

Landscape specification

Ground preparation: Protect retained trees/areas of retained soil where structural landscaping is proposed in accordance with an approved Arboricultural Method Statement and Tree Protection Plan. Tree protection fencing shall be erected as noted within an Arboricultural Method Statement and Tree Protection Plan. The fence is to be maintained for the duration of the works. Protection of existing trees against damage to be in accordance with the BS 5837:2012 - Trees in relation to design, demolition and construction - Recommendations. Protective fence to be approved by the LPA. Any excavations shall be in accordance with B.S. 8000 part 1:1989.

Imported soil: Soils will need to be imported to prepare the landscape scheme. The soils for the soft landscape scheme must be suitable for their specific use. For trees, in particular, this means specifying soils that maintain good drainage and aeration qualities to depth on handling and are of appropriate pH on placement for the planting proposed.

Soil placement should only take place where the receiving substrate is fit for purpose. For example, where large container or root-balled tree planting is proposed, topsoil should not be placed onto compacted, poorly drained sub-soil, or any soil which has been compacted to bulk densities that will impede root growth.

Subsoil: supply approved imported subsoil to B.S. 8601:2013 Specification for subsoil and requirements for use - Multipurpose subsoil. Spread and level to a depth as noted below (see soil profiles). Imported soil must be tipped and compacted only to appropriate bulk densities. Imported subsoil to be broken-up where there has been compaction. The imported subsoils must be suitable for their specific use

Topsoil: supply approved imported topsoil to B.S. 3882:2015 Specification for topsoil - Multipurpose topsoil. Spread and level to a depth as noted below (see soil profiles).

Certification of soil shall be in accordance with BS 8601/3882 and a topsoil and subsoil specification should be submitted to the Local Planning Authority setting parameters of acceptable soils which can be imported, such as a sandy loam textural range. The sand contents should consist of medium to fine grades at approximately equal quantity, including a pH of 6.5-7.5.

Imported soils shall also be suitable for the proposed landscape types, since the Standards allow for much flexibility in what is a certifiable soil, but this does not mean it is appropriate to support large root-balled trees for example.

Soil handling: There is no site won soil available for the landscape scheme. For imported soils the handling, storage, amelioration and placement must be avoid compaction, damage to soil structure or handling the soils when wet.

Soil profiles: Soil profiles should comprise:

Trees planted within shrubs or where trees are planted in grass areas: 300mm imported topsoil over 600mm imported subsoil.

Hedgerows and Shrubs (with no trees) and the adjacent grass areas: 450mm imported topsoil over 300mm imported subsoil.

Grass areas only: 150 mm of imported topsoil meeting British Standards 3882:2015 rotavated to a depth of 100 mm, over either permeable hardcore or imported subsoil.

Rain gardens soils: For SuDS features where planting is proposed (rain gardens/bioretention areas) the specification for the filter media will be determined by the Drainage Engineer. It will be suitable for the proposed planting and based on the typical specification below:

- clay and silt (< 0.063 mm) < 5%
- fine sand (0.063-0.2 mm) <20%
- medium sand (0.2-0.6 mm) 35% to 65%
- coarse sand (0.60-2.0 mm) 50% to 60%
- fine gravel (2.0-6.0 mm) <10%

The filter medium should be well graded, and the composition should contain limited particle size range.

Excavation: Any excavations in order to win soil for re-use as part of landscaping must be undertaken in accordance with BS 3882:2015, BS 8601:2013 and the 2009 DEFRA Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.

Trees: excavate a few centimeters shallower than root-ball and twice its width with sloping, scarified sides. Root-balls of trees shall be set on a 150mm depth of horticultural grade sharp sand. Semi-Mature trees shall be set on a 400-450mm depth of horticultural grade sharp sand. **Shrubs:** excavate 300 x 300 x 300mm depth.

For trees in rain gardens, refer to the below, but components will need to be confirmed by a drainage engineer.

All non-perishable root-ball wrappings and cages to be removed except where root-ball collapse is a concern, in which case cut and peel back to one third

root-ball height. Perishable wrappings and cages to be retained only where root-ball soils lack cohesion due to their textural qualities, but are then cut and peeled back to one-third root-ball height once the tree is in position, with the cut and peeled back parts removed. Perishable wrappings and cage constitute single thickness, untreated hessian and non-galvanized, narrow gauge wire. Non-perishable include double wrapped or treated hessian and thick, galvanized wire.

Backfilling: Trees: Backfill to reinstaate 300mm over 600mm profile and do not add compost or fertiliser unless soil analysis demonstrates the need. If compost is applied it should be worked in generally to the top 150mm, not back-filled into tree pits. **Shrubs:** Backfill to reinstaate soil profiles provided above and do not add compost or fertiliser unless soil analysis demonstrates the need.

Cultivation: Do not cultivate tree and shrub planting soils, only cultivate prior to planting if the soil is compacted (for example due due site/construction activities). For grass seeding areas, cultivate topsoil to a loose friable tilth suitable for grass seeding. Collect and remove from site all stones, builders' rubble and other deleterious material over 50mm in any dimension.

Amenity grass: Grass areas to be sown at a rate of 35g/m² with a suitable grass seed mix such as Germinal A19. Initial grass cutting and edge trimming down to 50mm.

Planting areas: Plant specification to be in accordance with the HTA National Plant Specification. Tree planting to be in accordance with BS 8545:2014 - Trees from nursery to independence in the landscape recommendations.

Tree planting: No tree to be planted that does not conform in full with **Table 1, p.21, BS 8545:2014**, to be established via nursery inspections prior to and on delivery of trees. The positioning of proposed trees are to avoid underground services. **No tree to be substituted by an alternative without formal agreement by the LPA, but prior consultations with nurseries should clearly establish availability.**

Root ball shaving (refer to the image): All container trees to be subject to root-ball shaving:

- Shave outer periphery of the root ball a maximum of 2" thick. All roots growing around periphery are removed.
- Shaving to be conducted using a sharp blade or hand saw eliminating no more than needed to remove all roots on the periphery of root ball.

- Shaving can be performed just prior to planting or after placing in the hole.

Tree anchoring: Rootball fixing strap system to be provided by Platipus to secure the trees. Product: Tree Anchoring with Strap. Product Code: RF1s/RF2s (depending on tree size). Ref: www.platipus-anchors.com/applications/tree-and-irrigation/rootball-fixing-system---strap/

Note: Above ground stake supports for trees shall only be used where ground anchoring methods prove ineffective, but shall not be used to support trees with defective root-balls. Staking shall comprise x3 untreated wooden stakes set with two to the SW side and attached low (never more than one-third tree height) using flexible ties such as hessian nature-ties, arbor-tie or rubber straps. Ties shall allow for flexure without abrasion of the stem and all stakes and ties shall be removed before the third growing season.

Root barriers: Where necessary, root barriers shall be installed (to be provided by GreenBlue Urban, Product: ReRoot 2000) and at a suitable depth to protect buried services. It shall be installed approximately 250mm parallel to the buried services and within 3m of the proposed trees. Proposed trees to be offset a minimum of 1m from the position of the buried services.

Bark mulch: Provide and spread evenly over all planting areas an organic, graded bark flakes or similar approved bark mulch to a depth of 50mm. For trees, and in particular those planted in grass, apply a 50mm depth of mulch to give 2m² mulching circles, but tapered to 25mm depth over rootballs - mulch to be tapered so that the root flare of tree is clearly visible. Ensure that there is a coverage area of 1200mm radius for trees, measured from the tree stem. Mulching shall be free from toxins, pathogens and other extraneous substances harmful to plant, animal or human life. Ensure that all weeds have been cleared and that the soil have been watered thoroughly prior to mulching.

Maintenance: All landscape areas to be maintained in accordance with B.S. 7370 Part 3:1991 and Part 4:1993; including weed control, and adjustment to tree stakes and ties. Refer to the below.

General notes: Substitutions, if made, should be similar in size, form and water demand. Plants shall be arranged to avoid straight lines and geometric patterns.

Landscape maintenance

Soft landscape areas to be maintained in accordance with **B.S. 7370 Part 3:1991** and Part 4:1993. The maintenance of trees should be in accordance with **BS 3998:2010** and **BS 8545:2014**. Maintenance operations to successfully establish plants shall be carried out for the first 5 years after planting.

Maintenance operations for successful plant establishment shall include watering; weed control; fertiliser application; pest and disease control; pruning; and litter picking. Watering for trees should follow an irrigation plan in accordance with BS 8545:2014 and must be in anticipation of drought.

Tree pruning should be in the winter months or summer (July-August). Cherries must be pruned only in the summer months after flowering.

The replacement of failed trees should occur once reasons for failure have been identified and amendments to the specification are made as necessary. Shrubs which die, are removed or become seriously damaged shall be replaced in the next planting season with others of similar size and species, to be agreed in writing by the Local Planning Authority. For all new landscape areas, the following maintenance programme shall be undertaken:

Watering: Water trees in accordance with an irrigation plan as per BS 8545:2014. Watering shrubs shall be carried out to maintain vigorous plant growth. Water shall soak into the ground; it is not sufficient to dampen the surface. Water must be applied slowly to avoid damage to plants.

Weed control: Hand weed to remove all weeds and their roots using a hoe, trowel or fork. Apply a herbicide to kill re-growth when required.

Fertiliser: Applications of fertiliser to be carried out early in the growing season. Ensure correct fertiliser application. Inspect once a month and after very heavy winds. Adjust ties if necessary to conform to stem growth or to prevent chafing.

Pruning: At the appropriate season for the species, pruning to be carried out to remove all damaged diseased or dead wood. Prune shrubs to ensue the plant is kept well balanced and in good shape. For trees, pruning shall be in accordance with **BS 3998:2010**.

Pest and disease control: To be carried out if necessary and in accordance with best practice.

Litter removal: Collect and remove all extraneous rubbish.

Fork over planting beds: Prick up trodden or compacted soil surfaces to aerate the soil without damaging the plants.

Mulching: Mulching to be topped up annually over the duration of the agreed maintenance period. At the end of the maintenance period, undertake a final mulch. Ensure that the soil is thoroughly moistened prior to remulching, applying water where necessary. Planting beds and trees: re-mulch to a minimum depth of 50 mm.

Mowing: Amenity grass areas shall be managed to a height of 40mm. Species rich grass areas to be mowed as advised by the supplier.

Raking/Scarifying: Relieve thatched conditions and remove dead grass in the autumn over all grassed areas.

Spiking (Aeration): Aerate to increase water, nutrient and oxygen movement into the soil.

General: If grass surface is disturbed by over use, restore by firming or lifting with a fork

Any newly planted trees, plants or hedgerows, which within a period of 5 years from the completion of the development die, are removed, become seriously damaged or diseased, or in the opinion of the Local Planning Authority otherwise defective, shall be replaced. Replacement planting shall take place during the first available planting season

Inspections: January - December. Replace dead plants when necessary. When necessary in accordance with an irrigation plan.

Watering: January.

Pest and disease control: January - December

Weed control: February - May, July; and September.

Prune: Winter months or summer.

Fork over planting beds: March.

Cut grass and trim edges: March - October.

Apply fertiliser: April.

Lightly fork over planting beds: September.

Rake / scarify grass September.

Mulch: Mid to late spring.

Landscape specification for SuDS

Seeding the SuDS basin

Seeding: Species-rich grass suitable for damp areas such as Wetland Seed from Wyndrush Wild or EM8 Meadow Mixture for Wetlands from Emorsgate.

Sowing Rate: 5g/m² (if using EM8 then: 40kg/ha 16kg/acre 4g/m²)

Sowing Time: March - October.

Sowing depth: 10mm

Sowing instructions: Create a fine friable seedbed down to 150mm in depth. Carry out two equal sowings at right angles to each other and diagonally to main axis. Broadcast manually or use seed drill, rake level and roll. Ensure good seed to soil contact.

Maintenance:

Autumn sown: Year One: First cut early July, then monthly during August, September and October. Cutting height 70-100mm. Thereafter: Cut from mid-July to early September. This can be done as one cut but preferably, and if the meadow is big enough, you will cut it in sections leaving a week to a fortnight between cuts. This can be done as one cut but preferably, and if the meadow is big enough, you will cut it in sections leaving a week to a fortnight between cuts. Ensure you collect the arisings. In March the following year, this will provide a habitat for invertebrates and some vertebrates over the winter. Rotate this area so a different section is left uncut each year. This more closely replicates the grazing of animals which would leave some small areas not grazed. If possible, and with the obvious exception of areas you are leaving uncut, lightly mow the sward down to 70-100mm as required throughout the winter months until March and collect the clippings. Ref: germinalamenity.com

Spring sown: Year One: First cut mid-September - 1st October and collect the arisings, then monthly during August, September and October. Cutting height 70-100mm.

Thereafter: Cut from mid-July to early September. This can be done as one cut but preferably, and if the meadow is big enough, you will cut it in sections leaving a week to a fortnight between cuts. Ensure you collect the arisings. If the meadow is large enough, consider allowing up to a fifth to stand uncut through the winter and cut down and remove the clippings in March the following year, this will provide a habitat for invertebrates and some vertebrates over the winter. Rotate this area so a different section is left uncut each year. This more closely replicates the grazing of animals which would leave some small areas not grazed. If possible, and with the obvious exception of areas you are leaving uncut, lightly mow the sward down to 70-100mm as required throughout the winter months until March and collect the clippings. Ref: germinalamenity.com

Maintenance objectives for SuDS

Planting will be an important feature of the proposed SuDS. The planting will provide visual interest to increase amenity and biodiversity within the site. Maintenance objectives will include regular planting checks and maintenance to ensure that the planting is establishing, and the SuDS elements are consistent with the original design intentions. This will involve continuous / ongoing routine operations throughout the year, for which a detailed maintenance schedule is to be followed.

Monitoring objectives for SuDS

Monitoring is an essential element of the plan to ensure that the results of any management work is measured and evaluated. Any lessons learnt from this monitoring can then be reflected in a review of the management plan.

Regular maintenance and monitoring inspections of rain gardens should be undertaken to maintain SuDS performance and balance. Management and maintenance commitments would be more intense during the in initial establishment period, 1-2 years after planting. This would involve:

- Watering (as necessary)
- Weed control
- Pest and disease control
- Pruning
- Checking and cleaning of inlets and outlets
- Mulching (not bark mulch), and
- Litter picking.

General maintenance for SuDS

SuDS features, from a planting perspective, will need to be inspected and monitored to ensure that they function correctly and that the systems do not fail. This would include:

- Regular inspections: Assessing plants for disease infection, poor growth, invasive species and replace as necessary.
- Regular maintenance: Removing litter and surface debris and weeds; Replace any plants, to maintain planting density.

Detailed maintenance for SuDS

Detailed operations for Monitoring and Maintaining the vegetation within SuDS may include:

Inspections.

Litter and Debris removal.

Weed and invasive plant control: In some places, weeding must be done by hand to prevent the destruction of surrounding vegetation. Hand weeding should generally only be required during the first year, during plant establishment. Where use of herbicide is permitted, this should be limited to the establishment period.

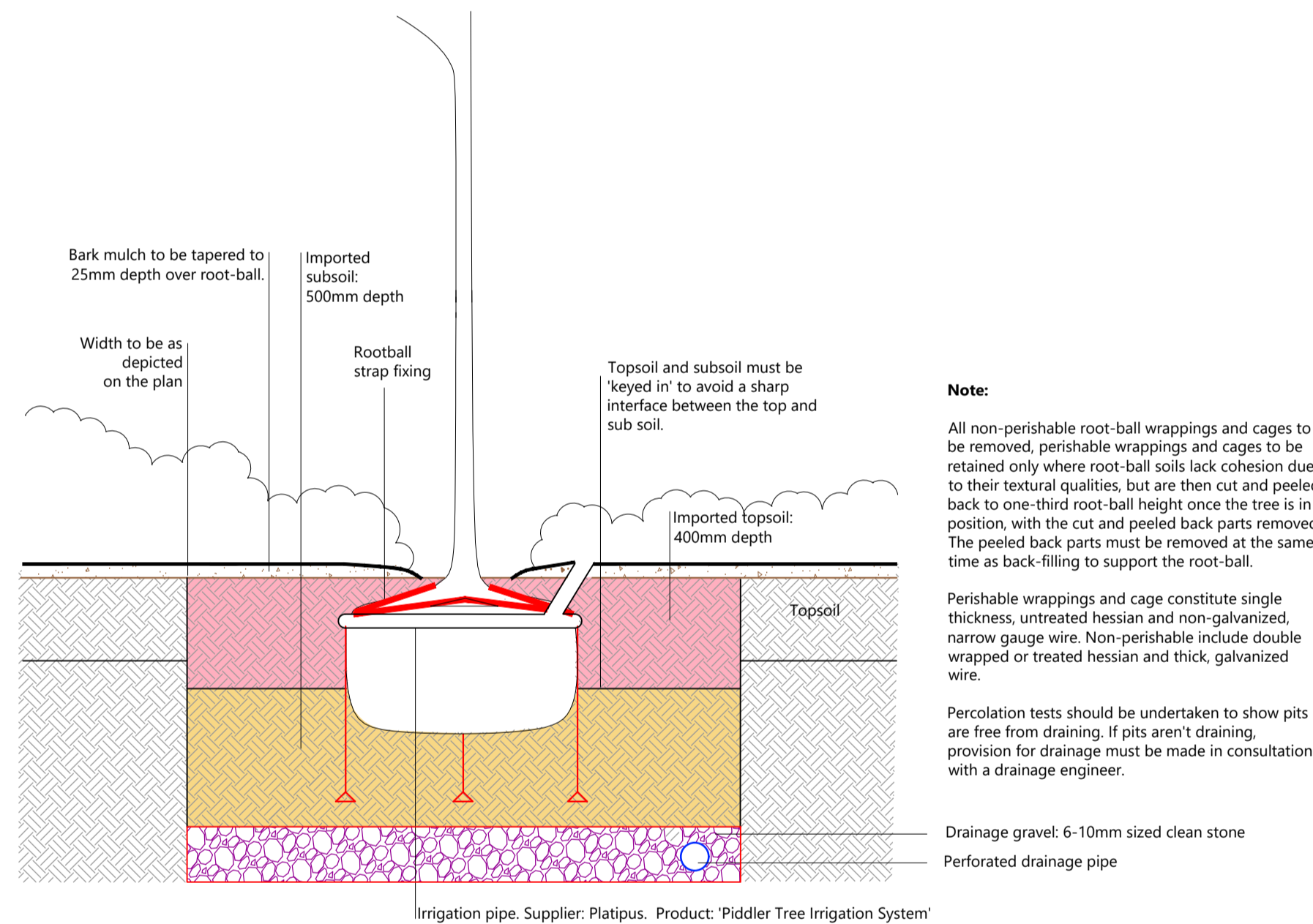
Shrub/herbaceous management (pruning/deadheading): Shrubs may be densely planted and may mature very rapidly over the first year. They are likely to require weeding at the base, especially during the first year or two, to ensure that they get enough water, and mulching to retain water in the soils where possible. Bark mulch around shrubs should not be used, as it oats and clogs outlets. Pruning shrubs can result in a denser structure and better lateral growth, which may be desirable in SuDS.

Vegetation replacement.

Where the maintenance of a system is carried out by those responsible for the wider landscaped area, the inspections can generally be undertaken during routine site visits (eg for grass cutting, leaf collection and/or litter collection), although there may need to be dedicated visits during some winter months.

Annual Maintenance programme for SuDS

Inspect vegetation coverage: January to October. Replace dead plants when necessary.
Inspect inlets and outlets: January to December.
Litter removal: January to December.
Pest and disease control: March to September.
Spike topsoil: March, May, September and October.
Watering: If necessary in accordance with an irrigation plan.
Weed control: February - May, July; and September.
Prune: Winter months or summer.
Grass cutting: As per specification.
Remove sediment build-up: May, September, October and November.



Tree pit: tree in soft landscape (section, 1:20 scale)