



**Tree Survey,
Impact Appraisal
& Tree Protection
Method Statement**

**36 Hockley Road
Rayleigh
Essex**

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**MCA
CHARTERED
LANDSCAPE
ARCHITECTS
LIMITED**

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MCA

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Mark Cooper Associates (MCA) is a Chartered Landscape Architects practice registered with *The Landscape Institute* and *The Institute of Environmental Management and Assessment*. The practice is based in offices at 138 The Moors, Kidlington, Oxford OX5 2AG.

MCA currently undertakes landscape planning and design for business and residential developments and consultancy related to the protection and restoration of trees and habitats for a range of commercial and public sector clients.

The practice principal, Mark Cooper, is a Chartered Landscape Architect and has twenty years experience in both public and private sector landscape design and implementation. Previous appointments as Landscape Architect include periods with Liverpool City Council and The London Borough of Tower Hamlets followed by fifteen years in private practice. He has regularly undertaken tree surveys and impact assessments in relation to trees and has prepared proofs of evidence and appeared at Public Inquiries as expert witness in relation to existing trees and landscape matters.

Mark Cooper holds a Degree and a Post Graduate Diploma in Landscape Architecture and has been a Member of *The Landscape Institute* since 1987. He is also an Affiliate Member of *The Arboricultural Association* and of *The Institute of Environmental Management and Assessment*.

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Introduction

MCA Chartered Landscape Architects were appointed in December 2004 to undertake a survey of existing trees in the grounds of 36 Hockley Road, Rayleigh, Essex.

The survey was undertaken by Mark Cooper on 18th January 2004 in accordance with BS5837:1991 'Trees in relation to construction'.

The following survey report includes an appraisal of the likely impact of the development on existing trees and a method statement for the protection of existing trees during construction works.

This report should be read in conjunction with drawing number MCA 1305/01 'Tree Protection Details and Tree Replanting'.

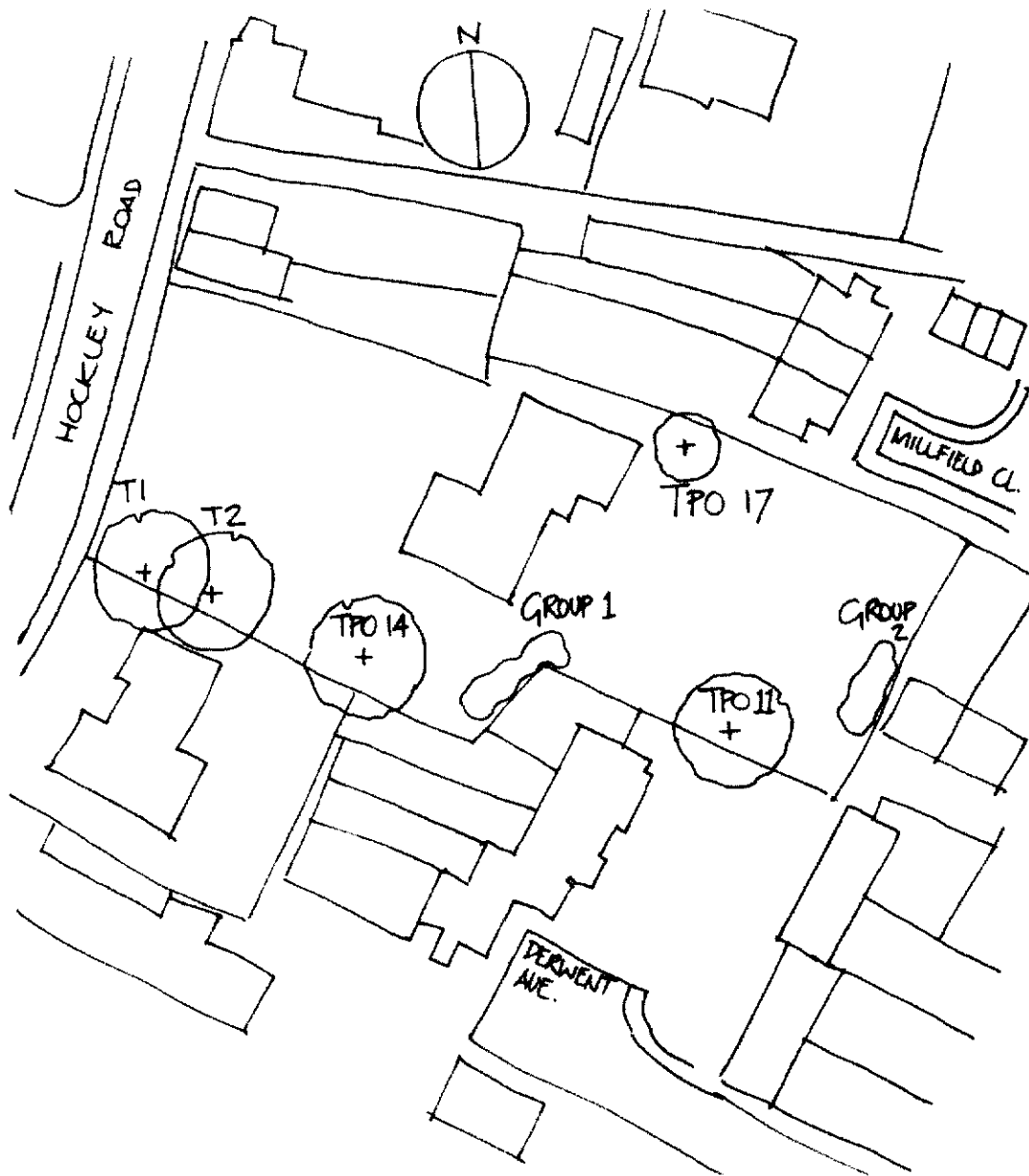
Site Appraisal

The site is occupied by a large single storey residential building with outbuildings and gardens. There are five existing mature trees on the site and a number of Cypresses on boundaries.

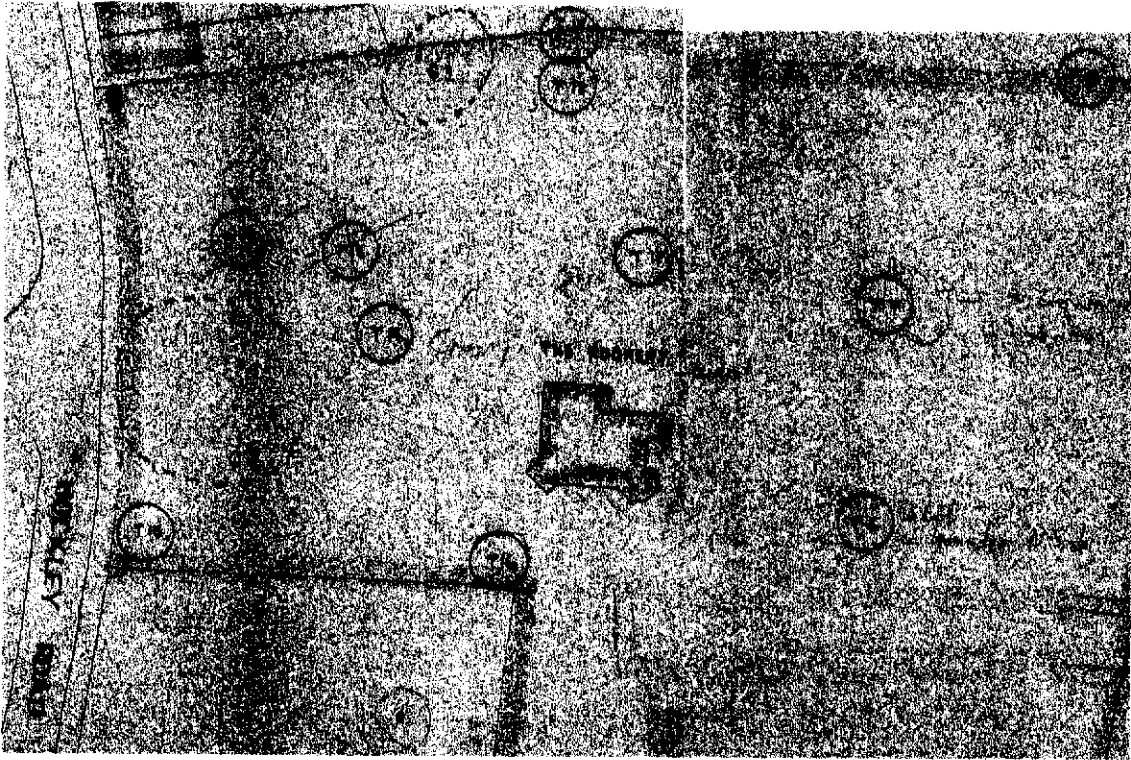
The site was part of the grounds of a larger house and in 1973 a Tree Preservation Order was made by Essex County Council number 51/73. Some of the trees on site are still identifiable as references of that order.

Impact Appraisal of the Development on Existing Trees

An appraisal of the impact of the development on each tree is on pages 13 and 14.



Tree Survey Key Plan
(TPO Numbers from Essex County Council order 51/73)



Tree Preservation Order 51/73 Essex County Council

The following tree survey was carried out by Mark Cooper within the guidelines set by the Arboricultural Association and British Standard BS 5837:1991 'Trees in relation to construction'.

TREE CATEGORIES - BS 5837:1991 (abbreviated).

Category A:

- 1) Vigorous healthy trees of good form.
- 2) Healthy young trees of good form.
- 3) Trees for screening or of particular visual importance to the locality.
- 4) Trees of historical value or good specimens of rare species.

Category B:

- 1) Trees excluded from Category A due to imperfections such as imbalance or damage.
- 2) Immature trees with Category A potential.

Category C:

- 1) Trees in adequate but impaired condition.
- 2) Immature trees or trees of no particular merit.

Category D:

- 1) Dead, diseased or dangerous trees which should be felled.

SURVEY TABLE LEGEND

TREE NO	=	Tree Reference Number as shown on accompanying plan.
SPECIES	=	Common English name followed by botanical name in brackets.
TRUNK DIAMETER=		Diameter of trunk at 1.5m height in metres. Trunks dividing below 1.5m are shown as multiple dimensions.
HEIGHT	=	Approximate height in metres estimated by triangulation where possible.
CROWN SPREAD	=	Approximate N,E,S & W radius of canopy in metres.
AGE	=	Indicated as follows; Young tree Middle Aged Tree Mature Tree Over Mature Tree
VIGOUR		Vigour indicated as follows; Normal Vigour Low Vigour
CATEGORY	=	Tree Category according to BS5837:1991.
NOTES	=	Particular features, condition or location of tree.
SURGERY		Recommendations for surgery if appropriate.

GROUPS AND HEDGES

Groups of plants too small and numerous to be individually identified and hedges are described and assessed at the end of the survey.

TREE 1 – Sycamore (*Acer pseudoplatanus*)
Below left and right.

Trunk Dia. 0.65m Height 18m Crown Spread 7m radius into site.
Mature Tree Normal Vigour Category C

Notes: Assumed to have been part of Group 2 of the 1973 Tree Preservation Order. A self-seeded tree with characteristic acute forks and water ingress with potential internal decay.

Surgery: Tree has been pruned over adjacent property on south side and canopy should be rebalanced by reduction of the horizontal lower limbs on the North side to compensate including the removal of dead-wood and crossing branches.



Above – T1 Sycamore



Detail of principal fork.

TREE 2 – Sycamore (*Acer pseudoplatanus*)

Below left and right.

Trunk Dia. 0.70m Height 18m Crown Spread 5m radius into site.
Mature Tree Normal Vigour Category C

Notes: Assumed to have been part of Group 2 of the 1973 Tree Preservation Order. A self-seeded tree with a short bole and ground level fork and secondary fork at 1m height. Signs of water ingress with potential internal decay. Included bark in the acute forks creates a weak joint with the possibility of collapse in high winds or with age.

Surgery: Tree has been pruned over adjacent property on south side and canopy should be rebalanced by reduction on the North side to compensate including the removal of dead-wood and crossing branches.



Above – T21 Sycamore

Detail of trunk.

TPO TREE No 14 – Wild Cherry (*Prunus avium*)
Below left and right.

Trunk Dia. 0.65m Height 15m Crown Spread 7m radius.
Mature Tree Normal Vigour Category B

Notes: Assumed to have been tree number T14 of the 1973 Tree Preservation Order. A very attractive specimen of a native tree, unusually large and stout trunked. Species is prone to heartwood rot and there is some internal decay in the trunk.

Surgery: Limited to removal of dead-wood and crossing branches.



Above – TPO14 Wild Cherry

Detail of trunk.

**TPO TREE No 11 – Sycamore (*Acer platanoides*)
Below.**

Trunk Dia. 0.65m Height 20m Crown Spread 7m radius.
Mature Tree Normal Vigour Category B

Notes: Assumed to have been tree number T11 of the 1973 Tree Preservation Order. A mature tree with characteristic Sycamore bark which only long-lived specimens appear to achieve. The trunk has a pronounced lean to the south over the adjacent parking area but appears currently sound.

Surgery: Remove basal growth, dead-wood and crossing branches.



TPO 11 Sycamore

**TPO TREE No 17 – Sycamore (*Acer platanoides*)
Below left and right.**

Trunk Dia. 0.45m Height 90m Crown Spread 7m radius.
Mature Tree Normal Vigour Category C

Notes: Assumed to have been tree number T17 of the 1973 Tree Preservation Order. A mature tree which has regrown from heavy pruning which probably occurred at the time of construction of the bungalow. The resulting canopy is compact with angular awkward limbs. One open wound has admitted water into the top of the trunk (see below right) and may have caused extensive decay.

Surgery: Remove dead-wood and crossing branches.



Above – TPO17 Sycamore



Detail of trunk.

Groups 1 and 2 on the Tree Survey key Plan on page 3 consist of various ornamental Cypresses. Although of screen value they are of limited merit and are not included in the Tree Preservation Order.



Above – Group 1



Above – Group 2

Impact Appraisal

(Refer to drawing number MCA 1305/01 'Tree Protection Details and Tree Replanting' for an illustration of the proposed layout.

Tree 1 – Sycamore (*Acer pseudoplatanus*)

BS5837:1991 'Trees in relation to construction' Table 1 requires a minimum protected radius of 6m around Tree 1 although the proposals indicate a footpath to be installed within 1m of the base of the tree. However the method of no-dig construction described within this report will avoid damage to the roots of this tree and ensure its survival.

Tree 2 – Sycamore (*Acer pseudoplatanus*)

As above, BS5837:1991 'Trees in relation to construction' Table 1 requires a minimum protected radius of 6m around Tree 2 although the proposals indicate a footpath and a refuse/cycle store to be installed within 1m of the base of the tree. With regard to the footpath, the method of no-dig construction described within this report will avoid damage to the roots of this tree and ensure its survival.

The design of the of the refuse/cycle store should reflect its location under the canopy of the tree and should allow for minimum excavation and ground disturbance during construction. Ideally the structure would consist of a rectangle of paving constructed in accordance with the following method statement and screened by timber fencing. If foundations are required they should be piled or hand-dug under supervision to avoid root damage.

TPO 14 – Wild Cherry (*Prunus avium*)

BS5837:1991 'Trees in relation to construction' Table 1 requires a minimum protected radius of 6m around Tree TPO 14 but given the tree's important character and maturity the tree protection drawing provides a protected zone of 8m radius allowing a 2m wide construction corridor along the face of the building.

TPO 11 – Sycamore (*Acer pseudoplatanus*)

BS5837:1991 'Trees in relation to construction' Table 1 requires a minimum protected radius of 6m around Tree TPO 11. This radius is achieved for at least 2/3 of the rooting area within the site although the protected zone is reduced to approximately 3m radius adjacent to the proposed new building. The fenced zone encompasses two smaller young trees adjacent to TPO 11.

TPO 17 – Sycamore (*Acer pseudoplatanus*)

BS5837:1991 'Trees in relation to construction' Table 1 requires a minimum protected radius of 6m around Tree TPO 17. However due to its location close to the existing bungalow this tree has been severely compromised by pruning and shows evidence of extensive decay. A protected zone is provide for this tree with a radius of approximately 4m reducing to 2m adjacent to the proposed access road.

GROUP 1

A number of the Cypress trees making up group 1 may be retained to maintain boundary screening.

GROUP 2

The three Cypresses in Group 3 will be removed in conjunction with the development.

INDIVIDUAL CYPRESSES

3 individual small Cypresses of garden interest only will be removed in conjunction with the development.

General Notes on Tree Roots

Root Function

Support of the trunk, branches and leaves.

Keeping the tree upright and stable in the soil.

Take up of water and nutrients.

Storage of food reserves.

Production of substances controlling growth.

Root Architecture and Distribution.

The bulk of root growth runs parallel with the soil surface and 95% of roots are found in the upper 600mm of soil. This 'root-plate' supports the tree by the combined weight of the roots and the soil bound between them. 'Tap-roots' are uncommon on mature trees and probably only survive for the first few years of a tree's life.

Root penetration to 4-5m may rarely occur in dry areas where roots seek water at lower levels.

Tree root systems exploit channels of low-density, adequately oxygenated soil. Consequently on urban sites root spread occurs as irregular wedges of growth between buildings or pavements.

Roots spread under paved surfaces due to their initial attraction to the relatively high humidity of the soil underneath the surface. However growth is restricted to the interface between the road base and the surface due to soil compaction. The small quantity of water present is quickly absorbed by the roots

Method Statement – Protection of Trees during Demolition and Construction

The contents and requirements of this Method Statement form part of the conditions to the planning permission for this site. The site manager will be briefed at the commencement of works on site as to the methods contained herein and will be expected to similarly brief all other staff involved in operations with the potential to affect the condition of protected trees. Failure to comply with the requirements of this method statement may result in a breach of condition notice and/or the suspension of work on site.

Demolition and construction works in areas identified in this method statement as being in close proximity to the retained trees and their rooting areas shall be undertaken in accordance with this method statement.

Supervision and Inspection of Works

A site meeting with the landscape architect will be arranged at the commencement of all works within the fenced tree protection zones to brief the staff involved. The landscape architect will periodically inspect works as they proceed and will circulate reports on such inspections to the site manager and the local authority. The site manager and/or the landscape architect will also invite inspections by the local authority tree and/or landscape officers during the execution of such works.

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Mobile Telephone	07831 248130

Local Authority Contact:

Mr Patrick McKenna – Rochford Council 01702 546366.

Protection of Existing Trees During Demolition and Construction.

All tree protection measures are to comply with this Method Statement and are generally to comply with BS5837:1991 'Trees in relation to construction'.

Tree Protection

Existing trees which are to be retained will be protected, prior to the commencement of any site works and for the duration of the construction period, by means of a 2.0m high Heras fence securely fixed to a timber post and rail fence in the positions dictated by BS5837:1991.

Protective fencing is to be accurately set out and erected in accordance with the tree protection plan in advance of any other site operations. The fence shall be maintained thus for the full period of the contract.

Restrictions to works within the protected areas and/or within the outermost limit of the branch spread.

No vegetation, including the ground layer, shall be removed from within the fenced areas.

Existing soil levels within the protected area will not be changed and no stripping of topsoil or other excavation will be permitted.

Removal of existing structures or surfaces within the protected areas or within the radius of the Tree Protection Zone shall be undertaken with extreme care and under the supervision of the landscape architect.

No storage of materials, erection of temporary structures or routing of vehicular traffic will be permitted within the fenced areas.

Additional ground protection outside the fenced areas where approved works extend under canopies of retained trees.

1. A geotextile membrane laid on the undisturbed ground.
2. A minimum of 100mm thickness of sand spread over the geotextile membrane to even out undulations in the existing ground.
3. A double thickness of scaffolding boards laid on the sand. In the case of pedestrian traffic *only*, a single layer of boards will suffice.

On completion of the works, the boards, sand and geotextile membrane will be lifted and removed by hand.

New Underground Services

The layout of new underground services will avoid the protected areas and/or the areas within the outermost limit of the branch spread of retained trees.

Demolition Works close to Protected Trees

Demolition within the protected areas and/or within the outermost limit of the branch spread of any retained tree will be undertaken by manual digging or hand-operated machinery avoiding the use of any heavy wheeled or tracked vehicles. Structures will be broken up with hand-operated machinery and removed from the protected areas by manual digging and barrowing. No structures will be allowed to collapse into the protected areas.

Excavation of Foundations etc.

Excavation of footings and other heavy work in proximity to the protected zones of existing trees will be undertaken by machinery stationed outside the zones and ensuring that the swing of jibs or hydraulic arms does not bring the machinery into contact with the trees.

Exposed Roots

Supporting roots which are exposed during approved manual operations within the outermost branch spread of the retained trees will be immediately reburied in top-soil which shall be watered in to ensure a moist even cover around the roots.

Tree Pruning in relation to Demolition or Construction Works.

Any pruning or tree remedial works which is required to facilitate demolition or construction in accordance with the approved layout shall be inspected by the landscape architect and submitted in writing to the local authority for approval prior to action being taken on site. Approved pruning will be undertaken by a recognised tree surgeon in accordance with the schedule of works following a site briefing by the landscape architect.

General precautions outside protected areas

Oil, bitumen, cement or any material shall not be stacked or discharged within 10m of a tree. Any spillage of Oil, bitumen or cement within 10m of a tree must be removed by excavation and removal of contaminated soil.

Concrete mixing shall not be carried out within 10m of a tree.

Fires must not be lit within 20m of the limit of the crown spread and must be down-wind of the tree and continually supervised.

Existing trees shall not be used as anchorages for equipment and shall not have signs or cables attached to them.

Approved felling of existing trees shall be undertaken in accordance with BS 3998 'Recommendations for tree work' by an Arboricultural Association approved contractor in such a way as to avoid damage to existing preserved vegetation or trees.

No-Dig Pavement Construction for Footpaths Under Trees.

The purpose of this method statement is to propose a method of pavement construction which achieves the following;

- No excavation below existing ground levels to avoid root severance.
- Provision of a load spreading surface which avoids compaction of existing soil and resultant root damage.
- Provision of a surface which is permeable to air and water to maintain the ground conditions in the tree's rooting area.

Surface Construction

The existing surfacing will be removed by hand or manually operated machinery.

The subgrade or existing ground underneath the current surface construction will be left undisturbed and leveled as required with sand.

The edges of the footpath surface will be defined with timber board and stake edging to finish at pavement level. The change in level at the edges of the paved area will be concealed with imported fine loam topsoil spread and lightly consolidated to finish level with the paved surface and sloping gently to feather in smoothly with existing levels.

A geotextile fabric i.e. Polyfelt TS50 (Cooper Clarke 01204 862222) will then be laid over the prepared subgrade.

A 'Geoweb' with a cell height of 150mm will then be laid on the geotextile fabric and will be filled with granular material such as Type 1 aggregate.

Concrete Block Paving on a 50mm sand bed or other porous surfacing will then be laid to provide a permeable surface which will admit moisture and air to the rooting area of the trees..

All the above will be undertaken by lightweight equipment working from the new surface as it proceeds. No vehicles will be permitted on the unprotected sub-grade.

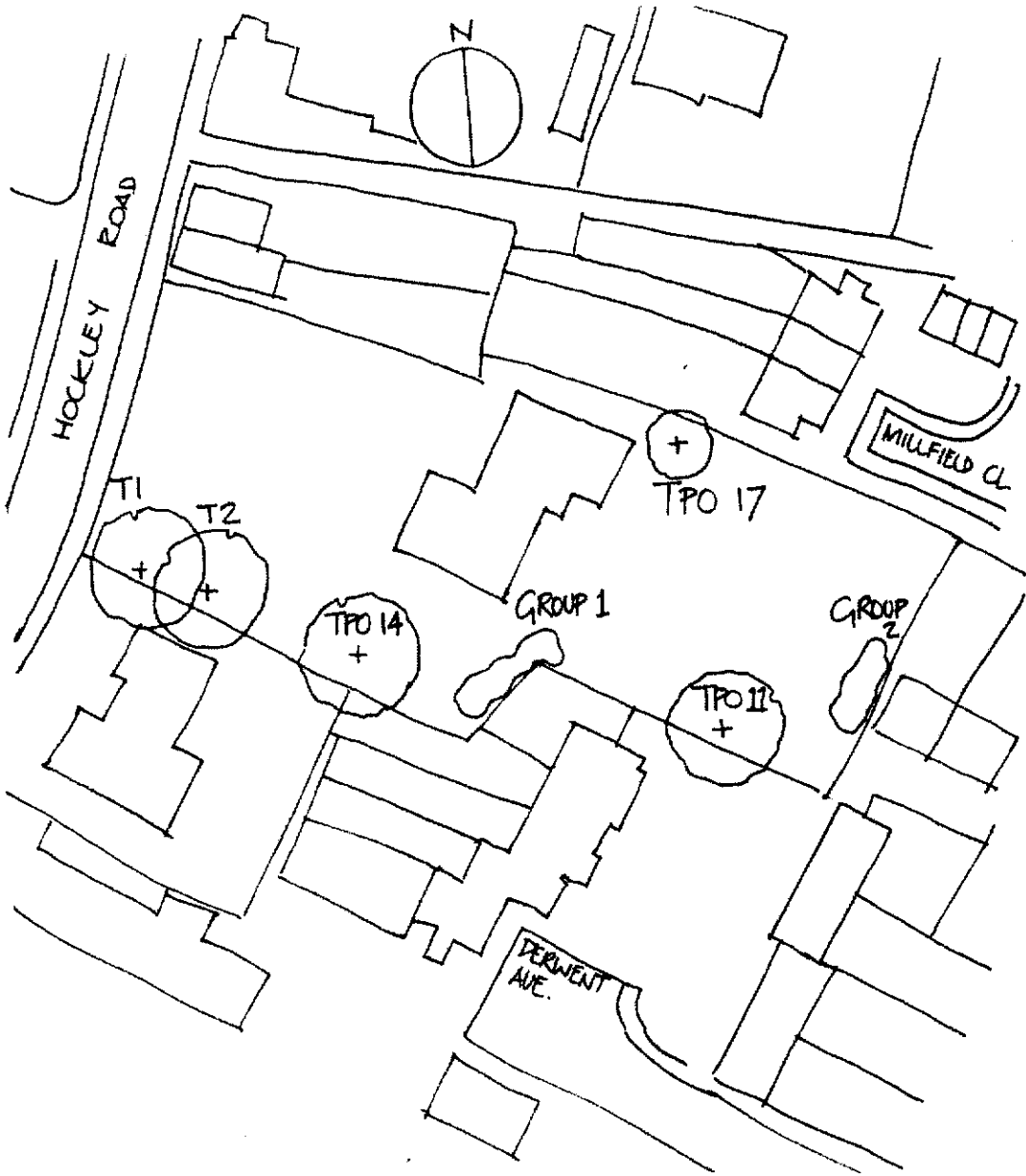
APPENDIX ONE –

A1 PLAN NUMBER MCA1305/01

'TREE PROTECTION DETAILS AND TREE REPLANTING'







Tree Survey Key Plan
(TPO Numbers from Essex County Council order 51/73)

