

BRADFORD-SMITH

LANDSCAPE ARCHITECT

WATERLOO PARK, ELETTRA AVENUE, WATERLOOVILLE, HAMPSHIRE, PO7 7XS

Landscape Specification & 12 months Defects Liability Period

Prepared for:

Hargreaves Property Holdings Ltd

Rustington House
Worthing Road
Rustington
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836: Soft Landscape Specification

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PRELIMINARIES

I.1 INTRODUCTION

I.1.1 This soft landscape specification outlines the standard landscape requirements to be applied to be applied to the new retail units and associated infrastructure at Waterloo Park, Elettra Avenue, Waterlooville, Hampshire, PO7 7XS.

I.1.2 This 'Specification and Schedule of Works' comprises : -

- Introduction
- Preliminaries;
- Scope of Works;
- Materials: Soft;
- Workmanship; Soft
- Practical Completion;
- Defects Liability Period;
- Final Completion;

If any page is missing or duplicated or if any words are ambiguous, the Tenderer is to notify the Contract Administrator immediately.

I.1.3 No unauthorized alteration, addition or note entered in this document shall modify the printed text.

I.1.4 All work, including sizes and descriptions of materials, contained in this document where not shown or described in the Contract drawings or any subsequent drawings or details issued during the contract, must be verified by the Contract Administrator before ordering or embodying the works.

I.2 THE PRELIMINARIES

I.2.1 The Landscape Contractor will be responsible for any necessary remedial work to the soft landscape works and maintenance to ensure the successful establishment of trees, shrubs, hedges and wildflower grass areas for the 12 month defects liability period, immediately following practical completion.

I.2.2 The Landscape Contractor will be responsible for keeping the contract area clean, tidy and free from any unwanted weeds throughout the aftercare and maintenance periods. Any losses or failures of plant material, other than by malicious damage, shall be assessed by the contractor and replaced at their own expense.

I.2.3 The Landscape Contractor will be responsible for the guarantee for all the soft landscape works (trees, shrubs, hedges, wildflower areas) for the period of 12 months, immediately following practical completion, providing adequate maintenance has been carried out. Any trees, shrubs, hedges and

wildflower areas that die during the 12 months defects liability period shall be replaced at the landscape Contractors own expense.

- 1.2.4 Existing and New Underground Services:** It is the Landscape Contractor's responsibility to determine the position of all services in any areas where landscape works are to take place, and should take all necessary precautions to ensure that they are not damaged in any way during the contract period. The Landscape Contractor is to make good at his own expense any damage to public or private water, gas and any other mains or power services, drains and sewers caused by his own negligence, omission or default, and give all necessary notices to the local authority or statutory undertaker. Plants locations may require local adjustments to avoid underground services and manholes.
- 1.2.5 Variations:** The Contract Administrator may not add, omit or make other changes to this document, including the period for the Works, except where instructed by the Contract Administrator (CA). Any such instruction shall be in writing, valued and agreed between the CA and Landscape Contractor, prior to the Landscape Contractor carrying out any such instruction.
- 1.2.6 Trees, Hedges, Shrubs and Wildflower Grass Areas:** Trees, Hedges and Shrubs areas shall be maintained according to good horticultural practice to ensure the healthy growth of each plant species. Damaged, dead or diseased plants shall be treated according to good horticultural practice. Plants shall be pruned to facilitate a healthy and bushy growth according to each particular species.
- 1.2.7** The Landscape Contractor shall be held responsible for the damage, failure or dying back of trees, hedges and shrubs.
- 1.2.8** The Landscape Contractor shall provide a statement on completion of each visit. This statement shall itemise precisely the work carried out during that visit. The Landscape Contractor shall obtain a signature from a supervising person (Contract Administrator) on each statement on completion of each visit. This will provide a record of the work completed and the number of visits. If this record is not maintained, payment will not be made.
- 1.2.9** The Landscape Contractor's shall be responsible for regular watering of the trees, hedges and shrub areas sufficient to ensure the successful establishment of the trees, hedges and shrubs.
- 1.2.10** Should weather conditions require additional visits to water the Landscape Contractor's shall liaise and notify the Contract Administrator in writing prior to making the additional visits.
- 1.2.11** The Landscape Contractor will not be held responsible for malicious damage to plants, but should this occur the contractor's shall inform the Contract Administrator immediately, and any damaged work which is not notified and made good by the end of the maintenance period will be deemed to be the Landscape Contractor's responsibility and the Landscape Contractor shall be liable for the cost of any replacement work and materials.

I.3 HEALTH AND SAFETY

- I.3.1 Health & Safety at Work:** The Landscape Contractor shall be responsible for complying with the provisions of the Health and Safety at Work Act and all other regulations in respect of Health and Safety. All machinery or apparatus brought onto the site and used shall be safe, shall not cause risk to health and safety and shall be maintained to a standard that will not constitute an offence under the Health & Safety Act or any other relevant statutory provision.
- I.3.2 Landscape works adjacent to Highways:** All personnel on site and working on site shall ensure that they comply with Health and Safety regulations works adjacent to Highways – Reference Traffic Signs Manual Chapter 8 - Traffic Safety Measures & Signs for Works & Temporary Situations, to ensure that there is no risk to pedestrians and traffic.
- I.3.3 Safety and Security: Safety and Security:** The Landscape Contractor is to ensure that the site is left safe and secure at the end of each working day. All materials, plant and tools are to be locked away or secured when not in use. Any areas affected by works which could endanger the safety and wellbeing of the public and operators of the facility must be adequately cordoned off until that particular item of work is complete. The Landscape Contractor should allow for regular monitoring of safeguards (all necessary protective fencing, barricades, screens, etc.) and shall adapt and maintain them as necessary to ensure the level of protection.
- I.3.4** The Landscape Contractor shall be adequately trained, informed and supervised and sufficiently competent to perform their work without risk to health and safety to themselves or other persons on site especially where COSHH is applicable. All work shall be carried out in accordance with the relevant codes, best practice methods and safety practices which are currently in force.
- I.3.5** The Landscape Contractor shall implement a quality management system, to ensure that all subcontracted works are undertaken by skilled and experienced workforce who have an understanding in working and delivering projects of this nature and in accordance with best practice environmental safeguards and mitigation.
- I.3.6** All personnel on site and working on site shall use personal protective equipment and clothing in the interest of health and safety to avoid harm to themselves or any other persons. All site personnel will be briefed by the Ecological Management Team (Ecological Manager and /or Ecological Clerk of Works) on ecological issues on site and informed that should they discover a protected species in the working areas – all works shall stop immediately and reported to the Landscape Contractor/ Ecological Manager. The Ecological Management Team shall be highly qualified and experienced ecologists, for their roles and duties please refer to the Ecological Mitigation and Management Plan.

I.4 DAMAGES

- I.4.1** The Landscape Contractor shall be responsible for keeping the contract area clean, tidy and free from any unwanted weeds throughout the contract period. Any damaged areas to the hardworks

(existing wall, kerbs; paving; public pavement/ highway and fencing etc.) shall be reinstated to the original condition by the Landscapes Contractor at his own expense.

I.5 EXISTING TREES AND VEGETATION

- I.5.1 Existing Trees (limited to the south-eastern corner of the site) shall be maintained in accordance with good arboricultural practice throughout the contract period: dead, damaged or diseased material to be cut back to undamaged wood, cuts to be left clean and neat to heal over.
- I.5.2 Ground work, planting within Root Protection Area (RPA) of existing trees - Any required excavations within RPA's for the new planting/ soft works shall be undertaken using hand held tools only to minimize any root damage. All such works will be undertaken in full accordance with Section 7.2 of BS5837: 2012. Any required root pruning will be undertaken by the Arboricultural Consultant (where such works are appropriate in accordance with the above Standard) and as detailed in Section 7.2'. Plants shall be locally adjusted to avoid tree roots.
- I.5.3 Vegetation Clearance: All vegetation clearance/ removal and any further vegetation works during the contract period shall be undertaken outside the breeding season i.e. undertaken September-February or if within the breeding bird season (typically March-August inclusive) should be checked prior to works commencing by the ECoW.

2.0 MAINTENANCE SPECIFICATION: GENERAL INSTRUCTIONS

2.1.1 These general instructions apply to the Landscape Contract and 12 months defects liability inclusive.

2.2 GENERAL CONSTRUCTION OPERATIONS / HABITAT WORKS SAFEGUARDS

2.2.1 Best practice methods shall be employed and the appropriate measures shall be taken to prevent and minimize the following:

- No burning on site;
- Dust and air pollution;
- Noise and vibration and
- Management of surface water run –off.

2.3 GENERAL MANAGEMENT OPERATIONS / HABITAT WORKS SAFEGUARDS

2.3.1 All existing trees to be retained and protected in accordance with BS 5837:2012 - Trees in Relation to Construction. Existing levels shall be retained around existing trees to be retained. **Existing Trees:** All planting within the root protection area (RPA) of existing trees shall be notched planted and locally adjusted to avoid tree roots. All shrub planting to be undertaken by hand using hand tools only to minimize root damage. If significant roots are encountered, these will be left undamaged and dug around; No new top soiling operations to take place within the RPA - all new planting to be planted into existing soil on site. No changes of levels (raising or reducing) during planting operations within the RPA's.

2.3.2 Pruning to existing and new trees within the site shall comply with the BS 3998: 2010, Tree Work Recommendations and undertaken by an Arboricultural Association approved Contractor.

2.3.3 Work to maturing trees and native shrubs shall be undertaken during the winter months outside the bird nesting season which is generally between March – August inclusive. Any emergency works required during the bird nesting season will need to be preceded by a check for nesting birds, by a suitably qualified and experienced ecologist.

2.3.4 Deadwood should only be removed from mature trees where there is a risk to people or property or when necessary to avoid spread of pests or disease. Care shall be taken when felling trees or removing limbs to avoid damaging adjacent trees or vegetation which is to be retained. Wood from felling operations shall remain on site. Log piles will be created from existing trees which are felled/ pruned/ coppiced on site and used for invertebrates and potential hibernacula for reptiles.

2.4 SITE WASTE MANAGEMENT

2.4.1 The Landscape Contractor shall reduce and minimize the amount of waste material on site as far as reasonably practical through waste management, recycling, and re-using materials.

2.4.2 The Landscape Contractor shall ensure the following:

- No burning of waste will be permitted on site.

- All arisings from management and maintenance operations shall be taken to a green waste composting area off site.
- Any litter and non-biodegradable material shall be collected and removed from site and taken to a licensed waste disposal site.
- Storage of liquid and hazardous waste – stored in a secure location and not mixed with general waste and prevent ground contamination.

2.5 PRUNING GENERALLY

- Prune in accordance with good horticultural practice. Prune larger branches and woody stems in accordance with good arboricultural practice.
- Maintain all new tree planting in accordance with BS8545:2014 *Trees: From Nursery to Independence in the Landscape – Recommendations*.
- Thin, trim and shape appropriately to each species, location, season, and stage of growth, leaving a well-balanced natural appearance.
- Use clean sharp secateurs, hand saws or other tools approved by the FM (facility manager). Trim off ragged edges of bark or wood with a sharp knife.
- Remove branches without damaging or tearing the stem.
- Keep wounds as small as possible and cut cleanly back to sound wood. Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
- Prune larger branches neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
- Notify Hargreaves Management Ltd facility manager (FM) of any disease or fungus. Do not apply growth retardants, fungicide or sealant unless instructed by the FM.

2.6 CLEANLINESS

- 2.6.1 The site shall be left in a clean and tidy condition on completion and after each management operation. All rubbish and litter found within the planted and grassed areas shall be removed.
- 2.6.2 Leaf litter and arisings: collect, remove and dispose of grass cuttings, leaves, weeds, debris arising from maintenance works to be taken to the green waste composing area off site.
- 2.6.3 Mulch shall be swept off all paved areas after each maintenance visit.

2.7 GENERAL WATERING

- 2.7.1 Watering: as necessary to ensure the continued health growth of all plants, until restrained from doing so by statutory legislation.
- 2.7.2 Where necessary loosen the soil or form a depression around the base of the stem of plants to ensure water reaches the root zone instead of dispersing on the surface.
- 2.7.3 Ensure full depth of topsoil is thoroughly watered. Use a fine hose or low pressured hose where appropriate to avoid damage to plants.

2.8 MACHINE TOOLS

- 2.8.1 Use only tools and machinery suitable for the site conditions and the work to be carried out. Using hand tools only around the existing and proposed trees and shrubs.
- 2.8.2 Works shall only be carried during the appropriate season. Ground and weather conditions shall be appropriate and suitable for the relevant operations.

2.9 NOTICES

- 2.9.1 The Landscape Contractor shall provide at least 7 -14 days' notice to Hargreaves Management Ltd Facility Manager for each maintenance visit and specifically for the following operations;
 - Application of herbicides
 - Application of fertilisers
 - Watering
- 2.9.2 The Landscape Contractor is required to provide a statement on completion of each visit. This statement should itemise precisely the work carried out during that visit. The contractor will be required to obtain a signature from a supervising person/managing agent on each statement on completion of each visit. This will provide a record of the work completed and the number of visits. If this record is not maintained, payment will not be made.

2.10 USE OF HERBICIDES AND PESTICIDES, COMPOSTS AND MULCHES

- 2.10.1 **Legislation** - Pesticides include herbicides, insecticides, fungicides and plant growth regulators. The use of pesticides is governed by legislation. The Landscape Contractor must comply with the 'The Control of Pesticides Regulations 1986' made under the 'Food and the Environment Protection Act 1985', 'The Control of Substances Hazardous to Health Regulations 1988' made under the 'Health and Safety at Work Act 1974' and any other legislation enacted during the contract period. All pesticides must be products on the current list of Agricultural Chemicals Approval Scheme. All pesticide users shall comply with the conditions of approval relating to use clearly stated on the product label and used in accordance with the manufacturer's instructions and guidelines.

- 2.10.2 Use of herbicides should be avoided, where possible. Any use of herbicides adjacent to the ditch/ watercourse should be avoided. The use of all herbicides near watercourses require written approval from the Environment Agency and only approved herbicides may be used by authorised contractors.
- 2.10.3 The Landscape Contractor must be compliant in obtaining all the necessary certificates (a recognized nominated storekeeper's certificate of competence (BASIS) shall be required for storing more than 200 litres of pesticides. All pesticides transported or stored in the Landscape Contractor's vehicles (regardless of quantity) shall be locked in a separate storage compartment in the vehicle or within a lockable container in 'pickups' that are bolted to the floor of the vehicle.
- 2.10.4 The Landscape Contractor shall keep a written logbook detailing all the uses and pesticide applications carried out within the site (if necessary) and a copy shall be submitted to the ecological manager and client's facilities manager for their records.
- 2.10.5 Use only non- residual herbicides and pesticides. Prevent weed species spreading by topping prior to seeding and combining a regime of repeated cutting to reduce vigor and spreading of weed species.
- 2.10.6 Use only organic peat free composts/ mulches and soil conditioners to PAS 100.

2.11 PROTECTION

- 2.11.1 The Landscape Contractor shall provide whatever protection is necessary to delineate or protect areas of newly planted/ seeded areas to prevent damage during establishment of planted areas.
- 2.11.2 Protective Fencing – temporary fencing/ guards may be erected (tbc) around newly planted trees and shrub areas to deter damage by rabbits. Ensure all temporary protective fencing, rabbit guards and enclosures are kept in a good and effective condition, vertical and repair as necessary to prevent unauthorized access to all planted areas until such time as instructed to dismantle and remove the fencing and guards from the planted areas. The temporary fencing areas shall be checked regularly for adjustments, replacement or removal as and when required.

3.0 SCOPE OF WORKS

3.1.1 All softworks operations shall be undertaken in accordance with the requirements of BS4428:1989 Code of practice for general landscape operations (excluding hard surfaces).

3.1.2 The soft landscape works will comprise:

- Site clearance and planting beds/ turfed areas: the removal of all building debris within the areas to be planted;
- To supply and spread imported topsoil to the recommended depth for trees; shrubs and hedge planting;
- Cultivation and the grading of levels to the planting beds where necessary;
- The final minor re-grading of levels prior to planting;
- The supply and application of herbicides (where necessary);
- The supply and application of fertilizers and soil ameliorants;
- The supply and planting of individual trees in soft landscape areas to include tree supports and watering/aeration systems;
- The supply and planting of individual trees in hard landscape areas (car park) to include underground guying tree supports and watering/aeration systems;
- The supply and installation of the tree grilles & vertical steel guards for the trees in the hard landscape areas.
- The supply and planting of hedges, shrubs and ground cover plants;
- The supply and installation of temporary post and wire fences for hedges adjacent to pedestrian paths (tbc by Hargreaves);
- The supply, application and installation of the wildflower grass areas;
- The supply and spreading of ornamental composted bark mulch to all native shrub boundary planting areas;
- The supply and spreading of fine composted bark mulch to all other planting areas and;
- Twelve months maintenance and guarantee of all works;
- NB: Root Cell Structure Cells and Root barriers – shall be undertaken by Main Contractor with the guidance of appointed Landscape Contractor Green Blue Urban or similar equivalent.
- NB: The installation of the timber knee rail shall be either undertaken by Main Contractor or Landscape Contractor (TBC).

3.1.3 The Landscape Contractor shall make good any damage to the existing hard landscaping (walls; paving, etc) occurring as a result in the planting of the new trees, hedges, shrubs, ground covering plants and installation of the wildflower grass areas.

3.1.4 **Documents:** This Soft Landscape Specification should be read in conjunction with the detailed planting plan.

3.1.5 **Drawings:** This specification is to be read in conjunction with Proposed Detailed Planting Plan drawing and planting schedule for 836 WATERLOO PARK, ELETTRA AVENUE, WATERLOOVILLE drawing nos 836 –PP-P-01.

3.1.6 The Landscape Contractor should allow for all plant material to be container grown, unless otherwise stated in the planting schedule.

3.1.7 **Calculation of quantities of topsoil and subsoil required:** The Contractor shall calculate the quantities of topsoil and subsoil required for the soft landscaped areas, to achieve the depths as detailed in clause 5.3.18. The existing and proposed finished levels should be taken into account when making these calculations, to assess whether reduce level excavations are required, or levels need to be made up to achieve the finished levels:

- In some areas, the existing site soils may be left in-situ, but require some additional subsoil spreading to make up the required levels prior to topsoil spreading
- In other areas, reduce level excavations of the existing site soils may be necessary to achieve the correct level, prior to top soiling.

3.1.8 Construction (Design and Management) Regulations: The Main Contractor will ensure compliance with the Construction (Design and Management) Regulations 2015 (CDM) and is required to act as Principal Contractor for the Works. For the purposes of the CDM Regulations, the Architect – PRC Architects are the Principal Designer; contact detail is Mike Simpson mike.simpson@prc-group.com

3.1.9 Submission of Samples & Test Results for Approval: The following items will require the submission of samples and/or test results for approval by the Landscape Consultant:

- Subsoil - full analysis in accordance with Clause 5.2 of this Specification.
- Topsoil – full analysis in accordance with Clause 5.3 of this Specification

3.1.10 All Trees, Shrubs and Wildflower Grass for Approval: The following items will require the submission of images for approval by the Landscape Consultant/ Client:

- All trees;
- Shrubs and native mix stock;
- Wildflower grass areas.

4.0 SITE PREPARATION

4.1 SITE CLEARANCE

- 3.2.1 All lumps of rubble and other debris shall be removed by hand from all areas to be planted, as shown on the drawings. Care shall be taken to avoid any damage to the existing trees. Rubble and debris shall be removed off site.
- 3.2.2 No existing trees/shrubs shall be damaged, removed or cut without specific instruction and the Landscape Contractor shall be responsible for the replacement of any trees, shrubs damaged as a result of the working of this Contract.
- 3.2.3 **Vegetation Clearance:** Work to existing boundary vegetation (maturing trees and native shrubs) shall be undertaken during the winter months outside the bird nesting season which is generally between March – August inclusive. Any emergency works required during the bird nesting season will need to be preceded by a check for nesting birds, by a suitably qualified and experienced ecologist.
- 3.2.4 The Landscape Contractor shall avoid damage to existing kerbs, roads, paved areas and other site features which are to remain in position during the execution of the works.
- 3.2.5 Burning vegetation or any other material on site is not permitted; all unwanted material shall be carried off site to a tip.
- 3.2.6 All perennial weeds shall be cut down and removed from site by the contractor and disposed of responsibly. The contractor shall eliminate all the remaining unwanted vegetation by using an approved contact systemic translocated herbicide spray to all areas to be planted. The contractor shall allow for a minimum of two applications.
- 3.2.7 All rubbish shall be cleared away and removed off site during the course of the landscape works. At the end of each day the site shall be left clean and tidy. All public pavements/ footpaths shall be kept clean and tidy during the clearance and planting works. All surplus excavated material shall be removed off site.

5.0 MATERIALS: SOFT

5.1 TOPSOIL

- 5.1.1 All topsoil to be stored temporarily before spreading shall be stacked in heaps, not exceeding 2m high. During storage, topsoil heaps shall be kept free from contamination, compaction and weeds.
- 5.1.2 Existing on site topsoil, stored on site by others shall be spread on areas for planting and seeding. Imported topsoil may be used to make up required formation levels.
- 5.1.3 Soil Handling: The soils shall be handled in accordance to the Good Practice Guide for Handling Soils. Soil handling shall only take place during the driest parts of the year to prevent compaction or harm to the structure of the soil.
- 5.1.4 Soil Materials Generally:
- Purity: topsoil shall be free from roots, stolons, rhizomes, invasive perennial weeds such as docks, bindweed, couch grass and Japanese knotweed.
 - Foreign matter: On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, large lumps of clay or vegetation, and any other foreign material or substance that would render the subsoil or topsoil or ameliorant unsuitable for use;
 - Contamination: Do not use manufactured topsoil contaminated rubbish or other materials that are:
 - Corrosive, explosive or flammable.
 - Hazardous to human or animal life.
 - Detrimental to healthy plant growth.
 - Subsoil: In areas to receive topsoil, do not use subsoil contaminated with the above materials.
 - Give notice: If any evidence or symptoms of soil contamination are discovered on the site, or in manufactured topsoil, subsoil, sand or compost or other planting media to be used.
 - Other requirements: A manufactured topsoil used in this application also must meet the minimum nutrient content index values and maximum stone content and sizing as for general purpose grade of BS 3882.
 - Other requirements: Manufactured topsoil shall contain a minimum of 5% organic matter content.

5.2 SUBSOIL SPECIFICATION

- 5.2.1 Subsoil for general planting areas: the onsite subsoil and/ or imported subsoil shall be tested and checked to comply with the British Standards recommendations and undertaken by an approved independent laboratory (such as *Tim O'Hare Associates* or equivalent approved soil scientist).
- 5.2.2 Provide subsoil as necessary to make up the deficiency on site. Natural or imported subsoil (from and approved source), tested to determine suitability for use for landscape planting areas. Test

report submitted for approval and any deficiencies identified to enable ameliorants recommendations.

5.2.3 Subsoil shall comply with BS 8601:2013 - Specification for subsoil and requirements for use supplied from an approved source.

5.2.4 The test should identify the following:

- Stone content and detailed particle size analysis (Clay, Silt, Sand);
- Soil pH;
- Lime requirement;
- Electrical Conductivity values;
- Texture;
- Potential contaminants that affect human health;
- Visual contaminants and,
- Carbon: Nitrogen (C:N) ratio.

5.2.5 Subsoil Specification for Trees, Hedgerows, Ornamental Shrub Beds and Wildflower Areas: All subsoil to be used for trees, hedgerows, shrub beds and wildflower areas shall comply in all respects to the requirements within the specification listed below. This specification applies both to the existing site subsoil, which may be stripped and re-spread, and for imported subsoil.

5.2.6 **Physical and Chemical Parameters Physical Parameters**

- | | | |
|----------------------------|---|--------------|
| • Clay (less than 0.002mm) | % | 5 - 30 |
| • Silt (0.002 – 0.05mm) | % | 5 - 45 |
| • Sand (0.05 – 2.00mm) | % | 50 - 90 Max. |

At least 45% of the total soil fraction shall fall within the medium to coarse sand range).

- | | | |
|--|-------------|-----------|
| • Stone Content (2 – 50mm) | % by weight | 50 Max. |
| • Stone Size in any dimension >mm 50 | | none |
| • pH value (1:2.5 soil : water) | Units | 5.0 – 8.5 |
| • Electrical Conductivity (1:2.5 water) | µS/cm | <2000 |
| • Electrical Conductivity (CaSO ₄) | µS/cm | <2800 |
| • Organic matter | % | <1.5 |

5.3 IMPORTED TOPSOIL SPECIFICATION

- 5.3.1 All topsoil to be used for hedgerow planting and shrub beds in soft landscape areas shall be 100% peat free, and shall comply in all respects to the requirements listed below. This specification applies both to the existing site topsoil which may be stripped and re-spread, or for imported topsoil, if this becomes necessary.
- 5.3.2 Soil to be analysed: All areas to be grassed or planted undertaken by an approved independent laboratory (such as *Tim O'Hare Associates* or equivalent approved soil scientist).
- 5.3.3 Imported Topsoil shall comply with BS 3882:2015 - Specification for Topsoil and Requirements for Use and shall consist of a good quality sandy loam from an approved source.
- 5.3.4 Topsoil shall be Premium Grade, free from pernicious weeds and roots (including Couch grass), clay lumps, non-soil materials, rubbish, brick and other building materials, foreign matter and chemical contamination.
- 5.3.5 Imported Topsoil shall be a good quality sandy loam to comply with BS 3882:2015 in the following particular respects:
- It shall be medium texture containing a high proportion of loamy material.
 - It shall be free from subsoil.
 - It shall have a pH level of 5.5 – 8.2.
 - Refer to the physical parameters in clause 5.3.9.
- 5.3.6 **Topsoil Sample:** a sample load (5 cubic meters minimum) shall be delivered to the storage compound for approval by the Contract Administrator. After approval, this sample shall be set aside and remain used at the storage compound as a standard so that other loads can be seen to be of the same quality. Imported Topsoil not meeting the above requirements shall be removed at the Landscape Contractors own expense.
- 5.3.7 **Testing:** collect in accordance with BS 3882 Annex A. The Landscape Contractor shall have one kilogram sample of topsoil prepared from four places within the load and analysed at an approved independent laboratory (such as *Tim O'Hare Associates, Howbery Park, Wallingford, Oxon, OX10 8BA*; email info@toha.co.uk or equivalent approved soil scientist). Submit originals of: - Declaration of analysis in accordance with BS 3882, clause 6 and table 2. (e.g., stone content, textural classification, chemical analysis) - Report detailing soil analyst's recommendations.
- 5.3.8 The test should identify the following:
- Stone content and detailed particle size analysis (Clay, Silt, Sand);
 - Soil pH;
 - Lime requirement;
 - Electrical Conductivity value;

- Texture;
- Organic matter content;
- Major plant nutrients – Nitrogen (N), Phosphorous (P), Potash(K) and Magnesium (Mg) and fertilizer requirement if required;
- Heavy Metals – Pb, Cd, Hg, Cu, Zn, Ni.;
- Potential contaminants that affect human health;
- Visual contaminants and,
- Carbon: Nitrogen (C:N) ratio.

5.3.9 Physical and Chemical Parameters

• Clay (less than 0.002mm)	%	0 - 15
• Silt (0.002 – 0.05mm)	%	5 - 35
• Sand (0.05 – 2.00mm)	%	50 - 85 Max.

At least 45% of the total soil fraction shall fall within the medium to coarse sand range).

• Stone Content (2 – 20mm)	% by weight	20 Max.
• Stone Content (20 – 50mm)	% by weight	15 Max.
• Stone Size in any dimension >mm 50		none
• pH value (1:2.5 soil : water)	Units	5.5 – 8.2
• Electrical Conductivity (1:2.5 water)	µS/cm	<1500
• Electrical Conductivity (CaSO4)	µS/cm	<2800
• Organic matter	%	4.0-8.0
• Total Nitrogen	%	>0.15
• Carbon: Nitrogen (C:N) ratio		20:1Max
• Extractable Phosphorus	Mg/l	26 -100
• Extractable Potassium	Mg/l	240 -1200
• Extractable Magnesium	Mg/l	50 -600

5.3.10 The topsoil shall be free from harmful trace elements, including phytotoxic and zootoxic elements harmful both to plant growth and man.

5.3.11 The topsoil shall be tested by physical and chemical analysis and shall state clearly the physical characteristics of the soil, levels of micro-nutrients and chemical content.

5.3.12 Any deficiencies identified in the analysis shall be remedied at the Landscape Contractors expense or an alternative sample of topsoil shall be delivered which does meet the specification. Should the Landscape Contractor wish to provide an alternative sample of topsoil then the cost of any subsequent tests shall be borne by the Landscape Contractor.

- 5.3.13 The contractor shall allow for obtaining topsoil analyses. If the topsoil is to come from more than one source then the contractor shall obtain an analysis of the soil from each source.
- 5.3.14 No topsoil shall be approved without a written report and sample. Written approval must be obtained from the Contract Administrator prior to its delivery to site.
- 5.3.15 Topsoil **Stockpile**: with the exception of the sample of topsoil; topsoil shall be delivered straight to the areas requiring top soiling.
- 5.3.16 **Wildflower Grass Areas**: apply and spread Green –tree Low Nutrient Soil supplied by Green-tech <https://www.green-tech.co.uk> (or similar equivalent).
- 5.3.17 Preparation for Topsoil spreading: The topsoil shall be spread over the areas required and slightly firmed. The overall depth shall be as specified and shall allow for settlement and for the final grading to finished levels. Topsoil spreading shall be suspended during prolonged periods of heavy rain if the soil is waterlogged or if formation grades are flooded.
- 5.3.18 The formation levels (allowing for settlement) shall be as follows:
- Wildflower grass areas: low nutrient soil 150mm deep
 - Shrub planting areas: 300mm deep
 - Hedge trenches: 300mm deep
 - Individual trees in soft landscape areas: 1000mm x 1000mm x 300mm deep; break up bottom of tree pit to a depth of 200mm.
 - Individual trees in hard landscape areas (car park): Refer to Typical Tree Pit Detail indicated on the planting plan drawing no. 836- PP-P-01.
- 5.3.19 **Finished Formation Levels**: For planting beds the finished formation levels shall be 25mm below the levels of adjacent hard areas. For grassed areas adjoining pavements, kerbs, manholes etc. the finished formation level shall be 25mm above the hard areas. For planting beds adjacent to grassed areas shall be 25mm above the levels of adjoining grass areas. For planting areas adjacent to buildings 150mm below dpc level.
- 5.3.20 **Preparation of undisturbed topsoil**: General: Prepare areas to receive soft landscaping as necessary to ensure that the topsoil is in a suitable state for cultivation operations. Hard ground shall be broken up in transverse directions. Remove roots and boulders refer to site clearance clauses in 4.1. Weed control: At appropriate times treat with a suitable translocated non-residual herbicide.
- 5.3.21 No new top soiling operations to take place within the Root Protection Area (RPA) - all new planting to be planted into existing soil on site, using hand tools only to minimize root damage. If significant roots are encountered, these will be left undamaged and plants locally adjusted.

5.3.22 **Additional Cultivation:** the Landscape Contractor shall be responsible for, and is deemed to have included for any additional cultivation required to keep areas free from rubbish and weed growth if, owing to the time of year, weather or other causes, there is a period of waiting between completion of top soiling operations and planting operations.

5.3.23 **Protection and Litter Removal:** the Landscape Contractor shall protect top soiled areas from traffic, areas adjacent construction operations, contamination by harmful substances, builders rubbish, brickbats etc, windblown litter, and so on. These shall be removed periodically and immediately prior to cultivation.

5.4 SOFT PLANT MATERIAL

5.4.1 All plant material shall conform to the current relevant British Standards for nursery stock trees, shrubs, bulbs, grass seed and turf (British Standard No. 3936 Part 1, 1992; Part 2 1990 (1995); Part 3 1990 (1995); Part 4 2007 (1989); Part 7 1989; Part 9 1988; Part 10 1990; Part 11 1984 (1989): BS 3969:1998 +A1:2013; BS 3998 2010.

5.4.2 Supply and planting of trees shall be carried out following recommendations given in BS 8545: 2014 *Trees from Nursery to Independence in the Landscape*.

5.4.3 All plant material shall conform to the minimum standards set out in 'the specification of Standards for British Container Grown Plants' prepared by the British Container Growers Association and published by the Horticultural Trades Association; and the standards set out in 'The Good Planting Guide' as published by British Hardiplants Limited.

5.4.4 All trees, hedges and shrubs must be true to name and clearly labelled or otherwise marked for identification. As per planting schedule and defined in the National Plant Specification - Name, forms, dimensions and other criteria: To the relevant part of BS 3936.

5.4.5 The plants shall show sufficient vigour and vitality and be properly hardened off with evidence of balanced growth and having been grown in a suitable environment.

5.4.6 Container grown material shall have roots that thoroughly permeate the contents of the container with clear evidence of proper establishment, good health and adequate development. The compost shall hold sufficient reserves of nutrients to maintain the plant in a satisfactory condition for a reasonable period of time after leaving the grower's holding.

5.4.7 Containers shall have sufficient holes to allow satisfactory drainage when stood down on any of the normally accepted substrates under irrigation systems in current practice.

5.4.8 All plants when sold shall be free from pests, diseases, weeds and physiological disorders and shall be materially undamaged. Roots shall not have been subjected between lifting and delivery to any adverse conditions such as waterlogging or prolonged exposure to drying winds or frost.

- 5.4.9 All plants shall be in accordance with the size and variety indicated in this specification. No substitution of species or size shall be allowed without written consent of the Contract Administrator. Where sizes are offered below those in the schedule the total number of plants shall be increased by an agreed number.
- 5.4.10 The Landscape Contractor shall make arrangements for all plant material to be inspected by the Contract Administrator before planting commences or at the nursery prior to delivery to site. The Contract Administrator reserves the right to reject any plant material which does not satisfy the requirements of this specification.
- 5.4.11 All plants shall be packed and transported in accordance with the Code of Practice for Plant Handling as produced by CPSE.
- 5.4.12 All bare root stock shall be dipped an approved water retaining polymer.
- 5.4.13 All planting stock shall be native provenance and sourced locally where possible.
- 5.4.14 All shrubs and hedges shall be container grown unless otherwise stated and meet the requirements listed above and shown on the plant schedules on the drawings.
- 5.4.15 Trees shall be open grown (unless otherwise agreed in writing by the Contract Administrator) and have a single straight stem (unless otherwise specified) and a well formed and balanced crown according to the minimum sizes listed below.

	Circumference at 1m from ground level	Min overall ht from ground level	approx. max ht from ground level	Clear stem ht from ground level to lowest branch
Light standard	6-8 cm	2.5m	3.00m	1.5-1.75m
Standard	8-10 cm	2.50m	3.00m	1.75m-2.00m
Selected standard	10-12 cm	3.00m	3.50m	2.00m min
Heavy standard	12-14 cm	3.50m	4.25m	2.00m min
Extra heavy standards	14-16 cm	4.25m	6.00m	2.00m min
	16-18 cm	4.50m	6.25m	2.00m min
Advanced Nursery stock (ANS)	18-20 cm	4.50m	6.50m	2.00m min
Multi stem trees shall be 2.0-2.5m in height with 3-5 stems; rootballed or container size approx. 45L.				

- 5.4.16 Should bare rooted material be used, the shrubs shall have a well-developed, and balanced branching structure with a fibrous root system. Plants shall be packaged within plastic bags, which are securely tied at the top, and with plants loosely bundled within the bag. Foliage shall be as surface dry as possible and have all the shoots facing in the same direction so that roots and shoots are not in contact. Thorny or very bushy plants need only have their roots enclosed within the bag, which shall be securely tied around the stems.
- 5.4.17 All large specimen trees, hedges and shrub plants specified in the planting schedule shall be a minimum of 75% canopy of the plants at the height or above of the highest height specified.
- 5.4.18 **Planting Season:** unless otherwise agreed all transplanting shall take place between the end of October to the end of March. Container grown plants can be planted at any time provided the planting conditions are suitable for planting. Planting shall not be carried out during periods of frost, drought, cold drying winds, or when the soil is waterlogged. Planting outside the planting season will require adequate watering to ensure establishment.

5.5 PLANT/ TREE SUBSTITUTION

- 5.5.1 Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering:
Difference from specified plants/ trees: Obtain Approval from CA before making any substitution.

5.6 CHEMICALS

- 5.6.1 Approved Chemicals: All chemicals used shall be non-toxic to human beings, birds and animals, under normal use and chemicals which are not on the "Agricultural Chemicals Approved Scheme" current list of Approved Products shall not be used.

5.7 FERTILISERS/COMPOSTS/ AMELIORANTS

- 5.7.1 **Organic Planting Compost & Fertiliser:** tree and shrub planting compost shall be peat free, Melcourt Spent Mushroom Compost supplied by Melcourt Industries Limited, Boldridge Brake, Long Newton, Tetbury, Gloucestershire. GL8 8RT Tel: +44(0)1666 502711 Fax: +44(0)1666 504398 Email: mail@melcourt.co.uk or equivalent approved.
- 5.7.2 Planting Fertilisers and Ameliorants: a slow release fertiliser shall be used to plant all trees, hedges and shrubs, in accordance with the manufacturer's instructions. Slow Release Fertiliser: Scotts Enmag (8-9 months planting fertiliser) supplied by Amenity Land Services Limited, Allscott Park, Allscott, Telford, Shropshire, TF6 5DY Tel: +44 (0)1952 641949 or equivalent approved.
- 5.7.3 Incorporate the slow release fertiliser and soil improvers as per the manufacturer's instructions into existing / imported topsoil at the time of planting. All composts in accordance with PAS 100.

- 5.7.4 Additional ameliorants maybe required following the topsoil analysis and incorporated during the cultivation at a rate to full depth of growing medium.

5.8 TREE GRILLES AND GUARDS

- 5.8.1 **Tree Grilles & Guards:** tree grille frames and tree protection guards shall be supplied by:

GreenBlue Urban
Northpoint
Compass Park
Junction Road
Bodiam TN32 5BSR

Tel no. 01782 564411 | enquiries@greenblueurban.com or equivalent approved.

- 5.8.2 **Tree Grilles:**

Model: Avon 15B Tree Grille and Frame

Tree Grille: 1500 mm x 1500mm x 600mm aperture

Number: 8 (as indicated on drawing)

Colour: Matt Black RAL9005

Tree Frame: Galvanised tree support frame set on concrete haunch.

Number: 8 (as indicated on drawing)

Colour: Matt Black RAL9005

Special Features: with Root Rain hydrogrille single irrigation cast inlet.

Method of Fixing: in accordance with manufacturer's recommendations.

Arborvent: 150mm single inlet aeration system with cast inlets fitted to root space airflow inlet.

- 5.8.3 **Tree Guards:**

Model: Ullswater Vertical Steel Tree Guard 1800mm x 600mm diameter

Number: 8 (as indicated on drawing)

Colour: Matt Black RAL9005

Method of Fixing: Tree protection guard secured to tree grille as per manufacturer's instructions.

5.9 TREE STAKES AND TIES, ROOT BARRIERS AND IRRIGATION/AERATION

- 5.9.1 All trees, shall be secured by double staking with cross bar or underground guying system to BS 4043:1989. All tree within the hard paved areas shall be underground guyed – refer to detail Refer to Typical Tree Pit Detail indicated on the planting plan drawing no. 836- PP-P-01.

- 5.9.2 **Double Stake & Crossbar:** Stakes shall be softwood, peeled chestnut or larch, free from projections and large knots, with one end pointed. Overall length of stakes shall be a minimum 1800mm and 100mm diameter. Stakes shall be driven vertically at least 300mm into bottom of the pit either side of rootball. Cross bar – 100 x 38mm shall be secured to stakes using galvanised nails. A twin stake belt and sleeve available from GreenBlue Urban Ltd. (www.greenblueurban.com) or equivalent approved, may be used as an alternative.

- 5.9.3 Stakes above ground level – approximately one third of clear stem height. Each stake secured to cross bar using galvanised nails. Tree secured to cross bar with rubber tree tie and tree cushion spacer/pad, fixed to support the tree, or twin stake belt and pad available from GreenBlue Urban or equivalent approved. All fixing nails shall be galvanized annular ring.
- 5.9.4 Trees shall be planted upright at the same depth as the nursery soil level and evenly spaced, leaving room for growth. Allow at least 150-300mm clearance between the rootball and the edge of the pit to facilitate staking and to allow adequate amount of backfill around the rootball.
- 5.9.5 Immediately following planting, all plants shall be watered-in to field capacity.
- 5.9.6 **For underground guying system:** the underground guying system shall be the designed to secure the root ball/ container grown trees; supplied and installed in accordance with the manufactures instructions/ specification. Green Blue Arborguy system or equivalent approved shall be used (see illustration below). Use of aluminium ratchet strainers or equivalent approved.



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- Supplier: GreenBlue Urban, Haywood Way, Hastings, East Sussex. TN35 4PL.
Tel: 01424 717797 / 01424 433233. Email: enquiries@greenblueurban.com

Important note: it is imperative that root-balled and container grown trees have root-balls and containers that are correctly sized to work with the underground guying system. This must be checked with the supply nursery at the time of plant ordering. Trees with small root balls below those specified in the planting schedules will be rejected.

5.9.7 **Irrigation/aeration:** Tree irrigation system shall be RootRain Urban Tree Irrigation and aeration system to be supplied by GreenBlue Urban Ltd, Northpoint, Compass Park, Bodiam TN32 5BS or equivalent approved.

5.9.8 **OPTIONAL: Root Barriers:** shall be installed to trees adjacent to kerbs/walls/ services, in accordance with the manufacturer's instructions. **Undertaken by others.**

Root barriers can be obtained from:

GreenBlue Urban

Northpoint

Compass Park

Junction Road

Bodiam TN32 5BSR

Tel no. 01782 564411 enquiries@greenblueurban.com or equivalent approved.

5.10 MULCH

5.10.1 Boundary Native Shrub Planting (adjacent to Elettra Avenue): All shrub beds shall be mulched using 50-75mm depth of **Ornamental Composted Bark** (8-35mm bark) mulch supplied by AHS Ltd, or equivalent approved.

5.10.2 All other planting beds shall be mulched using 50-75mm depth of **Fine Composted Bark** (0-8mm bark) mulch supplied by AHS Ltd, or equivalent approved.

5.10.3 Mulch shall consist of matured British conifer bark, with an even particle size between 0-8mm. All dust and fine material is to be excluded and the mulch must not contain less than 5% wood. White wood content shall be no greater than 10% by volume. The mulch shall be pest, disease and weed free and be free of Methyl Bromide contamination. Free of all foreign matter such as metal, glass, plastic and any other extraneous materials. The pH range to be between 5.5 and 7.5.

5.10.4 Mulch must have matured for a minimum of sixteen weeks and be naturally heat-treated to ensure excess volatile substances are driven from the bark. Temperatures must exceed 50°C for a minimum 14 days continuous period, followed by a further period of stabilisation.

5.10.5 **Ornamental & Fine Compost Bark Mulch** can be obtained from:

AHS LTD

Coppards Lane

Northiam

East Sussex

TN31 6QN

or equivalent approved.

5.11 WILDFLOWER GRASS AREAS

5.11.1 Wildflower Grass Areas: supply and install Meadowscape – Pro – Shade -4l and Meadowscape – Pro – Landscape -34 supplied and installed in accordance with the manufacturer's instructions. For locations - Refer to Detailed Planting Plan drawing no: 836-PP-P-01

5.11.2 Product reference: Meadowscape – Pro – Shade -4l and Meadowscape – Pro – Landscape -34

Supplied by:

Wildflower Turf Ltd

Ashe Warren Farm,

Overton

Basingstoke,

Hants, RG25 3AW

Tel: +44 (0)1256 771222

Email: wildflower@wildflowerturf.co.uk

Or similar approved.

5.12 POST & WIRE FENCES FOR HEDGES

5.12.1 Temporary Post & Wire Fencing: All hedges shall have a 3 galvanised wire strand and tantalized softwood post fencing to BS 1722 Part 3; erected along a line between the rows of hedge plants. Height of posts and fences 1200mm. Hedge plants loosely tied to wires where necessary. Erected to prevent damage to plants during the establishment period by pedestrians; once the plants become established the fence posts and wires shall be removed. To be confirmed with Hargreaves Management Ltd if required

5.13 SURPLUS MATERIAL

5.13.1 Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, pruning's and other arisings: Remove from site.

5.14 WATER

5.14.1 Water will be available from a water tap, locations to be confirmed at pre-contract meeting.

5.14.2 The Landscape Contractor shall allow for all the necessary connections to the water points to facilitate watering as required.

5.14.3 In the case of drought conditions or low rainfall when the use of hose pipes may be restricted the Landscape Contractor shall make all the necessary provisions to water the shrubs and trees sufficiently in order to establish a healthy plant growth (including importing water if required).

6.0 WORKMANSHIP: SOFT

6.1 GENERAL

- 6.1.1 All planting operations shall be carried out in accordance with good horticultural practice. A horticulturally trained foreman shall be in charge of the workmen on site at all times.
- 6.1.2 The site shall be kept in a clean and tidy state at all times. All rubbish, compost bags, plant pots etc. shall be removed from the site as they accumulate.

6.2 PROGRAMME OF WORKS

- 6.2.1 The Contract Administrator and Landscape Contractor shall inspect the condition of those areas ready for planting.
- 6.2.2 The Landscape Contractor shall allow for all plant material to be container grown, unless otherwise stated in the planting schedule.

6.3 REMOVAL OF EXISTING VEGETATION

- 6.3.1 The existing mature boundary vegetation along the western and south-western boundaries of Elettra Avenue, shall be undertaken by Main Contractor.
- 6.3.2 The contractor shall clear existing vegetation as indicated on the drawings, keeping soil disturbance to a minimum. Roots of woody shrubs and felled trees shall be grubbed up and debris shall be removed from site. The contractor shall be responsible for protection of site personnel and the public during any felling operations.

6.4 PACKAGING AND PLANT HANDLING

- 6.4.1 The transplanting and transportation of trees shall be undertaken in accordance with the latest editions of BS4043 and BS8545. All planting operations shall be carried out in general accordance with the relevant sections within BS. 4428:1989 *Recommendations for General Landscape Operations* (Excluding hard Surfaces) and BS8545.
- 6.4.2 The transportation of trees shall not be undertaken in conditions of frost, or very cold winds.
- 6.4.3 Packaging shall be adequate to protect the trees, hedges and shrubs and to prevent them from overheating or drying out, particularly on their journey from the nursery to the site. All plants covered during transit.
- 6.4.4 Trees shall be well secured during transit. The heads may be drawn together to reduce spread but no branches shall be cut without permission. All attachments to the tree must be made with the greatest of care, using extensive wrappings and suitable slings so that the bark is not stripped,

crushed or damaged in any way throughout the lifting and subsequent operations. Additional padding may be necessary in late spring.

- 6.4.5 As much support as is possible is to be given to the rootball when loading.
- 6.4.6 All due care must be taken to protect plants on site prior to planting. On delivery, trees and shrubs shall be offloaded and temporarily stored within a self-contained and secure area in a location previously agreed with the CA. This area is intended to be temporary store and plants should only be left on site for a short while immediately prior to planting. The Contractor shall ensure the safety and protection of the plants and shall ensure that they are kept upright and well-watered.
- 6.4.7 Any bare rooted plant material must be carefully heeled in. Protection covers and wrapping shall only be removed immediately prior to planting.

6.5 CULTIVATIONS

- 6.5.1 All areas to be planted shall be free from any rubbish and pernicious weeds before work commences. The Landscape Contractor may apply an approved herbicide and shall clear the planting areas of all loose surface rubbish and vegetation prior to commencing preparatory work. Where machine operations are impractical, hand digging shall be carried out to provide the same degree of cultivation and finished tilth. Care shall be undertaken not to mix the subsoil and topsoil.
- 6.5.2 Cultivation shall not take place in extremely wet conditions or when the ground is waterlogged.
- 6.5.3 If due to unforeseen circumstances cultivation is delayed after the spreading of topsoil the Landscape Contractor shall allow for the application of an approved total non-residual herbicide in accordance with the manufacturer's instructions. A second application may also prove to be necessary.
- 6.5.4 Cultivation to shrub /hedge planted areas: All shrub areas shall be dug to a depth of 400mm taking care not to damage the existing trees (hand digging within the root protection area of all existing trees). Some minor re-grading of the topsoil may be required. All stones greater than 50mm shall be removed during cultivation works.
- 6.5.5 Organic compost and slow release fertiliser shall be incorporated into the soil in accordance to the manufacturer's instructions.
- 6.5.6 The Landscape Contractor shall allow for the possible inclusion of any additional soil ameliorants which may be found necessary.

6.6 SETTING OUT OF TREES, HEDGES, SHRUB AND GROUND COVER AREAS

- 6.6.1 Areas of shrubs, hedges, ground cover planting beds and individual trees shall be set out on site and approved by the Contract Administrator. The Landscape Contractor will then set out all areas of

shrub and hedge planting in the locations and numbers as shown on the drawings for approval by the Contract Administrator before planting commences.

6.7 PLANTING OPERATIONS

- 6.7.1 Care must be taken to plant all trees, hedge and shrubs at the correct depth, corresponding to the depth of planting in the nursery.
- 6.7.2 At no time must the roots be allowed to dry out.
- 6.7.3 All containers shall be removed prior to planting and the roots gently teased open.
- 6.7.4 Trees in planted areas: shall be planted in pits excavated to size depending on container / Air pot dimensions, allowing for a planting pit 300mm greater than the size of the container (or rootball), or sufficient to allow the natural spread of the roots in the case of bare root stock. Tree pits shall be a minimum of 1000 x 1000 x 300mm (width and depth will vary depending on size of tree and rootball).
- 6.7.5 Trees in hard surface areas: shall be planted in pits excavated to size depending on container / Air pot dimensions, allowing for a planting pit 300mm greater than the size of the container (or rootball), or sufficient to allow the natural spread of the roots in the case of bare root stock. Refer to Typical Tree Pit Detail drawing no 836-PP-P-01.
- 6.7.6 All trees shall be planted upright and at the same depth as when growing in the nursery; allowing for settlement, and shall be thoroughly watered – in.
- 6.7.7 All trees shall be secured with an approved method by double staking and crossbar or underground guying – Arborguy supplied by Green Blue Urban or equivalent approved. All underground guying installed in accordance with manufacturer's instructions. Refer to Typical Tree Pit Detail drawing no 836-PP-P-0.
- 6.7.8 Shrubs/hedges: shall be planted in individual holes within freshly cultivated and composted planting areas and hedgerow trenches. The planting holes shall be of sufficient size to take the root stock of the plant comfortably without causing damage, approximately 150mm wider than the root stock.
- 6.7.9 Boundary Mixed Native Shrubs: Bare root stock may be pit /notch planted into prepared planting beds or hedgerow trenches. Randomly mixed in groups of 3-5/5-7 of the same species for natural effect.
- 6.7.10 Native Hedgerows: Bare root stock may be pit /notch planted into prepared planting hedge trenches. Randomly mixed in groups of 5-7 of the same species for natural effect.
- 6.7.11 Hedgerow plants shall be planted at the spacing's specified in the planting schedule and shall be:

- Mixed Native Hedgerows: Planted at 500mm centres in groups of 9-15 of the same species;
- *Escallonia hedges*: Double staggered rows offset at 500mm and plants planted at 400mm centres;

6.7.12 Containers and liners shall be removed immediately prior to planting.

6.7.13 All plants shall be held in place, upright and well balanced with its best face the outside and the topsoil/compost mixture carefully placed around the roots in 150mm layers, leaving no voids, and well firmed in to leave the plant at the same depth as when growing in the container.

6.7.14 Planting organic compost and slow release fertiliser shall be incorporated into the soil at the time of planting.

6.7.15 The planting hole shall be backfilled with a mixture of compost and topsoil and the ground firmed by treading.

6.7.16 All trees, shrub and hedge planting shall be thoroughly watered immediately after planting.

6.7.17 All trees, shrubs and hedge planting shall be orientated correctly and shaped after planting.

6.7.18 Spreading of mulch: Prior to the application, the planting areas shall be completely weed free and watered sufficiently to achieve field capacity.

6.7.19 All shrub beds shall be spread with 50-75mm of bark mulch (ornamental bark mulch) with a particle size of 8-35mm for all the mixed native boundary shrub beds and all other planting beds with a fine composted bark mulch with a particle size of 0-8mm. Care should be taken not to damage newly planted shrubs. The mulch shall be carefully spread around planted shrubs by hand if necessary taking care not to bury small shrubs/herbaceous material.

6.7.20 The mulch shall be topped –up (at least twice annually) to maintain, after settlement a depth of not less than 50mm.

6.8 WILDFLOWER GRASS AREA

6.8.1 The intention is to provide seasonal and wildlife interest within the site. Refer to Appendix I for site preparation, installation and maintenance.

- Cut annually in autumn to 25-50mm and remove all arisings from site.
- All grass areas within highway visibility sightlines: maintain maximum height of grass as 600mm.
- Before mowing: Remove litter, rubbish and debris.
- Maintain a mowing strip adjacent to public highway as for amenity grass (see below).
- Leaf Litter Clearance: remove all fallen leaf litter and removed from site, undertaken during the winter months. All measures shall be taken to establish a dense, healthy grass sward, stone free and dominated by the specified wildflowers. All cuttings shall be removed until the sward is

established. Mowing Strip: Thereafter, all cuttings over 25mm in length shall be collected and removed off the surface.

- Supplied and installed in accordance with the manufactures instructions.

6.9 TEMPORARY STORAGE

- 6.9.1 Trees, hedges and shrubs which are not planted immediately must either be heeled in or adequately protected using sacking, straw or other suitable material to keep the roots moist.
- 6.9.2 Container grown material shall be kept upright, protected from the effects of drying winds and watered as required.

6.10 PROTECTION

- 6.10.1 The Landscape Contractor shall provide whatever protection is necessary to delineate or protect areas of completed work, and shall supply details of proposed protection to the Contract Administrator, prior to implementation.
- 6.10.2 Recently planted areas shall be protected if required and maintained throughout the contract period in accordance with the provisions for maintenance and aftercare of the new planting, as detailed in Section 7 below.

6.11 SITE FURNITURE

- 6.11.1 All tree grilles, frames and tree protection guards shall be carried out in accordance, where applicable, with the appropriate British Standards, unless specifically modified by the drawings and/or specification and in installed in accordance with the manufacturer's instructions.

6.12 PRACTICAL COMPLETION

- 6.12.1 Practical completion will be undertaken once all the soft landscape works have been completed. All trees, hedges, shrub areas and grass seeded areas will not be accepted for their practical completion dates until all their associated landscape works have been carried out to the satisfaction of the Contract Administrator.

7.0 DEFECTS LIABILITY PERIOD

7.1 MAINTENANCE / AFTER CARE OF SOFT LANDSCAPE AREAS

- 7.1.1 The Landscape Contractor shall be responsible for any necessary remedial work to the soft works, and maintenance operations to ensure the successful establishment of trees, hedges, shrubs planting areas and wildflower grass areas for the period (maximum 12 months) immediately following practical completion.
- 7.1.2 The Landscape Contractor shall be responsible for keeping the contract area clean, tidy and free from any unwanted weeds throughout the defects liability and maintenance periods. Any losses or failures of plant material, other than by malicious damage, shall be assessed by the contractor and replaced at his own expense.
- 7.1.3 **Trees, Hedges and Shrub Areas:** Trees, Hedges and Shrubs shall be maintained according to good horticultural practice to ensure the healthy growth of each plant species. Damaged, dead or diseased plants shall be treated according to good horticultural practice. Plants shall be pruned to facilitate a healthy and bushy growth according to each particular species. Maintenance of all trees shall be carried out following recommendations given in BS 8545: 2014 *Trees from Nursery to Independence in the Landscape*.
- 7.1.4 The Landscape Contractor shall be held responsible for the damage failure or dying back of trees, hedges, shrubs and wildflower areas and shall replace at his own expense.
- 7.1.5 **Wildflower Grass Areas:** Spot treatment/ removal of any weed ingress shall be carried out as necessary. Cut annually in autumn to 25-50mm and removal of all arisings from site. Leaf clearance will be required in the winter to remove any leaf litter from the trees within the wildflower areas. Refer to Appendix I for maintenance regime.
- 7.1.6 Maintenance Visits: The Landscape Contractor shall allow for a minimum of 20 visits per year to site to carry out general maintenance and watering.
- 7.1.7 The Landscape Contractor shall provide a maintenance programme at Practical Completion for all the trees, shrubs, hedges and wildflower areas for the approval of the CA.
- 7.1.8 The Landscape Contractor shall provide a statement on completion of each maintenance visit. This statement should itemise precisely the work carried out during that visit. The contractor shall be required to obtain a signature from the CA on each statement on completion of each visit. This will provide a record of the work completed and the number of visits. If this record is not maintained, payment will not be made.
- 7.1.9 The Landscape Contractor shall carry out regular watering of the trees, hedges and shrub areas sufficient to ensure the successful establishment of the trees, hedges and shrub areas.

- 7.1.10 Should weather conditions require additional visits to water, it is the responsibility of the Landscape Contractor to liaise and notify the CA in writing prior to making the additional visits.
- 7.1.11 The Landscape Contractor will not be held responsible for malicious damage to plants, but should this occur it is the contractor's responsibility to inform the CA in writing immediately or it will be deemed to be the contractor's responsibility and the contractor shall be liable for the cost of any replacement work and materials.
- 7.1.12 **WATERING:** During establishment of planting and grass areas, ensure that sufficient water is applied to maintain healthy growth. Volume of water used shall reflect soil type and rooting depths. Individual trees to be assessed based on size, soil type, rooting depth and pit size. To ensure establishment of newly planted trees, watering shall be carried out at least once a fortnight throughout the growing season and once per week in dry periods.
- 7.1.13 **MONITORING WATER NEED:** Water as necessary to ensure the establishment and continued thriving of all planting. During prolonged dry periods, monitoring of soil moisture levels are to be undertaken and a written report shall be submitted after each maintenance/ watering visit to confirm action taken to maintain adequate water provision.
- 7.1.14 **DROUGHT CONDITIONS:** During exceptional hot weather (normally during July & August) or in cases of extreme drought, following 10 consecutive days without rainfall, planted areas shall be watered weekly until the onset of natural rainfall. If water supply is, or is likely to be restricted by emergency legislation, the management contractor shall arrange import of second class water from a sewage works or other approved source. Soil moisture levels shall be monitored.
- 7.1.15 **LITTER COLLECTION:** Collect and remove all extraneous rubbish not arising from the contract work and detrimental to the appearance of the site, including paper, packaging materials, bottles, cans, and similar debris.
- 7.1.16 **CLEANLINESS:** Remove soil and arisings from hard surfaces and leave the works in a clean, tidy condition after maintenance operations.
- 7.1.17 **MAINTENANCE OF TREES AND SHRUBS:** Trees and shrubs shall be maintained according to good horticultural practice to ensure the healthy growth of each plant species. Plants shall be pruned to remove damaged, dead or diseased wood according to good horticultural practice to facilitate a healthy and bushy growth according to each particular species.
- 7.1.18 **HEDGEROWS:** hedging shall be maintained according to good horticultural practice to ensure the healthy growth of each plant species. Plants shall be pruned to remove damaged, dead or diseased wood according to good horticultural practice to facilitate a healthy and bushy growth according to each particular species.

7.1.19 CONTROL OF WEEDS : During the initial establishment of newly planted hedges and shrubs, carry out maintenance of the planted areas as follows:

- Maintain a weed free area around each tree and shrub, minimum diameter of 1.0m or the surface of the original planting pit. Keep planting beds clear of weeds, by hand weeding, as appropriate.
- Beds shall be forked over as necessary to keep soil loose, with gentle cambers and no hollows, taking care not to reduce depth or effect of mulch.
- The condition of tree stakes and ties shall be checked regularly and adjusted, re-fixed or replaced as required.

7.1.20 FERTILIZER: In March or April, 15:15:15 N:P:K fertilizer shall be evenly spread, carefully incorporating into soil below mulch:

- 70 g per feathered, standard or larger tree
- 40 g per transplant.

7.1.21 GRASS AREAS: shall be cut frequently and maintained to encourage good root growth, to establish a dense grass cover free from weeds. Operations shall be carried out according to good horticultural practice. Spot treatment/ removal of any weed ingressions shall be carried out as necessary.

7.1.22 WILDFLOWER GRASS AREAS: Spot treatment/ removal of any weed ingressions shall be carried out as necessary. Cut annually in autumn to 25-50mm and removal of all arisings from site. Leaf clearance will be required in the winter to remove any leaf litter from the trees within the wildflower areas. Refer to Appendix I for maintenance regime.

7.1.23 MAINTENANCE OF MULCH:

- Top up mulch: with same type of mulch to thickness of 50mm.
- Sweep up and replace mulch spilling onto adjacent areas and, if not contaminated with weeds or rubbish, return to planted area.
- Remove weeds growing on or in mulch by hand weeding or herbicide.

7.1.24 REMOVAL OF DEAD PLANT MATERIAL AND REPLACEMENT PLANTING: At the end of the 12 months Defects Liability Period, check all trees, hedges, shrubs and climbers remove all dead foliage, dead wood, and broken or damaged branches and stems. All replacement losses shall be replaced at the next suitable planting season and replacement plants must match the size of the original specification.

7.2 FINAL COMPLETION

- 7.2.1 Prior to completion of the aftercare period the Landscape Contractor shall ensure that the shrub beds are tidy and weed free and that all plant material is firm and that trees are secure.
- 7.2.2 Top up mulch shall be spread evenly in the shrub beds and around the base of trees to a minimum depth of 50mm.
- 7.2.3 The Contract Administrator shall assess with the Landscape Contractor all plant material. Any trees, hedges, shrubs, ground cover plants and grass areas which are severely damaged or dead shall be replaced at the Contractor's expense.
- 7.2.4 The Landscape Contractor shall inform the CA when the site is ready for inspection.
- 7.2.5 The Landscape Contractor shall provide the client with an Operations and Maintenance Manual at the end of the contract. The documents shall be handed over to the client at the final hand over meeting.

APPENDIX I

Wildflower Grass

- **Wildflower Turf Landscape Specification & Maintenance**

Wildflower Turf Ltd

Meadowscape Pro™ Landscape: WFT-Meadowscape Pro-Landscape-34

SEED SPECIFICATION – 100% flowers, no grasses unless requested

❖ Subject to seed availability

	FLORA		
1	Autumn Hawkbit	(<i>Leontodon autumnalis</i>)	P
2	Betony	(<i>Stachys officinalis</i>)	P
3	Bird's foot Trefoil	(<i>Lotus corniculatus</i>)	P
4	Bladder Campion	(<i>Silene vulgaris</i>)	P
5	Cat's ear	(<i>Hypochaeris radicata</i>)	P
6	Common Knapweed	(<i>Centaurea nigra</i>)	P
7	Common Sorrel	(<i>Rumex acetosa</i>)	P
8	Common Toadflax	(<i>Linaria vulgaris</i>)	P
9	Common Vetch	(<i>Vicia sativa</i>)	P
10	Cowslip	(<i>Primula veris</i>)	P
11	Field Scabious	(<i>Knautia arvensis</i>)	SLP
12	Kidney Vetch	(<i>Anthyllis vulneraria</i>)	P
13	Lady's Bedstraw	(<i>Galium verum</i>)	P
14	Meadow Buttercup	(<i>Ranunculus acris</i>)	P
15	Meadow Cranesbill	(<i>Geranium pratense</i>)	P
16	Meadowsweet	(<i>Filipendula ulmaria</i>)	P
17	Musk Mallow	(<i>Malva moschata</i>)	P
18	Ox Eye Daisy	(<i>Leucanthemum vulgare</i>)	P
19	Perforate St John's Wort	(<i>Hypericum perforatum</i>)	P
20	Ragged Robin	(<i>Lychnis flos-cuculi</i>)	P
21	Red Campion	(<i>Silene dioica</i>)	P
22	Ribwort Plantain	(<i>Plantago lanceolata</i>)	P
23	Rough Hawkbit	(<i>Leontodon hispidus</i>)	P
24	Salad Burnet	(<i>Sanguisorba minor</i>)	P
25	Self-heal	(<i>Prunella vulgaris</i>)	P
26	Tufted Vetch	(<i>Vicia cracca</i>)	P
27	White Campion	(<i>Silene latifolia</i>)	P
28	Wild Carrot	(<i>Daucus carota</i>)	P
29	Wild Marjoram	(<i>Origanum vulgare</i>)	P
30	Wild Red Clover	(<i>Trifolium pratense</i>)	P
31	Yarrow	(<i>Achillea millefolium</i>)	P
32	Yellow Rattle	(<i>Rhinanthus minor</i>)	A

Key: P = Perennial; B = Biennial; A = Annual; SLP = Short Lived Perennial

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1. Meadowscape Pro™ Landscape

1.1	Meadowscape Pro™ is a unique soil-free wildflower growing medium. The material uses an inert, pH modified, low nutrient, compost based growing medium that incorporates wildflower seed as well as a number of ingredients to promote successful wildflower seed germination and strong plant and root establishment.	
1.2	Meadowscape Pro™ Landscape is made up of 100% UK native perennial wildflowers (no grass) designed to have a natural 'hay meadow' look and feel. Bespoke mixes are produced to order.	
1.3	Meadowscape Pro™ can be supplied in bulker lorries or in bulk bags and has an approximate weight of 10kgs/m². Each bag contains enough growing medium to cover 40m² in 1m³ bulk bags or 80m² in 2m³ bulk bags. Bulker lorries hold enough loose growing medium to cover approximately 2-3,000m².	

2. Meadowscape Pro™ Preparation and Installation

2.1	Do NOT rotovate, dig or disturb the soil. The existing vegetation should be killed or removed. Spraying off the area should be conducted according to the chemical manufacturer's instructions a minimum of 2 weeks before installation of the Meadowscape Pro™. If there is a residue of more than a light covering of dead surface vegetation after two weeks then this needs to be cut and removed. This is necessary otherwise Meadowscape Pro™ will be suspended on the dead thatch above the soil surface, preventing good seed germination and successful seedling growth. Meadowscape Pro™ can also be laid on sterile imported soil, but if so the soil needs to be levelled for a smooth finish for ease of laying product.	Soil Preparation
2.2	Ensure soil is not waterlogged or compacted prior to installing Meadowscape Pro™. The soil does not need to be fertilized before or after the installation. We would advise not stripping back the top soil to reduce soil fertility before using Meadowscape Pro™ as it needs some level of fertility to get well-established initially and is an unnecessary ground preparation step. However, where soil is fertile, particular attention must be paid to the maintenance regime – see section 3.1	Soil conditions and fertility
2.3	When laying Meadowscape Pro™, care should be taken to ensure a uniform depth of 20 – 25mm is laid. Do not over or under apply the material. Over application results in an imbalance of seed and nutrient ratios for a given area creating too much competition between the plants. Under applying will create a thinner layer of seeded material creating sparser and poorer germination results whilst also	Laying Meadowscape Pro™

	limiting Meadowscape Pro's™ ability to suppress weed seeds in the surface of the soil beneath.	
2.4	Once laid, water the area thoroughly, for the first few weeks until a seedling sward starts to appear– this could take up to 4-6 weeks (weather dependent). There is no need to soak the soil before laying but it is important to check that the initial watering soaks through the entire dressing of growing medium and ideally into the soil beneath. Do this by scratching the growing medium during watering to assess sufficient water uptake. Once the Meadowscape Pro™ is wet through, stop watering – excessive watering will lead to run off and erosion of the material. Do not allow the profile of the Meadowscape Pro™ to dry out while the seeds establish – this is very important. Depending on the time of year, seedlings will emerge in the first few weeks and these plants will develop rapidly as a result of the perfect growing conditions the Meadowscape Pro™ provide.	Watering

3.0 Meadowscape Pro™ Maintenance

3.1	No fertilizer is needed, although in some circumstances, for example on a green roof or where the wildflower installation is on very low fertility soil such as sand or gravel, the addition of a light dose of fertilizer in the spring may improve plant development. Please refer to Wildflower Turf Ltd.	Fertilizer
3.2	Once established Meadowscape Pro™ requires little maintenance. For the annual maintenance cut in the Autumn, it is important to cut the meadow down to 1 to 2 inches (25mm to 50mm) off the ground and remove all cuttings. This can be done by strimming and raking, or using a mower and collecting the cuttings. Make sure these tools are sharp. The cut is an important part of the meadows life cycle and ensures that re-growth and species diversity year on year. Cuttings should not be left on the meadow, as they add undesirable fertility to the ground. It is also important to remove all leaf litter that falls onto the area.	Annual Maintenance
3.3	The annual maintenance cut should be done in late September, early October. There is no need for a set date, but this timing will allow the plants in the meadow to regenerate before the first frost typically in November. You can choose to cut only half of the meadow area at one time to allow time for fauna to migrate to the uncut meadow. Allow some regrowth of the cut area before cutting the second half, but aim to have finished all cutting by the end of the first week of October. Over time alternate the areas that are cut early and the areas that are left as this will benefit species diversity.	Timing the cut
	On fertile sites or where you might have species dominance	Managing fertility in

3.4	or too vigorous early growth, a second cut at the end of May, beginning of June can be introduced. This high cut, approximately 8 to 10 inches off the ground (200mm to 250mm) to remove the flower heads but leaving enough plant stems and leaf area to regenerate, and removal of all cuttings, will help to knock back some species dominance, reduce soil fertility and open up the sward to more light and air circulation to promote diversity of lower growing species. Once the cutting has been completed and all cuttings removed, give the area a good soaking with water to encourage the next flush of growth. Introducing this early summer cut and removal will mean your second Autumn cut and removal will be later that year, up to the end of October.	the ground
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