

SPECIFICATION

- General Landscaping
 - Existing levels shall be preserved around retained trees and vegetation.
 - Existing trees and vegetation shall be protected in accordance with BS5837: 2012 during all construction operations
 - All landscape works shall be undertaken by competent persons, with appropriate training and equipment
 - All arisings shall be removed from site at Contractor's expense unless otherwise noted

- ServicesThe Contractor must ascertain the exact location of underground services before commencing work.

GROUND PREPARATION

- Formation LevelThe site shall be brought to formation level using a suitable fine graded material where possible to avoid large voids but retain free drainage, and de-compacted to a depth of at least 300mm.

4. Subsoil

Where there is insufficient depth excavate and dispose of material, loosen the formation and make up with additional subsoil or second quality topsoil. Grade to smooth flowing contours to achieve specified finished levels of topsoil.

Imported subsoil/second quality topsoil shall be supplied in accordance with BS 8601: 2013. It shall be free of pests, diseases, visible fragments and roots of aggressive weeds, sticks, straw, turf and significant quantities of foreign matter such as building material, vegetation, lumps of clay, and like the like. Do not use any materials contaminated with rubbish or other materials that are:

- corrosive, explosive, or flammable
- hazardous to human or animal life
- detrimental to healthy plant growth

Prior to the placement of topsoil, and when ground conditions are reasonably dry, the subsoil shall be thoroughly loosened to full depth. Remove any stones larger than 75mm and other items including bricks, kerbs, lumps of concrete, plaster, timber, plastic, glass, metal and any other building debris brought to the surface.

5. Topsoil

Where there is insufficient depth topsoil shall be imported in accordance with BS 3882: 2015 as follows:

- For tree pits, shrubs and hedgerows; multi-purpose for general landscaping operations
- For grassed areas; low-fertility topsoil to reduce risk of competition from weeds
- But with a PH range between 5.5 and 6.5 for optimal plant growth.

Imported topsoil shall be spread in layers not exceeding 150mm depth to achieve the depths as specified below. Finished levels shall be smooth flowing, free of minor hollows and high spots and partly neatly with paving, kerbs, edgings, manhole covers and existing levels.

Soil handling operations shall be carried out when the soil is reasonably dry and non-plastic (friable) in consistency (at least 5% below the Lower Plastic Limit). Topsoil shall not be unnecessarily compacted by trampling or trafficking of site machinery. Topsoil handling shall be stopped during and after heavy rainfall, and not continued until the soil is again non-plastic in consistency.

Any areas of topsoil that are contaminated with subsoil shall be replaced. Any rubbish, bricks, concrete, tarmac and other deleterious material shall be removed. Topsoiled areas shall be in an un-compacted and uncontaminated state prior to final cultivation.

6. Soil Depths & Clearances

Provide a minimum depth of subsoil and topsoil as follows:

- Ornamental Shrubs: 400mm cultivated topsoil over 100mm cultivated subsoil with clearance to 600mm below ground level
- Native Shrubs & Hedgerows: 300mm cultivated topsoil over 100mm cultivated subsoil with clearance to 600mm below ground level
- Tree pits: see specific requirements below, with clearance to 1000mm below ground level

7. New Tree Planting Adjacent Services & Structures

- All trees and shrubs, whether existing, felled, or proposed, on or adjacent to the site shall be taken into consideration by the applicant's structural engineer when calculating foundation types and depths
- No tree shall be planted within 6m of centreline of an adoptable sewer unless appropriate protection is provided (subject to water authority approval)
- All trees planted within 3m of a building or heavily loaded structure shall have their roots deflected away by means of a high density deep application root barrier to avoid direct damage from future tree growth.
- All trees within 2m of a masonry boundary wall, or within 3m of any hard paved surface or underground service, shall have their roots deflected away by the installation of a tree root barrier system to avoid direct damage from future tree growth.

8. Root Barrier System

- For protection of building foundations: ReRoot 2000 high density deep application root barrier as supplied by GreenBlueUrban Ltd., or similar
 - For protection of pavements only (surround applications): Root Director preformed root protection system as supplied by GreenBlueUrban Ltd., or similar; size dependent on predicted girth (circumference) of mature trunk (to be advised by manufacturer)
 - For protection of pavements/utilities/linear applications): ReRoot ribbed root barrier as supplied by GreenBlueUrban Ltd., or similar; size dependent on predicted girth (circumference) of mature trunk (to be advised by manufacturer)
- Installation shall be in full accordance with manufacturer's instructions.

The Landscape Contractor shall be responsible for acquiring 'As-Built' drain and service plans before commencing work on site.

CULTIVATION & PLANTING

9. General Planting Notes

All plants supplied shall comply with the National Plant Certification. Supplying nurseries shall be registered under the Horticultural Trade Association (HTA) Nursery Certification Scheme. Plants shall be first class examples of their species or variety, free from pests and diseases, with good fibrous root systems and material undamaged. Native species shall be British provenance, where available, and certified to confirm origin.

All planting operations shall be in general compliance with BS 4428: 'Code of Practice for general landscape operations'.

All soft landscape works including preparatory operations shall be carried out when all building works are complete and before the end of the first planting season. Only carry out planting while soil and weather conditions are suitable: do not plant when the ground is frost bound, covered by snow, excessively wet or waterlogged, or in excessively dry or windy conditions. Plant only during the following periods:

- Bare-root and rootballed deciduous trees and shrubs: from late October to late March. All bare root stock, where used, shall be root dipped in mycorrhizal inoculant such as Algimure or similar, applied in accordance with the manufacturer's recommendations
- Container grown plants: at any time if ground and weather conditions are favourable. Ensure that adequate watering is provided

All landscaping work shall adopt good horticultural practices. Compost, mulch and soil conditioners shall be peat-free. The use of pesticides, herbicides, insecticides, fungicides, slug pellets etc) shall be discouraged. Any pesticides used shall be non-residual, i.e. phytosafe.

10. Plant Handling & Establishment

Plant handling shall be in accordance with 'Handling and establishing landscape plants', published by the CPSE. The Contractor shall comply with Part 3: Recommendations for plant handling from delivery to site to ensure successful establishment.

11. Cultivation

Areas for seeding and planting shall be treated with a non-residual translocated herbicide to clear existing weeds and other herbaceous vegetation and thoroughly cultivated by hand or suitable machinery to the depths specified below. Hand cultivation shall be carried out to achieve the required finish in areas where machine cultivation is not possible (i.e. adjacent to kerbs, manholes and footpath junctions, around retained trees etc). Surplus plant matter, rubbish and surface stones with a dimension greater than 50mm shall be collected and removed from the site.

12. Planting Specimen Trees in Soft Verges

Tree planting shall be carried out in accordance with BS 8545: 2014 'Trees: from nursery to independence in the landscape - Recommendations'. All specified materials shall be installed in accordance with the manufacturer's recommendations and/or instructions.

The landscape contractor shall ensure that the natural root flare of the tree is clearly visible at the finished surface soil level to prevent premature tree death. To ensure the correct planting level is achieved, the contractor shall take care to remove:

- Soil placed above the natural root flare during nursery packaging and production
- Adventitious roots above the root flare
- Wire encircling the main stem
- Wire cage and burlap where possible. Otherwise, peel back and remove once tree is in the planting pit

Trees shall be planted into prepared pits - refer to table for dimensions.

Form	Girth (cm)	Tree Pit Dimensions			
		Rootball	Diameter	Depth	Length
Heavy Standard	12-14cm	500mm	400mm	800mm	800mm
Extra Heavy Standard	14-16cm	600mm	500mm	900mm	900mm

based on: BS 4428: 1989 and nursery suppliers stated rootball dimensions.

Stated tree pit dimensions are a minimum; rootball dimensions can vary naturally between species, tree stock, suppliers, and season. In the event that the rootball exceeds the stated dimensions, the landscape contractor shall excavate the hole (in open ground) to the advice given in BS 8545: 2014 with the exception of tree pit diameter, which shall be varied to achieve a minimum radius of 150mm greater than the rootball. Tree pit depth shall generally be no greater than the existing rootball or container depth. Where necessary tree pit depth shall be increased from the stated dimensions to accommodate the depth of the rootball and allow the correct planting level.

Care shall be taken to prevent smearing of tree pit sides, fork thoroughly to aid root penetration and drainage. Break up base of pit to a depth of 150mm to assist drainage, air movement, and root penetration, and leave slightly domed to prevent ponding.

Tree pits shall be backfilled with 'as dug' material (where suitable for tree growth), to replicate a natural soil profile comprising no more than 300-400mm depth of topsoil over a free-draining, sandy subsoil. All deleterious material shall be removed (weeds, broken bricks and large stones etc). Where 'as dug' material is not suitable for tree growth imported topsoil to BS 3882:2015 (multi-purpose for general landscaping operations), and subsoil to BS 8601:2013, shall be used. During backfilling, the tree shall be gently shaken at regular intervals to settle the soil closely around the roots. The backfill shall be firm in layers not exceeding 150mm to obtain the correct planting level.

Unless otherwise specified, all trees shall be supported with double stakes driven vertically at least 300mm into the bottom of the tree pit before planting, close to the tree position on the windward side. Tree shall be fixed firmly but not rigidly to stake with Toms rubber tree ties. The above ground height of the stake should be a minimum of a third of the stem height. All stakes shall be 60mm diameter softwood, peeled chestnut, larch or oak, free from projections and large or edge knots, with a pointed lower end. All stakes shall be 60mm diameter softwood, peeled chestnut, larch or oak, free from projections and large or edge knots, with a pointed lower end.

A perforated flexible plastic irrigation pipe, 60mm diameter, with a fixed grid inlet to prevent debris and rodent ingress, shall be installed around the rootball during planting, e.g. Green Blue Urban RootRain Urban RRURB1A, or similar. The pipe shall be installed at a depth of approximately 150mm below the ground surface and be of a sufficient length to coil completely around the rootball. Ensure the inlet is slightly above finished mulch surface.

The compacted pit shall be topped with organic mulch spread evenly to a depth of 75mm after settlement within a 3m diameter circle around each tree. Mulch shall comprise composted wood chips or bark, free of pests, disease, fungus, and weeds. Prior to application clear all grass and weed growth and water soil thoroughly.

PLANT SPECIFICATION

SPECIMEN NATIVE TREES

Ref	Species	Girth (cm)	Form	Height	Root Condition	Qty
Ac	Acer campestre (Field Maple)	14-16cm	Extra Heavy Standard	425-600cm	Rootball	3
Bp	Betula pendula (Silver Birch)	14-16cm	Extra Heavy Standard	425-600cm	Rootball	2
Cb	Carpinus betulus (Hornbeam)	14-16cm	Extra Heavy Standard	425-600cm	Rootball	5
PcC	Pyrus calleryana 'Chanticleer' (Callery Pear)	12-14cm	Heavy Standard	350-425cm	Rootball	5
SaCR	Sorbus aucuparia 'Cardinal Royal' (Rowan)	12-14cm	Heavy Standard	350-425cm	Rootball	3
Sam	Sorbus aria 'Majestica' (Whitebeam)	12-14cm	Heavy Standard	350-425cm	Rootball	3
Tc	Tilia cordata (Lime)	14-16cm	Extra Heavy Standard	425-600cm	Rootball	2

NATIVE SHRUBS

Plot	1	2	3
Area (m2)	10	25	23
Species	Qty	Qty	Qty
Cornus sanguinea (Dogwood)	60-80cm	1+1 bareroot transplant	4
Corylus avellana (Hazel)	60-80cm	1+1 bareroot transplant	4
Euonymus europaeus (Spindle)	60-80cm	1+1 bareroot transplant	4
Ligustrum vulgare (Privet)	60-80cm	1+1 bareroot transplant	4
Viburnum opulus (Gueulder Rose)	60-80cm	1+1 bareroot transplant	4
Total	20	50	46

SPECIFICATION continued.....

13. Native Hedges in Cultivated Beds & Trenches

Areas for planting shall be cultivated to a minimum depth of 300mm taking care to protect roots of existing trees retained. Where planting into trenches, cultivation shall extend 150mm wider than the root system (75mm minimum from root system edge to sides of trench).

Bare-root hedging transplants and container grown shrubs at the sizes stated in the plant schedule shall be pit-planted into the cultivated bed or trench, in one or two rows as noted on the drawing. For double row hedging, rows shall be planted 400mm apart, with plants positioned 45cm apart within each row, in a staggered position to the plant in the opposite row. For mixed hedgerows, species shall be randomly mixed for natural effect, and planted in groups of 3-7 plants of any one species. All bare-root stock shall be root-dipped in mycorrhizal inoculant such as Algimure, or similar approved, applied in accordance with the manufacturer's instructions. All planting shall be watered thoroughly immediately after planting and a layer of organic mulch spread along the base of hedges to an even depth of 75mm. Mulch shall comprise of composted wood chips or bark, free of pests, disease, fungus, and weeds.

14. Ornamental & Native Shrubs in Cultivated Beds

Areas for planting shall be cultivated to a minimum depth of 300mm taking care to protect roots of existing trees retained.

Bare-root transplants and container grown plants at the sizes stated in the plant schedule shall be pit-planted into cultivated beds in accordance with the planting arrangement. For native shrub plots; species shall be randomly mixed for a natural effect, planted in small groups of 3-4 of any one species at 1m staggered centres.

At each planting position sufficient soil shall be excavated from the bed to allow 75mm clearance between either the rootball, or the root ends when fully spread, and the sides and bottom of the planting hole. Each plant shall be set in the centre of the pit, showing its best side to the front. Finely broken back-fill material excavated from the pit shall be packed around the roots. The plants shall be gently shaken to allow fine soil to surround the roots. As soil is returned it shall be lightly consolidated and firmly heeled around the root collar.

All bare root stock shall be root dipped in mycorrhizal inoculant such as Algimure, or similar approved, applied in accordance with the manufacturer's recommendations.

15. Surface Mulch

All planting areas shall receive a 75mm deep 8-35mm organic bark mulch layer to prevent weed growth and retain soil moisture. Mulch shall comprise composted wood chips or bark, free of pests, disease, fungus, and weeds. Prior to application clear all grass and weed growth and water soil thoroughly.

16. Compost & Ameliorants for Shrubs & Hedges

A peat-free compost (e.g. PAS100: 2011/Landscape Institute/WRAP grade (10mm screened) green compost) shall be applied to a minimum depth of 50mm and worked into the soil. For native shrubs compost shall be mixed into the planting pit only. Following this a suitable slow-release fertiliser shall be applied and spread at 50g/m2 to all planted areas.

LANDSCAPE MAINTENANCE

All new planting and hard landscape areas shall be maintained throughout the year as follows:

Hard Landscape Areas

- Sweep up leaf fall under trees and winddown in formal and hard landscape areas
- Sweep all hard landscape areas to remove dust and debris

Shrubs & Hedgerows

- Weed Control - All planting beds shall be kept weed free by hand weeding or herbicide treatment. Top up mulch twice annually in spring and autumn to maintain original specified depth
- Firming & Pruning - firm and prune all newly planted shrubs and hedges in accordance with good horticultural practice to promote healthy, bushy growth and to ensure individual plants establish dense cover as rapidly as possible. Any damaged shoots or branches shall be pruned back to healthy wood
- Trim back growth overhanging adjacent footpaths and parking areas
- Native Mixed Species Hedgerows - Once established, trim hedges on a two-year rotation so that no more than one half of the hedge is cut in any one year to ensure there are always flowers for pollinators in spring and berries for birds in winter. Trimming shall be carried out during the dormant season but outside the bird nesting season which generally extends from March to September inclusive. Where possible, cutting shall be delayed until January/February as hedgerow berries provide an important source for birds in autumn/winter
- Hornbeam Hedges - Once established, trim twice a year to maintain a more managed appearance; once at the end of June, and again in January or February before the buds form taking care not to disturb nesting birds.
- Apply an annual application of slow-release fertiliser to planting beds during March/April in accordance with manufacturer's instructions
- Monitor health and control pests and diseases
- Watering - water as required to ensure establishment and survival (see below)

Specimen Trees

Individual trees planted as specimens shall be inspected annually during the growing season and maintained as follows:

- Firm and straighten to an upright position as required
- Maintain irrigation systems/pipes in good working order. Irrigation pipes shall be checked and repaired as necessary
- All tree stakes and ties are to be checked and adjusted if too loose, too tight, or if chaffing is occurring. Any broken stakes are to be replaced
- Formative pruning to include: removal of epicormic shoots, deadwood, competing secondary leader shoots, and closely spaced, duplicated branches with potentially weak or tight forks. All tree works to be carried out in accordance with BS 3998:2010.
- Apply an annual application of slow release fertiliser during March and April at a rate of 50g per tree
- Watering - Water as required to ensure establishment and survival (see below)

Watering

During the first two years after planting a monitored watering regime shall be implemented, commencing from the end of March/early April to the end of October - depending on weather conditions. Apply water when there has been no appreciable rain for 7 days or when there has been drying winds or very high temperatures.

Replacement of Failed or Defective Plants

Following the initial 12 months defects period any trees or plants which within a period of 5 years from the completion of the development are missing, found dead, or are seriously damaged or diseased shall be replaced in the next planting season.

NATIVE MIXED HEDGE

Hedge	A	B	C	D	E
Length (m)	58	16	23	20	20
Species	Qty	Qty	Qty	Qty	Qty
Acer campestre (Field Maple)	10	60-80cm	1+1 bareroot transplant	29	12
Corylus avellana (Hazel)	30	60-80cm	1+1 bareroot transplant	87	36
Crataegus monogyna (Hawthorn)	30	60-80cm	1+1 bareroot transplant	87	36
Ilex aquifolium (Holly)	10	60-80cm	3 litre container	29	12
Prunus spinosa (Blackthorn)	10	60-80cm	1+1 bareroot transplant	29	12
Viburnum opulus (Gueulder Rose)	10	60-80cm	1+1 bareroot transplant	29	12
Total	290	120*	115	100	100

* Total number calculated for a triple staggered hedge row

ORNAMENTAL SHRUBS

Species	Height	Size	Density/Spacing	Qty
Choisya x dewitteana 'White Dazzler'	30-40cm	3 litre container	4/m2	61
Cornus alba 'Elegantissima'	40-60cm	3 litre container	3/m2	19
Elaeagnus x ebbingei	40-60cm	3 litre container	4/m2	29
Euonymus fortunei 'Dart's Blanket'	30-40cm	5 litre container	4/m2	25
Euonymus fortunei 'Emerald Gaiety'	30-40cm	5 litre container	4/m2	21
Hebe 'Mrs Winder'	30-40cm	5 litre container	4/m2	34
Hebe 'Wiri Charm'	30-40cm	5 litre container	4/m2	49
Mahonia aquifolium 'Apollo'	30-40cm	5 litre container	4/m2	30
Photinia x fraseri 'Red Robin'	30-40cm	3 litre container	4/m2	30
Viburnum x davidii	30-40cm	5 litre container	4/m2	26
Viburnum tinus 'Eve Price'	30-40cm	3 litre container	4/m2	46

IMPLEMENTATION PROGRAMME

All soft landscape works including preparatory operations shall be carried out when all building works are complete and before the end of the first planting season, subject to the following constraints:

- No planting or preparatory operations shall take place when the ground is frost bound, covered by snow, excessively wet or waterlogged, or in excessively dry or windy conditions
- Container grown plants may be planted at any time during favourable weather and soil conditions.
- Watering and weed control to be provided as necessary
- Planting of bare-root and rootballed deciduous trees and shrubs, where specified, shall be carried out from late October to late March. All bare root stock, where used, shall be root dipped in mycorrhizal inoculant such as Algimure or similar, applied in accordance with the manufacturer's recommendations.

