Formosa
Amenity Gardens

THE NEW GARDENS

MARK LUTYENS
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FORMOSA AMENITY GARDEN

An overview of the design of the new gardens

Since first shown at the Fun Day in 2012, the plans and other information contained in this booklet have been modified and adjusted following consultation with the residents and shareholders of Formosa Amenity Gardens. These current plans reflect the comments and suggestions I have received over the last year.

The new gardens will consist of a series of groves and island beds, an open and informal arrangement of flowering trees and mass plantings which, in the 18th century, would have been called a 'pleasure ground'.

Many of the existing trees and all the existing beds and borders will be retained and incorporated in the new design.

There will still be a large open area for events and larger groups but there will also be smaller, more intimate spaces for those wanting peace and quiet – the bonfire mound is retained

Views across the site will be filtered by layers of planting, and at a higher level by leafy canopy. All divisions within the gardens will be achieved using trees and shrubs - soft screening rather than say, walls or fences.

My design approach has been guided by three main principles:

- First, there is a pressing need to address the deteriorating condition of the perimeter trees – in particular, the pollarded plane trees – how they are managed and how to replace those that die, bearing in mind their close proximity and potential impact on the foundations of adjacent buildings.

- Secondly, that because the private gardens around the edge of the communal garden are relatively 'busy' with lots of colour and different styles, the new gardens in the centre will be much 'quieter'. The choice of plants – the 'palette' – will be restrained and the main flowering colour white and the leaf colour green

- And thirdly, that we will plant in such a way that the trees and shrubs are allowed to grow freely without the need for regular clipping and cutting back i.e. so that they grow as nature intended. This will reduce the amount of maintenance that is needed and increase benefits to wildlife; and generally look better.

The new gardens will be created as follows:

- **Planting**: All major new trees will be planted in Year 1. No major trees will be planted less than 15m from a building (green line on plans) and no new plantings will be less than 5m from any of the existing pollarded trees (red line on plan). All smaller trees and borders will be planted in Years 3-5.
- **Phase 1 felling (Years 2-5)**: Subject to local authority approval the existing pollarded plane trees will be felled. This first phase of felling will address those trees that have been assessed by the arboricultural consultant Simon Jones as being 'noticeably hazardous'. In total 22 trees will be felled over 4 years in this phase.
- **Phase 2 felling (Year 6 onwards)**: During this final phase the remaining pollarded plane trees will be felled. Because of their poor condition, Simon Jones has assessed that all these trees will need to be felled over the next 40 years. A provisional schedule of 3 trees every 3 years has been adopted in the plans contained in this document.

A description of the proposed planting in more:

Broadly speaking there are four levels or layers of planting:

- major trees of which there are 14no in addition to the existing 5no, such as: plane, tulip tree, Davidia and Gleditsia
- small flowering trees and large shrubs such as: crabapple, cherries, lilacs, magnolia, dogwoods and Acers
- a layer of shrub planting which will be predominantly evergreen and grow to a height of 2 metres. This will be the principal screening element, dividing areas and providing protection from the wind
- a ground cover layer which will carpet the ground, which will suppress weeds and provide horticultural interest and colour, a mix of evergreen and herbaceous perennials and bulbs

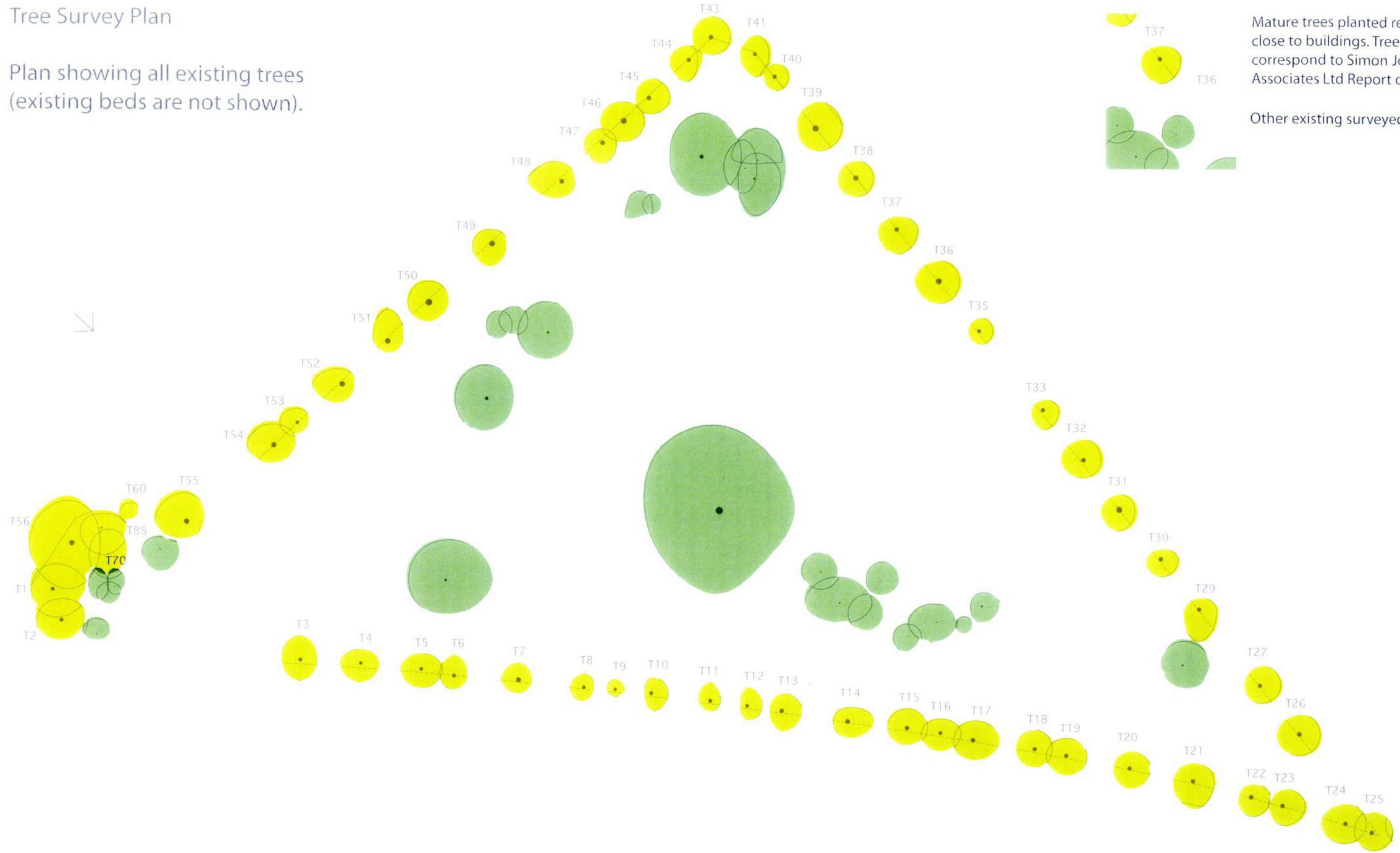
I am mindful of potential benefits to wildlife, song birds in particular, and wherever possible we will choose those plants with a high wildlife value.

Additional information: Also in this document I enclose some information relating to individual tree species, water demand and root zones.

Mark Lutyens
September 2015

Tree Survey Plan

Plan showing all existing trees (existing beds are not shown).



Mature trees planted relatively close to buildings. Tree numbers correspond to Simon Jones Associates Ltd Report on Trees

Other existing surveyed trees

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Year 1 Masterplan

Plan showing all existing trees and proposed 1st phase trees including birch groves have been planted.

Gleditsia triacanthos x 2, Liriodendron tulipifera,
Liquidambar 'Worplesdon, Planatanus hispanica x 3,
Catalpa bignoides, Davidia involucrata,
Tilia henryana, Prunus Tai-Haku x 2,
Sorbus intermedia Brouwers,
Malus hupehensis

Scale (metres) 0 5 10 20

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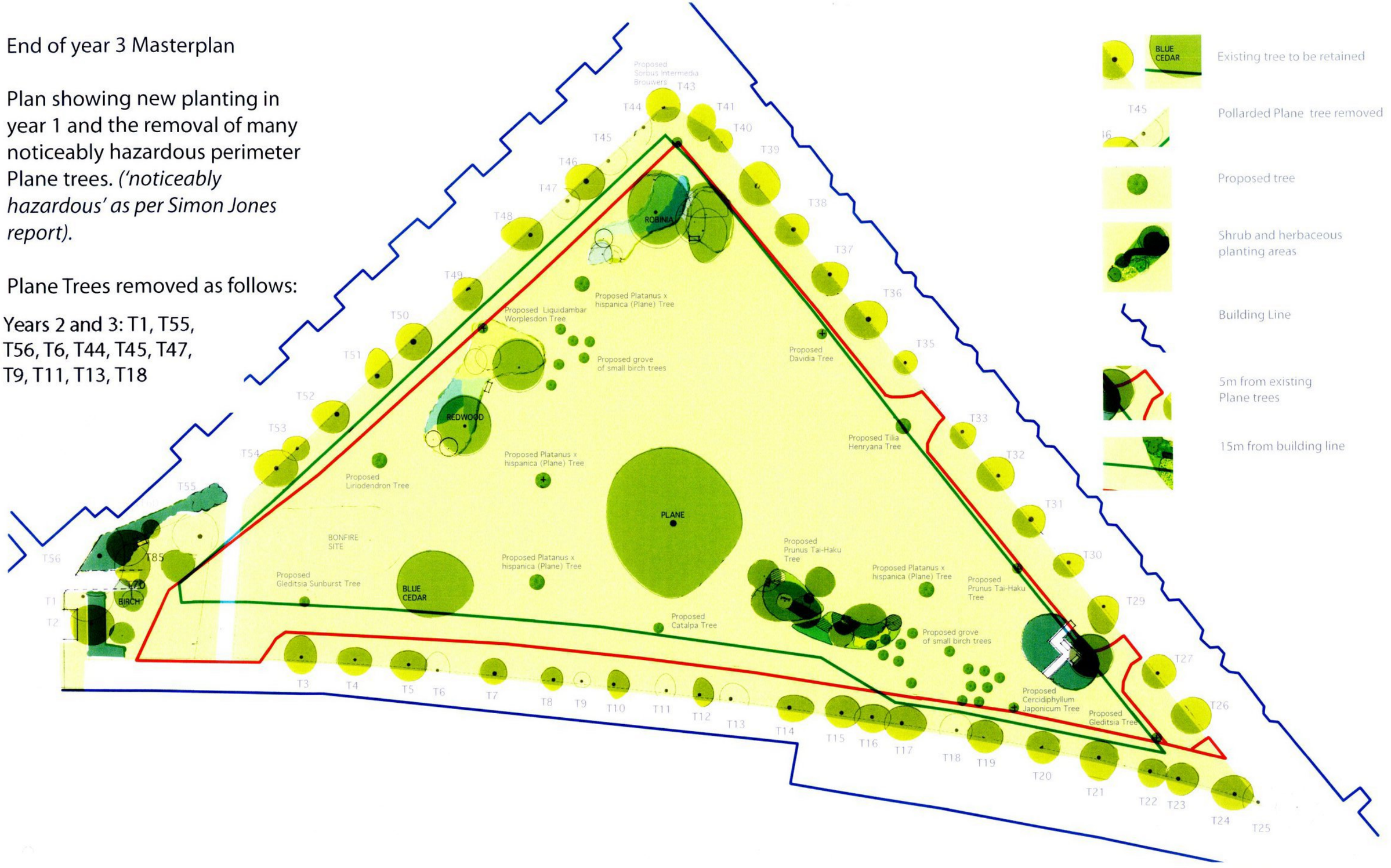
End of year 3 Masterplan

Plan showing new planting in year 1 and the removal of many noticeably hazardous perimeter Plane trees. *('noticeably hazardous' as per Simon Jones report).*

Plane Trees removed as follows:

Years 2 and 3: T1, T55, T56, T6, T44, T45, T47, T9, T11, T13, T18



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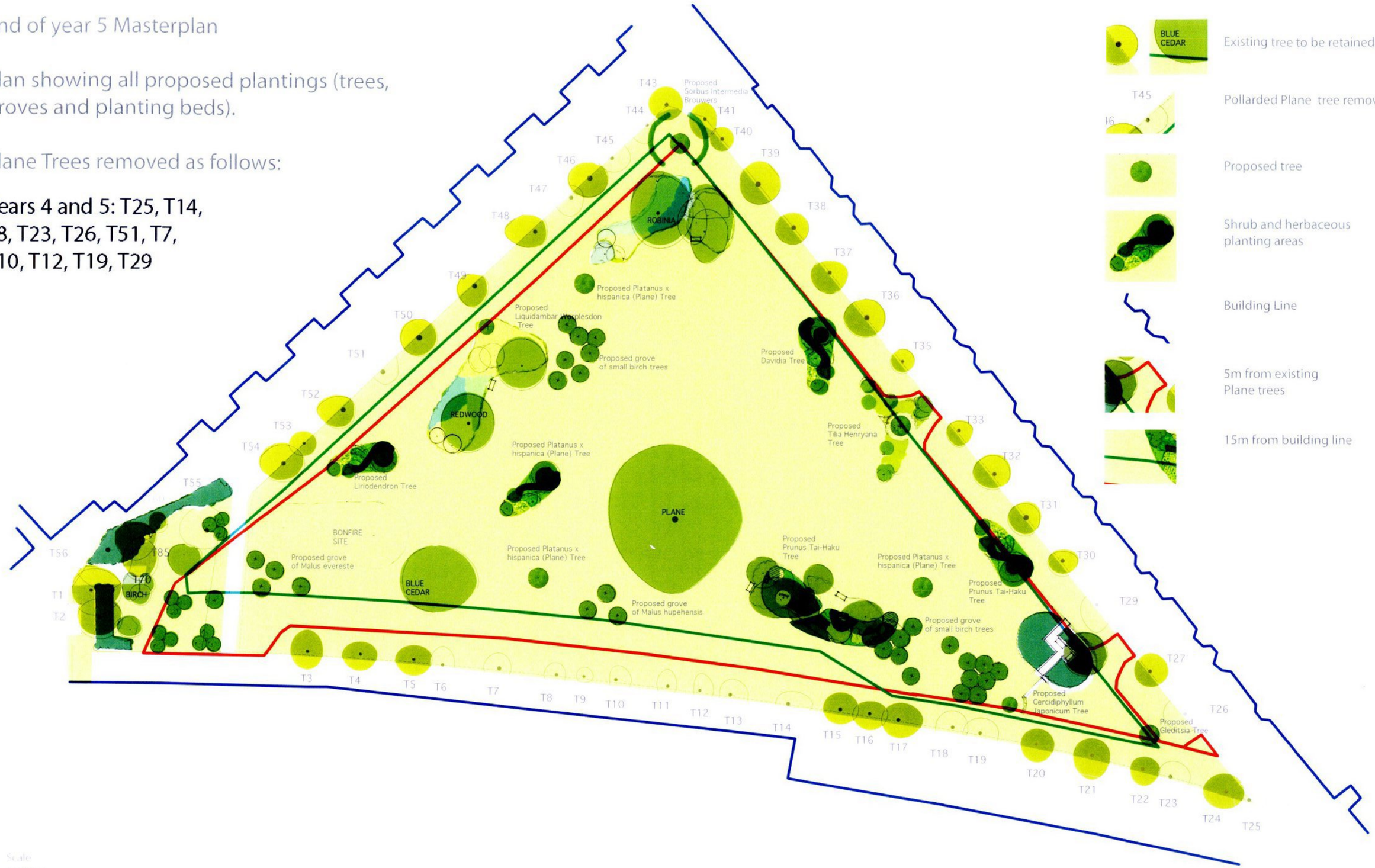
End of year 5 Masterplan

Plan showing all proposed plantings (trees, groves and planting beds).

Plane Trees removed as follows:

Years 4 and 5: T25, T14, T8, T23, T26, T51, T7, T10, T12, T19, T29



Existing tree to be retained

Pollarded Plane tree removed

Proposed tree

Shrub and herbaceous planting areas

Building Line

5m from existing Plane trees

15m from building line

Scale (metres) 0 5 10 20

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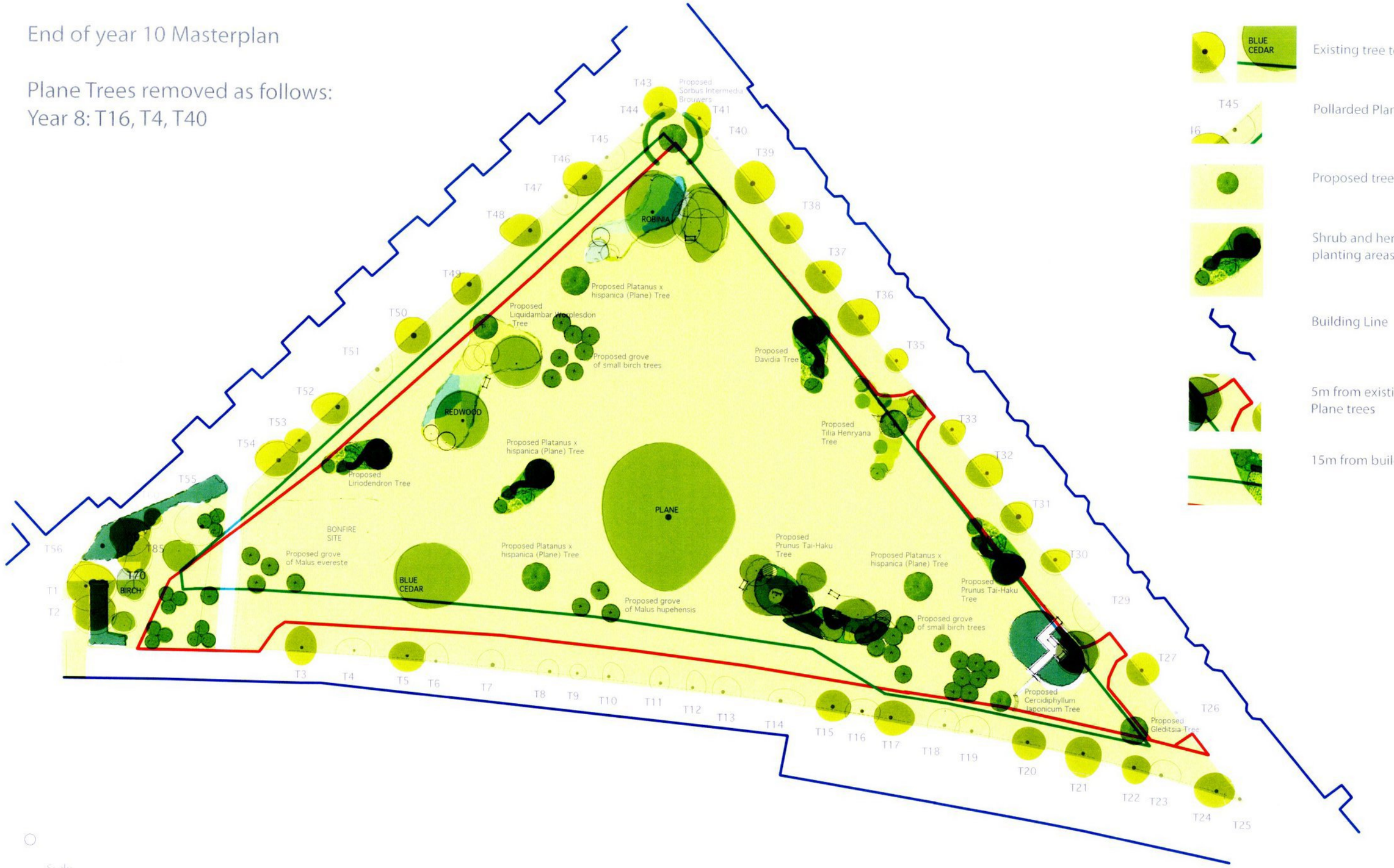
End of year 10 Masterplan

Plane Trees removed as follows:
Year 8: T16, T4, T40



Existing tree to be retained

Pollarded Plane tree removed

Proposed tree

Shrub and herbaceous planting areas

Building Line

5m from existing Plane trees

15m from building line

Scale
(metres)
0 5 10 20

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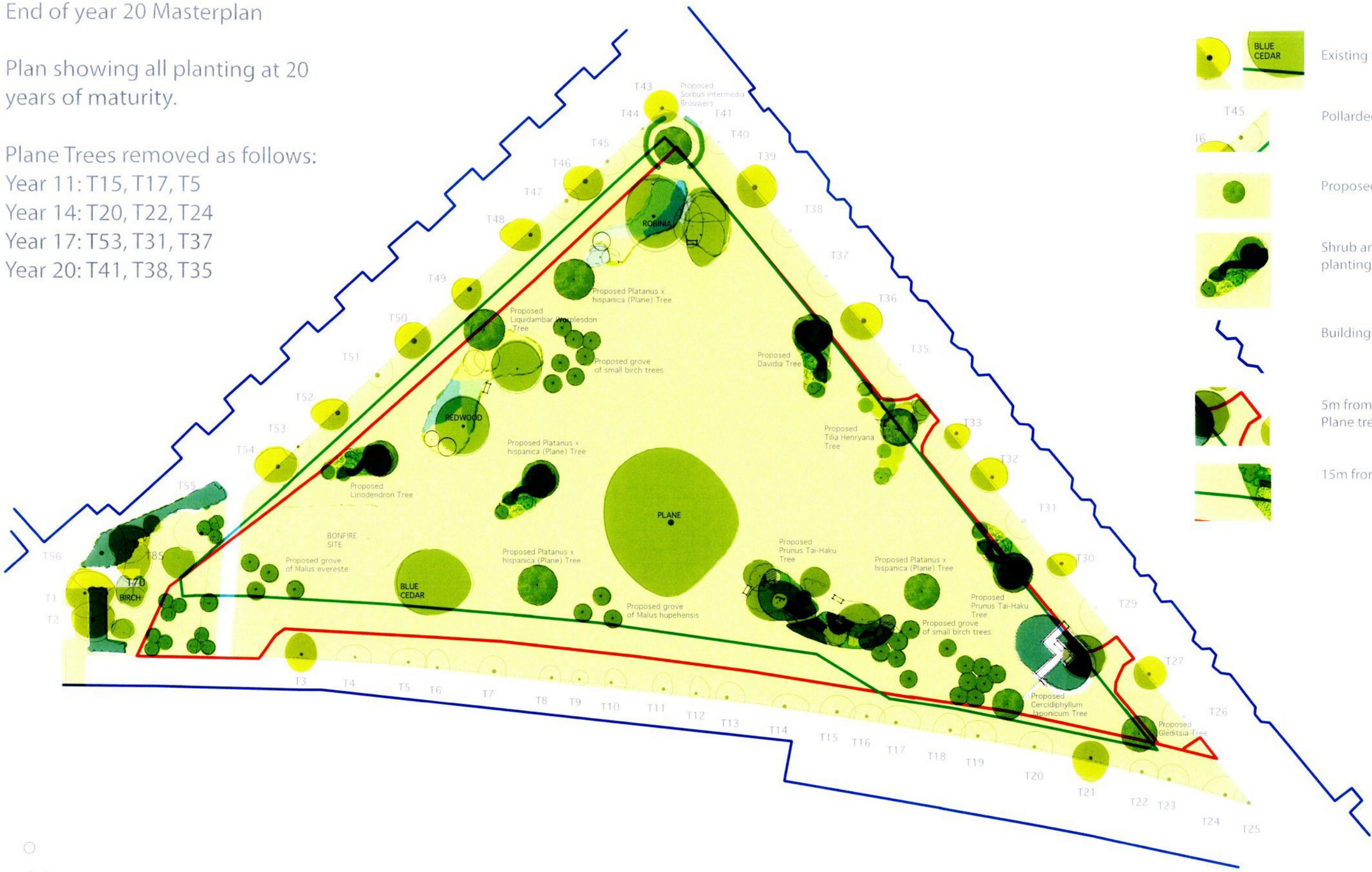
End of year 20 Masterplan

Plan showing all planting at 20 years of maturity.

Plane Trees removed as follows:
Year 11: T15, T17, T5
Year 14: T20, T22, T24
Year 17: T53, T31, T37
Year 20: T41, T38, T35



Existing tree to be retained

Pollarded Plane tree removed

Proposed tree

Shrub and herbaceous planting areas

Building Line

5m from existing Plane trees

15m from building line

Scale (metres)
0 5 10 20

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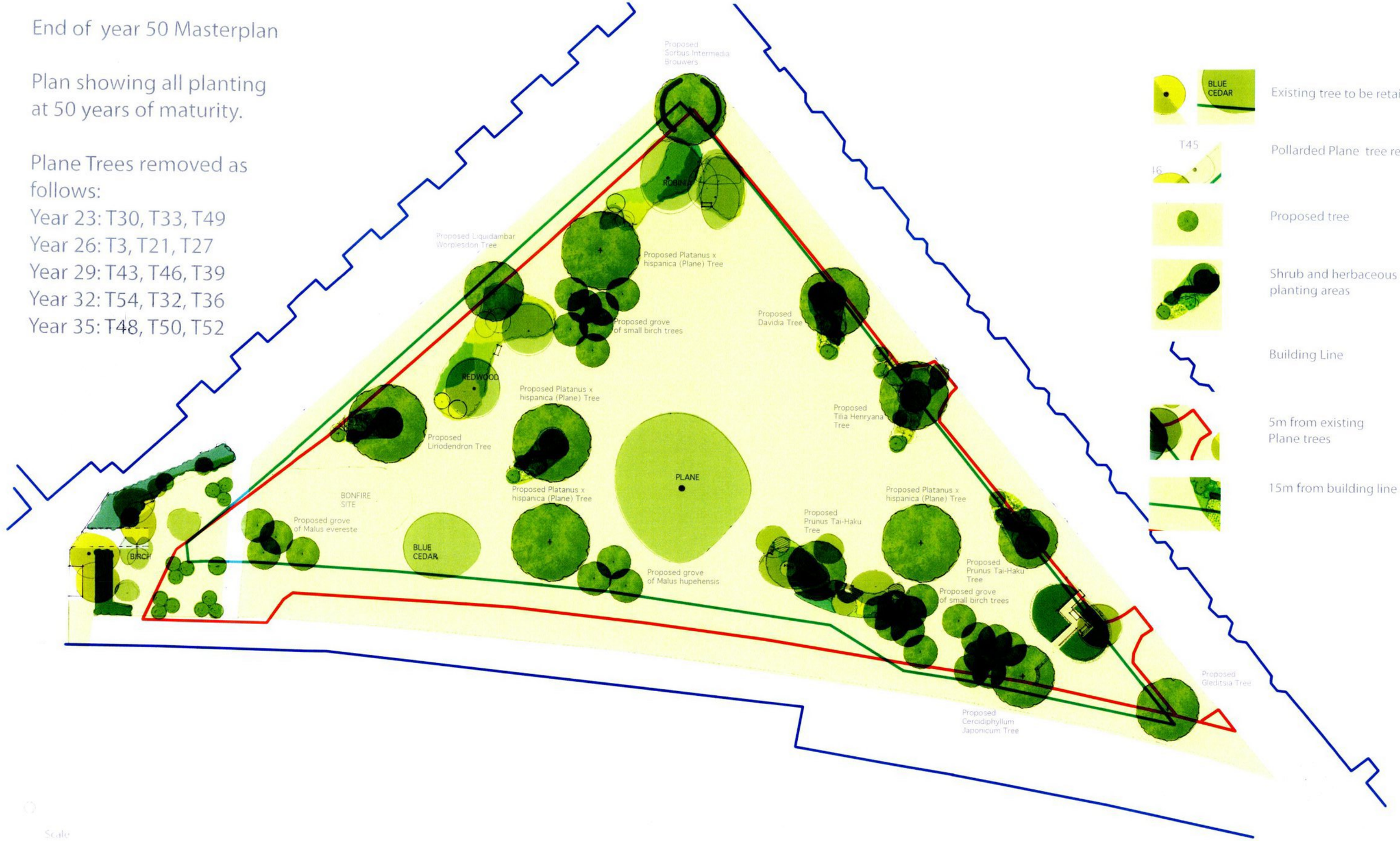
End of year 50 Masterplan

Plan showing all planting at 50 years of maturity.

Plane Trees removed as follows:
Year 23: T30, T33, T49
Year 26: T3, T21, T27
Year 29: T43, T46, T39
Year 32: T54, T32, T36
Year 35: T48, T50, T52



Existing tree to be retained

Pollarded Plane tree removed

Proposed tree

Shrub and herbaceous planting areas

Building Line

5m from existing Plane trees

15m from building line

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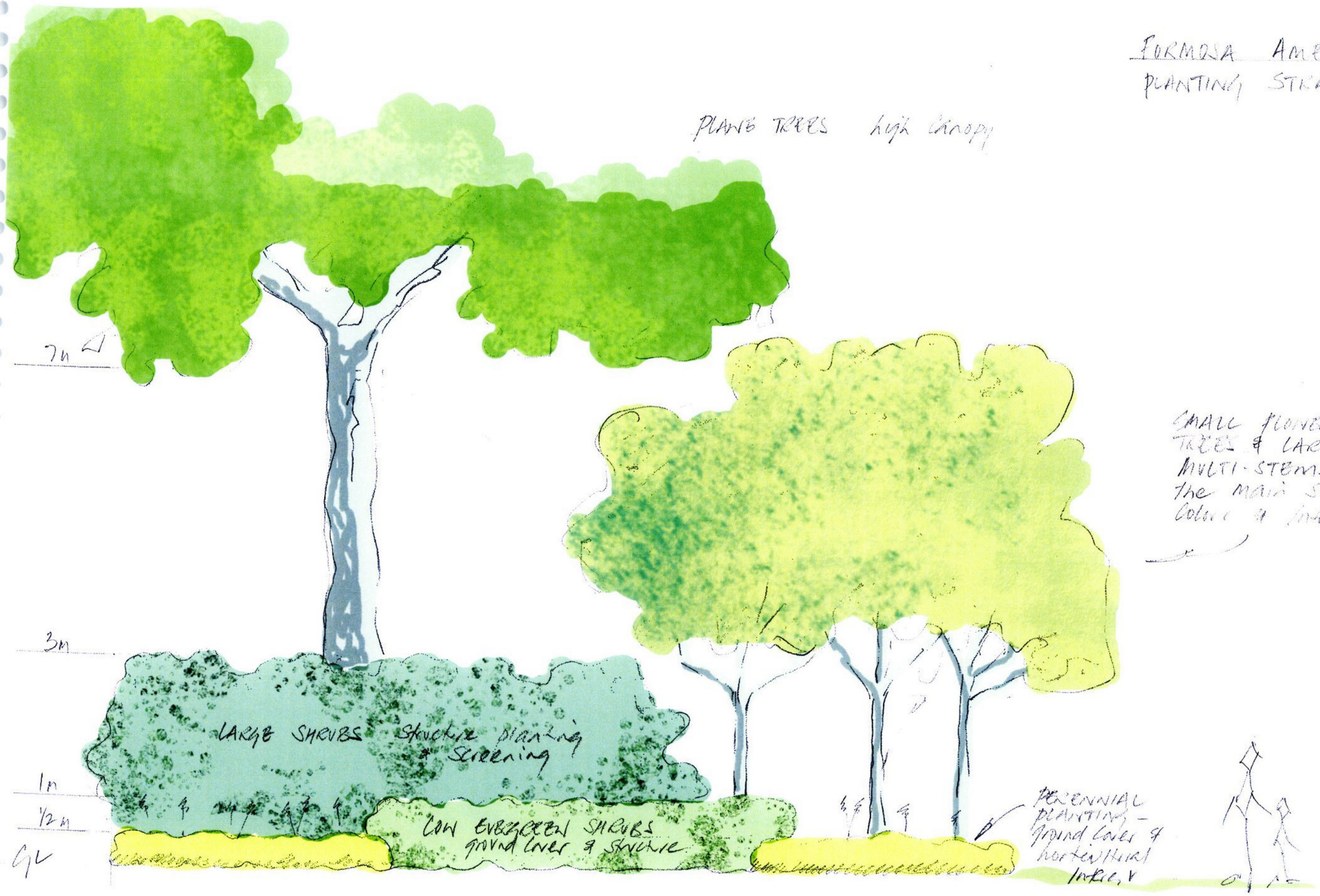
FORMOSA AMENITY PLANTING STRATEGY.



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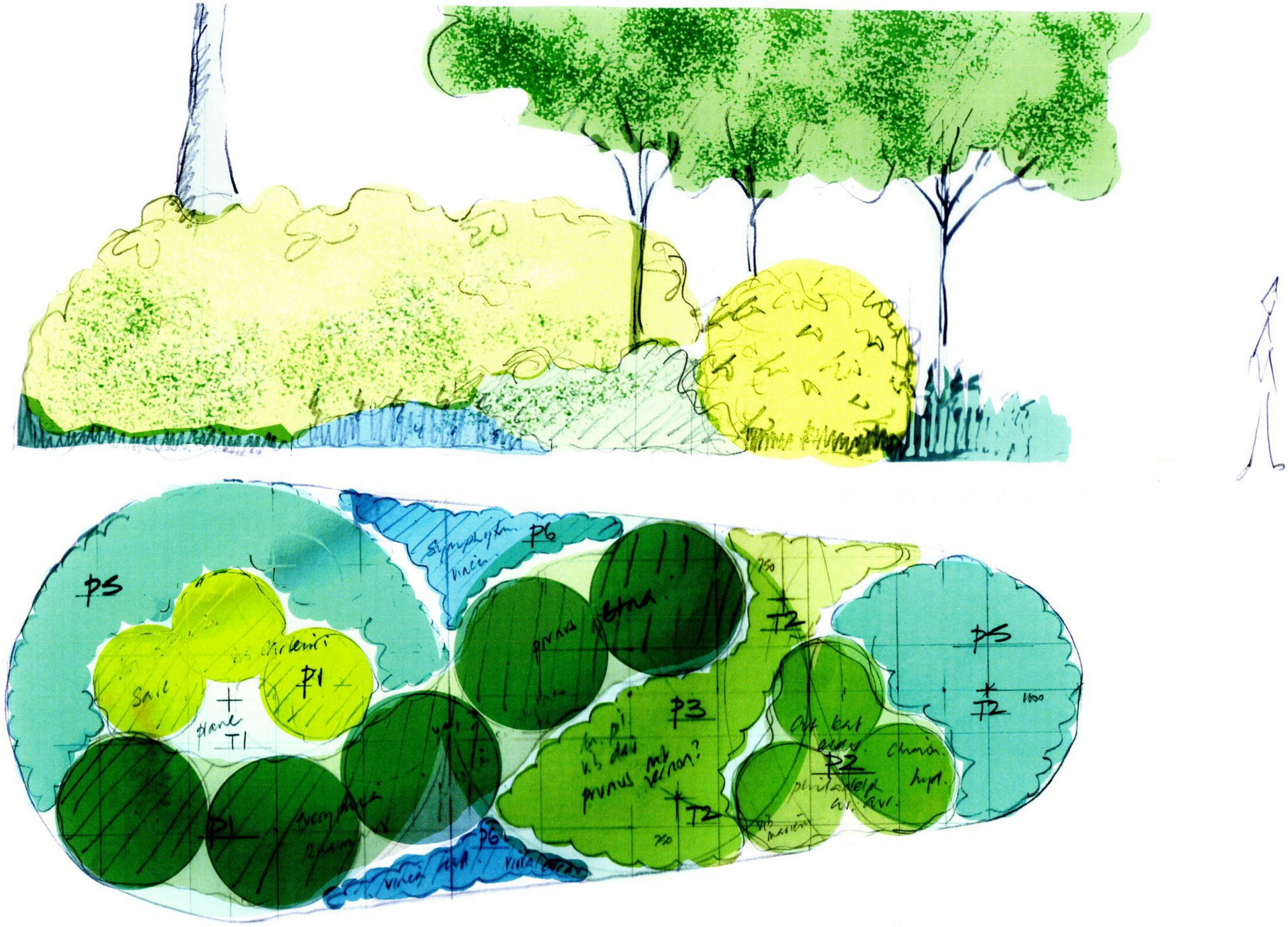

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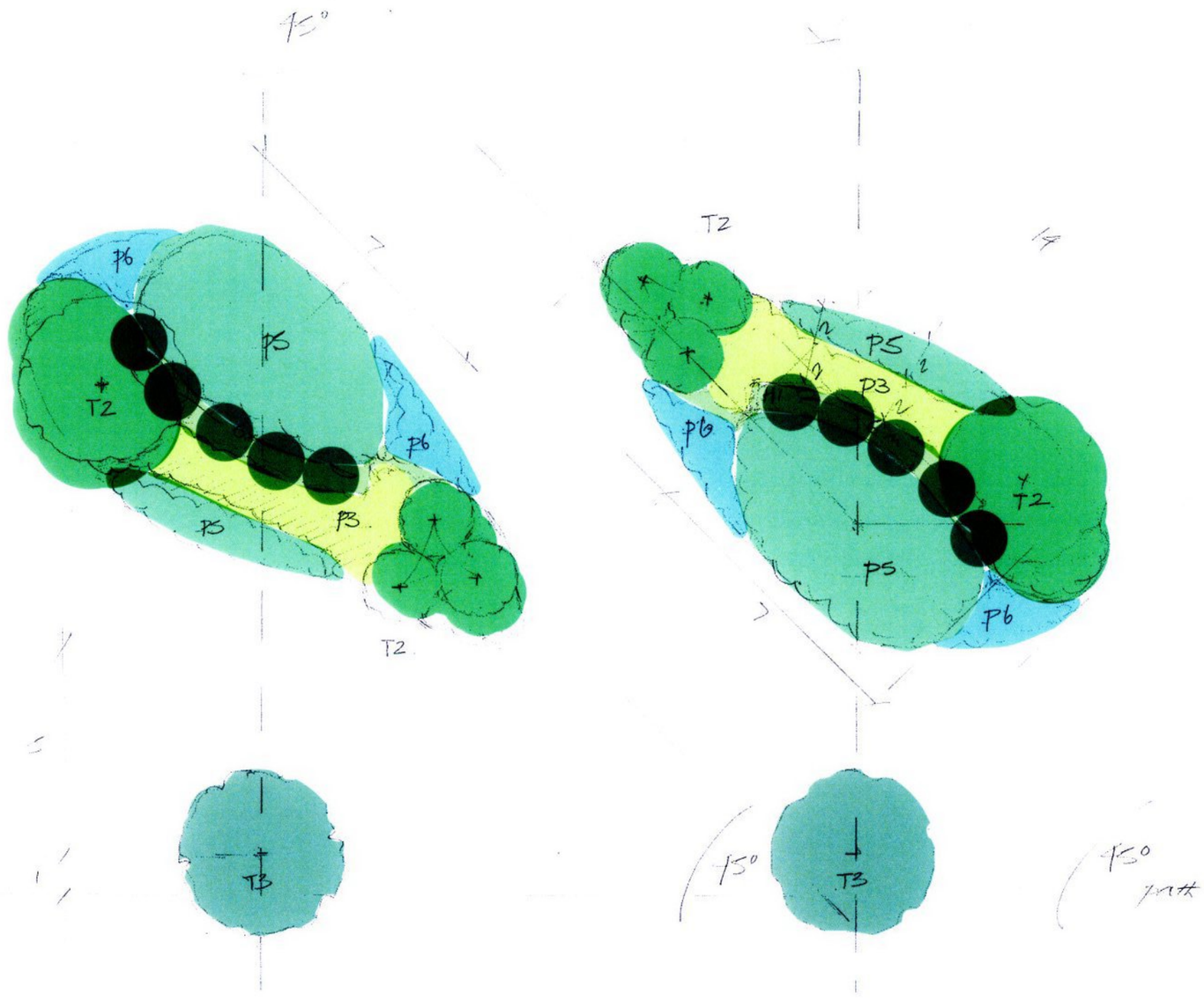
T1	large tree	Catalpa bignonioides
T1	large tree	Platanus hispanica (London Plane)
T1		
T2	Evergreen shrub	Sarcococca humilis
T2	small tree or large shrub	Acer jap Aconitifloium
T2	small tree or large shrub	Acer shirasawanum (japonicum) Aureum
T2	small tree or large shrub	betula albosinensis Fascination
T2	small tree or large shrub	Cercis canadensis Forset Pansy
T2	small tree or large shrub	Cornus kousa
T2	small tree or large shrub	Crataegus laciniata
T2	small tree or large shrub	Eucryphia Nymansay
T2	small tree or large shrub	Hoheria sexstylosa
T2	small tree or large shrub	Magnolia kobus
T2	small tree or large shrub	Magnolia soulangeana Alba
T2	small tree or large shrub	Malus Evereste
T2	small tree or large shrub	Prunus Shimidsu Sakura (as group of 3)
T2	small tree or large shrub	Prunus subhirtella Autumnalis Rosea (m/s?)
T2	small tree or large shrub	Prunus Tai-Haku (as a single)
T2	small tree or large shrub	Quince, Cydonia Meeches Prolific
T2	small tree or large shrub	Sorbus hupehensis
T2	small tree or large shrub	Syringa vulgaris Mme Lemoine
H1	evergreen loose hedge	Prunus laurocerasus Etna
H1		
P1	Evergreen shrub	Lonicera pileata
P1	Evergreen shrub	Sarcococca Dignya
P1	Evergreen shrub	Viburnum davidii
P1		
P2	large shrub	Chimonanthus praecox
P2	large shrub	Eleagnus ebbingei
P2	large shrub	Hydrangea paniculata Limelight
P2	large shrub	Philadelphus coronareus Aureus
P2	large shrub	Rosa rugosa Agnes
P2	large shrub	Viburnum carlesii
P2		
P2	large shrub	Paeonia delavayi
P2	large shrub	Sambucus nigra Laciniata
P2	large shrub	Viburnum Mariesii
P3	evergreen river	Azalea e/g white
P3	evergreen river	Prunus laurocerasus Mount Vernon
P3		
P5	Perennial groundcover (species mix)	Acanthus mollis Rue Ledan
P5	Perennial groundcover (species mix)	Ajuga Black Scallop
P5	Perennial groundcover (species mix)	Anenome x hybrida
P5	Perennial groundcover (species mix)	Aster divaricartus
P5	Perennial groundcover (species mix)	Astrantia major
P5	Perennial groundcover (species mix)	Brunnera Jack Frost
P5	Perennial groundcover (species mix)	Campanula persicifolia Alba
P5	Perennial groundcover (species mix)	Digitalis white
P5	Perennial groundcover (species mix)	Euphorbia Robbiae
P5	Perennial groundcover (species mix)	Galium odoratum
P5	Perennial groundcover (species mix)	Geranium
P5	Perennial groundcover (species mix)	Helleborus argutifolius
P5	Perennial groundcover (species mix)	Helleborus foetidus
P5	Perennial groundcover (species mix)	Heuchera
P5	Perennial groundcover (species mix)	Leucojum vernum
P5	Perennial groundcover (species mix)	Liriope
P5	Perennial groundcover (species mix)	Polystichum Herrenhausen
P5	Perennial groundcover (species mix)	Viola cornuta Alba
P5		
P6	evergreen carpet under shrubs	Euphorbia Robbiae
P6	evergreen carpet under shrubs	Symphytum ibericum Slade Farm
P6	evergreen carpet under shrubs	Tellima grandiflora
P6	evergreen carpet under shrubs	Vinca difformis



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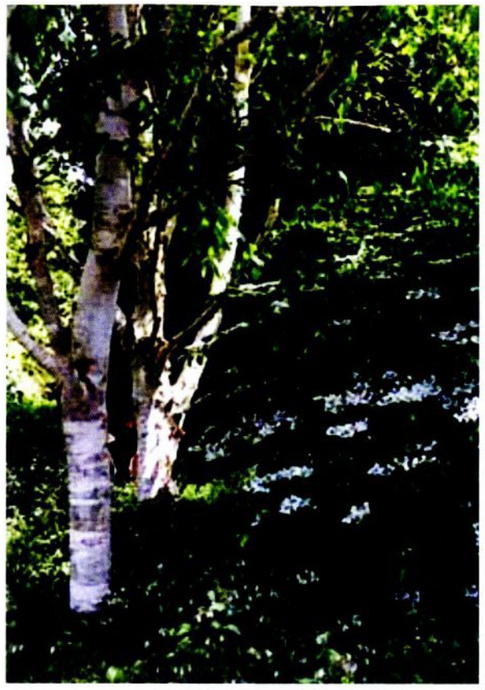

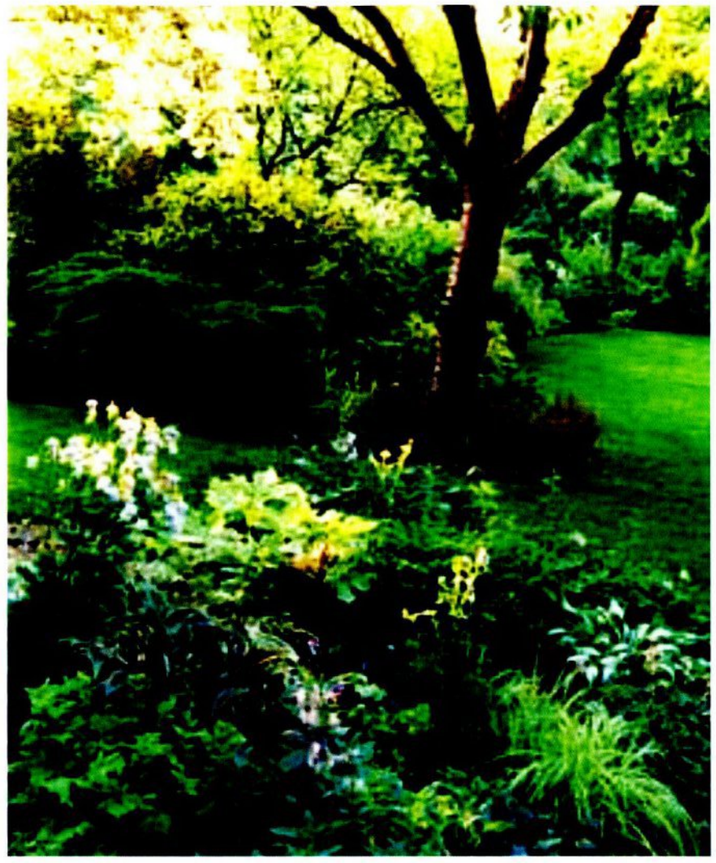

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4 TABLES

Table 6 – Determination of Water Demand and Mature Height of Trees

Water demand and mature height of broad leaved trees			Water demand and mature height of conifers			Water demand and mature height of orchard trees (take as broad leaved trees)		
Water demand	Species	Mature height (m)	Water demand	Species	Mature height (m)	Water demand	Species	Mature height (m)
High	Elm		High	Cypress				
	English	24		(Lawson's)	18			
	Wheatley	22		Monterey	20			
	Wych	18						
	Oak							
	English	20						
	(Holm)	16						
	(Red)	24						
	Turkey	24						
	Poplar							
	Hybrid black	28						
	Lombardy	25						
	Willow							
	Crack	24						
	Weeping	16						
	White	24						
Moderate	(Acacia False)	18	Moderate	(Cedar)	20	Moderate	Apple	9
	Alder	18		Leyland cypress	24		Cherry	15
	Ash	23		(Douglas fir)	20		Pear	12
	(Blackthorn)	8		(Pine)	20		Plum	10
	Cherry			(Spruce)	18			
	(Japanese)	9		Yew	12			
	(Wild)	17						
	Hawthorn	10						
	(Honey Locust)	14						
	Hornbeam	17						
	Horse Chestnut	20						
	Laburnum	12						
	(Laurel)	8						
	Lime	22						
	Maple							
	Japanese	8						
	Norway	18						
	Mountain Ash	11						
	Plane	26						
	Sycamore	22						
	Tree of Heaven	20						
	(Walnut)	18						
	Whitebeam	12						
Low	Beech	20						
	(Holly)	12						
	Birch	14						
	(Magnolia)	9						
	(Mulberry)	9						

NOTE:

1. Trees included in brackets are commonly found, but there is inadequate information for a definite classification. The assumption made is based on the best judgement currently possible.
2. Where hedgerows contain trees, their effects should be assessed separately. In hedgerows, the height of species likely to have the greatest effect shall be used.
3. Within the classes of water demand, species are listed alphabetically; the order does not signify any gradation in water demand.
4. When the precise species is unknown the greatest height and highest water demand within the species group should be assumed.
5. Further information regarding trees may be obtained from the Arboricultural Association or the Arboriculture Advisory and Information Service (see Additional Information page 22).

The table shows for each tree species the distance between tree and building within which 75 per cent of the cases of damage occurred.

Table 1 Risk of damage by different tree species

Ranking	Species	Max tree height – H *m*	Max distance for 75 per cent of cases *m*	Min recommended separation in very highly and highly shrinkable clays
1	Oak	16-23	13	1H
2	Poplar	24	15	1H
3	Lime	16-24	8	0.5H
4	Common ash	23	10	0.5H
5	Plane	25-30	7.5	0.5H
6	Willow	15	11	1H
7	Elm	20-25	12	0.5H
8	Hawthorn	10	7	0.5H
9	Maple/Sycamore	17-24	9	0.5H
10	Cherry/Plum	8	6	1 H
11	Beech	20	9	0.5H
12	Birch	12-14	7	0.5H
13	White beam/Rowan	8-12	9.5	1H
14	Cypress	18-25	3.5	0.5H

These figures suggest that all but the very low levels of damage would be avoided if the separation distance were reduced to 0.5H. This relaxation for most of the species commonly found to cause damage takes account of experience gained after the severe drought in 1975/76. Despite the severity of the drought and the many subsidence damage cases reported, levels of damage were generally low (see Digest 251). Furthermore, many cases of damage occurred in houses built prior to the 1950s when foundation depth recommendations were increased to a minimum of 0.9 m (nowadays taken as 1 m) on shrinkable clay soils.

Table 1 shows that some tree species present a greater risk than others to house foundations. Oak, poplar and willow are notorious; cherry, plum, white beam and rowan trees are less damaging but can still cause damage at distances greater than 0.5H. Consequently, for these species the recommended separation in very highly and highly shrinkable clays is doubled to 1H.

Trees in relation to existing and new foundations

Three distinct circumstances need careful consideration when assessing the relationship between trees and buildings on a clay soil:

(a) new tree planting adjacent to existing or new buildings;
(b) existing trees adjacent to existing or new buildings;
(c) trees removed from positions either adjacent to existing buildings or adjacent to or beneath the locations of new buildings.

New tree planting

Planting a tree closer than the recommendations in Table 1 to a new or existing building entails some risk of damage when the tree reaches full size and in the event of a drought. The risk will decrease with decreasing shrinkage potential in the soil. The risk can be reduced by periodic pruning of the tree to ensure it does not reach full size. In new construction, the risk can be eliminated by constructing deeper foundations on stable soil. In some cases, stable soil may be as deep as 5 m. Generally only very large trees on the most shrinkable of clays would affect the ground to this depth. The design of suitable foundations in the vicinity of trees is discussed in Digests 241 and 242.

KEEPING A SENSIBLE DISTANCE

		Suggested minimum distance from property	Maximum root spread recorded
Cypress	*Cupressus*	**3.5 metres**	20.0 metres
Cypress	*Chamaecyparis*	**3.5 metres**	20.0 metres
Birch	*Betula*	**4.0 metres**	10.0 metres
Apple	*Malus*	**5.0 metres**	10.0 metres
Pear	*Pyrus*	**5.0 metres**	10.0 metres
Cherry, Plum and Peach	*Prunus*	**6.0 metres**	11.0 metres
Hawthorn	*Crataegus*	**7.0 metres**	11.5 metres
Rowan & Mountain Ash	*Sorbus*	**7.0 metres**	11.0 metres
Plane	*Platanus*	**7.5 metres**	15.0 metres
Lime	*Tilia*	**8.0 metres**	20.0 metres
Black-Locust	*Robinia*	**8.5 metres**	12.4 metres
Beech	*Fagus*	**9.0 metres**	15.0 metres
Ash	*Fraxinus*	**10.0 metres**	21.0 metres
Horse Chestnut	*Aesculus*	**10.0 metres**	23.0 metres
Elm	*Ulmus*	**12.0 metres**	25.0 metres
Maple & Sycamore	*Acer*	**12.0 metres**	20.0 metres
Oak	*Quercus*	**18.0 metres**	30.0 metres
Willow	*Salix*	**18.0 metres**	40.0 metres
Poplar	*Populus*	**20.0 metres**	30.0 metres

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FORMOSA AMENITY GARDEN
Overview of Planting & Tree Removal - Years 1 to Year 35

Planting:
Y1 - all major trees to be planted in Year 1:

Gleditsia, Liriodendron, Liquidambar, Platanus, Catalpa, Davidia, Tilia, Prunus, Sorbus, Betuls, Malus *(see full list overleaf)*

Y3-5 - all other plantings *(see list overleaf)* to be planted in Years 3-5

PHASE 1 tree removal programme:
Year 2 to Year 5
all noticeably hazardous trees (as per Simon Jones report)

Year 2: T1, T55, T56, T6, T44, T45

Y3: T47, T9, T11, T13, T18

Y4: T25, T14, T8, T23, T26, T51

Y5: T7, T10, T12, T19, T29

PHASE 2 subsequent tree removal programme:

Year 6 onwards
all remaining Plane trees (3 trees every 3 years)

Year 8 - T16, T4, T40

Y11- T15, T17, T5

Y14- T20, T22, T24

Y17- T53, T31, T37

Y20- T41, T38, T35

Y23- T30, T33, T49

Y26- T3, T21, T27

Y29-T43, T46, T39

Y32- T54, T32, T36

Y35- T48, T50, T52

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Growth rates of proposed TREES

SPECIES	*NUMBER TO BE PLANTED*	*SIZE AT TIME OF PLANTING*	Year 1	Year 2	Year 3	Year 5	Year 10	Year 15	Year 20	Year 40	Year 50
Larger trees											
Gleditsia triacanthos	2	Select Standard - 16-18 cm girth, 4-4.5M high	4m	4.3m	4.6m	5.5m	7m	8.5m	10m	16m	20m
Liriodendron tulipifera	1	Select Standard - 16-18 cm girth, 4-4.5M high	4m	4.3m	4.6m	5.5m	7m	8.5m	10m	16m	20m
Liquidambar syraciflua 'Worplesdon'	1	Select Standard - 16-18 cm girth, 4-4.5M high	4m	4.3m	4.6m	5.5m	7m	8.5m	10m	16m	20m
Platanus hispanica	3	Select Standard - 16-18 cm girth, 4-4.5M high	4m	4.3m	4.6m	5.5m	7m	8.5m	10m	16m	20m
Catalpa bignoides	1	Select Standard - 16-18 cm girth, 4-4.5M high	4m	4.3m	4.5m	5.2m	7m	8.5m	10m	13m	15m
Davidia involucrata	1	Select Standard - 16-18 cm girth, 4-4.5M high	4m	4.3m	4.5m	5.2m	7m	8.5m	10m	13m	15m
Tilia henryana	1	Select Standard - 16-18 cm girth, 4-4.5M high	4m	4.3m	4.5m	5.2m	7m	8.5m	10m	13m	15m
Prunus 'Tai Haku'	2	Select Standard - 16-18 cm girth, 4-4.5M high	4m	4.3m	4.5m	5.2m	7m	8.5m	10m	13m	15m
Sorbus intermedia 'Brouwers'	1	Select Standard - 16-18 cm girth, 4-4.5M high	4m	4.3m	4.5m	5.2m	7m	8.5m	10m	13m	15m
Betula utilis 'Jaquemontii'	21	multi-stem- 3.5-4m high	4m	4.3m	4.5m	5.2m	7m	8.5m	10m	13m	15m
Smaller tree species											
Acer jap Aconitiflolium	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m
Cercis canadensis Forest Pansy	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m
Cornus kuosa	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m
Crataegus grignonensis	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m
Magnolia soulangeana Alba	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m
Malus huphensis	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m
Malus evereste	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m
Malus transitaria	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m
Prunus Shimidsu Sakura	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m
Sorbus huphensis	3	Standard - 8-10cm girth, 250-300cm high	3m	3.15m	3.3m	3.75m	4.5m	5.25m	6m	9m	10.5m

KEY:
Big trees = vertical growth - .3m per year over 50 years
Small trees = vertical growth - .15m per year over 25 years

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