearing surrounded by trees and is partially screened from the estate road. It is separated from Rheda Cross by a low wall, shrubs and trees as indicated in the aerial photograph below. The application site is edged red to the east of Rheda Cross and there is a separate application being made on the site to the west which is also edged red.





1.2 METHODOLOGY

1.2.1. The survey data and tree constraints assessment were recorded in the standard schedule format required by the Local Planning Authority. Survey work is in accordance with BS5837 2012 Trees in Relation to Design, Demolition and Construction. Direct and indirect constraints on trees and hedges within and adjacent to the site will be assessed and both above and below ground impact considered.

1.2.2. Tree height was recorded with a Leica Disto D810 digital laser measure to record distance to the tree base and to automatically calculate height.

1.2.3. Crown height and spread was recorded with a Leica Disto D810 digital laser measure. Trunk circumference is measured by tape at 1.5m above ground level.

1.2.4. Below ground constraints are influenced by the RPA and are determined in line with the recommendations set out in section 4.6 of BS 5837:2012. The Root Protection Area (RPA) radius is calculated as stem diameter (d.b.h.) x 12. The RPA for multi-stemmed trees is calculated from the diameter of the individual stems rather than the circumference above the root flare (recent change in the April 2012 update to the BS).

The combined stem diameter for trees with 2-5 stems is calculated using the formula '*square root of the sum of individual diameters squared*'. For more than 5 stems a mean value is used. Trunk lean was measured with a clinometer and spirit level. Note that the RPA is recorded as a circle on the tree constraints plan in accordance with the BS but the actual spread of roots on site may vary significantly due to level changes, barriers and site conditions.

1.2.5. The walkover survey involved inspection and measurement of above ground parts of the trees only as required by the brief. No trial excavations, soil samples or tree testing was carried out. More detailed investigations may be required to appraise the potential arboricultural impact prior to the construction phase of the project.

1.2.4. The Tree Schedule records all the data required in British Standard BS5837: 2012 Trees in Relation to Construction. The criteria used is as follows:

Classification Criteria

Information on the trees is provided in the Tree Tabular Data as follows:

- Species Age Class:-

RP: Recently planted trees – up to approximately 5 years old.

Y: Young – established tree up to one third the expected ultimate height

EM: Early Mature (Semi-mature) – between one third and two-thirds the expected ultimate height. Growth rate still increasing.

YM: Young Mature (Semi-mature) – Growth rate stabilises, although tree has not obtained full potential stature.

M: Mature – full stature achieved, more or less full height, but still increasing in girth.

NOTE: The Young Mature and Mature period may account for approximately half the trees' life span.

LM: Late Mature (over mature) – Crown may begin to decline. Annual increment declines or slows down.

Intermediate classifications can be used where trees do not fall clearly within an age class.

- Diameter at Breast Height – (dbh. measured in centimetres at approx 1.5m)
- Height – (Approximate height measured in metres)
- Height of Main Fork – The height of top of main stem.
- Height of Crown – The height of the crown (to general lowest point above ground level) where appropriate.
- Condition - A general Classification of Condition: For example, Good; Fair; Poor; Dead; Dangerous, followed by information regarding condition or any other comments regarded as relevant.
- Recommendations - Action recommended in the interests of safety and in accordance with good arboricultural practice.
- Physiological Condition – Overall appraisal of the trees health / biological condition together with any relevant comments e.g. pests and diseases. Ratings: Good, Fair, Poor, Dead.
- Structural Condition – Overall appraisal of the trees structural condition together with any relevant comments e.g. dead, damaged branches. Ratings: Good, Fair, Poor, Dead. Action and Comments (in the context of proposed development).

- Recommendations – action required to facilitate the development, for safety or future health of the tree.

1.2.5. The tree quality assessment follows the following scale based on arboricultural qualities, landscape qualities and cultural values including conservation:

Trees unsuitable for retention

Category U

Trees in a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years and any existing value will be lost within that period. These trees should be removed for sound arboricultural reasons. Note Category U trees can have existing or potential conservation value which might be desirable to preserve if this does not impose an unacceptable risk. Habitat reinstatement or protection may be appropriate for species such as bats. E.g. installation of bat boxes, or leaving as a safe structure of no arboricultural value, but very good for invertebrates, owls, woodpeckers etc.

Examples of trees in this category include:

- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse. Includes those that will be exposed following removal of other category U trees, because their sudden exposure increases risk of failure.
- Trees that are dead or are showing signs of irreversible, immediate decline.
- Trees infected with pathogens that threaten the health or safety of other trees nearby.
- Very low value trees restricting the growth of specimens of better quality.

Trees to be considered for retention

Category A

Trees of high quality and value with an estimated remaining life expectancy and substantial contribution of at least 40 years. They be good examples of the species (rare or unusual) or essential components of groups, or of formal or semi-formal arboricultural features. Trees, groups or woodlands which provide a definite screening or softening effect to the locality (views into or out of the site), or those of particular visual importance and high amenity value. These may include trees, groups or woodlands of significant conservation, historical or cultural value.

Category B

Trees of moderate quality and value with an estimated remaining life expectancy and substantial contribution of at least 20 years. They may not achieve Category A rating due to impaired condition from which they may recover. The tree condition, arboricultural, ecological habitat, landscape and amenity value will be lower than Category A trees but higher than Category C trees.

Category C

Trees of low quality and value with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm. Trees in a suitable condition to be retained until they mature or improve (if damaged, diseased, misshapen, etc) or until other trees are established. The tree condition, arboricultural, ecological habitat,

landscape and amenity value will be lower than Category A and B trees. Removal of Category C trees to accommodate a development is often considered acceptable as replacements trees can achieve the same level of landscape and amenity value quite quickly. Small trees below 150cm girth could be re-located.

2.0 SURVEY RESULTS

2.1. LEGISLATIVE PROTECTION

- 2.1.1. The Town and Country Planning (Trees) Regulations 1999 set out the scope of tree preservation orders and also the scope of the protection afforded to trees in Conservation Areas.
- 2.1.2. There are no Tree Preservation Orders affecting the site. The site is not within a Conservation Area.
- 2.1.3. There is a Scheduled Ancient Monument approximately 50m to the south of Rheda Cross. This is a Medieval Cross called Lacon Cross and the impact of the existing and proposed trees on its setting must be carefully considered.
- 2.1.4. Statutory wildlife obligations must be considered including: The Wildlife and Countryside Act 1981 as amended, the Countryside and rights of Way Act 2000 and the Conservation of Habitats and Species Regulations 2017. These regulations protect all wild birds and make it an offence to intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird. Bats are protected under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 making it an offence to damage or destroy a roost site even if unoccupied.

2.2. SPECIES COMPOSITION AND CONDITION

- 2.2.1 The trees surveyed comprise Ash, Sycamore, Silver Birch, Beech Yew, Holly, Oak, Elm, Leyland Cypress and Holme Oak with some Willow. The tree groups comprise largely Laurel, Yew and Leyland Cypress. These are very common mostly native species.
- 2.2.2. There were no unique species or specimens recorded. No special characteristics or protected or rare species were noted in the shrub or ground flora although no detailed botanical survey was carried out.

2.3. DIRECT IMPACT

- 2.3.1. The removal of 1 Category 'U' tree is recommended for arboriculture and safety reasons as identified on the Tree Mitigation Plan L03. No trees will be removed to accommodate the development.

3. LANDSCAPE AND AMENITY VALUE

3.1 The trees surveyed range from low value category 'C' trees to high quality Category 'A' trees (tree T503 Beech and T513 Holme Oak). The Category 'U' tree is of low

landscape and amenity value, the Category 'C' trees are of low-moderate value and the Category 'A' trees are of moderate- high value. Collectively the trees contribute strongly to the historic estate character and are considered to have moderate to high landscape and amenity value.

3.2. We recommend removal of the Category 'U' tree T486 Elm which is dead. Its loss will have a negligible impact on the landscape and amenity value as the wider tree group will remain intact with retained trees. The replacement trees proposed will more than compensate for the loss.

3.3. The areas of potential conflict with retained trees are at the proposed access road where Category 'B' and 'C' trees T488, and T489 to accommodate the proposed access drive which impedes within the RPA's. Relocating the proposed further to the east will avoid potential root damage. Refer to the Tree Mitigation Plan L03: the tree protection fence position identifies the proposed Construction Phase access and this can be the permanent access also.

3.4. The proposed house will impede the RPA of trees T527 and T3 slightly but as this is only the periphery of the RPA and a very small proportion of it this is not of great concern for the tree health provided sensitive construction methodology is adopted to protect any root encountered.

3.5. Refer to the Tree Schedule in Appendix 1 for further detailed comments.

4.0 ARBORICULTURE METHOD STATEMENT FOR PROTECTION OF TREES

Refer to Appendices

4.1 Refer to Tree Mitigation Plan L03 for location of trees to be retained and extent of Root Protection Areas (RPA's) which form a Construction Exclusion Zone (CEZ).

4.2 Protective fencing to be erected prior to the commencement of any other work to ensure that the trees are protected in accordance with British Standard 5837:2012 Trees in Relation to Construction. Such measures shall be retained for the duration of any approved works. Refer to detailed fencing drawing below in the Appendix.

4.3. Protective fencing must remain intact and in place, and protection procedures must be adhered to throughout the construction period. Removal of protective fencing should be the last job carried out on completion of the project.

4.4. No mechanical traffic should be allowed above a tree's root zone, since this could cause compaction and damage roots. No excavations of any kind to take place within the root zone area of protected trees. No materials should be stored within the RPA or any ground level increase. No re-fuelling or any other activity which may lead to chemical spillage should be carried out within or close to the RPA. No fires to be lit within the RPA.

4.5. In certain circumstances it is possible to accommodate construction activities within the RPA distances recommended by the B.S. 5837:2012 calculation. This is

unavoidable for the proposed work but this will not necessarily lead to tree damage if this methodology is carefully followed. Intrusive work within the RPA should be restricted to one side of the tree and the protection zone extended on the other sides to compensate.

4.6. Pre-construction Stage

4.6.1. Prestart site meeting involving Architect, Contractor and potentially client and LPA representative if requested. Timing and implementation of the agreed Tree Works and installation of Tree protection measures.

4.6.2. Clearance of the required tree groups and pruning back canopies of retained trees which may be impacted by the development to crown raise to clear vehicular traffic.

4.6.3. Tree protection fence installed and LPA informed and given opportunity to inspect.

4.7. Development Stage

4.7.1. Contractors RAMS assessed by Architect and Landscape Architect/ Arboricultural Consultant.

4.7.2. Minimal dig construction method to be followed where work is unavoidable within the RPA of retained trees:

- Where construction traffic within the RPA at the site access routes is unavoidable a temporary protective track should be formed with interlocking panels (I-track system or similar) over a compressible layer of 200mm bark mulch or chipped wood. A more lightweight solution of timber boards will be suitable for pedestrian only routes. The boards must be suitable to spread the anticipated load such as heavy-duty scaffold boards. For more permanent surface solutions within the RPA's a cellular confinement system of gravel-filled rigid cells of total construction depth of 150mm should be used to ensure unimpeded water and air penetration to the tree roots. These can be edge edged with treated timber (32 x 200mm), supported in place with 50mm x 50mm treated wooden pegs driven into firm ground rather than a concrete kerb requiring excavation for strip foundation which could sever roots. These requirements must be verified by the Engineer following appropriate CBR tests and design.
- Any existing vegetation over the area of the construction should be treated with a proprietary translocated Glyphosate based herbicide such as 'Roundup' and cut down to ground level. Remove vegetation to 25mm maximum depth.
- Any minor irregularities, lumps or hollows in the ground level will be evened out or filled in with topsoil using hand tools. A geotextile separation membrane such as Terram will be spread out over the no-dig access routes where these lie within the tree RPA's.
- Excavation of pits for foundations and services should be carried out carefully by hand or with an air spade if within the RPA's. Any exposed tree roots should be re-

covered with topsoil as soon as possible with the tree pit backfilling or wrapped in hessian if they remain exposed. This will prevent root damage from drying out or sudden changes in temperature. The wraps should be removed before backfilling. Roots smaller than 25mm in diameter which are obstructing the work can be pruned with bypass secateurs or a handsaw except where they occur in clumps when the Arboricultural consultant must be consulted. Trial excavations using an air spade prior to detailed foundation design will inform the positioning of the excavations to avoid large roots.

4.7.3. Site inspections by the Landscape Architect/ Arboricultural Consultant is advisable as required during the works, especially if tree roots are encountered.

4.7.4. Removal of Protective Fencing once the main construction work is completed to allow re-surfacing and planting work within the CEZ.

Contacts:

Architect:

Contact: Gray Associates

Landscape Architect/ Arboriculture Consultant:

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5.0 TREE MANAGEMENT WORK

Refer to Tree Schedule in Appendix 1

5.1. Following removal of the identified Category 'U' trees and the Category 'C' trees in conflict with the access drive, management of the retained trees is recommended to remove deadwood and balance the crowns.

5.2. Retained trees T527 and T3 may require some crown raising work to accommodate the proposed house construction.

6. PROPOSED PLANTING

6.1 The proposed Landscape Plan includes a landscape strategy which will compensate for the trees to be cleared and to enhance the diversity of species and local biodiversity. The proposed planting includes further native trees to add to the age class and species diversity of the estate. The objective is to maintain the integrity of the woodland estate setting long term and to create an attractive woodland garden around the new house.

6.2. There are opportunities to establish wildflower margins to the woodland boundary to further enhance biodiversity.

6.3 The natural tree screen to the north boundary between the estate access road and the development site should be retained and enhanced to improve low level screening and incorporate an evergreen hedge to define the boundary and improve the winter cover. Similarly the tree screen to the east boundary should be enhanced to protect the amenity of the adjacent residents.

6.4. The species rich woodland flora and woodland planting will enhance the local biodiversity.

7.0 ARBORICULTURAL IMPLICATION ASSESSMENT AND MITIGATION DESIGN

7.1 The Arboricultural Implication Assessment considers how a proposed development and its associated trees and hedges will co-exist and interact in the present and future. An AIA is a document required by Planning Authorities to enable them to satisfy themselves that factors such as root protection, changes in levels, installation of services, material storage, etc have been duly considered during the development layout and that these items will not prove detrimental to the retained trees and hedges. It will address the combined effect of potential multiple site operations and will assess future issues such as the long- term effects of changing a surface level or the future requirement to prune or remove trees and hedges because they cast excessive shade or encroach upon property. The AIA considers constraints posed above and below ground and makes recommendations to mitigate impacts associated with development sites and retained trees.

7.2. The following factors were assessed:

7.2.1. Levels: Whilst no detailed levels plans were available we assume that the proposed levels for the house, access drive and parking area will generally follow existing levels with the foundations designed to minimise the grading required. Minor grading to achieve uniform gradients will be required for the building foundations and vehicle areas. The areas of potential conflict with trees are at the proposed access drive where trees T488 and T489 will be affected. Care should be taken when excavating for the drive and parking area construction and heavy-duty timber edging secured with driven pegs and a permeable surface is recommended here rather than a concrete kerb and foundation. Relocation of the drive further eastwards is recommended to avoid the RPA's. If the drive position cannot clear the RPA area then the construction methodology must be adapted to protect the tree roots. This will involve careful excavation by hand or with an air spade to identify and protect any significant roots encountered. Where the house impedes on the RPA of tree T527 the foundation design may have to be adapted to bridge over retained roots.

7.2.2. Services: There was no service information available for assessment but the routes should be sensitively design to avoid tree root damage and follow the service corridors associated with the proposed access drive.

7.2.3. Water demand: The proposals are not likely to significantly alter the supply to or requirement of the existing trees provided that the earthworks are sensitively designed to minimise grading.

7.2.4. Light: There will be some restricted light to the windows of the proposed house due to the proximity to the retained trees, particularly to the west, east and north elevations. This is considered to be an acceptable level of light restriction as the south elevation has an open aspect and the mature woodland landscape setting is clearly evident for the potential purchaser and an important aspect of the landscape character. The risk of future owners demanding further clearance of trees to improve light penetration can be controlled by the Planning Application process.

7.2.5. Canopy obstruction: No conflict is envisaged but minor crown raising may be beneficial to increase clearance and avoid damage at the construction access route and working areas close to the retained trees, particularly trees T527 and T3 close to the house. The tree protection

fence alignment shown on L03 Tree Mitigation Plan has been designed to allow minimal width for the access route (3m) and working area and protect most of the RPA and canopy areas.

7.2.6. Compaction of tree RPA: Provided the root protection fence is installed as recommended and the temporary access route protection is installed root damage from compaction within the RPA's will be avoided.

7.2.7. Storage of materials/ Compound: No material or temporary compound activities will be within the fenced off Construction Exclusion Zones. This will avoid compression or spillage damage to tree roots.

8.0 SUMMARY COMMENTS

8.1. The proposal is for a residential development residential for a single dwelling at Rheda Cross estate land at Rheda Park approximately 1 mile south-east of Frizington, Cumbria.

8.2. Rheda Park comprises the estate of the former Rheda Mansion (now demolished) but retains features from the former estate landscaping including many trees. Rheda Cross is a 1960's bungalow built on a large plot in the centre of Rheda Park.

8.3. The trees surveyed range from low value category 'C' trees to high quality Category 'A' trees. Collectively the trees contribute strongly to the historic estate character and are considered to have moderate to high landscape and amenity value. It is recommended that one Category 'U' tree is removed for arboriculture reasons. No tree removal is required to accommodate the proposed development.

8.4. The tree to be removed is of negligible landscape and amenity value and its loss will lead to a negligible reduction in the overall landscape and the integrity of the woodland setting will be maintained as sufficient trees will be retained. Once the replacement trees are established as part of the mitigation measures the loss will be fully compensated for.

8.5. A landscape strategy as indicated on the Landscape Plan L01 will include native tree planting which will fully compensate for the tree to be cleared and any previous recent tree clearance and will enhance the diversity of species and local biodiversity. There will also be ornamental trees, hedges and shrubs within the proposed garden.

8.6. The areas of potential conflict with trees are at the proposed access drive where trees T488 and T489 will be affected. Care should be taken when excavating for the drive and parking area construction and heavy-duty timber edging secured with driven pegs and a permeable surface is recommended here rather than a concrete kerb and foundation. Relocation of the drive further eastwards is recommended to avoid the RPA's. If the drive position cannot clear the RPA area then the construction methodology must be adapted to protect the tree roots. This will involve careful excavation by hand or with an air spade to identify and protect any significant roots encountered. Where the house impedes on the RPA of tree T527 the foundation design may have to be adapted to bridge over retained roots.

APPENDIX 1
Tree Schedule

APPENDIX 2
Tree Survey and Constraints Plan L02 (and version on Aerial Photo)
Tree Mitigation Plan L03

APPENDIX 3

Photographs



1. Group G1 Laurels at the east boundary.



2. Tree T1 Goat Willow at the boundary.



3. Tree T2 Sycamore



4. Tree T484 Elm.



5. T486 Elm which is dead.



6. Tree T487 Elm



7. Trees 488 Ash and T489 Elm.



8. Trees 495 Silver Birch and T496 Holly.



9. Tree T497 Elm.



10. Trees T505, T506, T503, T502, T501 and T500 (left to right)



11. Tree T512 Elm



12. Tree T513 a fine Holme Oak specimen.



13. Trees T530 (front), T529 Sycamore (left) and T530 Oak (right).



14. Tree T544 Elm.



15. Tree T560 Sycamore



16. Tree group T577 Leyland Cypress



17. Tree group T577 Leyland Cypress



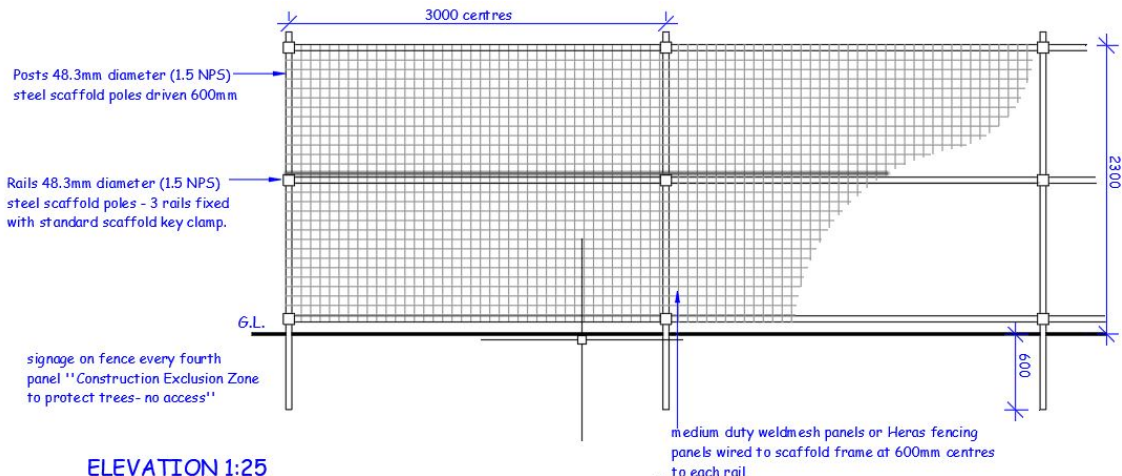
18. Tree T588 Leyland Cypress



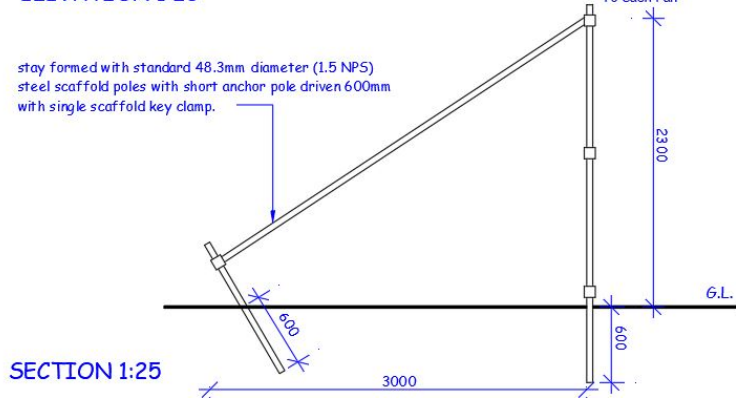
19. Trees T606 and T605

APPENDIX 4

Tree Protection Fence Detail



ELEVATION 1:25



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