21.087

Studio Bosk Limited

Barratt West London

Former Nestle Factory

FNF-BOSK-90-SITE-XX-SP-0001

16-03-2023

Former Nestle Factory Stage 4

Site Wide Hard and Soft Landscape Specification

Reason for Issue: F2 Condition Discharge

Contents

D20
Excavating and filling

Generally/the site

110 Site investigation

1. Report: Refer to contamination reports for relevant phase on DocElite.

145 Variations in ground water level

1. Give notice: If levels encountered are significantly different from levels in the site investigation report or previously measured.

150 Existing services, features and structures

1. Services: See section A12 for locations.
2. Site features to be retained: See section A12 for details.
3. Structures: See section A34 for details of protection.

Clearance/excavating

164 Tree roots

1. Protected area: Do not cut roots within precautionary protection area.
   1.1. Size of area: Refer to arboricultural method statement
2. Excavation in protected area
   2.1. Method: By hand
   2.2. Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
3. Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
4. Cutting
   4.1. Make clean smooth cuts with no ragged edges.
   4.2. Pare cut surfaces smooth with a sharp knife.
   4.3. Treatment of cut roots: Refer to arboricultural method statement
5. Backfill: As dug material, enriched with amelioration as section Q31

168 Site clearance

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

170 Removing small trees, shrubs, hedges and roots

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

180 Chipping and shredding

1. General: Permitted, remove arisings from site

225 Handling topsoil

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

310 Unstable ground

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

330 Unrecorded features

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

350 Existing watercourses

1. Diverted watercourses which are to be filled: Before filling, remove vegetable growths and soft deposits.

370 Underground structures in landscape areas

1. Generally: Remove walls, roads, foundations, disused services, drains, manholes and the like to minimum depth.
2. Minimum depth below finished levels
   2.1. Grass, ground cover and perennial planting: 500 mm
   2.2. Shrub planting: 750 mm.
   2.3. Within 2 m of tree planting: 1000 mm.
3. Walls and slabs remaining: In every 10 m² of wall or slab, make a drainage hole at least 600 mm diameter.

Disposal of materials

420 Topsoil storage heaps

1. Location: To be agreed with BWL
2. Standard: To BS 3882.
3. Height (maximum): 1m
4. Protection
   4.1. Do not place any other material on top of storage heaps.
   4.2. Do not allow construction plant to pass over storage heaps.

4.3. Prevent compaction and contamination.

454 Ground water level, springs or running water

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

Filling

510 Hazardous, aggressive or unstable materials

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

Bioremediation - Not Used

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

Ω End of Section

D41
Crib walls, gabions and other gravity retaining walls

To be read with preliminaries/ general conditions.

210A W-3: Gabion Wall

1. Design intent specification, fabricator to provide fabrication drawings prior to manufacture/installation. Allow for developing fixing details and coordination with engineers to agree loading's.
2. Manufacturer: Enviromesh (Or similar)
   A: Unit 4, Cartwright Ind Est, Spring Garden Road, Longton, Staffordshire, ST3 2TE
   T: 01782 692310
   E: enquiries@enviro-mesh.com
   2.1. Product reference: GABION ENV444
3. Configuration: Bi-Axial Welded Mesh
   3.1. Sizes: To suit site conditions
   3.2. Mesh: Bi-Axial Welded Mesh 4mm dia wire, for the base, front, rear, end, diaphragm panels and lid, all within the tolerances specified in BS EN 10218-2:2012 and shall have a tensile strength that falls within a range of 540-770 N/mm².

   The mesh fabric shall be formed by electrically welding at each and every intersection, hard drawn steel line and cross wires into a dimensionally stable bi-axial square metric mesh of size 75mm x 75mm.
   3.3. Diaphragm: To manufacturers requirements
   3.4. Special requirements: Helical Binders on all visible corners and faces.
   Lacing Wire or Corner Ties to support the mesh, to specialists requirements.
   All fixings orientated to remove any sharp edges on front face.
4. Fill to units
   4.1. Material: Well-graded crushed angular limestone
   4.2. Supplier: CED Stone Ltd (or similiar)
   A: 728 London Road, West Thurrock, Essex, RM20 3LU
   T: 01708 867 237
   E: sales@cedstone.co.uk
   4.2.1. Product: Limestone Gabion Fill: 13-1998-426
   4.3. Size/ grading: Class 6G grading, 100-200mm dia
5. Substrate: Base or foundation to specialist / engineers specification.
6. Batter of wall face: Angled batter to specialist requirements.
7. Geotextile: To rear of wall to prevent soil mixing with fill.
8. Other requirements: Gabions to be fair faced, hand placed fill to exposed face to ensure a neat finish.

250 Assembling and installing

1. *Design intent specification, fabricator to provide fabrication drawings prior to manufacture/installation. Allow for developing fixing details and coordination with engineers to agree loading's.*
2. Description: Gabions
3. Fixings:
   - Lacing wire
   - Corner Ties
   - Helical Binders on all visible corners and faces.

To specialists requirements. All fixings orientated to remove any sharp edges on front face.

3.1. Individual ties of lacing wire: Do not use.

4. Assembly
   4.1. Starting from top corner join edges of adjacent panels together in a continuous operation.
   4.2. Join to adjacent units, above, below and on all sides.
   4.3. Internal bracing: Provide horizontal bracing wires, centres to be determined by the specialist to suit conditions and agreed with the engineers.
5. Installation
   5.1. Vertical joints: Staggered in adjacent courses.
   5.2. Stepped constructions: Align bottom edge wire of upper baskets with a longitudinal wire of mesh of lower baskets. Provide continuous lacing along all horizontal joints at front and rear of wall.
6. Filling
   6.1. Maintain shape of basket during filling.
   6.2. Fill to full height in sequence recommended by manufacturer.
   6.3. Top mesh: To bear upon fill.
   6.4. Lid: Fix securely.
7. Backfill: Place and compact at each course as work proceeds.

Ω End of Section

F10
Brick/ block walling

Types of walling

110 Clay facing brickwork

1. Description: To match the building brickwork. Check final specification with Client team prior to ordering.
2. Bricks: To BS EN 771-1.
   - 2.1. Manufacturer: Wienerberger Ltd
     a: Wienerberger House, Brooks Drive, Cheadle Royal Business Park, Cheadle, Cheshire, SK8 3SA.
     t: 0161 4918200
     - 2.1.1. Product reference: Capelwick Multi
   - 2.2. Recycled content: Not applicable
   - 2.3. Special shapes: Brick on edge coping.
     Double stop end BD.4.3
3. Mortar: As section Z21.
   - 3.1. Standard: To BS EN 998-2
   - 3.2. Mix: 1:5 masonry cement:sand
   - 3.3. Additional requirements: Mortar to match the building
4. Bond:
   - Wall: Half-lap stretcher
   - Coping: Brick on edge header (2nr bricks to cover width of wall).
5. Joints: Bucket handle
6. Features: Brick coping, as detailed

385 Engineering brickwork - Below ground

1. Description: To wall type 7 below ground
2. Bricks: To BS EN 771-1.
   - 2.1. Manufacturer: Ketley Brick Company Ltd.
     A: Dreadnought Works, Dreadnought Road, Pensnett, Brierley Hill, West Midlands DY5 4TH.
     T: 01384 78361
     E: sales@ketley-brick.co.uk
     - 2.1.1. Product reference: STAFFORDSHIRE RED 'Class A' Engineering bricks.
   - 2.2. Mean compressive strength: Greater than or equal to 125 N/mm²
     - 2.2.1. Category: II
   - 2.3. Water absorption: Equal to or less than 4.5%
   - 2.4. Freeze/ thaw category: F2.
   - 2.5. Active soluble salts content category: S2.
   - 2.6. Additional requirements: None
3. Mortar: As section Z21.
   - 3.1. Standard: To BS EN 998-2
   - 3.2. Mix: 1:3 cement:sand
   - 3.3. Additional requirements: None
4. Bond: Half-lap stretcher

5. Joints: Flush.

Testing - Not Used

Workmanship generally

430 Conditioning of clay bricks and blocks

1. Bricks and blocks delivered warm from manufacturing process: Do not use until cold.
2. Absorbent bricks in warm weather: Wet to reduce suction. Do not soak.

460 Mortar designations

1. Mix proportions: For a specified designation select a mix from the following:
   1.1. Designation (i) (BS EN 998-2 M12 equivalent)
      1.1.1. 1:0-¼:3 (Portland cement:lime:sand with or without air entraining additive).
      1.1.2. 1:3 (Portland cement:sand and air entraining additive).
   1.2. Designation (ii) (BS EN 998-2 class M6 equivalent)
      1.2.1. 1:½:4-5 (Portland cement:lime:sand with or without air entraining additive).
      1.2.2. 1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
      1.2.3. 1:2½-3½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
      1.2.4. 1:3-4 (Portland cement:sand and air entraining additive).
   1.3. Designation (iii) (BS EN 998-2 class M4 equivalent)
      1.3.1. 1:1:5-6 (Portland cement:lime:sand with or without air entraining additive).
      1.3.2. 1:3½-4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
      1.3.3. 1:4-5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
      1.3.4. 1:5-6 (Portland cement:sand and air entraining additive).
   1.4. Designation (iv) (BS EN 998-2 class M2 equivalent)
      1.4.1. 1:2:8-9 (Portland cement:lime:sand with or without air entraining additive).
      1.4.2. 1:4½ (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
      1.4.3. 1:5½-6½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
      1.4.4. 1:7-8 (Portland cement:sand and air entraining additive).
2. Batching: Mix proportions by volume.
3. Mortar type: Continuous throughout any one type of masonry work.

500 Laying generally

1. Mortar joints: Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
2. AAC block thin mortar adhesive and gypsum block adhesive joints: Fill vertical joints. Lay blocks on a full bed.
3. Clay block joints
   3.1. Thin-layer mortar: Lay blocks on a full bed.
   3.2. Interlocking perpends: Butted.
4. Bond where not specified: Half-lap stretcher.
5. Vertical joints in brick and concrete block facework: Even widths. Plumb at every fifth cross joint.

520 Accuracy

1. Courses: Level and true to line.
2. Faces, angles and features: Plumb.
3. Permissible deviations
   3.1. Position in plan of any point in relation to the specified building reference line and/ or point at the same level: ± 10 mm.
   3.2. Straightness in any 5 m length: ± 5 mm.
   3.3. Verticality up to 3 m height: ± 10 mm.
   3.4. Verticality up to 7 m height: ± 14 mm.
   3.5. Overall thickness of walls: ± 10 mm.
   3.6. Level of bed joints up to 5 m (brick masonry): ± 11 mm.
   3.7. Level of bed joints up to 5 m (block masonry): ± 13 mm.

545 Levelling of separate leaves

1. Locations for equal levelling of cavity wall leaves: As follows:
   1.1. Every course containing vertical twist type ties or other rigid ties.
   1.2. Every third tie course for double triangle/ butterfly ties.
   1.3. Courses in which lintels are to be bedded.

560 Coursing brickwork

1. Gauge: Four brick courses including bed joints to 300 mm.

561 Coursing brickwork with existing

1. Gauge: Line up with existing brick courses.

580 Laying frogged bricks

1. Single frogged bricks: Frog uppermost.
2. Double frogged bricks: Larger frog uppermost.
3. Frog cavity: Fill with mortar.

635 Jointing

1. Profile: Consistent in appearance.

645 Accessible joints not exposed to view

1. Jointing: Struck flush as work proceeds.

665 Pointing

1. Description: Wally type 7
2. Joint preparation: Remove debris. Dampen surface.
3. Mortar: As section Z21.
   3.1. Standard: To BS EN 998-2
   3.2. Mix: 1:5 masonry cement:sand
   3.3. Additional requirements: Mortar to match building
4. Profile: Bucket handle

690 Adverse weather

1. General: Do not use frozen materials or lay on frozen surfaces.
2. Air temperature requirements: Do not lay bricks/ blocks:
   2.1. In cement-gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
   2.2. In hydraulic lime:sand mortars when at or below 5°C and falling or below 3°C and rising, or as manufacturer's/ supplier's recommendations.
   2.3. In thin-layer mortars when outside the limits set by the mortar manufacturer.
3. Temperature of walling during curing: Above freezing until hardened.
4. Newly erected walling: Protect at all times from:
   4.1. Rain and snow.
   4.2. Drying out too rapidly in hot conditions and in drying winds.

Additional requirements for facework

710 The term facework

1. Definition: Applicable in this specification to brick/ block walling finished fair.
   1.1. Painted facework: The only requirement to be waived is that relating to colour.

750 Colour consistency of masonry units

1. Colour range: Submit proposals of methods taken to ensure that units are of consistent and even appearance within deliveries.
2. Conformity: Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
3. Facing bricks should be blended on site from a minimum of three packs to ensure an even distribution of colour and texture variation.
4. Finished work: Free from patches, horizontal stripes and racking back marks.

760 Appearance

1. Brick/ block selection: Do not use units with damaged faces or arrises.
2. Cut masonry units: Where cut faces or edges are exposed cut with table masonry saw.
3. Quality control: Lay masonry units to match relevant reference panels.
   3.1. Setting out: To produce satisfactory junctions and joints with built-in features and components.
   3.2. Coursing: Evenly spaced using gauge rods.
4. Lifts: Complete in one operation.
5. Methods of protecting facework: Submit proposals.

780 Ground level

1. Commencement of facework: Not less than 150 mm below finished level of adjoining ground or external works level.

830 Cleanliness

1. Facework: Keep clean.
2. Mortar on facework: Allow to dry before removing with stiff bristled brush.
3. Removal of marks and stains: Rubbing not permitted.

Ω End of Section

L37
External stair, ramps, handrail and balustrades systems

General

150A F-10: Single Handrail

1. Description: Site Wide Steps
2. System manufacturer: ASD Lighting
   A: Mangham Road, Barbot Hall Industrial Estate, Rotherham, S61 4RJ,
   T: 01709 374898
   E: sales@asdlighting.com
3. Product: ViperRAIL LED
4. Material: 316 Austenitic stainless steel
   4.1. Cross section: 48mm dia rail
   4.2. Finish: Not required
5. Height (to upper surface of handrail)
   5.1. Above pitch line: 900-1000mm (Refer to details)
   5.2. Above landing: 900-1100 mm (Refer to details)
6. Accessories:
   - Integral IP65 LED lighting
   - Ends of rail to rotate 90 degrees to prevent clothing catch.
   - Cover plate to hide fixing at base.
   - Post to taper below handrail to manufacturers standard.
7. Fixing: Core drilled into concrete steps.

150B F-10A: Double sided offset handrail

1. Description: Canal Steps
2. System manufacturer: ASD Lighting
   A: Mangham Road, Barbot Hall Industrial Estate, Rotherham, S61 4RJ,
   T: 01709 374898
   E: sales@asdlighting.com
3. Product: ViperRAIL LED
4. Material: 316 Austenitic stainless steel
   4.1. Cross section: 48mm dia rail
   4.2. Finish: Not required
5. Height (to upper surface of handrail)
   5.1. Above pitch line: 900-1000mm (Refer to details)
   5.2. Above landing: 900-1100 mm (Refer to details)
6. Accessories:
   - Integral IP65 LED lighting
   - Double handrail offset from central post
   - Ends of rail to form closed loop.
   - Cover plate to hide fixing at base.
   - Post to taper below handrail to manufacturers standard.
7. Fixing: Core drilled into concrete steps.

150C F-10B: Single sided offset handrail

1. Description: Canal Steps
2. System manufacturer: ASD Lighting
   A: Mangham Road, Barbot Hall Industrial Estate, Rotherham, S61 4RJ,
   T: 01709 374898
   E: sales@asdlighting.com
3. Product: ViperRAIL LED
4. Material: 316 Austenitic stainless steel
   4.1. Cross section: 48mm dia rail
   4.2. Finish: Not required
5. Height (to upper surface of handrail)
   5.1. Above pitch line:

   900-1000mm (Refer to details)
   5.2. Above landing: 900-1100 mm (Refer to details)
6. Accessories:
   - Integral IP65 LED lighting
   - Single handrail offset from central post to match double rail.
   - Ends of rail to return to meet wall.
   - Cover plate to hide fixing at base.
   - Post to taper below handrail to manufacturers standard.
7. Fixing: Core drilled into concrete steps.

160A B-2 Metal Railing to Cannal

1. Description: Fall protection balustrade to higher section of canal tow path
2. System manufacturer: Broxap Ltd.
   A: Head Office. Rowhurst Industrial Estate, Chesterton, Newcastle-under-Lyme, Staffordshire, ST5 6BD
   T: 01782 564411
   2.1. Product: Bridgewater Ductile Iron 2 Rail
   (To match rails installed on the Segro site, specification to be confirmed prior to fabrication).
3. Guarding
   3.1. Material: Ductile Iron Post (110mm dia.)
   3.2. Finish: Manufacturers waterside paint specification.
   (Coverage with a zinc rich primer along with a micaceous undercoat and several acrylic topcoats providing a total coverage of approximately 250 microns).
4. Rail
   4.1. Cross section: 2nr: 48.3mm diameter rails
   4.2. Material: Ductile Iron
   4.3. Finish: Manufacturers waterside paint specification.
   (Coverage with a zinc rich primer along with a micaceous undercoat and several acrylic topcoats providing a total coverage of approximately 250 microns).
5. Height (to upper surface of rail)
   5.1. Above pitch line: 1150mm
   5.2. Above landing: 1150mm
6. Accessories: Secondary rail, 640 mm above pitch line
7. Fixing: Base plate fixed to concrete surface.

7.1. Posts to be installed to follow the slope of the ramp. Rails to be bent at changes in direction of gradient.

System performance

220 Design

1. Description: All metalwork
2. Inclusive design: Complete detailed design in accordance with Building Regulations (Eng) Approved Document M, volume 2
3. Structure and associated features: Complete the design to meet structural and safety requirements of BS 6180 and in accordance with BS 8300-2
4. Structural performance criteria
   4.1. Horizontal uniformly distributed line loads on balustrade or handrail (maximum): 3.0 kN/m
5. Other performance criteria: n/a
6. Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

Fabrication

510 Fabrication generally

1. Design: Complete the detailed design and obtain approval prior to commencing fabrication.
2. Shop drawings: Submit.
3. Structural calculations: Submit.
4. Frameworks: Assemble and brace, including temporary members required for installation.
5. Contact between dissimilar metals: Avoid.
6. Fixings: Fully bolt together. Tighten bolts.
7. Temporary support: Do not subject members to non-design loadings.

Execution

610 Loading

1. Site activities: Restrict, to ensure that design loads are not exceeded, or submit proposals for temporary supports.

620 Concrete foundations generally

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

650 Installation generally

1. Fasteners: To section Z20.
2. Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
3. Temporary support: Do not use finished work as temporary support or strutting for other work.
4. Applied finishes: Substrates to be even, dry, sound and free from contaminants. Make good substrate surfaces and prepare/ prime as finish manufacturer's recommendation before application.

662 Adverse weather

1. General: Do not use frozen materials and do not lay on frozen surfaces.
2. Working limits: Do not lay blocks/ dressings:
   2.1. Cement gauged mortars: When the air temperature is at or below 3°C and falling or below 1°C and rising (unless mortar has a temperature of not less than 4°C when laid and work is thoroughly protected).
   2.2. Hydraulic lime:sand mortars: When the air temperature is at or below 5°C and falling or below 3°C and rising.
3. Temperature of the work: Maintain above freezing until mortar has fully set.
4. Newly erected work: Protect from precipitation; Prevent rapid drying in hot conditions.
5. Remedial work: Rake out and replace mortar damaged by frost.
   5.1. Damaged work: Rebuild.

680 Site painting and staining

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

Completion

920 Documentation

1. Contents
   1.1. Copies of structural design calculations/ test reports.
2. General product information.
   2.1. Installation information.
   2.2. Inspection and maintenance reports.
3. Number of copies: 2
4. Submission: Two weeks prior to date when principal contractor expects work to be practically complete

Ω End of Section

Q10
Kerbs/ edgings/ channels/ paving accessories

Types of kerbs/edgings and channels

110A E-1 & E1A Concrete kerb (150mm wide)

1. Manufacturer: Marshalls plc
   1.1. Contact details
      1.1.1. Address: Landscape House
      Lowfields Business Park
      Elland
      West Yorkshire
      HX5 9HT
      1.1.2. Telephone: +44 (0)330 0574472
      1.1.3. Web: www.marshalls.co.uk
      1.1.4. Email: info@marshalls.co.uk
   1.2. Product reference: Half Battered Kerb
2. Standard: To BS EN 1340:2003.
3. Physical properties
   3.1. Colour: Natural grey.
   3.2. Finish: Textured.
   3.3. Profile
      3.3.1. Designation: Half battered kerb.
   3.4. Dimensions: 150 x 305 mm (HB2).
   3.5. Radial units
      3.5.1. Radial face: n/a
      3.5.2. Radius: n/a
   3.6. Weathering resistance: ≤1.0 kg/m² as a mean with no individual value >1.5 kg/m² (freeze thaw durability).
   3.7. Abrasion resistance: ≤23 mm (Wide Wheel Abrasion Test).
   3.8. Bending strength: Characteristic bending strength of 3.5 MPa with no individual result less than 2.8 MPa.
   3.9. Unpolished Slip Resistance Value (USRV) (minimum): >45.
4. Special shapes:
   - Dropper kerbs DL1 and DR1 to footway crossings
   - Internal angle HBIA
   - External angle HBXA

110B E-2 Concrete kerb (125mm wide)

1. Manufacturer: Marshalls plc
   1.1. Contact details
      1.1.1. Address: Landscape House
      Lowfields Business Park
      Elland
      West Yorkshire
      HX5 9HT
      1.1.2. Telephone: +44 (0)330 0574472

1.1.3. Web: www.marshalls.co.uk

1.1.4. Email: info@marshalls.co.uk

1.2. Product reference: Half Battered Kerb

2. Standard: To BS EN 1340:2003.

3. Physical properties

3.1. Colour: Natural grey.

3.2. Finish: Textured.

3.3. Profile

3.3.1. Designation: Half battered kerb.

3.4. Dimensions: 125 x 255 mm (HB2).

3.5. Radial units

3.5.1. Radial face:

3.5.2. Radius:

3.6. Weathering resistance: ≤1.0 kg/m² as a mean with no individual value >1.5 kg/m² (freeze thaw durability).

3.7. Abrasion resistance: ≤23 mm (Wide Wheel Abrasion Test).

3.8. Bending strength: Characteristic bending strength of 3.5 MPa with no individual result less than 2.8 MPa.

3.9. Unpolished Slip Resistance Value (USRV) (minimum): >45.

4. Special shapes:

- Dropper kerbs DL1 and DR1 to footway crossings
- Internal angle HBIA
- External angle HBXA
- External radius kerbs as shown on drawings
- Flush Kerb at footway crossing as Q10/110E

110C E-3 Concrete Conservation kerb

1. Manufacturer: Marshalls plc

1.1. Contact details

1.1.1. Address: Landscape House
Lowfields Business Park
Elland
West Yorkshire
HX5 9HT

1.1.2. Telephone: +44 (0)330 0574472

1.1.3. Web: www.marshalls.co.uk

1.1.4. Email: info@marshalls.co.uk

1.2. Product reference: Conservation X Kerb

2. Standard: To BS 7533-6:1999.

3. Physical properties

3.1. Colour:

3.2. Finish: Textured.

3.3. Dimensions:

3.4. Weathering resistance: ≤1.0 kg/m² as a mean with no individual value >1.5 kg/m² (freeze thaw durability).

3.5. Abrasion resistance: ≤23 mm (Wide Wheel Abrasion Test).

3.6. Bending strength: Characteristic bending strength of 3.5 MPa with no individual result less than 2.8 MPa

3.7. Unpolished Slip Resistance Value (USRV) (minimum): >45.

4. Special shapes:

110D E-6 Concrete Edging

1. Manufacturer: Marshalls plc
   1.1. Contact details
      1.1.1. Address: Landscape House
      Lowfields Business Park
      Elland
      West Yorkshire
      HX5 9HT
      1.1.2. Telephone: +44 (0)330 0574472
      1.1.3. Web: www.marshalls.co.uk
      1.1.4. Email: info@marshalls.co.uk
   1.2. Product reference: Standard Edging (Flat Top Edging)
2. Standard: To BS EN 1340:2003.
3. Physical properties
   3.1. Finish: Textured.
   3.2. Profile
      3.2.1. Designation: EF.
   3.3. Dimensions: 50 x 150 x 914 mm.
   3.4. Weathering resistance: ≤1.0 kg/m² as a mean with no individual value >1.5 kg/m² (freeze thaw durability).
   3.5. Abrasion resistance: ≤23 mm (Wide Wheel Abrasion Test).
   3.6. Unpolished Slip Resistance Value (USRV) (minimum): >45.

110E E-7 Concrete kerb flush (125mm wide)

1. Manufacturer: Marshalls plc
   1.1. Contact details
      1.1.1. Address: Landscape House
      Lowfields Business Park
      Elland
      West Yorkshire
      HX5 9HT
      1.1.2. Telephone: +44 (0)330 0574472
      1.1.3. Web: www.marshalls.co.uk
      1.1.4. Email: info@marshalls.co.uk
   1.2. Product reference: Bullnosed Kerb
2. Standard: To BS EN 1340:2003.
3. Physical properties
   3.1. Colour: Natural grey.
   3.2. Finish: Textured.
   3.3. Profile
      3.3.1. Designation: Bullnosed kerb
   3.4. Dimensions: 125 x 150 x 915 mm.

3.5. Weathering resistance: ≤1.0 kg/m² as a mean with no individual value >1.5 kg/m² (freeze thaw durability).

3.6. Bending strength: Characteristic bending strength of 3.5 MPa with no individual result less than 2.8 MPa.

3.7. Unpolished Slip Resistance Value (USRV) (minimum): >45.

4. Laying: Square end laid upwards as engineers detail.
5. Special shapes: n/a

250 Material samples

1. Samples representative of colour and appearance of designated materials: Submit before placing orders.

1.1. Designated materials:

Roads/paving accessories/ marking/ demarcation

395 Road marking (thermoplastic)

1. Standard: Road Safety Markings Association standard specification document for road marking and road studs (StanSpec).
2. Manufacturer: Contractor's choice

2.1. Product reference: Submit proposals

3. Colour: White
4. Retroreflectivity to BS EN 1436: Not required (Class R0)

Laying

510 Laying kerbs, edgings and channels

1. Cutting: Neat, accurate and without spalling. Form neat junctions.

1.1. Long units (450 mm and over) minimum length after cutting: 300 mm.

1.2. Short units minimum length after cutting: The lower of one third of their original length or 50 mm.

2. Bedding of units: Positioned true to line and levelled along top and front faces, in a mortar bed on accurately cast foundations or on a race of fresh concrete.
3. Securing of units: After bedding has set, secured with a continuous haunching of concrete or on a race of fresh concrete with backing concrete cast monolithically.

520 Adverse weather

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

530 Concrete for foundations, races and haunching

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

540 Cement mortar bedding

1. General: To section Z21.
2. Mix (Portland cement:sand): 1:3.

2.1. Portland cement: Class CEM I 42.5 to BS EN 197-1.

2.2. Sand: to BS EN 12620, grade 0/4 or 0/2 (MP).

3. Bed thickness: 12-40 mm.

547 Bedding/ Backing of units on fresh concrete races

1. Standard: To BS 7533-6.

550 Kerb dowels

1. Dowels: Steel bar to BS 4482.
   1.1. Size: 12 mm diameter, 150 mm long.
2. Installation of dowels: Vertically into foundation while concrete is plastic.
   2.1. Centres: To suit holes in kerbs.
   2.2. Projection: 75 mm.
3. Grouting of holes in kerbs: Filled with 1:3 cement:sand mortar finished flush.

560 Haunching dowels

1. Dowels: Steel bar to BS 4482.
   1.1. Size: 12 mm diameter, 150 mm long.
2. Installation of dowels: Vertically into foundation while concrete is plastic.
   2.1. Centres: 450 mm.
   2.2. Distance from back face of kerb: 50 mm.
   2.3. Projection: 75 mm.
3. Haunching: Rectangular cross section, cast against formwork, fully enclosing and protecting dowels.

570 Channels

1. Installation: To an even gradient, without ponding or backfall.
2. Lowest points of channels: 6 mm above drainage outlets.

580 Drainage channel systems

1. Installation: To an even gradient, without ponding or backfall. Commence laying from outlets.
2. Silt and debris: Removed from entire system immediately before handover.
3. Washing and detritus: Safely disposed without discharging into sewers or watercourses.

590 Drainage channel systems with built in fall

1. Installation: Top of channels level, installed in correct sequence to form an even gradient without ponding or backfall. Commence laying from outlets.
2. Silt and debris: Removed from entire system immediately before handover.
3. Washings and detritus: Safely disposed without discharging into sewers or watercourses.

600 Radius kerbs/ channels

1. Usage: Radii of 15 m or less.

610 Angle kerbs

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

620 Accuracy

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

625 Regularity of paved surfaces

1. Maximum undulation of (non-tactile) paving surface: 3 mm.
    1.1. Method of measurement: Under a 1 m straight edge placed anywhere on the surface (where appropriate in relation to the geometry of the surface).
2. Difference in level between adjacent units (maximum)
    2.1. Joints flush with the surface: Twice the joint width (with 5 mm max difference in level).
    2.2. Recessed, filled joints: 2 mm.
        2.2.1. Recess depth (maximum): 5 mm.
    2.3. Unfilled joints: 2 mm.
3. Sudden irregularities: Not permitted.

630 Narrow mortar joints

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

640 Tooled mortar joints

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

650 Sealant movement joints

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: 6 mm
4. Sealant: High modulus silicone
    4.1. Colour: Colour match to kerbs
5. Sealant application: As section Z22.

Ω End of Section

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

Types of surfacing

110A P10- Compacted Gravel

1. Description: Compacted gravel
2. Geotextile: To engineers specification
3. Granular sub-base: To engineers specification
   (No sub base above tree pits and ornamental planting beds)
   3.1. Compacted thickness: -
4. Surface course: Angular gravel, free from clay, with sufficient grit to enable compaction.
   4.1. Type: Granite
   4.2. Source: CED Stone Ltd
   A: 728 London Road, West Thurrock, Essex, RM20 3LU
   T: 01708 867 237
   E: sales@cedstone.co.uk
   4.2.1. Product: CEDEC Footpath Gravel
   4.3. Colour: Silver
   4.4. Size: Graded <6 mm
   4.5. Compacted thickness: 50mm
5. Installation : To manufacturers specification. Summary below, refer to latest manufacturers information for more details:
   - It must be slightly moist and should not be laid if dry.
   - Initial compaction should be carried out BEFORE further watering takes place, by a non-vibratory roller that is not so heavy as to distort the surface.
   - After initial compaction, thorough saturation with water is necessary, taking care to prevent heavy disturbance of the top surface.
   - Final compaction of the saturated surface will be required following the watering.
   - Further cycles of watering and compacting may be required within one week of laying, depending on the site conditions prevalent at the time.
6. Completion: Compact to produce a firm, regular surface, stable in use.

Laying

315 Materials

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

320 Samples

1. Submit: Representative samples of all aggregates.

340 Laying generally

1. Channels, gullies, etc: Keep clear.
2. Finished surfaces
   2.1. Lines and levels: To prevent ponding.

2.2. Overall texture: Even.

2.3. State at completion: Clean.

350 Cold weather working

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

360 Drainage falls

1. Sealed surfaces
   1.1. Falls and cross falls (minimum): 1:40.
   1.2. Camber (minimum): 1:50.
2. Unsealed surfaces (minimum): 1:30.

380 Laying granular surfaces in pedestrian areas and cycle tracks

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

390 Protection from traffic and plant

1. Paved areas: Restrict access to prevent damage.

Completion - Not Used

Ω End of Section

Q24
Interlocking brick/ block roads/ pavings

Types of paving

110A Vehicular block paving system

1. Description: Vehicular block paving
2. Subgrade improvement layer: To engineers specification
   2.1. Compacted thickness: -
3. Geotextile: To engineers specification
   3.1. Manufacturer: -
      3.1.1. Product reference: -
4. Granular sub-base: To engineers specification
   4.1. Compacted thickness: -
5. Base: To engineers specification
6. Laying course
   6.1. Material: In accordance with BS 7533-3.
      6.1.1. Category: To engineers specification
   6.2. Method of screeding, in accordance with BS 7533-3: -
   6.3. Nominal thickness after compaction: -
7. Paving units: P-14: Q24/121A
   P-20: Q24/123A
   P-21: Q24/124B
8. Jointing
   8.1. Material: In accordance with BS 7533-3.
   8.2. Joint width: 2-5 mm.
9. Sealer/ Stabilizer: Not required
10. Setting out
    10.1. Bond: Refer to P Type specification
    10.2. Features: Mortar bedded edge restraint
11. Accessories: None

121A P-14 Granite aggregate concrete setts

1. Blocks: To BS EN 1338.
   1.1. Manufacturer: Marshalls Plc.
   A: Landscape House, Lowfields Business Park, Elland, West Yorkshire
   HX5 9HT
   t: +44 (0)330 0574472
   e: info@marshalls.co.uk
      1.1.1. Product reference: Modal
   1.2. Sizes: 200 x 100 x 80 mm
   1.3. Colour/ Finish: Light Granite Textured
   1.4. Requirements:
      1.4.1. Freeze/ thaw resistance: Class 3
      1.4.2. Abrasion resistance: Class 3
      1.4.3. Slip/ Skid resistance: PTV to BS 7976-2 of 45

2. Setting out
   2.1. Bond: Stretcher

Execution

200 Execution generally – concrete block and clay paver paving

1. Standard: In accordance with BS 7533-3.

205 Execution generally – natural stone paving

1. Standard: In accordance with BS 7533-7, as relevant to flexible (non-rigid) laying and construction.
2. Subgrade, sub-base and roadbase presentation: Tight and dense surface, to prevent loss of laying course material into it during construction and use.
3. Joint filling: Do not work in damp conditions. Top joints up at the earliest opportunity.

211 Colour banding

1. General: Unless premixed by manufacturer, select blocks/ pavers/ setts from at least 3 separate packs in rotation, to avoid colour banding.

220 Samples

1. General: Before ordering, submit samples of all blocks/ pavers/ setts that are representative of colour and appearance.

240 Adverse weather

1. General: Do not use frozen materials or lay bedding on frozen or frost covered sub-bases.

485 Laying blocks/ pavers/ setts

1. Setting out: Start from an edge restraint.
2. Cutting: Cleanly, accurately and vertically, without spalling. Do not mark or damage visible surfaces.
3. Cut edges: Turn inwards where possible; do not position against edge restraints or other features.
4. In situ mortar or concrete infill:
5. Compaction: Vibrate to produce thoroughly interlocked paving of even overall appearance with regular joints and accurate to line, level and profile. Do not mark or damage paving units, kerbs and adjacent work.
   5.1. Concrete blocks and clay pavers: In accordance with BS 7533-3, Annex F, to site category required for laying course material.

495 In situ surrounds to obstructions

1. Locations:
   - Around circular drainage fittings
   - At circular street furniture bases
   - Where agreed on site
2. Material: 3:1 mix of coarse aggregate and mortar in accordance with BS 7533-3, clause 5.4.3.2.
3. Shape and size: Rectangular, 100 mm (minimum) all round obstruction.
4. Thickness (minimum): Combined depth of blocks/ pavers/ setts and sand laying course.
5. Colour: To match paving units
6. Timing: Lay and allow to cure in advance of laying blocks/ pavers/ setts.

505 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.

Completion

615 Completion of paving

1. Final compaction of the surface course: In accordance with BS 7533-3.
2. Vacuum cleaning machines: Not allowed.

Ω End of Section

Q25
Slab/ brick/ sett/ cobble pavings

General

120 Concrete flag paving system (Pedestrian)

1. Description: Pedestrian Paving
2. Subgrade improvement layer: To engineers specification
   2.1. Compacted thickness: -
3. Granular sub-base: To engineers specification
   3.1. Compacted thickness: -
4. Base: n/a
   4.1. Thickness: -
5. Laying course: Sand/ fine aggregate
   5.1. Accessories: None
6. Paving units: P-4: Q25/315B
   P-9: Q25/315C
7. Jointing: Sand/ fine aggregate
   7.1. Bond: Half lap staggered
8. Accessories: Kerbs, as section Q10

120A Concrete flag paving system (Vehicular)

1. Description: Pedestrian Paving
2. Subgrade improvement layer: To engineers specification
   2.1. Compacted thickness: -
3. Granular sub-base: To engineers specification
   3.1. Compacted thickness: -
4. Base: To engineers specification
   4.1. Thickness: -
5. Laying course: Sand/ fine aggregate
   5.1. Accessories: None
6. Paving units: P-7: Q25/316A
   P-7A: Q25/316C
   P-9A: Q25/315C
   P-13: Q25/316B
7. Jointing: Sand/ fine aggregate
   7.1. Bond: Half lap staggered
8. Accessories: Kerbs, as section Q10

190 Hard landscaping materials specification

1. Minimum BRE 'Green Guide to Specification' (online) rating:

System performance - Not Used

Products

315C P-9 & P9A: Concrete flags

1. Standard: To BS EN 1339.
   1.1. Manufacturer: Marshalls plc
      1.1.1. Contact details
         1.1.1.1. Address: Landscape House
         Lowfields Business Park
         Elland
         West Yorkshire
         HX5 9HT
         1.1.1.2. Telephone: +44 (0)330 0574472
         1.1.1.3. Web: www.marshalls.co.uk
         1.1.1.4. Email: info@marshalls.co.uk
      1.1.2. Product reference: P-9: Saxon Paving
      P-9A: Saxon Paving Traffica
   1.2. Standard: To BS EN 1339.
   1.3. Physical properties
      1.3.1. Colour: Natural
      1.3.2. Finish: Textured.
      1.3.3. Dimensions and associated tolerances
         1.3.3.1. Nominal sizes: P9: 450 x 450 x 50 mm.
         P9A: 450 x 450 x 70 mm.
         1.3.3.2. Tolerances on plan dimension and thickness (nominal): Length ±2 mm, width ±2 mm, thickness ±3 mm.
      1.3.4. Weathering resistance: ≤1.0 kg/m² as a mean with no individual value >1.5 kg/m² (freeze thaw durability).
      1.3.5. Abrasion resistance: ≤23 mm (Wide Wheel Abrasion Test).
      1.3.6. Slip resistance: >45.
      1.3.7. Skid resistance: >45.

316A P-7 Granite Aggregate Setts

1. Standard: To BS EN 1339.
   1.1. Manufacturer: Marshalls plc
      1.1.1. Contact details
         1.1.1.1. Address: Landscape House
         Lowfields Business Park
         Elland
         West Yorkshire
         HX5 9HT
         1.1.1.2. Telephone: +44 (0)330 0574472
         1.1.1.3. Web: www.marshalls.co.uk
         1.1.1.4. Email: info@marshalls.co.uk
      1.1.2. Product reference: Modal Paving
   1.2. Standard: To BS EN 1338 and BS EN 1339.
   1.3. Physical properties

1.3.1. Colour:

- Blush Granite (30%)
- Mauve Granite (30%)
- Silver Grey Granite (40%)

1.3.2. Finish: Textured.

1.3.3. Profile

1.3.3.1. Flag type: Regular plan form.

1.3.4. Dimensions and associated tolerances

1.3.4.1. Nominal sizes: 300 x 100 x 80 mm.

1.3.4.2. Tolerances on plan dimension and thickness (nominal): Length ±2 mm, width ±2 mm, thickness ±3 mm.

1.3.5. Weathering resistance: ≤1.0 kg/m² (as a mean with no individual value), > 1.5 kg/m² (freeze thaw durability).

1.3.6. Abrasion resistance: ≤23 mm (wide wheel abrasion test).

1.3.7. Slip resistance: >45.

1.3.8. Skid resistance: >45.

316B P-13 Granite Aggregate concrete flag paving

1. Standard: To BS EN 1339.

1.1. Manufacturer: Marshalls plc

1.1.1. Contact details

1.1.1.1. Address: Landscape House
Lowfields Business Park
Elland
West Yorkshire
HX5 9HT

1.1.1.2. Telephone: +44 (0)330 0574472

1.1.1.3. Web: www.marshalls.co.uk

1.1.1.4. Email: info@marshalls.co.uk

1.1.2. Product reference: Modal Paving

1.2. Standard: To BS EN 1338 and BS EN 1339.

1.3. Physical properties

1.3.1. Colour: Silver Grey Granite

1.3.2. Finish: Textured.

1.3.3. Profile

1.3.3.1. Flag type: Regular plan form.

1.3.4. Dimensions and associated tolerances

1.3.4.1. Nominal sizes: 600 x 300 x 80 mm.

1.3.4.2. Tolerances on plan dimension and thickness (nominal): Length ±2 mm, width ±2 mm, thickness ±3 mm.

1.3.5. Weathering resistance: ≤1.0 kg/m² (as a mean with no individual value), > 1.5 kg/m² (freeze thaw durability).

1.3.6. Abrasion resistance: ≤23 mm (wide wheel abrasion test).

1.3.7. Slip resistance: >45.

1.3.8. Skid resistance: >45.

316C P-7A Granite Aggregate Setts

1. Standard: To BS EN 1339.
   1.1. Manufacturer: Marshalls plc
      1.1.1. Contact details
         1.1.1.1. Address: Landscape House
         Lowfields Business Park
         Elland
         West Yorkshire
         HX5 9HT
         1.1.1.2. Telephone: +44 (0)330 0574472
         1.1.1.3. Web: www.marshalls.co.uk
         1.1.1.4. Email: info@marshalls.co.uk
      1.1.2. Product reference: Modal Paving
   1.2. Standard: To BS EN 1338 and BS EN 1339.
   1.3. Physical properties
      1.3.1. Colour:
         - Silver Grey Granite
      1.3.2. Finish: Textured.
      1.3.3. Profile
         1.3.3.1. Flag type: Regular plan form.
      1.3.4. Dimensions and associated tolerances
         1.3.4.1. Nominal sizes: 300 x 100 x 80 mm.
         1.3.4.2. Tolerances on plan dimension and thickness (nominal): Length ±2 mm, width ±2 mm, thickness ±3 mm.
      1.3.5. Weathering resistance: ≤1.0 kg/m² (as a mean with no individual value), > 1.5 kg/m² (freeze thaw durability).
      1.3.6. Abrasion resistance: ≤23 mm (wide wheel abrasion test).
      1.3.7. Slip resistance: >45.
      1.3.8. Skid resistance: >45.

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

1. Description: Paving Units
2. Standard: To BS 7533-4, unbound construction laying course and jointing material.
3. Purity: Free from deleterious salts, contaminants, lime and cement.
4. Procurement: Obtain from one source and ensure consistent grading.

420 Sand/ fine aggregate for laying course of concrete sett paving

1. Material: Sand/ fine aggregate for laying courses to BS 7533-4

Execution

620 Adverse weather

1. General
   1.1. Temperature: Do not lay or joint paving if the temperature is below 3°C on a falling thermometer or below 1°C on a rising thermometer.
   1.2. Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.

2. Paving with mortar joints and/ or bedding
   2.1. Protect from frost damage, rapid drying out and saturation until mortar has hardened.
3. Paving laid and jointed in sand/ fine aggregate
   3.1. Stockpiled laying course sand/ fine aggregate: Protect from saturation.
   3.2. Exposed areas of unbound laying course and uncompacted areas of unbound paving: Protect from heavy rainfall.
   3.3. Saturated unbound laying course: Remove and replace, or allow to dry before proceeding.
   3.4. Laying dry sand/ fine aggregate jointed paving in damp conditions: Brush in as much jointing sand as possible. Minimize site traffic over paving. As soon as paving is dry, top up joints and complete compaction.

625 Laying pavings – general

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

630 Levels of paving

1. Permissible deviation from specified levels
   1.1. Generally: ± 6 mm.
2. Height of finished paving above features
   2.1. At gullies: +6 to +10 mm.
   2.2. At drainage channels and kerbs: +3 to +6 mm.

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 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): 24 hours
   4.2. Vehicular traffic (minimum): 7 days
5. Access: Restrict access to paved areas to prevent damage from site traffic and plant.

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.

710 Laying flag and slab paving – sand/ fine aggregate laying course and jointing

1. Standard: In accordance with BS 7533-4.
2. Flag installation and cutting: To Interpave 'Concrete flag paving'.
3. Laying course
   3.1. Nominal thickness after compaction: 50 mm
4. Joint width: 2-5 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, sweep clean before practical completion
2. Final compaction of the surface course: In accordance with BS 7533-3.
3. Vacuum cleaning machines: Not allowed.

Ω End of Section

Q28
Topsoil and soil ameliorants

System outline

115A S-5: Soil system for lawn areas

1. Description: Ornamental lawn areas at ground floor
2. Composition
   - 2.1. Topsoil: Imported topsoil to BS 3882 Q28/315
   - 2.2. Ameliorants: None
   - 2.3. Accessories: None

135A S-1: Soil system for ornamental planting beds

1. Description: Ornamental planting areas at ground floor
2. Composition
   - 2.1. Topsoil: Imported topsoil to BS 3882 Q28/315
   - 2.2. Subsoil: Imported subsoil to BS 8601 Q28/316
   - 2.3. Ameliorants: Organic compost Q28/401
   - 2.4. Accessories: Mulch system Q28/155

135B S-2: Soil system for rain gardens

1. Description: For rain gardens at ground floor
2. Composition
   - 2.1. Topsoil: Imported manufactured topsoil, custom mix Q28/335
   - 2.2. Subsoil: Imported manufactured subsoil, custom mix Q28/335
   - 2.3. Ameliorants: Organic compost Q28/401
   - 2.4. Accessories: Mulch system Q28/155

135D S-1A: Soil system for ornamental planting beds (Canal Square)

1. Description: Ornamental planting areas at ground floor
2. Composition
   - 2.1. Topsoil: Imported topsoil to BS 3882 Q28/315
   - 2.2. Subsoil: Imported subsoil to BS 8601 Q28/316
   - 2.3. Ameliorants: Organic compost Q28/401
   - 2.4. Accessories: Mulch system Q28/156

135E S-7: Soil system for hedging

1. Description: Hedging at ground floor
2. Composition
   - 2.1. Topsoil: Imported topsoil to BS 3882 Q28/315
   - 2.2. Subsoil: Imported subsoil to BS 8601 Q28/316
   - 2.3. Ameliorants: Organic compost Q28/401
   - 2.4. Accessories: Mulch system Q28/155
     (Canal Square Q28/156)

145A S-3: Soil system for tree pits

1. Description: Tree pits at ground floor
2. Composition
   2.1. Topsoil: Imported topsoil to BS 3882 Q28/315
   2.2. Subsoil: Imported subsoil to BS 8601 Q28/316
   2.3. Ameliorants: Organic compost Q28/401
   2.4. Accessories: Mulch system Q28/155

145B S-4: Soil system for tree pits in rain gardens

1. Description: Rain garden tree pits
2. Composition
   2.1. Topsoil: Imported manufactured topsoil, custom mix Q28/335
   2.2. Subsoil: Imported manufactured subsoil, custom mix Q28/336
   2.3. Ameliorants: Organic compost Q28/401
   2.4. Accessories: Mulch system Q28/155

145D S-3A: Soil system for tree pits (Canal Square)

1. Description: Tree pits in canal square
2. Composition
   2.1. Topsoil: Imported topsoil to BS 3882 Q28/315
   2.2. Subsoil: Imported subsoil to BS 8601 Q28/316
   2.3. Ameliorants: Organic compost Q28/401
   2.4. Accessories: Mulch system Q28/156

155 Mulching and top dressing system

1. Description: Ornamental planting beds and tree pits
2. Composition
   2.1. Material: Bark Mulch Q28/355

156 Mulching and top dressing system (Canal Square)

1. Description: Ornamental planting beds, hedges and tree pits in compacted gravel in canal square.
2. Composition
   2.1. Material: CEDEC gravel to match Q23/110A
      2.1.1. Depth: 50mm depth.
      Lightly compacted to retain material but without impacting on rooting zone.

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.

305 Permitted materials

1. Materials: Composted bark, Composted green/ food waste certified to PAS 100, Bark, Composted animal manures
2. Give notice: before ordering or using.
3. Declaration of compliance in accordance with BS EN 13650: Not required

310 Materials not permitted

1. Materials: Peat, Products containing peat, River and canal dredgings

315 Imported topsoil to BS 3882

1. Description: Ornamental Planting and Lawn areas at ground floor.
2. Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
3. Standard: To BS 3882.
4. Classification: Multipurpose (pH neutral)
   4.1. Soil textural class to BS 3882, Figure 1: Sandy loam
5. Source: BOURNE AMENITY LIMITED
   A: The Wharf, Rye Road, Kent TN18 5QG
   T: 01797 252 299
   E: info@bourneamenity.co.uk
   5.1. Product reference: TS1 Topsoil

316 Imported subsoil to BS 8601

1. Description: Ornamental Planting and Lawn areas at ground floor.
2. Quantity: Provide as necessary to make up any deficiency of subsoil existing on site and to complete the work.
3. Standard: To BS 8601
4. Classification: Multipurpose (pH neutral)
   4.1. Soil textural class to BS 3882, Figure 1: Sandy loam subsoil
5. Source: BOURNE AMENITY LIMITED
   A: The Wharf, Rye Road, Kent TN18 5QG
   T: 01797 252 299
   E: info@bourneamenity.co.uk
   5.1. Product reference: Sandy Loam Subsoil

335 Imported manufactured topsoil, custom mix

1. Description: Rain Garden Soil
2. Quantity: For all rain gardens
3. Source: BOURNE AMENITY LIMITED
   A: The Wharf, Rye Road, Kent TN18 5QG
   T: 01797 252 299
   E: info@bourneamenity.co.uk
   3.1. Product reference: Rain Garden Soil

4. Soil textural class: Sand
5. Reaction, to BS 1377-3: pH Neutral.
6. Organic matter to PD CR 13456: Minimum 4%
7. Nutrient content: Minimum index values for nitrogen, phosphorus, potassium and magnesium to be as for BS 3882 multipurpose topsoil.
8. Crumb structure: Made up of discernible crumbs.
9. Stone size in any dimension (maximum): 10 mm

336 Imported manufactured subsoil, custom mix

1. Description: Rain Garden Sub Soil
2. Quantity: For all rain gardens
3. Source: BOURNE AMENITY LIMITED
   A: The Wharf, Rye Road, Kent TN18 5QG
   T: 01797 252 299
   E: info@bourneamenity.co.uk
   3.1. Product reference: Loamy Sand Subsoil
4. Soil textural class: Sand
5. Reaction, to BS 1377-3: pH Neutral.
6. Organic matter to PD CR 13456: Minimum 4%
7. Nutrient content: n/a
8. Crumb structure: Made up of discernible crumbs.
9. Stone size in any dimension (maximum): 10 mm

355 Bark Mulch

1. Description: FOR TOP DRESSING/ MULCHING
2. Type: Fine grade bark
3. Source: Melcourt Industries Limited,
   A: Boldridge Brake, Long Newnton, Tetbury, Gloucestershire. GL8 8RT
   T: +44(01666 502711
   3.1. Product reference: Amenity Bark Mulch™

401 Organic compost

1. Description: For all planting areas.
2. Manufacturer/ source: Dalefoot Composts
   Dalefoot Farm, Heltondale, Nr Penrith, Cumbria CA10 2QL
   T: 01931 713281
   E: sales@dalefootcomposts.co.uk
   2.1. Product reference: Wool Compost Double Strength DSWOOL1
3. Standard: In accordance with the Fertilizer Industry Assurance Scheme (FIAS)
4. Purpose: General purpose fertilizer
5. Type: Organic compost & soil conditioner
6. Availability to plants: Slow-release

Execution

610 Topsoil & Subsoil analysis

1. Soil to be analysed: Imported topsoil & Manufactured topsoil
2. Soil analyst: Contractors Choice

3. Samples: Collect in accordance with BS 3882.
4. Submit
   4.1. Declaration of analysis: In accordance with BS 3882, clause 6 and Table 1.
   4.2. Additional analysis: Chemical analysis & Potentially toxic elements (PTEs)
   4.3. Report detailing soil analyst's recommendations and suitability for use in the intended location.

620 Importing topsoil

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

625 Sample loads

1. Description: FOR IMPORTED TOPSOIL & COMPOST
2. Deliver to site a sample load: of 5 kg
3. Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
   3.1. Notice period: 7 days

630 Documentation for imported topsoil

1. Description: FOR IMPORTED TOPSOIL
2. Timing: Submit at handover.
3. Contents
   3.1. Full description of all soil components.
   3.2. Record of source for all soil components.
   3.3. Record drawings showing the location and depth of all soils by type and grade.
   3.4. Declaration of analysis: in accordance with BS 3882, clause 6 and Table 1.
4. Number of copies: Two

635 Documentation for compost and composted materials

1. Description: FOR COMPOST
2. Timing: Submit at handover.
3. Contents
   3.1. Full description of all compost components.
   3.2. Record of source for all compost components.
   3.3. Analyst's report for each test carried out.
   3.4. Declaration of compliance: in accordance with PAS 100 and BSI PD CR 13456.
   3.5. Quality Compost Protocol certification: Not required
4. Number of copies: Two

650 Notice

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

2. Period of notice: 5 working days

655 Mechanical tools

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

660 Grading subsoil for:

1. Description: ORNAMENTAL PLANTING BEDS & GRASSED AREAS
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: ORNAMENTAL PLANTING BEDS & GRASSED AREAS
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: 300 mm
     - 4.1.2. Stiff clay and cohesive subsoils: 450 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 20 mm.
6. Remove from site: Arisings, contaminants, debris & builders rubble

675 Preparation of undisturbed topsoil

1. Standard: In accordance with BS 4428.
   - 1.1. Grading and cultivation: Category C
2. Hard ground: Break up thoroughly.
3. Clearing: Remove visible roots and large stones with a diameter greater than 50 mm.
4. Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
5. Fallow period (minimum): One month
   - 5.1. Weed control: At appropriate times treat with a suitable translocated nonresidual herbicide.

680 Surplus topsoil to be retained

1. Generally: Spread and level on site:
   - 1.1. Locations: Any areas where topsoil is required for new planting
   - 1.2. Protected areas: Do not raise soil level within root spread of trees that are to be retained.

685 Surplus materials to be removed

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

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: ORNAMENTAL GRASS AREAS, ORNAMENTAL PLANTING BEDS & TREE PITS
2. Standard: In accordance with BS 3882.
3. Temporary roads/ surfacing: Remove before spreading topsoil.
4. Layers
   4.1. Depth (maximum): 150 mm.
   4.2. Gently firm each layer before spreading the next.
5. Depth after firming and settlement: Ornamental grass areas: 200mm
   Ornamental Planting: 300mm
   Tree Planting Pits 450mm
6. Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 Loose tipping of topsoil

1. Standard: In accordance with BS 3882.
2. General: Do not firm, consolidate or compact topsoil when laying. Tip and grade to approximate levels in one operation with minimum of trafficking by plant.

718 Final cultivation

1. Description: FOR PLANTING BEDS & TURFING
2. Compacted topsoil: Break up to full depth.
3. Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
4. Depth: 150 mm
5. Particle size (maximum): 10 mm
6. Timing: After grading and fertilizing, and within a few days before planting
7. Weather and ground conditions: Suitably dry.
8. Surface: Leave regular and even.
9. Levels: 25 mm above adjoining paving or kerbs,
   50 mm above adjoining lawns
   Minimum 150 mm below dpc of adjoining buildings

10. Undesirable material brought to the surface
    10.1. Remove visible weeds.
    10.2. Remove roots and large stones with any dimension exceeding 20 mm.

720 Finished levels of topsoil after settlement

1. In relation to adjoining paving, kerbs or hard surfaces: Flush
2. In relation to dpc of adjoining buildings: Not less than 150 mm below.
3. In relation to adjacent grass areas: 25 mm above
4. Seeded areas: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
5. Sportsfields: To even levels and within the following permitted deviations:
    5.1. From levels or gradients shown on drawings: ±75 mm.
    5.2. From line between boning rods 30 m apart: ±25 mm.
6. Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
7. Adjoining soil areas: Marry in.
8. Thickness of turf or mulch: Included.

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.

810 Applying compost

1. Description: ORNAMENTAL PLANTING BEDS & TREE PITS
2. Application rate for trees and shrubs: 50 mm thick
    2.1. Timing: Apply prior to cultivation.
3. Application rate for grass: n-a
    3.1. Timing: Apply prior to cultivation.
4. Application rate for planters: 50 mm-thick layer
    4.1. Timing: Apply prior to cultivation.
5. Other requirements: Submit details of recent chemical and physical analysis before ordering

825 Applying fertilizer to proposed grass areas

1. Description: TO TURFED AREAS (EXCEPT WILDFLOWER MEADOWS)
2. Application: Before final cultivation and three to five days before seeding/ turfing.
3. Coverage:
4. Spread evenly, in transverse directions.
    4.1. Rate: To manufacturer's recommendations

845 Applying loose mulch (Bark Mulch)

1. Description: FOR PLANTING BEDS & 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): 50 mm depth
   4.2. Trees: 50 mm depth
   4.3. Container planting: 50 mm depth
5. Finished level of mulch: 30 mm below adjacent grassed or paved areas

846 Applying loose mulch (Gravel Mulch - Canal Square)

1. Description: FOR PLANTING BEDS & TREE PITS IN CANAL SQUARE
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): 50 mm depth
   4.2. Trees: 50 mm depth
   4.3. Container planting: n/a
5. Finished level of mulch: 30 mm below adjacent grassed or paved areas

Completion

905 Applying maintenance fertilizer to soil

1. Description: TO PLANTING BEDS &TREE PITS
2. Duration: Carry out the following operations from completion of seeding/ turfing until the end of the rectification period.
3. Time of year: March or April
4. Application: Evenly spread, carefully incorporating below mulch materials.
5. Rate: To manufacturer's recommendations

910 Applying maintenance fertilizer to grass swards

1. Description: TO ALL GRASSED AREAS EXCEPT WILDFLOWER MEADOWS
2. Duration: Carry out the following operations from completion of seeding/turfing until the end of the rectification period.
3. Time of year: March or April
4. Application: Evenly spread
5. Rate: To manufacturer's recommendations

920 Applying mulch

1. Timing: At end of the rectification period
2. Watering: Ensure that soil is thoroughly moistened prior to mulching, applying water where necessary.
3. Planting beds: Re-mulch.
   3.1. Depth (minimum): 50 mm
4. Trees: Remulch.
   4.1. Depth (minimum): 50 mm
5. Container planting: Remulch.
   5.1. Depth (minimum): 50 mm

Ω End of Section

Q30
Seeding/ turfing

General information/requirements

115 Seeded and turfed areas

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

120 Climatic conditions

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

145 Watering

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

150 Water restrictions

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

160 Notice

1. Give notice before
    1.1. Setting out.
    1.2. Applying herbicide.
    1.3. Applying fertilizer.
    1.4. Preparing seed bed.
    1.5. Seeding or turfing.
    1.6. Visiting site during maintenance period.
2. Period of notice: 1 week

170 Setting out

1. Boundaries: Mark clearly.
2. Delineation: In straight lines or smoothly flowing curves as shown on drawings.

Preparation

212 Seed bed cleaning before sowing

1. Description: ALL GRASSED AREAS
2. Operations: Remove weeds by hand weeding and hoeing.

250 Soil requirements

1. Type
    1.1. Seeded areas: Wildflower, as section Q28.
    1.2. Turfed areas: Soil for grass swards, as section Q28

1.3. Reinforced grass areas: Soil for grass swards, as section Q28

Turfing

400 Cultivated turf

1. Description: FOR ALL GRASSED AREAS
2. Supplier: Lindum Turf Ltd,
   A: West Grange, Thorganby, York YO19 6DJ
   T: 01904 448675.
   E: lindum@turf.co.uk
   2.1. Product reference: LT8 Festival Plus turf
3. Properties of soil used for turf production: Peat-free, well drained sandy loam

401 Cultivated wildflower turf

1. Description: Wildflower areas
2. Supplier: Wildflower Turf Ltd.
   Ashe Warren Farm, Overton, Basingstoke, Hampshire, RG25 3AW
   T: 01256 771222
   E: wildflower@wildflowerturf.co.uk
   2.1. Product reference: WFT–Shade-41 - Shade Tolerant Wildflower Turf
3. Properties of soil used for turf production: Peat-free, well drained sandy loam

420 Delivery and storage

1. Timing: Lay turf with minimum possible delay after lifting. If delay occurs, lay turf out on topsoil and keep moist.
2. Frosty weather or waterlogged ground: Do not lift turf.
3. Delivery: Arrange to avoid need for excessive stacking.
4. Stacking height (maximum): 1 m.
5. Dried out or deteriorated turf: Do not use.
6. Certification
   6.1. Standard: To BS 3969.
   6.2. Declaration: Species mix, including percentage of specified species

430 Turfing generally

1. Time of year: Autumn or early winter (To be agreed)
2. Timing of laying
   2.1. Spring and summer: Within 18 hours of delivery.
   2.2. Autumn and winter: Within 24 hours of delivery.
3. Weather conditions: Do not lay turf when persistent cold or drying winds are likely to occur or soil is frost bound, waterlogged or excessively dry.
4. Working access: Planks laid on previously laid turf. Do not walk on prepared bed or newly laid turf.
5. Jointing: Laid with broken joints, well butted up. Do not stretch turf.
6. Edges: Whole turfs, trimmed to a true line.
7. Adjusting levels: Remove high spots and fill hollows with fine soil.
8. Consolidating: Lightly and evenly firm as laying proceeds to ensure full contact with substrate. Do not use rollers.
9. Dressing, brushed well in to completely fill all joints: Sand and topsoil mix

10. Watering: Thoroughly water completed turf immediately after laying. Check that water has penetrated into the soil below.

440 Turfing on banks exceeding 30° slope

1. Turf configuration: Diagonal or horizontal.
2. Securing turfs
   2.1. Fixings: Galvanized wire pins, bent or hairpin pattern, 200 mm long x 4 mm diameter
   2.2. Frequency of fixings: Every second row
3. Removal of fixings: When turf is thoroughly self anchored by its roots. Make good any damage to grass until area is accepted

450 Trimming turf

1. Newly planted tree pits: Neatly cut away around individual trees.
   1.1. Diameter: 1000 mm
   1.2. Tree pit surface: Respread existing mulch

Protecting/cutting

510 Protective fencing

1. Fencing type: Chestnut pale fencing to BS 1722-4
   1.1. Height: 1.1 m
2. Erection: On completion of seeding/ turfing.
3. Removal: After grass is well established. Fencing will remain the property of the Contractor

530 First cut of grassed areas

1. Timing: When grass is reasonably dry.
   1.1. Height of initial growth: 40-75 mm
2. Preparation
   2.1. Debris and litter: Remove.
   2.2. Stones and earth clods larger than 25 mm in any dimension: Remove
3. Height of first cut: 40 mm
4. Mower type: Rotary
5. Arisings: Remove from site

550 Areas not to be cut

1. Do not cut: Meadow grass containing wildflowers

590 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.

Maintenance

610 Failures of seeding/ turfing

1. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
2. Defective materials or workmanship: Areas that have failed to thrive.

2.1. Exclusions: Theft or malicious damage.

3. Method of making good: Recultivation and reseeding/ returfing.
4. Timing of making good: The next suitable planting season

620 Maintaining

1. Description: GENERAL GRASSED AREAS
2. Duration: Carry out the following operations from completion of seeding/ turfing until: …….
3. Maximum height of growth at any time: 75 mm
4. Preparation: Before each cut remove all litter and debris.
5. Cutting: As and when necessary to a height of 25 mm.
   5.1. Arisings: Remove
6. Bulb planting areas: Do not cut until bulb foliage has died down.
7. Trimming: All edges.
   7.1. Arisings: Remove.
8. Weed control: Substantially free of broad leaved weeds.
   8.1. Method: Application of a suitable selective herbicide.
9. Stones brought to the surface: Remove regularly.
   9.1. Size: Exceeding 25 mm in any dimension.
10. Areas of settlement: Make good.
11. Watering: As required to establish lawn

650 Maintaining grassed areas with perennial wildflowers

1. Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
2. Preparation: Before each cut remove all litter and debris.
3. Height and frequency of cut in first growing season
   3.1. Time of first cut: June/ July
   3.2. Height of first cut: 75 mm
   3.3. Frequency of subsequent cutting (minimum): Every 6-8 weeks until autumn
   3.4. Height of growth permitted (maximum): n/a
4. Height and frequency of cut in second growing season
   4.1. Time of cut: Single cut in October
   4.2. Height of cut: 75 mm
5. Trimming: All edges.
   5.1. Arisings: Remove.
6. Watering: As required to establish lawn

Ω End of Section

Q31
External planting

General information/ requirements

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 and remove arisings; retain and protect trees indicated on drawings
5. Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
6. Additional requirements: n/a

118 Soil conditions

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

120 Climatic conditions

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

125 Times of year for planting

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

130 Mechanical tools

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

145 Watering

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

150 Water restrictions

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

160 Notice

1. Give notice before
    1.1. Setting out.
    1.2. Applying herbicide.
    1.3. Applying fertilizer.
    1.4. Delivery of plants/ trees.
    1.5. Planting shrubs.
    1.6. Planting trees into previously dug pits.
    1.7. Watering.
    1.8. Visiting site during maintenance period.
2. Period of notice: 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. Mulch applied after planting: Mulching and top dressing system, as section Q28

200 Plants/ Trees – general

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

215 Plants/ Trees – specification criteria

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

225 Bulbs/ Corms/ Tubers

1. Condition: Firm, entire, not dried out or shrivelled.
2. Health: Free from pests, diseases and fungus.
3. Handling: Remove from packaging immediately.
4. Storage: Permitted only when necessary.

4.1. Location: Well ventilated, dark, covered, rodent proof container, away from exhausts and fruit.

4.2. Duration: Minimum period.

4.3. Temperature: 18-21°C.

235 Container grown plants/ Trees

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

245 Labelling and information

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

256 Plant/ Trees inspection at supplier’s premises

1. Type Species: All tree species.
2. Predelivery inspection: Give minimum 2 weeks notice for inspection and selection of trees in the nursery. Costs for visit to Nursery to be covered by contractor.
3. Labelling: Identify inspected plants/ trees as reserved for use on this project.

260 Plant/ Tree substitution

1. Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
   1.1. Price.
   1.2. Difference from specified plants/ trees.
2. Approval: Obtain before making any substitution.

265 Plant handling, storage transport and planting

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

280 Treatment of tree wounds

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

285 Protection of existing grass

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

290 Surplus material

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

Preparation of planting beds/ planting materials

305 Weed control

1. Description: FOR INVASIVE NON-NATIVE WEEDS
2. Locations: All planting areas
3. General: Prevent weeds from seeding and perennial weeds from becoming established, by hand weeding.

Planting shrubs/ herbaceous plants/ bulbs

400 Random plant layout

1. Description: TO ALL BEDS
2. Spacing: Random groups of 3-11 plants of the same species.
3. Density: As plant schedule

405 Shrub planting pits

1. Timing: Excavate 1-2 days (maximum) before planting.
2. Sizes: Wide enough to accommodate roots when fully spread and 75 mm deeper than root system
3. Pit bottom improvement Break up to a depth of 150 mm, incorporating soil ameliorant/ conditioner at 50 g/m².

420 Climbing plants

1. Planting: 150 mm clear of supporting structure (e.g. wall/ fence) with roots spread outward.
    1.1. Branches: Lightly secured to supports.
2. Climber supports: Green plastics coated steel wire
    2.1. Base height: 300 mm above ground
    2.2. Extent: As drawings
    2.3. Centres: 300 mm
    2.4. Distance from wall: 50 mm
3. Fixings: Stainless steel screw eyes
    3.1. Centres:

435 Climbing plants used as ground cover

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

445 Planting bulbs/ Corms/ Tubers

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

470 Formal hedges

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

480 After planting

1. Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
2. Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
3. Top dressing: Mulching and top dressing system, as section Q28
   3.1. Depth: 50 mm

Planting trees

500 Tree planting

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

505 Tree pits

1. Sizes: Twice the width of the root spread, and 1.5 times the depth of the root system
2. Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
3. Excavated material: Remove arisings
4. Pit bottoms: Excavate with slightly raised centre: Break up base to a depth of 200 mm.
   4.1. Treatment: Soil ameliorant worked into pit bottoms
5. Pit sides: Scarify.
6. Backfilling material: Proprietary tree backfilling material, as section Q28

510A Tree root barrier

1. Locations: Wherever the installed rootball will be within 2 m of a building foundation, paved area or will be within 3 m of an existing underground service route.
2. Manufacturer: GreenBlue Urban Ltd
   2.1. Contact details
      2.1.1. Address: Northpoint
      Compass Park

Junction Road
Bodiam
East Sussex
TN32 5BS

2.1.2. Telephone: +44 (0)1580 830800

2.1.3. Web: www.greenblue.com

2.1.4. Email: hello@greenblueurban.com

2.2. Product reference: ReRoot Root Barriers (RER600A)

3. Roll depth: 600 mm.
4. Profile: Ribbed.

510B Tree root barrier (Canal Edge)

1. Locations: For all tree planting areas adjacent to the canal steps.
2. Manufacturer: GreenBlue Urban Ltd
   2.1. Contact details
      2.1.1. Address: Northpoint
      Compass Park
      Junction Road
      Bodiam
      East Sussex
      TN32 5BS

      2.1.2. Telephone: +44 (0)1580 830800

      2.1.3. Web: www.greenblue.com

      2.1.4. Email: hello@greenblueurban.com

   2.2. Product reference: ReRoot Root Barriers (RER1000A)
3. Roll depth: 1000 mm.
4. Profile: Ribbed.

512 Tree irrigation rings

1. Locations: All tree pits
2. Manufacturer: GreenBlue Urban Ltd
   2.1. Contact details
      2.1.1. Address: Northpoint
      Compass Park
      Junction Road
      Bodiam
      East Sussex
      TN32 5BS

      2.1.2. Telephone: +44 (0)1580 830800

      2.1.3. Web: www.greenblue.com

      2.1.4. Email: hello@greenblueurban.com

   2.2. Product reference: RootRain Civic (RRCIVIC1A)
3. Hose
   3.1. Material: PE-HD.
   3.2. Colour: Black.
   3.3. Dimensions: 3 m x 60 mm.
4. Filling tube: PE-HD grille inlet with powder-coated aluminium cap and retainer chain.
5. Inlet: 95 mm diameter.

6. Accessories: None.

526 Root ball securing frames

1. Manufacturer: GreenBlue Urban Ltd
   1.1. Contact details
      1.1.1. Address: Northpoint
      Compass Park
      Junction Road
      Bodiam
      East Sussex
      TN32 5BS
      1.1.2. Telephone: +44 (0)1580 830800
      1.1.3. Web: www.greenblue.com
      1.1.4. Email: hello@greenblueurban.com
   1.2. Product reference: ArborGuy - drive-in (SASLCB)
2. Tensioning devices: Galvanized steel cables and ratchet tensioner.
3. Anchors
   3.1. Type: Drive-in ground anchors.
4. Accessories: Drive rod - large. Large tool kit. J-Hook tensioner.
5. Components: 6 x 1000 mm galvanized steel wire and 35 mm x 12 m webbing strap.
6. Anchor: Composite.

527 Root ball securing frames (roof level)

1. Manufacturer: GreenBlue Urban Ltd
   1.1. Contact details
      1.1.1. Address: Northpoint
      Compass Park
      Junction Road
      Bodiam
      East Sussex
      TN32 5BS
      1.1.2. Telephone: +44 (0)1580 830800
      1.1.3. Web: www.greenblue.com
      1.1.4. Email: hello@greenblueurban.com
   1.2. Product reference: ArborGuy - AnchorPlate (SASAP10A)
2. Tensioning devices: Galvanized steel cables and ratchet tensioner.
3. Anchors
   3.1. Type: Galvanized mild steel deadman anchors.
   3.2. Number: 3.
4. Components: 6 x 1100 mm galvanized steel wire and 35 mm x 8 m webbing strap.
5. Depth: 1000 mm RootSpace depth.

576 Tree pit surfacing – loose fill mulch

1. Surfacing material: Bark Mulch, as section Q28
2. Area: Full extent of tree pit surface
3. Depth: 50 mm
4. Watering: Water soil thoroughly before laying.

5. Installation: Ensure the base of the tree stem is kept free from loose filled material.

577 Tree pit surfacing – loose fill (Canal Square)

1. Surfacing material: Gravel Mulch, as section Q28
2. Area: Full extent of tree pit surface
3. Depth: 50 mm
4. Watering: Water soil thoroughly before laying.
5. Installation: Ensure the base of the tree stem is kept free from loose filled material.

Woodland/ matrix/ buffer zone planting - Not Used

Protecting/ maintaining/ making good defects

710 Maintenance

1. Duration: Carry out the operations in the following clauses from completion of planting until the end of the rectification period.
2. Frequency of maintenance visits: In accordance with the agreed maintenance schedule

720 Failures of planting

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

740 Cleanliness

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

750 Planting maintenance generally

1. Weed control: Maintain weed free area around each tree and shrub.
   1.1. Diameter (minimum): The larger of 1 m or the surface of original planting pit.
   1.2. Keep planting beds clear of weeds:
2. Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
3. Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
4. Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
5. Trees: Spray crown when in leaf during warm weather.
   5.1. Timing: After dusk.
6. Tree accessories: Check condition of stakes, ties, guys, guards and irrigation and ventilation systems.
   6.1. Broken or missing items: Replace.
   6.2. Loose stakes: Re-firm in the ground or replace as necessary to provide support to the tree.
   6.3. Loose guys: Re-firm anchor points and adjust as necessary to provide support to the tree.

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

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

6.6. Frequency of checks:

7. Watering:

Ω End of Section

Q35
Landscape maintenance

Generally

130 Reinstatement

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

155 Watering

1. Supply: Site supply
2. Quantity: Wet to field capacity
3. Application: Do not damage or loosen plants.
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 to recycling facility
    1.2. Grass cuttings: Remove to recycling facility
    1.3. Tree roots and stumps: Remove from site
    1.4. Shrub and tree prunings: Remove to recycling facility
    1.5. Litter and nonbiodegradable arisings: Remove from site

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.

195 Protection of existing grass

1. General: Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on grass.

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

210 Performance-based maintenance of grassed areas

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

220 Grass cutting generally

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

225 Tree stems

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

235 Bulbs and corms in grassed areas

1. Before flowering: Do not cut.
2. Interval between end of flowering and start of grass cutting (minimum): 6 weeks

240 Mowing strips

1. Location: Around each tree trunk
2. Width (approximate): 150 mm.
3. Operations: Maintain by hand-weeding and cultivation

250 Leaf removal

1. Operations: Collect fallen leaves.
2. Special requirements: None
3. Disposal: Remove from site for recycling

260 Mowing lawns

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

275 Cutting summer flowering wildflower meadows

1. Times of year/ frequency of cutting: September
2. Height of cut: 75 mm
3. Arisings: Leave for two to three days after cutting then remove

285 Top dressing

1. Location: All lawns
2. Timing: Following scarification and aeration
3. Material: Sandy loam
4. Supplier: Contractor's choice
   4.1. Product reference: Submit proposals.
5. Declaration of analysis: Submit.
6. Additional analyses: Not required
7. Samples: Not required
8. Application rate: 3-4 mm depth

300 Scarifying

1. Location: All lawns
2. Timing: October or November, before top dressing
3. Operations: Relieve thatch conditions and remove dead grass.
4. Depth (maximum): 15 mm
5. Arisings: Remove

307 Hollow tining

1. Location: All lawns
2. Timing: As necessary to relieve compaction, October or November, before top dressing
3. Depth: 75 mm

311 Re-forming grass edges

1. Location: All edges, where damage occurs
2. Method: Draw back soil and re-form edges to clean, straight lines or smooth-flowing curves, sloping slightly back from vertical
3. Finishing: Damaged parts of turned turf replaced with sound turf
   3.1. Support: Not required

320 Levelling hollows and bumps in turf

1. Standard: To BS 7370-3, clauses 12.4 and 12.5.

325 Relieving surface compaction in turf

1. Standard: To BS 7370-3.
2. Method: Spiking
3. Top dressing: Fine sand
   3.1. Depth: 2-3 mm

350 Fertilizer – spring application

1. Type: Organic
2. Application rate: Manufacturers recommendations

360 Fertilizer – autumn application

1. Type: Organic
2. Application rate: Manufacturers recommendations

380 Reinstatement of damaged lawns

1. Damaged turf: Remove to a depth of 40 mm.
2. Preparation: Cultivate substrate to a fine tilth.
3. Reinstatement: Contractor's choice of returfing or topsoiling and reseeding:
   3.1. Returfing: Quality and appearance to match existing.
   3.2. Reseeding: Fill with fine topsoil to BS 3882 multipurpose class, free from stones, debris and weeds. Reseed with a seed mix to match existing grass in quality and appearance.
4. Protection and watering: Provide as necessary to promote successful germination and/ or establishment.

Flower beds/ seasonal beddings

470 Flower beds generally

1. Operations
   1.1. Remove: Dead flower heads, fallen leaves, litter and debris.
   1.2. Weeds: Thoroughly hand-weed.
   1.3. Cultivate: Lightly hoe.
   1.4. Trim: Clip grass edges.
2. Fungicide: Not required
3. Insecticide: Not required

Shrubs/ trees/ hedges

500 Establishment of new planting

1. Duration: until completion of the rectification period
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.
3. Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
4. Watering: As required to establish planting

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

510 Tree stakes and ties

1. Inspection/ maintenance times: As scheduled and immediately after strong winds
2. Stakes
   2.1. Replace loose, broken or decayed stakes to original specification.
   2.2. If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
3. Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.

3.1. Where chafing has occurred, reposition or replace ties to prevent further chafing.

4. Removal of stakes and ties: During spring when no longer required to support the tree
   4.1. Fill stake holes with lightly compacted soil.

515 Tree guy wires

1. Inspection/ maintenance times: Immediately after strong winds
2. Operations
   2.1. Replace or resecure loose or missing guy wires.
   2.2. Adjust to suit stem growth and to provide correct and uniform tension.
3. Removal: During spring when no longer required to support the tree

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.

555 Pruning trees and shrubs

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

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.

600 Trimming rapidly establishing hedges

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

605 Trimming slowly establishing hedges

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

610 Trimming tapering established hedges

1. Time of year: Trim once in July or August
2. Operations
   2.1. Form: Trim carefully and neatly to regular line and shape, with the width at the top less than that at the base.
   2.2. Trim: Remove current growth rather than old wood.
3. Tools/ cutting: Suitable mechanical cutters

620 Removal of dead plant material

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

625 Climbing plants

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

630 Dead and diseased plants

1. Removal: As soon as possible

2. Replacement: In the next scheduled round of replacement planting

635 Reinstatement of shrub/ herbaceous areas

1. Dead and damaged plants: Remove.
2. Mulch/ matting materials
   2.1. Carefully move to one side and dig over the soil, leaving it fit for replanting.
3. Do not disturb roots of adjacent plants.
4. Replacement plants
   4.1. Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
   4.2. Additional requirements: Submit proposals
5. Dressing: Slow-release fertilizer:
   5.1. Type: Organic
   5.2. Application rate: As manufacturer's recommendations

645 Weed control generally

1. Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm high
2. Adjacent plants, trees and grass: Do not damage.

650 Hand-weeding

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

675 Digging over

1. General: Dig over beds. Do not damage existing plants, bulbs and roots.
   1.1. Depth of dig (minimum): 75 mm

680 Soil aeration

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

685 Soil level adjustment

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

690 Maintenance of loose mulch

1. Thickness (minimum): 50 mm
   1.1. Top up: Annually
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: During April or May
2. Type of fertilizer: Organic
3. Application: Spread evenly.
   3.1. Rate: As manufacturer's recommendations

Green walls - Not Used

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:
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.

830 Cleaning out and deadwooding

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

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:
   6.1. Remove in small sections and lower to ground with ropes and slings.
7. Dead branches and stubs: When removing, do not cut into live wood.
8. Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
9. Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 Crown reduction/ shaping

1. General: Cut back selectively to lateral or sublateral buds or branches to retain flowing branch lines without leaving stumps.
2. Operations:

845 Crown lifting

1. Clearances: Remove branch systems to give clearance.
   1.1. Height:
2. Removing branches: Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sublateral buds or branches. Do not leave stumps.

855 Cutting tree roots

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

860 Removing trees, shrubs and hedges

1. Standard: To BS 3998.
2. Existing services: Check for below and above ground services. Give notice if they may be affected.
3. Shrubs and smaller trees: Cut down and grub up roots.
4. Tree stumps
   4.1. Treatment:
   4.2. Removal by winching: Give notice. Do not use other trees as supports or anchors.
5. Protection:
6. Work near retained trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.

7. Filling holes
    7.1. Material: Use as-dug material and/ or imported soil as required.
    7.2. Finishing: Consolidate and grade to marry in with surrounding ground level.

865 Bark damage

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

Hard landscape areas/ fencing

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.

Ω End of Section

Q50
Site/ street furniture/ equipment

Gates, barriers and parking controls

192A F-16C: Stainless steel telescopic bollards

1. Description: To canal square access
2. Manufacturer: Broxap Ltd
   2.1. Contact details
      2.1.1. Address: Rowhurst Industrial Estate
      Chesterton
      Newcastle-under-Lyme
      Staffordshire
      ST5 6BD
      2.1.2. Telephone: +44 (0)1782 571700
      2.1.3. Web: www.broxap.com
      2.1.4. Email: nbs@broxap.com
   2.2. Product reference: Lift Assist Telescopic Post - Stainless Steel (BX20 5371)
3. Dimensions
   3.1. Size and profile: Overall Diameter: 114mm.
   3.2. Height: 900 mm.
4. Top profile: Telescopic handle.
5. Base: Telescopic.
6. Finishes
   6.1. Worked finishes: Satin.
7. Accessories: Yellow reflective bands.
8. Material: 316 grade stainless steel
9. Special features: 2nr yellow reflective bands, at top of bollard

Site and street furniture

210A F-17: Cycle stands

1. Manufacturer: Broxap Ltd
   1.1. Contact details
      1.1.1. Address: Rowhurst Industrial Estate
      Chesterton
      Newcastle-under-Lyme
      Staffordshire
      ST5 6BD
      1.1.2. Telephone: +44 (0)1782 571700
      1.1.3. Web: www.broxap.com
      1.1.4. Email: nbs@broxap.com
   1.2. Product reference: Sheffield Cycle Stand (BXMW/GS0 Senior With Tapping Bar Sheffield Cycle Stand)
2. Stand type: Sheffield Cycle Stand
3. Number of stands: Single.

4. Base: Root fixed.
5. Finish as delivered: Stainless steel. 1.4401 (316 grade)
6. Colours: n/a
7. Size:: 800 x 715 mm.
8. Method of fixing: Concrete foundation to engineers specification.

215A Motorcycle locking point

1. Manufacturer: Broxap Ltd.
   A: Rowhurst Industrial Estate, Chesterton, Newcastle-under-Lyme, Staffordshire, ST5 6BD
   T: 01782 564411
   e: info@broxap.com
   1.1. Product reference: Arbroath Motorcycle Rack
2. Material: Steel
   2.1. Finish: Hot-dip galvanized to BS EN ISO 1461 and Polyester powder-coated, as section Z31
   2.2. Colour: Anthracite Grey RAL 7016
3. Number of stands: 3 Capacity: 2500mm
4. Accessories: n/a
5. Method of fixing: Base plate bolted to concrete base 100 mm below paving surface

225A F-1: Metal and Timber Seat

1. Manufacturer: Vestre
   1.1. Contact details
      1.1.1. Address: Profile West Suite 2, Floor 1
      950 Great West Road
      Brentford
      TW8 9ES
      1.1.2. Telephone: +44(0)207 846 8725
      1.1.3. Web: www.vestre.com
      1.1.4. Email: uk@vestre.com
   1.2. Product reference: Kong Bench (Kong Bench - root fixed)
2. Length: 1800 mm.
3. Base: Root.
4. Material: Steel and wood.
5. Finish as delivered: Hot-dip galvanized and powder-coated.
6. Colours: RAL 6033 (all metalwork)
7. Accessories:
8. Wood species/ Finish: Kebony clear.
9. Width: 399 mm.
10. Height: 450 mm.

340B A-7: Bespoke sculpture Play Pipes

1. Landscape design intent only, specification refers to the interface with the landscape items. Refer to 'Art Strategy Approach, 04 November 2019' for details of the art approach and any design intent and fixing for the artwork.
2. Artist: Oliver Barratt - Art Strategy Approach 04 November 2019
3. Description: From art strategy:

- Sculptural pipe installations within landscape along Northern edge, for incidental play, sitting etc
- Possible inclusion of dials etc
- Use of colour TBC

4. Material: Steel (TBC)
5. Approximate weight: To be confirmed by artist
6. Approximate size: To be confirmed by artist
7. Delivery/ Handling/ Storage requirements: To be confirmed by artist
8. Method of fixing: Pipes bolted or welded to steel brackets to ensure that the concrete foundation is not visible at the surface.
   If all fixing points on the flanges are not used for bolts weld bolt heads to fixing points not used to maintain the original aesthetic of the fixing.
   8.1. Bracket finishes:
      - Galvanised for any brackets below ground.
      - Powder coated for any brackets visible above ground.
   8.2. Foundation: Concrete foundation to engineers specification 100mm below paving level.

340C A-8a: Bespoke sculpture Red Angular Pipes

1. Landscape design intent only, specification refers to the interface with the landscape items. Refer to 'Art Strategy Approach, 04 November 2019' for details of the art approach and any design intent and fixing for the artwork.
2. Artist: Oliver Barratt - Art Strategy Approach 04 November 2019
3. Description: From art strategy:
   - A selection of angular pipes to create an art work ground fixed.
4. Material: Steel (TBC)
5. Approximate weight: To be confirmed by artist
6. Approximate size: To be confirmed by artist
7. Delivery/ Handling/ Storage requirements: To be confirmed by artist
8. Method of fixing: Pipes bolted or welded to steel brackets or packers to ensure that the concrete foundation is not visible at the surface.
   If all fixing points on the flanges are not used for bolts weld bolt heads to fixing points not used to maintain the original aesthetic of the fixing.
   8.1. Bracket finishes:
      - Galvanised for any brackets below ground.
      - Powder coated for any brackets visible above ground.
   8.2. Foundation: Concrete foundation to engineers specification 100mm below paving level.

346 F-18 Timber log piles

1. Supplier: Contractor's choice
2. Material: Hardwood timber logs from broad leaf trees.
   Bark left on the trunks.
3. Approximate size: 800-1100 high
   100-250mm diameter
4. Method of fixing: 6nr stumps stood vertically in topsoil in a cluster. Each stump to touch the adjacent stump. Heights of stumps to vary. 500mm depth of the stump below ground.

1.

Installation

510 Concrete foundations generally

1. Standard: To BS 8500-2.
2. Concrete:
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:
2. Components: Accurately positioned and securely supported.
3. Concrete fill: Fully compacted as filling proceeds.
4. Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
5. Temporary component support: Maintain undisturbed for minimum 48 hours.

530 Preservative treated timber

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

545 Erection of timber and prefabricated structures

1. Checking: 5 days (minimum) before proposed erection date, check foundations, holding down bolts, etc.
2. Inaccuracies or defects in prepared bases or supplied structures: Report immediately. Obtain instructions before proceeding.

550 Damage to galvanized surfaces

1. Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.
   1.1. Material: Low melting point zinc alloy repair rods or powders made for this purpose or at least two coats of zinc-rich paint to BS 4652.
   1.2. Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

560 Site painting

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

Ω End of Section

Z11
Purpose made metalwork

To be read with preliminaries/ general conditions.

310 Materials generally

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

320 Steel long and flat products

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

330 Steel plate, sheet and strip

1. Plates and wide flats, high yield strength steel: To BS EN 10025-6.

340 Hot rolled steel plate, sheet and strip

1. Flat products, high yield strength for cold forming: To BS EN 10149-1, -2 and -3.
2. Carbon steel sheet and strip for cold forming: To BS EN 10111.
3. Narrow strip, formable steel and steel for general engineering purposes: To BS 1449-1.8 and BS 1449-1.14.

350 Cold rolled steel plate, sheet and strip

1. Steel sections: To BS EN 10162.
2. Flat products, high yield strength micro-alloyed steels for cold forming: To BS EN 10268.
3. Carbon steel flat products for cold forming: To BS EN 10130 and BS EN 10131.
4. Uncoated carbon steel narrow strip for cold forming: To BS EN 10139 and BS EN 10140.
5. Narrow strip steel for general engineering purposes: To BS EN 10132-1, -2, and -3.
6. Carbon steel flat products for vitreous enamelling: To BS EN 10209.

360 Coated steel flat products

1. Hot dip zinc coated carbon steel sheet and strip for cold forming: To BS EN 10346 and BS EN 10143.
2. Hot dip zinc coated structural steel sheet and strip: To BS EN 10143 and BS EN 10346.
3. Hot dip zinc-aluminium (za) coated sheet and strip: To BS EN 10346.
4. Hot dip aluminium-zinc (az) coated sheet and strip: To BS EN 10346.
5. Organic coated flat products: To BS EN 10169.

370 Steel structural hollow sections (SHS)

1. Non alloy and fine grain steels, hot finished: To BS EN 10210-1 and -2.
2. Non-alloy and fine grain steels, cold formed welded: To BS EN 10219-2.

3. Weather resistant steels, hot finished: To BS 7668.

380 Other steel sections

1. Equal flange tees: To BS EN 10055.
2. Equal and unequal angles: To BS EN 10056-1 and -2.
3. Wire, carbon steel for general engineering purposes: To BS 1052.
4. Wire and wire products, general: To BS EN 10218-2.
5. Tubes
    5.1. Seamless circular: To BS EN 10297-1.
    5.2. Seamless cold drawn: To BS EN 10305-1.
    5.3. Welded and cold sized square and rectangular: To BS EN 10305-5.
    5.4. Welded circular: To BS EN 10296-1.
    5.5. Welded cold drawn: To BS EN 10305-2.
    5.6. Welded cold sized: To BS EN 10305-3.

400 Stainless steel products

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

410 Aluminium alloy products

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

Fabrication

515 Fabrication generally

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

520 Cold formed work

1. Profiles: Accurate, with straight arrises.

525 Adhesive bonding

1. Preparation of surfaces of metals to receive adhesives
    1.1. Degrease.
    1.2. Abrade mechanically or chemically etch.
    1.3. Prime: To suit adhesive.
2. Adhesive bond: Form under pressure.

527 Welding

1. Description: Landscape Metalwork
2. Welding procedures
    2.1. Method and standard: Steel Elements: Metal arc welding to BS EN 1011-1 and -2.
    Stainless Steel Elements: TIG welding to BS EN 1011-3
    Aluminium Alloy Elements: TIG or MIG welding to BS EN 1011-4
    2.2. Welding Procedure Specification (WPS): Not required
3. Preparation
    3.1. Joint preparation: Clean thoroughly.
    3.2. Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
4. Jointing
    4.1. Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
    4.2. Dissimilar metals: Welding not permitted
    4.3. Strength requirements: Welds to achieve design loads.
    4.4. Heat straightening: Submit proposals
    4.5. Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds.
    4.6. Tack welds: Use only for temporary attachment.
    4.7. Jigs: Provide to support and restrain members during welding.
    4.8. Filler plates: Submit proposals
    4.9. Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater.
    4.10. Weld terminations: Clean and sound.

530 Stainless steel fabrication

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

Finishing

710 Finishing welded and brazed joints visible in complete work

1. Standard: To BS EN ISO 8501-3.
   1.1. Preparation grade: P3
2. Butt joints: Smooth, and flush with adjacent surfaces.
3. Fillet joints: Neat.
4. Grinding: Grind smooth where indicated on drawings.

745 Preparation for application of coatings

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

750 Liquid organic coating for aluminium alloy components

1. Standard: To BS 4842.

780 Galvanizing

1. Standard: To BS EN ISO 1461.
2. Preparation
   2.1. Vent and drain holes: Provide in accordance with BS EN ISO 14713-1 and -2. Seal after sections have been drained and cooled.
   2.2. Components subjected to cold working stresses: Heat treat to relieve stresses before galvanizing.
   2.3. Welding slag: Remove.
   2.4. Component cleaning: To BS EN ISO 8501-3.
   2.5. Grade: St 2½

Completion

910 Documentation

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

920 Completion

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

Ω End of Section

Z21
Mortars

Cement gauged mortars

110 Cement gauged mortar mixes

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

120 Sand for site made cement gauged masonry mortars

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

160 Cements for mortars

1. Cement: To BS EN 197-1 and CE marked.
   1.1. Types: Portland cement, CEM I.
      1.1.1. Portland limestone cement, CEM II/A-L or CEM II/A-LL.
2. Portland slag cement, CEM II/B-S.
3. Portland fly ash cement, CEM II/B-V.
   3.1. Strength class: 32.5, 42.5 or 52.5.
4. White cement: To BS EN 197-1 and CE marked.
   4.1. Type: Portland cement, CEM I.
   4.2. Strength class: 52.5.
5. Sulfate resisting Portland cement
   5.1. Type: To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
6. To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
   6.1. Strength class: 32.5, 42.5 or 52.5.
7. Masonry cement: To BS EN 413-1 and CE marked.
   7.1. Class: MC 12.5.

180 Admixtures for site made cement gauged mortars

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

190 Retarded ready to use cement gauged mortar

1. Standard: To BS EN 998-2.
2. Lime for cement:lime:sand mortars: Nonhydraulic to BS EN 459-1.
   2.1. Type: CL 90S.

3. Pigments for coloured mortars: To BS EN 12878.
4. Time and temperature limitations: Use within limits prescribed by mortar manufacturer.
   4.1. Retempering: Restore workability with water only within prescribed time limits.

200 Storage of cement gauged mortar materials

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

210 Making cement gauged mortars

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

Lime:sand mortars - Not Used

Ω End of Section

Specification created using NBS Chorus