

Portus + Whitton

landscape architects

SOFT LANDSCAPE SPECIFICATION

for

Tree, shrub, herbaceous planting,
turf and wildflower seeding

at

St Andrews Park, Uxbridge

For

Anchor Hanover Group

August 2019

Purpose of issue:

Employers Requirements

Landscape Architect:

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Contract Administrator (CA):

to be confirmed

SPECIFICATION FOR SOFT LANDSCAPE WORKS:

1. PRELIMINARIES: GENERAL CONDITIONS

1.1. Soft Landscape Contract Conditions:

- 1.1.1. The general earth and ground preparation works are anticipated to form part of the main contract; this is to be confirmed with appointed main contractor. It is also expected that, prior to commencing work/setting up compound on site, the soft landscape contractor will liaise with the main contractor and carry out a site inspection to confirm condition of all soft landscape areas is in line with contract documents.
- 1.1.2. The programming, timing and implementation of all phases and items of soft landscape works is subject to Practical Completion of Main Contract works. The tenderer is expected from time to time to liaise with the main contractor to keep up to date with progress of main contract works and potential commencement soft landscape works.

1.2. Contract Documents:

- 1.2.1. This Specification is to be read in conjunction with the following information:
 - L/2 Landscape Masterplan
 - L/3 Trees Planting
 - L/4 Specimen Shrub and Hedge Planting
 - L/5 Ornamental Planting
 - L/6 Soft Landscape Schedules
 - L/7 Hard Landscape Plan
 - L/8 Hard Landscape Edging Plan
 - L/9 Patio Size Plan
- 1.2.2. Additional drawings/information may be issued during the course of the works as necessary.
- 1.2.3. Before any work is commenced on site, all soft landscape areas shall be checked on site regarding their location and general extent/dimensions. Soft landscape contractor to notify CA if significant discrepancies between built and proposed information exists. CA to review densities and layout if deemed necessary.

1.3. Pricing

- 1.3.1. Tenderers shall compare this Specification with all the contract documents jointly on site, so that they may understand the true nature of the work to be done. Tenderers shall include for and shall be prepared to carry out without extra charge all work necessary for the completion of the items specified herein, including minor items not specifically mentioned.
- 1.3.2. Tenderers must price all items and take into account all items within the clauses. All prices are deemed to include obligations and costs and should include for incurred costs regarding transport of labour, materials and equipment to the site. Any difficulties with access and site location with regard to general pricing levels are deemed to have been taken into account at the Contractor's site visit.
- 1.3.3. In the event of discrepancies being found between the individual contract documents (e.g. written specification, the schedules and the drawings), the CA shall be notified to confirm, which document takes precedence.
- 1.3.4. Tenderers are asked to complete and return the attached Form of Tender and priced Schedules of Works with no omissions, alterations, conditions or amendments made to the text of the written Specification, except as agreed with the CA and Employer.
- 1.3.5. Tenderers should show unit rates wherever possible.

- 1.3.6. Any substitutions made to the Schedules of Works by the Tenderers must be clearly identified on the returned schedule.
- 1.3.7. The Employer is not bound to accept the lowest or any tender, or to pay costs incurred in submission.
- 1.3.8. Following the award of the contract, a pre-start meeting shall be arranged on site.
- 1.4. Scope of the Work**
 - 1.4.1. The work comprises setting out, ground preparation, tree / ornamental shrub/ herbaceous and bulb planting, grass seeding, together with defects liability and establishment maintenance during rectification period.
- 1.5. Programming**
 - 1.5.1. The Contractor's proposed programme, or summary thereof, showing the sequence and timing of the principal parts of the works, periods of planning and design and itemising any work which is excluded must be submitted with the tender.
- 1.6. ANTICIPATED PROGRAMME DATES (Soft landscape only):**
 - 1.6.1. TBC.
 - 1.6.2. TBC.
 - 1.6.3. Rectification Period End: 12 months (24 months for specimen trees and shrubs) from the date of Practical Completion.

2. PRELIMINARIES: SITE CONDITIONS

2.1 The Site

- 2.1.1. The Contractor is advised to visit the site and satisfy himself as to the nature of the ground, access, water/power supply, liability to trespass and other site conditions.

2.2 Access and Working Area.

- 2.2.1. Available areas for site access routes, working, storage and other operational activities including welfare facilities are to be coordinated with main contractor and confirmed by CA.

2.3 Existing Services.

- 2.3.1. The location of services shall be determined at the pre-tender site visit. The tenderer will be responsible for obtaining as built information and existing information from main contractor for all services associated with development. The Contractor shall take all reasonable precautions to avoid damage to or blocking up of any water pipes, sewers and cables, which he may meet in carrying out the Works. Should the Contractor encounter in the course of excavation any cable or sewer he must immediately suspend operations in that area and seek instructions from the Employer. Any damage is to be reported to the Employer and CA. Prior to any excavations taking place associated with tree and shrub planting, the appointed contractor shall carry out a cat scan to check for presence/exact alignment of any underground services.

2.4 Water

- 2.4.1. It shall be the Contractor's responsibility to ensure a sufficient water supply throughout the contract period; the Contractor is therefore advised to investigate water services on site and to price accordingly.

2.5 Existing Boundaries

- 2.5.1. Where land allocated to the Contractor for the purpose of this Contract is bounded by or contains any existing fence or wall the Contractor shall be responsible for protecting and maintaining such fence or wall in good condition and repair including keeping any drains clear.

2.6 Prevention of Damage

- 2.6.1. The Contractor shall take due care of all buildings, structures, public roads, paved surfaces, land or crops, and also of any existing plants, which are not scheduled for removal under this Contract. The Contractor shall be responsible for making good any damage to the above at his own expense.
- 2.6.2. All existing trees, shrubs and hedges shall be protected from damage caused by spillage or materials injurious to plants and precautions taken to prevent roots being suffocated by raising local ground levels. In any instance of damage occurring to any existing vegetation, which is to be retained, the plant(s) shall be replaced with a plant of similar size and habit or a planting scheme prepared at the Contractors own expense.

2.7 Timing of Operations

- 2.7.1. The Contractor is responsible for taking proper account of the weather conditions as they influence the timing of operations, supply and storage of materials. During wet or frosty weather all exposed portions of the works and all vulnerable materials shall be adequately protected. Under no circumstances should frozen materials be used, or the working of frozen surfaces be commenced.

2.8 Insurance and Qualifications

- 2.8.1. Before starting work on site submit documentary evidence and / or policies and receipts for the insurance required by the Conditions of Contract. Provide proof of appropriate professional qualifications and / or certificates of memberships for all staff working on site as required by the condition of contract.

2.9 Supervision

- 2.9.1. The Contractor shall at all times have a responsible foreman on site whilst work is being carried out. The Contractor is to refer all day-to-day queries, requests etc to the CA, and similarly to seek instructions for variations from the CA.

2.10. Instructions

- 2.10.1. Verbal variations have to be confirmed in writing within 48 hours by the CA. It is preferred for the soft landscape contractor only to act upon written instructions received from the CA. However, it is the Contractor's responsibility to inform the CA of any variations made directly by others so that costs may be agreed and confirmation issued.

2.11. Valuations and Invoices

- 2.11.1. The Contractor shall submit valuations to the CA for approval before preparing invoices, and shall address invoices to the Employer at agreed intervals.

2.12. Rectification period and Retentions

- 2.12.1. The Contractor shall advise the CA when he believes Practical Completion has been reached. Once this has been agreed the Contractor shall then be responsible for making good at his own expense any defects due to faulty materials or workmanship not in accordance with the Contract Documents that appear within 12 months of Practical Completion for ornamental tree/shrub/herbaceous planting and hedge planting, extended to 24 months for specimen plants and topiaries. The CA shall deduct a retention sum of 5% from all interim accounts; half of which shall be due to the Contractor upon Practical completion (penultimate certificate) and the remaining 2.5% at the end of the Rectification Period or completion of remedial works, whichever is later.

2.13. Sign Boards

- 2.13.1. Erection of a contractor's signboard requires approval from main contractor, CA and site owner/client group.

2.14. Site Maintenance and Litter

- 2.14.1. Throughout the period of construction the Contractor shall ensure that the site is kept free of litter, and shall maintain the site of his operations as clean and tidy as can reasonably be expected whilst work is in progress.

2.15. Excavations / Initial Site Clearance

- 2.15.1. Site clearance and early groundworks/excavations will have been carried out under the demolition and main contract.
- 2.15.2. The main contractor has been provided with an NBS specification for general groundworks including topsoil. Prior to commencement on site soft landscape contractor to inspect site and advise CA whether additional topsoil or other form of work will be required in order to conform to the soft landscape specification.
- 2.15.3. Surplus materials arising from the site, unless specifically requested by the CA, are to be removed from the site and, if necessary, disposed of at a licensed tip at the cost of the Contractor.

2.16. Completion and Clearance of Site

- 2.16.1. The whole of the works are to be completed in accordance with the contract documents, unless varied by agreement, and to the satisfaction of the CA.
- 2.16.2. On completion of the work the Contractor is to remove all equipment, surplus materials and debris of any kind from the site, leaving the whole of the works and site clean, tidy and in order to the satisfaction of the Employer.

3. SOFT LANDSCAPE MATERIALS

3.1. General

- 3.1.1. All materials shall comply with the latest edition of the appropriate British Standard unless otherwise stated. All material for the works shall be subject to inspection by the supervising CA who shall have the right to reject any material, which in his/her opinion does not conform to the specification.
- 3.1.2. Plants shall be planted to the same depth as occupied in the nursery, and on the same day as delivery unless they are stored appropriately (but no longer than 48hours).
- 3.1.3. Following submission of tenders, selected tenderers shall be asked to supply names of suppliers for, and photographs of, the following items:
All trees and large specimen shrubs

3.2. Plant materials

- 3.2.1. All trees and shrubs shall comply with the appropriate requirements specified in BS 3936 "Nursery Stock" Parts 1-10, and BS 5236 "Recommendations for Cultivation and Planting of Trees in the Advanced Nursery Stock Category": latest amendment where applicable, and also to be in accordance with the descriptions for the species and form described in the HTA National Plant Specification. All plants shall be free from pests and disease and shall be materially undamaged. All plant material shall be transplanted nursery stock on healthy vigorous and sound roots with well formed growth above ground and to have been grown on or grown at the supplier's nursery.
- 3.2.2. All trees and shrubs are to be supplied from nurseries in the United Kingdom or other members of the E.U. A list of suppliers of all plants is to be submitted to the CA at the time of tender.
- 3.2.3. The root system shall be well balanced in relation to the plant and shall be conducive to successful transplantation. Torn or lacerated roots shall be pruned before dispatch. No roots shall be subjected to adverse conditions such as exposure to drying winds or frost or subjection to waterlogging between lifting and delivery. The rootball shall be free from pernicious perennial weeds.
- 3.2.4. All trees and shrubs shall be true to description, name and variety; no cultivated varieties will be accepted where the species alone is specified.
- 3.2.5. At the time of planting on the site the plant material must be of the heights and standards of these clauses and the planting plans, unless otherwise agreed with the CA. Particular emphasis is placed on the plant material meeting the specified size, being neither oversized nor small.

3.3. Labelling

- 3.3.1. Legible labels shall be attached to each plant / bundle of plants to be delivered to the site. The labels shall give the approved botanical name, size, age, quantity and other information required to identify the plant or plants conforming to the specification and the schedule.

3.4. Size and Measurement

- 3.4.1. In all cases where a plant's height is described in the schedules this shall be measured from the root collar or the nursery earth marks on the stem, or from the surface of the compost within the plant container, to the top of the main canopy.

3.5. Availability and Substitution

- 3.5.1. The tender must be based on all plants, which are available. All plant material must be exactly true to name, but in the case of specified plants being unobtainable, alternatives may be submitted with the tender stating price and how they differ from the specification. (Substitutions shall be of similar height and habit to those specified which the Contractor has been unable to supply), contractor to supply images, specification, price and source of proposed substitutions for approval by CA.

- 3.5.2. Such substitutions may not be acceptable and submission of further alternatives may be necessary. Written approval should be obtained from the CA before making any substitutions prior to the agreed planting date. A variation to the schedule shall then be agreed.
- 3.6. Handling and Delivery**
- 3.6.1. All bare root material is to be delivered to site within 48 hours of lifting. All plant material is to be carefully lifted in accordance with good horticultural practice, packed at the supply nursery and protected by tarpaulin or in a closed vehicle to ensure that there is no drying out during transit, and unloading without damage.
- 3.6.2. Container grown plants shall not be bundled. All containerised plants should be packed on trays no more than one deep. All plants delivered deep packed shall be rejected without further consideration.
- 3.6.3. All plants delivered at an unsuitable time for planting the same day shall be securely stored and suitably protected against severe adverse weather conditions but planted within a period of 48 hours following delivery. A secure compound may be provided by the Main Contractor.
- 3.7. Inspection and Rejection**
- 3.7.1. The CA is to be notified in advance of the day of delivery to the site so that he may inspect all plants as they come off the lorry. The CA reserves the right to reject any plants on site even if they have been previously approved at the supplier's nursery.
- 3.8. Semi-mature, Extra Heavy Standard, Heavy Standard and Standard Trees**
- 3.8.1. Sizes shall be as specified by the National Plant Specification. All shall have a well developed and balanced head, a good fibrous well balanced root system. Torn or lacerated roots shall be pruned before dispatch. No roots shall be subjected to adverse conditions such as exposure to drying winds or frost or subjection to water-logging between lifting and delivery. The rootball shall be free from pernicious perennial weeds. All trees shall have an upright central leader with five main branches.
- 3.9. Heavy Standard Trees**
- 3.9.1. HS trees shall be rootballed (or containerised if for out-of-season planting) and have been transplanted a minimum of 3 times, the rootball shall be firm and well rooted through, enclosed in hessian and un-galvanized wire netting. If containerised the container shall be min 75 L size. Trees shall have an overall height of 3.50-4.25 metres, clear stem to 1.75-2.0m and not less than 12-14 cm circumference at 1m above ground, with a single strong leader and a vigorous, well branched with a minimum no. of 5 breaks and an evenly developed crown. Trees shall have a well developed and fibrous root structure.
- 3.10. Extra Heavy Standard Trees**
- 3.10.1. EHS trees shall be rootballed (or containerised if for out-of-season planting) and have been transplanted a minimum of 3 times, the rootball shall be firm and well rooted through, enclosed in hessian and ungalvanised wire netting. If containerised the container shall be 80-100 L size. Both **14-16cm** and **16-18cm trees** shall have an overall height of 4.00-4.50 metres, clear stem to 2.0m and not less than 14-16 cm circumference at 1m above ground; with a single strong leader and a vigorous, well branched and evenly developed crown. Trees shall have a well developed and fibrous root structure.
- 3.11. Container grown Conifers/ Shrubs/ Herbaceous and Climbers**
- 3.11.1. Container grown plants shall not be bundled or deep-packed. All containerised plants shall be packed on trays / pallets no more than one deep. All plants delivered deep packed shall be rejected without further consideration.
- 3.11.2. Container grown plants shall be strong, well-rooted, sturdy plants without stakes or canes. They shall have been grown in pots of the minimum sizes for at least one growing season, (i.e. at least six months over a summer period prior to planting) and no more than two seasons. (Plants shall not have been grown in their containers for more than 12 months without being potted up.)

- 3.11.3. Container size and overall height/spread shall be as specified in the schedules. The container shall be full of root, but not root bound. Shrubs shall have three or four main stems and a good, bushy form.
- 3.11.4. N.B. All shrubs to be BS 3936 Part 1. Bare rooted transplants for hedge planting shall only be planted between November and March. Bare rooted or containerised plants shall be as stated on the tender schedule.
- 3.12. Meadow Seed Mix**
 - 3.12.1. Meadow Seed Mix shall be the 'Emorsgate EM4 meadow mixture' as specified in the Planting Plan and sown in accordance to seed merchant's recommended rates (4g/sqm)
- 3.13. Turf**
 - 3.13.1. Turf shall be purpose grown / fine lawn turf containing shade-tolerant species such as rough stalked meadow grass and wood meadow grass but excluding any ryegrass / Rolawn Medallion / SS.1 TGA SS2 , TGA SS3, or other approved cultivated turf to the Turf Growers Association SS2 or SS3 standard, free of pernicious weeds and weed grasses, having a grass cover no longer than 12mm and established on a freely draining growing medium. Turf shall be sufficiently fibrous for the turves to hold together when handled. The turf shall be cut to a uniform thickness not exceeding 25mm.
 - 3.13.2. Turfs shall have been grown on a degradable mesh
 - 3.13.3. Turf shall be delivered to site in a single consignment from the same stripped area so that turving can be completed in a single operation and the turves match. The Contractor shall replace at his own expense, turves which have, in the opinion of the Landscape Architect, deteriorated during handling or storage.
- 3.14. Herbicides**
 - 3.14.1. Chemicals shall comply with "Pesticides approved under the Control of Pesticides Regulations 1986" and be in the current list of "Approved Products".
 - 3.14.2. Pre-cultivation herbicide shall be Glyphosate or similar approved systemic herbicide. Selective herbicides for post-seeding and/or maintenance shall be approved by the CA. Herbicides may be used in conjunction with a pre-emergent herbicide applied during November-December.
- 3.15. Bark Mulch**
 - 3.15.1. Shall be medium grade ornamental bark mulch e.g. Melcourt Ornamental Bark Mulch or similar; max 70mm chips and no more than 15% below 10mm. Material containing largely long thin particles or showing white wood will not be accepted. It shall be free of pests, disease, fungus and weeds and be fire proof.
- 3.16. Fertiliser**
 - 3.16.1. Fertiliser for trees and shrubs shall be a proprietary slow-release balanced fertiliser.
 - 3.16.2. Fertiliser for grass shall either be a proprietary pre-seeding fertilizer or a proprietary spring / autumn dressing, as appropriate.
- 3.17. Compost and Soil improver**
 - 3.17.1. Compost to be a mature mushroom compost, or similar organic matter, from an approved, named source.
 - 3.17.2. Broadleaf P4 or similar soil improver to be worked into topsoil for all topiaries and topsoil for all tree pits as per manufacturer's recommendations.
- 3.18. Root Dip**
 - 3.18.1. Root dip (or spray) all bare root transplants or rootballed plants into mycorrhizal inoculant including rootballs of large shrubs and trees directly prior to planting.
- 3.19. Tree Stakes**

- 3.19.1. Stakes to be softwood pressure impregnated to BS 1282 with Tanalith/similar approved non-injurious preservative, straight, free of projections and pointed at one end.
- 3.19.2. Stakes for all specimen trees shall be 1.8m x 75mm dia. In general the length of stakes shall be equal to the sum of the length of the stake above ground (60cm), the depth of pit and an additional 30cm below the bottom of the pit. Stakes shall be positioned on the windward side of the tree and trimmed after fixing to a uniform height.
- 3.19.3. Standard and Selected Standard trees shall be supported by 1 vertical stake.
- 3.19.4. Heavy and Extra Heavy Standard trees and above shall be supported by proprietary underground guying system (e.g. Greenleaf Arborguy or similar) in accordance with manufacturer's recommendations.
- 3.19.5. All containerised trees shall be supported by 1 stake driven in at a 30% angle in line with the row and secured to the tree 60cm above ground. NB. Stakes shall present a uniform appearance when viewed along a line of trees.
- 3.19.6. Heavy and EH Standards in public grassed areas shall be supported by 3 stakes set just outside the rootball and braced three ways with timber cross-bars; in shrub beds and in private gardens they may be supported by 2 stakes with cross-bar, fixed before planting to avoid damage to the rootball.
- 3.20. Tree Irrigation Pipes**
- 3.20.1. All tree planting to include proprietary underground irrigation system (e.g. Greenleaf Rootrain Urban or similar), contractor to ensure irrigation pipe suit varying size of rootballs.
- 3.21. Tree Ties**
- 3.21.1. Tree ties to be one per stake, adjustable, supersoft stretch type, together with all fixings, including rubber blocks and or spacers cut to length.
- 3.22. Fixing mechanisms**
- 3.22.1. CLIMBERS: Fix 5 no. plain galvanised wires set at 450mm vertical centres to 8-10cm vine eyes secured at min. 900mm horizontal centres, wires to be strained taut between fixings. Tie plant growth to the wires with tarred twine.
- 3.22.2. TREES: Use proprietary underground guying system for all rootballed trees from heavy standard onwards, e.g. Greenleaf Arborguy or similar.
- 3.23. Below Ground Anchoring**
- 3.23.1. Below Ground Guying– include proprietary underground guying system e.g. Greenleaf Arborguy or similar within soft landscaping areas. Within hard landscaping areas use proprietary tree pit installation system (e.g. as supplied by Greenleaf) to include rootcells, tree grille and tree guard etc as illustrated on detail 1244 D8).
- 3.24. Topsoil if required**
- 3.24.1. Soft landscape contractor to inspect site and advise CA whether additional topsoil for shrub planting and seeding areas is required or not (refer to clause 1.1.1). Additional topsoil will be required for tree pits and topiaries/planters.
- 3.24.2. Topsoil shall conform to BS3882. It should represent ideal topsoil, ie. consist of screened medium loam, with a pH of 5.5-8.2, with minimal stones. It should be free of pernicious weeds and pernicious weed seed. On visual inspection it should also be free of fragments, sharps, weed roots, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, stones greater than 25mm diam. and large lumps of clay. It should be sourced locally, to CA approval. A 1m³ sample for approval should be set aside on site for comparison during the Contract.
- 3.25. Other Materials**

- 3.25.1. All other materials not herein fully specified and which the Contractor may offer for the works shall be of first class quality to the relevant BS and of such a kind that is used in first class work.
- 3.25.2. Where equivalent materials are offered these must be subject to the CA's approval.

4. SOFT LANDSCAPE WORKMANSHIP

4.1 General

- 4.1.1. Give CA 48 hours notice before commencing planting, maintenance or replacement works.

4.2 Setting out

- 4.2.1 The Contractor shall set out the planting areas as detailed on the contract drawings. Where figured dimensions are not given, scaled dimensions are to be used.
- 4.2.2 The CA may require minor refinements to the design with adjustments to lines, levels and groupings of plants locally as the work proceeds, requiring the Contractor's co-operation and agreement on a day-to-day basis.
- 4.2.3 The planting pattern shall be in accordance with the contract drawings and generally avoid straight lines where possible (unless specifically indicated and except single species hedge planting); plants shall be set out in a random manner, but spaced consistently throughout the whole area

4.3 Timing of operations

- 4.3.1 Earthworks, including cultivations, shall be suspended when the ground is frozen, snow-covered or waterlogged.
- 4.3.2 Planting operations are to be carried out in suitable open, mild and dull weather conditions and when the ground is moist and workable. All planting operations shall be suspended during periods of severe frost, drought, waterlogging or when persistently cold, windy or excessively dry. All plants are to be re-firmed if lifted by frost or wind during the contract and maintenance periods.
- 4.3.3 The Contractor shall observe the following seasonal restrictions:
Bare root transplants November to March
Container grown plants see below
- 4.3.4 Out of season planting of container grown plants shall be carried out only in suitable moist weather conditions.
- 4.3.5 Grass and meadow seeding shall be carried out in April, allowing time for a pre-seeding treatment with Roundup to take effect.

4.4 Ground Preparation for shrub planting areas and tree pits

- 4.4.1 All excavated material in excess of required quantities to implement the works, shall be disposed of away from site by the Contractor. All excavated topsoil will be stored in agreed positions and surplus topsoil will become the property of the Employer who will direct where it is to be used. Where sub-soil is used to make up levels, the material selected shall be approved by the CA. prior to spreading. Approved sub-soil shall be spread and lightly consolidated in layers not exceeding 200mm finished thickness. The ground surface shall be left with smoothly flowing contours of true and even grades free from localised depressions, high spots and all abrupt angles at changes of level. A 200mm minimum wide level strip is to be established between any embankment or slope and any road, kerb, paved area, fence line or site boundary. Minor adjustments shall be made as necessary to bring planted areas into running level between paths, kerbs and adjoining paved and grassed areas.
- 4.4.2 The contour levels shown on the drawings are the finished levels of topsoil and due allowance should be made in setting out. In setting out and construction of the earthworks, the Contractor shall allow for settlement and heave whether caused by consolidation or fill, settlement of foundations, heave in excavation or change in volume of materials for excavation.
- 4.4.3 Prior to spreading of topsoil and as permitted by the presence of underground services and roots of existing trees, the Contractor shall cultivate or rip the sub-soil to a depth of 400mm at 1.0m centres in the direction of the contour or to a slight fall to relieve all compaction.

The Contractor is to make himself aware of all existing services prior to any cultivation operations (not within root protection areas and areas of tree protection fence).

- 4.4.4 Strip topsoil from all areas where construction work, vehicle activity, compaction or contamination is likely to occur. Determine depth of topsoil and carefully strip to remove surface layers without incorporating sub-soil or other deleterious matter. Soil stripping shall only be carried out when the soil is in sufficiently dry condition, capable of being handled without significant damage. Topsoil shall be tipped from dump trucks onto storage areas building up linear heaps to a maximum height of 2.00m, un-compacted, and to a maximum width of 10.00m. On no account is the topsoil to be compacted in the heaps. All topsoil re-used from soil heaps is to achieve the same standards of quality as that for imported topsoil.

- 4.4.5 All material used shall be free from toxic substances and compounds which would inhibit healthy plant life.

- 4.4.6 Spreading. Spread topsoil over prepared sub-soil in layers not exceeding 150mm and firm each layer before spreading the next.

- 4.4.7 Objectives: There shall be a minimum depth of topsoil of:
- 150mm for lawn areas
 - 300mm for native understorey mix planting
 - 450mm for ornamental shrub and hedge planting and
 - tree pits: see below

If existing depths are found to be less than this, additional topsoil shall be imported and spread to achieve 300mm depth. Rubble will previously have been removed by others, however Tenderers should allow in their pricing for removal of other stone and rubble found during cultivation work. The soil shall be free draining; inherently stable; allow free penetration of air, water and roots. The soil shall be clean and friable, and to an appropriate grade. It shall be cultivated to a suitable standard for specific use (i.e. grass seeding, shrub or tree planting). It shall be capable of supporting healthy, sustained plant growth. It shall have a fine surface tilth to facilitate effective weed control by herbicide.

- 4.4.8 All areas to be planted or seeded shall be completely free from weeds prior to cultivations and planting.

- 4.4.9 Remove all surface stones and objects exceeding 50mm in any direction, roots in excess of 25mm diameter or 300mm length (to be confirmed by Arboriculturalist), builder's debris and other foreign material from the planting areas. Remove off site to approved tip/landfill site.

4.5 Ground preparation for tree pits

- 4.5.1 Objectives: The soil shall be free draining, inherently stable, and shall allow free penetration of air, water and roots. The soil shall be clean and friable, and to an appropriate grade. It shall be capable of supporting healthy, sustained plant growth. It shall have a fine surface tilth to facilitate effective weed control by herbicide. And shall comply with the specification on the drawing.

- 4.5.2 All planting stations to be planted shall be completely free from weeds prior to cultivations and planting.

4.6 Cultivation of planting areas

- 4.6.1 Cultivations shall only be carried out when the soil is in a dry and crumbly condition.

- 4.6.2 After cultivation the site shall not be traversed by foot traffic or machinery except as absolutely necessary for seeding and planting work, but such traffic will be kept to a minimum.

- 4.6.3 During all operations remove soil and rubbish from the hard surfaces and leave the works in a clean and tidy condition.

- 4.6.4 An even grade to finished levels is required and the rates for cultivation shall be deemed to include such minor levelling as is necessary to achieve this including removal of all deleterious materials brought to the surface during cultivation.
- 4.6.5 Where working adjacent to paved areas, the paving is to be protected by scaffold boards or as appropriate.
- 4.6.6 Work carefully around the crowns of existing plants.
- 4.7 Temporary planting/storage and protection**
- 4.7.1 All material shall be properly protected against damage at all times. All plants awaiting planting and transport shall be protected from excessive wind, sun, heat or cold. Plants which are delivered at an unsuitable time and therefore not planted on the day of arrival shall be protected as follows:
- 4.7.2 Bare root plants shall be kept overnight in a secure area, lightly heeled-in with bundles opened, plants spaced separately, roots covered with soil and watered thoroughly. Labels are to be kept with plants.
- 4.7.3 Containerised plants shall be stored in a secure compound, sheltered from drying or scorching winds, and watered thoroughly in dry conditions.
- 4.8 Planting procedure**
- 4.8.1 All planting shall be performed in accordance with best horticultural practice.
- 4.8.2 Container grown plants shall have their container removed taking care to ensure that the rootball is not disturbed during container removal or planting.
- 4.8.3 Plants shall be set in their final positions with main stem vertical and at such a depth that the soil, when firmed down, is at the same height as the nursery earth marks on the stem or the container soil level.
- 4.8.4 Bare root plants shall have their roots spread out in a natural position, the soil being carefully placed under and amongst them to fill all voids and firmed in. Any major roots, which become accidentally broken off or frayed, shall be cleanly pruned.
- 4.8.5 N.B. After planting, fork and or rake soil to an even tilth to approved camber and gradients removing all ridges and hollows. Sweep and wash soil from all hard surfaces and leave works in a clean and tidy condition.
- 4.9 Topsoil pits**
- 4.9.1 Standard, Selected Standard, Heavy Standard shall be pit planted to the following minimum size, 1m dia x 1m depth or 400 mm wider than root spread, whichever is the greater.
- 4.9.2 Excavate with slightly raised centre. Retain topsoil for re-use where specified. In sloping ground, maintain horizontal bases and vertical sides with no less than minimum depth throughout. Break up bottoms of pits to a depth of 20mm and scarify sides. The Contractor shall ensure that, during periods of intense and prolonged frosts, suitable measures are agreed with the CA to protect the bottoms and the sides, should they become exposed for any period of time. Gravel drainage layer at the base of the each tree pit, 200mm deep. Where sub soil is used to back fill tree pits to 500mm deep, sub soil must be appropriately worked, no particles larger than 25mm. Fertiliser added.
- 4.10 Backfilling**
- 4.10.1 Backfill should be thoroughly mixed in advance, placed in even layers around the roots and carefully firmed as the backfilling proceeds.
- 4.10.2 Backfilling material shall comprise 3 parts topsoil mixed with 1 part well rotted farmyard manure together with a slow release fertiliser at 400gms per cubic metre.
- 4.11 Planting Trees (generally)**

- 4.11.1 Plant trees upright in the centre of the pit, (and, in the case of top-worked trees, so that the crowns are all on a consistent level) and backfill mix carefully packed around the roots taking care to exclude air pockets. The soil shall be lightly consolidated and heeled firmly around the root collar. Trim stakes to uniform level.
- 4.11.2 Where trees have their crowns tied-in, the fastenings may be removed and the branches freed before or after planting, at the discretion of the Contractor. Immediately after planting, carefully inspect each tree for signs of bruising or chafing which may be readily apparent. Cut back any damaged, dead or diseased branches and remove any weak, thin or malformed growth. Where damaged has occurred, treat bark wounds with a fungicidal sealant in accordance with BS 3998 only if instructed by the CA.
- 4.11.3 Where in the opinion of the CA, the damage is such as to warrant the rejection of the tree, it shall be replaced by the Contractor at no extra cost to the contract. Trunk wrappings applied by the grower shall be removed and any subsequent damage caused during planting shall be made good by the Contractor.
- 4.12 Planting Container-grown Shrubs and Herbaceous**
 - 4.12.1 Sufficient soil shall be taken out of the pit to accommodate the container, but the hole should not be less than 75mm wider than root spread. Any badly damaged root shall be carefully pruned. The plant shall be set upright in the centre of the pit and backfill mix carefully packed around the root ball taking care to exclude air pockets.
 - 4.12.2 All to be supplied pot grown to a size and specification according to species. All shall have a strong, firm, healthy crown with visible live shoots or buds. Foliage of evergreen species to be healthy and of a size normal for the species.
- 4.13 Planting climbers**
 - 4.13.1 Plant climbers and wall shrubs 100mm clear of wall with roots spread outwards into 45cm diam x 45cm deep pits, backfilled with soil: compost mix as for beds. Water thoroughly. Remove cane and lay plant against wall, tying growth to the wires with tarred twine.
- 4.14 Planting Bulbs in Meadow**
 - 4.2.1. Bulbs in Meadow should be broadcast and planted to create a random spread of all species over the entire area. Set bulbs in the planting hole at twice their depth. Planting to be carried out mid September for spring bulbs or spring for summer bulbs.
- 4.15 Turfing Preparation (Pre-cultivation)**
 - 4.3.1. The Landscape Contractor shall visit site as soon as he is appointed to spray off weed growth to achieve weed-free turfing conditions. Subsequent cultivations by the Landscaper should therefore only be required to provide a suitable seedbed tilth and to make final adjustments to achieve accurate line and levels to lawns and banks.
 - 4.3.2. Any stones or other debris in excess of 25mm in any dimension shall be removed.
 - 4.3.3. Any surviving weed in areas for turfing shall be treated with a translocated herbicide such as glyphosate and left for a minimum of four weeks prior to cultivation.
 - 4.3.4. Glyphosate or similar shall be applied when a period without rain of at least 12 hours is expected, in calm conditions and taking great care to avoid drift onto adjacent areas of vegetation.
 - 4.3.5. Herbicide shall be applied when the weed is actively growing. No weed shall be removed until there is evidence that the herbicide application has been effective.
 - 4.3.6. The object of pre-cultivation is to destroy all existing weed. The Contractor shall apply additional spot treatment where necessary to achieve this and the rates shall allow for this.
- 4.16 Turfing Cultivation**
 - 4.4.1. Cultivate the site using an approved cultivator or stone burier to produce a reasonably fine tilth, to relieve compaction through 75mm depth and to keep the site clean of weed until

turfing commences. Do not cultivate deeper than 75mm so as to minimise disturbance to any dormant weed seed that has not already germinated. The use of rotary cultivators will not be allowed unless approval has been sought from the landscape architect.

- 4.4.2. Two cultivations shall be carried out. Each cultivation shall involve two passes; where space allows the second is to be transverse to the first.
- 4.4.3. Final grading: Lightly grade by hand using a rake to smooth out any unevenness in the surface, to achieve accurate lines, levels and gradients and to marry levels into existing and surrounding levels.
- 4.4.4. The seed bed shall be fine, smooth, free from stones and evenly firmed but not consolidated, with suitable tilth through to 100mm. Apply an approved granular pre-seeding fertiliser in accordance with the manufacturer's instructions or at a rate of 40g/sq.m

4.17 Laying turf

- 4.5.1. Turfing shall only occur in favourable ground conditions. The work shall be carried out by experienced turfmen, commencing with a band of turf laid around the perimeter, two turves wide. The turf shall then be laid diagonally, commencing from one corner and working progressively to the opposite corner. Turves shall be laid with broken joints stretcher bond, each turf being carefully butted to the adjoining turf.
- 4.5.2. The turfmen shall work from boards already placed over the turf so that the prepared surface is not disturbed. All materials shall be transported over boards so that newly laid turf is not subjected to any traffic. While the turfing proceeds, the levels of the turfed surface shall be regularly checked and corrected as required.
- 4.5.3. On completion of the turfing, the lawn shall be lightly rolled with two passes in transverse directions using a 250kg hand roller or equivalent.
- 4.5.4. 1.8m wide turf paths shall be laid over 75mm depth of a proprietary sand, screened soil, compost and polypropylene fibre mix (eg 'Fibreturf Rootzone'), to be supplied and spread by the landscape contractor.
- 4.5.5. Completed turf paths shall be protected for a period not longer than 8 weeks with high visibility orange netting on timber stakes.

4.18 Turf establishment

- 4.6.1. When the grass reaches 35mm in height all areas shall have any surface stones having one dimension of 25mm or more removed, and then be lightly rolled under suitable conditions using a flat roller.
- 4.6.2. When the grass is no more than 75mm in height an establishment cut shall be carried out. Cuttings shall remain except where areas of cutting are greater than 75mm where they shall be raked off and removed.
- 4.6.3. When the grass reaches 75mm again carry out the first proper cut to 35 mm height and remove cuttings. Following the second cut, all bare patches shall be lightly raked and re-seeded. Following this, seek approval for handover to the employer.
- 4.6.4. Continue to cut to 35mm when the grass reaches 60-75mm in height until the handover date. On each occasion remove cuttings.

4.19 Wildflower seeding : Preparation of bare soil areas

- 4.19.1 Areas to receive wildflower seed shall comprise of areas of subsoil cultivated by the ground worker. Subsequent cultivations by the Landscaper will be required to provide a suitable seed-bed tilth. He shall also be required to make final adjustments to achieve accurate line and levels to lawns / seeded areas shall allow for such works as he deems necessary in his rates.

- 4.19.2 It is particularly important that areas to be seeded are weed free before cultivation takes place. In the case of Spring seeding, herbicide applications shall be made as soon as weed germination and growth commences and may need to be repeated to ensure weed-free sowing conditions and the Contractor shall allow for this in his programme; this is of particular importance for wild flora and Native Grass seeding. Any weed in areas for seeding shall be treated with a translocated herbicide such as glyphosate and left for a minimum of three weeks prior to cultivation.

4.20 Seeding: Cultivation

- 4.20.1 Cultivate the site using an approved tine or disc cultivator to produce a reasonably fine tilth, to relieve compaction through 150mm depth and to keep the site clean of weed until grassing commences. The use of rotary cultivators will not be allowed unless approval has been sought from the CA.
- 4.20.2 Four cultivations shall be carried out. Each cultivation process shall involve two passes, the second to be transverse to the first.
- 4.20.3 Final grading: Lightly grade using an approved blade grader or rake to smooth out any unevenness in the surface and to marry levels into existing and surrounding levels.

4.21 Seed bed preparation

- 4.21.1 Produce by rolling, chain harrowing/raking a tilth suitable for grass seeding. The seed bed shall be fine, smooth, free from stones and evenly firmed but not consolidated with suitable tilth through to 150mm.
- 4.21.2 During seed bed preparation all surplus vegetable matter, rubbish and surface stones having any dimension of 35mm or more shall be collected and removed off-site.

4.22 Seed Areas Generally: Germination

- 4.22.1 No payments for seeding shall be made to the Contractor if seed fails due to any cause whatsoever. He shall be required to make good soiling and repeat seeding until a good sward is obtained. Grass areas will only be accepted as having reached Practical Completion when germination has proved satisfactory to the CA, and when all weeds have been removed and the first cut has taken place.

4.23 Mulching

- 4.23.1 Ornamental bark mulch (e.g. from Melcourt or similar) shall be required to form a cover on all shrub planting areas and tree pits within grass area 50mm deep after settlement. Mulch is to be applied when the soil is moist. In warm or dry conditions the Contractor shall first water the ground, and shall ensure that the ground is completely weed free prior to the application of mulch. After mulching all stems, particularly of ground cover species, shall be arranged above the surface of the mulch.
- 4.23.2 The Contractor shall ensure the ground is completely weed free prior to the application of mulch.

4.24 Watering

- 4.24.1 Water at the time of planting. Water all trees copiously in such a way that the entire tree pit is moistened to field capacity to encourage settlement.
- 4.24.2 Water all shrubs and herbaceous plants immediately after planting using a rose; large shrubs with a minimum of 5 litres per plant; small to medium shrubs with a minimum of 2.5 litres, and herbaceous plants with 1 litre.

5 SOFT LANDSCAPE MAINTENANCE UP TO PRACTICAL COMPLETION

- 5.1.1 The Contractor will be responsible for maintaining all Base Landscaping prior to Practical Completion of the Works, ensuring protection of all finished surfaces. Any defects, damaged surfaces or the like shall be made good by the Contractor at his own expenses prior to the inspection of the Works for Practical Completion.
- 5.1.2 At practical completion all trees and shrubs shall be healthy thriving and fully leafed out, subject to season. All shrub beds shall be weeded and their edges trimmed. All grassed areas shall show evidence of completely successful establishment and shall have had at least one cut. The site will be maintained to the following standards prior to practical completion.
- 5.1.3 The Contractor shall maintain the whole of the planted areas in a manner which ensures the establishment of healthy and vigorous plants and a close textured weed free sward and which creates a tidy weed free appearance. Allowance shall be made in pricing for watering to maintain all subjects in a healthy moist condition to facilitate optimum conditions for early establishment. Allowance shall be made for extra maintenance in period of unusually prolific weed growth. It is the soft landscape contractor's responsibility to check available coverage of automated irrigation system and ensure irrigation system is set up adequately to fulfil maintenance requirements. All debris arising from the performance of the works shall promptly be removed from the site and the Contractor will be required to make good any damage at his own expense or bear any cost incurred through his failure to comply with his requirement.
- 5.1.4 Trees and all plants shall be checked regularly especially after severe frosts and winds and any which may have become loosened shall be firmed in. Re-firm by treading around the base. Any 'collars' at the base of the tree trunks created by tree movement shall be broken up by fork, back-filled with topsoil as necessary and re-firmed. All loosened or broken tree stakes, ties, irrigation tubes or end caps shall be re-fixed, adjusted or replaced as required. Check underground guying system and adjust if necessary.
- 5.1.5 Keep the site clear of all fallen leaves particularly during the Autumn and Winter months. Remove from site.

6 PRACTICAL COMPLETION

- 6.1.1 The completed works shall be offered as being Practically Complete when all the work is completed. The works shall be inspected by the CA and representative of client group (e.g. project landscape architect) for Practical Completion and Handover purposes and a date agreed for this (and for the commencement of the Rectification Period)
- 6.1.2 Any uncompleted or defective work shall be listed and then finished or rectified within two weeks.

7 RECTIFICATION PERIOD

- 7.1.1 The Contractor is responsible for 12/24 months from the date of Practical Completion, for the replacement and reinstatement of any horticultural work, planting, climber wires etc, which fails, dies or shows serious defects due to any cause other than malicious damage or theft.
- 7.1.2 Any materials or workmanship which is found to be defective or substandard during the Rectification Period from any other cause other than theft or vandalism shall be replaced. Replaced trees shall be guaranteed by the Contractor for an additional 12 months.
- 7.1.3 This section does not simply seek replacement, but requires that the work, as finally handed over, shall fully meet the specification in every respect.
- 7.1.4 Before replacement is carried out, the Contractor shall arrange a site meeting with the Employer and CA in order to make a final inspection of nursery stock and assess establishment.
- 7.1.5 No additional payment will be made for rectification works.
- 7.1.6 Retention of 5% is to be deducted from all payments of interim accounts. 2.5% of the total retained sum shall be released at practical completion (pen-ultimate certificate) and the remaining 2.5% shall be released at the end of the Rectification Period or when all the defects are made good (final certificate), whichever is the later.

8 POST PRACTICAL COMPLETION: AFTER-CARE AND SOFT LANDSCAPE MAINTENANCE DURING RECTIFICATION PERIOD

- 8.1.1 Upon Practical Completion being agreed, the responsibility of the defects maintenance care lies with the contractor. However, the establishment maintenance shall also be with the contractor for at least the length of the Rectification period. i.e. 12 months (or 24 months in the case of specimen nursery stock). It is the contractor's responsibility to regularly visit the site to carry out maintenance to a standard sufficient to ensure establishment of all planting and turfing/seeding. In the event of the Contractor feeling that maintenance works as specified are below this standard or insufficient/not achieving an appropriate standard, he must immediately inform the CA and seek/await instructions.

8.2 Weed Control:

- 8.2.1 All Planting areas including trees and topiaries shall be kept weed free throughout the Rectification/maintenance period by systemic herbicide as necessary to achieve a total weed free surface using a spray guard in late spring, and repeated in mid and late summer (and in accordance with manufacturer's recommendations). Also check & control weed/grass growth in hogging path section.

8.3 Spray Damage:

- 8.3.1 Ensure that no spray drift comes into contact with new or existing plants. The Contractor shall replace at his cost all plants harmed by herbicide. Ensure that herbicide impregnated soil does not come into contact with the roots of replacement planting.

- 8.3.2 Attention is drawn to the continuing requirement to ensure public safety during and after application of herbicide. Herbicide application to be in accordance with COSHH and other relevant statutory regulations/guidelines.

8.4 Hand Weeding:

- 8.4.1 Where it is impractical for any reason to use herbicides, planted areas shall be kept weed free by hand weeding.

8.5 Replacement/adjustment to stakes and ties:

- 8.5.1 Ensure that all tree stakes and ties are maintained in good condition and are not damaging the tree. Ties should be adjusted as necessary to prevent rubbing or chafing of bark against the stake. Any stakes or ties that become broken or damaged should be replaced.

8.6 Watering:

- 8.6.1 Allow for the thorough watering of all topiaries and shrubs and trees not covered by automated irrigation system as and when necessary particularly during spring and prolonged periods of drought in the first year (2years for trees and specimens shrubs) to ensure optimum growth and establishment. Watering is to consist of saturating the soil around each tree and shrub; as a guide, this shall mean 5 litres for small shrubs, 10 litres for large shrubs/small trees and 20-50 litres for large trees.

8.7 Fertiliser:

- 8.7.1 In April or May of the second year evenly spread 15:15:15 NPK straight agricultural or slow-release type fertiliser at the rate of 70g per feathered tree; and 40g per transplant or shrub.

8.8 Mulching:

- 8.8.1 At the end of Rectification Period re-mulch the whole surface of the shrub planting beds to a depth of 50 mm after settlement using ornamental bark mulch (e.g. Melcourt or similar) to match original specification..

8.9 Other Maintenance Operations:

- 8.9.1 Prune out any broken, dead or diseased branches. Firm in any frost-heaved or wind-rocked plants. Ant tree surgery works to be carried out by suitably qualified and insured specialist contractor.
- 8.9.2 Trees and all plants shall be checked regularly especially after severe frosts and winds and any which may have become loosened shall be firmed in. Re-firm by treading around the base. Any 'collars' at the base of the tree trunks created by tree movement shall be broken up by fork, back-filled with topsoil as necessary and re-firmed. All loosened or broken tree stakes, ties, irrigation tubes or end caps shall be re-fixed, adjusted or replaced as required. Check underground guying system and re-adjust if necessary.
- 8.9.3 Keep the site clear of all fallen leaves particularly during the autumn and winter months. Remove from site.
- 8.9.4 Check planters for damage/defects and repair/replace as necessary. Clean planters from moss/algae growth and other stains.
- 8.9.5 Clip and/or prune all topiaries and trees as necessary to maintain original shape and to promote vigour growth and healthy establishment.

8.10 Maintenance of Grass Areas

- 8.10.1 Throughout the Rectification Period carry out maintenance of the grass areas as follows:

8.10.2 Mowing to General Areas:

The height of growth must not exceed 75mm at any time. Cut as and when necessary to a height of 35 mm, and leave all arisings. The minimum number of mowings per growing season shall be 15. (contractor's responsibility to ensure mowing regime is in line with seed manufacturer's/supplier's recommendations).

8.10.3 Mowing to Wildflower Meadow Areas:

Follow specialist seed supplier's recommendations. Start mowing when the wildflower vegetation reaches 3 inches high, setting the mower at a cut height of about 2 inches. Maintain a mowing frequency of 3 weeks during summer. After final cut of the year remove cuttings to ensure good flowering for the following spring. To maximise ecological benefits of wildflower meadow, mow alternate halves of meadow areas every 10 days, to ensure continuous flowering to view and for bees and butterflies.

8.10.4 Fertilizer (to General Area only – not wild flora):

Apply a 5:10:10 Autumn fertilizer at 50g/m². or equivalent in September.

8.10.5 Litter:

Before each cut clear off all litter and debris, and remove from site.

8.10.6 Edging:

At the time of each cut trim all grass edges, round the base of existing trees, around planting beds, manholes, furniture, structures etc and remove arisings. Maintain a circle free of grass and weeds around all new trees (subject to size/diameter of selected steel edge; min. 600mm diam.). Sweep all adjoining hard surfaces clear of cuttings and remove. At the end of the Rectification Period form edges with a suitable edging tool to clean straight lines or smooth curves. Draw back soil from edges to permit use of edging shears and remove all arisings.

8.10.7 Weeding:

General areas and Native Grasses: Keep the sward substantially free of broadleaved weeds by applying a suitable selective herbicide, eg Broadsword. Wild flora areas: Do not apply herbicide except by spot treatment, and then only with CA's approval.

8.10.8 Watering (subject to coverage of proposed automated irrigation system):

Suggest to CA when watering may be required and when instructed carry out using a fine rose or sprinkler until the full depth of topsoil is saturated. Allow for sufficient watering visits to maintain a vigour growth and support healthy establishment.

8.10.9 Timing of grass maintenance regime to consider bulb planting season to allow full and blossom and to not disturb natural vegetation cycle of bulbs.

9 POST RECTIFICATION PERIOD:

9.1.1 Any Soft Landscape Maintenance works following on from the completion of this contract including Rectification period is to be priced and tendered separately and independent from this contract.