LIZARD

Landscape Design and Ecology

ROFFEY HOMES LTD

Manor Nursery, Angmering, West Sussex

Soft Landscape Specification

Planning Issue

Prepared by	DW
Checked by	KM
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Revision	00

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SECTION A – PRELIMINARIES

A10 Project Particulars

110 The Project

- Name: Manor Nurseries Garden Centre, High Street, Angmering
- Nature: Soft Landscape Works
- Location: High Street, Angmering, BN16 4NW

140 Landscape Architect

- Name: Lizard Landscape Design, Worthing.
- Address: 34 South Street, Tarring, Worthing, West Sussex, BN14 7LH.
- Contact: Keith Miller
- Telephone: 01903 216033
- Email: lizard.landscape@btconnect.com

A13 Description of the Work

120 The Work

- The Work Consists of the following elements of works:

A10 Project Particulars
A13 Description of the Work
D20 Excavation and Filling
Q28 Topsoil and Soil Ameliorants
Q30 Seeding / Turfing
Q31 External Planting
Q35 Landscape Maintenance

125 Drawings and Documents
The Hard and Soft Landscape Scheme Package includes the following drawings and documents:

***LLD1275-LAN-DWG-200**- Soft Landscape Layout – Infrastructure Planting*
***LLD1275-LAN-DWG-201** - Detailed Planting Plan (Sheet 1)*
***LLD1275-LAN-DWG-202** - Detailed Planting Plan (Sheet 2)*
***LLD1275-LAN-DWG-203** - Detailed Planting Plan (Sheet 3)*
***LLD1275-LAN-DWG-204** - Detailed Planting Plan (Sheet 4)*
***LLD1275-LAN-SCH-001** - Detailed Plant Schedule and NPS Specification*
***LLD1275-LAN-REP-001** - Ecological and Landscape Management Plan*

SECTION D GROUNDWORKS

D20 Excavating and Filling

To be read with Preliminaries / General Conditions.

Generally / The Site

145 Variations in Ground Water Level
- Give notice: If levels encountered are significantly different from levels in the site investigation report or previously measured.

Clearance / Excavating

164 Tree Roots
- Protected area: Do not cut roots within the calculated tree Root Protection Area (RPA) in accordance with BS 5837: 2012 'Trees in Relation to Design, Demolition and Construction - Recommendations'
- Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
- Excavation in protected area:
  - Method: By hand.
  - Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
- Cutting:
  - Make clean smooth cuts with no ragged edges.
  - Pare cut surfaces smooth with a sharp knife.
- Backfill: Imported topsoil to BS 3882:2015 *'Specification for Topsoil'*; Multi-purpose Topsoil.

168 Site Clearance
- Timing: Before topsoil stripping, if any.
- General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.
- Treatment: Apply a suitable non-residual herbicide to areas to receive planting.

170 Removing Small Trees, Shrubs, Hedges and Roots
- Identification: Clearly mark trees to be removed;
- Small trees, shrubs and hedges: Cut down
- Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.

175 Felling Large Trees

- Definition: Girth over 600 mm.
- Identification: Clearly mark trees to be removed.
- Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.
- Felling: As close to the ground as possible.
- Stumps: Remove mechanically to a minimum depth of 300 mm below ground level.
- Work near retained trees: Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

180 Chipping and Shredding

- General: Permitted, remove arisings from site.

220 Stripping Topsoil

- General: Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings / roads and other areas shown on drawings.
- Depth:
  - Remove to an average depth of between 100 mm and 250 mm where possible and keep separate from excavated subsoil.
  - Give notice where the depth of topsoil is difficult to determine.
  - Depth of existing topsoil to be agreed on site with the Landscape Architect prior to topsoil stripping.
- Handling: Handle topsoil for reuse or sale in accordance with clause 225.
- Around trees: Do not remove topsoil from below the spread of trees to be retained.
- Site storage: Keep separate from excavated sub-soil.

221 Treating Topsoil

- Treatment: Apply a suitable translocated non-residual herbicide.
- Timing: Not less than two weeks before excavating topsoil.

225 Regulatory Informative: No excavated soils shall be re-utilised within the development site until the developer has submitted details of the chemical testing and assessment of the soils which demonstrates the suitability of the soils for re-use. The assessment shall be undertaken by a suitably qualified and competent person and the full details shall be recorded (as suitable to be submitted to and approved in writing by the local planning authority upon request).

225 Handling Topsoil

- Standard: To *BS 3882:2015 'Specification for Topsoil'*.
- Aggressive weeds:
  - Species: Included in the Weeds Act, section 2 or the Wildlife and Countryside Act, Schedule 9, part II.
  - Give notice: Obtain instructions before moving topsoil.
- Contamination: Do not mix topsoil with:
  - Subsoil, stone, hardcore, rubbish or material from demolition work.
  - Other soil or material containing aggressive weeds, sharps, plastics and non-soil forming materials and notifiable animal or plant diseases.
  - Oil, fuel, cement or other substances harmful to plant growth.
  - Other classifications of topsoil.
- Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.
- Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit as defined by *BS 3882:2015 'Specification for Topsoil'*.

240 Adjacent Excavations

- Requirement: Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto, must be completed before the higher excavation is made.
- Angle of line below horizontal: 45º
- Backfill material: Compacted general filling as clause 626.

250 Permissible Deviations from Formation Levels

- Beneath mass concrete foundations: ±25 mm.
- Beneath ground bearing slabs and r.c. foundations: ±15 mm.
- Embankments and cuttings: ±50 mm.
- Ground abutting external walls: ±50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

255 Accuracy - Linear Dimensions

- Permissible deviations from linear dimensions generally: ±5 mm.

260 Inspecting Formations

- Give notice: Make advance arrangements for inspection of formations for foundations and road / pavings.
  - Notice (minimum): 3 days.
- Preparation: Just before inspection remove the last 150 mm of excavation.
- Trim to required profiles and levels, and remove loose material.
- Seal: Within 4 hours of inspection, seal formations with Concrete / Type 1 Granular Fill.

270 Foundations Generally

- Give notice if:
  - A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings.
  - The formation contains soft or hard spots or highly variable material.

275 Foundation Bearing

- Requirement: Foundations are designed to bear on:
  - Safe bearing capacity (minimum): To civil engineer's design and specification.
- Give notice: If the material at the design depth of the foundation does not comply with this description, or contains soft or hard spots or highly variable material.

280 Trench Fill Foundations

- Excavation: Form trench down to formation in one operation.
- Safety: Prepare formation from ground level.
- Inspection of formations: Give notice 48 hours before commencing excavation.
- Shoring: Where inspection of formation is required, provide localised shoring to suit ground conditions.
- Concrete fill: Place concrete immediately after inspection and no more than four hours after exposing the formation.

290 Foundations in Made Up Ground

- Depth: Excavate down to a natural formation of undisturbed subsoil.
- Discrepancy: Give notice if this is greater or lesser than depth given.

310 Unstable Ground

- Generally: Ensure that the excavation remains stable at all times.
- Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.
- Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

320 Recorded Features

- Recorded foundations, beds, drains, manholes, etc.: Break out and seal drain ends.
- Contaminated earth: Remove and disinfect as required by Local Authority.

330 Unrecorded Features

- Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

370 Underground Structures in Landscape Areas

- Generally: Remove walls, roads, foundations, disused services, drains, manholes and the like to minimum depth.
- Minimum depth below finished levels:
  - Grass, ground cover and perennial planting: 500 mm.
  - Shrub planting: 750 mm.
  - Within 2.0 m of tree planting: 1000 mm.

Disposal of Materials

410 Excavated Topsoil Storage

- Storage: Stockpile in temporary spoil heaps. Topsoil storage location to be agreed on site with the Landscape Architect.

415 Excavated Topsoil Removal

- General: Remove from site.
- Refer to D20 clause 225 for re-use of excavated topsoil.

420 Topsoil Storage Heaps

- Location: Topsoil heaps to be agreed with the Landscape Architect;
- Standard: To BS 3882:2015 *'Specification for Topsoil'.*
- Height (maximum): 1.0 m height.
- Width (maximum): to be agreed on site with the Landscape Architect.
- Protection:
  - Do not place any other material on top of storage heaps.
  - Do not allow construction plant to pass over storage heaps.
  - Prevent compaction and contamination.

421 Topsoil Storage Heap Treatment

- Treatment: Apply a suitable herbicide at appropriate times to prevent seeding of weeds.

441 Surplus Subsoil

- Excavated material: Stockpile in temporary storage heaps.
- Retained material: Spread and level surplus subsoil on site.
  - Protected areas: Do not raise soil level within root spread of trees that are to be retained.
  - Refer to D20 clause 225 for re-use of excavated topsoil.
- Remaining material: Remove from site.

450 Water

- Generally: Keep all excavations free from water until:
  - Formations are covered.
  - Below ground constructions are completed.
  - Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
- Drainage: Form surfaces of excavations and fill to provide adequate falls.
- Removal of water: Provide temporary drains, sumps and pumping as necessary.

454 Ground Water Level, Spring or Running Water

- Give notice: If it is considered that the excavations are below the water table.
- Springs/ Running water: Give notice immediately if encountered.

457 Pumping

- General: Do not disturb excavated faces or stability of adjacent ground or structures.
- Pumped water: Discharge without flooding the site or adjoining property.
- Sumps: Construct clear of excavations. Fill on completion.
  - Locations: Contractor's choice.

Filling

500 Proposed Fill Materials

- Details: Submit full details of proposed fill materials to demonstrate compliance with specification, including:
  - Type and source of imported fill.
  - Proposals for processing and reuse of material excavated on site.
  - Test reports as required elsewhere.
- Timing: At least 21 days before starting filling.

510 Hazardous, Aggressive or Unstable Materials

- General: Do not use fill materials which would, either in themselves or in combination with other materials or ground water, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:
  - Frozen or containing ice.
  - Organic.
  - Contaminated or noxious.
  - Susceptible to spontaneous combustion.
  - Likely to erode or decay and cause voids.
  - With excessive moisture content, slurry, mud or from marshes or bogs.
  - Clay of liquid limit exceeding 80 and / or plasticity index exceeding 55.
  - Unacceptable, class U2 as defined in the Highways Agency 'Specification for Highway Works', Clause 601.

512 Limitation of Sulfate Content in Fill Materials

- Test specification to *BS 1377-3:1990 'Methods of test for soils for civil engineering purposes. Chemical and electro-chemical tests'.*
- Refer to *BS EN 13285:2010 'Unbound Mixtures – Specifications'. Volume 1 Specification for Highway Works. '801 General Requirements for Unbound Mixtures', clauses 1, 2 and 3.*
- Sulfate content: Expressed as SO4
  - Water soluble sulfate (maximum): 1500mg/L in 2:1 water/ soil extract.
- Certificates of test result: Submit.

520 Frost Susceptibility

- General: Except as allowed below, fill must be non-frost-susceptible as defined in Highways Agency 'Specification for Highway Works', clause 801.8.
- Test reports: If the following fill materials are proposed, submit a laboratory report confirming they are non-frost- susceptible:
  - Fine grained soil with a plasticity index less than 20%.
  - Coarse grained soil or crushed granite with more than 10% retained on a 0.063 mm sieve.
  - Crushed chalk.
  - Crushed limestone fill with average saturation moisture content in excess of 3%.
  - Burnt colliery shale.
- Frost-susceptible fill: May only be used: *Where frost heave will not affect structural elements.*
  - At depths below the finished ground surface greater than 300 mm.
  - Within the external walls of buildings below spaces that will be heated. Protect from frost during construction.
  - Where frost heave will not affect structural elements.

525 Testing of Suitability of Fill Materials before Start of Filling

- Laboratory: UKAS/ NAMAS accredited laboratory.
- Submit report to: Civil Engineer (two copies).
  - Timing: 21 days before starting filling.
- Samples: Deliver to laboratory as required.
  - Additional requirements: Also deliver 25 kg samples to offices of structural engineer. On request, collect and dispose.
- Tests: As directed.
- Frequency: Submit with tender proposed rate and frequency of testing to demonstrate continuing compliance of imported or reprocessed fill with specified properties.

530 Placing Fill

- Surfaces of excavations and areas to be filled: Free from loose soil, topsoil, organic material, rubbish and standing water.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and re-compact if not damaged after thawing.
- Adjacent structures, membranes and buried services:
  - Do not overload, destabilize or damage.
  - Submit proposals for temporary support necessary to ensure stability during filling.
  - Allow 14 days (minimum) before backfilling against in situ concrete structures.
- Layers: Place so that only one type of material occurs in each layer.
- Earthmoving equipment: Vary route to avoid rutting.

535 Compaction Generally

- General: Compact fill not specified to be left loose as soon as possible after placing.
- After compaction: Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
- Defective areas: Remove and recompose to full thickness of layer using new material.

540 Benching in Fill

- Adjacent areas: If, during filling the difference in level between adjacent areas of filling exceeds 600 mm, cut into edge of higher filling to form benches 600 mm minimum width and height equivalent to depth of a layer of compacted filling.
- New filling: Spread and compact to ensure maximum continuity with previous filling.

550 Geo-textile Sheet

- Manufacturer: Geo-textile to be *'Terram 1000'* or equal and approved; Fiberweb Geosynthetics Ltd, Blackwater Trading Estate, The Causeway, Maldon, Essex, CM9 4GG; Tel: 01621 874200; Fax: 01621 874299.
- Product reference: 'Standard Filter/Separator: T1000' or equal and approved.
- Jointing: overlapping joints 300mm ensuring that sufficient geo-textile protrudes beyond the anticipated pit excavation to allow for final trimming.
- Protect from:
  - Exposure to light, except for five hours (maximum) during laying.
  - Contaminants.
  - Materials listed as potentially deleterious by geo-textile manufacturer.
  - Protect from damage until fully covered by fill.
  - Wind uplift, by laying not more than 15.0 m before covering with fill.
- Preparation: take care not to puncture the underlying geo-textile membrane whilst installing the sub-base design.
- Preparation of subgrade: Before laying sheet, remove humps and sharp projections. Fill hollows.

610 Compacted Filling for Landscape Areas

- Fill: Material capable of compaction by light earthmoving plant.
- Filling: Layers not more than 200 mm thick. Lightly compact each layer to produce a stable soil structure.

615 Loose Tip Filling for Landscape Areas

- Filling: Do not firm, consolidate or compact when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

617 Highways Agency Type 1 Unbound Mixture

- Fill: *To Highways Agency 'Specification for highway works', clauses 801 and 803:*
  - Crushed rock (other than argillaceous rock).
  - Crushed concrete.
  - Recycled aggregates.
  - Crushed non-expansive slag.
  - Well-burned non-plastic colliery shale.
- Amendments to requirements in Highways *Agency 'Specification for highway works'.*
- Filling: To Highways *Agency 'Specification for Highway Works', Clause 802*

619 Highways Agency Type 3 Unbound Mixture

- Quality: Free from excessive dust, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50 kN when tested in a soaked condition to *BS EN 1097-2:2010 'Tests for Mechanical & Physical Properties of Aggregates'*, and in any one layer only one of the following:
  - Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
  - Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
  - Crushed non-expansive slag.
  - Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
  - Well-burned non-plastic colliery shale.
  - Natural gravel.
  - Natural sand.
- Filling: Spread and level in 75 mm and 150 mm maximum layers. Thoroughly compact each layer.

620 Subgrade Improvement Layer (Capping)

- Fill: To Highways Agency 'Specification for highway works', Table 6/1, Class 6F1 or 6F2.
- Filling: Place and compact to Highways Agency Specification for highway works, Table 6/1, clause 612 and clause 613.3, 613.9 and 613.10.

626 Compacted General Fill

- Suitable Material: Make up shortfall in excavated material with imported material of a similar type.
- Excavated material: Select suitable material and keep separate.
- Filling: Spread and level material in layers. As soon as possible thoroughly compact each layer.
- Proposals: Well in advance of starting work submit details of proposed:
  - Materials to be used, including quantities of each type.
  - Type of plant.
  - Maximum depth of each compacted layer.
  - Minimum number of passes per layer.

710 Hardcore Filling

- Fill: Granular material, free from excessive dust, well graded, all pieces less than 75 mm in any direction, minimum 10% fines value of 50 kN when tested in a soaked condition to *BS EN 1097-2:2010 'Tests for Mechanical and Physical Properties of Aggregates'*, and
- In any one layer only one of the following:
  - Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
  - Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
  - Crushed non-expansive slag.
  - Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
  - Well-burned non-plastic colliery shale.
  - Natural gravel.
  - Natural sand.
  - Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer.

715 Venting Hardcore Layer

- Fill: Clean granular material, well graded, passing a 75 mm BS sieve but retained on a 20 mm BS sieve. In each layer only one of the following:
  - Crushed hard rock.
  - Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
  - Gravel.
- Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer whilst maintaining enough voids to allow efficient venting.

730 Blinding

- Surfaces to receive sheet overlays or concrete: Blind with:
  - Concrete where shown on drawings; or
  - Sand, fine gravel or other approved fine material applied to fill interstices. Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
- Sand for blinding: To *BS EN 12620:2002+A1:2008 'Aggregates for Concrete'*, grade 0/4 or 0/2 (MP).
- Permissible deviations on surface level: +0 -25 mm.

SECTION Q – PAVING / PLANTING / FENCING / SITE FURNITURE

Q28 Topsoil and Soil Ameliorants

To be read with Preliminaries / General Conditions.

100 Regulatory Informative: No excavated soils shall be re-utilised within the development site until the developer has submitted details of the chemical testing and assessment of the soils which demonstrates the suitability of the soils for re-use. The assessment shall be undertaken by a suitably qualified and competent person and the full details shall be recorded (as suitable to be submitted to and approved in writing by the local planning authority upon request).

System Outline:

115 Soil System for Grass Swards: For Grassed Areas Except Wildflower Meadows

- Compostion:
  - Soil: Site sourced topsoil and imported topsoil to BS 3882:2015; multi-purpose topsoil.
  - Ameliorants: None.
  - Acessories: None.

116 Soil System for Grass Swards: For Wildflower Meadows

- Compostion:
  - Soil: Site sourced topsoil and imported topsoil to BS 3882:2015; low-fertility specific-purpose topsoil.
  - Ameliorants: None.
  - Acessories: None.
- Other requirements: No ameliorants or fertilizers to be used where wildflower grassland seed mixes are to be sown.

120 Manufactured Topsoil / Growing Media System: For Planting Areas Except Wildflower Meadows

- Topsoil / growing media type: Imported manufactured topsoil.
- Ameliorants: Other composted materials, fertilizer to be incorporated into soil / growing media.
- Accessories: None.

135 Planting Bed Soil System: For Planting Areas Except Wildflower Meadows

- Compostion:
  - Soil: Site sourced topsoil and imported topsoil to BS 3882:2015; multi-purpose topsoil.
  - Ameliorants: None.
  - Acessories: None.

155 Mulching and Top Dressing System: For Planting Areas Except Wildflower Meadows

- Compostion:
  - Material: Ornamental bark mulch, to 75 mm depth;
  - Material: Gravel Mulch (to match existing), to 50mm depth.

Products:

300 Preparation Materials Generally

- Purity: Free of pests and disease.
- 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 the like.
- Contamination: Do not use topsoil contaminated with subsoil, 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 or planting media, do not use subsoil contaminated with the above materials.
- Objectionable Odour: None.
- Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

305 Permitted Materials

- Materials: Composted green waste, wood waste.
- Give notice: before ordering or using.
- Declaration of compliance: Required.

310 Materials Not Permitted

- Materials: Products containing peat.

315 Imported Topsoil to BS 3882:2015 - For Planting Areas Except Wildflower Meadows

- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard to *BS 3882:2015 'Specification for Topsoil'*.
- Classification: Multi-purpose.
  - Grade: Within the parameters of 'loamy / clayey' textural class.
  - Maximum size of stones in any dimension: 20 mm;
  - Sand Content between 65 and 70 % of volume.
- Source: Submit proposals.
  - Product reference: Submit proposals.

316 Imported Topsoil to BS 3882:2015 – Native Wildflower Grassland Seeding Areas

- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard to BS 3882:2015 *'Specification for Topsoil'.*
- Classification: Specific Purpose – Low Fertility.
  - Grade: Within the parameters of 'loamy / clayey' textural class.
  - Maximum size of stones in any dimension: 20 mm;
  - Sand Content between 65 and 70 % of volume.
- Source: Submit proposals.
  - Product reference: Submit proposals.

400 Maintenance Fertilizers: For Seeded Areas except Wildflower Meadows

- Type:
  - Maintenance fertilizer - March application (15:10:10 spring turf fertilizer).
  - Maintenance fertilizer - September application (5:10:10 autumn turf fertilizer).
- Source: Contractor's choice.

401 Organic Fertilizers: For Tree Pits

- Manufacturer/ source: Farmura Ltd, Stone Hill, Egerton, Ashford, Kent, TN 27 9DU; Tel. 01233 756211; Fax. 01233 756419.
  - Product reference: Farmsea 10.
- Standard: In accordance with the Fertiliser Industry Assurance Scheme (FIAS)
- Purpose: General purpose fertilizer.
- Type: Seaweed extract.
- Availability to plants: Slow release.

Execution

605 Site Investigation

- Report: See section D20.

610 Topsoil Analysis

- Soil to be analysed: All existing, imported topsoil.
- Soil analyst: Tim O'Hare Associates, Howbery Park, Wallingford, Oxfordshire, OX10 8BA; Tel. 01491 822653; email. info@toha.co.uk
- Samples: Collect in accordance with BS 3882:2007 'Specification for Topsoil'.
- Submit:
  - Declaration of analysis: Chemical analysis and contaminants.
  - Report detailing soil analyst's recommendations.

620 Importing Topsoil

- Give notice: Before stripping topsoil for transfer to site.
  - Notice period: 7 days.

625 Sample Load of Imported Topsoil

- General: Deliver to site a sample load of not less than 5 m³.
- Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
  - Notice period: 2 days.

630 Documentation for Imported Topsoil – For Planting Beds

- Timing: Submit at handover.
- Contents:
  - Full description of all soil components.
  - Record of source for all soil components.
  - Record drawings showing the location / depth of soils by type / grade.
  - Declaration of analysis: in accordance with BS 3882, Annex E.
- Number of copies: 1.

640 Documentation for Preparation Materials: For Organic Materials

- Timing: Submit at handover.
- Contents:
  - Full description of all components.
  - Record of source for all components.
  - Analyst's report for each test carried out.
  - Supplier's declaration of compliance with BSI PD CR 13456.
- Number of copies: 1.

650 Notice

- Giving notice before:
  - Setting out.
  - Spreading topsoil.
  - Applying herbicide.
  - Applying fertilizer.
  - Visiting site during maintenance period.

  Period of notice: Two working days.

655 Mechanical Tools

- Restrictions: Do not use within 100 mm of tree and plant stems; hand held operation only within RPA unless adequate ground protection provided in accordance with BS5837:2012 – *'Trees in relation to design, demolition and construction – recommendations'.*

660 Grading Subsoil

- Loosening:
  - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
  - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
  - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Areas of thicker topsoil: Excavate locally.
- Avoid over compaction.

665 Subsoil Surface Preparation

- General: Excavate and / or place fill to required profiles and levels, as section D20.
- Loosening:
  - Light and non-cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
  - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
  - Rock and chalk subgrades: Lightly scarify to promote free drainage.
- Stones: Immediately before spreading topsoil, remove stones larger than 50 mm.
- Remove from site: Builders rubble; arisings, contaminants and debris.

670 Inspecting Formations

- Give notice: Before spreading topsoil for all planting beds.
- Notice period: 2 days.

675 Preparation of Undisturbed Topsoil

- Standard in accordance with *BS 4428:1989*.
- Grading and cultivation: Prepare areas to receive soft landscaping as necessary to ensure that the topsoil is in a suitable state for cultivation operations specified in sections Q31.
- Hard ground: Break up thoroughly. Remove roots and boulders.
- Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
- Fallow period:
  - After preparation leave for not less than 2 months.
  - Weed control: At appropriate times treat with a suitable translocated non-residual herbicide.
  - Refer to D20 clause 225 for re-use of excavated topsoil.

680 Surplus Topsoil to be Retained

- Generally: Spread and level on site:
  - Locations: Any areas where topsoil is required for new planting.
  - Protected areas: Do not raise soil level within root spread of trees that are to be retained.
  - Refer to D20 clause 225 for re-use of excavated topsoil.

685 Surplus Topsoil to be Removed

- Topsoil: Remove from site topsoil remaining after completion of all landscaping work.
- Subsoil, stones, debris, wrapping material, canes, ties, temporary labeling, rubbish, prunings and other arisings: Remove.

690 Topsoil Storage Heaps

- Location: Temporary topsoil location to be agreed on site with the Landscape Architect;
- Height (maximum): 1.0 m;
- Width (maximum): To be agreed on site with the Landscape Architect.
  - Formation: Loose tip and shape from the side only, without running machinery on the heap at any time.
- Protection:
  - Do not place any other material on top of storage heaps;
  - Do not allow construction plant to pass over storage heaps;
  - Prevent compaction and contamination, by fencing and covering as appropriate.
  - Refer to D20 clause 225 for re-use of excavated topsoil.

695 Cultivation

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
  - Depth 150 mm.
  - Particle size (maximum): 20 mm.
  - Timing: Within a few days before planting.
  - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: 25 mm above adjoining paving or kerbs.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 20 mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.
- Refer to Detailed Planting Plans *(LLD1275-LAN-DWG-200* series*).*

700 Grading of Topsoil

- Topsoil condition: Reasonably dry and workable.
- Contours: Smooth and flowing, with falls for adequate drainage.
  - Hollows and ridges: Not permitted.
- Finished levels after settlement adjacent to adjoining paving, kerbs, manholes:
  - Planting areas: 75 mm below;
  - Grass seeded areas: 25mm above.
- Give notice: If required levels cannot be achieved by movement of existing soil.

705 Handling Topsoil

- Aggressive weeds: Give notice and obtain instructions before moving topsoil.
- Plant: Select and use plant to minimize disturbance, trafficking and compaction.
- Contamination: Do not mix topsoil with:
  - Subsoil, stone, hardcore, rubbish or material from demolition work.
  - Other grades of topsoil.
- Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
- Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit less 3%, to *BS 1377-2:1990 'Methods of test for soils for civil engineering purposes. Classification tests'.*

710 Spreading Topsoil

- Temporary roads / surfacing: Remove before spreading topsoil.
- Layers:
  - Depth (maximum): 150 mm.
  - Gently firm each layer before spreading the next.
- Depths after firming and settlement (minimum): Planting Areas: 300 mm depth.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 Loose Tipping of Topsoil

- General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

718 Final Cultivation: For Planting Beds

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
- Depth: 300 mm.
- Particle size (maximum): 2 – 8 mm.
- Timing: Within a few days before planting.
- Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: 75 mm below adjoining paving or kerbs.
- Undesirable material brought to the surface:
  - Remove visible weeds.
  - Remove roots and large stones with any dimension exceeding 50 mm.

719 Final Cultivation: For Grass Seeding

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
- Depth: 150 mm.
- Particle size (maximum): 2 – 8 mm.
- Timing: Within a few days before planting.
- Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: 25 mm above adjoining paving or kerbs.
- Undesirable material brought to the surface:
  - Remove visible weeds.
  - Remove roots and large stones of dimension exceeding 10 - 50 mm.

720 Finished Levels of Topsoil after Settlement

- Finished levels after settlement adjacent to adjoining paving, kerbs, manholes:
  - Planting areas: 75 mm below;
  - Grass seeded areas: 25mm above.
- Below dpc of adjoining buildings: Not less than 150 mm.
- Extend cultivation into existing adjacent areas sufficient to ensure full marrying in of levels.
- Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: excluded.

805 Applying Soil Ameliorant: For Seeded Areas except Wildflower Grassland

- Type: Melcourt Humus 2000.
- Locations: Whole site except for wild flower grassland areas.
- Full incorporate into topsoil to a depth of 150mm.
- Application: Spread evenly.
  - Timing: Apply prior to cultivation.
  - Rate: 1 m^3 /10 m^2.
- Timing: Prior to cultivation.
- Other requirements: Submit 5 kg sample before ordering.

810 Applying Compost: For Flowering Shrubs

- Locations: Shrub beds.
- Other Requirements: Submit 5kg sample before ordering.
- Application rate for trees and shrubs: 50 mm thick.
  - Timing: Apply prior to cultivation.

820 Applying General Fertilizer: Slow Release

- Locations: All planting areas.
- Application: Spread evenly, carefully incorporating below mulch materials.
  - Timing: Immediately before cultivation.
  - Application rate: 100 litres per hectare.
  - Apply 5 litres per 500 m^2, water ratio: 1:5.

825 Applying Fertilizer to Proposed Grass Areas except Wild Flower Grassland

- Locations: Lawns.
- Application: Before final cultivation and three to five days before seeding/ turfing.
- Coverage:
- Spread evenly in transverse directions.
  - Rate: 5 litres per 500 m², water ratio: 1:5.

845 Applying Loose Mulch: For Planting Areas and Tree Pits

- Timing: Immediately after planting.
- Preparation: Ensure that soil is thoroughly moistened, applying water where necessary.
- Coverage of mulch (minimum):
  - Planting bads (depth): 75 mm depth.
  - Trees: In a circular area of 500 mm radius measured from the tree stem.

Completion:

905 Applying Maintenance Fertilizer

- Time of year: March or April.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Rate: To manufacturer's recommendations.

Q30 Seeding / Turfing

To Be Read with Preliminaries / General Conditions.

General Information / Requirements

115 Seeded / Turfed Areas

- Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease.
- Appearance: A closely knit, continuous ground cover of even density, height and colour.

120 Climatic Conditions

- General: Carry out the work while soil and weather conditions are suitable.

145 Watering

- Quantity: Wet full depth of topsoil.
- Application: Even and without displacing seed, seedlings or soil.
- Frequency: As necessary to ensure the establishment and continued thriving of all seeding / turfing.

150 Water Restrictions

- Timing: If water supply is or is likely to be restricted by emergency legislation do not carry out seeding / turfing until instructed. If seeding / turfing has been carried out, obtain instructions on watering.

160 Notice

- Give notice before:
  - Setting out.
  - Applying herbicide.
  - Applying fertilizer.
  - Preparing seed bed.
  - Seeding or turfing.
  - Visiting site during maintenance period.
- Period of notice: 2 days.

170 Setting Out

- Boundaries of wildflower seeding areas: Mark clearly.
- Delineation: In straight lines or smoothly flowing curves as shown on drawings.

Preparation

210 Herbicide: for Wildflower Meadows & Native Understorey Shrub Planting

- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
  - Duration: As manufacturer's recommendation.

210 Herbicide for All Grassed Areas

- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
  - Duration: As manufacturer's recommendation.

212 Seed Bed Cleaning Before Sowing: Wild Flower Grassland

- Operations: As seed supplier's recommendations.

280 Final cultivation

- Timing: After grading and fertilizing.
- Seed bed: Reduce to fine, firm tilth with good crumb structure.
  - Depth: 25 mm.
  - Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
  - Remove surface stones/earth clods exceeding:

  General Areas: 20 mm.

  Fine lawn areas: 10 mm.

  Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

Seeding / Turfing:

310 Turfing

- Preparation: Aim to control weeds and produce a good soil bed before laying turf using repeated cultivation or herbicide; keeping disturbance to the minimum required to expose fresh soil.
- Start laying the turves along a straight edge. Laying rows, stagger joints. Planks should be placed on newly laid turves for walking along and working from.
- Lightly firm down the turves to ensure good contact between the turves and the soil.
- Always push turf into a joint; never stretch the turves by pulling.
- Cut turf using a long knife, hand saw or cutting spade around edges and features.
- Water newly-laid turf immediately and for several days after laying until the turf is firmly rooted.
- First cut: 3 days after laying.
- Water repeatedly until the turf is well established.

Seeding:

312 Seed Mixture: For Wild Flower Grassland / Flowering Amenity Lawn

- Supplier: - Contact: Emorsgate Ltd; Emorsgate Seeds, Limes Farm, Tilney All Saints, King's Lynn, Norfolk, PE34 4RT; Tel: 01553 829028; Fax: 01553 829803; Email: enquiries@emorsgateseeds.com Web: http://wildseed.co.uk/
  - Mixture Reference: 'EM7 – Meadow Mixture for Sandy Soils'
  - Mixture Reference: 'EL1 – Flowering Lawn Mixture'
- Origin (as defined in the National Plant Specification): Native UK.
- Application rate: 4g / m²
- Other requirements: - Wildflower grass seeded areas shall not be subject to any soil additives, ameliorants or conditioners.
  - Ground should not be highly fertile for this wildflower seed mix.
  - For designated wildflower grassland seeded areas refer to;
  - *LLD1275-LAN-DWG-200 series – Detailed Planting Plans*.

314 Seed Mixture: For Amenity Grassland

- Supplier: Germinal GB, Camp Road, Witham St. Hughs, Lincoln, LN6 9QJ; Tel: 01522 868714; Fax: 01522 868095 ; E-mail: Lincoln@germinal.com
  - Mixture reference: A24 (Wear & Tear) or equal and approved.
- Application rate:
  - Rate of application: 50 g/m².
  - Overseed Rate: 20 g/m².

319 Quality of Seed: For Wildflower Grassland Seeded Areas

- Freshness: Produced for the current growing season.
- Certification: Blue label certified varieties. - Standard: EC purity and germination regulations.
  - Official Seed Testing Station certificate of germination, purity and composition: Submit when requested.
- Samples of mixtures: Submit when requested.

320 Quality of Seed for Grass Seeded Areas

- Freshness: Use seed produced for the current growing season;
- Certification: Use blue label certified varieties to EC purity and germination regulations and the Department for Environment, Food and Rural Affairs Higher Voluntary Standard;
- When requested, submit an Official Seed Testing Station certificate of germination, purity and composition;
- Samples of mixtures: Submit when requested.

330 Sowing

- General: Establish good seed contact with the root zone.
- Method: To suit soil type, proposed usage, location and weather conditions during and after sowing.
  - Distribution: Surface sown by machine or broadcast by hand with 2 equal sowings at right angles to each other in overlapping sections.
  - Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.
- Preparation: Aim to control weeds and produce a good seed bed before sowing using repeated cultivation or herbicide; keeping disturbance to the minimum required to expose fresh soil.

335 Grass Sowing Season

- Grass seed generally: April to October.

336 Wildflower Sowing Season

- Wildflower seed generally: March to May or August to October.
- Note: can be sown at other times of the year if there is sufficient warmth and moisture.
- Note: Bulk up seed with inert carrier e.g. sand to make distribution easier.

340 Pre-Emergent Herbicide: For Grassed Areas

- Standard: Pesticide Safety Directorate approved.
- Application rate: In accordance with manufacturer's written recommendation.
  - Timing: Immediately after sowing.

341 Pre-Emergent Herbicide: For Wildflower Meadows

- Standard: Pesticide Safety Directorate approved.
- Application rate: In accordance with manufacturer's written recommendation.
  - Timing: Immediately after sowing.

352 Edges to Seeded Areas: Adjacent to Planting Beds and Tree Pits

- Location: Paths and around newly planted trees.
- Timing: After seeded areas are well established.
- Edges: Cut to clean straight lines or smooth curves.
  - Mulch and soil: Draw back to permit edging.
- Arisings: Remove.
- Completion: Respread soil and mulch.

Protecting / Cutting:

510 Protective Fencing

- Fencing type: Chestnut pale fencing to *BS 1722-4:1986 'Fences Specification for Cleft Chestnut Pale Fences'*.
  - Height: 1.1 metre.
- Erection: On completion of seeding/ turfing.
- Removal: After grass is well established. Fencing will remain the property of the Contractor.

540 First Cut of: Lawns

- Height of initial growth: 40 – 75mm.
- Preparation:
  - Debris and litter: Remove.
  - Stones and earth clods larger than 25 mm in any dimension: Remove.
- Timing: In the first season after sowing mow or top as needed to control annual weed growth.
- Note: Most species sown will be slow to germinate and grow and will not usually flower in the first growing season.
- Height of first cut: 40 mm.
- Mower type: Contractor's choice.
- Arisings: Remove from site.

541 First Cut of: Wildflower Grassland

- Height of initial growth: 40 – 75 mm.
  - Preparation:
  - Debris and litter: Remove.
- Stones and earth clods larger than 25 mm in any dimension: Remove.
- Timing: In the first season after sowing mow or top as needed to control annual weed growth.
- Note: Most species sown will be slow to germinate and grow and will not usually flower in the first growing season.
- Height of first cut: 40 mm.
- Mower type: Contractor's choice.
- Arisings: Remove from site.
- Note: First cut is to the areas of wildflower grassland only and not the area of hedgerow wildflower grassland seeded within the native understorey shrub planting/ habitat wildlife areas.

590 Cleanliness

- Soil and Arisings: Remove from hard surfaces;
- General: Leave the works in a clean, tidy condition at Completion and after any maintenance operations.

Maintenance:

610 Failures of Seeding / Turfing

- Duration: Carry out the following operations from completion of seeding/ turfing until: Practical completion.
- Defective materials or workmanship: Areas that have failed to thrive.
  - Exclusions: Theft or malicious damage.
- Method of making good: Recultivation and reseeding/ returfing.
- Timing of making good: The next suitable planting season.

620 Maintaining: Amenity Grassed Areas / Flowering Amenity Grassed Areas

- Duration: Carry out the following operations from completion of seeding/ turfing until: Practical completion.
- Maximum height of growth at any time: 50 mm.
- Preparation: Before each cut remove all litter and debris.
- Cuttings: As and when necessary to match height of existing surrounding lawn height.
  - Arisings: Remove.
- Bulb planting areas: Do not cut until bulb foliage has died down.
- Trimming: All edges.
  - Arisings: Remove.
- Weed control: Substantially free of broad leaved weeds.
  - Method: Application of a suitable selective herbicide.
- Stones brought to the surface: Remove regularly.
  - Size: Exceeding 25 mm in any dimension.
- Areas of settlement: Make good.
- Watering: When instructed.

650 Maintaining: Grassed Areas with Perennial Wildflowers

- Duration: Carry out the following operations from completion of seeding/ turfing until: Practical completion.
- Preparation: Before each cut remove all litter and debris.
- Height and frequency of cut in first growing season:
  - Time of first cut: March/April
  - Height of first cut: 50 mm.
  - Height of growth permitted (maximum): 150 mm.
- Height and Frequency of Cut in Second Growing Season:
  - Time of cut: One or two cuts to the end of summer on shallow soils. On areas of deeper soil a single cut in October.
  - Height of first cut: 75 mm.
- The sown mixture will be slow to germinate and will not usually flower in the first growing season. There will often be a flush of annual weeds from the soil in the first growing season, which can be controlled by topping or mowing.
- In the first year of growth avoid cutting in the spring and early summer. Cut back before the annuals die back, set seed and collapse.

- Management once established: In the second and subsequent years the wildflower grassland can be managed in a number of ways depending on the soil fertility.
  - Poor Shallow Soils: On poor shallow soils the wildflower grassland can be managed through one or two cuts towards the end of summer to help maintain diversity and interest.
  - Deeper Soils: Wildflower grassland seeded on deeper soils should be managed through a main summer hay cut in combination with autumn and spring mowing. The wildflower grassland seeded areas are not to be cut from spring through to late July/ August to allow the sown species to flower. After July/August a 'hay cut' with a petrol strimmer to 50 mm height should be undertaken with the hay left to dry and shed seed for 1 – 7 days before being removed from site. Regrowth should be mowed through to late autumn / winter to 50 mm height and again in spring if required
- Trimming: All edges.
  - Arisings: Remove.
- Watering: When instructed.
- Defects: All Wildflower Grassland areas which failed within the first two years of establishment should be re-cultivated and re-seeded with specified wildflower seed mix.
- Other Requirements: No soil ameliorant / conditioner or fertilizer to be applied to the wildflower grassland.

680 Maintenance Fertilizer: For all Grassed Areas except Wildflower Grassland

- Duration: Carry out the following operations from completion of seeding/ turfing until: Practical completion.
- March application: 15:10:10 spring turf fertilizer at 35 g/m².
- September application: 5:10:10 autumn turf fertilizer at 50 g/m².

Q31 External Planting

To be read with Preliminaries / General Conditions.

General Information / Requirements

112 Site Clearance Generally

- General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
- Stones: Remove those with any dimension exceeding 50 mm.
- Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Vegetation: Clear surface vegetation in areas shown on drawings using suitable non-residual herbicide.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.

118 Soil Conditions

- Soil for cultivating and planting: Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
- Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.

120 Climatic Conditions

- General: Carry out the work while soil and weather conditions are suitable.
  - Strong winds: Do not plant.

125 Times of Year for Planting

- Rootballed Deciduous Trees and Shrubs: Late October to Late March;
- Bare-rooted Trees and Shrubs / Whips and Transplants: Late October to Late March.
- Conifers and evergreens: September / October or April / May.
- Herbaceous plants (including aquatic and marginal): September / October or March / April.
- Container grown plants: At any time if ground and weather conditions are favourable.
  - Watering and weed control: Provide as necessary.
- Dried bulbs, corms and tubers: September/ October.
- Green Bulbs: After flowering in spring.
- Wildflower plugs: Late August to mid-November or March/ April.

130 Mechanical Tools

- Restrictions: Do not use within 100 mm of tree and plant stems.

145 Watering

- Quantity: Wet full depth of topsoil.
- Application: Even and without damaging or displacing plants or soil.
- Frequency: As necessary to ensure establishment and continued thriving of planting.

150 Water Restrictions

- General: If water supply is or is likely to be restricted by emergency legislation, do not carry out planting until instructed. If planting has been carried out, obtain instructions on watering.

160 Notice

- Give notice before:
  - Setting out.
  - Applying herbicide.
  - Applying fertilizer.
  - Delivery of plants / trees.
  - Planting shrubs.
  - Planting trees into previously dug pits.
  - Watering.
  - Visiting site during maintenance period.
- Period of notice: 2 days.

165 Preparation, Planting and Mulching Materials

- General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Certification of source, analysis, suitability for purpose and absence of harmful substances: Submit.
  - Certified materials: Composted food waste; composted horticultural waste; spent mushroom compost and wood waste.
  - Gravel dressing: Clean washed gravel to match existing; 50mm depth.
  - Give notice before ordering or using.

170 Soil Requirements

- Type:
  - Planted bed: Existing topsoil and imported multi-purpose topsoil to *BS 3882:2015.*
  - Tree pits, shrub pits and other backfilling: Existing topsoil and imported multi-purpose topsoil to *BS 3882:2015.*
  - Mulch applied after planting: Mulching and top dressing system, as section Q28.

200 Plants / Trees - General

- Condition: Materially undamaged, sturdy, healthy and vigorous.
- Appearance: Of good shape and without elongated shoots.
- Hardiness: Grown in a suitable environment and hardened off.
- Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
- Budded or grafted plants: Bottom worked.
- Root system and condition: Balanced with branch system.
  - Standard: *The National Plant Specification.*
- Species: True to name.
- Origin/ Provenance: Grown in the United Kingdom for at least one growing season, unless otherwise approved.
- Definition: Origin and Provenance have the meaning given in the National Plant Specification.

215 Plants / Trees - Specification Criteria

- Name, Forms, Dimensions, Provenance and Other Criteria: As scheduled and defined in the *National Plant Specification*.

235 Container Grown Plants / Trees

- Growing medium: With adequate nutrients for plants to thrive until permanently planted.
- Plants: Centered in containers, firmed and well watered.
- Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
- Hardiness: Grown in the open for at least two months before being supplied.
- Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

245 Labelling and Information

- General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labeling for delivery to site, showing:
  - Full botanical name.
  - Total number.
  - Number of bundles.
  - Part bundles.
  - Supplier's name.
  - Employer's name and project reference.
  - Plant specification, in accordance with scheduled *National Plant Specification* categories.

  Additional information: Submit on request: Type of container.

255 Plants / Trees Reserved at Supplier's Premises

- Types/ Species: As plant schedule.
- Predelivery Inspection: Give notice.
- Labeling: Identify inspected plants/ trees as reserved for use on this project.

256 Native and Ornamental Tree Planting

- Types/ Species: As *LLD1275-LAN-DWG-200series - Detailed Planting Plans;* and *LLD1275-LAN-SCH-001-Detailed Plant Schedule and Specification;*
- Stock: Standard (Extra Heavy) stock; Standard (Select Heavy) stock;
- Supplier:
  - Barcham; or equal and approved.
  - Contact: Barcham Trees PLC, Eye Hill Drove, Ely, Cambridgeshire, CB7 5XF. Tel: 01353 720748; Fax: 01353 723060; Email: sales@barchamtrees.co.uk Web: http://www.barcham.co.uk/

260 Plant / Tree Substitution

- Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
  - Price.
  - Difference from specified plants / trees.
- Further alternatives: Proposed substitutions may not be acceptable and submission of further stock alternatives / alternative suppliers may be required.
- Approval: Obtain before making any substitution.

265 Plant Handling, Storage Transport and Planting

- Standard: To *HTA 'Handling and establishing landscape plants'*.
- Frost: Protect plants from frost.
- Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Plant packaging: Black polyethylene bags.
- Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
- Planting: Upright or well balanced with best side to front.

280 Treatment of Tree Wounds

- Cutting: Keep wounds as small as possible.
  - Cut cleanly back to sound wood using sharp, clean tools.
  - Leave branch collars. Do not cut flush with stem or trunk.
  - Set cuts so that water will not collect on cut area.
- Fungicide / Sealant: Do not apply unless instructed.

285 Protection of Existing Grass

- General: Protect areas affected by planting operations using boards/ tarpaulins.
  - Excavated or imported material: Do not place directly on grass.
  - Duration: Minimum period.

290 Surplus Material

- Subsoil, stones, debris, wrapping material, canes, ties, temporary labeling, rubbish, pruning's and other arisings: Remove.

Preparation of Planting Beds / Planting Materials:

300 Herbicide: To Clear Overgrown Beds
- Locations: All planting areas.
- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
  - Duration (minimum): As manufacturer's recommendation.

305 Weed Control: For Invasive Non-Native Weeds
- Location: All planting areas.
- General: Prevent weeds from seeding and perennial weeds from becoming established, by hand weeding.

375 Cultivation
- Compacted topsoil: Break up to full depth.
- Cultivation: Loosen, aerate and break up soil into particles of 2 - 8 mm.
  - Depth: Top 150 mm.
  - Timing: Within a few days before planting.
  - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: As sections Q28.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 50 mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

Planting Shrubs / Herbaceous Plants / Bulbs

401 Regular Plant Layout: To All Beds / Native Shrub Planting Setting Out
- Spacing:
  - As drawing series *LLD1275-LAN-DWG-200 series: Soft landscape Layout – Infrastructure Planting*; *LLD1275-LAN-DWG-200 series - Detailed Planting Plans*;
- Density: As *LLD1275-LAN-SCH01-Detailed Plant Schedule and Specification.*

405 Shrub Planting Pits
- Timing: Excavate 1-2 days (maximum) before planting.
- Sizes: 150 mm wider than roots when fully spread and 200 mm deeper than the containers.
- Pit bottom improvement: Break up to a depth of 150 mm, incorporating soil ameliorant/ conditioner at 50 g/m².
- Backfilling material: Reuse excavated material.

470 Formal Hedges

- Shrubs for hedges: Consistent in species, cultivar and clone to ensure a uniform hedge.
- Planting: In trenches large enough to take full spread of roots. Set out plants evenly.

480 After Planting

- Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
- Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
- Top dressing: Not required.

485 Mulching Planting Beds

- Material: Ornamental bark mulch; 75mm;
- Material: Clean washed gravel dressing; 50mm;
  - Purity: Free of pests, disease, fungus and weeds.
  - Recycled content: Submit proposals.
- Preparation: Clear all weeds. Water soil thoroughly.
- Coverage: consistent coverage to all specified planting areas;
- Finished level of mulch: graded to 30 mm below adjacent grassed or paved areas.

Planting Trees

500 Antidessicant for Conifers / Evergreens

- Application: Dip in or thoroughly spray with anti-desiccant before delivering to site. Spray again soon after planting.
  - Do not apply in wet or frosty weather.
  - Ensure full coverage of underside of foliage.

505 Tree Pits

- Planting pits should be excavated to the same depth as the tree root system with the root flare / root collar to be level with the surface of surrounding soil;
- The planting pit shall have a slightly raised centre and be broken up to a depth of 150 mm. The width of the tree pit should be excavated to be 150 - 300 mm larger than the root ball or container;
- If the tree pit sides are compacted, smooth or smeared they should be scarified to loosen the soil. During excavation the soil should be separated into topsoil and subsoil in order that during backfilling the soil can be replaced in the same order;
- The trees root system should be lightly wetted prior to planting;
- The tree should be planted at the correct depth ensuring the root flare is just visible above the soil level and allowance made for any settling of soil levels;
- Backfilling should be added gradually in layers of 150mm ensuring the tree is held upright;

- Each layer should be firmed down to remove air pockets within the soil and to aid tree stability, but not to excessively compact the soil. The final layer of backfilling should not be consolidated, but should be of a sufficient depth to allow for settlement and mulching.
- Backfilling material: Plant pit backfilling soil system, as section Q28.
- For locations of tree planting, refer to *LLD1275-LAN-DWG-200 series: Soft landscape Layout – Infrastructure Planting.*

512 Tree Pit Accessories – Tree Pit Irrigation

- Locations: Refer to
  - Refer to *LLD1275-LAN-DWG-200 series: Soft landscape Layout – Infrastructure Planting*.
- Manufacturer: GreenBlue Urban, Haywood Way, Hastings, East Sussex, TN35 4PL; Tel: 01424 717797; Fax: 01424 533003; Web: www.greenblueurban.com
  - Product reference: RootRain Metro – Tree Pit Irrigation, Plastic with Chain; Code: RRPC3A.
- Type: Perforated plastics irrigation pipe, 75 mm diameter, in circle above and around sides of rootball, with plastics cap; 2.5 m length.

535 Staking Generally

- Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
  - Preservative treatment: To provide a 20 year service life.
- Nails: To *BS 1202-1*, galvanized, minimum 25 mm long and with 10 mm diameter heads.
- Minimum stake sizes: 75 mm diameter.

565 Double Staking For: Standard (Extra Heavy) and Standard (Heavy) Nursery Stock Trees

- Staking:
  - Stakes shall be driven vertically to a minimum of 300mm into the bottom of the pit on either side of tree position before planting. The stakes should be placed to allow the fixing of the cross bar to the windward side of the tree and as close to the stem as possible. Backfilling should seek to consolidate material around stakes. The stake shall extend above ground level to a maximum 600mm. The crossbar shall be no more than 40mm away from the stem of the planted tree and the tree shall be tied firmly but not rigidly to the cross bar with one adjustable tie plus spacer within 50mm of the top of the stake, and secured in place with a 25 mm long galvanised clout nail.
  - Backfilling: Consolidate material around stakes.
- Height of stakes: The stakes shall extend to a maximum of 600mm above ground level.
- Ties: single adjustable tie.
- Tying: Secure tree firmly but not rigidly with tie.

570 Underground Guying for Standard (Extra Heavy) Trees (18 - 20 cm girth)

- Manufacturer: Platipus Anchors Limited (or equal and approved) Kingsfield Business Centre, Philanthropic Road, Redhill, Surrey, RH1 4DP, England Tel: 01737 762300, Fax: 01737 773395, E-mail: info@platipus-anchors.com. Product reference: Plati-Mat RF3RDMP.
- Anchoring system: 3 no kerbstones or sleepers as anchor points.
- Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

586 Tree Backfilling Material

- Composition: Previously prepared mixture of topsoil excavated from pit and additional topsoil as required.
  - Ameliorant / Conditioner: 20 % by volume, together with 20 % volume Tree Planting Compost (8 mm peat free organic compost) supplied by Bourne Amenity, Newenden, Cranbrook, Kent, TN18 5QG. Tel. 01797 252298; Fax. 01797 253115. Email. enquiries@bourneamenity.co.uk or equal and approved, and 2500 grams of Seanure Soil Builder per tree planting pit;
  - To be supplied by Farmura Ltd, Stone Hill, Egerton, Ashford, Kent, TN27 9DU. Tel. 01233 756241. Fax: 01233 756419 or equal and approved.

590 Mulching Trees

- Material: Ornamental bark mulch.
  - Purity: Free of pests, disease, fungus and weeds.
  - Recycled content: Submit proposals.
- Preparation: Clear all weeds. Water soil thoroughly;
- Coverage: Consistent depth of 75 mm.
- Finished level of mulch: graded to 30 mm below adjacent grassed or paved areas.

617 Removing Trees and Hedges

- Identification: Clearly mark trees and hedges to be removed.
- Work near retained trees: Where canopies overlap, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
- Arisings: Remove.
- Tree stumps: Remove mechanically to a minimum depth of 300 mm below ground level.

Protecting / Maintaining / Making Good Defects

710 Maintenance

- Duration: Carry out the operations in the following clauses from completion of planting until practical completion.
- Frequency of maintenance visits: Monthly during growing season.

720 Failures of Planting

- Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs that have failed to thrive.
  - Exclusions: Theft or malicious damage after completion.
  - Rectification: Replace with equivalent plants/ trees/ shrubs.
- Replacements: To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
- Timing of making good: During the next suitable planting season.

730 Protective Fencing

- Fencing type: Chestnut Pale Fencing to BS 1722-4:1986.
  - Height: 1200 mm.
- Erection: On completion of planting.
- Removal: After planting is well established.

740 Cleanliness

- Soil and Arisings: Remove from hard surfaces and grassed areas.
- General: Leave the works in a clean tidy condition at completion and after any maintenance operations.

750 Planting Maintenance Generally

- Weed control: Maintain weed free area around each tree and shrub.
  - Diameter (minimum): The larger of 1 m or the surface of original planting pit.
  - Keep planting beds clear of weeds: By use of approved non-residual herbicides and by maintaining full thickness of mulch cover.
- Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
- Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
- Staking: Check condition of stakes, ties, guys and guards.
  - Broken or missing items: Replace.
  - Rubbing: Prevent.
  - Ties: Adjust to accommodate growth.
  - Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
  - Frequency of checks: Every two weeks.
- Firming up: Gently firm loosened soil around trees / shrubs. Straighten leaning trees / shrubs.
- Trees: Spray crown when in leaf during warm weather.
  - Timing: Carry out in the evening.
- Watering: As necessary to ensure establishment and continued thriving of planting.

755 Planting Maintenance - Fertilizer

- Time of year: March or April.
- Fertilizer: Seaweed extract.
  - Manufacturer: Farmura Ltd, Stone Hill, Egerton, Ashford, Kent, TN 27 9DU; Tel. 01233 756211; Fax. 01233 756419.
  - Product reference: Farmsea 10.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: Spread evenly at 5 litres per 500 m²; water ratio 1:5.
- Fertilizer not to be applied to wildflower grassland seeded areas.

760 Planting Maintenance - Pruning

- General: Prune to promote healthy growth and natural shape.
  - Dead, dying, diseased wood and suckers: Remove.
  - Timing: As appropriate to the species.
  - Trees: Favour a single central leading shoot.
- Arisings: Remove.

780 Maintenance Instructions

- General: Before end of the maintenance period, submit printed instructions recommending procedures to be established by the Employer for maintenance of the planting work for one full year: Provide details of any special procedures to be carried out.

790 Final Mulching

- Timing: At end of the maintenance period.
- Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
- Planting beds: Remulch.
  - Ornamental Bark; Depth: 75 mm;
  - Gravel Dressing; 50 mm;
- Trees: Remulch.
  - Depth (minimum): 75 mm.

Q35 Landscape Maintenance

To be read with Preliminaries / General Conditions.

Generally

110 Notice
- Give notice before:
  - Application of herbicide.
  - Application of fertilizer.
  - Watering.
  - Each site maintenance visit.
- Period of notice: 2 days.

130 Reinstatement
- Damage or disturbance to soil structure, planting, grass, fencing, hard landscaping, structures or buildings: Reinstate to original condition.

155 Watering
- Supply: Potable mains water.
- Quantity: Wet full depth of topsoil.
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to root zone.
- Frequency: As necessary for the continued thriving of all planting.

160 Water Restrictions
- General: If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.

170 Disposal of Arisings
- General: Unless specified otherwise, dispose of arisings as follows:
  - Biodegradable arisings: Remove to recycling facility.
  - Grass cuttings: Remove to recycling facility.
  - Tree roots and stumps: Remove to recycling facility.
  - Shrub and tree prunings: Remove to recycling facility.
  - Litter and non-biodegradable arisings: Remove from site.

180 Chipping or Shredding on Site
- General: Not permitted on site.

190 Litter
- Extraneous rubbish not arising from the Contract Work: Collect and remove from site.

195 Protection of Existing Grass
- General: Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on grass.

197 Cleanliness

- Soil and arisings: Remove from hard surfaces.
- General: Leave the works in a clean, tidy condition at completion and after any maintenance operations.

Grassed Areas

210 Maintenance of Grassed Areas

- General: Maintain turf in a manner appropriate to the intended use.
- Soil and grass:
  - Condition: Maintain a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt.
  - Waterlogging and compaction: Prevent.
  - Damage: Repair trampling, abrasion or scalping.
- Ornamental lawns: Maintain reasonably free from moss, excessive thatch, weeds, frost heave, worm casts and mole hills.
  - Edges: Neat and well defined, in clean straight lines or smooth flowing curves.
- Litter and fallen leaves: Remove regularly to maintain a neat appearance.

220 Grass Cutting Generally

- Before mowing: Remove litter, rubbish and debris.
- Finish: Neat and even, without surface rutting, compaction or damage to grass.
- Edges: Leave neat and well defined. Neatly trim around obstructions.
- Adjoining hard areas: Sweep clear and remove arisings.
- Drought or wet conditions: Obtain instructions.

226 Tree and Plant Stems

- Precautions: Do not allow nylon filament rotary cutters and other mechanical tools closer than 100 mm to the stem of any tree.
  - Operations close to stems: Complete using hand tools.

250 Leaf Removal

- Operations: Collect fallen leaves.
- Disposal: Remove from site for recycling.

256 First Cut of Wild Flower Grassland

- Height of initial growth: 40-75 mm.
- Preparation:
  - Debris and litter: Remove.
  - Stones and earth clods larger than 25 mm in any dimension: Remove.
- Height of first cut: 50 mm.
- Mower type: Contractor's choice.
- Arisings: Remove.

265 Mowing General Areas

- Grass height: Maintain between 25 and 50 mm.
- Arisings: Remove.

270 Maintaining: Grassed Areas with Perennial Wildflowers

- Preparation: Before each cut remove litter and debris.
- Height and frequency of cut in first growing season:
  - Time of first cut: March/April
  - Height of first cut: 40 mm.
  - Frequency of subsequent cutting (minimum): Most of the sown species will be slow to germinate and grow and will not usually flower in the first growing season. There will often be a flush of annual weeds from the soil in the first growing season. This weed growth is easily controlled by topping or mowing.
  - Height of growth permitted (maximum): 150 mm
- Height and frequency of cut in second growing season:
  - Time of cut: One or two cuts to the end of summer on shallow soils. On areas of deeper soil a single cut in October.
  - Height of cut: 50 mm.
- Trimming: All edges.
  - Arisings: Remove.
- Watering: When instructed.
- Management once established: In the second and subsequent years the wildflower grassland can be managed in a number of ways depending on the soil fertility.
  - Poor Shallow Soils: On poor shallow soils the wildflower grassland can be managed through one or two cuts towards the end of summer to help maintain diversity and interest.
  - Deeper Soils: Wildflower grassland seeded on deeper soils should be managed through a main summer hay cut in combination with autumn and spring mowing. The wildflower grassland seeded areas are not to be cut from spring through to late July/ August to allow the sown species to flower. After July/August a 'hay cut' with a petrol strimmer to 50 mm height should be undertaken with the hay left to dry and shed seed for 1 – 7 days before being removed from site. Regrowth should be mowed through to late autumn / winter to 50 mm height and again in spring if required
- Other Requirements: For further maintenance requirements refer to the wildflower grassland seed mix supplier's instructions and recommendations.
- Other Requirements: No soil ameliorant / conditioner or fertilizer to be applied to the wildflower grassland.

275 Mowing Rough Grassed Areas

- Grass Height: 100 mm maximum.
- Arisings: Remove for composting on site.

285 Top Dressing

- Location: All lawns.
- Timing: September / October.
- Material: Sand based, multi-purpose lawn topdressing.
- Supplier: Rolawn. Rolawn Limited, Elvington, York, YO41 4XR. Tel: 08456046050. Email: info@rolawn.co.uk
  - Product reference: Rolawn Lawn Top Dressing.
- Type: Sand based, multi-purpose lawn topdressing.
- Declaration of analysis: Submit.
- Samples: Supply 5 kg sample before ordering.
- Application rate:
  - Autumn: up to 3 litres per m^2 (approx $4kg/m^2$).

295 Spiking

- Location: All lawns.
- Timing: As necessary to relieve compaction.
- Operations: Aerate the soil and improve surface water penetration.
- Depth (minimum): 75 mm into soil.

300 Scarifying

- Location: All lawns.
- Timing: September / October, before top dressing.
- Operations: Relieve thatch conditions and remove dead grass.
- Depth (maximum): 25 mm into soil.
- Arisings: Remove.

309 Edges to Seeded Areas

- Location: Planting beds and around newly planted trees.
- Timing: After seeded areas are well established.
- Edges: Cut to clean straight lines or smooth curves. Draw back soil to permit edging.
- Arisings: Remove.

311 Re-Forming Grass Edges

- Location: Where damage occurs.
- Standard to *BS 7370-3:1991 'Grounds maintenance. Recommendations for maintenance of amenity and functional turf (other than sports turf)'.*
- Finishing: Damaged parts of turned turf top dressed with suitable soil and seed mix matching the sward.

330 Selective Herbicide

- Location: All lawns.
- Herbicide: Suitable for suppressing perennial weeds.
- Areas not to be sprayed: Wildflower areas or bulb and corm planted areas when in leaf.

340 Spot Weedkilling in Rough Grass Areas

- Herbicide: Suitable for suppressing perennial weeds.
- Operations: Spot treat all broad leaved weeds.

381 Reinstatement of Lawns - Worn Areas

- Damaged turf: Remove to a depth of 40 mm.
- Preparation: Cultivate substrate to a fine tilth.
- Worn or damaged areas: Make good by returfing or reseeding:
  - Returfing standard: To BS 7370-3, Clause 12.2.
  - Reseeding standard: To BS 7370-3, Clause 12.6.
- Turf or seed: To match existing in appearance and quality.
- Protection and watering: Provide as necessary to promote successful germination and/ or establishment.

Flower Beds

460 Beds with Perennials

- Plant supports: Stake and tie plants using bamboo canes.
  - Length: To suit plant height.
  - Maintain throughout the growing season.
- Gaps in planting: Refill by replanting.
- Watering:
  - New plants: Before and after planting out.
  - Ongoing: As necessary for the continued thriving of all planting,
- Operations at end of growing season:
  - Trim: Older flowering stems of herbaceous perennials.
  - Remove: Redundant plant supports, litter, debris and arisings.
  - Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.
  - Top dress: Apply sanitized and stabilized compost top dressing.

470 Plant Beds with Perennials Generally

- Operations:
  - Remove: Dead flower heads, fallen leaves, litter and debris.
  - Weeds: Thoroughly hand weed.
  - Cultivate: Lightly hoe.
  - Trim: Clip grass edges.
- Fungicide: Contractor's choice.
- Insecticide: Contractor's choice.

480 Thinning by Removal of Surplus Plants

- Plants to be thinned: As schedule *LLD1275-LAN-SCH-001-Detailed Plant Schedule and Specification*.
- Standard: *BS 7370-4*, clause 3.5.17.1.
- Timing: Thin when foliage of adjacent plants has begun to touch.
- Roots:
  - Disturbance to adjacent plants: Minimise.
  - Soil: Refill holes with topsoil to leave an even graded surface.
  - Mulch: Maintain mulch as original specification.
- Adjacent plants: Make good any minor damage immediately.
- Plants for retention: Select plants with a strong healthy habit.
- Mature Planting Density: As schedule *LLD1275-LAN-SCH-001-Detailed Plant Schedule and Specification*.

Shrubs / Trees / Hedges

500 Establishment of New Planting

- Duration: 12 months' maintenance period.
- Weed control:
  - Method: Keep planting beds clear of weeds by use of suitable herbicides; maintaining full thickness of mulch and hand weeding.
  - Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
- Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
- Watering: When instructed.

502 Establishment of New Planting - Fertilizer

- Time of year: March or April.
- Type: Slow release.
- Spreading: Spread evenly. Carefully lift and replace any mulch materials.
  - Application rate: As manufacturer's recommendations.

510 Tree Stakes and Ties

- Inspection / maintenance times: monthly as part of the routine maintenance inspections and immediately after strong winds.
- Stakes:
  - Replace loose, broken or decayed stakes to original specification.
  - If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
- Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.
  - Where chafing has occurred, reposition or replace ties to prevent further chafing.
- Removal of stakes and ties: Once the tree can stand unsupported without bending or shifting in the ground. This usually takes eighteen months to three years.
  - Fill stake holes with lightly compacted soil.

520 Refirming of Trees and Shrubs

- Timing: After strong winds, frost heave and other disturbances.
- Refirming: Tread around the base until firmly bedded.
- Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

540 Pruning Generally

- Pruning: In accordance with good horticultural and arboricultural practice.
  - Removing branches: Do not damage or tear the stem or bark.
  - Wounds: Keep as small as possible and cut cleanly back to sound wood.
  - Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
  - Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
- Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance.
- Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
- Disease or fungus: Give notice if detected.
- Growth retardants, fungicide or pruning sealant: Do not use unless instructed.

545 Pruning of Excessive Overhang

- Timing: annually or as instructed by the Landscape Architect.
- Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
- Special requirements: Allow ground cover plants to partially overlap paths and lawns.

550 Pruning of Excessive Height

- Timing: annually or as instructed by the Landscape Architect.
- Operations: Remove excessive height as instructed.

555 Pruning Trees and Shrubs

- Standard: To BS 7370-4.
- Special requirements: None.

570 Formative Pruning of Young Tree

- Standard: Type and timing of pruning operations to suit the plant species.
- Time of year: Do not prune during the late winter/ early spring sap flow period.
- Young trees up to 4 m high:
  - Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader.
  - Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
- Whips or feathered trees: Do not prune.
- Operatives: Extensive pruning of young trees and any surgery to larger trees must be carried out by an approved member of the Arboricultural Association or other approved specialist.

575 Pruning Ornamental Shrubs

- General: Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
- Suckers: Remove by cutting back level with the source stem or root.

580 Pruning Flowering Species of Shrubs and Roses

- Time of year:
  - Winter flowering shrubs: Spring.
  - Shrubs flowering between March and July: Immediately after the flowering period.
  - Shrubs flowering between July and October: Back to old wood in winter.
  - Rose bushes: Early spring to encourage basal growths and a balanced, compact habit.

600 Trimming Rapidly Establishing Hedges

- General: Allow to reach planned height as rapidly as possible.
  - Form: Trim back lateral branches moderately.

605 Trimming Slowly Establishing Hedges

- Operations:
  - Timing: Cut back hard in June and September to encourage bushy growth down to ground level.
  - Form: Allow to reach planned dimensions only by gradual degrees, depending on growth rate and habit.

611 Trimming Non-Tapering Established Hedges

- Time of year: Regular trimming from June to September.
- Operations:
  - Form: Trim carefully and neatly to regular line and shape with vertical sides.
  - Trim: Remove current growth rather than old wood.
- Tools / Cutting: Shears or suitable mechanical cutters.

620 Removal of Dead Plant Material

- Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.

625 Climbing Plants

- Pruning: Remove excess growth, to ensure that signs, light fittings, doors and windows are kept clear at all times.

630 Dead and Diseased Plants

- Removal: As soon as possible.
- Replacement: In the next suitable planting season.

635 Reinstatement of Shrub / Herbaceous Areas

- Dead and damaged plants: Remove.
- Mulch / matting materials:
  - Carefully move to one side and dig over the soil, fit for replanting. Do not disturb roots of adjacent plants.
- Replacement plants:
  - Use pits and plants to original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
  - Additional requirements: Submit details and cost of plants before ordering.
- Dressing: Slow release fertilizer:
  - Type: Organic.
  - Application rate: As manufacturer's recommendations.

640 Thinning by Removal of Surplus Plants

- Plants to be thinned: as instructed by the Landscape Architect;
- Standard: BS 7370-4:1991.
- Timing: as instructed by the Landscape Architect;
- Roots:
  - Disturbance to adjacent plants: Minimise.
  - Soil: Refill holes with topsoil to leave an even graded surface.
  - Mulch: Maintain mulch as original specification.
  - Adjacent plants: Make good any minor damage immediately.
- Plants for retention: Select plants with a strong healthy habit.
- Mature planting density: As schedule.

645 Weed Control Generally

- Weed tolerance: Weed to clear ground every two weeks.
- Adjacent plants, trees and grass: Do not damage.

650 Hand Weeding

- General: Remove weeds entirely, including roots.
- Disturbance: Remove the minimum quantity of soil, and disturb plants, bulbs and mulched surfaces as little as possible.
- Completion: Rake area to a neat, clean condition.
- Mulch: reinstate to original depth.

657 Herbicide to Kill Regrowth

- Type: Suitable foliar acting herbicide to kill regrowth.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

665 Weed Control with Winter Herbicide

- Type: Suitable residual soil acting herbicide.
- Time of year: Unless otherwise agreed, complete before end of March.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

670 Weed Control with Summer Herbicide

- Type: Suitable foliar acting herbicide.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

675 Digging Over

- General: Dig over beds. Do not damage existing plants, bulbs and roots.
  - Depth of dig (minimum): 100 mm.

680 Soil Aeration

- Compacted soil surfaces:
  - Prick up: To aerate the soil of root areas and break surface crust.
  - Size of lumps: Reduce to crumb and level off.
  - Damage: Do not damage plants and their roots.

685 Soil Level Adjustment

- Level of soil/mulch at edges of beds: Reduce to 50 mm below adjacent grass or hard surface.
  - Arisings (if any): Spread evenly over the bed.

690 Maintenance of Loose Mulch

- Thickness (minimum): Bark Mulch: 75 mm consistent depth.
- Thickness (minimum): Gravel Dressing: 50 mm consistent depth.
  - Top up: as required; check every three months.
- Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
- Weeding: Remove weeds growing on or in mulch by non-residual herbicide treatment and / or hand weeding.

695 Fertilizing Established Trees and Shrubs

- Time of year: During April or May.
- Type of fertilizer: Slow release.
- Application: Spread evenly.
  - Rate: As manufacturer's recommendations.

700 Snow Removal from Shrubs/ Trees

- Standard: To *BS 7370-4*.
- Plants Subject to Snow Removal: As instructed.
- Timing: When instructed.

705 Winter Leaf Removal

- Operations: Take down temporary leaf fences. Collect accumulations of drifted leaves from the vicinity and from planting beds.
- Arisings: remove to a Local Authority Green Waste Recycling Facility.

Tree Work

810 Tree Work Generally

- Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
- Protection: Avoid damage to neighbouring trees, plants and property.
- Standards: To BS 3998:2010 'Tree Work. Recommendations' and Health & Safety Executive (HSE) 'Forestry and Arboriculture Safety Leaflets'.
- Removing branches: Cut as Arboricultural Association Leaflet 'Mature tree management'. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
- Appearance: Leave trees with a well balanced natural appearance.
- Chain saw work: Operatives must hold a Certificate of Competence.
- Tree work: To be carried out by an approved member of the Arboricultural Association.

815 Additional Work

- Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

820 Prevention of Wound Bleeding

- Standard: To BS 3998:2010, Clause 8.

825 Prevention of Disease Transmission

- Standard: To BS 3998:2010, Clause 9 and Appendix B.

830 Cleaning Out and Deadwooding

- Remove:
  - Dead, dying, or diseased wood, broken branches and stubs.
  - Fungal growths and fruiting bodies.
  - Rubbish, wind blown or accumulated in branch forks.
  - Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
  - Other unwanted objects, e.g. tree houses, swings.
  - Climbing plants retain within existing trees.

835 Cutting and Pruning Generally

- Tools: Appropriate, well maintained and sharp.
- Final pruning cuts:
  - Do not use chainsaws on branches of less than 50 mm diameter.
  - When using handsaws, cut in one continuous operation to form a smooth cut surface;
  - Anvil type secateurs: Do not use.
- Removing branches: Do not damage or tear the stem.
- Wounds: Keep as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.
- Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.
- Large branches: Remove only with prior approval.
  - Remove in small sections and lower to ground with ropes and slings.
- Dead branches and stubs: When removing, do not cut into live wood.
- Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
- Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 Crown Reduction / Shaping

- General: Cut back selectively to lateral or sub-lateral buds or branches to retain flowing branch lines without leaving stumps.
- Operations: as instructed by the Landscape Architect.

845 Crown Lifting

- Clearances: Remove branch systems to give clearance.
  - Height: As recommended by *BS 7370-4*, *clause 3.7.2.3*.
- Removing branches: Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sub-lateral buds or branches. Do not leave stumps.

850 Crown Thinning

- Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.
- Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown, as instructed by the Landscape Architect.
- Cutting:
  - Branches: Cut back to lateral or sub lateral buds or branches without leaving stumps.
- Appearance: Leave a uniform and well balanced structure of branches and foliage.

855 Cutting Tree Roots

- Excavating: Use hand tools only.
  - Protected area: Do not cut roots within the calculated tree Root Protection Area (RPA) in accordance with *BS 5837:2012; 'Trees in Relation to Design, Demolition and Construction - Recommendations'.*
- Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.
- Cutting:
  - Cutting: Make clean smooth cuts with a hand saw.
  - Wounds: Minimize. Avoid ragged edges.
  - Finishing: Pare cut surfaces smooth with a sharp knife.
- Backfilling:
  - Protection: Cover cut roots with clean sharp sand.
  - Material: Backfill with original topsoil.

860 Removing Trees, Shrubs and Hedges

- Standards: *To BS 3998:2010, Appendix A and Health & Safety Executive (HSE)/ Arboricultural and 'Forestry Advisory Group Safety Leaflets'.*
- Existing Services: Check for below and above ground services. Give notice if they may be affected.
- Shrubs and Smaller Trees: Cut down and grub up roots.
- Tree stumps:
  - Removal: Remove mechanically to a minimum depth of 300 mm below ground level.
  - Removal by winching: Give notice. Do not use other trees as supports or anchors.
- Protection: Avoid damage to neighboring trees, plants and property.
- Work near Retained Trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
- Filling holes:
  - Material: Use as-dug material and/ or imported soil as required.
  - Finishing: Consolidate and grade to marry in with surrounding ground level.

865 Bark Damage

- Wounds:
  - Do not attempt to stop sap bleeding.
  - Bark: Remove ragged edges using a sharp knife
  - Wood: Remove splintered wood from deep wounds.
  - Size: Keep wounds as small as possible.
- Liquid or flux oozing from apparently healthy bark: Give notice.

870 Cavities in Trees

- Investigation: Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay, and give notice.
- Water filled cavities: Do not drain.
- Sound wood inside cavities: Do not remove.
- Cavity Openings: Do not cover.

LIZARD

Landscape Design and Ecology

The Old Bank, 34 South Street, Ferring, Worthing, West Sussex, BN12 5DH
[redacted] lizardlandscapeecology.com