Bradley-Hole Schoenaich Landscape Architects

Belgrove House

BEL-BHS-ZZ-XX-SP-LA-00804

Specification for hard and soft landscape works

RIBA Stage 4B

Status: For review and comment

Rev P01

17-03-2023

Contents

Q10
Kerbs, edgings, channels & paving accessories REVISED

Types of kerbs/edgings and channels

105 Sustainability requirements

1. **Environmental Product Declaration**

   All materials for hard landscaping or exterior furniture shall be supplied with EPDs where feasible for any hardscape or external furniture items.
   Compliant EPDs are valid if they are:

   - EPD unexpired at the point of specification.
   - EPD issued or registered by an ISO 14025 compliant programme operator.
   - For products covered by the Construction Product Regulations, the EPD must have been generated using product category rules based on either BS EN 15804 or ISO 21930.

   NOTE: Environmental Product Declaration (EPD) - An EPD compliant with BREEAM is an independently verified environmental label (i.e. ISO Type III label) according to the requirements of ISO 14025.

2. **Responsible Sourcing**

   All materials for hard landscaping or exterior furniture should be responsibly sourced where possible. The following certification schemes are considered acceptable:
   All concrete / blockwork /plasterboard elements to be used must achieve BES 6001 Very Good or Excellent.

   - All steel elements to be used must achieve BES 6001 Very Good or Excellent or
     - CARES Sustainable Constructional Steel Scheme (SCSS) /Eco Reinforcement Responsible Sourcing Standard, Steel Products for the Reinforcement of Concrete.
   - All other materials to be used must achieve BES 6001 where possible and at least Environmental Management Systems (EMS) (certified) - such as ISO14001 or
     - Environmental Management System (EMS) (certified) for key process and supply chain extraction process.
     - Recycled materials certified EMS for key process.

109 Preliminaries

1. This specification to be read with Landscape Specification Preliminaries and with all Preliminaries and specifications from Architects, Engineers and other consultants.
2. This section Q10 of the Landscape Specification particularly deals with clauses which are specific to landscape operations. It does not replace section Q10 prepared by others and is to be read in conjunction with these.

120 E1 Natural stone kerb

1. Description: TO ALL ROADS
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0314 Detail E1
2. Standard: To BS EN 1343.
3. Supplier: Contractor's choice
4. Stone type: Silver Grey Granite
5. Size (width x height): 300 x 200 x 900mm
6. Freeze/ Thaw resistance: Resistant

7. Special shapes: Transition kerbs Internal radius kerbs External radius kerbs
8. Finish: Flamed finish front and top face, sawn all sides
9. Bedding: as per Camden public realm technical manual
10. Joints generally: as per Camden public realm technical manual

121 E2 Natural stone kerb

1. Description: DOUBLE KERB TO EUSTON ROAD
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0314 Detail E2
2. Standard: To BS EN 1343.
3. Supplier: Contractor's choice
4. Stone type: Silver Grey Granite
5. Size (width x height): 185 mm wide x 200 mm tall
   (Laid with 153 mm upstand approx)
6. Freeze/ Thaw resistance: Resistant
7. Finish: Flamed finish front and top face, sawn all sides
8. Bedding: as per Camden public realm technical manual
9. Joints generally: as per Camden public realm technical manual

122 E3 Natural stone kerb

1. Description: SPECIAL KERB TO BELGROVE STREET
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0314 Detail E3
2. Standard: To BS EN 1343.
3. Supplier: Contractor's choice
4. Stone type: Silver Grey Granite
5. Size (width x height): 300 mm wide x 320 mm tall
6. Freeze/ Thaw resistance: Resistant
7. Finish: Flamed finish front and top face, sawn all sides
8. Bedding: as per Camden public realm technical manual
9. Joints generally: as per Camden public realm technical manual

123 E6 Natural stone channel

1. Description: DISH CHANNEL
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0314 Detail E6
2. Standard: To BS EN 1343.
3. Supplier: Contractor's choice
4. Stone type: Silver Grey Granite
5. Size (width x height): 300 mm wide
6. Freeze/ Thaw resistance: Resistant
7. Finish: Flamed finish front and top face, sawn all sides
8. Bedding: as per Camden public realm technical manual
9. Joints generally: as per Camden public realm technical manual

125 Reclaimed stone kerbs

1. Description: Where possible, existing granite kerbs to be salvaged and reused
2. Preparation: Cleaning off traces of old mortar, where appropriate, include a requirement for units to be inspected before preparation and/ or before re-laying.

3. Bedding: as per Camden public realm technical manual
4. Joints generally: as per Camden public realm technical manual

170 E7 Linear slot drainage channel systems

1. Manufacturer: Manufacturer: Kent Stainless
   Web: www.kentstainless.com
   Email: info@kentstainless.com
   Tel: +44 (0) 800 376 8377
   Fax: +353 53 914 1802
   Address: Ardcavan Works, Ardcavan Co Wexford, Ireland
   1.1. Product reference: Product reference: Slot Channel
   Type: KSC125/200/100-10
2. Material: Grade 1.4404 (316L) stainless steel
3. Loading: BS EN 124 B125
4. Channel
   4.1. Throat: Visible
   4.2. Type: Slot channel
5. Accessories: • Connectors: Channel connector
   • End cap: Slot channel end cap
   • Access cover: Recessed access box
   • Outlet point: Bottom
6. Bedding: Concrete

201 E4 Metal edging

1. Description: TO LEVEL 5 GRAVEL MARGIN
   As drawing: BEL-BHS-ZZ-XX-DR-LA-0369 Detail E4
2. Manufacturer: Kent Stainless
   Ardcavan, Co. Wexford, Y35 CRW2, Ireland
   https://www.kentstainless.com/
   2.1. Product reference: Bespoke steel edging
3. Size: 97 x 60 x 5mm
4. Type/ Material: Grade 316L Stainless Steel
   4.1. Finish: shot peened
5. Joints: Panels to be assembled with no joints, units to be tack welded at the back on site.

250 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.
   1.1. Designated materials: Granite kerbs, precast concrete, stainless steel edging

Roads/paving accessories/ marking/ demarcation - Not Used

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.

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.

650 Sealant movement joints

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: To Engineers' details and specification.
4. Sealant: Submit proposals
    4.1. Colour: To match mortar joints
5. Sealant application: As section Z22.

Deleted clauses

310 P8 Tactile flags and slabs DELETED

Ω End of Section

Q25
Slab & sett paving REVISED

General

105 Sustainability requirements

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     - Environmental Management System (EMS) (certified) for key process and supply chain extraction process.
     - Recycled materials certified EMS for key process.

110 P3 Stone slab paving system

1. Description: TO BUILDING ENTRANCES
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0109 Detail P3
2. By others:: Subgrade improvements, granular sub-bases, bases and other layers: to Engineers' details and specification
3. Laying course: Proprietary bedding mortar as clause 306
   3.1. Accessories: Primer for underside of flags or slabs
4. Paving units: Natural stone slabs as clause 312
5. Jointing: Proprietary slurry mortar as clause 307
   5.1. Bond: As drawings
6. Accessories: None

111 P4 Stone slab paving system

1. Description: TO PUBLIC REALM AREAS
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0109 Detail P4

2. By others: Subgrade improvements, granular sub-bases, bases and other layers: to Engineers' details and specification
3. Laying course: Proprietary bedding mortar as clause 306
   3.1. Accessories: Primer for underside of flags or slabs
4. Paving units: Natural stone slabs as clause 310
5. Jointing: Proprietary slurry mortar as clause 307
   5.1. Bond: As drawings
6. Accessories: None

127 P10 Pedestal supported slab paving system

1. Description: TO ALL ROOF TERRACES OTHER THAN LEVEL 5
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0109 Detail P10
2. Preparation of existing base: Not required
3. Paving support: Pedestals as clause 480
4. Paving units: Stone slabs as clause 311
5. Accessories: Shims to levels calibration

128 P11 Pedestal supported slab paving system

1. Description: TO LEVEL 5 TERRACE
   Drawing ref: BEL-BHS-ZZ-XX-DR-LA-0369 Detail P11
2. Preparation of existing base: Not required
3. Paving support: Slim pedestals as clause 481
4. Paving units: Stone slabs as clause 313
5. Accessories: Shims to levels calibration
6. Options: Note options for type/finish of stone as clause 313
   Refer to drawing BEL-BHS-ZZ-05-DR-LA-0112 for paving layout options which may impact labour costs

140 P2 Stone sett paving system

1. Description: TO BUILDING PERIMETER
   Drawing ref: BEL-BHS-ZZ-XX-DR-LA-0369 Detail P2
2. By others:: Subgrade improvements, granular sub-bases, bases and other layers: to Engineers' details and specification
3. Laying course: Proprietary bedding mortar as clause 306
   3.1. Accessories: Primer for underside of setts
4. Paving units: Natural stone setts as clause 330
5. Jointing: Proprietary slurry mortar as clause 307
   5.1. Bond: As drawings

141 P5 Reclaimed sett paving system

1. Description: TO LOADING BAYS AND BUILDING LOADING BAY ENTRANCE
   Drawing ref: BEL-BHS-ZZ-XX-DR-LA-0369 Detail P5
2. By others: Subgrade improvements, granular sub-bases, bases and other layers: to Engineers' details and specification
3. Laying course: Proprietary bedding mortar as clause 306
   3.1. Accessories: Primer for underside of setts
4. Paving units: Reclaimed natural stone setts as clause 331

5. Jointing: Proprietary slurry mortar as clause 307
    5.1. Bond: As drawings

142 P6 Stone sett paving system

1. Description: TO VEHICULAR JUNCTIONS / CROSSINGS
2. By others: Subgrade improvements, granular sub-bases, bases and other layers: to Engineers' details and specification
3. Laying course: Proprietary bedding mortar as clause 306
    3.1. Accessories: Primer for underside of setts
4. Paving units: Natural stone setts as clause 332
5. Jointing: Proprietary slurry mortar as clause 307
    5.1. Bond: As drawings

System performance

210 Design – natural stone slab paving system

1. Design: Complete the design of the natural stone slab paving system in accordance with BS 7533-4.
    1.1. Site category: to Engineers' details and specification
2. Ground conditions: to Engineers' details and specification
3. Performance criteria: to comply with this specification and with BHSLA design intent drawings unless otherwise agreed with CA.
4. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

240 Design – natural stone sett paving system

1. Design: Complete the design of the natural stone sett paving system in accordance with BS 7533-7.
2. Ground conditions: to Engineers' details and specification
3. Performance criteria: to comply with this specification and with BHSLA design intent drawings unless otherwise agreed with CA.
4. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

Products

306 Proprietary mortar bedding of flags & slabs (BS 7533-12)

1. Material: "SteinTec tuffbed 2-pack" water permeable bedding mortar. "SteinTec tuffbond" priming mortar.
2. Thickness: Target depth to be 30 mm.
3. Thickness range: Maximum range 20 mm minimum to 70 mm maximum.
4. Standard: Follow manufacturer's instructions for mixing and laying

    SteinTec
    730 London Road
    West Thurrock
    Essex
    RM20 3NL

    Tel: 01708-860-049
    Email: info@steintec.co.uk
5. Consistency of tuffbed 2-pack bedding mortar: Add sufficient water to achieve a 150 mm slump.

6. Consistency of tuffbond priming mortar: Mix to a free flowing liquid slurry.
7. Laying:
    - All work must be carried out on the side of the unlaid face, at no time shall operatives stand, work or rest materials on freshly laid paving.
    - The surface of the roadbase or supporting structure must be thoroughly cleaned.
    - The surface of the concrete roadbase or supporting structure is to be coated with "SteinTec tuffbond" priming mortar to a minimum thickness of 1.5 mm immediately prior bedding mortar being laid. Priming mortar may be applied by brushing on.
    - Bedding mortar must not be laid in advance of more than 1 row of paving elements.
    - Bedding mortar must be laid to a surcharge height of not less than 6 mm.
    - The underside of paving elements is to be coated with "SteinTec tuffbond" priming mortar to a minimum thickness of 1.5 mm immediately prior to sett being placed on bedding mortar. Priming mortar may be applied by brushing on or by dipping the paving elements into a shallow receptacle containing priming mortar.
    - Priming mortar shall not be applied more than one minute prior to paving elements being laid upon bedding mortar.
    - Paving elements to be positioned firmly to line and level immediately, thereafter not to be disturbed.
8. Cleaning of paving elements during laying : All mortar contamination must be removed from the surface of freshly laid paving immediately, using clean water and a sponge.
9. Cleaning of areas of freshly laid paving following laying: Areas of freshly laid paving to be thoroughly rinsed with clean water at the end of a working shift.

307 Jointing of mortar bedded paving (BS 7533-12)

1. Material: "SteinTec tufftop" jointing mortar.
2. Standard: Follow manufacturer's instructions for mixing and laying

    SteinTec
    730 London Road
    West Thurrock
    Essex
    RM20 3NL

    Tel: 01708-860-049
    Email: info@steintec.co.uk
3. Preparation: Joints must be clean and clear of all foreign matter. The area to be jointed must be thoroughly soaked with clean water and maintained in a wet condition until jointing mortar is applied.
4. Consistency of mortar: Mix to a free flowing liquid slurry grout.
5. Jointing:
    - Freshly mixed mortar is spread over the surface and forced into joints using a suitable rubber/neoprene squeegee.
    - Mortar is allowed to settle in joints and fresh mortar is drawn across the surface repeatedly until joints are full and settlement has ceased.
    - Water may be applied to the surface at any time in the form of a fine spray, to prevent drying of the mortar on the surface.
6. Cleaning of paving elements following jointing:
    - Excess mortar is removed using a suitable rubber/neoprene squeegee.
    - Water is applied to the surface in the form of a fine spray, taking care not to disturb the mortar in the joints, until the surface is wet.
    - Water and excess water is removed using a suitable rubber/neoprene squeegee.

- Process repeated: Water is applied to the surface in the form of a fine spray, taking care not to disturb the mortar in the joints, until the surface is wet.
- Process repeated: Water and excess water is removed using a suitable rubber/neoprene squeegee.
- The surface is maintained in a damp condition by periodic application of water in the form of a fine spray.
- The surface may be rinsed clear with clean water after sufficient time has elapsed for joint mortar to have become sufficiently stable to resist action of cleaning.

308 Protection and quarantine for freshly jointed paving

1. Freshly jointed areas must be protected from vehicular traffic until bedding mortar has gained not less than 30 N/mm² compressive strength and jointing mortar has gained not less than 25 N/mm². Mortar cubes for testing shall be cured on site in unprotected conditions.
2. Non-HGV trafficking may be permitted after quarantine of one day following jointing, providing the minimum strength gain requirements for bedding mortar have been passed.
3. Pedestrian trafficking may be permitted on the next day following jointing.
4. Materials storage: Do not overload pavings with stacks of materials until the quarantine period for vehicular trafficking has passed.
5. Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.

310 Natural stone slabs

1. Description: TO PUBLIC REALM AREAS (P4)
2. Standard: To BS EN 1341.
3. Supplier: Marshalls
   https://www.marshalls.co.uk/
   3.1. Product reference: Scoutmoor
   3.2. Quarry: Submit proposals
4. Petrographical description/ stone type: Yorkstone
5. Finish: Diamond sawn all sides
6. Sizes: 600mm width x varying length x 63 mm deep
7. Arrises: Square
8. Breaking strength: Class 5
9. Slip resistance: to Camden standard
10. Skid resistance: to Camden standard
11. Surface treatment: to Camden standard

311 Natural stone slabs

1. Description: FOR ROOF TERRACES (P10)
2. Standard: To BS EN 1341.
3. Supplier: Johnsons Wellfield Limited
   Crosland Hill Rd, Huddersfield HD4 7AB
   https://www.johnsons-wellfield.co.uk/
   3.1. Product reference: Classic Buff
   3.2. Quarry: Submit proposals
4. Petrographical description/ stone type: York Stone
5. Finish: Diamond sawn all sides
6. Sizes: 380-420mm width x 800mm length x 50 mm deep, refer to BHSLA drawings

7. Breaking strength: to Engineers' details and specification
8. Slip resistance: PTV to BS 7976-2 of 49
9. Skid resistance: to Engineers' details and specification
10. Surface treatment: None

312 Natural stone slabs

1. Description: TO BUILDING ENTRANCES (P3)
2. Standard: To BS EN 1341.
3. Supplier: CED Stone
   https://www.cedstone.co.uk/
   3.1. Product reference: Whinstone
   3.2. Quarry: Submit proposals
4. Finish: Diamond sawn all sides, flamed top
5. Sizes: 600mm width x 1200 x 63 mm deep
6. Arrises: Square
7. Breaking strength: Class 5
8. Slip resistance: to Camden and TFL standard
9. Skid resistance: to Camden and TFL standard
10. Surface treatment: to Camden and TFL standard

313 Natural stone slabs

1. Description: TO ROOF TERRACES (P11)
2. Standard: To BS EN 1341.
3. Supplier: Johnsons Wellfield Limited
   Crosland Hill Rd, Huddersfield HD4 7AB
   https://www.johnsons-wellfield.co.uk/
   3.1. Product reference: Crosland Hill Classic Buff

   Alternative option B to price
   Crosland Hill Classic Buff
   Grey sandstone
4. Petrographical description/ stone type: Sandstone
5. Finish: Diamond sawn

   Alternative option B to price for each type of stone
   Diamond sawn
   Shot sawn
6. Sizes: 400 x 800 x 60 mm
7. Breaking strength: to Engineers' details and specification
8. Slip resistance: PTV to BS 7976-2 of 49
9. Skid resistance: to Engineers' details and specification
10. Surface treatment: None

320 P7 Tactile flags and slabs

1. Description: FOR CONTROLLED CROSSINGS
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0109 Detail P7
2. Standard: To DD CEN/TS 15209.
3. Material: Yorkstone

3.1. Manufacturer: Marshalls
https://www.marshalls.co.uk/

3.1.1. Product reference: Scoutmoor Yorkstone

4. Nominal sizes: 400 x 400 x 63mm thick
5. Colour: Natural
6. Type of surface: Blister – type B1

330 Natural stone setts

1. Description: TO PUBLIC REALM AREAS (P2)
2. Standard: To BS EN 1342.
3. Supplier: CED Stone
https://www.cedstone.co.uk/

3.1. Product reference: Whinstone

4. Finish: Diamond sawn all sides, flamed top
5. Sizes: 100 x 100 x 63 mm

5.1. Plan dimension and thickness deviation: Class 2

6. Special setts: oversized units to avoid cuts

331 Reclaimed natural stone setts

1. Description: TO LOADING BAY AREAS (P5)
2. Standard: To BS EN 1342.
3. Source: Reclaimed from site
4. Petrographical description/ stone type: Granite
5. Preparation: Cleaned and washed reclaimed setts, the top surface to be cut and flamed if necessary to comply with standards
6. Sizes: approximately 300 x 150 x 150 mm thick
7. Slip resistance: comply with Camden standard
8. Skid resistance: comply with Camden standard

332 Natural stone setts

1. Description: TO PEDESTRIAN CROSSING POINTS (P6)
2. Standard: To BS EN 1342.
3. Supplier: Marshalls
https://www.marshalls.co.uk/

3.1. Product reference: Scoutmoor Yorkstone

4. Finish: Diamond sawn all sides,
5. Sizes: 205 x 105 x 150mm

5.1. Plan dimension and thickness deviation: Class 2

6. Special setts: oversized units to avoid cuts

455 Joint filler for movement joints

1. Description: in all required locations across the site
2. Type: to Engineers' details and specification

460 Joint breaker barriers for movement joints

1. Description: in all required locations across the site

2. Manufacturer: to Engineers' details and specification

465 Sealant for movement joints

1. Description: in all required locations across the site
2. Sealant
   2.1. Type: to Engineers' details and specification
   2.2. Colour: Submit samples for approval.

480 Support pedestals

1. Manufacturer: Buzon UK Ltd
   1.1. Contact details
      1.1.1. Address: Unit 6
      Teddington Business Park
      Station Road
      Teddington
      Middlesex
      TW11 9BQ
      1.1.2. Telephone: +44 (0)20 8614 0874
      1.1.3. Web: www.buzonuk.com
      1.1.4. Email: info@buzonuk.com
   1.2. Product reference: PB Pedestal System (PB-1)
2. Pedestal type: PB-1. PB-01 or similar. Size to work within given floor build-ups
3. Material: Recycled polypropylene.
4. Adjustment: 42—60 mm.
5. Accessories: Tile separator. Shims. Joist support. Edging products Membrane protection. Slope correction. Spacer tabs.
6. Application temperature: -30 to +90°C.

481 Slim support pedestals

1. Manufacturer: Buzon UK Ltd
   1.1. Contact details
      1.1.1. Address: Unit 6
      Teddington Business Park
      Station Road
      Teddington
      Middlesex
      TW11 9BQ
      1.1.2. Telephone: +44 (0)20 8614 0874
      1.1.3. Web: www.buzonuk.com
      1.1.4. Email: info@buzonuk.com
   1.2. Product reference: Submit proposals
2. Pedestal type: Slimline, to meet height requirement of 13 mm
3. Material: Submit proposals
4. Application temperature: -30 to +90°C.

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 slab paving, Natural stone sett paving, paving on pedestals
    1.2. Location: submit proposals
    1.3. Size (minimum): 1.5 x 1.5 m
    1.4. Included features: Edging
2. Approval of appearance and surface: Obtain before proceeding.

621 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 2°C on a rising thermometer.
    1.2. Frozen roadbase: Do not lay upon a roadbase surface which has not been protected from temperatures below 2°C for at least 24 hours prior to use.
    1.3. Frozen materials: Do not use. All materials must have been protected from temperatures below 2°C for at least 24 hours prior to use.
    1.4. Frozen water: Do not use. All water used for mixing mortars must be at a temperature not less than 2°C.
2. Paving with mortar joints and/ or bedding
    2.1. Protect from frost damage, rapid drying out and saturation until mortar has hardened.
    2.2. Do not apply jointing mortars when ambient temperature exceeds 25°C and is rising.
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: ± 3 mm.
2. Height of finished paving above features
    2.1. At gullies: +3 mm.
    2.2. At drainage channels and kerbs: +3 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: 5 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): to Manufacturer's recommendation
    4.2. Vehicular traffic (minimum): to Manufacturer's recommendation
5. Access: Restrict access to paved areas to prevent damage from site traffic and plant.

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: to Engineers' details and specification.
3. Building up existing surfaces to required levels: to Engineers' details and specification.

690 Reclaimed natural stone

1. Description: existing road kerbs
2. Location/ Access: across the site perimeter
3. Lifting/ Storage/ Protection: Stack neatly on pallets and shrink wrap in plastics sheeting Store in a secure compound
4. Preparation: Remove all traces of old mortar pointing

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

1. Standard generally: In accordance with BS 7533-4.
2. Laying course
    2.1. Nominal thickness: 40mm
3. Laying and jointing: as per Camden standard
4. Joint width (nominal): 6 mm

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: as per Steintec specification
3. Laying course
    3.1. Target thickness after compaction: 40 mm
4. Joint width (nominal): 8 mm

810 Pedestal installation

1. Surface to accept pedestals: Clean and free of debris.
2. Setting out: Mark centre-point of pedestal on substrate surface, with perpendicular guidelines to ensure square layout.
    2.1. Orientation: Align parallel with adjacent features.
    2.2. Spacing: To suit paving material and dimensions
3. Movement tolerance at perimeter of paver system (maximum): 3 mm.

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 until opened to public access
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: Any new hard surfaces
   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 1134 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 1134 As required under BS 7976

Deleted clauses

321 P9 Tactile flags and slabs DELETED

Ω End of Section

Q28
Topsoil and soil ameliorants

System outline

101 Preliminaries

1. This specification to be read with Landscape Specification Preliminaries and with all Preliminaries and specifications from Architects, Engineers and other consultants.
2. This section Q28 of the Landscape Specification particularly deals with clauses which are specific to landscape operations. It does not replace section Q28 prepared by others and is to be read in conjunction with these.

103 Soil systems summary

1. Levels 1-3 centre balcony: Soil system S04 as clause 104
2. Levels 1-3 corner balconies: Soil system S08 as clause 108
3. Level 4 planters: Soil system S05 as clause 115
4. Level 5 planters: Soil system S06 as clause 116
5. Level 6-9 planters: Soil system S07 as clause 107
6. Level 10 planters: Soil system S08 as clause 108
7. Green roof: Soil system S09 as clause 125
8. Public realm beyond red line: Soil system S02 as clause 132
9. Tree pits: Soil system S01 as clause 131

104 S04 Container planting soil system

1. Description: FOR MOVEABLE PLANTERS TO LEVELS 1-3
   Drawing ref: BEL-BHS-ZZ-03-DR-LA-0351
2. Composition
   - 2.1. Topsoil: 670mm intensive substrate as clause 338
   - 2.2. Drainage: Drainage mat as clause Q37/351 and filter fleece as clause Q37/360
   - 2.3. Mulch: 30 mm mulch as clause 356
   - 2.4. Ameliorants: None
   - 2.5. Accessories: Mycorrhizal inoculant as clause 380

107 S07 Container planting soil system

1. Description: FOR WINTER GARDEN / DOUBLE SKIN FACADE PLANTERS
   Drawing ref: BEL-BHS-ZZ-01-DR-LA-0350
2. Composition
   - 2.1. Topsoil: 500 mm hydroponic growing media as clause 335
   - 2.2. Drainage: Filter fleece as clause Q37/360
   - 2.3. Mulch: 30 mm gravel mulch as clause 348
   - 2.4. Ameliorants: None
   - 2.5. Accessories: Mycorrhizal innoculant as clause 381

108 S08 Container planting soil system

1. Description: FOR LEVEL 1-3 MOVEABLE PLANTERS AND LEVEL 10 PLANTERS
   Drawing ref:

BEL-BHS-ZZ-03-DR-LA-0351
BEL-BHS-ZZ-10-DR-LA-0355

2. Composition
   2.1. Topsoil: 500 mm intensive substrate as clause 338
   2.2. Drainage: Drainage mat as clause Q37/351 and filter fleece as clause Q37/360
   2.3. Mulch: 30 mm mulch as clause 356
   2.4. Ameliorants: Sanitized and stabilized composted materials
   2.5. Accessories: Mycorrhizal inoculant as clause 380

115 S05 Raised bed soil system

1. Description: FOR LEVEL 4 PLANTERS
   Drawing ref: BEL-BHS-ZZ-04-DR-LA-0352
2. Composition
   2.1. Topsoil: 580mm depth intensive substrate as clause 338
   2.2. Drainage: Drainage mat as clause Q37/351 and filter fleece as clause Q37/360
   2.3. Mulch: 30 mm mulch as clause 356
   2.4. Ameliorants: Sanitized and stabilized composted materials
   2.5. Accessories: Mycorrhizal inoculant as clause 380

116 S06 Raised bed soil system

1. Description: FOR LEVEL 5 PLANTERS
   Drawing ref: BEL-BHS-ZZ-05-DR-LA-0353
2. Composition
   2.1. Topsoil: 585 mm Intensive substrate as clause 338
   2.2. Drainage: Drainage mat as clause Q37/351 and filter fleece as clause Q37/360
   2.3. Mulch: 30 mm mulch as clause 356
   2.4. Ameliorants: Sanitized and stabilized composted materials
   2.5. Accessories: Mycorrhizal inoculant as clause 380

125 S09 Green roof growing media system

1. Description: TO EXTENSIVE GREEN ROOF
2. Composition
   2.1. Topsoil: 85 mm green roof growing media as clause 338
   2.2. Ameliorants: As per Ecology consultant recommendations
   2.3. Additional species: Max. 10% additional species
   2.4. Accessories: None

131 S01 Tree pit soil system

1. Description: TO TREE PITS
   Location as drawing: BEL-BHS-ZZ-00_DR-LA-0110
2. Depth:
   - Strata cells 250/500 mm total depth below finish
   - Rootspace 600 mm depth total depth below finish
3. Composition
   3.1. Topsoil: Topsoil set 50 mm below top of rootcell.
   Topsoil as clause 336
   3.2. Ameliorants: Sanitized and stabilized composted materials

3.3. Accessories: Mycorrhizal inoculant as clause 380

132 S02 Planting bed soil system

1. Description: TO MIXED PLANTING BEDS
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0311
2. Depth: 1m total depth
3. Composition
   3.1. Topsoil: 400 mm topsoil as clause 330
   3.2. Subsoil: 500 mm subsoil as clause 332
   3.3. Drainage: 100 mm drainage layer as clause 346
   3.4. Mulch: 100 mm mulch as clause 357
   3.5. Ameliorants: Sanitized and stabilized composted materials
   3.6. Accessories: Mycorrhizal inoculant as clause 380

156 Mulching and top dressing system

1. Winter garden containers: 30 mm layer gravel mulch as clause 348
   Top of settled mulch layer 30mm below top of planter
2. Other raised beds and containers: 30 mm layer bark mulch as clause 356
   Top of settled mulch layer 30mm below top of planter
3. Planting beds beyond the red line, in public realm: 100 mm layer gravel mulch as clause 357

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.
7. Disposal: Dispose of any contaminated soil as instructed by CA.

310 Materials not permitted

1. Materials: Peat and Products containing peat

330 Imported manufactured topsoil

1. Description: FOR OPEN GROUND PLANTING
2. Type: Multipurpose topsoil to meet BS3882:2015
   2.1. Soil textural class: Sandy loam
3. Manufacturer: BOURNE AMENITY LIMITED
   The Wharf Rye Road
   Newenden

Kent
TN18 5QG
info@bourneamenity.co.uk
01797 252 299

3.1. Product reference: TS6 10mm Topsoil

332 Imported manufactured subsoil

1. Description: FOR OPEN GROUND PLANTING
2. Type: Multipurpose subsoil to meet BS8601:2013
   2.1. Soil textural class: Sandy loam subsoil
3. Manufacturer: BOURNE AMENITY LIMITED
   info@bourneamenity.co.uk
   3.1. Product reference: Sandy Loam Subsoil

335 Hydroponic container growing media

1. Description: TO WINTER GARDEN
2. Type: Hydroponic growing media
3. Mixture of: 70% LECA 10-15mm size as clause 347
   30% Pine bark as clause 356
4. Manufacturer: Submit proposals

336 Tree pit soil

1. Description: TO TREE PITS
   For use to backfill tree pits and in root cells
2. Type: Tree soil
3. Manufacturer: Green Blue Urban
   Northpoint
   Compass Park
   Junction Road
   Bodiam TN32 5BS
   https://greenblue.com/
   3.1. Product reference: Rootsoil

337 Tree pit soil

1. Description: TO TREE PITS
   For use directly below root balls
2. Type: Tree soil
3. Manufacturer: Green Blue Urban
   https://greenblue.com/
   3.1. Product reference: Arbor Soil Hydro

338 Container growing media

1. Description: TO UPPER LEVEL PLANTERS
2. Type: Intensive substrate
3. Manufacturer: Bauder
   https://www.bauder.co.uk/

345 Aggregates

1. Description: FOR MAINTENANCE MARGINS, BALLAST AND FIRE BREAKS ON THE ROOFS

2. Source: CED Stone Group
   728 London Road
   West Thurrock
   Grays
   Essex
   RM20 3LU

   01708 867237
   sales@cedstone.co.uk

   2.1. Product reference: 20-40mm Dark grey pebbles

346 Aggregates

1. Description: PLANTING BED DRAINAGE LAYER
2. Source: BOURNE AMENITY LIMITED
   info@bourneamenity.co.uk

   2.1. Product reference: 4-10mm shingle

347 Aggregates

1. Description: LIGHTWEIGHT DRAINAGE LAYER
2. Source: BOURNE AMENITY LIMITED
   info@bourneamenity.co.uk

   2.1. Product reference: Lightweight expanded clay aggregate

348 Aggregates - Gravel Mulch

1. Description: MULCH FOR WINTER GARDEN PLANTERS (S07)
2. Source: CED Stone Group
   728 London Road
   West Thurrock
   Grays
   Essex
   RM20 3LU

   01708 867237
   sales@cedstone.co.uk

   2.1. Product reference: Black Basalt Aggregate
   14mm single sized

355 Organic materials - Compost

1. Description: FOR PLANTING BEDS
2. Type: Compost
3. Application: As recommended by soil laboratory to meet the specification plus additional compost shall be worked into top 200mm of topsoil during final cultivation at a rate of 1 m3 of material per 20 m2.
4. Timing: Apply prior to cultivation.
5. Source: BOURNE AMENITY LIMITED
   The Wharf Rye Road
   Newenden
   Kent
   TN18 5QG

   info@bourneamenity.co.uk
   01797 252 299

5.1. Product reference: 10mm PAS100 Compost

356 Organic materials - Pine bark mulch

1. Description: FOR RAISED PLANTERS AND CONTAINERS
2. Type: Pine bark mulch
   Nominal particle size range 3-18mm
3. Purity: Free of pests and diseases, fungus and weed
4. Application: 20mm layer spread over all planting areas
5. Timing: Apply prior to cultivation.
6. Source: MELCOURT INDUSTRIES LIMITED Boldridge Brake
   Long Newnton
   Tetbury
   Gloucestershire
   GL8 8RT

   mail@melcourt.co.uk
   01666 502711

   6.1. Product reference: Pine mini mulch

357 Organic materials - Pine bark mulch

1. Description: FOR PLANTING BEDS BEYOND THE RED LINE
2. Type: Pine bark mulch
   Nominal particle size up to 65mm
3. Purity: Free of pests and diseases, fungus and weed
4. Application: 100mm layer spread over all planting areas
5. Timing: Apply prior to cultivation.
6. Source: MELCOURT INDUSTRIES LIMITED
   mail@melcourt.co.uk
   01666 502711

   6.1. Product reference: Contract bark mulch

358 Organic materials - Pine bark

1. Description: FOR HYDROPONIC MIXTURE
2. Type: Pine bark mulch
   Nominal particle size range 3-18mm
3. Purity: Free of pests and diseases, fungus and weed
4. Source: MELCOURT INDUSTRIES LIMITED
   mail@melcourt.co.uk
   01666 502711

   4.1. Product reference: Pine mini mulch

380 Mycorrhizal inoculant

1. Description: FOR TREE PITS AND ALL CONTAINERS OTHER THAN WINTER GARDEN PLANTERS
2. Manufacturer: Rootgrow

   2.1. Product reference: Mycorrhiza Rootgrow Professional, 100FE5029-PRO
3. Dry Granule Application:: Plants up 30L or 12-14 girth:

   Sprinkle the granules evenly, at the recommended dosage, directly into the prepared planting hole, area, pit and containers. Place the plants directly onto the granules so that the rootzone comes

into contact with the granules. (the rootzone must be moist, manually apply some of the granules to the rootzone base and side)

Large plants over 30L or 12-14 girth:

Apply during backfill. When you have backfilled halfway from the soil surface scrape out roots from around the side of walls of the rootzone and sprinkle granules against the rootzone or as close as possible all the way round.

381 Mycorrhizal inoculant

1. Description: TO WINTER GARDEN PLANTERS
   (Soil system S07 as clause 107)
2. Manufacturer: Mycorrhizal Applications,
   Website: https://mycorrhizae.com/
   2.1. Product reference: MycoApply Endo/Ecto
3. Dry Granule Application:: Sprinkle the granules evenly, at the recommended dosage, directly into the prepared planting hole, area, pit and containers. Place the plants directly onto the granules so that the rootzone comes into contact with the granules. (the rootzone must be moist, manually apply some of the granules to the rootzone base and side)

405 Inorganic fertilizers

1. Description: TO ALL PLANTED AREAS
2. Manufacturer/ source: Submit proposals
   2.1. Product reference: ICL Enmag CRF 11-21-9+6MgO 8-9 Months Planting Fertiliser
3. Application: Apply evenly over all planting areas, excepting areas due to receive meadow seeding, at manufacturers recommended rates for amenity planting.
4. Availability to plants: Slow release
5. Note: Retain fertiliser bags on site until Practical Completion for inspection by the LA if required.

Execution

602 Works by others

1. In the event that subsoil cultivation and spreading shall have been carried out by others in accordance with specification section D20 above, the Landscape Contractor shall inspect all completed subsoil decompaction/ spreading to establish to their own satisfaction that areas are free draining and all materials and standards of operation conform to above specification standards.
2. The Contractor shall notify the CA immediately and in writing if subsoil works or materials fail to comply with Section D20 of this specification or if any areas are not free draining or collect water.
3. The Contractor shall supply proposals for amelioration or replacement as necessary and shall obtain instructions from CA prior to proceeding with soft landscape works.

603 Acceptance of subsoil clearance and decompaction works

1. When the Contractor is satisfied that drainage measures and subsoil preparation are satisfactory he shall accept the works and no claims shall be entertained at any later stage for lack of subsoil drainage or any other failures in groundworks carried out by others.
2. Following acceptance of a prepared area the contractor shall be fully responsible for making-good areas, which puddle or settle, including soil/subsoil treatment and replacement of vegetation unless written notification of the subsoil problem was issued to the CA.

610 Soils analysis

1. Soil to be analysed: Any soils used on the projects

2. Soil analyst: Tim O'Hare Associates
   Howbery Park
   Wallingford
   Oxfordshire
   OX10 8BA
   UK

   E: info@toha.co.uk
   T: +44 (0)1491 822653
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:
      - pH value and lime requirement
      - electrical conductivity
      - available phosphorus, available potassium, available magnesium and trace elements
      - contaminant harmful to humans and to animals (pets and wildlife in general)
      - contaminant detrimental to healthy plant growth (phytotoxic)
      - soil texture
      - organic matter content and total nitrogen content
      - particle size distribution by mechanical analysis
      - information regarding the source of the soil
   4.3. Report detailing soil analyst's recommendations.
   4.4. Soil improvements: The test shall also include recommendations regarding soil improvements in accordance with BS 3882. Recommendations shall be implemented in full at the cost of the contractor and evidence of the amelioration shall be provided.
5. Approval: Submit report to CA and LA and obtain approval for topsoil source prior to placing any orders.

625 Sample loads

1. Description: FOR IMPORTED TOPSOIL, FOR IMPORTED SOIL IMPROVERS/ COMPOST
2. Deliver to site a sample load: of not less than 5 m^3 for works outside the red line
3. Approval: Any topsoil brought onto site without the approval of the LA shall be deemed to have be brought in at the Contractors' risk and he may be instructed to cart such topsoil off the site at his own expense.
4. Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
   4.1. Notice period: 6 working days.
   4.2. Storage: Samples shall be kept separate and distinct from all works and free of weed growth throughout the works.

630 Documentation for imported topsoil

1. Description: FOR PLANTING BEDS, FOR GREEN ROOFS FOR PLANTING BEDS FOR TREE PITS FOR CONTAINER PLANTING
2. Timing: Submit upon request and 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: Two

635 Documentation for compost and composted materials

1. Description: FOR IMPORTED SOIL IMPROVERS
2. Timing: Submit upon request and 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: Two

650 Notice

1. Give notice before
   1.1. Setting out.
   1.2. Spreading topsoil.
   1.3. Spreading compost, mycorrhizal spores
   1.4. Applying herbicide.
   1.5. Applying fertilizer.
   1.6. 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.

660 Grading subsoil for:

1. Description: FOR ALL PLANTED AREAS BEYOND THE RED LINE
2. Standard: In accordance with BS 8601.
3. General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
4. Areas of thicker topsoil: Excavate locally.
5. Avoid compaction.
6. Excess subsoil: Remove.

665 Subsoil surface preparation for:

1. Description: FOR ALL PLANTED AREAS BEYOND THE RED LINE
2. Standard: In accordance with BS 3882.
3. General: Excavate and/ or place fill to required profiles and levels, as section D20.
4. Loosening
   4.1. When ground conditions are sufficiently dry to allow breaking up of soils, loosen thoroughly to specified depth
      4.1.1. Light and noncohesive subsoils: 350mm
      4.1.2. Stiff clay and cohesive subsoils: 600 mm
      4.1.3. Rock and chalk subgrades: Lightly scarify to promote free drainage.
   4.2. Wet conditions: Do not loosen subsoils.
5. Stones: Immediately before spreading topsoil, remove stones larger than 75 mm.

6. Remove from site: All concrete, brick, plastic, glass, vegetative propagules and other debris from site operations or other sources.
7. Drainage: Provide photographic evidence and infiltration test results that prove that all subsoil areas are free draining prior to topsoil application.

668 Weed contamination

1. All subsoil and topsoil stockpiled or spread shall be free of weeds prior to cultivation.
2. Apply Glyphosate at appropriate time to ensure its activity. Re-apply if required.

670 Inspecting formations

1. Give notice: Before spreading topsoil for all landscape areas.
2. Notice period: 7 days

675 Preparation of undisturbed topsoil

1. Standard: In accordance with BS 4428.
    1.1. Grading and cultivation: To suit cultivation operations specified in Q30 and Q31
2. Hard ground: Break up thoroughly.
3. Clearing: Remove visible roots and large stones with a diameter greater than 20 mm.
4. Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
5. Fallow period (minimum): Six months
    5.1. Weed control: At appropriate times treat with a suitable translocated nonresidual herbicide.

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: Submit proposals
2. Height (maximum): 1.5 m
3. Width (maximum): 2.0 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.
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.

710 Spreading topsoil on:

1. Description: FOR ALL PLANTED AREAS
2. Standard: In accordance with BS 3882.
3. Temporary roads/ surfacing: Remove before spreading topsoil.
4. Layers
   4.1. General: Prior to starting spreading operations, ensure that excavations and areas to be filled are free from loose soil, rubbish and standing water. Do not use frozen materials or materials containing ice. Do not place fill on frozen surfaces.
   4.2. Stones: Remove stones from surface of sub-grade exceeding 50mm diameter in any dimension for lawn areas and 100m diameter in any dimension for planting areas.
   4.3. Depth (maximum): 150 mm.
   4.4. Gently firm each layer before spreading the next.
5. Depth after firming and settlement: Trees in soft landscape: 600mm approved topsoil over 400mm in situ or approved imported free-draining subsoil
6. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.
7. Backfill: Planting pits for trees in open ground shall be 300mm wider and 200mm deeper than width and depth of rootballs or containers. No pit shall be less than 1000mm x 1000mm wide.

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.

716 Protection of topsoil

1. All areas that have been topsoiled shall be protected and kept free from pedestrian and/or vehicular traffic and compaction until Practical Completion handover.
2. Protection measures shall be monitored and kept in good repair throughout.

717 Making good compacted topsoil

1. In the event that compaction of previously topsoiled areas does occur, the Contractor shall inform the CA in writing and identify where other trades may have been responsible.
2. In the event that damage occurs to topsoil after spreading the Contractor shall make good at their own expense unless responsibility lies with other trades and written notification has been supplied to the CA.
3. Prior to planting, any compacted areas shall be thoroughly decompacted to their full topsoil depth.
4. Provide evidence that decompacted areas are fully free draining.
5. In cases of excessive compaction, remedial action may not be sufficient and complete topsoil replacement in affected areas may be necessary.
6. Ensure that no mixing of topsoil and subsoil occur at any point.

720 Finished levels of topsoil after settlement

1. In relation to adjoining paving, kerbs or hard surfaces: Flush for areas not due to receive mulch, 30mm below for areas to receive mulch layer.
2. In relation to dpc of adjoining buildings: Not less than 150 mm below.
3. Seeded areas: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
4. Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
5. Adjoining soil areas: Marry in.
6. Thickness of turf or mulch: Included.

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): 150 mm.
    2.2. Sequence: Gently firm each layer before spreading the next.

840 Applying mycorrhizal inoculant

1. Description: To all new planting beds
2. Depth: To manufacturer's/ supplier's recommendations for quantity and application method

845 Applying loose mulch

1. Description: FOR CONTAINER PLANTING FOR PLANTING BEDS FOR TREE PITS
2. Timing: Immediately after planting
3. Preparation: Clear all weeds. Ensure that soil is thoroughly moistened, applying water where necessary.
4. Coverage of mulch (minimum)
    4.1. Planting beds (depth): 30 mm depth
    4.2. Trees: 30 mm depth
    4.3. Container planting: 30 mm depth
5. Finished level of mulch: As per LA drawings

Completion

920 Applying mulch

1. Timing: At end of the maintenance 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): 30 mm
4. Trees: Remulch.
    4.1. Depth (minimum): 30 mm
5. Container planting: Remulch.
    5.1. Depth (minimum): 30 mm

Ω End of Section

Q31
External planting REVISED

General information/ requirements

105 Sustainability requirements

1. **Environmental Product Declaration**

   All materials for hard landscaping or exterior furniture shall be supplied with EPDs where feasible for any hardscape or external furniture items.
   Compliant EPDs are valid if they are:

   - EPD unexpired at the point of specification.
   - EPD issued or registered by an ISO 14025 compliant programme operator.
   - For products covered by the Construction Product Regulations, the EPD must have been generated using product category rules based on either BS EN 15804 or ISO 21930.

   NOTE: Environmental Product Declaration (EPD) - An EPD compliant with BREEAM is an independently verified environmental label (i.e. ISO Type III label) according to the requirements of ISO 14025.

2. **Responsible Sourcing**

   All materials for hard landscaping or exterior furniture should be responsibly sourced where possible. The following certification schemes are considered acceptable:
   All concrete / blockwork /plasterboard elements to be used must achieve BES 6001 Very Good or Excellent.

   - All steel elements to be used must achieve BES 6001 Very Good or Excellent or
     - CARES Sustainable Constructional Steel Scheme (SCSS) /Eco Reinforcement Responsible Sourcing Standard, Steel Products for the Reinforcement of Concrete.
   - All other materials to be used must achieve BES 6001 where possible and at least Environmental Management Systems (EMS) (certified) - such as ISO14001 or
     - Environmental Management System (EMS) (certified) for key process and supply chain extraction process.
     - Recycled materials certified EMS for key process.

106 Standards of materials and workmanship

1. All works and materials shall comply with all relevant and current British Standards and codes of practices such as listed below:
   - Topsoil, BS 3882: 2015
   - Nursery Stock, BS 3936 series
   - Tree work, BS 3998: 2010
   - Transplanting root balled trees, BS 4043: 1989
   - Code of Practice for general landscape operations, BS 4428: 1989
   - Trees in relation to construction BS 5837: 2012
   - Grounds maintenance, BS 7370 series
   - HTA National Plant Specification including CPSE Handling and Establishment of Landscape Plants, Parts I and II
2. All soft landscape works including maintenance operations shall be carried out in accordance with good professional horticultural practice and all operatives shall be appropriately skilled and experience for the type and quality of work they are required to carry out.

- All soft landscape supervisors shall have a suitable horticultural qualification such as RHS Level 3 or Kew Diploma and/or a minimum of five years experience including two years in a supervisory capacity.
- Supervisory staff for the Winter Garden area must have expertise in establishment and maintenance of hydroponic systems, either from commercial growing or green wall systems which includes managing irrigation and liquid feeding systems.
- Names and qualifications of supervisors shall be provided to LA and SM.

3. All products, components and plant materials shall be inspected on delivery to site before using. Any that do not conform to specification or may be defective shall be rejected.
4. Where and to the extent that any materials, products or workmanship may not be fully detailed or specified, they shall be of a standard appropriate to the works and suitable for the purposes stated in or reasonably to be inferred from the project documents.
5. Plant material shall be inspected regularly during the defects period and any plants found to be defective or not to comply with specification on leafing out or on flowering shall be identified to the Landscape Architect and unless otherwise instructed plants shall be replaced immediately.

107 Supervision and monitoring

1. 1. A named supervisor must be on site at all times and carry a mobile telephone which is available to the LA and SM. Any works relating to the Winter Garden shall be supervised by staff with the relevant experience as set out above. Supervisors must ensure that all soft landscape site operatives are fully aware of all clauses in this specification, which are relevant to their field of operations.
2. 2. The contractor shall engage a specialist with suitable experience who inspects and monitors the liquid feeding and irrigation programme once plants are installed and monitors the hydroponic system for a period of 6 months. This person shall be familiar with these systems and their appointment shall be confirmed prior to commencement of soft landscape works. A suitable professional is Mark Laurence of Climate Adapted Landscapes www.marklaurence.com

108 Programming

1. Following their appointment The Contractor shall agree with the SM, a programme of works for each phase of operations.
    - In so far as possible, programming shall ensure that subsoil de-compaction, topsoil spreading and planting take place after all other adjacent external works are complete.
    - A copy of the agreed programme, and any subsequent revisions shall be supplied to the landscape architect.
2. Where it is unavoidable that the work of other trades be carried out during or after planting operations the Contractor shall liaise with the SM to agree methods of minimising potential damage to soil, planting etc.
3. Any damage to planting areas which does occur, whether caused by the soft landscape contractor or by other trades must be made good prior to Practical Completion at the cost of the Contractor.
4. **Container sizes** must be coordinated with the work to ensure that trees specified can be planted within available widths. The contractor shall then make arrangements for storage and maintenance of all trees/specimen shrubs in a holding area with an irrigation system. Trees/specimen shrubs to be stored in a sheltered area with wind protection from at least two sides and firmly supported in rows. Where it is necessary for the Contractor to store and maintain plants, the contractor shall allow for maintenance and storage costs
5. **Nursery inspections**: All trees and specimen plants are to be supplied from a reputable nursery directly by the contractor. The contractor must arrange for the LA to inspect and tag the trees at the nursery(ies) prior to confirming the order. All expenses for this/these visit(s) is to be covered by the contractor including LA's fee calculated pro-rata, unless these later are to be paid directly by the Client (project Manager to confirm). Inspections shall be programmed in good time to allow plants to be shipped and delivered to site to meet programme deadlines.
6. **Plant delivery and storage on site:**

- The Contractor shall arrange for trees to be delivered to site as required in accordance with the construction programme.
- Any trees, which have deteriorated in quality or have broken/missing branches at the time of delivery to site shall be replaced with matching species in specified sizes from a client approved nursery at the contractors' expense.
- Unless on site storage facilities for plants have been agreed with the SM, the Contractor shall not make arrangements for delivery of plants from the nursery until an area is ready for planting.

7. **Practical completion**:
   In addition to inspections that may take place during progress of the works (see below), on completion of the landscape works, a Practical Completion inspection is to take place at a time to be agreed with the Client and the Soft Landscape Contractor. A snagging list will be issued following this inspection and programming must allow for making good all works within a period of 3-6 weeks after issue of the snagging list.

109 Inspections and approvals

1. **Samples:**
   Samples, and for soils/growing media - analysis reports, of the following materials shall be supplied to the landscape architect for approval prior to ordering and delivery to site.
   - Imported topsoil
   - Proposed "dead man" type invisible tree anchoring system (small relevant section)
   - All exposed elements of the Greenleaf Arborvent system (such as inlet to aeration/watering pipe)
   - Mulch samples including bark and gravel
   - Any other materials/ fittings if different from those specified
2. **Inspections:**
   The contractor shall make advance arrangements with Landscape Architect and SM to approve preparation for works to be carried out and to give the opportunity of inspecting progress and/or completion of the following operations (notice 7 working days):
   - Inspection of planters/planting beds before soiling
   - Final topsoil / light weight soil grades
   - Installation of key stages of the Arborguys system prior and during tree planting, including anchoring systems.
   - Inspection of trees and specimen shrubs at nursery/nurseries
   - Inspection of all plants on delivery
   - Setting out of all planting areas prior to planting.
   - Setting out of furniture and planters.
   - Each site visit during maintenance period.
   - Maintenance, Practical and Final Completion inspections
3. Prior to proceeding with final backfilling with specified planting media, the Contractor shall inspect and test all tree pits and planting areas located in paving or other hard surfaces (raised planters) to ensure that good drainage occurs within the whole designated planting area (or raised planter). Notify SM immediately in writing if drainage is likely to be affected in any area. Backfilling operations to be suspended until areas are fully free draining.

111 Topsoil - acceptance of works by others

1. At the time of starting planting operations, the areas to be planted shall have received the specified topsoil depths to achieve formation levels. Minimum depths of subsoil and topsoil to be as specified in Section Q28.
2. In the event that the Contractor is required to work with topsoil or other substrate that have been supplied and/or spread by others, the Contractor shall inspect the works to establish that it is to their own satisfaction and all materials and standards of operation conform to specification standards as identified in this specification (also see Q28 270/275)

3. Once any inspection has been carried out, notify the CA in writing if any works or materials fail to comply with specification and provide proposals for amelioration or replacement as necessary. Obtain instructions from CA prior to proceeding with soft landscape works
4. If the Contractor is satisfied that materials and standards of operation conform to specification, the Contractor shall accept handover of the works and no claims shall be entertained at any later stage for failure of groundworks carried out by others

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.

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.
2. Frost: No planting operations shall be carried out in frozen conditions. If instructions for planting under frozen or snow covered conditions are issued by the Site Manager or CA the Contractor shall advise both SM and CA in writing of possible effect on plants. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.

125 Times of year for planting

1. Deciduous trees and shrubs: As required by the programme
2. Deciduous trees and shrubs: The programme may require some trees and specimen plant material to be planted outside the late October to March season. Where the programme requires this, rootballed trees shall be containerised before the end of December during the previous dormant season.
3. Conifers and evergreens: As required by the programme
4. Herbaceous plants (including marginal): As required by the programme
5. Container grown plants: As required by the programme
    5.1. Watering and weed control: Provide as necessary.
6. Dried bulbs, corms and tubers: September/ October.
7. Colchicum (crocus): July/ August.
8. Green bulbs: After flowering in spring.
9. Wildflower plugs: September to mid-December or March/April

130 Mechanical tools

1. Restrictions: Do not use within 100 mm of tree and plant stems.
    Use only machinery and tools suitable for the site conditions and the work to be carried out.
    Use hand tools around trees, existing plants and in confined spaces where it is impracticable to use machinery.

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.

   Plants and trees must be thoroughly watered in immediately after planting and as necessary thereafter to ensure good plant establishment and continued thriving of planting. All beds to be thoroughly soaked prior to mulching.

150 Water restrictions

1. General: If water supply is or is likely to be restricted by emergency legislation that applies to construction or maintenance works, do not carry out planting until instructed. If planting has been carried out, provide cost of and 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. Planting balconies, terraces, green roof and winter garden
   1.8. Watering.
   1.9. Practical Completion handover snagging inspection.
   1.10. Practical Completion handover and de-snag inspection.
   1.11. Visiting site during maintenance period.
   1.12. Final Completion handover snagging inspection.
   1.13. Final Completion handover desnag inspection.
2. Period of notice: One week

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. Winter garden containers: : Hydroponic substrate, as section Q28
   1.5. Mulch applied after planting: Mulching and top dressing system, as section Q28

200 Plants/ Trees – general

1. Condition: Materially undamaged, sturdy, healthy free of pests and weeds and vigorous.
2. General:: All plants shall be of the highest quality and shall comply with all drawings, schedules and specifications, with BS 3936 parts 1, 2, 3, 9, 10 and with the HTA National Plant specification unless otherwise specified.
3. Appearance: Of good shape and without elongated shoots.
4. Hardiness: Grown in a suitable environment and hardened off.
5. Health: Free from pests, diseases, discoloration, weeds and physiological disorders.

6. Budded or grafted plants: Bottom worked.
7. Root system and condition: Balanced with branch system.
   Pot volume shall be fully rooted without roots showing spiral growth or pot bound specimens.
   7.1. Standard: The National Plant Specification
8. Species: True to name.
9. Origin/ Provenance: As plant schedule
10. 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 specified on BHSLA drawings.

217 Plants/ Trees – Procurement and quality

1. All trees are to be procured by the contractor. Groups of trees must be clonal with as little variation between individual trees in each group as possible having very similar heights, spreads, clear stem dimensions and ages. Each clonal group must be obtained from one reputable nursery in order to achieve uniformity.
2. All other plants, including specimen shrubs shall also be procured by the Contractor. Plants shall be sourced from a maximum of 3 nurseries and the LA shall inspect all rootball plants and plants in containers of 15L and above (see clause 224 below).

220 Inspection of trees, hedges and specimen plants at nursery

1. Specimens shall be of top quality with bushy even growth from the base and from an extra wide stand in the nursery.
2. **Nursery visits with landscape architect**
   Prior to confirming the order, the contractor shall arrange for the LA to inspect and tag all trees, specimen shrubs/small trees and hedge plants. Photographs of specimen shrubs in containers of 15L and above shall be submitted with notification of the above at the nurseries of origin.
3. Plants which are not of top quality and do not comply fully with the specifications, will be rejected.
4. **Landscape architect fees**
   LA's inspection fee, payable by the contractor is £1000 per day) and all associated expenses shall be met in full by the Contractor.

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 or airpot system

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, Impact of pest/ disease.

246 Labelling and information

1. Standard: To BS 3936.

255 Plants/ Trees reserved at supplier’s premises

1. Predelivery inspection:
   - The Contractor shall make arrangements for the LA to inspect all shrubs, other than those inspected at the nursery of origin, at the Contractors holding ground.
   - Plants which are not of top quality and do not comply fully with the specifications, will be rejected.
   - LA's inspection fee and all associated expenses to be met in full by the Contractor.
2. Labelling: Identify inspected plants/ trees as reserved for use on this project.

260 Plant/ Tree substitution

1. General:: Tenders must be based on plants that are available.
   Substitutions shall be kept to a minimum, if not acceptable, submission of further alternatives may be required.
2. Plants for winter garden: These may need to be contract grown, substitutes are not acceptable.
3. Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
   3.1. Price.
   3.2. Difference from specified plants/ trees.
   3.3. Source nursery,
4. Approval: Obtain written approval from LA and CA before making any substitution. Any non approved substitution will be rejected from site.

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.

7. Trees: Rootballed trees shall be hessian wrapped.
Rootballed trees shall be delivered to site only when the relevant tree pits have been prepared.
Water on delivery to site.
Rootballs shall not be allowed to dry out at any time nor shall they be planted dry.

266 Planting delay

1. Plants not to be planted on day of delivery to site are to be stored as follows or by other approved methods:
    - Rootballed trees: Trees shall be placed in prepared pits within 24 hours of arrival, and planted within 3 days from the day of delivery. Rootballs to be watered regularly to prevent drying out, cover until planted.
    - Root balled specimens: Rootballs shall be covered at all times. Place close together and cover root balls with sand, moist peat or wet straw, bedded on a soft, water holding surface. Store in the shade.
    - Bare rooted plants: Heel-in in prepared trenches, cover with soil and water thoroughly.
    - Container grown plants are to be secured and must not be able to fall.
2. The location of a storage area shall be agreed with the SM and on site security is the responsibility of the Contractor.

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

291 Prefabricated planter systems

1. **THE DESIGN OF ALL THE PLANTERS IS TO BE COMPLETED BY THE CONTRACTOR BASED ON DESIGN INTENT DRAWINGS BY LANDSCAPE ARCHITECT**
2. Drawing ref: Refer to drawings against each individual planter below for design intent
3. Shop drawings for comment: Fabricator drawings to be circulated to the design team for comment prior to fabrication and installation.
    3.1. Material sample: All planter materials shall be submitted and approved.
    3.2. Mock-ups: A sample planter for Levels 6-9, winter garden shall be provided and approved incl access panel, irrigation connections through paving and connection beneath.
4. Modular precast planters: **PL4** Level 5 - 2 pcc sample of min 300x300 size shall be approved
5. Stainless steel planters: **PL1** Levels 1-3 central balcony
PL3 Level 4
6. Moveable stainless steel planters: **PL2** Levels 1-3 & 6-9 corner balcony
PL5 Levels 6-9 (Winter garden)

292 PL1 Prefabricated plant containers

1. **CONTRACTOR TO COMPLETE DESIGN**
2. Locations:: Levels 1-3 central balcony

3. Manufacturer: Kent Stainless
   Ardcavan, Co. Wexford, Y35 CRW2, Ireland
   https://www.kentstainless.com/
4. Material: 6mm 316L Stainless steel, brushed finish
5. Dimensions/ Shape: Design intent drawings:
   BEL-BHS-ZZ-03-DR-LA-0102
   BEL-BHS-ZZ-03-DR-LA-0351
6. Lining: polyproylene filter fleece
7. Accessories: DSE 40 Drainage & Protection Layer infilled with Mineral Drain for loading support and stability. An automatic irrigation system as section S14

293 PL2 Prefabricated moveable plant containers

1. **CONTRACTOR TO COMPLETE DESIGN**
2. Location:: Levels 1-3 & 6-9 corner balcony
3. Manufacturer: Kent Stainless
   Ardcavan, Co. Wexford, Y35 CRW2, Ireland
   https://www.kentstainless.com/
4. Material: 6mm 316L Stainless steel, brushed finish
5. Dimensions/ Shape: Design intent drawings:
   BEL-BHS-ZZ-03-DR-LA-0102
   BEL-BHS-ZZ-03-DR-LA-0361
   BEL-BHS-ZZ-06-DR-LA-0105
   BEL-BHS-ZZ-06-DR-LA-0354
6. Lining: polyproylene filter fleece
7. Accessories: DSE 40 Drainage & Protection Layer infilled with Mineral Drain for loading support and stability. An automatic irrigation system as section S14

   Movable planters with wheels and detachable irrigation connection, only one planter per balcony has connection point

294 PL3 Prefabricated plant containers

1. **CONTRACTOR TO COMPLETE DESIGN**
2. Location:: Level 4
3. Manufacturer: Kent Stainless
   Ardcavan, Co. Wexford, Y35 CRW2, Ireland
   https://www.kentstainless.com/
4. Material: 6mm 316L Stainless steel, brushed finish
5. Dimensions/ Shape: Design intent drawings:
   BEL-BHS-ZZ-04-DR-LA-0103
   BEL-BHS-ZZ-04-DR-LA-0352
6. Lining: polyproylene filter fleece
7. Accessories: DSE 40 Drainage & Protection Layer infilled with Mineral Drain for loading support and stability. An automatic irrigation system as section S14

295 PL4 Precast planter

1. **CONTRACTOR TO COMPLETE DESIGN**
2. Location:: Level 5
3. Manufacturer: Evans Concrete
   Pye Bridge Industrial Estate,
   Pye Bridge, Somercotes, Alfreton DE55 4NX
   https://evansconcrete.co.uk/

4. Material: BLSC185, finish: heavy acid edge, sample reference 2081.1 from Evans, surface protection to prevent staining
5. Waterproofing to precast: Black Jack or similar liquid applied waterproofing - submit proposals
6. Dimensions/ Shape: Design intent drawings:
   BEL-BHS-ZZ-05-DR-LA-0353
   BEL-BHS-ZZ-05-DR-LA-0359
   BEL-BHS-ZZ-05-DR-LA-0360
7. Lining: polyproylene filter fleece
8. Accessories: DSE 40 Drainage & Protection Layer infilled with Mineral Drain for loading support and stability. An automatic irrigation system as section S14

   Allowance for recesses/notches for water points and benches supports.

296 PL5 Prefabricated plant containers

1. **CONTRACTOR TO COMPLETE DESIGN**
2. Location:: Levels 6-9 winter garden
3. Manufacturer: Kent Stainless
   Ardcavan, Co. Wexford, Y35 CRW2, Ireland
   https://www.kentstainless.com/
4. Material: 6mm 316L Stainless steel, brushed finish
5. Dimensions/ Shape: Design intent drawings:
   BEL-BHS-ZZ-06-DR-LA-0105
   BEL-BHS-ZZ-01-DR-LA-0350
   BEL-BHS-ZZ-06-DR-LA-0367
   BEL-BHS-ZZ-06-DR-LA-0368
6. Lining: polyproylene filter fleece
7. Accessories: DSE 40 Drainage & Protection Layer infilled with Mineral Drain for loading support and stability. An automatic irrigation system as section S14

   With stainless steel climber support frame, detachable irrigation connection

   Movable planters with wheels and detachable irrigation connection

297 PL6 Prefabricated plant containers

1. **CONTRACTOR TO COMPLETE DESIGN**
2. Location:: Level 10
3. Manufacturer: Submit proposals
4. Material: Galvanised
5. Dimensions/ Shape: Design intent drawings:
   BEL-BHS-ZZ-TP-DR-LA-0106
   BEL-BHS-ZZ-10-DR-LA-0355
6. Lining: polyproylene filter fleece
7. Accessories: DSE 40 Drainage & Protection Layer infilled with Mineral Drain for loading support and stability. An automatic irrigation system as section S14

Preparation of planting beds/ planting materials

305 Weed control

1. Description: Planting beds shall be weed-free prior to planting.
2. Locations: All planting areas

3. General: Prevent weeds from seeding and perennial weeds from becoming established, by hand weeding.
4. Max acceptable height of weeds is 100mm.

Planting shrubs/ herbaceous plants/ bulbs

401 Regular plant layout

1. Description: TO ALL BEDS
2. Drawings:

   Diagram:
   Upper level planting axonometric diagram BEL - BHS - ZZ - XX - DR -LA - 0211

   0200 Planting plans:
   Tree planting plan *BEL - BHS - ZZ - 00 - DR -LA - 0201*
   Planting plan *BEL - BHS - ZZ - 00 - DR -LA - 0202*
   Planting plan levels 1-3 *BEL - BHS - ZZ - 01 - DR -LA -*
   Planting plan level 4 - planters A/D *BEL - BHS - ZZ - 04*
   Planting plan level 4 - planters B/C *BEL - BHS - ZZ - 04 - DR -LA - 0209*
   Planting plan level 4 - planters D *BEL - BHS - ZZ - 04 - DR -LA - 0210*
   Planting plan level 5 *BEL - BHS - ZZ - 05 - DR -LA - 0205*
   Planting plan levels 6-9 balconies *BEL - BHS - ZZ - 06 - DR -LA - 0206*
   Planting plan levels 10-11 *BEL - BHS - ZZ - TP - DR -LA - 0207*
   Planting plan 6-9 Winter garden *BEL - BHS - ZZ - TP - DR -LA - 0208*
3. Spacing: as per BHSLA planting plans
4. Density: as per BHSLA planting plans

402 Setting out

1. To be as per BHSLA Planting Plans. Agree setting out on site with LA giving 3 days notice prior to planting each area.
2. Clearly mark location of each tree with a vertical pole and obtain agreement from LA to setting out. Some adjustments on site may be required and the contractor shall allow for repositioning of plants as required by the LA.
3. Boundaries of each planting area shall be clearly marked and agreement from the LA shall be obtained before setting out of plants. One sample bed shall be set and shall be agreed prior to planting for each separate planting scheme. Use sand or non-toxic spray to mark different planting zone as per LA drawings.
4. Where there is no planting detail indicating exact location, evenly space the specified quantity of shrubs/perennials over the allocated area avoiding straight lines.
5. All setting out of hedges to be approved by the LA prior to the start of planting.
6. Planting in containers, sample areas shall be set out, their size/number of planters shall be agreed with LA at commencement of container/5th floor terrace planting.

403 Planting operations

1. Immediately before planting remove any non-perishable containers and carefully prune any damaged roots.
2. Do not allow plants to be left sitting on beds with roots exposed to the air for any period of time.
3. Plants should be thoroughly watered before being planted. Plant carefully with plants upright in centre of planting/tree pit well balanced with best side to front.
4. Carefully return excavated topsoil, packing around evenly spread roots or root ball and carefully backfill with specified mix of topsoil and compost.
5. Planting shall be carried out in a methodical manner and any plants trampled upon shall be replaced prior to Practical Completion.

6. Water plants thoroughly immediately after planting, using a fine rose.
7. Finished soil levels after watering and settlement to be same height as plants were growing in nursery or in containers. Rootballs must at no time be left exposed above finished topsoil level.
8. Immediately after planting shrubs carefully cut back any damaged, dead or diseased branches and remove any weak, thin or malformed growth. Where and to the extent appropriate for the species cut back to encourage growth.
9. After planting fork and/or rake soil to a fine tilth with approved cambers and no hollows.

405 Shrub planting pits

1. Timing: Excavate 1-2 days (maximum) before planting.
2. Sizes: as per BHSLA drawings, 150 mm wider than roots when fully spread and 200 mm deep
3. Pit bottom improvement Break up to a depth of 150 mm, incorporating mycorrhizal fungi.

420 Climbing plants to Level 10/11 and Winter Garden

1. Planting: As BHSLA drawings: BEL-BHS-ZZ-06-DR-LA-0208, BEL-BHS-ZZ-TP-DR-LA-0207
   1.1. Branches: Lightly secured to supports with organic twine.
2. Climber supports: **Winter garden planters**
   Climber supports integral to planter system

   Level 10 and 11
   No integral climber supports to planter system.
   Climber supports integrated onto facade system.
3. Dimensions: as per BHSLA drawings
4. Plants procurement:: All climbing plants to be sourced 1 year before planting. Notify LA of supplier and provide photos. Selected species to be pre-grown on a removable v shape trellis frame. Contractor to allow 20% extra plants to provide substitutes in case plants die during transport or installation.
5. **Planting levels 6-9 Winter Garden**
   BHSLA drawings: *BEL - BHS - ZZ - TP - DR -LA – 0208* and *BEL - BHS - ZZ - 01 - DR -LA - 0350*
   - Climbing plants shall be pre-grown. 1st year on canes and in the second year on a 600wide x150 high, rectangular, removable trellis frame, supplied in 15L containers.
   - Trellis to be removed and branches attached to trellis attached to planters with organic green twine. Contractor to allow 15% extra plants for each species to provide substitutes in case plants die during transport or installation.
   - Soil to be shaken off gently with roots teased out and spread just before planting in hydroponic substrate. Soil shall not be washed off.
   - Images shall be first sent 1year before planting with plants having reached 50% of height and cover specified. Images shall be sent on a quarterly basis to LA until the planting date.

6. Fixings: Stainless steel screw eyes
   6.1. Centres: as per BHSLA drawings. Contractor to submit shop drawings for cable support

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. Setting out: Plant bulbs/ corms/ tubers that are scattered where they fall. Agree sample planters with LA.

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: 25-30 mm

485 Mulching planting beds

1. Refer to clause Q28/356

495 Planting areas protection

1. All planted areas shall be protected by the contractor from pedestrian and vehicular traffic, including work by other trades from time of planting to Practical Completion handover.
2. Any damage that occurs to shrub beds as a result of trafficking or work of other trades shall be made good in full at the cost of the contractor prior to Practical Completion handover
3. General: Ensure that protection methods do not impede natural movement of shrubs or restrict growth.

Planting trees

500 Tree planting

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

510 Tree pit root barriers

1. Manufacturer: GreenBlue Urban Ltd
   1.1. Web: www.greenblue.com
   1.2. Email: enquiries@greenblueurban.com
2. Product Reference: RootDirector
3. Type: RF4-12A
4. Locations: to all tree pits in hard surface

512 Tree pit irrigation and ventilation accessories

1. Description: TREE PIT IRRIGATION/AERATION PIPE
2. Manufacturer: GreenBlue Urban Ltd
   www.greenblue.com
3. Product Reference: RootRain Civic
4. Type: RRCIVIC2A
5. Locations: All soft landscape areas with trees

513 Tree pit irrigation and ventilation accessories

1. Description: TREE PIT IRRIGATION/AERATION COVER
2. Manufacturer: GreenBlue Urban Ltd
   www.greenblue.com
3. Product Reference: RootRain Arborvent
4. Type: RRARBVDI3D
5. Locations: Hard landscape areas, as drawing

515 Tree pit drainage

1. Locations: In areas where existing subgrade is proven to be slow draining
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, graded 40 to 20 mm.
    3.1. Depth: 200 mm
4. Drainage pipes
    4.1. Type: Perforated plastics
    4.2. Diameter: Submit proposals
    4.3. Position: Lay around perimeter of pit within aggregate layer.
    4.4. Discharge: to Engineers' details and specification
5. Geotextile filter
    5.1. Manufacturer: Submit proposals
        5.1.1. Product reference: Submit proposals
    5.2. Position: to Engineers' details and specification
6. Completed pits: Test for free drainage before planting.

520 Cellular structural soil system

1. Locations: TREES IN HARD LANDSCAPE
   Location: BEL-BHS-ZZ-00_DR-LA-0110
   Drawing ref: BEL-BHS-ZZ-00-DR-LA-0310
2. Manufacturer: GreenBlue Urban Ltd
    2.1. Product reference: StrataCell
3. Installation: as per Manufacturer's recommendations.

521 Cellular structural soil system

1. Locations: TREES IN HARD LANDSCAPE
   Location: BEL-BHS-ZZ-00_DR-LA-0110
   Detail: BEL-BHS-ZZ-00-DR-LA-0309
2. Manufacturer: GreenBlue Urban Ltd
    2.1. Product reference: RootSpace
3. Installation: as per Manufacturer's recommendations.

525 Underground guying for:

1. Description: TREES IN SOLID GROUND
2. Manufacturer: GreenBlue Urban Ltd
    2.1. Product reference: ArborGuy Drive-In Anchor
3. Anchoring system: 3 no drive-in anchors
4. Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners. Follow manufacturer's recommendations.

526 Underground guying

1. Description: TREES PLANTED OVER STRUCTURE
2. Manufacturer: GreenBlue Urban Ltd
    2.1. Product reference: AnchorPlate
3. Anchoring system: 3 no plate dead-man anchors

4. Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners. Follow manufacturer's recommendations.

528 Recessed invisible tree grille REVISED

1. Description: Trees in hard landscape
2. Manufacturer: GreenBlue Urban Ltd
   2.1. Product reference: Zeta, GBUZETA12A
   2.2. Size: 2.0mtr square with 600mm square opening
3. Installation: Follow manufacturer's recommendations.

529 Tree pit reinforcement

1. Description: TREE PIT GROUND REINFORCEMENT
2. Manufacturer: GreenBlue Urban Ltd
   2.1. Product reference: GLTWGNA TWIN WALL GEONET
3. Installation: Follow manufacturer's recommendations.
   Ensure laid below and to sides of root space modules

566 Tree protection

1. Not required

586 Tree backfilling material

1. Backfilling material shall be a previously prepared mixture of:
   - topsoil excavated from pit
   - additional topsoil as required and
   - 10% by volume Topgrow peat free TSPC as supplied by Melcourt or other approved product with similar composition and chemical characteristics.
2. Substitution: Should a substitute product be recommended, this shall be identified in the tender document and is subject to written agreement from the SM.
3. Retain compost bags or delivery tickets on site until Practical Completion for inspection by the SM if required. Notify SM 48 hours prior to mixing tree planting substrate.
4. Ameliorant/ Conditioner: not required.
   4.1. Application rate: n/a.
5. Fertilizer: Enmag slow release fertiliser.
   5.1. Application rate: to manufacturers recommendation.

Woodland/ matrix/ buffer zone planting - Not Used

Protecting/ maintaining/ making good defects

710 Maintenance

1. Duration: Carry out maintenance as specified in Q35 until Practical Completion.
2. Frequency of maintenance visits: As required to achieve the standards set in Q35.

715 Maintenance reports

1. Prior to Practical Completion a maintenance programme shall be submitted by the contractor, including proposed report format.
2. The programme shall list dates of visits and timing, supervisory staff and qualifications of the maintenance team in accordance with Q31, 106 and 107. 24 hour emergency telephone number

and the supervisor's mobile telephone number. Changes to the programme shall be notified to the LA and CA in writing 24 hours in advance.

3. The programme shall include a detailed section on biological controls for the winter garden and integrated pest management (IPM).
4. The programme shall include a detailed section on feeding of plants in the winter garden.
5. Maintenance reports shall be submitted to the Landscape Architects and CA by the end of each calendar month, listing dates of visits and all operations carried out. Details of any plant failure shall be recoded with information on the likely cause. Details of any plant thefts, trampling or other malicious damage that has occurred since the last visit shall be itemized.

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 Practical 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: Immediately for plants in the winter garden, quarterly for containerised plants and during the planting season for plants beyond the red line.

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.

800 Chemicals, generally

1. **Winter Garden**

   There are no plant protection products currently approved for use on interior landscapes which is a specified field of use. The management of plant pests in the voids between the glazed skins is subject to several rules, regulations and codes of practice. These include (but are not limited to):

   - Food and Environment Protection Act 1985 (FEPA
   - Control of Pesticides Regulations 1986 (as amended) (COPR)
   - Plant Protection Products Regulations 2005 (PPPR) and Plant Protection Products (Basic Conditions) Regulations 1997
   - Health and Safety At Work etc. Act 1974 (HSWA)
   - Control of Substances Hazardous to Health Regulations 2002 (COSHH)
   - Management of Health and Safety at Work Regulations 1999
   - Personal Protective Equipment at Work Regulations 1992
   - Wildlife and Countryside Act 1981 (as amended)
   - Groundwater Regulations 1998
   - Environment Act 1995
   - Environmental Protection Act 1990 (as amended)
   - Environmental Protection (Duty of Care) Regulations 1991
   - Hazardous Waste Directive (HWD) (91/689/EEC) and the European Waste Catalogue (EWC (200/532/EC)
   - Hazardous Waste Regulations 2005
   - Health and Safety (Consultation with Employees) Regulations 1996 (HSCER)
   - Manual Handling Operations Regulations 1992

- Statutory guidance on compliance with these regulations (and others) in England and Wales is contained in The approved code of practice for the use of pesticides (the ‘Green Code’), published by DEFRA and the Health and Safety Commission.

The winter garden vegetation shall be kept free of pests using Integrated Pest Management (IPM) as specified in section xxx

2. **External Spaces**

Only products shall be used that are on the current list of the Agricultural Chemicals Approval Scheme.

All applications of herbicide shall be undertaken in strict accordance with the Control of Substances Hazardous to Health (COSHH) regulations and be applied in accordance with current legislation (FEPA) by licensed operators at manufacturers recommended rates.

- The application of chemicals on covered external spaces shall be assessed in terms of risk and timing of application.
- The Contractor must take all reasonable precautions to safeguard the environment and protect the health of human beings animals and other creatures. Care must be taken not to damage shrubs, trees, bulbs, grass surfaces or other planted material, whether owned by the Employer or other parties To these ends maximum precautions must be taken to obtain accurate placement of herbicides.
- Spraying must not take place during windy or otherwise unsuitable weather conditions. The Employer reserves the right to defer the operations, or to suspend it if in progress, if in the opinion of the SM, the work is thought likely to be dangerous or damaging to the site, plant material or members of the public.
- All spray equipment shall be efficient, well maintained and free from leaks. The type of herbicide, type and size of nozzle, knapsack pressure dilution and rate of application shall be appropriate to the herbicide and site of application and must be agreed with the SM before application commences.
- Observe all precautions recommended by the manufacturer in relation to application and storage. Herbicides are not to be left unattended unless placed in a securely locked container. All empty bottles etc, shall be disposed off site in a safe and proper manner.
- Any damage caused as a result of non-compliance with the above clauses shall be made good at the contractors' expense.
- Agree timing of chemical operations and application of herbicides and biological controls with the CA.

Ω End of Section

Q35
Landscape maintenance

Generally

105 Maintenance objectives

1. Location: ALL PLANTING BEDS
    1.1. Duration: From time of practical completion to time of final completion handover.
2. Aims: Healthy vegetation in all areas incl. trees, shrubs, perennial planting and with well-shaped growth habits throughout and clean surfaces in all 35external areas. Dense vegetation cover of trellis in the winter garden.
3. Restrictions: TBC
4. Results: To ensure good establishment and continued thriving of all plants

106 Principal operations

1. The principal operations required are:
    - Weeding and cultivation of planted areas
    - Management of irrigation system and/or watering
    - Management of irrigation and liquid feeding of hydroponic system, winter garden
    - Implementation of integrated pest management, winter garden
    - Pruning and tying in of climbers within winter garden and on terraces
    - General litter collection from soft landscape areas
    - Leaf litter removal
    - Sweeping and washing of paths and hard surfaces
    - Pruning of shrubs and minor tree works
    - Other works as specified below
    - Other operations of a less general nature will be required according to the dictates of normal good horticultural practice and the requirements of the site. These may include hand weeding, pest and disease control and the like. All such operations shall form part of the normal contract works and the Contractor shall be deemed to have allowed for such items in the tender.
2. The contractor shall replace all plants, which have failed to establish, at his own expense until Final Completion at the timing specified in Q31/720.

107 Maintenance operations by skilled staff

1. As clause Q31/106.2

109 Maintenance reports

1. As clause Q31/715

110 Notice

1. Give notice before
    1.1. Use of mechanical tools
    1.2. Application of biological controls
    1.3. Application of herbicide.
    1.4. Application of fertilizer.
    1.5. Application of liquid feed and mycorrhizal spores.
    1.6. Works requiring changes to hydroponic substrate in winter garden.

1.7. Watering.

1.8. Each site maintenance visit.

2. Period of notice: Three working days

130 Reinstatement

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

146 Integrated pest management (IPM) for Winter Gardens

1. **Plant procurement**
   Plants shall be sourced from a reputable nursery and inspected for pest and diseases before delivery. Chemical controls may be applied at the suppliers' premises.
2. **Methodology**
   The GROW (Groom, Rotate, Observe and Water) methodology shall be adopted.
   - Grooming shall include pruning and trimming as well as the cleaning and inspecting of foliage. Cleaning shall be carried out with a solution of mild, neutral detergent, applied with a sprayer to remove honeydew and dust. Pruning shall be used to shape and also as a means of reducing numbers of mealybugs as they tend to settle at the tips of branches among new foliage.
   - Rotating containers regularly shall ensure even growth of the foliage on each side of the plant.
   - Observing shall include checking the plants thoroughly for health, condition, pests and diseases.
   - Watering/Irrigation/feeding shall be monitored closely

150 IPM Progamme

1. Red in conjunction with clause 146
2. **Programme:**
   A programme shall be submitted and approved prior to planting of winter garden vegetation. It shall consider likely pest and diseases with proposed control measures, timing and frequency of operations and method of application via the irrigation system.
3. **Supplier:**
   A specialist firm shall be engaged to input to the programme and supply the products such as FARGO https://fargro.co.uk/solutions/crop-health/crop-protection/integrated-pest-management.
4. **Report:**
   A detailed repot re. IPM and recommended predators by Kenneth Freeman of Purposeful Places (Interior landscaping consultancy) is appended below.

151 Winter garden feeding programme

1. A detailed feeding programme applied via the irrigation system shall be submitted, agreed with the specialist specified in Q31/107.2

155 Watering

1. Supply: Potable mains water, manual application only if irrigation system fails.
2. Quantity: Wet full depth of topsoil
3. Location of taps: On drawings
4. Compacted soil: Loosen or scoop out, to direct water to rootzone.
5. Frequency: As necessary for the continued thriving of all planting.

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 from site to recycling facility
    1.2. Grass cuttings: Remove from site to recycling facility
    1.3. Tree roots and stumps: Remove from site to recycling facility
    1.4. Shrub and tree prunings: Remove from site 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: Chippers
3. Timing: Use of mechanical equipment allowed between the hours of 10:00 am and 4:00 pm only

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.

Grassed areas

225 Tree stems

1. Precautions: Do not use mowing machinery closer than 100 mm to tree stems. Use nylon filament rotary cutters and other hand held mechanical tools carefully to avoid damage to bark.

Flower beds/ seasonal beddings

460 Beds of perennials or perennials and annuals

1. Gaps in planting: Refill by replanting.
2. Watering
    2.1. New plants: Before and after planting out.
    2.2. Ongoing: As necessary for the continued thriving of all planting.
3. Operations at end of growing season
    3.1. Trim: Older flowering stems of herbaceous perennials when they begin to collapse. Anamanthele grass, remove dead foliage in late February selectively by hand
    3.2. Retain: Attractive deciduous foliage and seed heads
    3.3. Remove: Redundant plant supports, litter, debris and arisings.
    3.4. Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.

Shrubs/trees/hedges

500 Establishment of new planting

1. Duration: Between Practical and Final Completion
2. Weed control
    2.1. Method: Keep planting beds clear of weeds by hoeing and screefing 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.
    2.3. Height: Max weed shall be 100mm in/on building and 150mm in areas beyond the red line.
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
5. Tree guying: Check trees are guyed tight and upright and adjust system where trees are leaning.

502 Establishment of new planting – fertilizer

1. Time of year: March or April.
2. Type: Organic
3. Spreading: Spread evenly.
    3.1. Application rate: As manufacturer's recommendations

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.

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.

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.
4. Whips or feathered trees: Do not prune.
5. Operatives: 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.

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.
2. Throughout the growing season remove all dead and wiling foliage and dead head plants to encourage prolonged flowering.

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 green/brown twine.
3. Supporting structures: Check and repair as necessary.
4. Winter garden climbers: Tie shoots onto trellis support, allow extension growth above and beyond the ‘gable’ ends of the planters to increase foliage cover. Prune as required to ensure operating distance for blinds and louvers is kept free of encroaching shoots.
5. Rotation: Planters in winter garden as required to achieve even growth on all sides. Ensure irrigation pipes are re-connected and test that water is being emitted.

630 Dead and diseased plants

1. Removal: As soon as possible
2. Replacement: Within two weeks

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.
5. Dressing: Slow release fertilizer:
   5.1. Type: Organic
   5.2. Application rate: As manufacturer's recommendations

645 Weed control generally

1. Weed tolerance: Weed to clear ground every two weeks
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.

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): 50 mm
   1.1. Top up: Every three months
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: After flowering
2. Type of fertilizer: Slow-release
3. Application: Spread evenly.
   3.1. Rate: As manufacturer's recommendations

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

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.
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.

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.

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.

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. Clearance: When instructed
2. De-icing: To footpaths
    2.1. Material: Grit
    2.2. Timing: When instructed
    2.3. Application rate: Spread evenly at a rate of As manufacturer's recommendations.

910 Hard surfaces and gravel areas

1. Herbicide: Apply a suitable foliar acting or residual herbicide. Allow recommended period for herbicide to take effect before clearing arisings.
2. Hard surfaces: Remove litter, leaves and other debris.
3. Surface gutters and channels: Remove mud, silt and debris.
4. Drainage gullies: Empty traps and flush clean.
5. Gravel areas: Rake over. Remove weeds, litter, leaves and debris, and level off.

6. Repairs to flexible bituminous pavings: In accordance with the original paving specification or BS 7370-2, clause 4.12.
7. Stain removal: In accordance with BS 7370-2, table 4.

915 Paving sealers and stabilizers Type A

1. Manufacturer: ProPERLA UK Ltd
   1.1. Contact details
      1.1.1. Address: Unit 32 Peel Industrial Estate
      Chamberhall Street
      Bury
      England
      BL9 0LU
      1.1.2. Telephone: 0161 763 7074
      1.1.3. Web: properla.co.uk
      1.1.4. Email: info@properla.co.uk
   1.2. Product reference: ProPERLA Paving Impregnator
2. Composition: Water-borne.
3. Preparation: ProPerla Cleaner.
4. Application temperature: 5°C (minimum). 60% RH (maximum).
5. Application method: Pump, spray, brush or roller.
6. Coverage: 3–5 m²/L.
7. Drying time: Approximately 1 hour at 20°C.
8. Permeability: Moisture permeability: <0.03 SD.
9. Colour: Clear.

Ω End of Section

Q37
Green roofs (Levels 10 & 11)

General

130 Extensive green roof

1. Description: INACCESSIBLE GREEN ROOFS TO LEVEL 10 AND 11
   Drawing ref: BEL - BHS - ZZ - TP - DR -LA – 0207
2. Roof type: Inverted
   2.1. Substrate: Insitu concrete slab refer to architect's and engineer's detail and specification.
   2.2. Slope: Flat
3. By others:: Waterproofing to architect's detail and specification.
   Thermal insulation to architect and engineer's detail and specification.
4. System manufacturer: : Radmat Building Products Ltd.
   Rockingham Rd, Market Harborough LE16 7PS
   https://radmat.com/
5. System components:: Drainage layer as clause 350
   Filter layer as clause 360
6. Growing medium: Extensive lightweight green roof growing media system as Q28/125
   6.1. Depth: Min 85 mm
7. Vegetation: Vegetated blanket as clause 400
8. Accessories: Metal edging as clause 420
   Fire breaks as clause 440

Performance

210 General design

1. Green roof and associated features: Complete the detailed design.
2. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.
3. Performance criteria: In accordance with waterproofing requirements, thermal movement, life expectancy etc. defined elsewhere

Products

350 Drainage layer

1. Description: TO EXTENSIVE GREEN ROOFS
2. Manufacturer: Radmat
   2.1. Product reference: Radmat MedO D25 Drainage & Reservoir Board
3. Material: Recycled polystyrene
   3.1. Depth: 25 mm
4. Infill: Not required

351 Drainage layer to planters

1. Description: TO EXTENSIVE GREEN ROOFS
2. Manufacturer: Bauder
   2.1. Product reference: DSE 40 Drainage & Protection Layer
3. Material: Recycled polystyrene
   3.1. Depth: 40 mm

4. Infill: Not required

360 Filter membrane

1. Description: TO EXTENSIVE GREEN ROOFS
2. Manufacturer: Radmat
   2.1. Product reference: Radmat MedO G11 Filtration Fleece
3. Material: Polypropylene

400 Vegetation blanket

1. Description: TO EXTENSIVE GREEN ROOFS
2. Manufacturer: Radmat
   2.1. Product reference: Radmat MedO Wildflower Mat
3. Vegetation coverage (minimum): 75%.

420 E5 Edge retaining profile

1. Description: METAL EDGING TO GREEN ROOF GRAVEL MARGINS
   Drawing ref: BEL-BHS-ZZ-XX-DR-LA-0369 Detail E5
2. Manufacturer: Kinley ExcelEdge
   2.1. Contact details
      2.1.1. Address: Northpoint, Compass Park
      Junction Road
      Staplecross
      East Sussex
      TN32 5BS
      2.1.2. Telephone: +44 (0) 1580313124
      2.1.3. Web: www.exceledge.co.uk
      2.1.4. Email: sales@exceledge.co.uk
   2.2. Product reference: RoofEdge Aluminium Green Roof Edging
3. Type: 121014 or 121017
4. Finish: Mill finish
5. Accessories: Aluminium angle connector Aluminium connector strip
6. Height: 150 x 120 x 8mm

440 Ballast fire break / vegetation barrier

1. Description: TO EDGE OF EXTENSIVE GREEN ROOF AND AROUND ALL PENETRATIONS
2. Material: 20-40 mm ballast as clause Q28/345
3. Depth: 120 mm
4. Width: 500mm, Subject to agreement by
   the Fire Officer/Fire Consultant

441 Ballast

1. Description: BELOW PAVING
2. Material: 20-40 mm ballast
3. Depth: 50 mm

Execution

710 Installation generally

1. Preparation: Clear all surfaces of debris.
   1.1. Timing: After certification of waterproof membrane integrity.
   1.2. Surface condition: Visually inspect waterproof membrane, report any damage.
2. Faults in waterproof membrane: Report.
3. Contamination: Do not use materials detrimental to healthy plant growth.
4. Storage: Do not overload.
   4.1. Point loads: Avoid.
5. Outlets: Do not block.
   5.1. Outlet grilles: Installed.

720 Adverse weather

1. Unfinished work: Secure from damage and wind uplift.
2. Conditions: Do not install or work with frozen materials.

770 Drainage layer installation

1. Extent: Continuous over entire roof area.
2. Fitting: Manufacturer's recommendation
3. Upstands: Fit closely around penetrations and outlets.

780 Filter membrane installation

1. Joints: Minimize.
   1.1. Overlaps (minimum): Manufacturer's recommendation
2. Fitting: Manufacturer's recommendation
3. Upstands: Extend to top of growing medium.

790 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): 85 mm layers
   2.2. Sequence: Gently firm each layer before spreading the next.

800 Vegetation blanket installation

1. Handling blankets
   1.1. Timing: Lay within 36 hours of lifting from growing position.
   1.2. Excessive stacking: Not permitted.
   1.3. Material loss (maximum): 3% of total surface area.
2. Growing medium condition: Thoroughly watered.
3. Laying blankets
   3.1. Dry, damaged, frosty or waterlogged blankets: Do not lay.
   3.2. Orientation: Diagonal or perpendicular to slope of roof.

3.3. Joints: Stagger. Butt together or slightly overlap to prevent gaps. Do not stretch blankets. Secure with biodegradeable pegs.

3.4. Edges: Finish with whole blankets.

3.5. Consolidation: Firm as laying proceeds to ensure full contact with the growing medium. Do not use rollers.

4. Dressing: To manufacturer's recommendations

4.1. Application: Brush in to fill joints.

5. Watering: Thorough, immediately after laying and dressing.

820 Edge retaining profile installation

1. Cutting: Neat, accurate and without spalling.

1.1. Junctions: vertical, secured using proprietary connectors.

2. Position: True to line and level. Smooth continuous lines.
3. Fixing: Submit proposals Manufacturer's standard

Completion

910 Inspection

1. Timing: Before handover.

1.1. Give notice (minimum): 3 days.

920 Completion

1. General: Leave the works in a clean, tidy condition.
2. Surfaces: Clean immediately before handover.
3. Outlets: Clean and clear of obstructions.
4. Completed green roof: Protect from adjacent or high level working.

930 Documentation

1. Timing: Submit at handover.
2. Contents

2.1. Growing medium declaration of analysis.

2.2. Manufacturers' guarantees and warranties.

2.3. Procedures for maintenance of the green roof.

2.4. Record drawings showing the location of planting and associated features.

3. Number of copies: 2

Ω End of Section

Q50
Site/ street furniture/ equipment REVISED

Gates, barriers and parking controls

105 Sustainability requirements

1. **Environmental Product Declaration**

   All materials and equipment shall be supplied with EPDs where feasible for any hardscape or external furniture items.
   Compliant EPDs are valid if they are:

   - EPD unexpired at the point of specification.
   - EPD issued or registered by an ISO 14025 compliant programme operator.
   - For products covered by the Construction Product Regulations, the EPD must have been generated using product category rules based on either BS EN 15804 or ISO 21930.

   NOTE: Environmental Product Declaration (EPD) - An EPD compliant with BREEAM is an independently verified environmental label (i.e. ISO Type III label) according to the requirements of ISO 14025.

2. **Responsible Sourcing**

   All materials for hard landscaping or exterior furniture should be responsibly sourced where possible. The following certification schemes are considered acceptable:
   All concrete / blockwork /plasterboard elements to be used must achieve BES 6001 Very Good or Excellent.

   - All steel elements to be used must achieve BES 6001 Very Good or Excellent or
     - CARES Sustainable Constructional Steel Scheme (SCSS) /Eco Reinforcement Responsible Sourcing Standard, Steel Products for the Reinforcement of Concrete.
   - All other materials to be used must achieve BES 6001 where possible and at least Environmental Management Systems (EMS) (certified) - such as ISO14001 or
     - Environmental Management System (EMS) (certified) for key process and supply chain extraction process.
     - Recycled materials certified EMS for key process.

190 F5 Bollards

1. Description: PAS68:2010 Rated HVM BOLLARD
2. Drawing ref: BEL-BHS-ZZ-00_DR-LA-0111
   BEL-BHS-ZZ-00-DR-LA-0309
3. Manufacturer: ATG Access
   CoBaCo House,
   North Florida Road,
   Haydock Industrial Estate,
   Haydock WA11 9TP,
   United Kingdom
   https://atgaccess.com/

   3.1. Product reference: SP1000 Shallow Mount Bollard 112mm
4. Material: As manufactured

   4.1. Finish as delivered: Stainless steel, brushed
5. Height above ground: 1020mm
6. Sectional size: 305mm

7. Method of fixing: 112mm foundation

191 F2 Bollards

1. Description: PAS68:2010 Rated HEXAGONAL HVM BOLLARD
2. Location: Argyle Square (refer to QCIC details)
3. Drawing ref:: BEL-BHS-ZZ-00_DR-LA-0111
   BEL-BHS-ZZ-00-DR-LA-0108
4. Manufacturer: Inopera or similar approved
5. Material: Pre cast reinforced concrete
   5.1. Finish as delivered: honed
   5.2. Colour: Terrazzo Grigio Rotondo,
   Terrazzo Guidecca,
   Terrazzobruno Rotondo
6. Height above ground: 900mm
7. Sectional size: 600mm side hexagon
   450mm side hexagon
8. Top: 20mm diameter round edge
9. Method of fixing: To Engineers' details and specification

193 F1 Bollards

1. Description:: HEXAGONAL BOLLARD (NON-HVM)
2. Location: Argyle Square
3. New Item: BEL-BHS-ZZ-00_DR-LA-0111
   BEL-BHS-ZZ-00-DR-LA-0108
4. Manufacturer: Inopera or similar approved
5. Material: Pre cast reinforced concrete
   5.1. Finish as delivered: honed
   5.2. Colour: Terrazzo Grigio Rotondo,
   Terrazzo Guidecca,
   Terrazzobruno Rotondo
6. Height above ground: 150, 300, 450, 600, 570mm
7. Sectional size: 600mm side hexagon
8. Top: 20mm diameter round edge
9. Method of fixing: To Engineers' details and specification

Site and street furniture

200 Legal and sustainable timber

1. Timber

   All timber and timber-based products used on the project shall be ‘legally harvested and traded timber’:

   - Forest Stewardship Council (FSC) with Chain of Custody certification.
   - Programme for the Endorsement of Forest Certification (PEFC) with Chain of Custody certification.
   - Sustainable Forestry Initiative (SFI) with Chain of Custody certification.

210 F3 Cycle stands

1. Manufacturer: Kent Stainless or similar
   1.1. Product reference: Classic Sheffield Stand
2. Type: Single stands
3. Material: Grade316L Stainless Steel
   3.1. Finish: bright satin finish
4. Method of fixing: Root, 300 mm below ground, set in concrete base, to Engineers' details

225 F8-10 Integrated seating

1. **CONTRACTOR TO COMPLETE DESIGN OF ALL SEATING TO LEVEL 4**
2. Item codes: F8, F9 and F10 refer to the different types as shown on drawings
3. Design intent drawings: Drawing ref:
   BEL-BHS-ZZ-04-DR-LA-0357
   BEL-BHS-ZZ-04-DR-LA-0358
   BEL-BHS-ZZ-04-DR-LA-0362
   BEL-BHS-ZZ-04-DR-LA-0363
   BEL-BHS-ZZ-04-DR-LA-0364
   BEL-BHS-ZZ-04-DR-LA-0365
   BEL-BHS-ZZ-04-DR-LA-0366
4. Location:: Level 4
5. Manufacturer: Woodscape or similar
   Business Park Shadsworth, 1 Sett End Rd W, Blackburn BB1 2QJ
   https://woodscape.co.uk/
6. Material: Stainless steel frame and fixings with European oak timber planks.
   6.1. Finish: Steel panels colour to match planters finish.
7. Size: Refer to BHSLA drawings
8. Accessories:
   - Water points
   - Electric sockets
   - Integrated LED light strip
   - Cast iron lid for Bench type F8
9. Requirements: Contractor to complete design based on design intent drawings and supply shop drawings for approval by BHSLA and AHMM.

226 F11 Integrated seating

1. **CONTRACTOR TO COMPLETE DESIGN OF ALL SEATING TO LEVEL 5**
2. Integration: Seating fixing to be integrated with precast planter ref PL4 as clause Q31/295
3. Design intent drawings: Drawing ref:
   BEL-BHS-ZZ-05-DR-LA-0353
   BEL-BHS-ZZ-05-DR-LA-0359
   BEL-BHS-ZZ-05-DR-LA-0360
4. Location:: Level 5
5. Manufacturer: Woodscape or similar
   Business Park Shadsworth, 1 Sett End Rd W, Blackburn BB1 2QJ
   https://woodscape.co.uk/
6. Material: Stainless steel frame and fixings with European oak timber planks.
7. Size: Refer to BHSLA drawings

Installation

510 Concrete foundations generally

1. Standard: To BS 8500-2.
2. Concrete: Designated, not less than GEN 1
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: 250 x 250 x minimum 300 mm deep
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.

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.

Deleted clauses

211 F4 Cycle stands DELETED

Ω End of Section

S14
Irrigation

General

105 Note

1. Refer to irrigation specification by irrigation specialist and MEP consultant, covering all areas of the on-plot landscape.

106 Irrigation summary

1. **SUMMARY - REFER TO IRRIGATION SPECIALIST SPECIFICATION**

   Soft landscaped areas at the Belgrove House project will require an automatic irrigation system to ensure that the planting receives the correct level of watering.

   This system has been designed by an irrigation specialist and their full specification and drawings should be referenced for full design detail.

   The irrigation system has been designed and shall be installed wherever possible in accordance with the guidelines previously set out by the British Turf & Landscape Irrigation Association (BTLIA).

   The selected Irrigation Contractor shall work as a subcontractor to the landscape contractor and is to:-

   - To supply, install, test and commission a new irrigation system as generally detailed to the site known as Belgrove House, based upon the specification, and the drawings by the irrigation specialist.
   - The Irrigation Contractor is to ensure that they can fulfil the requirements as stated in this document; submission of tender deems this to be the case. No allowance will be made for claims due to failure to examine the enclosed specification.
   - Where necessary the Irrigation Contractor shall design specific elements and acknowledge responsibility for these items e.g. solenoid valve assemblies and pump station.
   - The Irrigation Contractor will be required to enter into a formal written contractual agreement with the Landscaping trade contractor based upon this specification and drawings.
   - Ensure that the irrigation system satisfies the requirements of the BREEAM Wat 04 credit and LEED requirements.

   A cold-water system will provide irrigation to new trees and shrub planting within the landscaped areas of the development via automatic watering equipment.

   Shrub planting shall be watered using 17mm drip irrigation tubing. Trees shall be watered using 16mm necklaces with push-in emitters.

   The system shall be fed by a booster pump system located within the irrigation plantroom. The pump system shall be of a variable frequency drive type ensuring the pumpset meets the exact demands of the system.

   Water shall be pumped through UPVC pipework within the plantroom and building, penetrating the concrete floor slabs at points to be agreed to feed polyethylene main line pipework installed within the soft landscaping.

   There shall be two supplies existing the plant room, the first to the level 6-9 terraces (this is to have the facility to receive fertiliser dosing) and the second supplying levels 1, 2, 3, 4, 5 and 10.

The pumpset draws water from a sectional GRP water storage tank installed within the plantroom. This tank shall be supplied by a suitable water supply which is the responsibility of others.

Mains water top-up to the GRP water storage tank is controlled by level probes installed within the tank. When the water level drops to a pre-determined level, the probes send a signal to the water level controller. The water level controller then opens a solenoid control valve on the incoming mains water supply.

The pump manifolds shall incorporate inline filters, UV steriliser, electronic conditioner, water meter and pressure relief valve. The spur which supplies level 6-9 shall incorporate a fertiliser dosing system.

Each planting type will be separated into control stations with the majority of control valves located within chambers adjacent to or within the planted areas.

The control of the irrigation system will be by a central controller located in a wall mounted enclosure within the irrigation equipment plantroom. An irrigation schedule will be created on the wall mounted controller and stored within its internal memory. Various start times and irrigation sequences can be programmed depending upon the system requirements.

When the irrigation central controller calls for a control valve to open, a signal is generated and sent through a control cable which follows the pipework from the irrigation equipment plantroom to the landscaped garden areas. When a decoder recognises the signal, a current is applied to the relevant solenoid control valve causing the valve to open allowing water through to the lateral irrigation equipment (drip / pop-up equipment).

The control system will be linked to a rain switch located within one of the shrub planters. In the event of prolonged rain, these sensors will inhibit the operation of the irrigation system to the external planters only.

The irrigation can be linked to an online platform so that the irrigation can be remotely operated and monitored.

The system shall be constantly pressurised which entails that the main line irrigation supply pipework is under pressure at all times (unless drained down in the winter). This allows any control valve to be manually / automatically operated without first having to switch on the pump.

Water pressure from the pumping system shall be regulated at each solenoid valve to provide an equal pressure to the irrigation drip or pop-up equipment

Performance

205 Liquid feed

1. Automatic liquid feed systems such as Easy-Feed by Solufeed (https://uk.solufeed.com/home) or similar
   Approved product shall be an integral part of the system as appended.
   The system requires a separate circuit for feeding the winter garden climbers.

Products - Not Used

Execution - Not Used

Completion - Not Used

Ω End of Section

Specification created using NBS Chorus