82-84 OTTERSFIELD ROAD UB7 8PF

Condition 4 (Landscaping)

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APPENDICES

Appendix A Tree and Hedge Planting Plan

1 Size, Species, Preparation, Planting & Aftercare

1.1 Tree Species & Size Justification

1.1.1 The selected tree and shrub species have been recommended, to reflect some of the tree, shrub and hedgerow species currently growing in the immediate area, to create a greater diversity of tree species and assist in the provision of all year arboricultural interest.

1.1.2 Ultimate tree sizes, could reasonably be described as ranging from small to medium sized trees with planting sizes include Whips and 'Standard' Standards, with the sizes (See Table 1.1 below) referenced against Table 1 of British Standards 3936:1992 – Nursery Stock

Table 1.1 Table of species, size, locations & spacing

Common Name	Botanical Name	Size (BS 3936 – Pt.1)	Indicative Dimensions after 25 years (Hillier 2007)	Locations	Spacing
Malus	Floribunda	'CG-Standard' Density - counted girth 175 – 200cm height.	1.5m spread, 10m height	Front Driveway (3N0)	Detailed in DWG 5015-Yew-02
Betula	Pendula	'CG-Standard' Density - counted girth 175 – 200cm height.	1.5m spread, 10m height	Rear Garden - Boundry (9N0)	Plants at 100cm centres.
Malus	Sylvestris	'CG-Standard' Density - counted girth 175 – 200cm height.	1.5m spread, 10m height	Rear & Front Garden- Boundary (5 No)	Plants at 120cm centres.
Amelanchier	Lamarcki	'CG-Multi stemmed' Density - counted girth 175 – 200cm height.	N/A – dimensions to be managed	Adjacent Fence -Yew Avenue (1No)	Plants at 2m centres.
Sorbus	Aria	'Standard' Standard 8 – 10 cm girth 250 – 300cm height.	1m spread, 10m height	Adjacent Fence -Yew Avenue (2No)	Plants at 2m centres.

Note: Refer to page 6 for planting schedule

1.1.3 The use of ultimately large sized trees has been avoided, in order to provide a degree of balance and proportionate scale across the urban vista, whilst lessening the likelihood of unnecessary pruning pressures e.g. where branches might grow to cross boundaries & cause excessive shading.

1.1.4 Upon planting, the trees & hedges, will provide a reasonable degree of 'instant visual impact', assist in defining current boundaries and ultimately provide useful screening value.

1.1.5 Future tree maintenance commitments are considered to be relatively low whilst the ultimate tree size is not anticipated to reach dimensions in excess of 10m height and 3m branch spread at 25 years (Hillier 2007), dimensions beyond which, could foreseeably place constraints on adjacent properties that might lessen the level of enjoyment that any current owners/occupiers might reasonably come to expect.

1.2 Site Preparation

1.2.1 Soil that has been compacted during the construction phase of the development will not provide suitable conditions for the survival and growth of vegetation, whether existing or new, and is a common cause of post-construction tree loss on development sites.

1.2.2 Compacted soil will adversely affect drainage, gas exchange, nutrient uptake and organic content, and will seriously impede or restrict root growth.

1.2.3 Where soil compaction has occurred within a 2m radius of the proposed planting locations, decompaction measures include forking, spiking, soil augering should be undertaken along with the addition of other materials, preferably of a bulky, organic nature (but excluding peat), to improve the soil structure.

1.3 Tree Planting

1.3.1 For hedging plants i.e. the cherry laurel and holly hedges to the eastern boundary, the method of 'L' or 'T' notch planting is likely to be appropriate (see figure 1.1 below).

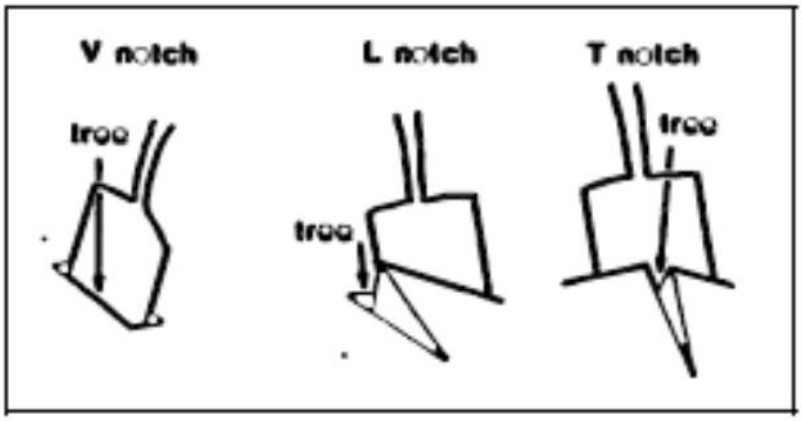


Figure 1.1 'V', 'L', & 'T' Notch Planting

1.3.2 For standard sized trees, dimensions for the planting pits should ensure that the pit is at least 75mm diameter greater than that of the root system whilst the depth of the pit should ensure that the root collar or 'tidemark' is at ground level.

1.3.3 Tree pit sides should be scarified upon glazing, smoothing or compaction caused during the pit digging process.

1.3.4 The tree's rooting system should be wetted prior to planting and immediately upon planting the tree pit should be saturated to field capacity[1].

1.3.5 Stake the standard sized trees if necessary. Some of the methods, which are considered to be most appropriate in this instance, used widely to support young trees are:

- angled stake;
- upright single stake;
- double stake and bridge;

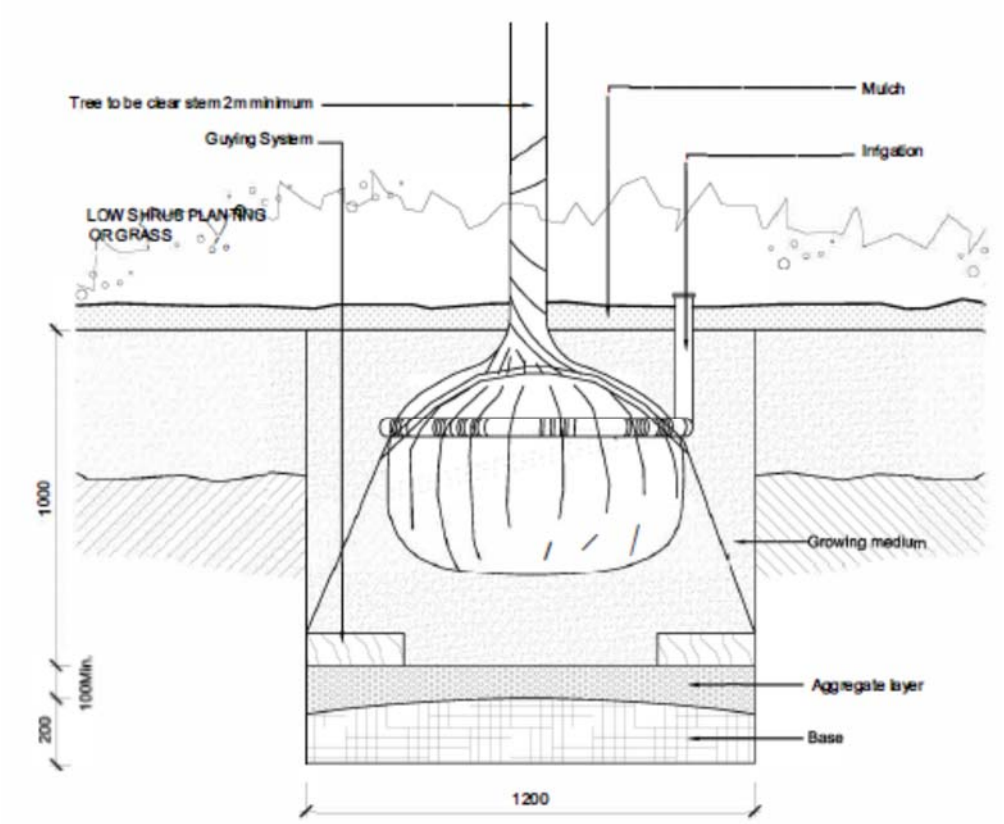
1.3.6 (Table 1 from BS 8545:2014) details a 'check list' of above and below ground items that should be undertaken prior to planting whilst Figure 1.1 (Figure F.8 from BS 8545:2014), illustrates key factors for consideration during the planting process.

[1] Field Capacity – Maximum amount of water a soil can hold after free drainage has occurred (BS 8545:2014)

Table 1.2 Check list for trees prior to acceptance of delivery to site and planting © BS 8545:2014

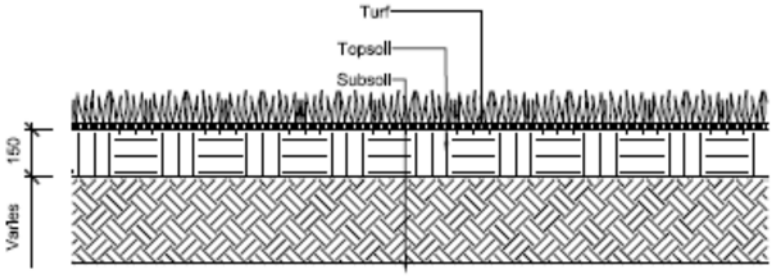
Table 1 **Check list for trees prior to acceptance of delivery to site and planting**

The tree	Points to check
Above ground	Check that the tree is true to type as specified.
	Check that there is a clearly defined straight leader. (This does not apply to multi-stem and weeping trees.)
	Check that there is a balanced branching framework typical of the species.
	Check that all lateral branches are subordinate to the central leader and evenly spaced along the central stem. Ensure that lateral branch diameter does not exceed 50% of stem diameter at the point of branch attachment.
	Check that there is a clearly defined stem taper
	Check that the ratio of height to stem diameter is balanced.
	Inspect for signs of incompatibility at graft and budding unions.
	Check that there are no crossing, co-dominant or included branches.
	Any minor damage incurred during transport should be rectified by pruning.
Below ground	
Bare root	Check that there is an evenly spaced lateral root system with a minimum of four major lateral roots.
	Check that there are evenly distributed fibrous roots at a density commensurate with the species being planted.
	Check that roots have been fully protected during transport and storage and do not show any signs of desiccation.
	Any minor damage incurred during transport should be rectified by pruning.
	Make sure the root system is fully protected until the tree is actually planted.
Rootball	Check that the rootball is intact (made-up rootballs with trees that have not been transplanted during the production process should have been rejected on delivery from the nursery).
	Check that the root flare is clearly visible at the top of the actual rootball. Any mounding of soil (which might or might not contain fine root) above the root flare should be removed. (The visibility of the root flare can be impeded by the hessian, wire or ropes used to wrap the rootball.)
	Check that the rootball has not dried out during transport and storage and take remedial action if necessary prior to planting.
	If there is wire or rope circling the main stem to secure the rootball cage, ensure that it is removed prior to planting.
	Remove the wire cage where practicable. If this cannot be done, peel back the wire cage and hessian once the tree is in the planting pit.
Containerized	Remove the container prior to planting.
	Fibrous roots in containers should hold the compost ball together once the container is removed. If the compost ball falls apart the tree should be rejected as there has been inadequate root development.
	Ensure that any fibrous root growth or excess compost above the root flare is removed and that the root flare is clearly visible prior to planting.
	Shave off any minor roots that are showing evidence of circling. (Trees with major circling roots should have been rejected on delivery.)
	Ensure that the container compost is moist at planting.
Trees with major damage, whether above or below ground, should be rejected.	



27
252 TREE IN SOFT LANDSCAPE (1:20)

Mulch -	Ornamental Bark Mulch Size: 5-35mm at 75mm depth Supplier: Melcourt or equivalent.
Growing medium -	Please refer to NBS specification of "Imported Topsoil" specification Depth: Typically varies 1000mm.
Irrigation -	Type: Rootsain Civic RRCIVIC1A Supplier: Greenleaf or similar and approved.
Tree Guying -	Greenleaf 'Deadman' underground guying system (or similar and approved) including 125x2000mm pressure impregnated deadmen. Strapped anchor deadman guying system supplied with 3 slip knot guys webbing strap and rachet tensioner. Guywires to be sinstrand s/s wires with turnbuckles for adjustment
Aggregate Layer -	Light compacted clean washed aggregate backfill Size: 100mm depth at 50-75mm diameter Manufacturer: Contractors choice
Base -	Base of pit to be spiked to a minimum depth of 200mm and shaped as shown to assist root penetration



30a
252 TURF/GRASS SEED AND IMPORTED TOPSOIL (1:10)

Turf - Ref; Medallion® turf
Supplier: Rolawn or equivalent

Topsoil - Please refer to NBS specification of 'Imported Topsoil' and ameliorant
Depth; 150mm minimum.

Subsoil - Subsoil to Engineer's Remediation specification

Planting Schedule

Lawn Mix 1

Number	Species	Specification	Density	Pot Size
30 No.	Skimmia Confusa 'Kew Green'	Full Pot	13/m²	5L
26 No.	Prunus Lusitanica Myrtifolia	Full Pot	13/m²	7L
12 No.	Cornus Mas Elegantissima	Full Pot	13/m²	5L
16 No.	Ahemobe Hybrida 'Honorine Jobert'	Full Pot	13/m²	3L
16 No.	Asplenum Solopendrium	Full Pot	13/m²	3L

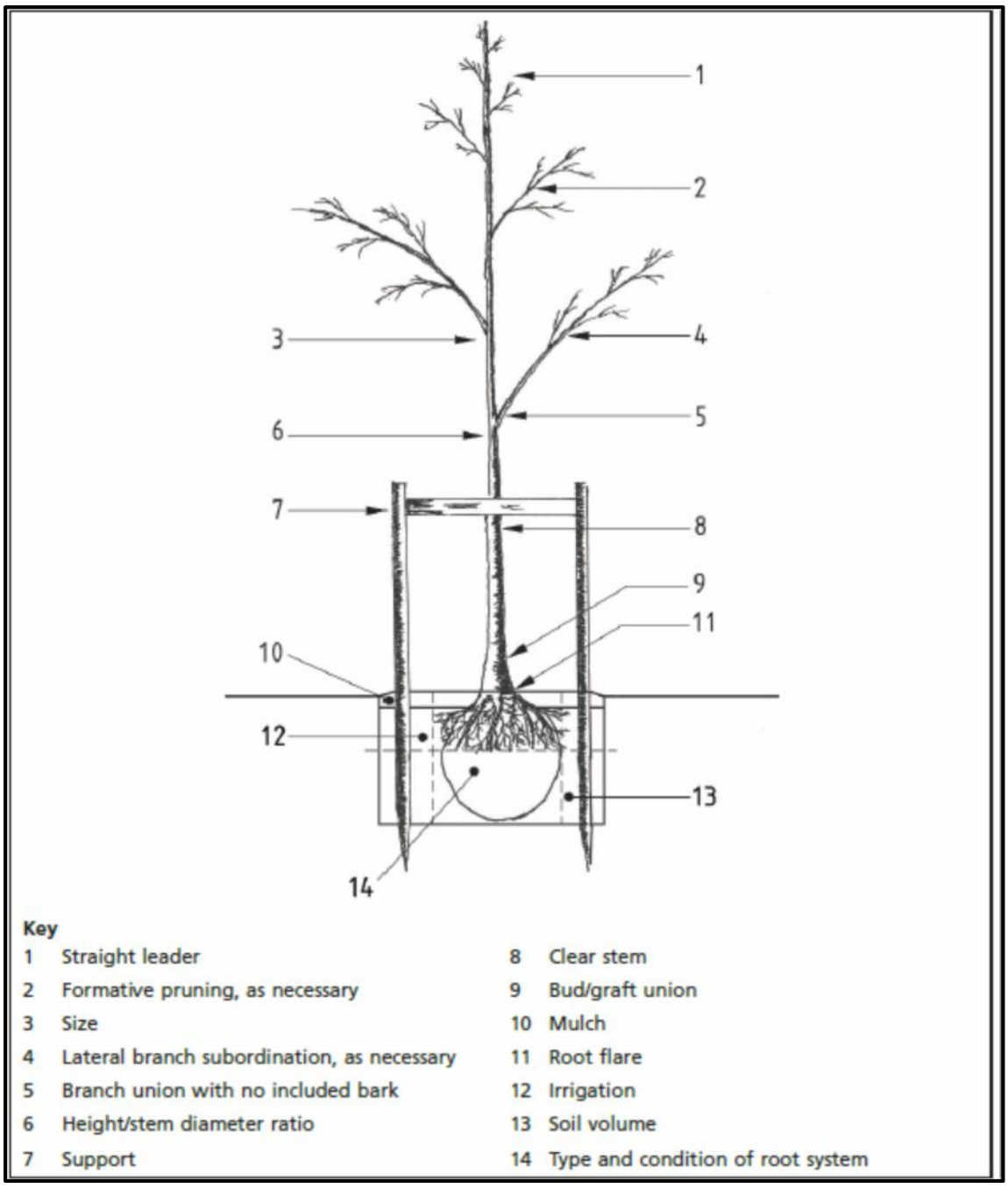


Figure 1.2 Factors involved with tree planting © BS 8545:2014

1.4 After Care

1.4.1 The following points summarise good after care for newly planted trees whilst also considering any necessary formative, corrective and maintenance pruning:

- Water immediately after planting and weekly in first growing season (10 – 20 litres) if the weather is dry.
- Do not allow weeds or grass to grow within a 500mm radius of the stem.
- Maintain mulch to a depth of approximately 50mm.
- Ensure ties are not damaging the stems and loosen if necessary.
- Ensure stake remains firm. Remove when stem can support itself, usually after 1 -3 years.

- Remove dead or crossing branches, suckers arising from the roots or weak shoots on the stems.
- Formative pruning should be carried out in accordance with BS 3998.

1.4.2 It is recommended that a Project Arboriculturist is appointed prior to the commencement of any works and retained for the duration of the project.

1.4.3 The appointed person can assist in monitoring arboricultural site activity using an auditable system.

1.4.4 The appointed person should be consulted in the event that formative pruning is required, support staking and or to address issues associated with the health and condition of the trees upon their receipt from the nursery.

1.4.5 Upon completion of the planting, advice of the project Arboriculturist should be sought to assess the new trees for any signs or symptoms of damage and/or stress that the planting process might have had.

1.5 Contacts

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2.0 PLANTING - TREES

21. Tree pits shall be minimum 1200 x 1200 x 900mm deep. Enlarge as necessary to accommodate root spread dimensions plus overall 400mm wider and 250mm deeper.

2.2. Backfill material shall comprise specified topsoil. Incorporate and thoroughly mix 25% by volume well-rotted approved organic compost incorporating organic fertilizer (Melcourt Topgrow compost or equal and approved), together with 600g Broadleaf P4 water retaining polymer granules. Backfill material shall be thoroughly outside the tree pit, prior to backfilling and shall be of a crumbly consistency.

2.3. Backfill material shall be carefully packed around the rootball in layers not deeper than 150mm. Each layer shall be lightly consolidated in the pit, leaving the final level 50mm above surrounding paving or ground level and the top layer firmly heeled around the root collar.

2.4. Where scheduled, trees shall be secured upright with 2no. 90mm dia. treated softwood stakes driven 1500mm into ground to finish 600mm above ground level. Stakes to be linked by flat horizontal timber bar 100 x 38mm section 50mm from top of stakes. Secure tree stem to flat bar with Toms 50mm wide special nylon reinforced rubber belt and big block .

2.5. Where scheduled, trees shall be secured upright with 1 no. 70mm dia. Treated softwood stakes driven 1500mm into ground to finish 600mm above ground level. Secure tree stem to stake with 37.5mm special nylon reinforced rubber belt.

2.6. Thoroughly water in all trees immediately after planting but prior to mulching.

3.0 PLANTING - INDIVIDUAL AND SPECIMEN SHRUBS

3.1. Pits for individual or specimen shrubs shall be minimum 600 x 600 x 600mm deep. Enlarge as necessary to accommodate root spread dimensions plus overall 400mm wider and 250mm deeper. Te base of tree pit is to be broken up to 200mm depth. Report any signs of poor drainage to the Contract Administrator.

3.2. Within the backfill material incorporate and thoroughly mix 25% by volume well-rotted approved organic compost incorporating organic fertilizer (Melcourt Topgrow compost or equal and approved), together with 600g Broadleaf P4 water retaining polymer granules.

3.3. Backfill material shall be carefully packed around the rootball in layers not deeper than 150mm. Each layer shall be lightly consolidated in the pit, leaving the final level 50mm above surrounding paving or ground level and the top layer firmly heeled around the root collar.

3.4. Where scheduled, plants shall be secured upright with 1 or 2 no. (depending on form of plant and size of root ball) 50mm dia. treated softwood stakes driven 900mm into ground to finish 600mm above ground level. Secure tree stem to stake with Toms Supersoft Tree Ties, appropriate to the size of the plant, in accordance with manufacturers recommendations. .

3.5. Thoroughly water in all plants immediately after planting but prior to mulching.

Table 1.3. MAINTENANCE SCHEDULE:

TASK	**Minimum number times task to be performed each month**												**Practical Com-**
	JANUARY	FEB	MAR	APR	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	
Remove rubbish and sweep up mulch	1	1	1	2	2	2	2	2	2	2	1	1	1
Cut grass		1	1	2	2	2	2	2	2	2	1		1
Trim grass edges			1			1			1				1
Apply specified spring feed to grass areas				1									
Weedkill grass areas (if required)				1				1					
Weed planted areas	1	1	1	1	1	1	1	1	1	1	1	1	1
Firming loose plants. Check and replace shelters, guards and plant supports	1	1	1	1	1	1	1	1	1	1	1	1	1
Formative pruning (exact timing dependent on species)	1	1											1
Cultivate soil surface and top up mulch to 50mm depth (all areas)													1
Watering	As many visits as are required to ensure establishment and continuing active growth of plants												
Plant Failure Inspection									1				1
Plant Failure Replacements (First planting season after plant failure inspection)	**(First planting season after plant failure inspection)**												

4.0 **PLANT REPLACEMENT**

4.1. PLANT REPLACEMENTS / DEFECTS: At the end of the growing season immediately preceding the end of the defects liability period (12 months after Practical Completion), prior to leaf fall, an inspection shall be made with the Contract Administrator. Any plants found to have died, are diseased, badly damaged or not making satisfactory growth, shall be replaced at the Contractor's expense. Plant replacements shall be to the original specification and shall be carried out in the first suitable planting season after the inspection carried out (this may take replacement planting outside the 12 months defects period).

5.0 **HANDOVER (At the end of the Defects Liability Period):**

5.1. All grassed areas, shall be handed over in a healthy, well cut and weed-free condition. The surface shall be free of irregularities. All plants and trees must be in place, undamaged, and showing satisfactory, healthy growth. Trees shall be securely staked. Mulch shall be made up to 50mm depth. The site shall be neat, tidy and free of litter, rubbish, weeds and contractors debris. Paved areas shall be free of mulch and contractors debris.

6 References

(BSi) BS 8545:2014, Trees: from nursery to independence in the landscape – Recommendations

(BSi) BS 3998:2010, Tree Work - Recommendations.

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International Society of Arboriculture (ISA) (2001) – New Tree Planting (Leaflet)

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L. Chalker-Scott (2007) – J. Environ. Hort. 25(4) pp. 239-249

R. J. Davies (1987) - Forestry Commission Bulletin 65; Weed Competition and Broadleaved Tree Establishment

P. Gilbertson & A.D. Bradshaw (1985) – Tree survival in cities: the extent and nature of the problem. J. Arboric. 4(1):14-17

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British Standards Institute (BSI)- 3936 (1992) Nursery Stock, Pt 1 – Specification for trees and shrubs

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