JCLA

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St Pancras Commercial Centre
Landscape Specification

SP108_Doc04_LS
13.05.21
Revision: T3

Rev	Date	Description
S31	03.02.20	Stage 3 issue
T1	30.10.20	Issued for Tender
T2	09.11.20	Updated sections/clauses to civil engineer's info: Q25/140, Q25/145, Q25/456, Q25/457, Z21.
T3	13.05.21	Amended Q23/313 - steel angle edge to terrace

SP108

JCLA

WRE

St Pancras Commercial Centre

Landscape

13-05-2021

Contents

D20
Excavating and filling

Generally/the site

100 General notes

1. To be read with Preliminaries/General conditions
2. **THIS SECTION COVERS SELECTED LANDSCAPE CLAUSES ONLY - REFER TO ENGINEER'S SPECIFICATION FOR PRIMARY CLAUSES RELATING TO SECTION D20**

110 Site investigation

1. Report: Refer to Site Investigation Report and Engineer's information supplied

115 Further site investigations

1. Refer to drawings SP108_75_PT_A, B & C
2. Allow for trial excavations within the public realm where new tree planting is proposed and the existing GPRS survey data shows the presence of existing utilities underground.
3. The contractor is to allow for this process so as to accurately determine the positions of all existing underground utilities (including those not shown up on the GPRS survey) before works begin and to allow the landscape design to be implemented.
4. The contractor is to allow for the process of obtaining approvals from statutory companies through the C2/C3/C4 request process; allow for all necessary liaison.
5. All works within the public realm are subject to pending legal agreements with LB Camden.

Clearance/excavating

164 Tree roots

1. Protected area: Do not cut roots within precautionary protection area.
    1.1. Size of area: Refer to Tree Survey by Tim Moya Associates (March 2019); mark out on site with acceptable method.
2. Excavation in protected area
    2.1. Method: By hand only.
    2.2. Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
3. Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval from Contract Administrator.
4. Cutting
    4.1. Make clean smooth cuts with no ragged edges.
    4.2. Pare cut surfaces smooth with a sharp knife.
    4.3. Treatment of cut roots: If roots have been unintentionally severed, contact the Contract Administrator and form a new clean cut slightly nearer to the trunk; apply mycorrhizal treatment as per clause Q28/380 to any severed roots.
5. Backfill: Cover with existing topsoil as work proceeds.

165 Working around existing trees

1. Refer to Tree Protection Plan and Arboricultural Information by Tim Moya Associates (2019) and other relevant information pertaining to existing trees on site.
2. All works to conform to BS 5837:2012 and arboricultural best practice.

3. All works to be carried out to the satisfaction of the Local Authority Tree Officer - confirmation of works by them should be expected and allowed for in the construction programme.
4. Contractor to allow for the following in tender pricing:
   4.1. Works to meet requirements of arboricultural information and BS 5837:2012
   4.2. All works within Root Protection Area (RPA) of existing trees to be retained to be BY HAND ONLY, as clause D20/164A.
5. Any clarifications on the above to be sought by the contractor from the Landscape Architect/Contract Administrator.

166 Tree root barriers

1. Use: Refer to Q31/510
2. Application: If deemed necessary following further site investigations for new trees in the public realm - to be agreed with LB Camden and the Contract Administrator.
3. Trench: Sever all roots.
   3.1. Depth: TBC
4. Root barrier: ReRoot by Green Blue Urban., or equal approved.
5. Cutting roots: As clause 164.
6. Root barrier installation: Full depth of excavation. Fit closely to trench wall nearest the tree.
7. Backfill material: As dug material excavated from trench.
8. Backfilling: Lay and compact thoroughly in layers not more than 300 mm thick.

168 Site clearance

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

170 Removing small trees, shrubs, hedges and roots

1. Identification: Clearly mark trees to be removed.
2. Small trees, shrubs and hedges: Cut down.
3. Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
4. Safety: Comply with HSE / Forest Industry Safety Accord safety leaflets.

175 Felling large trees

1. Definition: Girth over 600 mm.
2. Identification: Clearly mark trees to be removed.
3. Safety: Comply with HSE / Forest Industry Safety Accord safety leaflets.
4. Felling: As close to the ground as possible.
5. Stumps: Remove mechanically to a minimum depth of 300 mm below ground level
6. 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

1. General: Permitted, remove arisings from site

220 Stripping topsoil

1. 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.
2. Depth
   2.1. Remove to an average depth of ; remove all existing topsoil within site ownership boundary to facilitate basement construction works.
   2.2. Give notice where the depth of topsoil is difficult to determine.
3. Handling: Handle topsoil for reuse or sale in accordance with clause 225.
4. Around trees: Do not remove topsoil from below the spread of trees to be retained.
5. Site storage: Keep separate from excavated sub-soil
6. Potential for re-use:: None assumed - Contractor to advise if otherwise.
7. Contaminated soil material:: TBC - refer to SI / Engineer's information.

225 Handling topsoil

1. Standard: To BS 3882.
2. Aggressive weeds
   2.1. Species: Notify the presence of species included in the Weeds Act, section 2, or the appropriate Wildlife and Countryside Act for the relevant jurisdiction.
   2.2. Give notice: Obtain instructions before moving topsoil.
3. Contamination: Do not mix topsoil with:
   3.1. Subsoil, stone, hardcore, rubbish or material from demolition work.
   3.2. Other soil or material containing aggressive weeds, sharps, plastics and non soil forming materials and notifiable animal or plant diseases.
   3.3. Oil, fuel, cement or other substances harmful to plant growth.
   3.4. Other classifications of topsoil.
4. Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.

Disposal of materials

410 Excavated topsoil storage

1. Storage: Stockpile in temporary storage heaps TBC; Contractor to advise .

415 Excavated topsoil removal

1. General: Remove from site.
2. Contaminated soil material:: TBC - refer to SI / Engineer's information.

420 Topsoil storage heaps

1. Location: To be agreed with Client / Contract Administrator upon setting up of the site compound.
2. Standard: To BS 3882.
3. Height (maximum): 1m.
4. Protection
   4.1. Do not place any other material on top of storage heaps.
   4.2. Do not allow construction plant to pass over storage heaps.
   4.3. Prevent compaction and contamination.

421 Topsoil storage heap treatment

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

441 Surplus subsoil

1. Excavated material: Remove from site and dispose of.
2. Retained material: None assumed - Contractor to advise if otherwise.
   2.1. Locations: None assumed.
   2.2. Protected areas: Do not raise soil level within root spread of trees that are to be retained.
3. Remaining material: Remove from site.
4. Contaminated soil material:: TBC - refer to SI / Engineer's information.

Filling

550 Geotextile sheet

1. Manufacturer: Terram, or equal approved.
   1.1. Product reference: Terram T1000, or equal approved.
2. Type: Nonwoven
3. Polymer type: Polypropylene
4. Recycled content: None permitted
5. Jointing: Overlapping, as manufacturer's recommendations.
6. Preparation of subgrade: Before laying sheet, remove humps and sharp projections. Fill hollows
7. Protect from
   7.1. Exposure to light.
   7.2. Contaminants.
   7.3. Materials listed as potentially deleterious by geotextile manufacturer.
   7.4. Wind uplift.

610 Compacted filling for landscape areas

1. Fill: Material capable of compaction by light earthmoving plant.
2. 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

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

Bioremediation - Not Used

'specification for highway works: earthworks specification' appendices - Not Used

Ω End of Section

Q10
Kerbs/ edgings/ channels/ paving accessories

Types of kerbs/edgings and channels

100 General notes

1. To be read with Preliminaries/General conditions.
2. **PUBLIC REALM WORKS**
   All works within the public realm are subject to confirmation by the Local Authority as part of the S278 works. This includes details of all materials, junctions etc. Refer to drawing SP108_04_HL.
3. **FOR TIMBER AND STEEL EDGES, REFER TO SECTION Q23**
4. All drainage elements to Engineer's specification & drainage covers to Architect's specification.

120 Stone

1. Description: Raised, dropper and flush kerbs - refer to SP108_04_HL and SP108_79_KD.
2. Standard: To BS EN 1343.
3. Supplier: Hardscape, or equal approved.
4. Types: Half battered with radiused exposed edges Rectangular with radiused exposed edges
   4.1. Tolerances on batter: Class 2
5. Stone type: Granite
6. Size (width x height): Refer to detail SP108_79_KD.
   6.1. Tolerances on overall width and height (nominal): Class 2
7. Freeze/ Thaw resistance: Resistant
8. Special shapes: Transition kerbs and External radius kerbs within public realm - specification TBC with LB Camden.
9. Finish: Coarse textured - bush hammered. Submit samples for approval.
10. Arrises: Fillet, as radiused edge - refer to detail.
11. Bedding: Refer to detail and Engineer's information.
12. Joints generally: Dry, 2-3 mm gap
13. Sealant movement joints: Not required
14. Accessories: None

171 Linear slot drainage systems

1. Refer to Engineer's information for drainage specification.
2. Refer to Architect's information for specification of drainage covers.

181 Drainage channel systems with gratings

1. Refer to Engineer's information for drainage specification.
2. Refer to Architect's information for specification of drainage covers.

250 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
   1.1. Designated materials: Stone kerbs (representative sample)

Roads/paving accessories/ marking/ demarcation

306 Tree grilles and surrounds

1. Refer to section Q50.

Laying

510 Laying kerbs, edgings and channels

1. Cutting: Neat, accurate and without spalling. Form neat junctions.
   1.1. Long units (450 mm and over) minimum length after cutting: 300 mm.
   1.2. Short units minimum length after cutting: The lower of one third of their original length or 50 mm.
2. Bedding of units: Positioned true to line and levelled along top and front faces, in a mortar bed on accurately cast foundations or on a race of fresh concrete.
3. Securing of units: After bedding has set, secured with a continuous haunching of concrete or on a race of fresh concrete with backing concrete cast monolithically.

520 Adverse weather

1. Conditions: Do not construct if the temperature is below 3°C on a falling thermometer or 1°C on a rising thermometer. Adequately protect foundations, bedding and haunching against frost and rapid drying by sun and wind.

530 Concrete for foundations, races and haunching

1. Standard: To BS 8500-2.
2. Designated mix: Not less than GEN0 or Standard mix ST1.
3. Workability: Very low.

540 Cement mortar bedding

1. General: To section Z21.
2. Mix (Portland cement:sand): 1:3.
   2.1. Portland cement: Class CEM I 42.5 to BS EN 197-1.
   2.2. Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).
3. Bed thickness: 12-40 mm.

600 Radius kerbs/ channels

1. Usage: Radii of 15 m or less.

610 Angle kerbs

1. Usage: Internal and external 90° changes of direction.
2. Cutting of mitres: Not permitted.

620 Accuracy

1. Deviations (maximum)
   1.1. Level: ± 6 mm.
   1.2. Horizontal and vertical alignment: 3 mm in 3 m.

625 Regularity of paved surfaces

1. Maximum undulation of (non-tactile) paving surface: 3 mm.

1.1. Method of measurement: Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).

2. Difference in level between adjacent units (maximum)
   2.1. Joints flush with the surface: Twice the joint width (with 5 mm max difference in level).
   2.2. Recessed, filled joints: 2 mm.
      2.2.1. Recess depth (maximum): 5 mm.
   2.3. Unfilled joints: 2 mm.
3. Sudden irregularities: Not permitted.

630 Narrow mortar joints

1. Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled, tightly butted and surplus mortar removed immediately.
   1.1. Joint width: 3 mm.

640 Tooled mortar joints

1. Jointing: Ends of units buttered with bedding mortar as laying proceeds. Joints completely filled and tooled to a neat flush profile.
   1.1. Joint width: 6 mm.

650 Sealant movement joints if required

1. Joint filler: Compressible cellular rubber or plastics compatible with specified sealant.
2. Filler installation: Built in as work proceeds, extending through haunching and foundation. Filler positioned accurately to fully support sealant at the recommended depth below exposed faces of units.
3. Joint width: 10 mm
4. Sealant: Submit proposals
   4.1. Colour: Colour match to kerbs
5. Sealant application: As section Z22.

Ω End of Section

Q20
Granular sub-bases to roads/ pavings

To be read with preliminaries/ general conditions.

100 General notes

1. **THIS SECTION COVERS SELECTED LANDSCAPE CLAUSES ONLY - REFER TO ENGINEER'S SPECIFICATION FOR PRIMARY CLAUSES RELATING TO SECTION Q20**
2. **PUBLIC REALM WORKS**
   All works within the public realm are subject to confirmation by the Local Authority as part of the S278 works. This includes details of all materials, junctions etc. Refer to drawing SP108_04_HL.

110 Thicknesses of sub-base/ subgrade improvement layers

1. Thicknesses: See sections:
   1.1. Refer to Engineer's details.

120 Checking of subgrades

1. For areas in public realm outside of site ownership boundary - refer to Engineer's details.
2. Anticipated subgrade conditions
   2.1. Soil type: Refer to Engineer's information.
   2.2. Plasticity index: Refer to Engineer's information.
   2.3. CBR (minimum): Refer to Engineer's information.
   2.4. Depth below formation level to groundwater table: Refer to Engineer's information.
3. Subgrade variation: If material appears to vary from anticipated conditions, or if there are extensive soft spots, refer to Engineer's information..
4. Submit: Results and obtain instructions before proceeding.

130 Herbicides

1. Type: Contractor to submit proposals to be approved by the Landscape Architect / Contract Administrator.
2. Application: To subgrade of paths, roads and pavings, if deemed to be required and approved as above.

140 Excavation of subgrades

1. Final excavation to formation or subformation level: Carry out immediately before compaction of subgrade.
2. Soft spots and voids: Give notice.
3. Old drainage and service trenches: Give notice
4. Wet conditions: Do not excavate or compact when the subgrade may be damaged or destabilized.

145 Preparation and compaction of subgrades

1. Timing: Immediately before placing sub-base.
2. Soft or damaged areas: Excavate and replace with sub-base material, compacted in layers 300 mm (maximum) thick
3. Compaction: Thoroughly, by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads/ pavings when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

150 Subgrades for vehicular areas

1. Preparation and treatment: To Highways Agency ‘Specification for highway works’, clauses 616 and 617.

170 Geotextile filter/ separator membrane

1. Description: General application, if required; refer to Engineer's information and relevant surface details.
2. Manufacturer: Terram, or equal approved.
   2.1. Product reference: Terram T1000, or equal approved.
3. Jointing: Overlapping, as manufacturer's recommendations.
4. Protect from
   4.1. Exposure to light, except during laying (maximum five hours).
   4.2. Contaminants.
   4.3. Materials listed as potentially deleterious by geotextile manufacturer.
   4.4. Damage, until fully covered by fill.
   4.5. Wind uplift, by laying not more than 15 m before covering with fill.
5. Preparation: Remove humps and sharp projections and fill hollows before laying.

175 Impermeable membrane if required

1. Description: Refer to Engineer's information.
2. Manufacturer: Refer to Engineer's information.
   2.1. Product reference: Refer to Engineer's information.
3. Jointing: Refer to Engineer's information.
4. Protect from: Refer to Engineer's information.
   4.1. Exposure to light, except during laying (maximum five hours).
   4.2. Contaminants.
   4.3. Materials listed as potentially deleterious by geotextile manufacturer.
   4.4. Damage, until fully covered by fill.
   4.5. Wind uplift, by laying not more than 15 m before covering with fill.
5. Preparation: Remove humps and sharp projections and fill hollows before laying.
6. Other requirements: Refer to Engineer's information.

180 Notice

1. Give notice: After preparation and compaction of subgrades and On completion of compaction of sub-base
   1.1. Period of notice: 5 working days

230 Placing granular material generally

1. Preparation: Loose soil, rubbish and standing water removed.
2. Structures, membranes and buried services: Ensure stability and avoid damage.

240 Laying granular sub-bases for vehicular areas - refer to Engineer's information.

1. General: Spread and levelled in layers. As soon as possible thereafter compact each layer.
2. Standard: To Highways Agency ‘Specification for highway works’ clause 802.

3. At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place: Take particular care to compact fully.

250 Laying granular sub-bases - refer to Engineer's information.

1. Description: FOR PEDESTRIAN AREAS
2. General: Spread and levelled.
3. Compaction
   3.1. Timing: As soon as possible after laying.
   3.2. Method: By roller or other suitable means, adequate to resist subsidence or deformation of the sub-base during construction and of the completed paving when in use. Take particular care to compact fully at intrusions, perimeters and where local excavation and backfilling has taken place.

310 Accuracy - refer to Engineer's information.

1. Permissible deviation from required levels, falls and cambers (maximum)
   1.1. Subgrades
      1.1.1. Roads and parking areas: Refer to Engineer's information.
      1.1.2. Footways and recreation areas: Refer to Engineer's information.
   1.2. Sub-bases
      1.2.1. Roads and parking areas: Refer to Engineer's information.
      1.2.2. Footways and recreation areas: Refer to Engineer's information.

320 Surfaces to receive sand bedding for paving to section Q25.

1. Description: TO SECTION Q25
2. Blind surface: As necessary before compaction to ensure that surface is tight and dense enough to prevent laying course sand being lost into it during construction or use.
3. Geotextile sheet:: Use geotextile sheet as a separation layer if necessary to prevent the laying course sand being lost into the sub-base during construction or use - refer to clause 170.
4. Material: Approved fine material

330 Cold weather working

1. Frozen materials: Do not use.
2. Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.

340 Protection

1. Sub-bases: As soon as practicable, cover with subsequent layers, specified elsewhere.
2. Subgrades and sub-bases: Prevent degradation by construction traffic, construction operations and inclement weather.

Ω End of Section

Q22
Asphalt roads/ pavings

Types of paving

100 General notes

1. To be read with Preliminaries/ General conditions.
2. **PUBLIC REALM WORKS**
   All works within the public realm are subject to confirmation by the Local Authority as part of the S278 works. This includes details of all materials, junctions etc. Refer to drawing SP108_04_HL.
3. Refer also to Engineer's information for vehicle loading requirements.
4. Refer to Architect's information for specification of material to covered street in Office building.
5. For timber and steel edgings, refer to section Q23.

110 Asphalt concrete paving

1. Description: To meet existing roadway as shown, refer to details SP108_04_HL and SP108_71_SD.
2. Standard: To BS EN 13108-1 and/or LB Camden specification (TBC).
3. Subgrade improvement layer: If required - TBC.
   3.1. Compacted thickness: TBC
4. Geotextile: Sheet if required - TBC.
   4.1. Manufacturer: Terram, or equal approved.
      4.1.1. Product reference: Terram T1000, or equal approved.
5. Granular sub-base: Refer to Engineer's information.
   5.1. Compacted thickness: Refer to Engineer's information.
6. Base: Allow for AC 32 dense base
   6.1. Paving grade: TBC
   6.2. Compacted thickness: 100 mm, nominal
7. Binder course: Allow for AC 20 dense bin
   7.1. Paving grade: TBC
   7.2. Compacted thickness: 60 mm, nominal
8. Surface course: Allow for AC 10 close surf (hardstone aggregate PSV 500).
   8.1. Paving grade: TBC
   8.2. Slip/ Skid resistance: To meet LB Camden specification.
   8.3. Compacted thickness: 40 mm, nominal
9. Reclaimed content
   9.1. Standard: To BS EN 13108-8.
   9.2. Value (maximum): Submit proposals
10. Surface treatment: To meet LB Camden specification.
11. Other requirements: To meet LB Camden specification.

127 Porous asphalt concrete paving

1. Description: Base to wetpour rubber crumb surface, refer to details SP108_04_HL and SP108_71_SD.
2. Standard: To BS EN 13108-7.
3. Geomembrane: Geotextile membranes

3.1. Manufacturer: Terram, or equal approved.

3.1.1. Product reference: Terram T1000, or equal approved.

4. Granular sub-base: Type 4/20 clean angular granular material (clean graded, frost-resistant angular stone)

4.1. Compacted thickness: 150 mm

5. Water collection: Not required

6. Base: N/A

6.1. Compacted thickness: N/A

7. Binder course: N/A

7.1. Paving grade: N/A

7.2. Compacted thickness: N/A

8. Surface course

8.1. Manufacturer: Tarmac, or equal approved.

8.1.1. Product reference: UltiSuDS, or equal approved.

8.2. Type: Open-graded fully porous

8.3. Paving grade: To meet requirements of specified wetpour rubber crumb surface - refer to section Q26.

8.4. Slip/ Skid resistance: No requirement

8.5. Compacted thickness: 40mm

9. Reclaimed content

9.1. Standard: To BS EN 13108-8.

9.2. Value (maximum): Submit proposals

Preparatory work/ requirements

195 Hard landscaping materials specification

1. Minimum 'BRE Green Guide to Specification' online rating: Refer to BREEAM requirements and submitted Engineer's information.

220 Bituminous materials generally

1. Suppliers' names: Submit.

1.1. Timing (minimum): Two weeks before starting work.

2. Test certificates: At the time of delivery for each manufacturing batch submit certificate:

2.1. Confirming compliance with this specification and the relevant standard.

2.2. Stating full details of composition of mix.

230 Samples

1. Submit: TBC - depending on LB Camden requirements.

240 Acceptance of surfaces

1. Surface: Sound, clean and suitably close textured.
2. Level tolerances: To BS 594987.
3. Kerbs and edgings: Complete, adequately bedded and haunched and to the required levels.

250 Abutments

1. Vertical edges of manholes, gullies, kerbs and other abutments: Clean and paint with a thin uniform coating of hot applied 40/60 paving grade bitumen.

2. Finishing: Tamp surface around projections.
    2.1. Level: Flush or not more than 3 mm above projections.

Laying

310 Laying generally

1. Preparation: Remove all loose material, rubbish and standing water.
2. Adjacent work: Form neat junctions. Do not damage.
3. Channels, kerbs, inspection covers etc: Keep clean.
4. New paving
    4.1. Keep traffic free until it has cooled to prevailing atmospheric temperature.
    4.2. Do not allow rollers to stand at any time.
    4.3. Prevent damage.
    4.4. Lines and levels: With regular falls to prevent ponding.
    4.5. Overall texture: Smooth, even and free from dragging, tearing or segregation.
    4.6. State on completion: Clean.

320 Adverse weather

1. Frozen materials: Do not use.
2. Suspend laying
    2.1. During freezing conditions
    2.2. If the air temperature reaches 0°C, or in calm dry conditions -3°C, on a falling thermometer.
    2.3. Hot rolled asphalt: During periods of continuous or heavy rain or if there is standing water on the base.

330 Levels

1. Permissible deviation from the required levels, falls and cambers (maximum): In accordance with BS 594987, clause 5.2.

340 Flatness/ Surface regularity

1. Deviation of surface: Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straightedge placed anywhere on the surface to be not more than: the value specified by LB Camden.
    1.1. Base: To meet LB Camden specification.
    1.2. Binder course: To meet LB Camden specification.
    1.3. Surface course: To meet LB Camden specification.
    1.4. Where a straightedge cannot be used the surface must be of a comparable standard of accuracy when judged by eye.

350 Contractor's use of pavements to be agreed with LB Camden, refer also to Preliminaries.

1. Before use
    1.1. Timing: allow newly laid sections to cool before trafficking.
    1.2. Open-grained surface: Fill with 0/4 mm size coated grit. Remove surplus.
    1.3. Finish: Uncoated chipping and binder surface treatment.
2. Preparation for final surfacing
    2.1. Timing: Defer laying until as late as practicable.

2.2. Immediately before laying final surfacing: Clean and make good the base/ binder course. Allow to dry.

2.3. Adhesion: Submit proposals

2.3.1. Application rate: As manufacturer's recommendation

2.3.2. Accuracy: Uniform, without puddles.

2.4. Finishing: Allow emulsion to break completely before applying surface.

Completion

390 Documentation

1. Standard: BS EN 13108-1
   1.1. Declaration of conformity: Submit.
2. Number of copies: One, to Contract Administrator.
3. Submission: Two weeks prior to date when Contractor expects work to be complete

395 Slip resistance testing

1. Surfaces to be tested: Asphalt surfaces, if required by LB Camden.
   1.1. Surface condition: Dry and wet
2. Timing: Post final clean, prior to handover or As agreed with contract administrator
3. Period of notice (minimum): 3 working days.
4. Test standard: To BS 7976-2
   4.1. Testing authority: A UKAS accredited laboratory
   4.2. Witnessing/ Certification: Arrange for tests to be witnessed/ certified by: Contract administrator and LB Camden, as instructed.
   4.3. Report: Submit.
      4.3.1. Format: As required under BS 7976

Ω End of Section

Q23
Gravel/ hoggin/ woodchip/ resin bound roads/ pavings/ overlays

Types of surfacing

100 General notes

1. To be read with Preliminaries/ General conditions.
2. **PUBLIC REALM WORKS**
   All works within the public realm are subject to confirmation by the Local Authority as part of the S278 works. This includes details of all materials, junctions etc. Refer to drawing SP108_04_HL.

170 Loose gravel overlay Type A

1. Description: To surround of 1no. new tree within central landscape and infill of collars for new trees within tree grilles in public realm - refer to SP108_74_TP_2 and SP108_75_PT_A/C.
2. Base: Tree pit - refer to details.
   2.1. Preparation: Refer to details.
   2.2. Geotextile sheet:: Terram T1000, or equal approved.
3. Gravel: Loose laid and raked to uniform thickness:
   3.1. Type: 20mm flint gravel
   3.2. Source: CED Stone, or equal approved.
   3.3. Colour: Natural (flint)
   3.4. Size: 20mm
   3.5. Thickness: 80mm
4. Samples:: Submit sample for review and approval by Landscape Architect / Contract Administrator.

170 Loose gravel overlay Type B

1. Description: To infill tree collars to base of **existing** trees in public realm - refer to SP108_04_HL - to be agreed with LB Camden.
2. Base: Tree pit - refer to details.
   2.1. Preparation: Refer to details.
   2.2. Geotextile sheet:: Terram T1000, or equal approved.
3. Gravel: Loose laid and spread to uniform thickness:
   3.1. Type: Loose gravel to match ArboResin spec. - refer to clause 225.
   3.2. Source: Green Blue Urban, or equal approved.
   3.3. Colour: Silver grey
   3.4. Size: To match ArboResin spec.
   3.5. Thickness: 50mm

170 Loose gravel overlay Type C

1. Description: Used as a gravel mulch to - refer to SP108_61_PT and also section Q28.
2. Base: Terrace planting areas - refer to details.
   2.1. Preparation: Refer to details.
   2.2. Geotextile sheet:: Not required.

3. Gravel: Loose laid and raked to uniform thickness:
   3.1. Type: Grey/green granite aggregate
   3.2. Source: CED Stone, or equal approved.
   3.3. Colour: Grey/green granite
   3.4. Size: 10-20mm
   3.5. Thickness: 50mm
4. Samples:: Submit sample for review and approval by Landscape Architect / Contract Administrator.

225 Proprietary resin bound chippings - public realm

1. Description:: Fully porous material to base of existing retained trees along Royal College St / Pratt St / Georgiana St, specification TBC with LB Camden - refer to SP108_04_HL.
2. Manufacturer: Green Blue Urban, or equal approved.
3. Product reference: ArboResin Resin Bound Natural Aggregate Paving
4. Aggregate
   4.1. Size: 10 mm
   4.2. Depth: 40 mm TBC
   4.3. Colour: Silver Grey
5. Geotextile: Sheet
   5.1. Manufacturer: Terram, or equal approved.
      5.1.1. Product reference: Terram T1000, or equal approved.
6. Application: Thoroughly mixed and uniformly spread.
   6.1. Spreading rate: To manufacturer's guidelines.
   6.2. Thickness: To manufacturer's guidelines.
   6.3. Compaction to all layers: By heavy roller or other appropriate means, adequate to resist subsidence or deformation of the completed roads/ pavings when in use.

270 Hard landscaping materials specification

1. Minimum 'BRE Green Guide to Specification' online rating: Refer to BREEAM requirements and submitted Engineer's information.

Laying

310 Timber edging Type A

1. Description:: Timber edging ED1 as detail SP108_72_ED_1.
2. Softwood board
   2.1. Size: 90 x 150mm
   2.2. Fixing: 50mm annular nails.
3. Softwood pegs
   3.1. Size: 38mm square x 280 - 450mm length
   3.2. Profile:: Pointed at driven end.
   3.3. Fixing: Drive into ground.
   3.4. Centres: 1m c/c.
4. Preservative treatment: Treated (tanalised) and stained to visually match surrounding timber cobbles.
5. Jointing & corners:: As detailed - refer to SP108_72_ED_1.

310 Timber edging Type B

1. Description: Timber edging ED2 as detail SP108_72_ED_1.
2. Softwood board
   2.1. Size: 50 x 250mm
   2.2. Fixing: Set into concrete haunch, as detailed.
3. Preservative treatment: Treated (tanalised) and stained to visually match adjacent play timber edge - refer to Q52/322.
   3.1. Waterproof layer:: Provide waterproof layer to all timber elements in contact with soft landscape.
   3.2. Product:: Flexiseal by RIW coatings, or equal approved.
   3.3. Application:: To manufacturer's guidelines.

312 Raised timber edging to play area

1. Refer to Q52/322.

313 Steel edging

1. Description: 6mm metal (steel) angle edge to terraces as detail SP108_61_RT.
2. Manufacturer: Kinley systems, or equal approved.
3. Product: Perimeta Hi-Grade bespoke edge, or equal approved.
   3.1. Size: 6mm x 550mm height
4. Fixing: Anchor bolts to localised concrete pad (150mm height, 300mm square) - detail to be confirmed with roofing/edge supplier
   4.1. Frequency: Concrete pads every metre, as manufacturer advice.
5. Finish: Armacote powder coating to RAL colour to match architectural metalwork
6. Accessories: Edge + fixing plate to suit system, as supplied by manufacturer.

314 Aluminium edge Type A (120mm)

1. Description: Aluminium edge ED3, ED4, ED6, ED7 as detail SP108_72_ED_2.
2. Manufacturer: Kinley systems, or equal approved.
3. Product: AluExcel, or equal approved.
   3.1. Size: 4mm x 120mm height.
4. Fixing: M10 anchor bolts (120mm) length to fix edge into concrete base, as detailed
   4.1. Note: Fixings to be set back min 50mm from concrete edge, as detailed.
   4.2. Frequency: As manufacturer's guidelines.
5. Finish: Aluminium milled finish (satin)
6. Accessories: Suitable connector plates as necessary.

314 Aluminium edge Type B (100mm)

1. Description: Aluminium edge ED5 as detail SP108_72_ED_2.
2. Manufacturer: Kinley systems, or equal approved.
3. Product: AluExcel, or equal approved.
   3.1. Size: 4mm x 100mm height.
4. Fixing: M10 anchor bolts (120mm) length to fix edge into concrete base, as detailed
   4.1. Note: Fixings to be set back min 50mm fro concrete edge, as detailed.
   4.2. Frequency: As manufacturer's guidelines.

5. Finish: Aluminium milled finish (satin)
6. Accessories: Suitable connector plates as necessary.

314 Aluminium edge Type C

1. Description: Perforated aluminium edge for office building terraces as detail SP108_61_RT and Architect's information.
2. Manufacturer: Bauder, or equal approved.
3. Product: Bauder perforated aluminium edge & drainage trim, or equal approved.
   3.1. Size: 1.5mm x 100/150mm height, according to situation - refer to details and Architect's information.
   3.2. Lengths: 2.5m, cut to suit.
4. Fixing: Normally installed directly onto waterproofing, the drainage trims can be welded down using lengths of the waterproofing membrane, to manufacturer's guidance.
5. Perforations: Perforated edge trim to allow free movement of water.
6. Accessories: Suitable connector plates as necessary.

315 Materials

1. Compatibility: Chippings suitable for use with respective binders/ emulsions/ resin/ epoxy.

320 Samples

1. Submit: Representative samples of gravel as clauses 170, to be approved by Landscape Architect / Contract Administrator.

340 Laying generally

1. Channels, gullies, etc: Keep clear.
2. Finished surfaces
   2.1. Lines and levels: To prevent ponding.
   2.2. Overall texture: Even.
   2.3. State at completion: Clean.

350 Cold weather working

1. Frozen materials: Do not use.
2. Freezing conditions: Do not lay pavings.
3. Cold bituminous surface dressings: Do not apply when ambient temperature is below 10°C.
4. Other dressings or overlays: As manufacturers' recommendations.

360 Drainage falls

1. Note: Unless otherwise stated on Architect's / Landscape Architect's levels/falls plans, surfaces to be laid to achieve the following:
2. Sealed surfaces
   2.1. Falls and cross falls (minimum): 1:40.
   2.2. Camber (minimum): 1:50.
3. Unsealed surfaces (minimum): 1:30.

370 Laying granular surfaces in vehicular areas

1. Permissible deviation from required levels, falls and cambers (maximum): ±20mm.

2. General: Spread and level in 150 mm maximum layers. As soon as possible compact each layer.
3. Dry weather: Lightly water layers during compaction.

380 Laying granular surfaces in pedestrian areas and cycle tracks

1. Permissible deviation from required levels, falls and cambers (maximum): ±12 mm.
2. General: Spread and level in 100 mm maximum layers. As soon as possible, compact each layer.
3. Dry weather: Lightly water layers during compaction.

390 Protection from traffic and plant

1. Paved areas: Restrict access to prevent damage.

Completion - Not Used

Ω End of Section

Q25
Slab/ brick/ sett/ cobble pavings

General

100 General notes

1. To be read with Preliminaries/ General conditions.
2. **PUBLIC REALM WORKS**
   All works within the public realm are subject to confirmation by the Local Authority as part of the S278 works. This includes details of all materials, junctions etc. Refer to drawing SP108_04_HL.
3. For external paving at upper building levels, refer to Architect's specification.
4. For specification of movement joints within hard surfaces, refer to Engineer's specification.

125 Concrete flag paving overlay system

1. Description: For public realm footways to meet LB Camden specification - TBC. Refer to SP108_71_SD.
2. Existing base: Existing footway.
   2.1. Preparation: TBC, depending on condition of base course.
3. Laying course: Sand/ fine aggregate TBC.
4. Geotextile: Sheet - TBC.
5. Paving units: Concrete flags TBC.
6. Jointing: Sand/ fine aggregate TBC.
   6.1. Bond: Half lap staggered TBC.
7. Accessories: Kerbs, as section Q10

140 Natural stone sett paving system

1. Description: Granite setts to external landscape areas within site boundary - refer to details SP108_04_HL and SP108_71_SD and relevant Engineer's information.
2. Subgrade improvement layer: Refer to Engineer's and Architect's information for build-up on top of basement slab.
   2.1. Compacted thickness: To Engineer's details.
3. Granular sub-base: Refer to Engineer's and Architect's information for build-up on top of basement slab.
   3.1. Compacted thickness: To Engineer's details.
4. Base: Pavement Quality Concrete (PQC) to BS EN 13877-1, strength class 32/40, to Engineer's details.
   4.1. Thickness: 150/200 mm, to Engineer's details.
5. Laying course: Modified paving mortar, Type A to BS 7533-7, 40N/mm2 compressive strength, refer to details.
   5.1. Product: Parex BS 7533 Compliant Mortar, or equal approved.
   5.2. Thickness: 40mm.
   5.3. Accessories: Primer for underside of setts as clause 457.
6. Paving units: Natural stone setts to detail SP108_71_SD.
   6.1. Supplier: Hardscape, or equal approved.
   6.2. Product: Natural granite setts - Silva Montemuro Cinza, or equal approved.
   6.3. Size: 100mm square x 100mm depth.
   6.4. Finish: Bush-hammered - slip resistance to manufacturer's testing.

7. Jointing: Modified mortar jointing material, Type A to BS 7533-7, 40N/mm2 compressive strength; design joint width 8-12mm, refer to details
   7.1. Colour: Allow for colour to match granite setts - sample to be submitted for approval.
   7.2. Bond: Half-lap bond.
8. Slip resistance: Bush-hammered finish of specified product achieves suitable slip resistance rating for external use - refer to manufacturer's testing/guidance. Any alternative product to meet this specification, with suitable testing certification provided.
9. Accessories: Kerbs, as section Q10; Edges as section Q23.
10. Contrasting colour: Allow for contrasting colour of setts to vehicle exit to St Pancras Way, as SP108_11_01.
    10.1. Product: Preta Odilvelas by Hardscape, or equal approved.

145 Natural stone sett overlay paving system to smoke vent panels

1. Description: Granite setts (20mm) over smoke vent panels - refer to details SP108_04_HL and SP108_71_SD and relevant Engineer's / Architect's information.
2. Existing base: Concrete smoke vent panel from basement, at ground level.
   2.1. Preparation: To Engineer's details.
3. Laying course: Modified paving mortar, Type A to BS 7533-7, 40N/mm2 compressive strength, refer to details.
   3.1. Product: Parex BS 7533 Compliant Mortar, or equal approved.
   3.2. Accessories: None
4. Paving units: Natural stone setts to detail SP108_71_SD
   4.1. Supplier: Hardscape, or equal approved.
   4.2. Product: Natural granite setts - Silva Montemuro Cinza, or equal approved.
   4.3. Size: 100mm square x 20mm thickness - TBC on breakout test witnessed by LFB (as below).
   4.4. Finish: Bush-hammered - slip resistance to manufacturer's testing.
5. Jointing: Modified mortar jointing material, Type A to BS 7533-7, 40N/mm2 compressive strength; design joint width 5mm, refer to details.
   5.1. Colour: Allow for colour to match granite setts - sample to be submitted for approval.
   5.2. Bond: Half-lap bond.
6. Slip resistance: Bush-hammered finish of specified product achieves suitable slip resistance rating for external use - refer to manufacturer's testing/guidance. Any alternative product to meet this specification, with suitable testing certification provided.
7. Accessories: Smoke vent panel - refer to detail SP108_71_SD and relevant Engineer's information.
   7.1. Product: Smoke outlet panels by Luxcrete, SG-150, or equal approved. Load bearing capacity to manufacturer's specifications
      7.1.1. Size: 1.4 x 5m to give 7m2 clear area, according to Engineer's information.
8. Further testing required: Granite paver specification is subject to a mock up and breakout test witnessed by London Fire Brigade officer; contractor to allow for this process within tender returns.

161 Natural timber cobble paving system

1. Description: Timber cobbles to external pedestrian areas within site boundary - refer to details SP108_04_HL and SP108_71_SD.
2. Subgrade improvement layer: Refer to Engineer's and Architect's information for build-up on top of basement slab.
   2.1. Compacted thickness: To Engineer's details.

3. Granular sub-base: Type 1 unbound mixture, as section Q20
   3.1. Compacted thickness: 100 mm
4. Base: Not required
   4.1. Thickness: Not required
5. Paving units: Natural timber cobbles, as detail SP108_71_SD
   5.1. Supplier: AllGreen Group, or equal approved.
   5.2. Product: PW640 Oak setts 70mm, or equal approved.
   5.3. Size: 100mm square x 70mm depth.
   5.4. Finish: Natural - slip resistance to manufacturer's testing.
6. Laying course and jointing: Coarse sand bedding and jointing material.
7. Overall nominal thickness of cobbles and bedding: 110mm.
8. Slip resistance: Natural finish of specified product achieves suitable slip resistance rating for external use - refer to manufacturer's testing/guidance. Any alternative product to meet this specification, with suitable testing certification provided.
9. Accessories: 8mm Drainjoint product by Hardscape, or equal approved, to clause 342. Edges as section Q23.

165 Natural stone cobble overlay paving system

1. Description: To crossover areas within public realm to meet LB Camden specification - TBC. Refer to SP108_04_HL and SP108_71_SD.
2. Existing base: Existing footway.
   2.1. Preparation: TBC - depending on condition of base course.
3. Paving units: Natural stone cobbles (tumbled) TBC.
4. Laying course and jointing: Coarse sand TBC.
5. Overall nominal thickness of cobbles and bedding: 130mm TBC.

190 Hard landscaping materials specification

1. Minimum BRE 'Green Guide to Specification' (online) rating: Refer to BREEAM requirements and submitted Engineer's information.

System performance - Not Used

Products

305 Granular material for layer over existing bases

1. Material: Refer to Engineer's information.

315 Concrete flags

1. Description: For public realm footways to meet LB Camden specification - TBC. Refer to SP108_71_SD.
2. Standard: To BS EN 1339.
   2.1. Manufacturer: To meet LB Camden specification.
      2.1.1. Product reference: To meet LB Camden specification.
3. Recycled content: To meet LB Camden specification.
4. Colour: Allow for Natural TBC
   4.1. Finish: Allow for coarse textured
   4.2. Nominal sizes: Allow for 450 x 450 x 60 mm
5. Arrises: Allow for chamfered

6. Water absorption and freeze/ thaw resistance class: To meet LB Camden specification.
7. Bending strength class: To meet LB Camden specification.
8. Abrasion resistance class: To meet LB Camden specification.
9. Slip/ Skid resistance: To meet LB Camden specification.
10. Breaking load class: To meet LB Camden specification.

320 Tactile flags and slabs

1. Description: For public realm footways to meet LB Camden specification - TBC. Refer to SP108_71_SD.
2. Standard: To DD CEN/TS 15209.
3. Material: Precast concrete.
   3.1. Manufacturer: To meet LB Camden specification.
      3.1.1. Product reference: To meet LB Camden specification.
4. Recycled content: To meet LB Camden specification.
5. Nominal sizes: Allow for 450 x 450 mm
6. Colour: Allow for Natural, to match surrounding flags.
7. Type of surface: Blister – to meet LB Camden specification.

330 Natural stone setts Type A

1. Description: Granite setts to external landscape areas within site boundary - refer to detail SP108_71_SD and relevant Engineer's information.
   1.1. Refer also to: Clause 140.
2. Standard: To BS EN 1342.
3. Supplier: Hardscape, or equal approved.
   3.1. Product reference: Granite setts - Silva Montemuro Cinza, or equal approved.
   3.2. Quarry: European granite - refer to Manufacturer's information.
4. Petrographical description/ stone type: Granite
5. Finish: Coarse textured - Bush-hammered.
6. Sizes: 100 x 100 x 100 mm
   6.1. Plan dimension and thickness deviation: Class 2
7. Special setts: None required.
   7.1. Tolerances on undercut of sides: No requirement
   7.2. Tolerances on hewn and coarse textured face irregularities: No requirement
   7.3. Breaking strength: No requirement
8. Slip resistance: PTV to BS 7976-2 of 49 to meet requirements for specified levels/falls - refer to Architect's information for surface levels/gradients.
9. Skid resistance: For vehicular surfaces, refer to Engineer's information.
10. Surface treatment: None
11. Contrasting colour: Allow for contrasting colour of setts to vehicle exit to St Pancras Way, as SP108_11_01.
    11.1. Product: Preta Odilvelas by Hardscape, or equal approved.

330 Natural stone setts Type B

1. Description: Granite setts (20mm) over smoke vent panels - refer to detail SP108_71_SD and relevant Engineer's / Architect's information.
   1.1. Refer also to: Clause 145.

2. Standard: To BS EN 1342.
3. Supplier: Hardscape, or equal approved.
   3.1. Product reference: Granite setts - Silva Montemuro Cinza, or equal approved.
   3.2. Quarry: European granite - refer to Manufacturer's information.
4. Petrographical description/ stone type: Granite
5. Finish: Coarse textured - Bush-hammered.
6. Sizes: 100 x 100 x 20 mm
   6.1. Plan dimension and thickness deviation: Class 2
7. Special setts: None required.
   7.1. Tolerances on undercut of sides: No requirement
   7.2. Tolerances on hewn and coarse textured face irregularities: No requirement
   7.3. Breaking strength: No requirement
8. Slip resistance: PTV to BS 7976-2 of 49 to meet requirements for specified levels/falls - refer to Architect's information for surface levels/gradients.
9. Skid resistance: PSV to HA DMRB 7.5.1 of 50
10. Surface treatment: None

340 Natural stone cobbles

1. Description: To crossover areas within public realm to meet LB Camden specification - TBC. Refer to SP108_71_SD.
   1.1. Refer also to: Clause 165.
2. Cobbles: Selected hard stone cobbles.
3. Size: Allow for 75-100 mm
4. Source: To meet LB Camden specification.

341 Natural timber cobbles

1. Description: Timber cobbles to external pedestrian areas within site boundary - refer to detail SP108_71_SD .
   1.1. Refer also to: Clause 161.
2. Cobbles: Natural timber cobbles.
3. Size: 100mm square x 70mm depth.
4. Source: AllGreen, or equal approved.
   4.1. Product: PW640 oak setts (Natural), or equal approved.
   4.2. Link: www.allgreengroup.co.uk/prod/oak-setts

342 Permeable joint product

1. Description: To timber cobbles to achieve permeable construction - refer to detail SP108_71_SD.
2. Product: 8mm Drainjoint product distributed by Hardscape, or equal approved.
   2.1. Dimensions: 8mm thickness, height suitable for use with 100mm (cube) cobbles.
3. Installation: Installed to manufacturer's guidance and infilled with coarse sand in joints.
   3.1. Laying: As manufacturer's instructions to ensure porosity.

365 Geotextile sheet

1. Description: As required between laying course and sub-base - refer to detail SP108_71_SD.
2. Manufacturer: Terram, or equal approved.
   2.1. Product reference: Terram T1000, or equal approved.

3. Recycled content: None permitted

370 Cement for site mixed mortar

1. Description: As required.
2. Standard: As section Z21.

390 Sand/ fine aggregate for unbound laying course and jointing of concrete flag paving

1. Description: To paving within footways, to meet LB Camden specification.
2. Standard: To BS 7533-4, unbound construction laying course and jointing material.
3. Purity: Free from deleterious salts, contaminants, lime and cement.
4. Procurement: Obtain from one source and ensure consistent grading.

440 Ready-mixed mortar

1. Description: For jointing material and laying course of granite setts - refer to detail SP108_71_SD.
2. Type: Modified paving mortar, Type A to BS 7533-7, 40N/mm2 compressive strength.
3. Standard/ Performance requirements: In accordance with BS 7533-7
4. Manufacturer: Submit proposals
   4.1. Product reference: Submit proposals
5. Consistency: Workable

445 Ready-mixed fine concrete

1. Description: If required for granite setts, in place of modified paving mortar (refer to clause 440).
2. Standard/ Performance requirements: In accordance with BS 7533-7
3. Manufacturer: Submit proposals
   3.1. Product reference: Submit proposals
4. Consistency: Workable

456 Joint filler / sealant for movement joints

1. All joint details to Engineer's specification.
2. Joint sealant product:
   2.1. Manufacturer: Otto Chemie (www.otto-chemie.de), or equal approved.
   2.2. Product: Ottoseal S70, or equal approved
   2.3. Colour: Allow for colour to match adjacent granite setts (eg. Joint-Grey Structure) - submit samples for review and approval.
   2.4. Standard: To BS 5733.
   2.5. Application: To manufacturer's guidance.

457 Bond coat

1. Bond coat to underside of granite setts and concrete surface.
2. All concrete base course details to Engineer's specification.
3. Bond coat product:
   3.1. Manufacturer: Parex (www.parex.co.uk), or equal approved.
   3.2. Product: Parex Bond Plus priming mortar, or equal approved.
   3.3. Standard: To BS 7533.
   3.4. Application: To manufacturer's guidance.

Execution

610 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
   1.1. Designated materials: All pavings

615 Control samples

1. Sample areas: Complete as part of the finished work.
   1.1. Types of paving: Natural stone sett paving and timber cobble paving with Drainjoint.
   1.2. Location: To be agreed with Contract Administrator.
   1.3. Size (minimum): 1.5 x 1.5 m
   1.4. Included features: Edging (timber & metal)
2. Approval of appearance and surface: Obtain before proceeding.

620 Adverse weather

1. General
   1.1. Temperature: Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
   1.2. Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.
2. Paving with mortar joints and/ or bedding
   2.1. Protect from frost damage, rapid drying out and saturation until mortar has hardened.
3. Paving laid and jointed in sand/ fine aggregate
   3.1. Stockpiled laying course sand/ fine aggregate: Protect from saturation.
   3.2. Exposed areas of unbound laying course and uncompacted areas of unbound paving: Protect from heavy rainfall.
   3.3. Saturated unbound laying course: Remove and replace, or allow to dry before proceeding.
   3.4. Laying dry sand/ fine aggregate jointed paving in damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

625 Laying pavings – general

1. Appearance: Smooth and even with regular joints and accurate to line, level and profile.
2. Falls: To prevent ponding.
3. Bedding of paving units: Firm so that rocking or subsidence does not occur or develop.
   3.1. Bedding/ Laying course: Consistently and accurately graded, spread and compacted to produce uniform thickness and support for paving units.
4. Slopes: Lay paving units upwards from the bottom of slopes.
5. Paving units: Free of mortar and sand stains.
6. Cutting: Cut units cleanly and accurately, without spalling, to give neat junctions with edgings and adjoining finishes.

630 Levels of paving

1. Permissible deviation from specified levels
   1.1. Generally: ± 6 mm.
2. Height of finished paving above features
   2.1. At gullies: +6 to +10 mm.

2.2. At drainage channels and kerbs: +3 to +6 mm.

635 Regularity of paved surfaces

1. Maximum variation in gap under a 3 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface)
   1.1. Precast concrete paving blocks and clay pavers for flexible pavements: 10 mm.
   1.2. Precast concrete flags or natural stone slabs: 3 mm.
2. Difference in level between adjacent paving units (maximum): 2 mm.
3. Sudden irregularities: Not permitted.

637 Regularity of paved surfaces

1. Maximum undulations in the surface of pavings (except tactile paving surfaces) under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface): 3 mm.
2. Joints between paving units or utility access covers
   2.1. Joints flush with the surface: difference in level between adjacent units to be no more than twice the joint width (with a 5 mm max difference in level).
   2.2. Recessed, filled joints: difference in level between adjacent units to be no greater than 2 mm; the recess to be no deeper than 5 mm.
   2.3. Unfilled joints: difference in level between adjacent units to be no greater than 2 mm.
3. Sudden irregularities: Not permitted.

640 Colour banding

1. General: Unless premixed by manufacturer, select from at least 3-5 separate packs in rotation to avoid colour banding.

645 Protection

1. Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
2. Materials storage: Do not overload pavings with stacks of materials.
3. Handling: Do not damage paving unit corners, arrises, or previously laid paving.
4. Mortar bedded pavings: Keep free from traffic after laying:
   4.1. Pedestrian traffic (minimum): 5 days
   4.2. Vehicular traffic (minimum): 10 days
5. Access: Restrict access to paved areas to prevent damage from site traffic and plant. If damage occurs, it will be the responsibility of the Contractor to rectify any damage to meet original specification.

650 Cementitious bases and sub-bases

1. General: Protect from moisture loss, if not covered by another pavement course within 2 hours of completion.

655 Condition of sub-bases/ bases before spreading laying course

1. Trenches and excavation of soft or loose spots in subgrade: Fill and thoroughly compact.
2. Granular surfaces: Lay and compact so as to be sound, clean, smooth and close-textured enough to prevent migration of bedding/ laying course materials into the sub-base during compaction and use, free from movement under compaction plant and free from compaction ridges, cracks and loose material.

3. Prepared existing and new bound bases (roadbases): Sound, clean, free from rutting or major cracking. Remove sharp stones, projections and debris.
4. Sub-base/ Roadbase level tolerances: To BS 7533-7, Annex A.
5. Levels and falls: Accurate and within the specified tolerances.
6. Drainage outlets: Within 0-10 mm of the required finished level.
7. Features in unbound paving (including mortar bedded restraints and drainage ironwork): Complete to required levels; adequately bed and haunch in mortar.
8. Sub-bases containing cement/ hydraulic binder: Cure for minimum times specified in BS 7533-4.

665 Planing and repairs to existing bases

1. Existing macadam/ asphalt surfaces: Plane to required levels.
2. Repairs: Cut out depressions, fill to match existing surface and compact; refer to Engineer's advice where necessary.
3. Building up existing surfaces to required levels: Regulate using asphalt concrete to BS EN 13108-1 to meet LB Camden specification.

670 Laying granular layer over existing bases

1. Thickness TBC - refer to Engineer's advice where necessary.
2. Compaction: Laying granular sub-bases for vehicular areas, as section Q20
3. Blinding: As section Q20

675 Laying geotextile sheet edging strips

1. Location: Immediately below the laying course, abutting features which interrupt the laying course, including:
    1.1. Perimeters/ Edge restraints/ Kerbs.
    1.2. Other types of paving.
    1.3. Drainage fittings, e.g. channels and manholes.
2. Edge detail: Turn sheet up to a height not less than thickness of the laying course to form an upstand fitted neatly against features.
3. Width: 500 mm or as required.
4. Jointing: Lap by 300 mm, or according to manufacturer's guidance.

685 Laying geotextile sheet overlays

1. Location: Immediately below the laying course.
2. Laying: Fit neatly at edge restraints and other features that interrupt the laying course, e.g. drainage fittings, channels, manholes and kerbs.
3. Edge detail: Turn sheet up to form an upstand against features, height not less than thickness of the laying course.
4. Width: 500 mm or as required.
5. Jointing: Lap by 300 mm, or according to manufacturer's guidance.

715 Laying flag and slab paving – mortar laying course and jointing

1. Standard generally: In accordance with BS 7533-4.
2. Flag installation and cutting: To Interpave 'Concrete flag paving'.
3. Laying course
    3.1. Nominal thickness: Allow for 30 mm before laying paving slabs, to meet LB Camden specification.
4. Laying and jointing: To meet LB Camden specification.

5. Joint width (nominal): Allow for 6 mm to meet LB Camden specification.

730 Laying natural stone sett paving

1. Standard generally: In accordance with BS 7533-7.
2. Laying type: Rigid.
   2.1. Laying and jointing method: Refer to clause 440.
3. Laying course
   3.1. Target thickness after compaction: 40 mm
4. Joint width (nominal): 8-12 mm

750 Laying natural stone cobble paving

1. Bedding, laying, jointing and completion: In accordance with BS 7533-7 and -10.

Completion

915 Completion of paving with dry sand or fine aggregate filled joints

1. Sand dressing: Leave a thin layer of dry jointing sand/ fine aggregate over the paving, sweep clean before practical completion
2. Final compaction of the surface course: In accordance with BS 7533-3.
3. Vacuum cleaning machines: Not allowed.

930 Slip resistance testing

1. Surfaces to be tested: Where alternative materials are proposed to those specified here and not assured by the manufacturer in terms of slip resistance, the Contractor is to arrange for testing as follows.
   1.1. Surface condition: Dry and wet
2. Timing: As agreed with contract administrator
3. Period of notice (minimum): 3 working days.
4. Test standard: To BS 7976-2
   4.1. Testing authority: A UKAS accredited laboratory
   4.2. Witnessing/ Certification: Arrange for tests to be witnessed/ certified by: Contract administrator.
   4.3. Report: Submit.
      4.3.1. Format: As required under BS 7976

Ω End of Section

Q26
Special surfacings/ pavings for sport/ general amenity

Sports surfacing

100 General notes

1. To be read with Preliminaries/ General conditions.

Impact attenuating surfacings for play areas

301 Extent of impact attenuating surfacing

1. General: Lay impact absorbing surfacing as indicated - refer to SP108_04_HL.

306 Safety surface extent verification

1. Allow for proposed extent of safety surface as shown on drawings to be independently verified by an accredited inspector (eg. RPII, RoSPA); verify both the extent of surfacing, type of surfacing and thickness of surface - refer also to section Q52.

360 In situ synthetic surfacing

1. Sub-base: Type 4/20mm clean angular material (clean graded, frost-resistant, angular stone).
   1.1. Thickness: 150 mm
2. Base: Open graded fully porous macadam, as section Q22.
   2.1. Thickness: 40 mm
3. Surface course: Wet pour, in situ laid polyurethane bound EPDM rubber crumb surface.
   3.1. Standard: To BS 7188.
   3.2. Manufacturer: Novaplay (Novasport), or equal approved.
      3.2.1. Product reference: Novaplay, or equal approved.
      3.2.2. Thickness: 15mm wearing course + 25mm base course (40mm total).
   3.3. Colour: Bespoke colour mix using 4/5 different colours to achieve 'natural sand' colour.
   3.4. Critical fall height when tested to BS EN 1177: 0.8 m
   3.5. Health and safety
      3.5.1. Substance known to be toxic or carcinogenic on skin contact or released as vapour or dust during normal use: Not permitted.
4. Submit
   4.1. Resistance to abrasive wear, slip resistance, resistance to indentation and ease of ignition: Evidence of testing to BS 7188.
   4.2. Critical fall height: Evidence of testing to BS EN 1177.
   4.3. Samples: Submit sample of bespoke colour mix for approval by Landscape Architect / Contract Administrator.

Associated accessories

411 Flush edgings to surfacing type Q26

1. For edgings, refer to Q23.
2. Ensure edgings are laid flush with surrounding surfaces, in proximity to play elements UNLESS referring to raised timber play edge - see section Q52.

Execution - Not Used

Completion

920 Play surface testing

1. Standard: To BS EN 1177 and BS 7188, where applicable.
2. Testing body: A United Kingdom Accreditation Service (UKAS) independent laboratory.
3. Timing: Within ten days of completing the surfacing works.
4. Test results: Submit.

930 Documentation

1. Standard: To BS EN 1176-1.
2. Submission requirements
    2.1. Name and contact details of installer.
    2.2. Date of installation.
    2.3. Name and contact details of manufacturer.
    2.4. Type/ description/ reference of products used.
    2.5. Manufacturer's recommended inspection and maintenance procedures to maintain safety and impact attenuating performance.
3. Manufacturer's recommended cleaning and maintenance methods, where relevant.
    3.1. Maintenance documentation: Ensure correct maintenance documentation for the specified play surface is contained within the OMM manual & Landscape Management Plan.

Ω End of Section

Q28
Topsoil and soil ameliorants

System outline

100 General notes

1. To be read with Preliminaries/ General conditions.

105 Container planting growing media system

1. Description: For office building roof terrace perimeter planting at levels 4, 5, 6 & 7 - refer to SP108_61_RT and Architect's information for planter details.
2. Composition
   - 2.1. Soil: Imported topsoil to BS 3882
   - 2.2. Grade: Multi-purpose, submit sample for review and analysis as clause 610.
   - 2.3. Ameliorants: Organic materials and Sanitized and stabilized composted materials
   - 2.4. Accessories: Gel irrigation granules.

125 Green roof growing media system

1. Description: For green roofs on office and residential buildings - refer to SP108_90_BR and relevant Architect's information.
2. Supplier: Bauder, or equal approved.
   - 2.1. Product: Bauder WB Wildflower Blanket system (30-40mm depth), or equal approved.
3. Composition
   - 3.1. Topsoil: Imported growing medium - Bauder biodiverse substrate (80mm depth), or equal approved.
     - 3.1.1. Compliance: FLL and GRO compliant.
   - 3.2. Ameliorants: To manufacturer's directions.
   - 3.3. Accessories: Filter fleece, DSE 40 drainage board, FSM 600 protection membrane to manufacturer's directions.
4. Biodiverse features: Formation of habitat areas as noted on details; refer to Q50/360.

135 Planting bed soil system

1. Description: For external planting - refer to planting plans and details.
2. Composition
   - 2.1. Topsoil: Imported topsoil to BS 3882
   - 2.2. Grade: Multi-purpose, submit sample for review and analysis as clause 610.
   - 2.3. Ameliorants: Organic materials and Sanitized and stabilized composted materials
   - 2.4. Accessories: Gel irrigation granules.

145 Plant pit backfilling soil system

1. Description: For external planting - refer to planting plans and details.
2. Composition
   - 2.1. Topsoil: Imported topsoil to BS 3882
     - 2.1.1. Grade: Multi-purpose, submit sample for review and analysis as clause 610.
   - 2.2. Ameliorants: Organic materials and Sanitized and stabilized composted materials
   - 2.3. Accessories: Gel irrigation granules.

2.4. Subsoil: Imported subsoil to BS 8601.

3. Installation: Install in lifts of max. 150mm - consolidate each layer lightly & firmly before next lift.

155 Mulching and top dressing system Type A

1. Description: For all external planting at ground level.
2. Composition
   2.1. Material: Bark mulch as clause 355 Type A and Q31/481 Type A.

155 Mulching and top dressing system Type B

1. Description: For external planting on office building roof terrace perimeter planters.
2. Composition
   2.1. Material: Coir mulch as clause 355 Type B and Q31/481 Type B.

155 Mulching and top dressing system Type C

1. Description: For external planting on office building roof terrace planting areas.
2. Composition
   2.1. Material: Aggregate mulch as clause 345 (Type C) and Q31/482.

200 Grading subsoil

1. General: Grade to smooth, flowing contours to achieve specified finished levels of topsoil.
2. Areas of thicker topsoil: Excavate locally.

250 Subsoil surface preparation

1. General: Excavate and/or place fill to required profiles and levels, as section D20.
2. Loosening:
   2.1. Light and non-cohesive subsoils; when ground conditions are reasonably dry, loosen thoroughly to a depth of 350mm.
   2.2. Stiff clay and cohesive subsoils; when ground conditions are reasonably dry, loosen thoroughly to a depth of 450mm.
   2.3. Rock and chalk sub-grades; lightly scarify to promote free drainage.
3. Stones: Immediately before spreading topsoil, remove any stones larger than 50mm.
4. Remove: Arisings that appear during cultivation; these are to include builder's rubble, household waste and severed tree roots. Dispose off-site to an approved disposal site.

260 Inspecting formations

1. Give notice: Before spreading of topsoil for all areas.
2. Notice period: 5 days.

Products

300 Preparation materials generally

1. Purity: Free of pests and disease.
2. 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.
3. Contamination: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
   3.1. Corrosive, explosive or flammable.
   3.2. Hazardous to human or animal life.

3.3. Detrimental to healthy plant growth.

4. Subsoil: In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
5. Objectionable odour: None.
6. Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

310 Materials not permitted

1. Materials: Peat and Products containing peat.

315 Imported topsoil to BS 3882

1. Description: To external planting areas at ground level - refer to planting plans and relevant details.
2. Quantity: Provide as necessary to all planting areas and upper layer of soil crates in ground level landscape.
3. Standard: To BS 3882.
4. Classification: Multipurpose

   4.1. Soil textural class to BS 3882, Figure 1: Sandy loam
5. Source: To approval of Contract Administrator.

   5.1. Product reference: Submit proposals
6. Submit: Declaration of analysis including information detailing each of the relevant parameters given in BS 3882, as clause 610, to be approved by Landscape Architect / Contract Administrator.

330 Imported manufactured topsoil/ growing medium

1. Description: Lightweight growing medium to external planting areas at office building roof terrace levels - refer to planting plans and relevant details.
2. Quantity: Provide as necessary to all planting areas at roof terrace levels (levels 4,5,6,7), including terrace and perimeter planting.
3. Type: Intensive roof garden substrate.

   3.1. Soil textural class: Sandy loam
4. Source: As specified.
5. Manufacturer: Green Tech, or equal approved.

   5.1. Product reference: Green-Tree intensive roof garden substrate, or equal approved.
6. Submit: Declaration of analysis including information detailing each of the relevant parameters given in BS 3882, as clause 610, to be approved by Landscape Architect / Contract Administrator.

340 Imported subsoil

1. Quantity: Provide as directed to lower horizon of tree & shrub pits and lower layer of soil crates.
2. Standard: To BS 8601.
3. Submit: Declaration of analysis including information detailing each of the relevant parameters given in BS 8601, as clause 611.

341 Imported topsoil/subsoil for soil crate system

1. Allow for planting soil (topsoil and subsoil) to infill soil crate system, according to manufacturer's guidance, if topsoil/subsoil as specified in clauses Q28/316 & 340 is not considered suitable by the manufacturer.
2. Quantity: To infill soil crates as shown on details.
3. Source: Planting soil to suit specified soil crate system.

4. Allow for Green Blue Urban RootSpace soil specification for topsoil and subsoil - refer to manufacturer's specification.
5. Submit: Declaration of analysis including information detailing each of the relevant parameters given in clauses 610 and 611.

345 Aggregates Type A

1. Description: For gravel drainage layer to tree pits - refer to detail SP108_74_TP_2 and Q31/515.
2. Source: Submit proposals
   2.1. Product reference: Submit proposals
3. Reference, description and grading
   3.1. Sand: Not required
   3.2. Grit: Not required
   3.3. Crushed materials: Not required
   3.4. Other aggregates or particles: Gravel pea shingle, as specified.
4. Recycled content: Submit proposals

345 Aggregates Type B

1. Description: For gravel drainage layer to base of office building terrace perimeter planters - refer to detail SP108_61_RT.
2. Source: Submit proposals
   2.1. Product reference: 10mm gravel pea shingle.
3. Reference, description and grading
   3.1. Sand: Not required
   3.2. Grit: Not required
   3.3. Crushed materials: Not required
   3.4. Other aggregates or particles: Gravel pea shingle, as specified.
4. Recycled content: Submit proposals

345 Aggregates Type C

1. Description: For gravel mulch to office building terrace planting - refer to detail SP108_61_RT.
2. Source: CED Stone, or equal approved.
   2.1. Product reference: Grey/green granite aggregate, size 20-10mm, or equal approved.
3. Reference, description and grading
   3.1. Sand: Not required
   3.2. Grit: Not required
   3.3. Crushed materials: Not required
   3.4. Other aggregates or particles: Granite, as specified.
4. Recycled content: None permitted
5. Submit: Submit sample of granite aggregate for mulch to be approved by Landscape Architect / Contract Administrator.

345 Aggregates Type D

1. Description: For gravel surround to tree pit drainage pipe - refer to Q31/516.

355 Organic materials Type A

1. Description: For bark mulch to external planting areas at ground floor

2. Type: Bark
3. Source: Melcourt Industries Ltd (www.melcourt.co.uk), or equal approved.
   3.1. Product reference: Spruce Ornamental bark mulch, 5-35mm, or equal approved.

355 Organic materials Type B

1. Description: For coir mulch to perimeter planters at terrace level of office building.
2. Type: Coir chip mulch
3. Source: Coco & Coir (www.cocoandcoir.com), or equal approved.
   3.1. Product reference: Coco coir chip mulch, or equal approved.
   3.2. Installation: Hydrated and installed to manufacturer's guidance.

356 Organic soil improver

1. Description: For integration into topsoil or growing medium in all planted areas.
2. Type: Seaweed soil ameliorant/conditioner.
3. Source: Quickcrop (www.quickcrop.co.uk), or equal approved.
   3.1. Product reference: Seafeed Organic Seaweed Meal soil and plant feed, or equal approved.
4. Application: Spread evenly and in accordance with manufacturer's instructions/recommendations
5. Timing: Apply prior to cultivation.

360 Sanitized and stabilized composted materials certified to PAS 100

1. Description: For integration into topsoil or growing medium in all planted areas.
2. Standard: In accordance with PAS 100
3. Source: Submit proposals
   3.1. Product reference: Submit proposals
4. Horticultural parameters
   4.1. pH (1:5 water extract): 7.0-8.7
   4.2. Electrical conductivity (maximum, 1:5 water extract): 200 mS/m
   4.3. Moisture content (m/m of fresh weight): 35-55%.
   4.4. Organic matter content (minimum): 25%
   4.5. Grading (air dried samples): 95% passing 25 mm and 90% passing 10 mm screen mesh apertures
   4.6. Carbon:Nitrogen ratio (maximum): 20:1.
5. Texture: Friable.
6. Objectionable odour: Not permitted.
7. Compost Certification Scheme certification: Required
8. Declaration of analysis: Submit.
9. Additional analyses: Not required
10. Samples: Submit details of recent chemical and physical analysis before ordering

380 Mycorrhizal inoculant

1. Description: For any severed tree roots - refer also to section D20
2. Manufacturer: Rootgrow (www.rootgrow.co.uk), or equal approved.
   2.1. Product reference: Rootgrow Professional, or equal approved.
   2.2. Application: To manufacturer's guidance.

385 Water retention gels

1. Description: For integration into topsoil in all growing areas.
2. Type: Agri-polymer gel
3. Manufacturer: Broadleaf (www.broadleafp4.com), or equal approved.
   3.1. Product reference: Broadleaf P4, or equal approved.
4. Accessories: None
5. Application: To manufacturer's directions - mix thoroughly into topsoil and incorporate to full depth at density specified by manufacturer.

Execution

605 Site investigation

1. Report: See section D20 and Engineer's information.

610 Topsoil analysis

1. Soil to be analysed: Imported topsoil
2. Soil analyst: To be approved by Contract Administrator.
3. Samples: Collect in accordance with BS 3882.
4. Submit
   4.1. Declaration of analysis: In accordance with BS 3882, clause 6 and Table 1.
   4.2. Additional analysis: Chemical contaminants and Potentially toxic elements (PTEs)
   4.3. Report detailing soil analyst's recommendations.

611 Subsoil analysis

1. Soil to be analysed: Imported subsoil
2. Soil analyst: To be approved by Contract Administrator.
3. Samples: Collect in accordance with BS 8601.
4. Submit
   4.1. Declaration of analysis: In accordance with BS 8601.
   4.2. Additional analysis: Chemical contaminants and Potentially toxic elements (PTEs)
   4.3. Report detailing soil analyst's recommendations.

620 Importing topsoil

1. Give notice: Before stripping topsoil for transfer to site.
   1.1. Notice period: 5 days

625 Sample loads

1. Description: FOR IMPORTED TOPSOIL
2. Deliver to site a sample load: of 5 kg
3. Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
   3.1. Notice period: 5 days

630 Documentation for imported topsoil

1. Description: For external planting areas.
2. Timing: Submit at handover.

3. Contents
   3.1. Full description of all soil components.
   3.2. Record of source for all soil components.
   3.3. Record drawings showing the location and depth of all soils by type and grade.
   3.4. Declaration of analysis: in accordance with BS 3882, clause 6 and Table 1.
4. Number of copies: One

635 Documentation for compost and composted materials

1. Description: FOR IMPORTED SOIL IMPROVERS
2. Timing: Submit at handover.
3. Contents
   3.1. Full description of all compost components.
   3.2. Record of source for all compost components.
   3.3. Analyst's report for each test carried out.
   3.4. Declaration of compliance: in accordance with PAS 100 and BSI PD CR 13456.
   3.5. Quality Compost Protocol certification: Required
4. Number of copies: One

640 Documentation for preparation materials

1. Description: FOR IMPORTED SOIL IMPROVERS
2. Timing: Submit at handover.
3. Contents
   3.1. Full description of all components.
   3.2. Record of source for all components.
   3.3. Analyst's report for each test carried out.
   3.4. Supplier's declaration of compliance with BSI PD CR 13456.
4. Number of copies: One

650 Notice

1. Give notice before
   1.1. Setting out.
   1.2. Spreading topsoil.
   1.3. Applying herbicide.
   1.4. Applying fertilizer.
   1.5. Visiting site during maintenance period.
2. Period of notice: 1 week

655 Mechanical tools

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

657 Preparation of severely compacted areas

1. Description: If deemed to be apprpriate by the Contractor/ Landscape Architect on site, raised with the Contract Administrator and subsequently confirmed by the Landscape Architect if required.

2. Method: Soil to be aerated and de-compacted using hand operated 'Terravent' system and injected with 'Plant Health MycorTree TM Tree Saver Injectable', all strictly according to manufacturer's instructions/recommendations.
3. General: Prepare areas to receive soft landscaping as necessary to ensure that the topsoil is in a suitable state for cultivation operations as specified in sections Q30 and/or Q31.

670 Inspecting formations

1. Give notice: Before spreading topsoil for planting beds.
2. Notice period: 7 days

680 Surplus topsoil to be retained

1. Generally: None presumed available for storage / re-use.
   1.1. Locations: Not required.
   1.2. Protected areas: Do not raise soil level within root spread of trees that are to be retained.

685 Surplus materials to be removed

1. Topsoil removal from site: Topsoil remaining after completion of all landscaping work
2. Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

690 Topsoil storage heaps

1. Location: To be identified within working site area upon establishment of site compound.
2. Height (maximum): 1.0 m
3. Width (maximum): 5.0 m
   3.1. Formation: Loose tip and shape from the side only, without running machinery on the heap at any time.
4. Protection
   4.1. Do not place any other material on top of storage heaps.
   4.2. Do not allow construction plant to pass over storage heaps.
   4.3. Prevent compaction and contamination, by fencing and covering as appropriate.

700 Grading of topsoil

1. Topsoil condition: Reasonably dry and workable.
2. Contours: Smooth and flowing, with falls for adequate drainage.
   2.1. Hollows and ridges: Not permitted.
   2.2. Blade grading: May be used to adjust topsoil levels provided depth of topsoil is nowhere less than specified.
3. Give notice: If required levels cannot be achieved by movement of existing soil.

705 Handling topsoil

1. Standard: In accordance with BS 3882.
2. Aggressive weeds: Give notice and obtain instructions before moving topsoil.
3. Plant: Select and use plant to minimize disturbance, trafficking and compaction.
4. Contamination: Do not mix topsoil with:
   4.1. Subsoil, stone, hardcore, rubbish or material from demolition work.
   4.2. Other grades of topsoil.
5. Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.

6. Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall, or when the moisture content is greater than the plastic limit, in accordance with BS 1377-2.

710 Spreading topsoil on:

1. Description: External planting areas.
2. Standard: In accordance with BS 3882.
3. Temporary roads/ surfacing: Remove before spreading topsoil.
4. Layers
   4.1. Depth (maximum): 150 mm.
   4.2. Gently firm each layer before spreading the next.
5. Depth after firming and settlement: Refer to planting plans and details.
6. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

711 Topsoil depths for external planting areas

1. Description: Refer to planting plans and details for planted areas, tree pits etc.
2. General planting areas: 300mm topsoil, incorporating compost, soil improver and irrigation crystals as specified in section Q28.
3. Climber planting: Allow for 450x450mm planting pit, 450mm depth topsoil, incorporating compost, soil improver and irrigation crystals as section Q28.
4. Shrub/hedge planting: Dig pit to min. 150mm wider than roots when fully spread, increase depth to 75mm deeper than roots where necessary, otherwise; 450mm depth topsoil, incorporating compost. soil improver and irrigation crystals as specified in section Q28.
5. Tree pits: Refer to section Q31.
6. Roof terrace planting: Refer to details for substrate depths and mounding proposals, SP108_05_TL and SP108_61_RT.
7. Green roof: Refer to Q28/126.

715 Loose tipping of topsoil

1. Standard: In accordance with BS 3882.
2. 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

1. Description: For external planting areas.
2. Compacted topsoil: Break up to full depth.
3. Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
4. Depth: To full depth of topsoil.
5. Particle size (maximum): 10 mm
6. Timing: Within a few days before planting
7. Weather and ground conditions: Suitably dry.
8. Surface: Leave regular and even.
9. Levels: As details and 25 mm above adjoining paving or kerbs.
10. Undesirable material brought to the surface
    10.1. Remove visible weeds.
    10.2. Remove roots and large stones with any dimension exceeding 50 mm.

720 Finished levels of topsoil after settlement

1. In relation to adjoining paving, kerbs or hard surfaces: 25 mm above
2. In relation to dpc of adjoining buildings: Not less than 150 mm below - refer to. Architect's details where this occurs..
3. In relation to adjacent grass areas: 25 mm above
4. Seeded areas: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
5. Sportsfields: To even levels and within the following permitted deviations:
   5.1. From levels or gradients shown on drawings: ±75 mm.
   5.2. From line between boning rods 30 m apart: ±25 mm.
6. Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
7. Adjoining soil areas: Marry in.
8. Thickness of turf or mulch: Included.
9. Note: All areas subject to trafficking or other activities that have compacted the grounds **must** be thoroughly de-compacted and brought back to levels, to the approval of the Contract Administrator/ Landscape Architect **before** any planting is undertaken. All haul roads, paths used for contractor's access and the like must be left in a healthy and viable state after the close of the contract.

730 Green roof growing medium installation

1. Handling: Minimize.
   1.1. Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen.
2. Layers
   2.1. Depth (maximum): 80mm substrate depth after consolidation.
   2.2. Sequence: Gently firm each layer before spreading the next.

805 Applying soil ameliorant

1. Description: Incorporated into topsoil, where specified.
2. Type: Minerals and Organic materials
3. Fully incorporate into topsoil to a depth of full depth of planting bed, or as manufacturer's guidance.
4. Application: Spread evenly.
   4.1. Timing: Apply prior to cultivation.
   4.2. Rate: As manufacturer's instructions.
5. Timing: Prior to cultivation.
6. Other requirements: Spread evenly.

810 Applying compost

1. Description: Incorporated into topsoil, where specified.
2. Application rate for trees and shrubs: 10% by volume to upper horizon of tree pits **only**.
   2.1. Timing: Apply prior to cultivation.
3. Application rate for grass: Not applicable.
   3.1. Timing: Apply prior to cultivation.
4. Application rate for planters: 10% by volume.
   4.1. Timing: Apply prior to cultivation.
5. Other requirements: Spread evenly.

820 Applying general fertilizer

1. Description: Fertiliser is not required to be used - Contractor to inform Contract Administrator is deemed to be necessary and await instruction.
2. Application: Spread evenly, carefully incorporating below mulch materials.
   2.1. Timing: Immediately before cultivation.
   2.2. Application rate: TBC
   2.3. Other requirements: TBC

835 Applying buried gel irrigation system

1. Description: Incorporated into topsoil, where specified.
2. Depth: To manufacturer's instructions.
   2.1. Distribution: Ensure gel crystals are distributed evenly throughout full depth of growing medium, and not overly concentrated in one area.

840 Applying mycorrhizal inoculant

1. Description: As clause 380.
2. Depth: To manufacturer's instructions.

845 Applying loose mulch

1. Description: To external planting areas and in a circle of 1m diameter around the stem of new trees - refer to planting plans and details SP108_74_TP_1&2.
2. Timing: Immediately after planting
3. Preparation: Clear all weeds and Water soil thoroughly
4. Coverage of mulch (minimum)
   4.1. Planting beds (depth): 50 mm depth
   4.2. Trees: 75 mm depth In a circular area of 500 mm radius measured from the tree stem.
   4.3. Container planting: 50 mm depth
5. Finished level of mulch: Gradually slope to meet edges of planting areas, as detailed.

Completion

905 Applying maintenance fertilizer to soil

1. Description: To external planting, as part of on-going maintenance - refer to Landscape Management Plan SP108_Doc07_MP
2. Duration: Carry out the following operations from completion of seeding/ turfing until the end of the rectification period.
3. Duration: Carry out the following operations from completion of all external planting until the end of the Contractor's maintenance/rectification period.
4. Time of year: March or April
5. Application: Evenly spread, carefully incorporating below mulch materials.
6. Rate: To manufacturer's recommendations

920 Applying mulch

1. Timing: At end of the Contractor's maintenance/rectification period.
2. Watering: Ensure that soil is thoroughly moistened prior to mulching, applying water where necessary.
3. Planting beds: Re-mulch.

3.1. Depth (minimum): 50 mm

4. Trees: Remulch.
   4.1. Depth (minimum): 75 mm
5. Container planting: Remulch.
   5.1. Depth (minimum): 50 mm

Ω End of Section

Q31
External planting

General information/ requirements

100 General notes

1. To be read with Preliminaries/General conditions.
2. **PUBLIC REALM WORKS**
   All works within the public realm are subject to confirmation by the Local Authority as part of the S278 works. This includes details of all materials, junctions etc. Refer to drawing SP108_04_HL.

112 Site clearance generally

1. General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
2. Stones: Remove those with any dimension exceeding 50 mm.
3. Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
4. Vegetation: Clear scrub to ground level by flail mowing and remove arisings; retain and protect trees indicated on drawings
5. Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
6. Additional requirements: Refer to section D20, demolition plans and Engineer's information.

118 Soil conditions

1. Soil for cultivating and planting: Moist, friable and (except in aquatic/ marginal planting) not waterlogged.
2. 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

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

125 Times of year for planting

1. Deciduous trees and shrubs: Late October to late March.
2. Conifers and evergreens: September/ October or April/ May.
3. Herbaceous plants (including marginal): September/ October or March/ April.
4. Container grown plants: At any time if ground and weather conditions are favourable.
   4.1. Watering and weed control: Provide as necessary.
5. Dried bulbs, corms and tubers: September/ October.
6. Colchicum (crocus): July/ August.
7. Green bulbs: After flowering in spring.
8. Wildflower plugs: Late August to mid November or March/ April.
9. Aquatic plants: May/ June or September/ October.

130 Mechanical tools

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

145 Watering

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

150 Water restrictions

1. 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

1. Give notice before
   1.1. Setting out.
   1.2. Applying herbicide.
   1.3. Applying fertilizer.
   1.4. Delivery of plants/ trees.
   1.5. Planting shrubs.
   1.6. Planting trees into previously dug pits.
   1.7. Watering.
   1.8. Visiting site during maintenance period.
2. Period of notice: Two weeks

170 Soil requirements

1. Type
   1.1. Planted beds: Planting bed soil system, as section Q28
   1.2. Tree pits, shrub pits and other backfilling: Plant pit backfilling soil system, as section Q28
   1.3. External container planting: Container planting growing media system, as section Q28
   1.4. Mulch applied after planting: Mulching and top dressing system, as section Q28

200 Plants/ Trees – general

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

215 Plants/ Trees – specification criteria

1. Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification (available on CS Design Software Limited's website).

225 Bulbs/ Corms/ Tubers

1. Condition: Firm, entire, not dried out or shrivelled.
2. Health: Free from pests, diseases and fungus.
3. Handling: Remove from packaging immediately.
4. Storage: Permitted only when necessary.
   4.1. Location: Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit.
   4.2. Duration: Minimum period.
   4.3. Temperature: 18-21°C.

235 Container grown plants/ Trees

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

245 Labelling and information

1. General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:
   1.1. Full botanical name.
   1.2. Total number.
   1.3. Number of bundles.
   1.4. Part bundles.
   1.5. Supplier's name.
   1.6. Employer's name and project reference.
   1.7. Plant specification, in accordance with scheduled National Plant Specification categories.
2. Additional information: Submit on request: Country of origin; Date supplied and consignment details or reference;Type of container.

255 Trees reserved at supplier’s premises

1. Types/ Species: All proposed trees, as planting schedule SP108_Doc05_PS.
2. Predelivery inspection: Give notice of at least 2 weeks; allow for landscape architect attendance at tree nursery visit to view and select proposed trees. Landscape architect to confirm selection before ordering.
3. Labelling: Identify inspected plants/ trees as reserved for use on this project.

256 Plants reserved at supplier’s premises

1. Types/ Species: All proposed shrubs and herbaceous plants, as planting schedule SP108_Doc05_PS.
2. Predelivery inspection: Quality of plant specimens to be approved by landscape architect before ordering either through nursery visit or electronic submission of a representative group of photos - photos to include a wide range of the species proposed for the planting design. Landscape architect to confirm selection before ordering.
3. Labelling: Identify inspected plants/ trees as reserved for use on this project.

260 Plant/ Tree substitution

1. Note: Substitution will only be considered after it is apparent that the contractor has made every effort to source the correct plant at the stated specification.
2. Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
   2.1. Price.
   2.2. Difference from specified plants/ trees.
3. Approval: Obtain before making any substitution.
4. Further alternatives: Proposed substitutions may not be acceptable and submission of further alternatives may be required.

265 Plant handling, storage transport and planting

1. Standard: To CPSE 'Handling and establishing landscape plants'.
2. Frost: Protect plants from frost.
3. Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
4. Plant packaging: Coextruded polyethylene bags with black interior and white exterior
5. Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped
6. Planting: Upright or well balanced with best side to front.

280 Treatment of tree wounds

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

290 Surplus material

1. Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

Plant containers

293 Bespoke plant containers

1. Perimeter terrace planters at Levels 4, 5, 6 and 7 of office building - refer to Architect's information for planter details.
2. Refer to planting plans and details for growing medium build-up within planters, and section Q28.

Preparation of planting beds/ planting materials

300 Herbicide

1. Description: TO CLEAR EXISTING VEGETATION if mechanical removal is not suitable, refer also to section D20 and demolition plans.
2. Locations: All planting areas
3. Type: Suitable for supressing perennial weeds.
4. Timing: Allow fallow period before cultivation.
   4.1. Duration (minimum): As manufacturer's recommendation

305 Weed control

1. Description: FOR INVASIVE NON-NATIVE WEEDS
2. Locations: All planting areas
3. General: Prevent weeds from seeding and perennial weeds from becoming established, by hand weeding with suitable protective measures as necessary, according to maintenance as set out in Q35. If treating pernicious weeds with a selective translocated, contact herbicide is deemed to be necessary, confirm with Contract Administrator, including the timing and appropriateness of applying herbicide in areas intended for trees, shrubs and/or herbaceous perennials **before** the application of any herbicide. .

375 Cultivation

1. Compacted topsoil: Break up to full depth.
2. Cultivation: Loosen, aerate and break up into soil particles of 2-8mm.
   2.1. Depth: Top 350mm of planting beds or full depth of imported topsoil
   2.2. Timing: Within a few days before planting begins
   2.3. Weather and ground conditions: Suitably dry
   2.4. Surface: Leave regular and even
3. Levels: Unless otherwise instructed, centre of large beds to be set at a maximum of 100mm above surrounding levels. Bed to form a convex form, rising to specified height at centre.
4. Undesirable material brought to surface: Remove visible weeds, roots and large stones with any dimension exceeding 50mm.
5. Soil within root spread of existing trees to be retained: Do not dig or cultivate.

395 Irrigation system Automatic

1. Description: Automatic dripline system; refer to irrigation layout SP108_14_04 and terrace planting detail SP108_61_RT. Refer also to Engineer's information
2. Location: Sub-surface dripline irrigation system for terrace perimeter planters
3. Manufacturer: Rainbird (www.rainbird.com), or equal approved.
   3.1. Product: Rainbird XF-SDI subsurface dripline & related fixtures & fittings, or equal approved.
   3.2. Control: Rainbird ESP4SMTE modular smart controller
4. Installation: As manufacturer's instruction, installed underneath mulch layer as shown on details.
5. Connections: Allow for connections to building face for water inlet, position for access chambers buried within soft landscape, adequate water pressure at high levels to power system.
6. Design of system: The above refers to a performance specification for the planting irrigation; Contractor to allow for detailed designs and installation of the system by specialist installer/supplier, in accordance with MEP requirements.

396 Irrigation system Manual

1. Description: Manually operated leaky pipe; refer to irrigation layout SP108_14_04 and terrace planting detail SP108_61_RT. Refer also to Engineer's information
2. Location: sub-surface manually operated leaky pipe irrigation system for terrace planting areas
3. Manufacturer: Leaky pipe (www.leakypipe.co.uk), or equal approved.
   3.1. Product: Leaky pipe, with non-porous feeder pipes and porous irrigation pipes & related fixtures & fittings, or equal approved.
   3.2. Control: Manually operated by connecting feeder to porous pipe system.
4. Installation: As manufacturer's instruction, installed underneath mulch layer as shown on details.
5. Connections: Connect to external tap points located within perimeter planter ; refer to Architects's and MEP Engineer's details.

6. Design of system: The above refers to a performance specification for the planting irrigation; Contractor to allow for detailed designs and installation of the system by specialist installer/supplier, in accordance with MEP requirements.

Planting shrubs/ herbaceous plants/ bulbs

400 Random plant layout

1. Description: To planted areas - refer to planting plans
2. Spacing: Refer to planting plans
3. Density: Refer to planting plans

401 Regular plant layout

1. Description: To planted areas - refer to planting plans
2. Spacing: Refer to planting plans
3. Density: Refer to planting plans

405 Shrub planting pits

1. Description: Refer to planting plans for shrub locations.
2. Timing: Excavate 1-2 days (maximum) before planting.
3. Sizes: Ensure 100mm wider on each side than roots when fully spread. Increase dimensions where necessary to ensure that pits are at least 75mm deeper
than the root system of the shrub to be planted and wide enough to accommodate the roots when fully spread. Ensure that the rootball of each plant is thoroughly wet before planting - refer also to Q28/711.
4. Pit bottom improvement Not required.

415 Antidesiccant for conifers/ Evergreens

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Application: Dip before delivering to site. Spray soon after planting.
   2.1. Do not apply in wet or frosty weather.
   2.2. Ensure full coverage of underside of foliage.

417 Mycorrhizal inoculant

1. Description: To be used for severed tree roots.
2. Manufacturer: Rootgrow (www.rootgrow.co.uk), or equal approved.
   2.1. Product reference: Rootgrow Professional, or equal approved.
3. Application: To be applied if an established tree has its roots unintentionally severed during works. Such roots should be pared to a smooth surface, covered with original topsoil and treated as below.
4. Application: Apply within area of dripzone and up to 1m beyond, or as described in manufacturer's information.

420 Climbing plants

1. Planting: Planted within centre of planter with roots spread outward.
   1.1. Branches: Lightly secured to cane supports provided.
   1.2. Training: Plants to be trained to spill over front face of planter and towards Level 6 terrace below.
2. Climber supports: None

2.1. Base height: N/A
2.2. Extent: N/A
2.3. Centres: N/A
2.4. Distance from wall: N/A
3. Fixings: N/A
3.1. Centres: N/A

435 Climbing plants used as ground cover

1. Planting
1.1. Canes or other supports: Remove.
1.2. Arrangement: Spread stems.
2. Fixing: Pinned to ground to ensure good contact.

445 Planting bulbs/ Corms/ Tubers

1. Depth: Top of bulb/ corm/ tuber at a depth of approximately twice its height, base in contact with bottom of hole.
2. Backfilling: Finely broken soil. Lightly firm to existing ground level.
3. Naturalized planting in existing grassed areas
3.1. Scattering: Random. Plant bulbs/ corms/ tubers where they fall.
3.2. Planting: Neatly remove a plug of turf and replace after planting.

480 After planting

1. Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
2. 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.
3. Top dressing: Mulching and top dressing system, as section Q28
3.1. Depth: 50 mm, or as specified.

481 Mulching planting beds (bark) Type A

1. Description: Bark mulch as Q28/355 Type A.
2. Manufacturer: Melcourt Industries Ltd (www.melcourt.co.uk), or equal approved.
2.1. Product reference: Melcourt Spruce Ornamental bark mulch, 5-35mm , or equal approved.
3. Application: Only after planting and a thorough watering of the beds
4. Purity: Free from pests, diseases, fungus and weeds
5. Preparation: Clear all weeds and water soil thoroughly
6. Coverage: 50mm depth, unless otherwise directed
7. Finished level of mulch: Ensure that a layer of not less than 50mm is maintained throughout the maintenance period.

481 Mulching planting beds (coir) Type B

1. Description: Coir mulch as Q28/355 Type B.
2. Manufacturer: Coco & Coir (www.cocoandcoir.com), or equal approved.
2.1. Product reference: Coco coir chip mulch , or equal approved.
3. Application: Only after planting and a thorough watering of the beds
4. Purity: Free from pests, diseases, fungus and weeds

5. Preparation: Clear all weeds and water soil thoroughly
6. Coverage: 50mm depth, unless otherwise directed
7. Finished level of mulch: Ensure that a layer of not less than 50mm is maintained throughout the maintenance period.

482 Mulching planting beds (gravel)

1. Description: Gravel mulch as Q28/345 Type C.
2. Manufacturer: CED Stone, or equal approved.
   2.1. Product reference: Grey/green granite aggregate (size 20-10mm), or equal approved.
3. Application: Only after planting and a thorough watering of the beds
4. Purity: Free from pests, diseases, fungus and weeds
5. Preparation: Clear all weeds and water soil thoroughly
6. Coverage: 50mm depth, unless otherwise directed
7. Finished level of mulch: Ensure that a layer of not less than 50mm is maintained throughout the maintenance period.

Planting trees

500 Tree planting

1. Standard: Prepare trees and transplant in accordance with BS 8545

502 Antidesiccant for conifers/ Evergreens

1. Manufacturer: Submit proposals
   1.1. Product reference: Submit proposals
2. Application: Dip or thoroughly spray before delivering to site. Spray again soon after planting.
   2.1. Do not apply in wet or frosty weather.
   2.2. Ensure full coverage of underside of foliage.

505 Tree pits Type A

1. Description: For general tree planting within soil crate system - refer to detail SP108_72_TP_1&2.
2. Sizes: Refer to tree pit details for all sizes/dimensions.
3. Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
4. Excavated material: N/A
5. Pit bottoms: Excavate with slightly raised centre: N/A.
   5.1. Treatment: Not required
6. Pit sides: N/A.
7. Backfilling material: Subsoil, topsoil, as section Q28.
   7.1. Topsoil: Topsoil in upper layer of soil crates to be mixed with compost and soil improver as section Q28, incorporating an organic, slow-release fertiliser (TBC) in accordance with manufacturer's instructions UNLESS the nursery supplier has recently applied a slow-release fertiliser to the rootball/compost, in which case omit.
   7.2. Subsoil: Subsoil to lower layer of soil crates to be without additives as section Q28.
   7.3. Compost: Any compost as section Q28 incorporated into the tree pit of a lime hating plant must have a pH value lower than 6.5.
   7.4. Backfill: Backfill in layers 150mm deep. At each stage the filling should be firmly consolidated to eliminate air pockets under and around the rootball. Final layer of backfilling

should not be consolidated. If necessary, thorough watering should be carried out before completion of backfilling; excess water must be left to drain away before filling is completed.

8. Staking / underground guying: Required - refer to clause 526.
9. Planting depth: Plant tree at same level/depth as was previously growing in the nursery (where marked), otherwise in agreement with the Landscape Architect.

505 Tree pits Type B

1. Description: For general tree planting **not** within soil crate system - refer to detail SP108_72_TP_2 and SP108_75_PT_A-C.
   Specification for trees within public realm TBC with LB Camden.
2. Sizes: Refer to tree pit details for all sizes/dimensions.
3. Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
4. Excavated material: Separate topsoil and subsoil material and stockpile for backfilling if applicable - TBC with LB Camden.
5. Pit bottoms: Excavate with slightly raised centre: Break up base to a depth of 150 mm to ensure free-draining base.
   5.1. Treatment: Not required Not required
6. Pit sides: Scarify.
7. Backfilling material: Subsoil, topsoil, as section Q28.
   7.1. Topsoil: Topsoil in upper horizon (400m) to be mixed with compost and soil improver as section Q28, incorporating an organic, slow-release fertiliser (TBC) in accordance with manufacturer's instructions UNLESS the nursery supplier has recently applied a slow-release fertiliser to the rootball/compost, in which case omit.
   7.2. Subsoil: Subsoil to lower layer of soil crates to be without additives as section Q28.
   7.3. Compost: Any compost as section Q28 incorporated into the tree pit of a lime hating plant must have a pH value lower than 6.5. Ensure the bottom of the rootball is in full contact with good topsoil, without additional compost
   7.4. Backfill: Backfill in layers 150mm deep. At each stage the filling should be firmly consolidated to eliminate air pockets under and around the rootball. Final layer of backfilling should not be consolidated. If necessary, thorough watering should be carried out before completion of backfilling; excess water must be left to drain away before filling is completed.
8. Staking / underground guying: Required - refer to clause 526.
9. Planting depth: Plant tree at same level/depth as was previously growing in the nursery (where marked), otherwise in agreement with the Landscape Architect.

510 Tree pit root barriers

1. Locations: Allow for root barriers wherever a proposed tree rootball will be installed within 2m of a building foundation or within 3m of an existing utility - position root barrier adjacent to the foundation/utility at a depth recommended by the manufacturer/architect/utility owner.
   1.1. Public realm: If deemed necessary following further site investigations for new trees in the public realm - to be agreed with LB Camden and the Contract Administrator.
2. Manufacturer: Green Blue Urban, or equal approved.
   2.1. Product reference: ReRoot 300/600/1000 linear ribbed root barrier, or equal approved.
3. Thickness: 1.0 mm
4. Barrier depth: To suit adjacent foundations or utility runs - to be determined on further site investigation.
5. Foil liner: Not required
6. Top of root barrier in relation to finished topsoil level: 50 mm below ground level
7. Installation: With sides vertical. Remove all sharp objects adjacent to barrier.

512 Tree pit irrigation and ventilation accessories

1. Locations: To all new trees, unless integrated into tree grilles (as Q50/262) - refer to relevant tree pit details.
2. Manufacturer: Green Blue Urban, or equal approved.
   2.1. Product reference: Root rain Civic RRCIVIC1A, or equal approved.
3. Type: Perforated plastics irrigation pipe with inlet; fixed inlet with powder coated aluminium cap (black) on retainer chain.
4. Pipe diameter: 60 mm
5. Ring diameter: 3m pipe length
6. Inlet: Aluminium (black) on retainer chain.
7. Installation
   7.1. Pipe: Lay in loop above root ball with slight fall away from inlet pipe. Trim length to ensure a close fit in the tree pit. Connect both ends of pipe securely into plastics tee junction on inlet.
   7.2. Top cap of inlet: Protruding slightly above finished surround level.
   7.3. Backfill material: Carefully compact in layers.

515 Tree pit drainage

1. Locations: To tree pits not within soil crate system - refer to details SP108_74_TP_2 and SP108_75_PT_A-C.
2. Depth of excavation: Increase from specified size to allow for aggregate layer, with base slightly falling to outlet.
3. Aggregate layer: Clean gravel or broken stone, with no fines, 10mm gravel pea shingle.
   3.1. Depth: 200 mm, domed to middle under rootball (max. 50mm) as detailed.
4. Drainage pipes
   4.1. Type: N/A
   4.2. Diameter: N/A
   4.3. Position: N/A
   4.4. Discharge: N/A
5. Geotextile filter
   5.1. Manufacturer: Terram, or equal approved.
      5.1.1. Product reference: Terram T1000, or equal approved.
   5.2. Position: Lay over aggregate before installing tree or backfill.
6. Completed pits: Test for free drainage before planting.

516 Tree pit drainage within soil crate area

1. Description: Perforated pipe with gravel surround to edges of soil crate system, acting as overflow - refer to detail SP108_73_SC and relevant Engineer's / Architect's information.
2. Locations: As shown on drawing SP108_13_03 and relevant Engineer's information.
3. Drainage pipes
   3.1. Type: 100mm diameter Rigidrain plain ended perforated pipe
   3.2. Product: Polypipe (Polypipe civils) or equal approved.
   3.3. Accessories: Access cover with aluminium cap (black) on retainer chain - submit proposals.
   3.4. Perforations: Perforations in pipe to begin at +200mm from slab level, as detailed.
4. Geotextile: Terram T1000 geotextile surround to pipe, or equal approved.
5. Gravel surround: Type 4-20mm clean angular gravel - submit proposals.
6. Slab connection: To Engineer's details.

520 Cellular structural soil system Soil crates

1. Description: For tree planting within central public realm - refer to details SP108_13_03 and SP108_73_SC.
2. Locations: As shown on details.
3. Manufacturer: Green Blue Urban (www.greenblue.com), or equal approved
   3.1. Product reference: RootSpace 400 & 600, plus all associated accessories, or equal approved
   3.2. Soil crates: 2x layers of 600mm high RootSpace cells, or 600mm + 400mm RootSpace cell combination, as shown on drawings, infilled with subsoil (lower layer) and topsoil (upper layer) as section Q28.
   3.3. Accessories: Include all RootSpace soil crate elements including aeration deck, ground spike anchors (if required), reinforcing mesh, geonet, arborvent aeration inlets (where required) - all supplied by Green Blue Urban and all to manufacturer's recommendations.
4. Geotextile membrane: As detailed.
5. Installation: Ensure all void spaces are filled with lightly compacted growing medium prior to installation of further layers or sub-bases, in accordance with manufacturer's guidance.
6. Overflow drainage: Overflow drainage from soil crate system: refer to clause 516, detail SP108_73_SC and relevant Engineer's information.

521 Cellular structural soil system Pavement raft system

1. Description: For tree planting within surrounding public realm (hard landscape only) - refer to details SP108_75_PT_A-C. Specification for trees within public realm TBC with LB Camden.
2. Locations: As shown on details.
3. Manufacturer: Green Tech (www.green-tech.co.uk), or equal approved.
   3.1. Product reference: ArborRaft, plus all associated accessories, or equal approved.
   3.2. ArboRaft system: 150mm depth crate bedded on 20mm sand; Include min. 500mm overlap required at edge of tree pit on all sides
   3.3. Accessories: Include all ArboRaft associated element, all supplied by Green Tech and all to manufacturer's recommendations.
4. Geotextile membrane: As detailed.
5. Installation: In accordance with manufacturer's guidance.

525 Existing utilities

1. Refer to drawings for potential clashes identified between new tree planting and existing utilities according to GPRS survey data (by others).
2. Refer to D20/115 for trial excavations and permissions required for planting new trees in proximity to existing utilities.
3. Refer also to trial excavation information taken as part of enabling works package.

526 Underground guying for:

1. Description: ALL TREES - refer to details SP108_74_TP_1&2, SP108_75_PT_A-C.
2. Type: Anchor plate fixings (fixed to soil crates, where provided) or deadman (D- MAN cells) guying system to all trees, with protective straps to cover rootball.
3. Manufacturer: Platipus tree anchoring systems (www.platipusdirect.co.uk), or equal approved.
   3.1. Product reference: Platipus deadman system sized appropriately for proposed trees with protective Platimats where wires cover rootball.
4. Anchoring system: Anchor plate fixings to soil crates or dedaman fixed to D-MAN cells.
5. Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

535 Tree stakes

1. Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
   1.1. Preservative treatment: Not required
2. Stake size (minimum): 50 mm diameter
3. Stake length (minimum): 600mm

540 Single angled staking for

1. Description: Small trees over 1m in height on office building terraces - refer to planting plans.
2. Staking
   2.1. Position: Close to tree position on windward or upslope side.
   2.2. Tying position: Approximately one third of the height of the clear stem of the tree to be planted.
   2.3. Driving: At an angle of 45° away from the tree position and at least 300 mm into bottom of pit before planting.
   2.4. Backfilling: Consolidate material around stake.
   2.5. Firming: Sufficiently firm to prevent movement of the rootball/ rootstock.
   2.6. Excess length: Cut off 200 mm above tree support position.
3. Ties: Adjustable tree-friendly ties.
   3.1. Number of ties: One
4. Tying: Secure tree firmly but not rigidly to stake. Prevent tree from touching stake using spacer blocks or cushions if required.
5. Nails: To BS 1202-1, galvanized, minimum 25 mm long and with 10 mm diameter heads.

576 Tree pit surfacing – loose fill

1. Surfacing material: Loose gravel, as Q23/170 - Type A.
2. Area: To proposed tree in central landscape - refer to SP108_74_TP_2.
3. Depth: 80mm
4. Watering: Water soil thoroughly before laying.
5. Installation: Ensure the base of the tree stem is kept free from loose filled material.

580 Tree pit surfacing – bound aggregate

1. Surfacing material: Resin-bound aggregate, as Q23/225
2. Area: 1000 x 1000 mm square TBC with LB Camden.
3. Collar: Install protective tree collar around base of tree prior to installing surfacing. Allow clearance for tree growth.
4. Collar infill: Loose fill gravel to match bound aggregate, as section Q23

Woodland/ matrix/ buffer zone planting - Not Used

Protecting/ maintaining/ making good defects

710 Maintenance

1. Duration: Carry out the operations in the following clauses from completion of planting until the end of the rectification period.
2. Frequency of maintenance visits: In accordance with the agreed maintenance schedule and as necessary to fullfill the requirements of this specification.

720 Failures of planting

1. Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs that have failed to thrive.
   1.1. Exclusions: Theft or malicious damage after completion.
   1.2. Rectification: Replace with equivalent plants/ trees/ shrubs.
2. Replacements: To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
3. Timing of making good: In accordance with an agreed defects rectification programme

730 Protective fencing

1. Fencing type: Cleft chestnut pale fencing.
2. Manufacturer/product: Submit proposals.
3. Standard: To BS 1722-4, type CW90
4. Height: 900mm
5. Alignment: Straight lines, or smoothly flowing curves
6. Posts and struts:
   - Straining posts: 70m in straight runs and at all ends, corners, changes of direction and acute variations in level
   - Intermediate posts: Every 2.5m
   - Method of setting: TBC
7. Fixings: Tighten all components on erection of fencing
8. Erection: On completion of planting.
9. Removal: After planting is well established
10. Cleaning / fixing: Leave the works in a clean and tidy condition, with all holes repaired and the fencing in a complete state, immediately before handover.

740 Cleanliness

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

750 Planting maintenance generally

1. Weed control: Maintain weed free area around each tree and shrub.
   1.1. Diameter (minimum): The larger of 1 m or the surface of original planting pit.
   1.2. Keep planting beds clear of weeds: By hoeing and By maintaining full thickness of mulch
2. 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.
3. Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
4. Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
5. Trees: Spray crown when in leaf during warm weather.
   5.1. Timing: After dusk.
6. Tree accessories: Check condition of stakes, ties, guys, guards and irrigation and ventilation systems.
   6.1. Broken or missing items: Replace.
   6.2. Loose stakes: Re-firm in the ground or replace as necessary to provide support to the tree.
   6.3. Loose guys: Re-firm anchor points and adjust as necessary to provide support to the tree.

6.4. Ties: Adjust to accommodate growth and prevent constriction or abrasion.

6.5. Damage to bark: Cut back neatly with sharp knife. Prevent further damage.

6.6. Frequency of checks: Refer to maintenance plans

7. Watering: As required for healthy establishment, depending on weather conditions. Establishment watering is to continue as necessary throughout the maintenance period and according to seasonal requirements.

760 Planting maintenance – pruning

1. General: Prune to promote healthy growth and natural shape.

1.1. Dead, dying, diseased wood and suckers: Remove.

1.2. Timing: As appropriate to the species

1.3. Trees: Favour a single central leading shoot.

2. Arisings: Remove.

780 Maintenance instructions

1. 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 a schedule of any ongoing maintenance problems experienced during the rectification period.

790 Final mulching

1. Timing: At end of the maintenance period.
2. Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
3. Planting beds: Remulch.
4. Depth (minimum): 50 mm
5. Trees: Remulch.
6. Depth (minimum): 75 mm

800 Maintenance record sheets

1. Refer to section Q35 for requirements

Ω End of Section

Q35
Landscape maintenance

Generally

100 General notes

1. To be read with Preliminaries/General conditions.
2. To be read in conjunction with Landscape Management Plan SP108_Doc07_MP.
3. Landscape maintenance relates to external areas within site boundary only. Maintenance tasks outside site boundary line to meet LB Camden specification.

105 Maintenance objectives

1. Location: All external planting areas.
    1.1. Duration: 1 year following practical completion, forming the contractor's maintenance/DLP period - TBC. An extended contractor's maintenance period (3-5 years) is recommended for establishment of new trees, in agreement with the client. On- going maintenance to be established by the client after this period.
2. Aims: To ensure successful establishment of planting.
3. Restrictions: As described in this specification, the Landscape Management Plan and the O+M manual.
4. Results: Successful establishment of the planting.

107 Maintenance record sheets

1. Upon each maintenance visit, the contractor is to complete a maintenance record, detailing:
    - Date of visit
    - Persons in attendance
    - Operations undertaken
    - Any observations/recommendations regarding condition and maintenance of the soft landscape
2. Copies of each record sheet are to be issued to the Contract Administrator, the client and the Landscape Architect.

110 Notice

1. Give notice before
    1.1. Application of herbicide.
    1.2. Application of fertilizer.
    1.3. Watering.
    1.4. Each site maintenance visit.
2. Period of notice: 7 days

111 Climatic conditions

1. Carry out the work during appropriate seasons and while soil and weather conditions are suitable for the relevant operations.

112 Machines and tools

1. Use only machinery and tools suitable for the site conditions and the work to be carried out.
2. Use hand tools around trees, plants and in confined spaces where it is impractical to use machinery.

130 Reinstatement

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

155 Watering

1. Supply: Obtain approval before using any supply other than non-potable mains water.
2. Quantity: Wet full depth of topsoil
3. Application: Do not damage or loosen plants. Use a fine rose or low pressure hose to avoid damaging or loosening plants.
4. Compacted soil: Loosen or scoop out, to direct water to rootzone.
5. Frequency: As necessary for the continued thriving of all planting.

158 Watering points

1. Ensure that the positions of all watering points on site are known - refer to drawings for locations of external standpipes.
2. Provide materials to ensure the proper watering of all contract areas from any or all of these points

160 Water restrictions

1. 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

1. General: Unless specified otherwise, dispose of arisings as follows:
    1.1. Biodegradable arisings: Remove to recycling facility
    1.2. Grass cuttings: Remove to recycling facility
    1.3. Tree roots and stumps: Remove from site
    1.4. Shrub and tree prunings: Remove to recycling facility
    1.5. Litter and nonbiodegradable arisings: Remove from site

180 Chipping or shredding

1. General: Not permitted on site.

181 Mechanical equipment

1. General: Minimize.
2. Prohibited equipment: Client to verify; to be approved by Contract Administrator.
3. Timing: Client to verify; to be approved by Contract Administrator.

190 Litter

1. Extraneous rubbish not arising from the contract work: Collect and remove from site.

197 Cleanliness

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

198 Chemicals generally

1. Use only where specified and approved, and then only products on the current lists of the Agricultural Chemicals Approval Scheme.
2. Observe all precautions recommended by the manufacturer and remove containers from site immediately after they have been emptied or are no longer required.

Grassed areas - Not Used

Flower beds/ seasonal beddings

460 Beds of perennials or perennials and annuals - deciduous plants

1. Regular check for health and performance of plants and removal of dead and/or damaged/ill limbs or plants; replacement planting if necessary on next visit within the correct planting season (refer to clause Q31/125).
2. Plant supports: Remove any canes or supports from plants when planting out.
3. Gaps in planting: Refill by replanting.
4. Watering
   - 4.1. New plants: Before and after planting out.
   - 4.2. Ongoing: As necessary for the continued thriving of all planting.
5. Pruning: Formative pruning if necessary (eg. if plants growing to obstruct path), at times appropriate to the species (eg. after flowering).
6. Operations at end of growing season
   - 6.1. Trim: Older flowering stems of herbaceous perennials; annual cut in late winter to reduce by one-third before new growth appears (unless the species requires otherwise).
   - 6.2. Remove: Redundant plant supports, litter, debris and arisings.
   - 6.3. Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.
   - 6.4. Top dress: Apply mulch as section Q28.

460 Beds of perennials or perennials and annuals - evergreen plants

1. Regular check for health and performance of plants and removal of dead and/or damaged/ill limbs or plants; replacement planting if necessary on next visit within the correct planting season (refer to clause Q31/125).
2. Plant supports: Remove any canes or supports from plants when planting out.
3. Gaps in planting: Refill by replanting.
4. Watering
   - 4.1. New plants: Before and after planting out.
   - 4.2. Ongoing: As necessary for the continued thriving of all planting.
5. Pruning: Formative pruning if necessary (eg. if plants growing to obstruct path), at times appropriate to the species (eg. after flowering).
6. Operations at end of growing season
   - 6.1. Trim: Remove dead leaves/limbs by combing or raking out gently. Trim if required to reduce by one-third max. at a time appropriate to the species (eg. after flowering).
   - 6.2. Remove: Redundant plant supports, litter, debris and arisings.
   - 6.3. Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.
   - 6.4. Top dress: Apply mulch as section Q28.

471 Planting areas generally

1. Operations

1.1. Remove: Dead flower heads, fallen leaves, litter and debris on a regular basis.

1.2. Weeds: Thoroughly hand weed on a regular basis.

1.3. Cultivate: Lightly hoe.

1.4. Trim: Clip any grass edges.

2. Fertiliser: Apply an organic, slow-release fertiliser to the topsoil once a year in early Spring, as clause 503.

472 Bulbs in planted areas

1. Before flowering: Do not cut.
2. Allow spring bulb leaves to complete their life cycle and die down naturally before removing leaves.

Shrubs/trees/hedges

500 Establishment of new planting

1. Duration: 1 year or until planting is well established.
2. Weed control
   2.1. Method: Keep planting beds clear of weeds by hoeing and screefing, and maintaining full thickness of mulch.
   2.2. 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.
3. Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
4. Watering: As required to ensure successful establishment and growth.

502 Establishment of new planting – fertilizer

1. Time of year: March or April depending on weather conditions.
2. Type: Organic, slow-release.
3. Spreading: Spread evenly.
   3.1. Application rate: As manufacturer's recommendations

510 Tree stakes and ties

1. Inspection/ Maintenance times: As scheduled and immediately after strong winds.
2. Stakes
   2.1. Replace loose, broken or decayed stakes to original specification.
   2.2. 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.
3. Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.
   3.1. Where chafing has occurred, reposition or replace ties to prevent further chafing.
4. Removal of stakes and ties: During spring when no longer required to support the tree
   4.1. Fill stake holes with lightly compacted soil.

520 Refirming of trees and shrubs

1. Timing: After strong winds, frost heave and other disturbances.
2. Refirming: Tread around the base until firmly bedded.
3. 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.

535 Tree grilles

1. Operations: Lift grilles, remove weeds, adjust levels as necessary and lightly compact. Refit grilles, refill interstices and lightly compact to correct level.
2. Material for making up levels and refilling: Horticultural grit

537 Nesting wild birds

1. Survey: Before starting hedge or tree work during the period of February to August (inclusive), carry out a survey by a qualified ecologist and submit report
2. Accidental disturbance: Report immediately.

540 Pruning generally

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

545 Pruning of excessive overhang

1. Timing: Annually
2. Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
3. Special requirements: None

550 Pruning of excessive height

1. Timing: Annually
2. Operations: Remove excessive height As instructed.

555 Pruning trees and shrubs

1. Standard: To BS 7370-4.
2. Special requirements: Growth retardants not permitted

570 Formative pruning of young trees

1. Standard: Type and timing of pruning operations to suit the plant species.
2. Time of year: Do not prune during the late winter/ early spring sap flow period.
3. Young trees up to 4 m high
    3.1. 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.
    3.2. Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
    3.3. Maintain stated clear stem height where specified: Refer to planting plans.

4. Whips or feathered trees: Do not prune.
5. Operatives: Approved specialist contractor or Member of the Arboricultural Association

575 Pruning ornamental shrubs

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

580 Pruning flowering species of shrubs and roses

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

590 Pruning particular species

1. Species to be pruned to separate specific instructions: As per planting maintenance plans.

620 Removal of dead plant material

1. 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

1. Pruning: Remove excess growth, to ensure that signs, light fittings, doors and windows are kept clear at all times.
2. Insecure growth: Attach to supporting wires or structures using horticultural string.
3. Supporting structures: Check and repair as necessary.

630 Dead and diseased plants

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

635 Reinstatement of shrub/ Herbaceous areas

1. Dead and damaged plants: Remove.
2. Mulch/ matting materials
   2.1. Carefully move to one side and dig over the soil, leaving it fit for replanting.
3. Do not disturb roots of adjacent plants.
4. Replacement plants
   4.1. 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.
   4.2. Additional requirements: None
5. Dressing: Slow release fertilizer:
   5.1. Type: Organic, slow-release
   5.2. Application rate: As manufacturer's recommendations

645 Weed control generally

1. Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm high

2. Adjacent plants, trees and grass: Do not damage.

650 Hand weeding

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

655 Weed cutting by hand or machine

1. Undesirable grass, brambles and herbaceous growth: Cut down cleanly to a maximum height of 75 mm.
2. Herbicides: Do not use

657 Herbicide to kill regrowth

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

665 Weed control with winter herbicide

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

670 Weed control with summer herbicide

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

675 Digging over

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

680 Soil aeration

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

685 Soil level adjustment

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

690 Maintenance of loose mulch

1. Thickness (minimum): 50mm or 75mm where specified.
    1.1. Top up: Annually in December or January.
2. Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
3. Weeding: Remove weeds growing on or in mulch by hand weeding.

695 Fertilizing established trees and shrubs

1. Time of year: Once a year during February or March
2. Type of fertilizer: Organic, slow release
3. Application: Spread evenly.
   3.1. Rate: As manufacturer's recommendations

700 Snow removal from shrubs/ Trees

1. Standard: To BS 7370-4.
2. Plants subject to snow removal: All evergreens
3. Timing: Within 24 hours of snowfall

705 Winter leaf removal

1. Operations: Take down temporary leaf fences. Collect accumulations of drifted leaves from the vicinity and from planting beds.
2. Arisings: Remove to recycling facility

730 Green roof maintenance

1. Description: To all green roofs on office & residential buildings. Refer to SP108_03_RF for locations of green roofs, and refer to architect's specification for primary clauses relating to green roofs (under section Q37).
2. Provide all necessary maintenance to ensure the successful establishment and continued health of the green roof areas, according to supplier's recommendations.
3. The following are included for guidance only; further detail to be developed in the next stage:
   3.1. Establishment specific:
      - Irrigation as required to ensure successful establishment. Note supplier's recommendations for irrigation immediately post-install (eg. wet full depth of blanket/substrate).
   3.2. On-going maintenance:
      - Irrigation as required to ensure healthy growth and on-going success of the green roof.
      - Weeding as required, including removal of eg. sycamore saplings.
      - Apply organic slow-release fertiliser once a year, or as supplier's recommendations.
      - Annual cut, or as supplier's recommendations.
4. Maintenance contractor to submit method statement for safe working practices at height.

Tree work

810 Tree work generally

1. Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
2. Protection: Avoid damage to neighbouring trees, plants and property
3. Standard: To BS 3998 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.
4. Removing branches: Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
5. Appearance: Leave trees with a well-balanced natural appearance.
6. Chain saw work: Operatives must hold a Certificate of Competence.
7. Tree work: To be carried out by an approved member of the Arboricultural Association.

815 Additional work

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

820 Prevention of wound bleeding

1. Standard: To BS 3998.

825 Prevention of disease transmission

1. Standard: To BS 3998.

830 Cleaning out and deadwooding

1. Remove
   1.1. Dead, dying, or diseased wood, broken branches and stubs.
   1.2. Fungal growths and fruiting bodies.
   1.3. Rubbish, windblown or accumulated in branch forks.
   1.4. Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
   1.5. Other unwanted objects, e.g. tree houses, swings.
   1.6. Climbing plants seek approval if removal is required.

835 Cutting and pruning generally

1. Tools: Appropriate, well maintained and sharp.
2. Final pruning cuts
   2.1. Chainsaws: Do not use on branches of less than 50 mm diameter.
   2.2. Hand saws: Form a smooth cut surface.
   2.3. Anvil type secateurs: Do not use.
3. Removing branches: Do not damage or tear the stem.
4. 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.
5. Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.
6. Large branches: Remove only with prior approval
   6.1. Remove in small sections and lower to ground with ropes and slings.
7. Dead branches and stubs: When removing, do not cut into live wood.
8. Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
9. Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 Crown reduction/ Shaping

1. General: Cut back selectively to lateral or sublateral buds or branches to retain flowing branch lines without leaving stumps.
2. Operations: To be agreed with council Tree Officer if trees are within the public realm, otherwise to be agreed and approved by the Contract Administrator.

845 Crown lifting

1. Clearances: Remove branch systems to give clearance.
   1.1. Height: Min. 1.8m above footpaths.

2. Removing branches: Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sublateral buds or branches. Do not leave stumps.

850 Crown thinning

1. Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.
2. Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown.
   2.1. Quantity: To be agreed.
3. Cutting: Make no cuts of more than 50 mm diameter - to be agreed.
   3.1. Branches: Cut back to lateral or sublateral buds or branches without leaving stumps.
4. Appearance: Leave a uniform and well-balanced structure of branches and foliage.

855 Cutting tree roots

1. Excavating: Use hand tools only.
2. Protected area: Do not cut roots within an area which is the larger of:
   2.1. The branch spread of the tree.
   2.2. An area with a radius of half the tree's height, measured from the trunk.
3. Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.
4. Cutting
   4.1. Cutting: Make clean smooth cuts with a hand saw.
   4.2. Wounds: Minimize. Avoid ragged edges.
   4.3. Finishing: Pare cut surfaces smooth with a sharp knife.
5. Backfilling
   5.1. Protection: Cover cut roots with clean sharp sand.
   5.2. Material: Backfill with original topsoil.

860 Removing trees, shrubs and hedges

1. Standard: To BS 3998 and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets.
2. Existing services: Check for below and above ground services. Give notice if they may be affected.
3. Shrubs and smaller trees: Cut down and grub up roots.
4. Tree stumps
   4.1. Treatment: Remove mechanically to a minimum depth of 300 mm below ground level
   4.2. Removal by winching: Give notice. Do not use other trees as supports or anchors.
5. Protection: Avoid damage to neighbouring trees, plants and property
6. 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.
7. Filling holes
   7.1. Material: Use as-dug material and/ or imported soil as required.
   7.2. Finishing: Consolidate and grade to marry in with surrounding ground level.

865 Bark damage

1. Wounds
   1.1. Do not attempt to stop sap bleeding.
   1.2. Bark: Remove ragged edges using a sharp knife.

1.3. Wood: Remove splintered wood from deep wounds.

1.4. Size: Keep wounds as small as possible.

2. Liquid or flux oozing from apparently healthy bark: Give notice.

870 Cavities in trees

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

Water areas - Not Used

Hard landscape areas/fencing

900 Snow clearance

1. Description: To accessible hard landscape areas - refer to Landscape Management Plan SP108_Doc07_MP.
2. Clearance: On reaching a depth of 5 mm
3. De-icing: To roads and footpaths

3.1. Material: Grit

3.2. Timing: After snow clearance

3.3. Application rate: Spread evenly at a rate of As manufacturer's recommendations.

901 Maintenance objectives for hard landscape

1. Location: All external areas.
2. Duration: 1 year following practical completion, forming the contractor's maintenance/DLP period - TBC. On-going maintenance to be established by the client after this period.
3. Aims: To ensure a quality landscape and a safe external environment.
4. Restrictions: As described in this specification, the Landscape Management Plan and the O+M manual.
5. Results: A quality landscape and a safe external environment.

910 Hard surfaces and gravel areas

1. Hard surfaces: Remove litter, leaves and other debris.
2. Surface gutters and channels: Remove mud, silt and debris.
3. Drainage gullies: Empty traps and flush clean.
4. Gravel areas: Rake over. Remove weeds, litter, leaves and debris, and level off.
5. Repairs to flexible bituminous pavings: In accordance with the original paving specification or BS 7370-2, clause 4.12.
6. Stain removal: In accordance with BS 7370-2, table 4.

911 Timber cobble maintenance

1. Maintenance generally as above.
2. Include extra/over for cleaning and maintenance of timber cobbles to ensure surface does not become slippery.
3. Surface cleaning: Sweep regularly with a broom to keep surface free from dirt and debris.

3.1. Regularly pressure wash or scrub surface using a suitable cleaning product, following the manufacturer's guidelines.

3.2. Regular cleaning of the surface should ensure no growth of moss, lichen and/or algae occurs. Chemical products should not be used unless deemed absolutely necessary, and should be agreed with the building management and/or maintenance team prior to application.

913 Play areas

1. Refer also to section Q52.
2. Regular inspections of the play elements and areas within the scheme are to be allowed for. As a minimum, allow for:
   2.1. Daily checks for safety and robustness of play elements, any rubbish or harmful items (eg broken glass) within and around play areas
   2.2. Monthly checks for safety and robustness of play elements and special surfaces - cleaning as and when necessary
   2.3. Yearly safety inspections by qualified personnel to assess safety and robustness of equipment and areas (eg. RPII/ RoSPA accredited.
3. Surface cleaning: Sweep regularly with a stiff broom to keep surface free from dirt and debris, and to ensure the pores of the material do not become clogged - as this negatively affects the fall safety capacity.
   3.1. If required, pressure wash or scrub surface using a suitable cleaning product, intended for use on wetpour rubber play surfacing, following the manufacturers guidelines
   3.2. Regular cleaning of the surface should ensure no growth of moss, lichen and/or algae occurs. **Chemical products should not be used unless deemed absolutely necessary, and should be agreed with the manufacturer prior to application - certain products can significantly damage the surface.** Note that special care is needed in its application due to the possible hazard to children. Mark off the area as appropriate during the works, and ensure all remnants of chemicals are sufficiently cleaned away following completion.

920 Fencing

1. Fences: Inspect and repair to maintain protection against intruders.

930 Graffiti removal

1. Method: To be agreed with building management team, depending on type of stain.
2. Subsequent treatment: To be agreed
   2.1. Finish: To be agreed

Ω End of Section

Q50
Site/ street furniture/ equipment

Gates, barriers and parking controls

100 General notes

1. To be read with Preliminaries/General conditions.
2. **PUBLIC REALM WORKS**
   All works within the public realm are subject to confirmation by the Local Authority as part of the S278 works. This includes details of all materials, junctions etc. Refer to drawing SP108_04_HL.
3. EV CHARGE POINTS 2no. to be provided on St Pancras Way - refer to M+E specifications for details, to be agreed with LB Camden.

Site and street furniture

210 Cycle stands Type A

1. Description: External cycle stands within central landscape - refer to SP108_04_HL and SP108_82_LE.
2. Manufacturer: Vestre (www.vestre.com), or equal approved.
   2.1. Product reference: Vroom cycle stand, or equal approved.
3. Type: Single stands
4. Material: Aluminium
   4.1. Finish: Polyester powder-coated, as section Z31
   4.2. Colour: To **NCS S 7005-Y80R,** to match Architectural metalwork.
5. Accessories: None
6. Method of fixing: Root fixed below ground, set in concrete base - refer to detail and Engineer's information.

210 Cycle stands Type B

1. Description: External cycle stands within public realm - refer to SP108_04_HL. To meet LB Camden specification.
2. Manufacturer: To meet LB Camden specification.
   2.1. Product reference: To meet LB Camden specification.
3. Type: Single stands
4. Material: To meet LB Camden specification.
   4.1. Finish: To meet LB Camden specification.
   4.2. Colour: To meet LB Camden specification.
5. Accessories: None
6. Method of fixing: Root fixed below ground, set in concrete base - refer to detail and Engineer's information, to be agreed with LB Camden.

220 Benches Type A (Ground level)

1. Description: 3no. benches within central landscape at ground level - refer to detail SP108_81_GB.
2. Manufacturer: Bramhall (www.bramhall1840.co.uk), or equal approved.
   2.1. Product reference: Bespoke fabrication.
3. Design: Detail SP108_81_GB shows design intent only and is to be developed by a specialist fabricator, shop drawings to be provided for approval.

4. Material: Wood (oak)
   4.1. Finish: Planed & sanded all round to remove all sharp edges/splinters
   4.2. Colour: Natural (untreated)
   4.3. Timber grade: Timber to be air dried to 16-18% moisture content, grade QPI, without sapwood. All timber to be FSC unless reclaimed.
   4.4. Metal elements: Steel elements to be PPC to **NCS S 7005-Y80R,** as detailed.
5. Size: As shown on detail.
6. Accessories/ Special requirements: Armrests as detailed.
7. Method of fixing: Metal legs fixed to base plates affixed to concrete foundation (to Engineer's details).
8. Submit: Specialist shop drawings from fabricator for approval by Landscape Architect.

220 Benches Type B (Office terraces)

1. Description: 32no. benches within terrace levels of office building - refer to detail SP108_83_TB.
2. Manufacturer: Bramhall (www.bramhall1840.co.uk), or equal approved.
   2.1. Product reference: Bespoke fabrication.
3. Design: Detail SP108_83_TB shows design intent only and is to be developed by a specialist fabricator, shop drawings to be provided for approval.
4. Material: Wood (oak)
   4.1. Finish: Planed & sanded all round to remove all sharp edges/splinters
   4.2. Colour: Natural (untreated)
   4.3. Timber grade: Timber to be air dried to 16-18% moisture content, grade QPI, without sapwood. All timber to be FSC unless reclaimed.
5. Size: As shown on detail.
6. Accessories/ Special requirements: Armrests as detailed.
7. Method of fixing: 4 base plates anchor bolted to granite paving, as detailed.
8. Submit: Specialist shop drawings from fabricator for approval by Landscape Architect.

240 Litter bins

1. Description: Within central landscape at ground level - refer to detail SP108_82_LE.
2. Manufacturer: Vestre (www.vestre.com), or equal approved.
   2.1. Product reference: Vroom litter bin, or equal approved
3. Material: Aluminium
   3.1. Finish: Polyester powder-coated, as section Z31
   3.2. Colour: To **NCS S 7005-Y80R**, to match Architectural metalwork.
   3.3. Size / capacity: 80L
4. Accessories/ Special requirements: Hinged, locking side door
   4.1. Signage: 1no. general refuse, 1no. mixed recycling, positioned on litter bin as detailed.
5. Method of fixing: Root fixed below ground, set in concrete base - refer to detail and Engineer's information.

262 Tree grilles

1. Description: To proposed trees in hard surface in the public realm - refer to details SP108_75_A-C. To be agreed with LB Camden.
2. Manufacturer: Green Tech (www.green-tech.co.uk), or equal approved.
   2.1. Product reference: Fortress tree grille, 2m square, bespoke - or equal approved.

3. Material: Steel
   3.1. Finish: Hot-dip galvanized to BS EN ISO 1461
   3.2. Colour: None
4. Size: Allow for 2m square, bespoke.
5. Accessories/ Special requirements: Allow for loose gravel infill to inner section around tree stem, permeable construction granite cobbles (100mm square) to wider section of tree grille. Irrigation unit to be integrated into tree grille. To be agreed with LB Camden.
   5.1. Irrigation: Allow for integrated irrigation system for tree grille specification, eg. Mona system by Green Tech, with 'Relief Piazza' integrated into tree grille, or equal approved.
6. Method of fixing: Fastened with security fixings, to manufacturer's directions.

263 Tree collar

1. Description: To existing trees in public realm - refer also to clause Q23/225. To be agreed with LB Camden.
2. Manufacturer: Allow for Green Blue Urban
   2.1. Product reference: ArbRing 280; 2-part galvanised ring for use with ArboResin as clause Q23/225
3. Dimensions: 280mm diameter x 75mm height x 3mm thickness
4. Material/finish: Galvanised

350 Nesting boxes Type A (fixed to building)

1. Description: Bird box fixed to office building at Level 6 - refer to SP108_03_RF for numbers & locations.
2. Manufacturer: Schwegler (www.nhbs.com), or equal approved.
   2.1. Product reference: Sparrow terrace
3. Material: Woodcrete
   3.1. Finish: As manufactured
4. Method of fixing: Wall-mounted as detailed - refer to SP108_90_BR for fixing method to office building facade.
   4.1. Fixings: 2no. 1SP screws and plugs, fixed to cladding.

350 Nesting boxes Type B (fixed to large trees)

1. Description: Bird box fixed to large new trees - refer to SP108_03_RF for numbers & locations.
2. Manufacturer: Schwegler (www.nhbs.com), or equal approved.
   2.1. Product reference: Nest box - 32mm hole
3. Material: Woodcrete
   3.1. Finish: As manufactured
   3.2. Colour: Brown
4. Method of fixing: Tree-friendly adjustable fabric tie.

355 Insect habitat features

1. Description: Bee blocks to terrace levels of office building - refer to SP108_03_RF for numbers & locations.
2. Manufacturer: Wildcare (www.wildcare.co.uk), or equal approved.
   2.1. Product: Bee block habitat - SKU 10331 (freestanding) - Large
3. Material: Concrete with granite aggregate
   3.1. Finish: Free-standing

4. Method of fixing: Installed adjacent to end of perimeter planters, within planting area.

360 Habitat packs

1. Description: Habitat packs to form habitat areas at green roof levels - refer to SP108_03_RF for numbers & locations.
2. Allow for forming a variety of habitats from a mixture of deadwoods, logs, bamboo canes, natural rope and stones/boulders in locations as shown on SP108_03_RF.
3. Manufacturer: Icopal, or equal approved.
   3.1. Product reference: Habitat zone packs; each pack creates 3-5 habitat piles. 5no. packs to be distributed across green roofs on site.

375 Irrigation points

1. Description: External irrigation stand points at ground level - refer to SP108_04_HL and SP108_82_LE.
2. Manufacturer: Arrow Valves (www.arrowvalaves.co.uk), or equal approved.
   2.1. Product: Model SPTB miniature standpipe, or equal approved.
3. Refer to MEP Engineer's information for supply requirements.

380 External lighting

1. Refer to lighting designer's proposals for all external lighting.
2. Refer to SP108_80_LF for lighting foundation requirements, refer to Engineer's details for specification of all foundations.

Installation

510 Concrete foundations generally

1. Standard: To BS 8500-2.
2. Concrete: To Engineer's specification.
3. Admixtures: Do not use.
4. Foundation holes: Neat vertical sides.
5. Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

515 Setting components in concrete

1. Holes: Neat vertical sides. Bottom covered with a 50mm layer of concrete.
2. Components: Accurately positioned and securely supported.
3. Concrete fill: Fully compacted as filling proceeds.
4. Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
5. Temporary component support: Maintain undisturbed for minimum 48 hours.

530 Preservative treated timber

1. Surfaces exposed by minor cutting and drilling: Treated by immersion or with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.
2. Heavily worked sections: Re-treat.

550 Damage to galvanized surfaces

1. Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.

1.1. Material: Low melting point zinc alloy repair rods or powders made for this purpose or at least two coats of zinc-rich paint to BS 4652.

1.2. Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

560 Site painting

1. Timing: Prepare surfaces and apply finishes as soon as possible after fixing.

Ω End of Section

Q52
Play and sports equipment

General

100 General notes

1. To be read with Preliminaries/General conditions.

101 Play certification

1. While best practice for play elements and fall offset requirements has been followed by the designer, official certification by RoSPA has not been obtained on the detailed design of play elements.
2. Is it recommended that the Contractor obtains formal certification for the proposed play surface and bespoke play elements items by a representative of rpii/RoSPA.
3. Fabrication drawings for bespoke play elements to be provided for certification sign-off.
4. Although play elements have been designed below +600mm in fall height, suitable safety surface has been specified to main play garden area - refer to section Q26.

102 Play inspection

1. Allow for periodic inspection of play areas/equipment over and above standard cleaning maintenance by suitably qualified personnel.
2. This includes (but is not limited to) monthly inspections for equipment functionality/safety, and yearly inspections by qualified personnel.
3. Refer also to Landscape Management Plan SP108_Doc07_MP.

System performance - Not Used

Products

321 Stepping / balancing timbers

1. Description: Timber play elements within central garden area - refer to detail SP108_78_PE.
2. Standard: To BS EN 1176-1.
3. Manufacturer: Ashwells Timber Merchants (www.ashwelltimber.com), or equal approved.
   3.1. Product reference: Bespoke items
4. Materials: Timber - timber type TBC. Oak, larch or Robinia, good quality reclaimed from a reputable source. Reclaimed external timber to be sourced to reduce risk of cracking etc in external environment.
   4.1. Finish: Planed and sanded all round to remove all sharp edges/splinters.
   4.2. Colour: Natural finish
5. Length: Varies - refer to details.
6. Height: Varies; ensure less than 600mm to comply with critical fall height offset guidance. Refer to details.
7. Features: Anti-skid foot treads formed by textural cuts into face of timber surface.
8. Method of fixing: Stainless steel dowel inserted in centre of timber hexagon section, resin fixed to concrete footing base (foundations to specialist design).
9. Submit:
   - Specialist shop drawings from fabricator for approval by Landscape Architect.
   - Sample of intended timber for approval by Landscape Architect.

322 Timber play edge

1. Description: Timber play edge within play garden area - refer to detail SP108_77_PT.
2. Standard: To BS EN 1176-1.
3. Manufacturer: Ashwells Timber Merchants (www.ashwelltimber.com), or equal approved.
   3.1. Product reference: Bespoke items
4. Materials: Timber - timber type TBC. Oak, larch or Robinia, good quality reclaimed from a reputable source. Reclaimed external timber to be sourced to reduce risk of cracking etc in external environment.
   4.1. Finish: Planed and sanded all round to remove all sharp edges/splinters.
   4.2. Colour: Natural finish
5. Length: Varies - refer to details.
6. Height: Varies; ensure less than 600mm to comply with critical fall height offset guidance. Refer to details.
7. Features: Anti-skid foot treads formed by textural cuts into face of timber surface.
8. Method of fixing: Stainless steel dowel inserted in centre of timber hexagon section, resin fixed to concrete footing base (foundations to specialist design).
9. Submit:
   - Specialist shop drawings from fabricator for approval by Landscape Architect.
   - Sample of intended timber for approval by Landscape Architect.

361 Natural stone play boulders

1. Description: Natural stone play boulders within play garden area - refer to details SP108_76_PB and SP108_78_PE.
2. Standard: To BS EN 1176-1.
3. Materials: Natural stone boulders
   3.1. Stone type: Granite (glacial boulders)
   3.2. Finish: Natural finish
4. Supplier: CED Stone, or equal approved.
5. Size: Varies - 500-800mm and 200-400mm, as detailed.
6. Height: Varies; ensure less than 600mm to comply with critical fall height offset guidance. Refer to details.
7. Method of fixing: Set in MOT Type 1 sub-base, as detailed - to supplier's recommendations.

Execution

710 Play equipment installation generally

1. Standard: To manufacturer’s written instructions provided in accordance with BS EN 1176-1.

720 Concrete foundations generally

1. Standard: To BS 8500-2.
2. Concrete: Designated, not less than GEN 1 or Standard prescribed, not less than ST2.
3. Admixtures: Do not use.
4. Foundation holes: Neat vertical sides.
5. Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.
6. Foundation design: All foundation design to specialist specification.

725 Setting components in concrete

1. Holes: To suit element to be fixed - refer to details.
2. Components: Accurately positioned and securely supported.
3. Concrete fill: Fully compacted as filling proceeds.
4. Concrete foundations exposed to view: Finished to weathering profile to shed water and trowel smooth.
5. Temporary component support: Maintain undisturbed for minimum 48 hours.

740 Preservative treated timber

1. Surfaces exposed by minor cutting and drilling: Treated by immersion or with two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.

Completion

910 Inspection

1. Standard: To BS EN 1176-1
2. Timing: 2 weeks prior to date when work is expected to be practically complete
3. Period of notice (minimum): 3 working days.

920 Cleaning

1. General: Leave the works in a clean, tidy condition.
2. Surfaces: Clean immediately before handover.

930 Testing

1. Standard: To BS EN 1176-1.

950 Documentation

1. Standard: To BS EN 1176-1
2. Contents
    2.1. Copies of test reports.
    2.2. General product information.
    2.3. Installation information.
    2.4. Inspection and maintenance information.
3. Number of copies: 1
4. Submission: 2 weeks prior to date when work is expected to be practically complete

Ω End of Section

Z10
Purpose made joinery

To be read with preliminaries/ general conditions.

100 Bespoke timber elements

1. Refer to Architect's specification for primary Z10 clauses related to purpose made joinery; the below refer specifically to timber elements within the landscape..
2. Refer to design intent details provided and note requirements for specialist fabrication drawings to be submitted for approval.
3. Refer to sections Q50 and Q52 of this specification.

110 Fabrication

1. Standard: To BS 1186-2.
2. Sections: Accurate in profile and length, and free from twist and bowing. Formed out of solid unless shown otherwise.
    2.1. Machined surfaces: Smooth and free from tearing, wooliness, chip bruising and other machining defects.
3. Joints: Tight and close fitting.
4. Assembled components: Rigid. Free from distortion.
5. Screws: Provide pilot holes.
    5.1. Screws of 8 gauge (4 mm diameter) or more and screws into hardwood: Provide clearance holes.
    5.2. Countersink screws: Heads sunk at least 2 mm below surfaces visible in completed work.
6. Adhesives: Compatible with wood preservatives applied and end uses of timber.

120 Cross section dimensions of timber

1. General: Dimensions on drawings are finished sizes.
2. Maximum permitted deviations from finished sizes
    2.1. Softwood sections: To BS EN 1313-1:-
        2.1.1.Clause 6 for sawn sections.
    2.2. Hardwood sections: To BS EN 1313-2:-
        2.2.1.Clause 6 for sawn sections.
        2.2.2.Clause NA.3 for further processed sections.

130 Preservative treated wood

1. Cutting and machining: Completed as far as possible before treatment.
2. Extensively processed timber: Retreat timber sawn lengthways, thicknessed, planed, ploughed, etc.
3. Surfaces exposed by minor cutting and/ or drilling: Treat as recommended by main treatment solution manufacturer.

140 Moisture content

1. Wood and wood based products: Maintained within range specified for the component during manufacture and storage.

250 Finishing

1. Surfaces: Smooth, even and suitable to receive finishes.

1.1. Arrises: Eased unless shown otherwise on drawings.

2. End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Ω End of Section

Z11
Purpose made metalwork

To be read with preliminaries/ general conditions.

100 Bespoke metal elements

1. Refer to Architect's specification for primary Z11 clauses related to purpose made metalwork; the below refer specifically to metal elements within the landscape.
2. Refer to design intent details provided and note requirements for specialist fabrication drawings to be submitted for approval.
3. Refer to sections Q50 and Q52 of this specification.

310 Materials generally

1. Grades of metals, section dimensions and properties: To appropriate British Standards. When not specified, select grades and sections appropriate for the purpose.
2. Prefinished metal: May be used if methods of fabrication do not damage or alter appearance of finish, and finish is adequately protected.
3. Fasteners: To appropriate British Standards and, unless specified otherwise, of same metal as component being fastened, with matching coating or finish.

320 Steel long and flat products

1. Hot rolled structural steels (excluding structural hollow sections and tubes): To BS EN 10025-1.
2. Fine grain steels, including special steels: To BS EN 10025-3 and -4.
3. Steels with improved atmospheric corrosion resistance: To BS EN 10025-5.

400 Stainless steel products

1. Chemical composition and physical properties: To BS EN 10088-1.
2. Sheet, strip and plate: To BS EN 10088-2.
3. Semi-finished products bars, rods and sections: To BS EN 10088-3.
4. Wire: To BS EN 1088-3.
5. Tubes
    5.1. Welded circular: To BS EN 10296-2.
    5.2. Seamless circular: To BS EN 10297-2.

410 Aluminium alloy products

1. Designations
    1.1. Designation system, chemical composition and forms: To BS EN 573-1, -2, -3 and -5.
    1.2. Temper designations: To BS EN 515.
2. Sheet, strip and plate: To BS EN 485-1 to -4.
3. Cold drawn rods, bars and tubes: To BS EN 754-1 and -2.
4. Extruded rods, bars, tubes and profiles: To BS EN 755-1 and -2.
5. Drawn wire: To BS EN 1301-1, -2 and -3.
6. Rivet, bolt and screw stock: To BS 1473.
7. Structural sections: To BS 1161.

Fabrication

515 Fabrication generally

1. Contact between dissimilar metals in components: Avoid.
2. Finished components: Rigid and free from distortion, cracks, burrs and sharp arrises.
   2.1. Moving parts: Free moving without binding.
3. Corner junctions of identical sections: Mitre.

520 Cold formed work

1. Profiles: Accurate, with straight arrises.

530 Stainless steel fabrication

1. Guillotining or punching: Do not use for metal thicknesses greater that 10 mm.
2. Thermal cutting
   2.1. Carbonation in the heat affected zone: Remove, after cutting.
3. Bending
   3.1. Plates or bars: Cold bending radius not less than material thickness.
   3.2. Tubes: Cold bending radius not less than 2 x tube diameter.
4. Welding: In addition to general welding requirements:
   4.1. Protect adjacent surfaces from weld spatter.
   4.2. Pickle all welds before post fabrication treatments.
5. Protection: Provide protection to fabricated components during transit and on site.

Finishing

745 Preparation for application of coatings

1. General: Complete fabrication, and drill fixing holes before applying coatings.
2. Paint, grease, flux, rust, burrs and sharp arrises: Remove.

780 Galvanizing

1. Standard: To BS EN ISO 1461.
2. Preparation
   2.1. Vent and drain holes: Provide in accordance with BS EN ISO 14713-1 and -2. Seal after sections have been drained and cooled.
   2.2. Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
   2.3. Welding slag: Remove.
   2.4. Component cleaning: To BS EN ISO 8501-3.
   2.5. Grade: TBC

Completion

910 Documentation

1. Submit
   1.1. Manufacturer's maintenance instructions.
   1.2. Guarantees, warranties, test certificates, record schedules and log books.

920 Completion

1. Protection: Remove.
2. Cleaning and maintenance: Carry out in accordance with procedures detailed in fabricators' guarantees.

Ω End of Section

Z12
Preservative/ fire retardant treatment

To be read with preliminaries/ general conditions.

110 Treatment application

1. Timing: After cutting and machining timber, and before assembling components.
2. Processor: Licensed by manufacturer of specified treatment solution.
   2.1. Operatives: WPA certified
3. Certification: For each batch of timber provide a certificate of assurance that treatment has been carried out as specified.

120 Commodity specifications

1. Standard: In accordance with the Wood Protection Association (WPA) publication 'Industrial wood preservation specification and practice'.

130 Preservative treatment solution strengths/ treatment cycles

1. General: Select to achieve specified service life and to suit treatability of specified wood species.

180 Recycled timber containing creosote or chromium/ arsenic-based preservative

1. Usage: Do not use.

610 Making good to preservative treatment on-site

1. Preservative solution: Compatible with off-site treatment.
2. Application: In accordance with preservative manufacturer's recommendations.

Ω End of Section

Z21
Mortars

Cement gauged mortars

100 General notes

1. To be read with Preliminaries/ General conditions.

110 Cement gauged mortar mixes

1. Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

120 Sand for site made cement gauged masonry mortars

1. Standard: To BS EN 13139.
2. Grading: 0/2 (FP or MP).
    2.1. Fines content where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5-6):
        2.1.1. Lower proportion of sand: Use category 3 fines.
        2.1.2. Higher proportion of sand: Use category 2 fines.
3. Sand for facework mortar: Maintain consistent colour and texture. Obtain from one source.

131 Ready-Mixed lime:sand for cement gauged masonry mortars

1. Standard: To BS EN 998-2.
2. Lime: Nonhydraulic to BS EN 459-1.
    2.1. Type: CL 90S.
3. Pigments for coloured mortars: To BS EN 12878.

135 Site made lime:sand for cement gauged masonry mortars

1. Permitted use: Where a special colour is not required and in lieu of factory made ready-mixed material.
2. Lime: Nonhydraulic to BS EN 459-1.
    2.1. Type: CL 90S.
3. Mixing: Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.

160 Cements for mortars

1. Cement: To BS EN 197-1 and CE marked.
    1.1. Types: Portland cement, CEM I.
        1.1.1. Portland limestone cement, CEM II/A-L or CEM II/A-LL.
2. Portland slag cement, CEM II/B-S.
3. Portland fly ash cement, CEM II/B-V.
    3.1. Strength class: 32.5, 42.5 or 52.5.
4. White cement: To BS EN 197-1 and CE marked.
    4.1. Type: Portland cement, CEM I.
    4.2. Strength class: 52.5.
5. Sulfate resisting Portland cement

5.1. Type: To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.

6. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
   6.1. Strength class: 32.5, 42.5 or 52.5.
7. Masonry cement: To BS EN 413-1 and CE marked.
   7.1. Class: MC 12.5.

180 Admixtures for site made cement gauged mortars

1. Air entraining (plasticizing) admixtures: To BS EN 934-3 and compatible with other mortar constituents.
2. Other admixtures: Submit proposals.
3. Prohibited admixtures: Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

190 Retarded ready to use cement gauged mortar

1. Standard: To BS EN 998-2.
2. Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.
   2.1. Type: CL 90S.
3. Pigments for coloured mortars: To BS EN 12878.
4. Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
   4.1. Retempering: Restore workability with water only within prescribed time limits.

200 Storage of cement gauged mortar materials

1. Sands and aggregates: Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.
2. Factory made ready-mixed lime:sand/ ready to use retarded mortars: Keep in covered containers to prevent drying out or wetting.
3. Bagged cement/ hydrated lime: Store off the ground in dry conditions.

210 Making cement gauged mortars

1. Batching: By volume. Use clean and accurate gauge boxes or buckets.
   1.1. Mix proportions: Based on dry sand. Allow for bulking of damp sand.
2. Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
   2.1. Mortars containing air entraining admixtures: Mix mechanically. Do not overmix.
3. Working time (maximum): Two hours at normal temperatures.
4. Contamination: Prevent intermixing with other materials.

Lime:sand mortars - Not Used

Ω End of Section

Z31
Powder coatings

To be read with preliminaries/ general conditions.

120 Powder coating materials

1. Manufacturer: Obtain from one only of the following: Submit proposals.
2. Selected manufacturer: Submit details before commencement of powder coating including:
   - 2.1. Name and contact details.
   - 2.2. Details of accreditation schemes.
   - 2.3. Technical data of product including current Agrément certificates.

210 Working procedures

1. Comply with the follow following standards.
   - 1.1. Aluminium components: To BS 6496 or BS EN 12206-1.
   - 1.2. Steel components: To BS EN 13438.
   - 1.3. Safety standards: To British Coatings Federation 'Code of safe practice: Powder coating. Application of coating powders by electrostatic spraying'.
   - 1.4. Health and safety guidance: Health and Safety Executive 'Reducing risk associated with using coating powders - employers' web page.

220 Powder coating applicators

1. Applicator requirements
   - 1.1. Approved by powder coating manufacturer.
   - 1.2. Currently certified to BS EN ISO 9001.
   - 1.3. Comply with quality procedures, guarantee conditions, standards and tests required by powder coating manufacturer.
   - 1.4. Selected applicator: Submit details before commencement of powder coating including:
     - 1.4.1. Name and contact details.
     - 1.4.2. Details of accreditation schemes.

225 Guarantees

1. Powder coating manufacturer and applicator guarantees
   - 1.1. Submit sample copies before commencement of powder coating.
   - 1.2. Submit signed project specific copies on completion of work.

230 Control samples

1. Sequence: Prior to ordering materials for the works, obtain approval of appearance for:
   - 1.1. Powder coated samples: Of various grades and forms of background metal to be used, showing any colour, texture and gloss variation.
   - 1.2. Fabrication samples: Showing joint assembly, how powder coating is affected and how any cut metal edges are finished and protected.
   - 1.3. Where manual application is required, controlled samples should be coated and inspected for colour and gloss stability.
2. Samples to include the following information
   - 2.1. Product reference.
   - 2.2. Colour.

2.3. Reference number.

2.4. Name.

2.5. Gloss level.

240 Qualicoat quality assurance system

1. Requirement: Powder and coating application to the following designated components is to be tested and approved in accordance with the Qualicoat system.
   1.1. Designated components: TBC

250 Component design

1. Condition of components to be powder coated
   1.1. To comply with relevant recommendations of BS 4479-1, -3, and -4.
   1.2. Of suitable size to fit plant capacity.
   1.3. Of suitable thickness to withstand oven curing.

310 Pretreatment of aluminium components

1. Condition of components to be pretreated
   1.1. Free from corrosion and damage.
   1.2. All welding and jointing completed and finish off as specified.
   1.3. Free from impurities including soil, grease and oil.
   1.4. Suitable for and compatible with the pretreatment process.
2. Conversion coating requirements
   2.1. Chromate system: To BS 6496 or BS EN 12206-1.
   2.2. Chromate-free system: To BS EN 12206-1. Submit details before using.
3. Rinsing requirements: Use demineralized water. Drain and dry.

320 Pretreatment of steel components

1. Condition of components to be pretreated
   1.1. Free from corrosion and damage.
   1.2. All welding and jointing completed and finish off as specified.
   1.3. Free from impurities including soil, grease and oil.
   1.4. Suitable for and compatible with the pretreatment process.
2. Conversion coating requirements: To BS EN 13438.
3. Rinsing requirements: Use demineralized water. Drain and dry.

330 Pretreatment for protection in aggressive environments

1. Minimum thickness of 60 microns across significant and/ or primary surfaces.
2. Minimum thickness of 25 microns on non-significant and/ or secondary faces ensuring a coherent film layer.
3. All cut edges, drilled holes and mitres to be fully sealed.
4. Cleaning and maintenance: Carried out once every three to twelve months (dependent on proximity to pollutant).

430 Extent of powder coatings

1. Application: To visible component surfaces, and concealed surfaces requiring protection. Coated surfaces will be deemed 'significant surfaces' for relevant BS 6496 or BS EN 13438 performance requirements.

435 Application of powder coatings

1. Surfaces to receive powder coatings: Free from dust or powder deposits.
2. Powder colours: Obtain from one batch of one manufacturer.
3. Commencement of powder coating: To be continuous from pretreatment.
4. Components to be installed on site in order of application.
5. Jig points: Not visible on coated components.
6. Curing: Controlled to attain metal temperatures and hold periods recommended by powder coating manufacturer.
7. Stripping and recoating of components: Only acceptable by prior agreement of powder coating manufacturer. Stripping, pretreatment and powder coating are to be in accordance with manufacturer's requirements.
8. Overcoating of components: Not acceptable.

440 Performance and appearance of powder coatings

1. For aluminium components
   1.1. Standard: To BS 6496 or BS EN 12206-1.
2. For steel components
   2.1. Standard: To BS EN 13438.
3. Visual inspection after powder coating: Significant surface viewing distances to be as specified in the relevant Standard, unless specified otherwise.
4. Colour and gloss levels: To conform with approved samples.

450 Aluminium alloy fabrications

1. Units may be assembled
   1.1. Before powder coating.
   1.2. From components powder coated after cutting to size.
   1.3. Where approved, from components powder coated before cutting to size.
2. Exposure of uncoated background metal: Not acceptable.
3. Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

460 Steel fabrications

1. Unit assembly: Wherever practical, before powder coating.
2. Exposure of uncoated background metal: Not acceptable.
3. Assembly sealants: Compatible with powder coatings. Obtain approval of colour if sealants are visible after fabrication.

470 Fixings

1. Exposed metal fixings: Powder coat together with components, or coat with matching repair paint system applied in accordance with the powder coating manufacturer’s recommendations.

480 Damaged components – repair or replacement

1. Before delivery to site: Check all components for damage to powder coatings. Replace damaged components.
2. Site damage: Submit proposals for repair or replacement.

510 Protection

1. Powder coated surfaces of components: Protect from damage during handling and installation, or by subsequent site operations.
2. Protective coverings must be
   2.1. Resistant to weather conditions.
   2.2. Partially removable to suit building in and access to fixing points.
3. Protective tapes in contact with powder coatings must be
   3.1. Low tack, self adhesive and light in colour.
   3.2. Applied and removed in accordance with tape and powder coating manufacturers' recommendations. Do not use solvents to remove residues as these are detrimental to the coating.
4. Inspection of protection: Carry out monthly. Promptly repair any deterioration or deficiency.

520 Protection in hazardous locations

1. Minimum thickness of 60 microns across significant and/ or primary surfaces.
2. Minimum thickness of 25 microns on non-significant and/ or secondary faces ensuring a coherent film layer.
3. All cut edges, drilled holes and mitres to be fully sealed.
4. Cleaning: Carried out once every three to twelve months (dependent on proximity to pollutant).

535 Documentation

1. Submit the following information for each batch of powder coated components
   1.1. Supplier.
   1.2. Trade name.
   1.3. Colour.
   1.4. Type of powder.
   1.5. Method of application.
   1.6. Batch and reference number.
   1.7. Statutory requirements.
   1.8. Test certificates.
   1.9. Maintenance instructions.

540 Completion

1. Protection: Remove any protective coverings.
2. Cleaning and maintenance of powder coatings: Carry out in accordance with procedures detailed in powder coating manufacturer and applicator guarantees.

Ω End of Section

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