



NORTHEN ARC, BURGESS HILL, PHASE 1C

SOFT LANDSCAPE SPECIFICATION



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Contents

1.0 Site Preparation and Earthworks	1
2.0 Existing Vegetation	7
3.0 Topsoiling and Cultivation	9
4.0 Plants and Trees Generally	15
5.0 Planting Operations	20
6.0 Tree Planting	24
7.0 Mulch	30
8.0 Grass	31
9.0 Initial Maintenance	36

Revision	Date	Details	Revised

1.0 Site Preparation and Earthworks

- 1.1 Programme of Operation: The exterior planting shall be installed over the minimum period to complete the whole of the works. Dates are subject to discussion and agreement with suitable environmental conditions prevailing and should be undertaken at the appropriate time of year, as outlined below. The Contractor must verify this programme of work before commencing on-site. Works are only to be carried out while soil and weather conditions are suitable. Works are not to be carried out in strong winds.

Times of year for planting:

- Deciduous trees and shrubs: late October to late March.
- Conifers and evergreens: September/ October or April/ May.
- Herbaceous plants (including marginal): September/ October or April/ May.
- Container-grown plants: At any time if ground and weather conditions are favourable.
- Aquatic plants: May/ June or September/ October.
- Grass seed: April to October.
- Wildflower seed: March to May or August to October.
- Turf: Autumn or early winter.
- Watering and weed control: To be provided as necessary to ensure the site is weed-free and to help plants establish and thrive.

- 1.2. Soil Conditions: Soil for cultivating and planting is to be moist, friable and (except in aquatic/ marginal planting) not waterlogged. Prevent planting pit sides, bases and backfilled material from freezing using boards, tarpaulins, landscape fleeces or other protective materials.
- 1.3. Protect Work: The Contractor shall provide adequate temporary protection to the work during the installation and shall include temporary coverings, and all other measures for protecting the work from damage. Any work damaged or soiled by traffic or other causes due to inadequate temporary protection shall be removed and made good at the cost of the Contractor. If other work is damaged by the Contractor, they will be held responsible for the cost of rectification.
- 1.4. Site Clearance: All rubbish, concrete, metal, glass, decayed vegetation, any materials containing toxins, pathogens, and other extraneous substances harmful to plant, animal or human life, and contaminated topsoil are to be removed. Stones larger than 50mm are to be removed. Larger roots of existing vegetation proposed for removal and beyond root protection zones are to be grubbed up and disposed of without undue disturbance of soil and adjacent areas subject to ecological constraints.
- 1.5. Cleanliness: All rubbish is to be immediately cleared and removed as it accumulates during work, including from hard surfaces and grass areas. At completion, the site is to be left clean and tidy.
- 1.6. Weed Control General: All weeds shall be hand weeded using hand tools or cut down and taken off-site to a tip found by the contractor.
- 1.7. Invasive Weeds: Flail mowers should not be used for the removal of invasive weeds, such as Japanese knotweed (*Reynoutria japonica*) or giant hogweed (*Heracleum mantegazzianum*) and should be removed using a suitable non-residual herbicide.

- 1.8. Water: Water must not be allowed to accumulate in any part of the works and the Contractor is to allow for providing for all necessary pumping or bailing that may be required to always keep any excavations or any part of the site free from water.
- 1.9. Watering: All planted areas, including grassland and wildflowers, are to be watered to the full depth of topsoil, evenly and without damaging or displacing plants or soil immediately after planting operations. Watering is to be undertaken as necessary to ensure the establishment and continued thriving of all plants, including before planting. If the water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.
- 1.10. Relieving Compaction Generally: All works should be undertaken in line with the following principles:
- The moisture content of the soil is at least 5% below its plastic limit.
 - Identified root protection areas are to be avoided.
- Mechanical method recommendations:
- The ripping pattern must be overlapping passes.
 - The tines should be sufficiently closely spaced to ensure full lateral de-compaction, which also needs overlapping passes.
 - The use of winged tines is recommended.
 - Tine length and width must be compatible with the proposed depth of de-compaction.
 - Tine and wings must have wear plates and be in good condition.
 - The towing unit must be capable of working efficiently without undue weaving and track slippage.

- 1.11. Relieving Compaction in Turf: To relieve compaction in turf (beyond identified root protection areas), works are to be undertaken in line with BS7370-2:1994 Ground maintenance- Recommendations, using spiking or vertical lifting and applying a top dressing of medium-fine sand to a depth of 2-3mm.
- 1.12. Relieving Compaction in Planting Areas: To relieve compaction in all other areas (beyond identified root protection areas), works are to be either deep-jetting (high-pressure soil injection), aeration and mycorrhizal inoculation, complete soil replacement, mechanical ripping, or manual ripping. The contractor is to submit proposals to the Contract Administrator before undertaking work.
- 1.13. Topsoil Storage Heaps: Topsoil storage is to be in line with BS3882:2015 Specification for topsoil. Topsoil and subsoil are to be stored separately and topsoil is not to be contaminated with subsoil. Soil storage heaps should be narrow and not more than 1m in height and should be loose-tipped and shaped from the sides only, without running machinery on the heap at any time. This maximum height will help prevent the killing of earthworms, compaction, and waterlogging. Ideally, soil storage heaps should only be in place for a maximum of 12 months to retain the soil's natural structure. The soil storage heap is to be protected by fencing and any other material is not to be placed on top of the storage heap. Construction plants and other vehicles are not to pass over the storage heap, to prevent compaction and contamination. Wind-borne weeds are to be managed with either non-residual herbicide to prevent weed growth or a temporary crop such as green manure should be sown at the appropriate time of year.

- 1.14. Topsoil Grading: Topsoils are to be graded to smooth-flowing contours to achieve the finished levels of topsoil and are to marry in with all existing levels, eliminating all abrupt angles and changes of levels. Compaction is to be avoided. Topsoil shall be spread and settled in layers of 150mm. Minor fillings and excavations are to be made as necessary.
- 1.15. Subsoil: Subsoil is to be free from fragments and roots of aggressive weeds, sticks, straw, pieces of brick, concrete, glass, wire, corrosive, explosive or flammable materials, hazardous to human or animal life and detrimental to healthy plant growth. The subsoil is to be handled in line with BS8601:2013 Specification for subsoil and requirements for use as per multipurpose subsoil classification unless specific acidic or calcareous subsoil is required to aid the establishment of specific grassland habitats.
- 1.16. Subsoil Surface Preparation: Subsoil is to be excavated and/ or placed and filled to required profiles and levels. The subsoil is only to be loosened when ground conditions are sufficiently dry to allow the breaking up of soils and is to be loosened thoroughly to a depth of 600mm. Should any rock or chalk subgrades be found these are to be lightly scarified to promote free draining. Any stones larger than 50mm diameter, arisings, contaminants, debris, and rubble are to be removed before spreading topsoil. Excess material is to be removed from the site.
- 1.17. Subsoil Grading: Subsoils are to be graded in line with BS8601:2013 Specification for subsoil.
- 1.18. Soil Moving Operations: Soil should not be moved or handled unless the weather is forecast to be dry for at least 24 hours. Handling soil in wet conditions and compaction will contribute towards a diminished soil structure. Spoil heaps scheduled to be moved must first be checked for the presence of mammal tunnels and an ecologist contacted as required.

- 1.19. Imported Manufactured Topsoil and Growing Medium: Imported manufactured topsoil and growing medium will be required for green roofs and roof gardens/ urban tree planting. This is to be provided as necessary to make up for any deficiency of existing growing media and to complete the work, as outlined in the original landscape proposals and subsequent clauses. The crumb structure is to be made up of discernible crumbs. Nutrient content meets the minimum index values for nitrogen, phosphorus, potassium and magnesium in line with BS3882:2015 Specification for topsoil.
- 1.20. Imported Materials: All imported topsoil, subsoil and manufactured topsoil/ growing media shall be free from metal, vegetable matter, peat and any toxic wastes or pollutants. A sample load shall be stored intact for comparison with further loads which shall be of a similar standard.
- 1.21. Failures of Planting: Defects due to materials or workmanship not in accordance with the contract include all plants that have failed to thrive. Exclusions include theft or malicious damage after completion. Replacements are to match the size of adjacent or nearby plants of the same species or match the original specification, whichever is greater. All rectification and making good works are to be made in the next suitable planting season, with any plants that have failed to thrive or been maliciously damaged removed immediately to maintain a clean and tidy appearance.

2.0 Existing Vegetation

- 2.1. Existing Vegetation: No existing trees, shrubs, or other plants shall be removed or cut without specific instructions from the Contract Administrator. Existing trees are to be retained, protected, and undisturbed throughout the contract following BS5837:2012 Trees in relation to design, demolition, and construction- Recommendations (Section 6). No branches are to be cut or damaged and no roots larger than 25mm in diameter are to be cut or damaged following the British Standard. Any trees expected to be subject to works must be inspected by a suitably experienced ecologist to assess the potential for roosting bats before commencing. No fires are to be lit under or anywhere near the trees. No debris, fuel, or building material of any sort is to be stacked against or piled around the trunks.
- 2.2. Any vegetation clearance should be undertaken in the autumn and winter months outside of the time during which birds are most likely to nest (March-August) where possible. If this is not possible then the vegetation to be removed must be subject to a nesting bird check by a suitably experienced ecologist no more than 24 hours before the work. Should nesting birds be recorded then a suitable exclusion zone will be established where no works can proceed until it has been confirmed that the young have fledged.
- 2.3. Woodland Work Generally: Check for below and above-ground services, including land drainage, in the vicinity. Give notice of five days if they may be affected and obtain instructions before proceeding. Works are to comply with Arboricultural and Forestry Advisory Group Safety Leaflets.
- 2.4. Existing Vegetation/ Weed Clearance: In all areas to receive new soft landscape, as shown on detailed landscape proposals. All arisings are to be removed from the site.

- 2.5. Existing Trees/ Seedlings/ Coppice Shoots: Existing trees and seedlings are to be retained, as shown on detailed landscape proposals. All coppice shoots are to be thinned to 3-5 stems per stool, removing all damaged, dead, or diseased shoots.
- 2.6. Removing Trees and Hedges: Trees and hedges scheduled for removal are to be marked to be removed. Any work near retained trees is to be undertaken carefully. Where canopies overlap, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained. Tree stumps are to be removed mechanically to a minimum depth of 300mm below ground level. All arisings are to be removed.
- 2.7. Treatment of Tree Wounds: Cuts are to be as small as possible and cut cleanly back to sound wood using sharp, clean tools. Branch collars are to be left and not cut flush with the stem or trunk. Cut to that water will not collect on the cut area. No fungicide or sealant is to be applied to the cut unless otherwise instructed.
- 2.8. Existing Grassland: Existing grassland indicated for retention on the detailed landscape proposals is to be protected using protective fencing to prevent plant vehicles' egress. Then during planting operations, grassland is to be protected using boards/ tarpaulins. Excavated or imported material is not to be placed directly onto retained grassland.

3.0 Topsoiling and Cultivation

3.1. Existing Topsoil: Existing topsoil, retained on site, shall only be permitted with strict approval of the Contract Administrator. The contractor is to submit a method statement for reusing topsoil including full details of how the topsoil complies fully with general specifications and requirements (outlined below) which should outline its storage, handling, classification, and compliance with multipurpose topsoil requirements outlined in BS3882:2015 Specification for topsoil. Any surplus topsoil is to be removed from the site.

3.2. Imported Topsoil: Topsoil should be imported only as necessary to make up any deficiency existing on site. Imported topsoil is to be a 'multipurpose topsoil' following BS3882:2015 Specification for topsoil unless there is a requirement for a 'specific purpose topsoil' which will also be following the British Standard.

3.3. As well as following BS3882:2015 Specification for topsoil, the multipurpose topsoil should be a quality loam and have the following properties:

pH value	5.5-7.8
Nitrogen (N)	0.15% min
Phosphorous (P)	16- 100 mg/l
Potash (K)	121- 900 mg/l
Magnesium (Mg)	51- 600 mg/l
Clay	5% min- 35% max
Silt	0% min- 65% max
Sand	30% min- 85% max
Organic matter	3% min- 20% max

3.4. The topsoil must be supplied with a BS3882:2015 Specification for topsoil, declaration of analysis, analysis certificate, and sampling protocol.

- 3.5. The topsoil shall be free from stone, rubbish of any kind, roots of perennial weed, or any other injurious matter.
- 3.6. Topsoil Analysis: Whether topsoil is natural or manufactured, a chemical and physical analysis of the material is the only quantifiable method to ensure it is appropriate for the intended use. A basic analysis will include the following:
- A description of samples in terms of colour, structure, consistency, stone content, presence of foreign matter, and evidence of pernicious weeds.
 - A laboratory analysis detailing the dry weight of organic matter, fertility, and physical-chemical characteristics.
 - Recommendations for amelioration required to improve the structure or nutrient quality of the soil.
- 3.7. At the outset of the works, a sample 5m³ load must be deposited on site for approval and comparison and all subsequent loads shall be at least equal in quality to the sample, which shall remain until top-soil spreading is completed.

- 3.8. In line with BS3882:2015 Specification for topsoil, the depth of topsoil spread shall not normally exceed 300 mm. Suitable (loosened) subsoil shall provide the remainder of the minimum rooting depth, and both minimum topsoil and subsoil depths are to be in line with the following table:

	Subsoil Depth	Topsoil Depth	Overall Soil Depth
Grass	150mm	300mm	450mm
Wildflower grass	Min. 300mm	n/a	n/a
Shrubs	300mm	300mm	600mm
Trees (within soft landscape areas)	600mm	300mm	900mm

- 3.9. Wildflowers and Wildflower Grassland: Areas of wildflowers and wildflower grassland is to have topsoil removed and levels made up using existing surplus subsoil. This is to avoid nutrient overload to the growing medium of the wildflowers and wildflower grassland. The existing subsoil to be free from weeds, especially docks and thistles, cultivated to a workable seed bed to a medium tilth to allow the seed to be worked into the very top of the root zone. If sowing on a gradient steeper than 45% stabilising matting can be used to secure the bank. If the existing subsoil has a high clay content and cannot be worked to a medium tilth then an appropriate wildflower soil/ substrate mix is to be sourced. Contractor to submit proposals for subsoil use/ wildflower soil/ substrate mix.
- 3.10. Soil Additives: Additives for ecological mitigation areas should be limited and may not be needed at all except to mimic the indigenous soil conditions. BS3882:2015 Specification for topsoil permits the supply or manufacture of soils for specific purposes such as low fertility soils in wildflower areas.

- 3.11. The need for any type of fertiliser is established by site soil analysis. Fertiliser is not recommended for tree and shrub planting during the first year of establishment unless deficiencies are shown by testing.
- 3.12. Soil Fertilisers: If analysis shows that the soil is nutrient deficient then an appropriate organic fertiliser should be used, as required to ensure planting thrives.
- 3.13. Approved Chemicals: All chemicals used shall be non-toxic to human beings, birds, and animals, under normal use, shall not be used.

- 3.14. Organic fertiliser is not to be applied within 10m of surface water (including ditches), hedges, field margins, or environmentally sensitive sites or 50m from springs, wells, or boreholes.
- 3.15. Artificial fertiliser is not to be applied within 2m of water (including ditches), hedges, field margins, or environmentally sensitive sites.
- 3.16. Compost: Peat-free compost to be used, as necessary to ensure planting thrives.
- 3.17. Improver: Tree pits/ planting beds should receive Green-Tree Soil Improver incorporated into tree pits/ planting beds in line with the supplier's recommendations. As supplied by Green-Tech or equivalent.
- 3.18. Cultivation of Undisturbed Topsoil: All landscaped areas are to receive appropriate cultivation using either:
- Disc harrow to the full depth of topsoil can be used on larger areas that require the breaking of clods, chopping surface growth and levelling of soil.
 - Plough to full depth of topsoil can be used for larger areas that require the uppermost soil to be turned to bring fresh nutrients to the surface whilst burying weeds.
 - Ripping at 500mm centres to the full depth of topsoil can be used for larger areas that require the soil to be broken up to allow plants to penetrate the soil to access soil, water and nutrients to aid healthy plant growth.
 - Rotary cultivation to the full depth of topsoil can be used on smaller areas.
- 3.19. Areas that have been cultivated are to be left for one month to allow for consolidation, with topsoil levels made up and weeds managed during the settlement period.

3.20. The soil within the root spread of existing trees, hedgerows, and other vegetation to be retained is not to be cultivated.

3.21. Immediately before cultivation soil improver is to be applied at an even spread over all areas to be planted.

3.22. Final cultivation, after the consolidation period, any compacted topsoil is to be broken up to full depth. The tilth is to be loosened, aerated and suitable for blade grading during suitably dry weather conditions—maximum particle size to 10mm. Any undesirable material brought to the surface including visible weeds, roots, and large stones with a dimension exceeding 50mm are to be removed.

3.23. Finished Levels After Settlement:

- Adjacent to grass areas: 50mm above adjoining paving, kerbs or hard surface (to allow a mower to pass freely over both grass and hard landscape areas).
- Seeded areas: Extend cultivation into existing adjacent soft landscape areas sufficient to ensure full marrying in of the levels.
- Adjoining soil areas: Marry in.
- Existing trees, hedgerows, and other vegetation: Do not dig or cultivate, levels to marry in on the edge of the root protection area.
- Planted areas including the thickness of mulch: 75mm below adjoining paving, kerbs or hard surface (to avoid topsoil and mulch from spilling onto adjacent hard landscape areas).

4.0 Plants and Trees Generally

4.1. Plants/ Trees Generally: All plants and trees are to be materially undamaged, sturdy, healthy and vigorous. Plants and trees are to be in good shape without elongated shoots with a balanced branch system. They are to be free from pests, diseases, discolouration, weeds, and physiological disorders. Species are to be true to name and ideally of local provenance. If plants or trees arrive on site with any defects or damage the plants/ trees shall be rejected and replaced.

4.2. Plants/ Trees shall comply with the relevant parts of BS3936 Nursery Stock, including:

- Part 1 Specification for Trees and Shrubs.
- Part 2 Specification for nursery stock, Roses.
- Part 4 Specification for Forest Trees.
- Part 7 Specification for Bedding Plants.
- Part 10 Specification for Ground Cover Plants.

Plant Biosecurity

4.3. All planting material shall be sourced from a nursery which is accredited with the Plant Healthy accreditation, holders of the Woodland Trust UK and Ireland Sown and Grown (UKISG), as well as the ISO 14001 Environmental management accreditation.

4.4. Suppliers of plant material shall hold a plant passport.

4.5. On delivery of plant material, all materials should be inspected for pest and diseases by a person with a suitable qualification in Horticulture or Landscape, if any plant materials are deemed to be unsuitable then they shall not be used on site and sent back to the supplier.

4.6. Any planting material that shows signs of issues which is mentioned on the high-profile pests and diseases list:

(<https://planthealthportal.defra.gov.uk/pests-and-diseases/high-profile-pests-and-diseases/>)

should be quarantined and reported to DEFRA:

(<https://planthealthportal.defra.gov.uk/pests-and-diseases/reporting-a-pest-disease/>)

Planting Operations

4.7. Planting Operations: Planting operations shall be carried out in line with the requirements of BS4428:1989 Code of Practice for general landscape operations (excluding hard surfaces).

4.8. Plant/ Tree Substitutions: Plants/ trees unobtainable or known to be unobtainable at the time of ordering are to have suitable substitutions submitted to the Contract Administrator for approval before making any substitutions.

4.9. Planting, Handling, Storage, Transport and Planting: All plants and trees are to be handled, stored, transported, and planted to CPSE 'Handling and Establishing Landscape Plants'. All plants and trees are to be protected from frost and handled with care. Plants and trees are planted upright or well-balanced with the best side to the front.

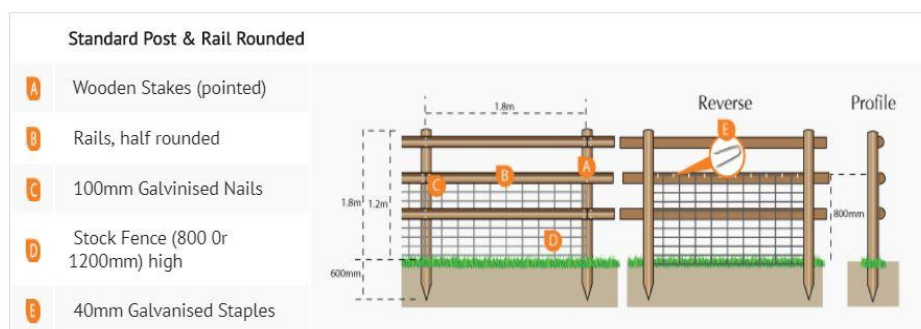
- 4.10. Heeling In: After delivery, if planting is not carried out immediately, root-balled plants shall be placed next to each other and the ball covered with sand or fine soil and watered to prevent drying out. Bare-rooted plants shall be heeled in by placing the roots in a prepared trench and covering them with fine soil which shall be watered in to avoid air pockets around the roots.
- 4.11. Random Plant Layout: Unless otherwise stated on the drawing plants are to be evenly distributed throughout the bed, with densities as shown in the detailed proposals. All plants are to be evenly spaced to avoid straight lines.
- 4.12. All Shrubs/ Herbaceous/ Conifer Plants: Planting holes to be excavated a maximum of 2 days before planting. Holes are to be wide enough to accommodate roots when fully spread and 75mm deeper than the root system. Topsoil is then to be carefully backfilled into the planting holes. Plants to be well-firmed by heeling and the surface left neat and even. Care must be taken not to disturb the root balls of pot-grown plants and not let any roots dry out at any time.
- 4.13. All plants and trees that are not planted on arrival on site must be watered frequently to prevent drying out. Plants and trees that have been allowed to dry out to the extent where their health is affected will be replaced at the Contractor's expense. Immediately before planting, all plants and trees will be well watered. Care will be taken during planting so as not to break up the root ball.

4.14. Plant Protection for Native Whips and Transplants: Native whips and transplants are to be protected using an appropriately sized biodegradable/ recycled tree, shrub guards and spiral guards. Secured into place using a single timber stake or bamboo cane with all fixing to be biodegradable.

- Bare root native transplants (40-100cm): Recycled spiral guard to be secured in place using bamboo cane with biodegradable fixings.
- Containerised native transplants/ bushy native shrubs (40-60cm): Biodegradable plastic-free shrub shelter guard to be secured in place using single timber stake with biodegradable fixings.
- Native whips (100-125cm height): Biodegradable plastic-free shrub shelter guard to be secured in place using single timber stake with biodegradable fixings.

4.15. Plant Protection for Orchard Trees: Orchard trees between 150-175cm in height are to be protected using weld mesh tree shelter guard and staked using short single staking.

- 4.16. Plant Protection for Native Tree/ Shrub/ Woodland: Areas of native tree/ shrub/ woodland planting are to be surrounded by 1.2m high rounded post and rail fencing. Comprising of 1.8m uprights dug in at 600mm deep with 1.8m intervals. Triple cross bars with stock fencing securely attached to the second crossbeam with galvanised nails see figure below:



Access to the area through two 3.6m wide pressure-treated softwood field gates. Securely attached to post and rail fencing with galvanised fixings.

5.0 Planting Operations

All Container-Grown Plants/ Trees

- 5.1. All Container-Grown Plants/ Trees: The growing medium is to have adequate nutrients for plants to thrive until permanently planted. Plants are to be centred in containers, firmed, and well-watered. The root balls of the plants/ trees are to substantially fill the containers, but not root bound, and in a condition conducive to successful transplanting. All plants and trees are to be hardy and grown in the open for at least two months before being supplied. Containers of plants and trees are to have holes to provide adequate drainage when placed on any substrate commonly used under irrigation systems.

Climbing Plants

- 5.2. Planting Climbing Plants: Plants are to be located 150mm clear of the supporting structure (e.g. wall/ fence/ pergola) with roots spread outwards. Stems are to be lightly secured to support using biodegradable expandable plant ties. Climber support consists of galvanized hooks and wires set at 250mm centres forming an overall grid 1800 x 1800mm in size, avoiding gates, windows, services etc. Temporary support canes are to be removed at planting.
- 5.3. Climbing Plants used as Groundcover: Support canes to be removed at planting, stems spread out evenly throughout the bed and pinned to the ground to ensure good contact. Pins to be biodegradable.

Wildflower Plugs

- 5.4. Planting Wildflower Plugs: Plants are to be kept watered and in shade until planted and not allowed to dry out. Wildflower plugs are to be planted into established soft landscape areas. Any bramble, coarse and invasive weeds are to be removed and the area is to be closely mown to approximately 50mm with arisings removed. Wildflower plugs are planted into a hole to suit the plug size and shape. A cleft is to be created at the bottom of the hole to improve rooting. Then gently firm the plant into the hole.

Hedge Planting

- 5.5. Planting: In trenches large enough to take the full spread of roots. Set out plants evenly.
- 5.6. Formal hedgerows: Consistent in species, cultivar, and clone to ensure a uniform hedge.
- 5.7. Naturalised hedgerows: Planting: In trenches large enough to take the full spread of roots. Set out plants evenly.
- 5.8. Fencing Support for New Hedges: A 3-strand galvanised wire and tanalised softwood timber post fence, to BS1722-2:2020 Fencing, is to be erected through the centre of the staggered row of hedge or along the back edge of a single line of hedge, before planting hedge. This is to prevent access through the site by pedestrians until the hedges are fully established. Hedge plants are to be lightly secured to fence wires at appropriate intervals.

Conifers

- 5.9. Antidesiccant for Conifers/ Evergreens: A suitable antidesiccant is to be applied to all conifers before planting. Plants are to be dipped or thoroughly sprayed before delivery to the site and sprayed again soon after planting, including the underside of foliage, to prevent moisture loss. Antidesiccant is not to be applied in wet or frosty weather.

Planting within Root Protection Areas (RPA)

- 5.10. Planting within RPA: Any existing vegetation is to be removed by hand. Turf may be removed using a hand-driven mechanised turf cutter. Do not reduce any high spots or excavate in any way. Topsoil is to be imported by hand (wheelbarrow), as required, without raising the soil levels within the RPA. Planting is to be undertaken in individual planting pits. If it is likely too severe or damages any roots larger than 25mm in diameter, the planting pit is to be relocated. Mulch is to be imported and spread by hand.

6.0 Tree Planting

Tree Planting General

- 6.1. Planting of Trees shall be following BS8545:2014 Trees: from nursery to independence in the landscape – Recommendations.
- 6.2. Trees shall be well-grown nursery stock free from disease, true to type, and of a size scheduled following the approved method of measurement. All young trees shall exhibit a clearly defined stem taper, evident from the crown through to root flare, appropriate to the species. All young trees shall have been formatively pruned at the nursery to give a well-balanced crown formation, a well-formed straight central leader, and lateral branches subordinated to that leader. All root-balled trees shall have been transplanted the correct number of times as specified in the plant schedule. All rootballs shall contain a fully fibrous root system with obvious evidence of root pruning or transplanting.
- 6.3. Identification: Every specimen tree, and one tree from each group of similar trees, shall bear labels with the correct full botanical name. These are to be of 6mm Dymo tape (or equal) stuck onto white plastic labels and tied loosely to the tree in a position where it can be seen clearly.
- 6.4. Care must be taken that the roots are not allowed to dry out and plants must be protected by damp straw moss, sacking, or the like. Trees that are not used immediately on site shall be heeled into ready-prepared trenches and shall be kept thus in a moist condition until planting on the same day. Trees not used on the same day of arrival may be heeled in and stored at a site to be agreed upon with the Contract Administrator. Plants stored so will not be subject to an extra cost on the contract.

- 6.5. Tree Pits within Soft Landscape: Tree pits shall be 75mm wider than the root spread and have the same depth as the rootball. Trees planted on sloping ground are to have horizontal bases maintained and vertical sides with no less than minimum depth throughout. The base of the tree pit is to be broken up to a depth of 150mm and the pit sides scarified. Backfill shall be added gradually in layers of 150mm depth, ensuring the tree is held upright. At each stage, the fill shall be firmed in to eliminate air pockets under and around the root system, but with care being taken not to excessively compact the soil.
- 6.6. Planting: Once a rootballed tree has been positioned in the planting pit, hessian, twine, and the wire cage shall be loosened. If the wire encircles the stem diameter as part of the wire cage of the rootball, this shall be cut and removed. The tree's root system shall be fully watered before planting. The tree shall be planted at the correct depth considering the position of the root flare. Allowances shall be made for the settling of the soil after planting. The rootball or root-stem transition shall be level with the host soil or surface.
- 6.7. Tree Pit Backfill Material within Soft Landscape: Topsoil and subsoil within tree pits are to be excavated and stored separately and then backfilled with 600mm depth subsoil and 300mm depth topsoil (in line with BS3882:2015 Specification for topsoil (multi-purpose topsoil)).

- 6.8. Each tree is to receive a 50cm radius circle of lightly consolidated 75mm depth of bark mulch immediately after planting. Mulch to consist of 'Melcourt Amenity Bark Mulch' available from, www.Melcourt.co.uk; 01666 504398 or equivalent. Free from pests, disease, weeds, and additives. The root flare and the base of the stem shall be maintained free from mulch.
- 6.9. Watering: At the time of planting the tree pit shall be saturated to the point of field capacity. If there is a risk of frost within 24 hours the watering shall be delayed until the risk has passed.

Standard Trees within Soft Landscape

- 6.10. Standard Trees within Soft Landscape: Standard trees or larger are to be supported with short double staking, these stakes are to be the requisite length just below the lowest branch of the tree, pressure impregnated (with preservative non-injurious to plants) de-barked softwood 100mm square or diameter. Stakes are to be attached to a pressure-impregnated wooden crossbar. Stakes and crossbars shall allow for canopy and stem movement as low down the tree as possible, whilst supporting the structural function of the root system. Tree stakes shall be driven into the ground before the tree is planted, to a sufficient depth to provide full support for the tree. Hessian/ natural fiber tree ties are to be used to fix the tree to the crossbar. A spacer block is to be created between the stake and the tree with a large knot.
- 6.11. Irrigation tubing: Root Rain Metro pit irrigation system to be installed in line with suppliers' recommendations, as supplied by GreenBlue Urban or equivalent.

Standard Trees within Hard Landscape

- 6.12. Standard Trees within Hard Landscape: Standard trees or larger are to be supported with SASAP06A Arborguy strapped anchor system, fixed in place using a deadman plate, in line with suppliers' recommendations. As supplied by Green Blue Urban or equivalent.
- 6.13. Irrigation tubing: Root Rain Metro pit irrigation system to be installed in line with suppliers' recommendations, as supplied by GreenBlue Urban or equivalent.
- 6.14. Root Director: RD1000-RSA RootSpace RootDirector, modular root barrier system to be fitted at time of installation, size appropriate to location and dimension of the hard landscape. Installed in line with suppliers' recommendations, as supplied by GreenBlue Urban or equivalent.
- 6.15. Cellular Structural Soil System: RootSpace structure to be installed around and beneath the tree pit and the adjacent hard surface to provide, at a minimum, an additional area of 2m x 2m x 0.6m depth rooting zone per tree. Voids are to be filled with RootSoil 20. RootSpace structure to be installed in line with suppliers' recommendations, as supplied by GreenBlue Urban or equivalent.
- 6.16. Tree Guard: 1.8m high x 600mm diameter ULLSSP6A Ullswater vertical steel tree guard with appropriate support frames, to be fitted to the tree grille. Installed in line with suppliers' recommendations, as supplied by GreenBlue Urban or equivalent.
- 6.17. Tree Grille: 1.2x 1.2m ADUR12A tree grille with a steel frame to be installed in line with suppliers' recommendations and fitted flush with the surrounding hard landscape. As supplied by GreenBlue Urban or equivalent.

- 6.18. Root Aeration System: RRARBV150B Arbovent 150, single inlet aeration system to be installed in line with suppliers' recommendations, as supplied from GreenBlue Urban or equivalent.

7.0 Mulch

- 7.1. Bark Mulch: Apply 75mm depth of mulch over the whole planting bed, including the base of hedgerows, immediately after watering in. Mulch consists of 'Melcourt Amenity Bark Mulch' available from, Melcourt Industries or equivalent. Free from pests, disease, weeds, and additives.
- 7.2. Gravel Mulch: Apply 75mm depth of gravel mulch over the whole planting bed, immediately after watering in—gravel mulch as shown on detailed landscape proposals.
- 7.3. Mulch Matting: Apply mulch matting directly to the prepared bed, the bed is to be thoroughly watered before laying with lap or butt joints as recommended by the supplier. Cut 'X' shaped slits in the matting above each planting hole. Then plant through the matting and refit closely around the plant stems. Mulch matting consists of 'Greenfix Mulch Mat' (100% biodegradable) available from Green-Tech or equivalent.

8.0 Grass

- 8.1. Seeded and Turfed Areas: All seeded and turfed areas are to have healthy, vigorous grass sward, free from the visible effects of pests, weeds, and disease. The appearance is to be closely knit, with a continuous ground cover of even density, height and colour.
- 8.2. Climatic conditions: Only carry out the work while soil and weather conditions are suitable.
- 8.3. Water of Seeded and Turfed Areas: Topsoil is to be wet to full depth and applied evenly and without displacing seed, seedlings, or soil. Watering is to be carried out as necessary to ensure the establishment and continued thriving of all seeding/ turfing. If water supply is or is likely to be restricted by emergency legislation do not carry out seeding/ turfing until instructed. If seeding/ turfing has been carried out, obtain instructions on watering.
- 8.4. Grass Area and Wildflower Boundaries: Grass and wildflower areas are to have boundaries clearly marked in straight lines or smooth flowing curves as shown on the detailed landscape proposals.
- 8.5. Herbicide: A suitable non-residual herbicide is to be applied to seeded and turf areas before the application of seed and turves. Herbicide is to be suitable for suppressing perennial weeds. A fallow period, as manufacturer's recommendations is to be allowed before cultivation.

Grass Seed

- 8.6. Grass Seed for All Grassed Areas: Grass seed mixture Emerald MultiScape is to be applied to all grass areas at a sowing rate of 35g/m², as supplied by Germinal Seeds or equivalent.
- 8.7. Grass Seed for Shaded Areas: Grass seed mixture Shaded Area is to be applied to shaded grass areas at a sowing rate of 35g/m², as supplied by Germinal Seeds or equivalent.
- 8.8. Grass Seed for Amenity/ Play Areas: Grass seed mixture Emerald MultiScape is to be applied to amenity/ play grass areas at a sowing rate of 35g/m², as supplied by Germinal Seeds or equivalent.
- 8.9. Quality of Grass Seed: All grass seed is to be produced in the current growing season; all blue-label certified varieties are to have appropriate certification. All grass seeds are to comply with EC purity and germination regulations. Official seed testing station certification of germination, purity, composition, and samples of mixtures are to be submitted when requested.

Wildflower

- 8.10. Wildflower Mixture for Flowering Lawns: Flowering lawn seed mixture EL1 is to be applied to flowering lawn areas at a sowing rate of 4g/m², as supplied from Emorsgate Seeds or equivalent.
- 8.11. Wildflower grassland meadow to be seeded with RE1 Traditional Hay Meadow at a sowing rate of 4g/m², as supplied from Emorsgate Seeds or equivalent.
- 8.12. Hedgerows: Seed mixture EH1 Hedgerow Mixture at a sowing rate of 4g/m², as supplied from Emorsgate Seeds or equivalent.
- 8.13. Tussock Grassland: Seed mixture EM10 Tussock Mixture at a sowing rate of 4g/m², as supplied from Emorsgate Seeds or equivalent.
- 8.14. Suds Mixture: Seed mixture WFG9 Wet Tolerant Meadow Mixture at a sowing rate of 4g/m², as supplied from Emorsgate Seeds or equivalent.
- 8.15. Quality of Wildflower Seed: All wildflower seed is to be produced in accordance with Flora Locale's 'Code of Practice for collectors, growers and suppliers of native flora'. The contractor is to submit germination test results (to ISTA International rules for seed testing) and samples are to be submitted when requested.

Sowing

- 8.16. Sowing: Good seed contact with the root zone is to be established using a method suitable to soil type, proposed usage, location, and weather conditions during and after sowing. Seed is to be distributed in 2 equal sowings at right angles to each other and diagonally to the main axis.

General

- 8.17. Pre-Emergent Herbicide: A suitable pre-emergent herbicide is to be applied to all grass seed areas (not wildflower areas), and is to be Pesticide Safety Directorate approved, immediately after sowing.

Turf

- 8.18. Turf to BS3969: All turfed areas are to comply with BS3969: 1998 + A1:2013: Recommendations for Turf for general purposes. Turf grade to be general-purpose utility with perennial ryegrass. A suitable herbicide is to be applied not less than four weeks and not more than three months before lifting.
- 8.19. Delivery and Storage: The turf is to be laid with minimum possible delay after lifting. If a delay occurs, lay turf out on topsoil, and keep moist. The turf is not to be lifted in frosting or waterlogged conditions. Any dried or deteriorated turf is not to be used.
- 8.20. Turfing Generally: Turfs are to be laid within 24 hours of delivery and not laid when persistent cold or drying winds are likely to occur or soil is frost-bound, waterlogged or excessively dry. Planks are to be laid on previously laid turf and prepared beds or newly laid turf is not to be walked on. Turves are to be laid with broken joints, well butted up and not stretched. The edges of the turf areas are to consist of whole turves, trimmed to a true line. Should any level changes occur high spots are to be removed and fill hollows with fine soil. The turf area is to be lightly and evenly firmed as laying proceeds to ensure full contact with substrate, no rollers are to be used. The turfed area is to be thoroughly watered immediately after laying, checking that water has penetrated the soil below.
- 8.21. Turf on Banks: Any slope exceeding 30° is to have turf laid diagonally to the slope and secured in place using biodegradable pins.
- 8.22. Trimming Turf: Turf around newly planted trees is to be neatly cut away around individual trees to leave a 1m diagonal circle with 75mm bark mulch applied to the surface of the tree pit.

- 8.23. Planting in Turf: Cut and upturn and excavate the minimum size of turf possible to successfully accommodate the full root system. Plant the shrub/ tree/ herbaceous, close the notch with root collar at ground level and firm the soil.
- 8.24. First Cut of Grassed Areas: Grass areas are to be cut when the grass is reasonably dry and has reached a height between 40-75mm. All debris, litter, stones and earth clods (larger than 25mm in any dimension) are to be removed before cutting. Height of first cut 40mm using a suitable mower. All arisings are to be removed.
- 8.25. Cleanliness: All soil and arisings are to be removed from hard surfaces. All areas are to be left in a clean, tidy condition at completion and after any maintenance operations.
- 8.26. Failures of Grass Seed and Turf: Any areas that have failed to thrive due to defective materials or workmanship are to be made good with recultivation and reseeding/ returfing in the next suitable planting season.

9.0 Initial Maintenance

9.1. Maintenance: Carry out maintenance operations from the completion of planting until the end of the rectification period/ completion or handover. The frequency of maintenance visits is to be agreed upon with the Contract Administrator and contractor to submit proposals.

9.2. Planting Maintenance General:

- All areas are to be maintained weed-free, with a weed-free area around each tree and shrub. Planting areas are to be kept clear of weeds either by hand or using a suitable herbicide.
- Planting beds are to be forked over as necessary to keep the soil loose, with gentle cambers and no hollows. Care is to be taken not to reduce the depth of effect of mulch.
- Ensure that trees and shrubs are not damaged using mowers, nylon filament rotary cutters and similar powered tools.
- All plants are to have gently firm loosened soil around trees/ shrubs. Any leaning trees/ shrubs are to be straightened.
- Check the conditions of stakes, ties, guys, guards, irrigation, and ventilation systems and replace any broken or missing items. Stakes are to be re-firmed in the ground or replaced as necessary to provide support to the tree. Ties are to be adjusted to accommodate growth and prevent constriction or abrasion.
- Any damage to bark is to be cut back neatly with a sharp knife and any further damage is prevented.

9.3. Watering: Watering operations are to be undertaken as required for healthy establishment, depending on weather conditions.

- 9.4. Plant Pruning Maintenance: Plants are to be pruned to promote healthy growth and natural shape. Any dead, diseased wood and suckers are to be removed, as necessary. Trees are to have a single central leading shoot. All arisings are to be removed from the site.
- 9.5. Woodland Planting Maintenance: Plants are to be watered only as necessary to prevent plant wilting. Any loose plants are to have the planting pits refirmed, without compacting. Weeds are to be controlled by cutting them down and removing any material before setting seeds in a 1m diameter area around each tree. Any ditches and drains are to be kept clear.
- 9.6. Amenity Grass: The maximum height of growth at any time is 75mm. All debris, litter, stones and earth clods (larger than 25mm in any dimension) are to be removed before cutting. Amenity grass is to be cut and when necessary to a height of 35mm. All arisings are to be removed. Edges of amenity grass areas are to be trimmed to maintain straight or smooth curves as shown on detailed landscape proposals. The amenity grass areas are to be substantially free from broad-leaved weeds using an application of a suitable selective herbicide. Should any level changes occur high spots are to be removed and fill hollows with fine soil. Watering is to be undertaken as necessary to maintain healthy grass sward.

- 9.7. Wildflower Areas (with Perennial Wildflowers): All debris, litter, stones and earth clods (larger than 25mm in any dimension) are to be removed before cutting. Wildflower areas are to be initially cut in either March/ April, if there is sufficient growth, to a height of 100mm. Subsequent cutting is to be undertaken every 6-8 weeks until autumn, allowing the wildflower areas to reach a maximum height of 150mm. All arisings are to be removed. Edges of wildflower areas are to be trimmed to maintain straight or smooth curves as shown on detailed landscape proposals. Watering is to be undertaken as necessary to maintain healthy grass sward.
- 9.8. Wildflower Areas (with Annual Wildflowers): All debris, litter, stones and earth clods (larger than 25mm in any dimension) are to be removed before cutting. Wildflower areas are to be initially cut after flowers have set seed, to a height of 100mm. Subsequent cutting is to be undertaken in March/ April (if there is sufficient material) and September/ October. All arisings are to be removed. Edges of wildflower areas are to be trimmed to maintain straight or smooth curves as shown on detailed landscape proposals. Watering is to be undertaken as necessary to maintain healthy grass sward.
- 9.9. Final Mulching: At the end of the maintenance period a final re-mulching application is to be undertaken to all planting areas, including the base of hedgerows. All planted areas are to be thoroughly moistened before re-mulching, applying water where necessary. Mulch is to be applied in line with original specification to a depth of 75mm with no mulch left on adjacent hard surfaces.

- 9.10. Maintenance Instruction: Before the end of the maintenance period, the contractor is to submit instructions recommending procedures to be established by the Employer for maintenance of the planting work for one full year. This is to include a schedule of any ongoing maintenance problems experienced during the rectification period and is to provide details of any special procedure to be carried out.

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