Kidderpore Avenue, Hampstead

Landscape Specification

March 2017

9300-SPC-002-REV T5
02 October 2017

fabrik
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Notes:

This Specification excludes the following items (non exhaustive list):

- Drainage: refer to Engineer's specification
- Highways works, internal road works including road kerbs and associated line marking: refer to Highways Engineer's specification.
- Sub bases, foundations, retaining walls: refer to Engineer's specification.
- Tarmacadam surfacing: refer to Engineer's specification.
- Concrete surfacing: refer to Engineer's specification.
- Lighting: refer to M&E Engineer's specification. To comply with anticipatory requirements of Equality Act
- Walls: refer to Structural Engineer's specification.
- Handrails: refer to specialist's detailed design and specification. To comply with anticipatory requirements of BS / Part M.
- Guardrails: refer to specialist's detailed design and specification. To comply with anticipatory requirements of BS / Part K.

Revision T5 Notes:

- A11/100 added drawing 9300-DRGDE035 to list of tender drawings.
- Q30/312A clause amended, seed mix to not include Red Valerian.

A10
PROJECT PARTICULARS

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110A THE PROJECT
- Name: Hampstead Manor.
- Nature: Residential Development - Landscape Works.
- Location: Kidderpore Avenue, Hampstead, London, NW3 7ST.

120 EMPLOYER (CLIENT)
- Name: Mount Anvil .
- Address: 140 Aldersgate Street, London EC1A 4HY.
- Contact: Brigitte Rothfuss.
- Telephone: 07801894018.
- E-mail: mliberace@mountanvil.com / brothfuss@mountanvil.com.

140A LANDSCAPE ARCHITECT
- Name: fabrik.
- Address: Lenten House, 16 Lenten Street, Alton, Hampshire, GU34 1HG.
- Telephone: 01420 593250.
- Email: alton@fabrikuk.com.

150 PRINCIPAL DESIGNER
- Name: Brookfield Multiplex.
- Address: 1 Broadgate First Floor, London EC2M 2QS.
- Contact: Liz Parrott.
- Telephone: **020 3829 2500**.
- E-mail: Liz.Parrott@brookfieldmultiplex.com.

200 CONSULTANTS
- Description: Architect.
- Name: A & Q Partnership.
- Address: 2-4 Hoxton Square, London N1 6NU.
- Telephone: 020 7613 2244.

200A CONSULTANTS
- Description: Structural & Civil Consulting Engineers.
- Name: Tully De'Ath Consultants.
- Address: 181 Union St, London SE1 0LN.
- Telephone: 0845 850 8280.

200B CONSULTANTS
- Description: Mechanical & Electrical Engineers.
- Name: MKP Consultants.
- Address: 2 Warren Farm Barns Andover Road, Winchester SO21 3FL.
- Telephone: 01962 774665.

200C CONSULTANTS
- Description: Ecologist.
- Name: The Ecology Connsultancy.
- Address: Tempus Wharf
  33a Bermondsey Wall West
  London
  SE16 4TQ.
- Telephone: 020 7378 1914.

A11
TENDER AND CONTRACT DOCUMENTS

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110 TENDER DRAWINGS

- The tender drawings are:

9300-DRG-GN005	Landscape Legend
9300-DRG-GN006	Planting Schedule
9300-DRG-PE001	Illustrative Landscape Masterplan
9300-DRG-PE002	Landscape Site Plan
9300-DRG-PE003	Boundaries and Enclosures Plan
9300-DRG-PE005	Irrigation Strategy Plan
9300-DRG-PE007	Habitat Enhancement Location Plan
9300-DRG-PE011	Hard Landscape General Arrangement Sheet 1 of 6
9300-DRG-PE012	Hard Landscape General Arrangement Sheet 2 of 6
9300-DRG-PE013	Hard Landscape General Arrangement Sheet 3 of 6
9300-DRG-PE014	Hard Landscape General Arrangement Sheet 4 of 6
9300-DRG-PE015	Hard Landscape General Arrangement Sheet 5 of 6
9300-DRG-PE016	Hard Landscape General Arrangement Sheet 6 of 6
9300-DRG-PE021	Soft Landscape General Arrangement Plan Sheet 1 of 6
9300-DRG-PE022	Soft Landscape General Arrangement Plan Sheet 2 of 6
9300-DRG-PE023	Soft Landscape General Arrangement Plan Sheet 3 of 6
9300-DRG-PE024	Soft Landscape General Arrangement Plan Sheet 4 of 6
9300-DRG-PE025	Soft Landscape General Arrangement Plan Sheet 5 of 6
9300-DRG-PE026	Soft Landscape General Arrangement Plan Sheet 6 of 6
9300-DRG-PE027	Landscape Levels and Setting Out Sheet 1 of 6
9300-DRG-PE028	Landscape Levels and Setting Out Sheet 2 of 6
9300-DRG-PE029	Landscape Levels and Setting Out Sheet 3 of 6
9300-DRG-PE030	Landscape Levels and Setting Out Sheet 4 of 6
9300-DRG-PE031	Landscape Levels and Setting Out Sheet 5 of 6
9300-DRG-PE032	Landscape Levels and Setting Out Sheet 6 of 6
9300-DRG-SE001	Landscape Sections Sheet 1
9300-DRG-SE002	Landscape Sections Sheet 2
9300-DRG-SE003	Landscape Sections Sheet 3
9300-DRG-SE004	Landscape Sections Sheet 4
9300-DRG-SE005	Landscape Sections Sheet 5
9300-DRG-SE006	Landscape Sections - Townhouse 1
9300-DRG-SE007	Landscape Sections - Western Boundary
9300-DRG-DE001	Typical Paving Details Sheet 1 of 4
9300-DRG-DE002	Typical Paving Details Sheet 2 of 4
9300-DRG-DE003	Typical Paving Details Sheet 3 of 4
9300-DRG-DE004	Typical Paving Details Sheet 4 of 4
9300-DRG-DE006	Typical Boundary Details Sheet 1 of 3
9300-DRG-DE007	Typical Boundary Details Sheet 2 of 3
9300-DRG-DE008	Typical Edge Details Sheet 1 of 2
9300-DRG-DE009	Typical Edge Details Sheet 2 of 2
9300-DRG-DE010	Typical Step Details - South of Pavilions
9300-DRG-DE011	Typical Step Details - North of Pavilions
9300-DRG-DE013	Typical Step Details - Eastern Quadrangle

9300-DRG-DE014	Sculpture Plinth Details - Design Intent
9300-DRG-DE015	Pond – Design Intent
9300-DRG-DE016	Biodiverse Roof – Typical Detail
9300-DRG-DE017	Habitat Enhancement Details
9300-DRG-DE018	Lighting Fixture Details
9300-DRG-DE019	Typical Landscape Build-up over Podium
9300-DRG-DE020	Wall Details – Vehicular Entrance
9300-DRG-DE022	Pedestrian Entrance Ramp Detail - Kidderpore Avenue
9300-DRG-DE025	Kidderpore Hall, North Garden Entrance - Step Detail
9300-DRG-DE026	Dudin Brown - North Quadrangle Entrance - Stair Detail
9300-DRG-DE027	Queen Mothers Hall - Stair Detail sheet 1
9300-DRG-DE028	Queen Mothers Hall - Stair Detail sheet 2
9300-DRG-DE029	Lighting Installation - Typical Details
9300-DRG-DE030	Soft Landscape - Typical Details
9300-DRG-DE031	Street Furniture - Typical Details
9300-DRG-DE032	Boundary Details - Sheet 3 of 3
9300-DRG-DE033	Pond Planting Plan
9300-DRG-DE034	Brick Pier / Dry Riser Cabinet
9300-DRG-DE035	Pavilion Roof Planter Boxes - Typical Details .

A13
DESCRIPTION OF THE WORK

A13 DESCRIPTION OF THE WORK

120 THE WORK

Description: The hard and soft landscaping of Hampstead Manor and biodiverse roofs to Pavilions and Skeel, within a residential development including the provision of all materials, drainage fixtures, irrigation and lighting elements as specified.

The works are to comprise, but are not limited to, the following elements and actions, (not necessarily in any chronological order):

- Construction of required bases for laying paving and finishes
- Waterproofing of planter walls built on true ground as indicated
- Supply and installation of granite/ Yorkstone edging.
- Installation of walls including cladding and copings.
- Laying of selected paving as detailed to paving areas.
- Co-ordinate and co-operate with CIVILS services for installation of drainage systems
- Co-ordinate and co-operate with M&E services installers to ensure all appropriate service runs are placed to lighting, power outlets and irrigation.
- Installation of conduits for electricity supply, etc.
- The installation of lighting elements, wiring and other fixtures to the lighting elements as specified by the manufacturer.
- Supply and placement of approved topsoil, irrigation and drainage material to planting areas.
- Supply, place and guy into position, trees as specified.
- Supply and place scheduled plants and mulch
- A defects maintenance period for all works.
- Installation of street furniture, pond, railings, and glass balustrades.

DESIGN INTENT

The contractor is required to develop the following items as only Design Intent information is provided within this package. This list may be superseded by developing designs and requirements -

-Fixing of copings and cladding units

-Irrigation to soft landscaping.

Detailed drawings and dimensions have been provided for Limestone/ Granite units to copings and cladding. Contractor will require Stone supplier to provide full cutting schedules to ensure the design aspirations are achieved.

Detailed drawings and dimensions have been provided for pond. Contractor will be required to complete design for approval and ensure the design aspirations are achieved.

Where radii or special units are required to edgings and pavings the contractor will require stone supplier to provide full cutting schedules

SOFT LANDSCAPING

Contractor to advise client about sourcing options for the tree and planting stock and to allow for the client and LA to tag the required stock prior to ordering at the nursery; at the contractors expense.

Contractor to advise client and design team about the programme for planting as species may need to be substituted.

Contractor to coordinate regular site visits of the client and LA during the planting stages to ensure the scheme is being delivered as intended.

GENERAL NOTES TO THE CONTRACTOR

The site is to be kept in a neat and tidy condition at all times. All rubbish and waste materials are to be cleared on a daily basis; materials are not to be stored on site adjacent to works and should be secured against damage prior to installation.

Sub-contracting stone specialist is to provide a method statement for approval demonstrating how the majority of stone cutting is prepared off site, and whilst it is

acknowledged that some site cutting will be required, this is to be kept to a minimum, and with a system of noise and dust supression in place.
Any damage caused by the Contractor and/or other sub-contractors to existing structures etc, to be 'made good' at their own expense.
For all references to CA within the specifications read "Mount Anvil's Site Representative".
Co-ordination is required for the installation of M & E requirements, waterproofing, fitting of Yorkstone / Granite Stone and planting. Confirmation of the required sequencing of construction should
be sought from C.A. prior to any work commencing..

Table of Contents

B51
General structural requirements - landscape

B51 General structural requirements - landscape

GENERAL

110 EUROCODES

- National Annexes: Reference to a Eurocode, or to an execution or a material standard referenced therein, is deemed to include the appropriate United Kingdom National Annex, to the Eurocode or referenced standard. Nationally determined parameters shall apply.
  - Non-contradictory complementary information: Applies when referenced in the National Annex.
- Substitution of alternative design rules for Eurocode Application Rules: Permitted. Demonstrate that the alternative rule is in accordance with the relevant principles and that structural safety, serviceability and durability of the resulting structure will be at least that required by the Eurocode .

120 STRUCTURAL WORK

- Designated codes of practice: To the Eurocodes appropriate to the nature of the structure.
- Design working life: 50 years.
- Completed structure generally: To comply with the requirements of the designated codes of practice and the standards referenced therein. Deflections and other structural movements at serviceability limit state to be compatible with requirements of the structure, movement joints and weathertightness.
- Special requirements: None.

130 CONTRACTOR'S DESIGN

- Engineer responsible for overall stability of structure: Submit proposal, including details of qualifications and experience.
- Design supervision/ checking level: Person who has prepared the design.
- Design requirements: None additional.
- Design quality control: Submit proposals.
- Maintenance: Make provision for and submit details of requirements to ensure the safety and serviceability of the structure, including:
  - Critical parts that should be regularly inspected, with recommendations for the frequency of inspection.
  - Elements susceptible to corrosion, mechanical wear or fatigue that may need to be reconstructed or replaced during the design working life of the structure.
  - Means of safe access for maintenance and repair.

PERFORMANCE

320 LOADS/ ACTIONS

- Generally: Specified loads/ actions are characteristic values unless otherwise described.

520 FOUNDATION - LOADS ON STRIPS AND PADS

- Foundation layout: Submit proposals.
- Vertical loads: To be apprived by Project Engineer.
  - Eccentricity of applied load: To be apprived by Project Engineer.
- Horizontal loads: To be apprived by Project Engineer.

EXECUTION

700 EXECUTION GENERALLY

- Standard: Report conflict between specification and the designated codes of practice and the standards referenced therein before ordering affected materials or executing affected work.
- Inspection levels: Submit proposals.
  - Special requirements: None.
- Quality control: Submit proposals.
- Tolerances: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code.

705 CONNECTIONS AND ANCHORAGES

- End and edge distances and spacing (minimum): Unless otherwise specified or detailed, as required by the designated code of practice for fixings/ anchorages carrying maximum load.
- Report locations where:
  - Type and number of fixings cannot be accommodated.
  - Size or position of members prevents correct positioning.

730 RESTRICTIONS ON USE OF GROUND SURFACE BEHIND EARTH RETAINING STRUCTURES

- Surcharge loading (maximum): Restrict loading on upper ground surface behind structure T o be apprived by Project Engineer.
  - Extent of restriction: To be apprived by Project Engineer.

B91
Buildings in the landscape

B91 Buildings in the landscape

To be read with Preliminaries/ General conditions

SYSTEM OUTLINE

105 PROPRIETARY SMALL BUILDINGS/ STRUCTURES For Western Lower Garden
- Building type: Summer house .
- Services requirements: External lighting, as section V91 and External power supply, as section V91.

SYSTEM PERFORMANCE

217A STRUCTURAL DESIGN PROVIDED
- Description: To Tully De'Ath Structural Engineers Approval.
- Requirements:
  - Generally: As section B51.
  - Additional requirements: None.
- Production/ Execution records: In accordance with the designated code of practice .

PRODUCTS

340A CYCLE SHELTER Specification to Architect

400A SUMMER HOUSE in Lower Western Garden
- Refer to Architects drawings and specification

EXECUTION/ ERECTION/ INSTALLATION

600 ERECTION/ INSTALLATION GENERALLY
- Frameworks: Assemble and brace, including temporary members required for installation.
- Contact between dissimilar metals: Avoid.
- Fixings: Fully bolt together. Tighten bolts.
- Temporary support: Do not subject members to non-design loadings.

605 JOINTING/ FIXING GENERALLY
- Generally: Where not specified precisely, select methods of jointing and fixing and types, sizes and spacings of fasteners in compliance with section Z20.

610A CONCRETE FOUNDATIONS GENERALLY
- Concrete: To BS 8500-2.
- Mix: To Engineers Specifications
- Admixtures: To Engineers Specifications.
- Depth of foundations, bedding, haunching: To Engineers Specifications
- Foundation holes: To Engineers Specifications
- Components: To Engineers Specifications
- Concrete fill: To Engineers Specifications
- Concrete foundations exposed to view: Compact until air bubbles cease to appear on the upper surface, then weather to shed water and trowel smooth. To Engineers Specifications.
- Temporary component support: To Engineers Specifications.
  Note: Foundations within retained tree Root Protection Zone (RPZ) to be in line with BS 5837:2012 'Trees in relation to design, demolition and construction' and in accordance with approved arboricultural method statements for working withn root protections zones.

615 SETTING COMPONENTS IN EARTH
- Holes: Excavated by appropriate means to be as small as practicable.
- Components: Position accurately and support securely.
- Buried depth (minimum): refer to M& E Specification.
- Earth fill: Ram well as filling proceeds.

625 ELECTRICAL AND DATA SERVICES
- Services connection required: Power for lighting.
- Standard: To BS 7671.
- Coordinate with services trades.

630 ERECTION OF PREFABRICATED BUILDINGS/ STRUCTURES
- Checking: Five days (minimum) before proposed erection date, check foundations, holding down bolts, etc.
- Inaccuracies or defects in prepared bases or supplied buildings/ structures: Report immediately. Obtain instructions before proceeding.

640 SITE PAINTING AND STAINING
- Timing: Prepare surfaces and apply finishes as soon as possible after installing components.

645 MAKING GOOD GALVANIZED SURFACES
- Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.
  - 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.
  - Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

650 MAKING GOOD TREATED TIMBER
- Surfaces exposed by minor cutting and/ or drilling: Treat by immersion or apply two flood coats of a solution recommended for the purpose by main treatment solution manufacturer.
- Heavily worked sections: Re-treat.
- Cutting and machining: Cut and machine timber as much as possible before treatment.
- Extensively processed timber: Retreat timber sawn lengthways, planed, ploughed, etc.

COMPLETION

930 DOCUMENTATION
- Contents:
  - General product information.
  - Installation information.
  - Inspection and maintenance reports.
- Number of copies: 3.
- Submission: Submit proposals.

C20
Demolition

C20 Demolition

To be read with Preliminaries/ General conditions

GENERAL REQUIREMENTS

150A FEATURES TO BE RETAINED
- General: Keep in place and protect the following: Steps as per drawings, .

150B FEATURES TO BE RETAINED
General: Keep in place and protect the following: [Boundary walls as per drawing location of BT5, removed and rebuilt in accordance with specification and details by others.]

D20
Excavating and filling

D20 Excavating and filling

To be read with Preliminaries/General conditions

GENERALLY/THE SITE

110 SITE INVESTIGATION
- Report: Refer to Engineers Survey

145 VARIATIONS IN GROUND WATER LEVEL
- Give notice: If levels encountered are significantly different from levels in the site investigation report or previously measured.

CLEARANCE/EXCAVATING

164 TREE ROOTS
- Protected area: Do not cut roots within precautionary protection area.
  - Size of area: Refer to Arboricultural Method Statement .
- Excavation in protected area:
  - Method: Refer to Arboricultural Method Statement.
  - Backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation.
- Outside protected area: Give notice of roots exceeding 25 mm and do not cut without approval.
- Cutting:
  - Make clean smooth cuts with no ragged edges.
  - Pare cut surfaces smooth with a sharp knife.
  - Treatment of cut roots: Refer to Arboricultural Method Statement.
- Backfill: Refer to Arboricultural Method Statement.

166 TREE ROOT BARRIERS
- Trench: Sever all roots.
  - Depth: Refer to Arboricultural Method Statement.
- Root barrier: Refer to Arboricultural Method Statement.
- Cutting roots: As clause 164.
- Root barrier installation: Full depth of excavation. Fit closely to trench wall nearest the tree.
- Backfill material: As dug material excavated from trench.
- Backfilling: Lay and compact thoroughly in layers not more than 300 mm thick.

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

170 REMOVING SMALL TREES, SHRUBS, HEDGES AND ROOTS
- Identification: Clearly mark trees to be removed.
- Small trees, shrubs and hedges: Cut down
- Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas
- Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group safety leaflets.

180 CHIPPING AND SHREDDING
- General: Permitted, remove arisings from site.

220 STRIPPING TOPSOIL

- General: Before beginning general excavation or filling, strip topsoil from areas where there will be regrading, buildings, pavings/ roads and other areas shown on drawings.
- Depth:
  - Remove to an average depth of 150 mm.
  - Give notice where the depth of topsoil is difficult to determine.
- Handling: Handle topsoil for reuse or sale in accordance with clause 225.
- Around trees: Do not remove topsoil from below the spread of trees to be retained.
- Site storage: Keep separate from excavated sub-soil.

221 TREATING TOPSOIL

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

225 HANDLING TOPSOIL

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

DISPOSAL OF MATERIALS

420 TOPSOIL STORAGE HEAPS

- Location: To be agreed with Mount Anvil.
- Standard: To BS 3882.
- Height (maximum): 2m.
- Protection:
  - Do not place any other material on top of storage heaps.
  - Do not allow construction plant to pass over storage heaps.
  - Prevent compaction and contamination.

421 TOPSOIL STORAGE HEAP TREATMENT

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

441 SURPLUS SUBSOIL

- Excavated material: Stockpile in temporary storage heaps.
- Retained material: Spread and level surplus subsoil on site.
  - Locations: To be agreed with Mount Anvil .
  - Protected areas: Do not raise soil level within root spead of trees that are to be retained.
- Remaining material: Remove from site.

F10
Brick/ block walling

F10 Brick/ block walling

To be read with Preliminaries/ General conditions.

TYPES OF WALLING

110B CLAY FACING BRICKWORK TO EXTERNAL FREESTANDING WALLS BETWEEN DPC BRICKWORK AND CAPPING

- Bricks: To BS EN 771-1.
  - Manufacturer: The Bespoke Brick Company
    Unit 61
    Riverside III
    Sir Thomas Longley Road
    Medway City Estate
    Rochester, Kent
    ME2 4BH
    Tel:01634 707707.
  - Product reference: Montana Stock (DVMO).
  - Recycled content: Not applicable.
  - Special shapes: Not applicable.
  - Durability designation: F2
- Mortar: As section Z21.
  - Standard: To BS EN 998-2.
  - Mix: Site batched and mixed mortar.
  - Additional requirements: None.
- Bond: Flemish.
- Joints: to match architecture/ Building Details.
- Features: None.

355A CONCRETE COMMON BLOCKWORK Sculpture plinths to engineers detail

- Blocks: To BS EN 771-3.
  - Work sizes (length x width x height): various sizes as per drawing.
    Mortar: As section Z21.

WORKMANSHIP GENERALLY

430 CONDITIONING OF CLAY AND CALCIUM SILICATE BRICKS AND CLAY BLOCKS

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

500 LAYING GENERALLY

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

545 LEVELLING OF SEPARATE LEAVES USING CEMENT GAUGED OR HYDRAULIC LIME MORTAR

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

561 COURSING BRICKWORK WITH EXISTING

- Gauge: Line up with existing brick courses.

620 BLOCK BONDING NEW WALLS TO EXISTING

- Pocket requirements: Formed as follows:
  - Width: Full thickness of new wall.
  - Depth (minimum): 100 mm.
  - Vertical spacing:
    Brick to brick: 4 courses high at 8 course centres.
    Block to block: Every other course.
- Pocket joints: Fully filled with mortar.

635 JOINTING

- Profile: Consistent in appearance.

665 POINTING TO BRICKWORK ABOVE DPC

- Joint preparation: Remove debris. Dampen surface.
- Mortar: As section Z21.
  - Standard: To BS EN 998-2.
  - Mix: To match Architects Specification.
  - Additional requirements: To match Archtects Specification.
- Profile: To match Archtects Specification.

690 ADVERSE WEATHER

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

ADDITIONAL REQUIREMENTS FOR FACEWORK

710 THE TERM FACEWORK

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

740 FINISHED MASONRY WORK REFERENCE PANELS

- General: Before proceeding to construct the following walling types, construct panels as specified. Give notice when panels are dry.
- Selection masonry units: Reasonably representative of the average quality of the whole order to be delivered .
- Panel types:
  - Walling type: All .
    Location: TBA .
    Size: 1.5 x 1.5 m .
    Other requirements: With Stone Cill .

745 MASONRY SAMPLE PANELS

- Sampling frequency: A panel for each type and delivery of masonry unit.
- Selection of masonry units: Reasonably representative of the average quality of the whole order to be delivered .
- Panel types: As clause 740.

750 COLOUR CONSISTENCY OF MASONRY UNITS

- Colour range: Submit proposals of methods taken to ensure that units are of consistent and even appearance within deliveries.
- Conformity: Check each delivery for consistency of appearance with previous deliveries and with approved reference panels; do not use if variation is excessive.
- Finished work: Free from patches, horizontal stripes and racking back marks.

760 APPEARANCE

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

780 GROUND LEVEL

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

800 TOOTHED BOND

- New and existing facework in same plane: Bond together at every course to achieve continuity.

830 CLEANLINESS

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

F21
Natural stone/ashlar walling/dressings

F21 Natural stone/ashlar walling/dressings

To be read with Preliminaries/ General conditions.

TYPES OF WALLING/ DRESSINGS

110A GRANITE COPING TO RETAINING WALLS BT8, BT9, BT10, BT11, BT11A, BT11B.

- Stone: To BS EN 771-6.
  - Petrological family: Granite.
  - Colour: Silver Grey - (Callisto) .
  - Origin: China.
  - Finish: Flamed.
  - Supplier: Marshalls Natural Stone Division, Brier Lodge, Southowram, Halifax, HX3 9SY. Tel 08704 112266 Fax 08704 112277 or similar and Approved.
  - Unit dimension tolerances: Category D3.
  - Open porosity: 1%.
  - Quality: Free from vents, cracks, fissures, discolouration, or other defects deleterious to strength, durability or appearance. Before delivery to site, season thoroughly, dress and work in accordance with shop drawings prepared by supplier.
- Mortar: As section Z21.
  Bond: As per drawings.
- Joints: Flush.
  - Width: 10 mm.
  - Pointing: As clause 390.
- Other requirements: Manufactured to ISO 14001 Stone Fabricator to produce full cutting schedule of both cladding and coping stone for approval by Mount Anvil/fabrik prior to procurement.

110B LIMESTONE COPING BT7, BT7A, BT14, ET2, ET3.

- Stone: To BS EN 771-6.
  - Petrological family: Limestone.
  - Colour: Dietfurt Beige.
  - Origin: Germany.
  - Finish: Honed or split face depending on wall/edge type; refer to details.
  - Supplier: Hardscape, 59 Warwick Way, Victoria
    London, SW1V 1QR or similar and approved.
  - Unit dimension tolerances: Category D3.
- Mortar: As section Z21.
- Bond: As shown on drawings.
- Joints: Flush.
  - Width: 5 mm.
  - Pointing: As clause 390.
    Other requirements: Manufactured to ISO 14001 Stone Fabricator to produce full cutting schedule of both cladding and coping stone for approval by Mount Anvil/fabrik prior to procurement..

110C PORTLAND STONE CLADDING To Sculpture Plinths.

- Stone: To BS EN 771-6.
  - Name (traditional): TBA.
  - Petrological family: Portland stone.
  - Colour: TBA.
  - Origin: TBA.
  - Finish: TBA.
  - Supplier: Submit proposals.
  - Unit dimension tolerances: Category D3.
  - Quality: Free from vents, cracks, fissures, discolouration, or other defects deleterious to strength, durability or appearance. Before delivery to site, season thoroughly, dress and work in accordance with shop drawings prepared by supplier.
- Mortar: As section Z21.
- Bond: As shown on drawings.
- Joints: Flush.
  - Width: 5 mm.
  - Pointing: As clause 390.
    Other requirements: Manufactured to ISO 14001 Stone Fabricator to produce full cutting schedule of both cladding and coping stone for approval by Mount Anvil/fabrik prior to procurement.

GENERAL/ PRODUCTION

250 CUTTING AND DRESSING OF STONE

- Timing: After seasoning but before delivery to site.
- Accuracy:
  - Exposed and joint surfaces: Square, true planes free from hollow or rough areas.
  - Dimensions: Maintain specified joint widths.
- Orientation for natural bed of stones: Appropriate to properties of stones and positions in walling/ dressings.

260 IDENTIFICATION OF STONE UNITS

- Marking: Clearly and indelibly on concealed faces to indicate the natural bed and position in the finished work.

LAYING AND JOINTING

300 REFERENCE PANELS

- General: Complete areas of specified walling types and obtain approval of appearance before proceeding.
- Walling type:
  - Location: First Full Wall Section .
  - Size: Full Wall Length .
  - Features: Claddng and Coping .

315 ADVERSE WEATHER

- General: Do not use frozen materials or lay on frozen surfaces.
- Air temperature: Do not lay stones:
  - In cement gauged mortars: At or below 3°C and falling or below 1°C and rising.
  - In hydraulic lime:sand mortars: At or below 5°C and falling or below 3°C and rising.
- Temperature of walling during curing: Above freezing until mortar hardened.
- Newly erected walling: Protect at all times from:
  - Rain and snow.
  - Drying out too rapidly in hot conditions and in drying winds.

325 LAYING GENERALLY

- Stone selection: Do not use units with damaged faces or arrises.
- Accuracy:
  - Courses: Level and true to line.
  - Faces, angles and features: Plumb.
  - Setting out: Achieve satisfactory junctions and joints with adjoining or built-in elements and components.
- Absorbent stones: Dampen in warm weather to reduce suction. Do not soak.
- Mortar joints:
  - Laying: Full bed of mortar with all joints and voids filled.
  - Temporary distance pieces: Lead or stainless steel. Remove when mortar is sufficiently strong.
  - Appearance: Neat and consistent.
- Cleanliness: Keep facework clean. Rubbing and other abrasive or chemical cleaning methods to remove marks and stains not permitted.

330A WALLING BELOW GROUND LEVEL

- Extent of facework below finished level of adjoining ground or external works (minimum): 50 mm.

360 OPENINGS

- Method of forming: Rigid templates, accurately fabricated to the required size.

370 JOGGLE JOINTS

- General: Fill with bedding mortar. Tamp to expel air.

390 POINTING

- Joint preparation: Rake out to depth of 7-10 mm as work proceeds. Remove debris. Dampen surface.
- Mortar application: Neat and consistent.

L37
External stair, ramps, handrail and balustrades systems

L37 External stair, ramps, handrail and balustrades systems

GENERAL

110 STAIR SYSTEMS to south of Pavillions
- Type: Built in situ.
- Base/ Fabric: To Engineers Drawings.
- Surface: Natural stone flags, as section Q25/310a.
  - Finish: Diamond Sawn.
- Unobstructed width: As drawing DE010.
- Accessories: 'Corduroy' hazard warning surface as section Q25 and Handrail system.

110A STAIR SYSTEMS to North of Pavillions
- Type: Built in situ.
- Base/ Fabric: To Engineers Drawings.
- Surface: Natural stone flags, as section Q25/310a.
  - Finish: Diamnod Sawn.
- Unobstructed width: As drawing DE011.
- Accessories: 'Corduroy' hazard warning surface as section Q25 and Handrail system.

110B STAIR SYSTEMS to Lady Chapman Main Entrance
- Type: Built in situ.
- Base/ Fabric: To Engineers Drawings.
- Surface: Natural stone flags, as section Q25/310a.
  - Finish: Diamond Sawn.
- Unobstructed width: As drawing DE012/Refer to Architect's details.
- Accessories: 'Corduroy' hazard warning surface as section Q25 and Handrail system.

110C STAIR SYSTEMS to Eastern Quadrangle
- Type: Built in situ.
- Base/ Fabric: To Engineers Drawings.
- Surface: Natural stone flags, as section Q25/310a.
  - Finish: Diamond Sawn.
- Unobstructed width: As drawing DE013.
- Accessories: 'Corduroy' hazard warning surface as section Q25 and Handrail system.

110D STAIR SYSTEMS to Chapel Terrace
- Type: Built in situ.
- Base/ Fabric: To Engineers Drawings.
- Surface: Natural stone flags, as section Q25/310a.
  - Finish: Diamond Sawn.
- Unobstructed width: As drawing DE023/Refer to Architect's details.
- Accessories: 'Corduroy' hazard warning surface as section Q25 and Handrail system.

110E STAIR SYSTEMS to Lady Chapman - mid Entrance
- Type: Built in situ.
- Base/ Fabric: To Engineers Drawings.
- Surface: Natural stone flags, as section Q25/310a.
  - Finish: Diamond Sawn.
- Unobstructed width: As drawing DE024/Refer to Architect's details.
- Accessories: 'Corduroy' hazard warning surface as section Q25 and Handrail system.

110F STAIR SYSTEMS to Kidderpore Hall - North Garden Entrance

- Type: Built in situ.
- Base/ Fabric: To Engineers Drawings.
- Surface: Natural stone flags, as section Q25/310a.
  - Finish: Diamond Sawn.
- Unobstructed width: As drawing DE025.
- Accessories: 'Corduroy' hazard warning surface as section Q25 and Handrail system.

110G STAIR SYSTEMS to Dudin Brown North Entrance

- Type: Built in situ.
- Base/ Fabric: To Engineers Drawings.
- Surface: Natural stone flags, as section Q25/310a.
  - Finish: Diamond Sawn.
- Unobstructed width: As drawing DE026/Refer to Architect's details.
- Accessories: 'Corduroy' hazard warning surface as section Q25 and Handrail system.

150 HANDRAIL SYSTEMS to Stairs and ramps

- System manufacturer: Submit design and cost proposals.
- Material: Mild Steel.
  - Cross section: As per drawing DE031 .
  - Finish: Polyester powder coated, as section Z31.
- Height (to upper surface of handrail):
  - Above pitch line: 900 mm and As drawings DE010 - 013, DE023-028 .
  - Above landing: As drawings listed above.
- Accessories: None.

160 BALUSTRADE SYSTEMS to Boundary type 7 and Boundary type 9 - Panel Grip Glazed Balustrade

- System manufacturer: FH Brundle.
- Guarding:
  - Material: Glazed panels.
  - Finish: Not required.
- Rail:
  - Cross section: As per drawings DE007.
  - Material: Stainless Steel .
  - Finish: Brushed.
- Height (to upper surface of rail):
  - Above pitch line: As drawings.
  - Above landing: As drawings.
- Accessories: None.

160A BALUSTRADE SYSTEMS to Boundary Types 2 / 2a

- System manufacturer: Submit design and cost proposals.
- Guarding:
  - Material: Galvanised Mild Steel.
  - Finish: Polyester powder coated, as section Z31.
- Height (to upper surface of rail): 1100mm
- Accessories: None.

160B BALUSTRADE SYSTEMS to Boundary type 10

- System manufacturer: Submit design and cost proposals.
- Guarding:
  - Material: Galvanised mild steel with Glazed panels.
  - Finish: Polyester powder coated, as section Z31.
- Rail:
  - Cross section: As per drawings 5-6/ DE007.
  - Material: Steel, as section Z11.
  - Finish: Polyester powder coated, as section Z31.
- Height (to upper surface of rail):1100mm
  Accessories: Emergency escape gates .

160C BALUSTRADE SYSTEMS to Boundary type 11a / 11b

- System manufacturer: Submit design and cost proposals.
- Guarding:
  - Material: Galvanised Mild Steel.
  - Finish: Polyester powder coated, as section Z31.
- Rail:
  - Cross section: As per drawings 7-8/DE007.
  - Material: Steel, as section Z11.
  - Finish: Polyester powder coated, as section Z31.
- Height (to upper surface of rail): 1100mm
- Accessories: None.

160D BALUSTRADE SYSTEMS to Boundary type 14 at Pond

- System manufacturer: Jakob Inox/Submit design and cost proposals.
- Guarding:
  - Material: Vertical Stainless Steel Tension wire within a Galvanised Mild Steel frame .
  - Finish: Polyester powder coated, as section Z31.
- Rail:
  - Cross section: As Drawing 4-5/DE032.
  - Material: Hardwood, as section Z10.
  - Finish: Brushed.
- Height (to upper surface of rail): As per drawing DE015

SYSTEM PERFORMANCE

210 DESIGN OF STAIR AND RAMP SYSTEMS

- Inclusive design: Complete detailed design in accordance with Building Regulations (Eng) Approved Document M and BS 8300:2009; highlight discrepancies and outcomes.
- Structure and associated features: Complete detailed design to BS EN 1991-1-1.
- Structural performance criteria:
  - Dead loads (maximum): To Engineers Specification.
  - Imposed loads (maximum):
    Activity/ Occupancy loading: To Engineers Specification.
    Point loads (maximum): To Engineers Specification.
- Other performance criteria: none.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

220 DESIGN OF BALUSTRADE SYSTEM

- Inclusive design: Complete detailed design in accordance with Building Regulations (Eng) Approved Document M.
- Structure and associated features: Complete the detailed design in accordance with BS 8300.
- Structural performance criteria:
  - Horizontal uniformly distributed line loads on balustrade or handrail (maximum): to Engineers Specification.
- Other performance criteria: To Engineers Specification.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

220A DESIGN OF HANDRAIL SYSTEM

- Inclusive design: Complete detailed design in accordance with Building Regulations (Eng) Approved Document M.
- Structure and associated features: Complete the detailed design in accordance with BS 8300.
- Structural performance criteria:
  - Horizontal uniformly distributed line loads on balustrade or handrail (maximum): to Engineers Specification.
- Other performance criteria: To Engineers Specification.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

PRODUCTS

315 MANUFACTURED STONE STEP UNIT To North of Pavillion

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS EN 771-5.
- Size:
  - Surface width: As drawing DE010.
  - Going: 315mm.
  - Rise: 150mm.
- Colour: Natural.
- Finish: Diamond Sawn.
  - Slip resistance value of integral tread - water wet (minimum): Not applicable.
  - Slip resistance value of integral nosing - water wet (minimum): Not applicable. Colour of integral nosing: Manufacturer's standard.
- Accessories: Cast in Carborundum Slip Resistant inserts.

315A MANUFACTURED STONE STEP UNIT To North of Pavillion

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS EN 771-5.
- Size:
  - Surface width: As drawing DE010.
  - Going: 315mm.
  - Rise: 150mm.
- Colour: Natural.
- Finish: Diamond Sawn.
- Accessories: Cast in Carborundum Slip Resistant inserts.

315B MANUFACTURED STONE STEP UNIT To South of Pavillion

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS EN 771-5.
- Size:
  - Surface width: As drawing DE011.
  - Going: 350mm.
  - Rise: 150mm.
- Colour: Natural.
- Finish: Diamond Sawn.
  Accessories: Cast in Carborundum Slip Resistant inserts.

315C MANUFACTURED STONE STEP UNIT To Lady Chapman - Main Entrance

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS EN 771-5.
- Size:
  - Surface width: As drawing DE012.
  - Going: 305mm.
  - Rise: 159mm.
- Colour: Natural.
- Finish: Diamond Sawn.
- Accessories: Cast in Carborundum Slip Resistant inserts.

315D MANUFACTURED STONE STEP UNIT To Eastern Quadrangle

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS EN 771-5.
- Size:
  - Surface width: As drawing DE013.
  - Going: 305mm.
  - Rise: 154mm.
- Colour: Natural.
- Finish: Diamond Sawn.
- Accessories: Cast in Carborundum Slip Resistant inserts.

315E MANUFACTURED STONE STEP UNIT To Chapel Entrance

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS EN 771-5.
- Size:
  - Surface width: As drawing DE023.
  - Going: 305mm.
  - Rise: 168mm.
- Colour: Natural.
- Finish: Diamond Sawn.
- Accessories: Cast in Carborundum Slip Resistant inserts.

315F MANUFACTURED STONE STEP UNIT To Lady Chapman Mid Entrance

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS EN 771-5.
- Size:
  - Surface width: As drawing DE024.
  - Going: 300 mm.
  - Rise: 139mm.
- Colour: Natural.
- Finish: Diamond Sawn.
  - Slip resistance value of integral tread - water wet (minimum): Not applicable.
  - Slip resistance value of integral nosing - water wet (minimum): Not applicable. Colour of integral nosing: Manufacturer's standard.
- Accessories: Cast in Carborundum Slip Resistant inserts.

315G MANUFACTURED STONE STEP UNIT To Kidderpore Hall - North Garden Entrance

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS EN 771-5.
- Size:
  - Surface width: As drawing DE025.
  - Going: 350mm.
  - Rise: 127mm.
- Colour: Natural.
- Finish: Diamond Sawn.
  - Slip resistance value of integral tread - water wet (minimum): Not applicable.
  - Slip resistance value of integral nosing - water wet (minimum): Not applicable. Colour of integral nosing: Not applicable.
- Accessories: Cast in Carborundum Slip Resistant inserts.

315H MANUFACTURED STONE STEP UNIT To Dudin Brown North Entrance

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS EN 771-5.
- Size:
  - Surface width: As drawing DE026.
  - Going: 350mm.
  - Rise: 150mm.
- Colour: Natural.
- Finish: Diamond Sawn.
- Accessories: Cast in Carborundum Slip Resistant inserts.

350 GLAZED PANELS to Balustrades

- Manufacturer: FH Brundle or simliar and approved.
  - Product reference: Panelgrip balustrade system.
- Material: 21.5 Toughened Laminated Glass.
  - Texture: Not required.
  - Manifestation: Not applicable.
  - Colour: Not applicable.
- Size: As per Drawings.
- Fixing: Aluminium Panelgrip System .
- Accessories: As per Drawings.

410 APPLIED SLIP RESISTANT REBATE INSERTS

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Material: Epoxy resin bound carborundum.
  - Format: Strip for insertion, 6.5 mm thick, pre finished.
  - Slip resistance - water wet (minimum): As tread.
- Size/ Coverage:
  - To tread: Full coverage of going.
  - To riser: Not applicable.
- Colour: LRV to BS 8493 contrast of 30 (minimum) with tread/ riser.
- Accessories: Edge sealant as manufacturer's recommendations.

FABRICATION

510 FABRICATION GENERALLY

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

EXECUTION

610 LOADING

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

620 CONCRETE FOUNDATIONS GENERALLY

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

630 SETTING COMPONENTS IN CONCRETE

- Holes: To Engineers Specification.
- Components: Accurately positioned and securely supported.
- Concrete fill: Compact as filling proceeds.
- Concrete foundations exposed to view: Finished to weathering profile to shed water and trowel smooth.
- Temporary component support: Maintain undisturbed for minimum 48 hours.

650 INSTALLATION GENERALLY

- Fasteners: To section Z20.
- Structural members: Do not modify, cut, notch or make holes in structural members, except as indicated on drawings.
- Temporary support: Do not use finished work as temporary support or strutting for other work.
- 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.

660 INSTALLATION OF MANUFACTURED STONE ELEMENTS

- Selection: Do not use damaged units.
- Accuracy:
  - Courses: Level and true to line.
  - Faces, angles and features: Plumb.
  - Setting out: Achieve satisfactory junctions and joints with adjoining or built-in elements and components.
- Absorbent units: Dampen in warm weather to reduce suction.
- Dowels: To Manufacturers recommendations.
- Mortar joints: To manufacturers recommendations.
  - Laying: Full bed of mortar with all joints and voids filled.
  - Temporary distance pieces: Lead or stainless steel. Remove when mortar is sufficiently strong.
  - Appearance: Neat and consistent.
- Cleanliness: Keep facework clean. Rubbing and other abrasive or chemical cleaning methods to remove marks and stains, not permitted.
- Cutting of reinforced units: Not permitted.

662 ADVERSE WEATHER

- General: Do not use frozen materials and do not lay on frozen surfaces.
- Working limits: Do not lay blocks/ dressings:
  - 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).
  - Hydraulic lime:sand mortars: When the air temperature is at or below 5°C and falling or below 3°C and rising.
- Temperature of the work: Maintain above freezing until mortar has fully set.
- Newly erected work: Protect from precipitation; Prevent rapid drying in hot conditions.
- Remedial work: Rake out and replace mortar damaged by frost.
  - Damaged work: Rebuild.

670 INSTALLATION OF TREAD INSERTS/ NOSINGS

- Treads: Fully cured, sound and level.
- Fixing:
  - Location/ position: In accordance with BS 8300.
  - Fixings: As manufacturer's recommendations.
    Centres: As manufacturer's recommendations.

680 SITE PAINTING AND STAINING

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

COMPLETION

910 INSPECTION

- Timing: Two weeks prior to date when principal contractor expects work to be practically complete.
- Period of notice (minimum): 3 working days.

920 DOCUMENTATION

- Contents:
  - Copies of structural design calculations/ test reports.
  - General product information.
  - Installation information.
  - Inspection and maintenance reports.
- Number of copies: 3.
- Submission: Two weeks after request by contract administrator.

Q10
Kerbs/ edgings/ channels/ paving accessories

Q10 Kerbs/ edgings/ channels/ paving accessories

To be read with Preliminaries/General conditions.

TYPES OF KERBS/EDGINGS AND CHANNELS

120A STONE Edge Type 1

- Standard: To BS EN 1343.
- Supplier: Hardscape, 59 Warwick Way, Victoria London, SW1V 1QR or similar and approved.
- Types: Rectangular with radiused exposed edges.
  - Tolerances on batter: Class 2.
- Stone type: Limestone.
- Size (width x height): 600mm L 125mm W 400mm H.
  - Tolerances on overall width and height (nominal): Class 2.
- Freeze/ Thaw resistance: Resistant.
- Special shapes: External radius kerbs and 90° Quadrant.
- Finish: Split Face.
- Arrises: Fillet.
- Bedding: As per drawings.
- Joints generally: Tooled coloured mortar.
- Sealant movement joints: Not required.
- Accessories: None.

120B STONE Edge Type 4

- Standard: To BS EN 1343.
- Supplier: Marshalls Natural Stone Division, Brier Lodge, Southowram, Halifax, HX3 9SY. Tel 08704 112266 Fax 08704 112277 or similar and Approved.
- Types: Rectangular with radiused exposed edges.
  - Tolerances on batter: Class 2.
- Stone type: York stone.
- Size (width x height): 600mm L 50mm W 150mm D.
  - Tolerances on overall width and height (nominal): Class 2.
- Freeze/ Thaw resistance: Resistant.
- Special shapes: External radius kerbs.
- Finish: Diamond sawn.
- Arrises: None.
- Bedding: As per drawing.
- Joints generally: Tooled coloured mortar.
- Sealant movement joints: Not required.
- Accessories: None.

120C STONE Edge Type 5

- Standard: To BS EN 1343.
- Supplier: Marshalls Natural Stone Division, Brier Lodge, Southowram, Halifax, HX3 9SY. Tel 08704 112266 Fax 08704 112277 or similar and Approved.
- Types: Rectangular with radiused exposed edges.
  - Tolerances on batter: No requirement.
- Stone type: Granite.
- Size (width x height): 600mm L 300mm H 100mm Depth.
  - Tolerances on overall width and height (nominal): Class 2.
- Freeze/ Thaw resistance: Resistant.
- Special shapes: External radius kerbs.
- Finish: Flamed.
- Arrises: Fillet.
- Bedding: As per drawings.
- Joints generally: Tooled coloured mortar .
- Sealant movement joints: Not required.
- Accessories: None.

200 SPECIAL Edge Type 6 - Aluminium Edging .

- Manufacturer: Manufacturer: Kinley System
  tel: 01424 201 111
  www.kinleysystems.com.
  - Product reference: Excel Edge Flexible L-profile aluminium edge restraint AE50FM.
- Size: 2500mm L 50mm W 45mm D.
- Type/ Material: Aluminium.
  - Finish: Mill.
  - Colour: Natural.
- Accessories: 250mm Spiral Spikes.
- Bedding: As drawing DE009.
- Joints: to Manufacturers specification.

200A SPECIAL Edge Type 7 - Timber Edging

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Size: 1800mm L 150mm W 22mm D.
- Type/ Material: Treated timber edging boards.
  - Finish: Sawn.
  - Colour: Natural.
- Accessories: Treated timber pegs/edging stakes, max 1m ctrs, nailed with 50-70mm annular nails, 2 per board/stake.
- Joints: Mitre and joined to peg/stake.

250 MATERIAL SAMPLES

- Samples representative of colour and appearance of designated materials: Submit before placing orders.
  - Designated materials: Stone kerbs .

LAYING

510 LAYING KERBS, EDGINGS AND CHANNELS

- Cutting: Neat, accurate and without spalling. Form neat junctions.
  - Long units (450 mm and over) minimum length after cutting: 300 mm.
  - Short units minimum length after cutting: The lower of one third of their original length or 50 mm.
- 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.
- 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

- 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

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

610 ANGLE KERBS

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

620 ACCURACY

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

625 REGULARITY OF PAVED SURFACES

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

Q22
Asphalt roads/ pavings

Q22 Asphalt roads/ pavings

TYPES OF PAVING

140 HOT ROLLED ASPHALT PAVING PT1

- Standard: To Highways Agency (HA) 'Specification for highway works'.
- Subgrade improvement layer: To Engineers Specification.
  - Compacted thickness: To Engineers Specification.
- Geotextile: To Engineers Specification.
  - Manufacturer: To Engineers Specification.
    Product reference: To Engineers Specification.
- Granular sub-base: To Engineers Specification.
  - Compacted thickness: To Engineers Specification.
- Base: To Engineers Specification.
  - Paving grade: To Engineers Specification.
  - Compacted thickness: To Engineers Specification.
- Binder course: To Engineers Specification.
  - Paving grade: To Engineers Specification.
  - Compacted thickness: To Engineers Specification.
- Surface course: To Engineers Specification.
  - Paving grade: To Engineers Specification.
  - Slip/ Skid resistance: To Engineers Specification.
  - Compacted thickness: To Engineers Specification.
- Reclaimed content:
  - Standard: To BS EN 13108-8.
  - Value (maximum): To Engineers Specification.
- Surface treatment: To Engineers Specification.
- Other requirements To Engineers Specification.

PREPARATORY WORK/ REQUIREMENTS

220 BITUMINOUS MATERIALS GENERALLY

- Suppliers names: Submit.
  - Timing (minimum): Two weeks before starting work.
- Test certificates: At the time of delivery for each manufacturing batch submit certificate:
  - Confirming compliance with this specification and the relevant standard.
  - Stating full details of composition of mix.

240 ACCEPTANCE OF SURFACES

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

LAYING

310 LAYING GENERALLY

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

320 ADVERSE WEATHER

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

Q23
Gravel/ Hoggin/ Woodchip/ Resin bound roads/ paving/ overlays

Q23 Gravel/ Hoggin/ Woodchip/ Resin bound roads/ paving/ overlays

To be read with Preliminaries/ General conditions.

TYPES OF SURFACING

225 PROPRIETARY RESIN BOUND CHIPPINGS Paving Type 12

- Subgrade improvement layer: As drawing DE003.
  - Compacted thickness: As drawing DE003.
- Geomembrane: Geotextile membranes.
  - Manufacturer: Addagrip Terraco Ltd
    Addagrip House
    Bell Lane Industrial Estate
    Uckfield
    East Sussex TN22 1QL or similar and approved.
    Product reference: Terrabase Rustic Tweed.
- Granular sub-base: As drawing DE003.
  - Compacted thickness: As drawing DE003.
- Water collection: Not required .
- Geotextile: Terrabase Geofabric.
  - Manufacturer: Addagrip Terraco Ltd.
    Product reference: Not required.
- Base course: HDPE Geonet.
- Surface course:
  - Manufacturer: Addagrip or similar and approved.
    Product reference: Submit proposals.
  - Slip/ skid resistance: Submit proposals.
  - Binder: Epoxy resin.
  - Chippings: As drawing DE003.
    Colour: Rustic Tweed.
  - Aggregate size: Evenly graded 5-10 mm.
  - Mix ratio (binder:aggregate): To manufacturers recommendations.
- Application: Thoroughly mixed and uniformly spread.
  - Spreading rate: To Manufacturers specification.
  - Thickness: 30mm.
  - Compaction to all layers: By heavy roller or other appropriate means, adequate to resist subsidence or deformation of the completed roads/ pavings when in use.

225A PROPRIETARY RESIN BOUND CHIPPINGS Paving Type 3

- Subgrade improvement layer: As drawing DE001.
  - Compacted thickness: As drawing DE001.
- Geomembrane: Geotextile membranes.
  - Manufacturer: Meon | DekorGrip Railside Northarbour Spur Portsmouth PO6 3TU - or Similar and approved.
    Product reference: Dekorgrip bound.
- Granular sub-base: As drawing DE001.
  - Compacted thickness: As drawing DE001.
- Water collection: Not required .
- Geotextile: Not required.
  - Manufacturer: Not required.
    Product reference: Not required.
- Base course: As drawing De001.
- Surface course:
  - Manufacturer: Meon Dekorgrip or similar and approved.
    Product reference: Resin Bound - Pearl Grey.
  - Slip/ skid resistance: Submit proposals.
  - Binder: Epoxy resin.
  - Chippings: Gritstone.
    Colour: Pearl Grey.
  - Aggregate size: Single size 6 mm.
  - Mix ratio (binder:aggregate): To manufacturers recommendations.
- Application: Thoroughly mixed and uniformly spread.
  - Spreading rate: To manufacturers recommendations.
  - Thickness: 16mm.
  - Compaction to all layers: By heavy roller or other appropriate means, adequate to resist subsidence or deformation of the completed roads/ pavings when in use.

LAYING

315 MATERIALS

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

320 SAMPLES

- Submit: Representative samples of all aggregates.

330 HERBICIDE TO PAVING Q23/ 225 - 225A

- Type: Suitable for the application, location and conditions of use.
- Weeds and moss: Grub up.
- Application: As section A34, before surfacing.

340 LAYING GENERALLY

- Channels, gullies, etc: Keep clear.
- Finished surfaces:
  - Lines and levels: To prevent ponding.
  - Overall texture: Even.
  - State at completion: Clean.

350 COLD WEATHER WORKING

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

360 DRAINAGE FALLS

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

380 LAYING GRANULAR SURFACES IN PEDESTRIAN AREAS

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

390 PROTECTION FROM TRAFFIC AND PLANT

- Paved areas: Restrict access to prevent damage.

Q25
Slab/brick/sett/cobble pavings

Q25 Slab/brick/sett/cobble pavings

To be read with Preliminaries/ General conditions.

GENERAL

110A NATURAL STONE SLAB PAVING SYSTEM over Podium
- Subgrade improvement layer: Standard Cementitious Screed laid to falls; suitable for occasional traffic over-run.
  - Compacted thickness: As required to achieve finished levels.
  Laying course: Steintec Tuffbed over Tuff bond priming/bonding mortar .
  Paving units: Natural stone slabs.
- Jointing: Steintech Tufftop.
  - Bond: As drawings.
- Accessories: Channels, as section Q10 and Sealer/ stabilizer and recessed manhole covers .

110B NATURAL STONE SLAB PAVING SYSTEM over Ground
- Subgrade improvement layer: To Engineers Specification.
  - Compacted thickness: To Engineers Specification.
- Granular sub-base: To Engineers specification.
  - Compacted thickness: 225 mm.
- Base: Gen 3 Concrete.
  - Thickness: 100 mm.
- Laying course: Steintec Tuffbed over Tuff bond priming/bonding mortar .
  Paving units: Natural stone slabs.
- Jointing: Steintech Tufftop.
  - Bond: As Drawings.
- Accessories: Channels, as section Q10 and Sealer/ stabilizer and recessed manhole covers .

127 PEDESTAL SUPPORTED PAVING SLAB/ FLAG SYSTEM PT7 & PT5c to Sunken Terraces.
- Preparation of existing base: Not required.
- Paving support: Pedestals as clause 480 .
- Paving units: Stone slabs.
- Accessories: Submit proposals.

140 NATURAL STONE SETT PAVING SYSTEM Paving Type 2
- Subgrade improvement layer: Refer to Engineer's Specification .
  - Compacted thickness: Refer to Engineer's Specification.
- Granular sub-base: Refer to Engineer's Specification.
  - Compacted thickness: Refer to Engineer's Specification.
- Base: Refer to Engineer's Specification.
  - Thickness: Refer to Engineer's Specification.
- Laying course: Ready mixed fine concrete .
  - Accessories: None.
- Paving units: Natural stone setts.
- Jointing: Ready mixed fine concrete.
  - Bond: As drawings.
- Accessories: Recessed Manhole Covers.

140A EXISTING NATURAL STONE SETT PAVING Paving Type 4

- Subgrade improvement layer: Refer to Engineer's Specification .
  - Compacted thickness: Refer to Engineer's Specification.
- Granular sub-base: Refer to Engineer's Specification.
  - Compacted thickness: Refer to Engineer's Specification.
- Base: Refer to Engineer's Specification.
  - Thickness: Refer to Engineer's Specification.
- Laying course: Ready mixed fine concrete .
  - Accessories: None.
- Paving units: Natural stone setts.
- Jointing: Ready mixed fine concrete.
  - Bond: As Existing.
- Accessories: Recessed Manhole Covers.
  Notes: Existing Granite Setts to be lifter, cleaned and re-set.
  Refer to Heritage Consultants drawings and direction.

SYSTEM PERFORMANCE

210 DESIGN - NATURAL STONE SLAB PAVING SYSTEM

- Design: Complete the design of the natural stone slab paving system in accordance with BS 7533-4.
  - Site category: all.
- Ground conditions: Refer to Engineers Survey.
- Performance criteria: Refer to Engineers Drawings.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

240 DESIGN - NATURAL STONE SETT PAVING SYSTEM

- Design: Complete the design of the natural stone sett paving system in accordance with BS 7533-7.
- Ground conditions: Refer to Engineers Specification.
- Performance criteria: Refer to Engineers Drawings.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

260 DESIGN - NATURAL STONE COBBLE PAVING SYSTEM

- Design: Complete the design of the natural stone cobble paving system in accordance with BS 7533-7.
- Ground conditions: Refer to Engineers Survey.
- Performance criteria: Refer to Engineers Specification.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.

PRODUCTS

310A NATURAL STONE SLABS Paving Type 5

- Standard: To BS EN 1341.
- Supplier: Marshalls, Natural Stone Sales office, Southowram, Halifax HX3 9SY tel 08704 112266 or similar nad approved.
  - Product reference: Scoutmoor.
  - Quarry: Scoutmoor Quarry Ramsbottom Lancs.
- Petrographical description/ stone type: York Stone.
- Finish: Diamond Sawn.
- Sizes: 900x450x50mm.
  - Plan dimension deviation class: P2.
  - Diagonal deviation class: D2.
  - Thickness deviation class: T2.
- Arrises: Square.
- Breaking strength: Class 2.
- Slip resistance: SRV to BS EN 14231 of 69 (min).
- Skid resistance: No requirement.
- Surface treatment: Vulcaseal V286.

310B NATURAL STONE SLABS Paving Type 5a

- Standard: To BS EN 1341.
- Supplier: Marshalls, Natural Stone Sales office, Southowram, Halifax HX3 9SY tel 08704 112266.
  - Product reference: Greenmoor Rustic.
  - Quarry: Appleton Quarry, Shepley, West Yorkshire .
- Petrographical description/ stone type: York Stone.
- Finish: Riven.
- Sizes: 900x450x50mm.
  - Plan dimension deviation class: P2.
  - Diagonal deviation class: D2.
  - Thickness deviation class: T2.
- Arrises: Square.
- Breaking strength: Class 2.
- Slip resistance: SRV to BS EN 14231 of 69 (min).
- Skid resistance: No requirement.
- Surface treatment: Vulcaseal V286.

310C NATURAL STONE SLABS Paving Type 6

- Standard: To BS EN 1341.
- Supplier: Marshalls, Natural Stone Sales office, Southowram, Halifax HX3 9SY tel 08704 112266 or similar and approved.
  - Product reference: Scoutmoor.
  - Quarry: Scoutmoor Quarry Ramsbottom Lancs.
- Petrographical description/ stone type: York Stone.
- Finish: Diamond Sawn.
- Sizes: 600x300x50mm.
  - Plan dimension deviation class: P2.
  - Diagonal deviation class: D2.
  - Thickness deviation class: T2.
- Arrises: Square.
- Breaking strength: Class 2.
- Slip resistance: SRV to BS EN 14231 of 69 (min).
- Skid resistance: No requirement.
- Surface treatment: Vulcaseal V286.

310D NATURAL STONE SLABS Paving Type 6a

- Standard: To BS EN 1341.
- Supplier: Marshalls, Natural Stone Sales office, Southowram, Halifax HX3 9SY tel 08704 112266.
  - Product reference: Greenmoor Rustic.
  - Quarry: Appleton Quarry, Shepley, West Yorkshire .
- Petrographical description/ stone type: York Stone.
- Finish: Riven.
- Sizes: 600x300x50mm.
  - Plan dimension deviation class: P2.
  - Diagonal deviation class: D2.
  - Thickness deviation class: T2.
- Arrises: Square.
- Breaking strength: Class 2.
- Slip resistance: SRV to BS EN 14231 of 69 (min).
- Skid resistance: No requirement.
- Surface treatment: Vulcaseal V286.

310E NATURAL STONE SLABS Paving Type 8

- Standard: To BS EN 1341.
- Supplier: Marshalls, Natural Stone Sales office, Southowram, Halifax HX3 9SY tel 08704 112266 or similar and approved.
  - Product reference: Greenmoor Rustic.
  - Quarry: Appleton Quarry, Shepley, West Yorkshire .
- Petrographical description/ stone type: York Stone.
- Finish: Riven.
- Sizes: 500x300x50mm.
  - Plan dimension deviation class: P2.
  - Diagonal deviation class: D2.
  - Thickness deviation class: T2.
- Arrises: Square.
- Breaking strength: Class 2.
- Slip resistance: SRV to BS EN 14231 of 69 (min).
- Skid resistance: No requirement.
- Surface treatment: Vulcaseal V286.

310F NATURAL STONE SLABS Paving Type 7 / 7a

- Standard: To BS EN 1341.
- Supplier: Hardscape or similar and approved.
  - Product reference: Dietfurt Beige.
  - Quarry: Germany.
- Petrographical description/ stone type: Limestone.
- Finish: Sandblasted and Brushed.
- Sizes: 600x600x50mm.
  - Plan dimension deviation class: P2.
  - Diagonal deviation class: D2.
  - Thickness deviation class: T2.
- Arrises: Square.
- Breaking strength: Class 1.
- Slip resistance: SRV to BS EN 14231 of 69 (min).
- Skid resistance: No requirement.
- Surface treatment: Vulcaseal V286.

310G NATURAL STONE SLABS Paving Type 5b

- Standard: To BS EN 1341.
- Supplier: Marshalls, Natural Stone Sales office, Southowram, Halifax HX3 9SY tel 08704 112266 or similar nad approved.
  - Product reference: Scoutmoor.
  - Quarry: Scoutmoor Quarry Ramsbottom Lancs.
- Petrographical description/ stone type: York Stone.
- Finish: Diamond Sawn.
- Sizes: 900x450x63mm.
  - Plan dimension deviation class: P2.
  - Diagonal deviation class: D2.
  - Thickness deviation class: T2.
- Arrises: Square.
- Breaking strength: Class 1.
- Slip resistance: SRV to BS EN 14231 of 69 (min).
- Skid resistance: No requirement.
- Surface treatment: Vulcaseal V286.

310H NATURAL STONE SLABS Paving Type 5c to Private Terraces

Standard: To BS EN 1341.

Supplier: [Marshalls, Natural Stone Sales office, Southowram, Halifax HX3 9SY tel 08704 112266].

- Product reference: [Greenmoor Rustic].
- Quarry: [Appleton Quarry, Shepley, West Yorkshire].

Petrographical description/ stone type: [York Stone].

Finish: [Riven].

Sizes: [300x600x50mm].

- Plan dimension deviation class: [P2].
- Diagonal deviation class: [D2].
- Thickness deviation class: [T2].

Arrises: [Square].

Breaking strength: [Class 2].

Slip resistance: [SRV to BS EN 14231 of 69 (min)].

Skid resistance: [No requirement].

Surface treatment: [Vulcaseal V286].

320A TACTILE FLAGS AND SLABS Paving Type 9 - Hazard Warning to Steps and ramps

- Standard: To DD CEN/TS 15209.
- Material: Natural stone.
  - Manufacturer: Marshalls, Natural Stone Sales office, Southowram, Halifax HX3 9SY tel 08704
    112266 or similar and approved.
    Product reference: Scoutmoor York Stone.
- Recycled content: Not applicable.
- Nominal sizes: 400 x 400 mm.
- Colour: Natural.
- Type of surface: Rib – type R1.

330 NATURAL STONE SETTS Paving Type 2

- Standard: To BS EN 1342.
- Supplier: Marshalls, Natural Stone Sales office, Southowram, Halifax HX3 9SY tel 08704 112266 or similar and approved.
  - Product reference: Scoutmoor York Stone.
  - Quarry: Scoutmoor Quarry Ramsbottom Lancs. Petrographical description/ stone type: Yorkstone.
- Finish: Diamond Sawn.
- Sizes: 240x160x100mm.
  - Plan dimension and thickness deviation: Class 2.
- Special setts: none.
  - Tolerances on undercut of sides: Class 1.
  - Tolerances on hewn and coarse textured face irregularities: Class 1.
  - Breaking strength: No requirement.
- Slip resistance: SRV to BS EN 14231 of 69 (min).
- Skid resistance: No requirement.
- Surface treatment: Vulcaseal V286 Sealant.

340 NATURAL STONE COBBLES Paving Type 11

- Cobbles: Selected hard smooth, egg-shaped beach or river stones.
- Size: 20-30mm dia.
- Source: Atlantic Pebbles; Marshalls - or similar and approved.

365 GEOTEXTILE SHEET To Engineers Specification

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Recycled content: Submit proposals.

440A READY MIXED MORTAR Jointing Mortar

- Type: Grout.
- Standard/ Performance requirements: In accordance with BS 7533-7.
- Manufacturer: Steintech.
  - Product reference: Steintech tufftop, natural grey colour.
- Consistency: Slurry.

440B READY MIXED MORTAR Bedding Mortar

- Type: Bonding Mortar.
- Standard/ Performance requirements: In accordance with BS 7533-7.
- Manufacturer: Steintech.
  - Product reference: Steintech Tuffbed.
- Consistency: to manufacturers recommendations.

440C READY MIXED MORTAR Priming / Bonding Mortar

- Type: Priming / Bonding Mortar.
- Standard/ Performance requirements: In accordance with BS 7533-7.
- Manufacturer: Steintech.
  - Product reference: Steintech Tuffbond.
- Consistency: to manufacturers recommendations.

455A JOINT FILLER FOR MOVEMENT JOINTS Paving Control Joints

- Type: Compressible rubber or plastics compatible with specified sealant.
- Manufacturer: Expansion Joints ltd or equal and approved.
  - Product reference: 10mm Kwikstrip or equal and approved.

480 SUPPORT PEDESTALS To support stone paving slabs PT7 & PT5c

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Type: Screwjack pedestal.
- Material: Not applicable.
- Dimensions: To achieve a clearance range between 25 and 150mm.
- Additional pedestals: Submit proposals.
- Accessories: Spacers, shims, submit proposals.

EXECUTION

610 MATERIAL SAMPLES

- Samples representative of colour and appearance of designated materials: Submit before placing orders.
  - Designated materials: Natural stone slab paving; reference sample to BS EN 1341.

615 CONTROL SAMPLES

- Sample areas: Complete as part of the finished work.
  - Types of paving: Natural stone slab paving.
  - Location: TBA.
  - Size (minimum): 1.5 x 1.5 m.
  - Included features: recessed manhole cover infill.
- Approval of appearance and surface: Obtain before proceeding.

620 ADVERSE WEATHER

- General:
  - 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.
  - Frozen materials: Do not use. Do not lay bedding on frozen or frost covered bases.
- Paving with mortar joints and/ or bedding:
  - Protect from frost damage, rapid drying out and saturation until mortar has hardened.
- Paving laid and jointed in sand:
  - Stockpiled bedding sand: Protect from saturation.
  - Exposed areas of sand bedding and uncompacted areas of sand bedded paving: Protect from heavy rainfall.
  - Saturated sand bedding: Remove and replace, or allow to dry before proceeding.
  - Laying dry-sand 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

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

630 LEVELS OF PAVING

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

637 REGULARITY OF PAVED SURFACES

- 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.
- Joints between paving units or utility access covers:
  - 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).
  - 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.
  - Unfilled joints: difference in level between adjacent units to be no greater than 2 mm.
- Sudden irregularities: Not permitted.

640 COLOUR BANDING

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

645 PROTECTION

- Cleanliness: Keep paving clean and free from mortar droppings, oil and other materials likely to cause staining.
- Materials storage: Do not overload pavings with stacks of materials.
- Handling: Do not damage paving unit corners, arrises, or previously laid paving.
- Mortar bedded pavings: Keep free from traffic after laying:
  - Pedestrian traffic (minimum): 4 days.
  - Vehicular traffic (minimum): 10 days.
- Access: Restrict access to paved areas to prevent damage from site traffic and plant.

650 CEMENTITIOUS BASES AND SUB-BASES

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

655 CONDITION OF SUB-BASES/ BASES BEFORE SPREADING LAYING COURSE

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

690 RECLAIMED NATURAL STONE COBBLES

- Location/ Access: Eastern Walkway to Maynard Wing.
- Lifting/ Storage/ Protection: To be agreed with Mount Anvil.
- Preparation: Remove all traces of old mortar pointing.

715 LAYING FLAG AND SLAB PAVING - MORTAR LAYING COURSE AND JOINTING

- Standard generally: In accordance with BS 7533-4.
- Flag installation and cutting: To Interpave 'Concrete flag paving'.
- Laying course:
  - Nominal thickness: As per Drawings.
- Laying and jointing: to Manufacturers Specification.
- Joint width (nominal): 5 mm.

730 LAYING NATURAL STONE SETT PAVING

- Standard generally: In accordance with BS 7533-7.
- Laying type: Rigid.
  - Laying and jointing method: Moist bed fine concrete with full depth slurry joint.
- Laying course:
  - Target thickness after compaction: 40 mm.
- Joint width (nominal): 10 mm.

750 LAYING NATURAL STONE COBBLE PAVING

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

785 TOOLED JOINTS IN MORTAR BEDDED UNITS

- Joints: Completely filled with bedding mortar as work proceeds.
  - Joint width: 5 mm.
  - Finish: Neat flush profile.

795 SEALANT MOVEMENT JOINTS IN MORTAR BEDDED UNITS

- Spacing: 4.5 m.
- Extent of joints: Through edge units and haunching.
- Joint filler: Compressible cellular rubber or plastics compatible with specified sealant. Build in as work proceeds.
  - Joint width: 10 mm.
- Barrier (joint breaker): As recommended by sealant manufacturer. Position filler and barrier accurately to fully support sealant at recommended distance from exposed faces of units.
- Sealant:
  - Application: As section Z22.

800 APPLYING SEALER/ STABILIZER TO BLOCKS AND SETTS

- Surface preparation: Ensure sand joints are completely dry and free from contamination and Sweep clear of loose sand before sealing.
- Application: To dry paving.
  Method: To manufacturer's recommendations.
  Number of coats: 1.
  Coverage: As sealer manufacturer's recommendations.

Q28
Topsoil and soil ameliorants

Q28 Topsoil and soil ameliorants

To be read with Preliminaries/ General conditions.

SYSTEM OUTLINE

135 PLANTING BED SOIL SYSTEM ALL PLANTED AREAS
- Composition:
  - Topsoil: Imported topsoil to BS 3882.
  - Ameliorants: Sanitized and stabilized composted materials and Fertilizer.
  - Accessories: Mycorrhizal inoculant.

155 MULCHING AND TOP DRESSING SYSTEM FOR FLOWERING SHRUBS
- Composition:
  - Material: Submit design and cost proposals.

PRODUCTS

300 PREPARATION MATERIALS GENERALLY
- Purity: Free of pests and disease.
- Foreign matter: On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, pieces of brick, concrete, glass, wire, large lumps of clay or vegetation, and the like.
- Contamination: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
  - Corrosive, explosive or flammable.
  - Hazardous to human or animal life.
  - Detrimental to healthy plant growth.
- Subsoil: In areas to receive topsoil or planting media, do not use subsoil contaminated with the above materials.
- Objectionable odour: None.
- Give notice: If any evidence or symptoms of soil contamination are discovered on the site or in topsoil or planting media to be imported.

310 MATERIALS NOT PERMITTED
- Materials: Products containing peat and River and canal dredgings.

315 IMPORTED TOPSOIL TO BS 3882 TO ALL PLANTED AREAS
- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard: To BS 3882.
- Classification: Multipurpose.
  - Soil textural class to BS 3882, Figure 1: Sandy loam.
- Source: Submit proposals.
  - Product reference: Submit proposals.

360A SANITIZED AND STABILIZED COMPOSTED MATERIALS CERTIFIED TO PAS 100 FOR PLANTING BEDS

- Standard: In accordance with PAS 100.
- Source: Submit proposals.
  - Product reference: Submit proposals.
- Horticultural parameters:
  - pH (1:5 water extract): 7.0-8.7.
  - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
  - Moisture content (m/m of fresh weight): 35-55%.
  - Organic matter content (minimum): 25%.
  - Grading (air dried samples): 99% passing 25 mm screen, and 90% passing: 10 mm screen mesh aperture.
  - Carbon:Nitrogen ratio (maximum): 20:1.
- Texture: Friable.
- Objectionable odour: None.
- Compost Certification Scheme certification: Not required.
- Declaration of analysis: Submit.
- Additional analyses: Not required.
- Samples: Submit details of recent chemical and physical analysis before ordering.

380 MYCORRHIZAL INOCULANT FOR CONIFEROUS PLANTS AND TREES

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.

405 INORGANIC FERTILIZERS FOR ALL PLANTED AREAS

- Manufacturer/ source: Vitex,
  A: Owen Street, Coalville, Leicester LE67 3DE
  T: + 44 (0)1530 510060
  E: info@vitax.co.uK or similar and approved.
  - Product reference: q4.
- Standard: In accordance with the Fertiliser Industry Assurance Scheme (FIAS).
- Purpose: General purpose fertilizer.
- Type: NPK (macronutrient).
- Availability to plants: Controlled release.

EXECUTION

610 TOPSOIL ANALYSIS

- Soil to be analysed: Imported topsoil.
- Soil analyst: Tim O'Hare Associates
  E: info@toha
  T: +44 (0)1491 822653.
- Samples: Collect in accordance with BS 3882.
- Submit:
  - Declaration of analysis: In accordance with BS 3882, clause 6 and Table 1.
  - Additional analysis: Phytotoxic and CLEA elements.
  - Report detailing soil analyst's recommendations.

620 IMPORTING TOPSOIL

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

625 SAMPLE LOADS FOR IMPORTED TOPSOIL

- Deliver to site a sample load: of 5 kg.
- Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads.
  - Notice period: 7 days.

630 DOCUMENTATION FOR IMPORTED TOPSOIL PLANTING BEDS

- Timing: Submit at handover.
- Contents:
  - Full description of all soil components.
  - Record of source for all soil components.
  - Record drawings showing the location and depth of all soils by type and grade.
  - Declaration of analysis: in accordance with BS 3882, clause 6 and Table 1.
- Number of copies: Two.

635 DOCUMENTATION FOR COMPOST AND COMPOSTED MATERIALS FOR COMPOST

- Timing: Submit at handover.
- Contents:
  - Full description of all compost components.
  - Record of source for all compost components.
  - Analyst's report for each test carried out.
  - Declaration of compliance: in accordance with PAS 100 and BSI PD CR 13456.
  - Quality Compost Protocol certification: Required.
- Number of copies: Two.

650 NOTICE

- Give notice before:
  - Setting out.
  - Spreading topsoil.
  - Applying herbicide.
  - Applying fertilizer.
  - Visiting site during maintenance period.
- Period of notice: 1 week.

655 MECHANICAL TOOLS

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

660 GRADING SUBSOIL FOR GRASSED AREAS and ORNAMENTAL PLANTING BEDS

- Standard: In accordance with BS 8601.
- General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
- Areas of thicker topsoil: Excavate locally.
- Avoid compaction.
- Excess subsoil: Remove.

670 INSPECTING FORMATIONS

- Give notice: Before spreading topsoil for lawn areas and planting beds.
- Notice period: 7 days.

690 TOPSOIL STORAGE HEAPS

- Location: Throughout the site.
- Height (maximum): To Agronomist Specification.
- Width (maximum): To Agronomist Specification.
  - Formation: Loose tip and shape from the side only, without running machinery on the heap at any time.
- Protection:
  - Do not place any other material on top of storage heaps.
  - Do not allow construction plant to pass over storage heaps.
  - Prevent compaction and contamination, by fencing and covering as appropriate.

700 GRADING OF TOPSOIL

- Topsoil condition: Reasonably dry and workable.
- Contours: Smooth and flowing, with falls for adequate drainage.
  - Hollows and ridges: Not permitted.
- Give notice: If required levels cannot be achieved by movement of existing soil.

705 HANDLING TOPSOIL

- Standard: In accordance with BS 3882.
- Aggressive weeds: Give notice and obtain instructions before moving topsoil.
- Plant: Select and use plant to minimize disturbance, trafficking and compaction.
- Contamination: Do not mix topsoil with:
  - Subsoil, stone, hardcore, rubbish or material from demolition work.
  - Other grades of topsoil.
- Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
- Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit less 3%, to BS 1377-2.

710 SPREADING TOPSOIL ON GRASSED AREAS

- Standard: In accordance with BS 3882.
- Temporary roads/ surfacing: Remove before spreading topsoil.
- Layers:
  - Depth (maximum): 150 mm.
  - Gently firm each layer before spreading the next.
- Depth after firming and settlement: 150 mm.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

710A SPREADING TOPSOIL ON PLANTED AREAS

- Standard: In accordance with BS 3882.
- Temporary roads/ surfacing: Remove before spreading topsoil.
- Layers:
  - Depth (maximum): 150 mm.
  - Gently firm each layer before spreading the next.
- Depth after firming and settlement: 400 mm.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

710B SPREADING TOPSOIL ON TREE PITS

- Standard: In accordance with BS 3882.
- Temporary roads/ surfacing: Remove before spreading topsoil.
- Layers:
  - Depth (maximum): 150 mm.
  - Gently firm each layer before spreading the next.
- Depth after firming and settlement: As per drawing DE030.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

715 LOOSE TIPPING OF TOPSOIL

- Standard: In accordance with BS 3882.
- 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.

720 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- In relation to adjoining paving, kerbs or hard surfaces: 20 mm above .
- In relation to dpc of adjoining buildings: Not less than NOT LESS THAN 150 mm below.
- In relation to adjacent grass areas: 25 mm above.
- Seeded areas: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.
- Sportsfields: To even levels and within the following permitted deviations:
  - From levels or gradients shown on drawings: ±75 mm.
  - From line between boning rods 30 m apart: ±25 mm.
- Within root spread of existing trees and shrubs to be retained: Do not dig or cultivate.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: Included.

730 GREEN ROOF GROWING MEDIUM INSTALLATION

- Handling: Minimize.
  - Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen.
- Layers:
  - Depth (maximum): 150 mm.
  - Sequence: Gently firm each layer before spreading the next.

805A APPLYING SOIL AMELIORANT FOR FLOWERING SHRUBS

- Type: Organic materials.
- Locations: All planting areas.
- Fully incorporate into topsoil to a depth of 150 mm.
- Application: Spread evenly.
  - Timing: Apply prior to cultivation.
  - Rate: AS PER MANUFACTURERS RECOMMENDATIONS.
- Timing: Prior to cultivation.
- Other requirements: None.

820 APPLYING GENERAL FERTILIZER SHRUB BEDS

- Application: Spread evenly, carefully incorporating below mulch materials.
  - Timing: Immediately before cultivation.
  - Application rate: AS PER MANUFACTURERS RECOMMENDATIONS.
  - Other requirements: NONE.

825 APPLYING FERTILIZER TO PROPOSED GRASS AREAS TO SEEDED AREAS EXCEPT WILDFLOWER MEADOWS

- Application: Before final cultivation and three to five days before seeding/ turfing.
- Coverage:
- Spread evenly, in transverse directions.
  - Rate: 50 g/m².

840 APPLYING MYCORRHIZAL INOCULANT FOR CONIFEROUS PLANTS AND TREES.

- Depth: To maintain contact with root system.

845 APPLYING LOOSE MULCH FOR PLANTING BEDS

- Timing: Immediately after planting.
- Preparation: Water soil thoroughly.
- Coverage of mulch (minimum):
  - Planting beds (depth): 50 mm depth.
  - Trees: 50 mm depth.
  - Container planting: N/A.
- Finished level of mulch: 30 mm below adjacent grassed or paved areas.

COMPLETION

905 APPLYING MAINTENANCE FERTILIZER TO SOIL TO PLANTING BEDS

- Duration: Carry out the following operations from completion of seeding/ turfing until the end of the rectification period.
- Time of year: March or April.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Rate: To manufacturer's recommendations.

Q30
Seeding/turfing

Q30 Seeding/turfing

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/REQUIREMENTS

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

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

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

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

160 NOTICE
- Give notice before:
  - Setting out.
  - Applying herbicide.
  - Applying fertilizer.
  - Preparing seed bed.
  - Seeding or turfing.
  - Visiting site during maintenance period.
- Period of notice: 1 week.

170 SETTING OUT
- Boundaries: Mark clearly.
- Delineation: In straight lines or smoothly flowing curves as shown on drawings.

PREPARATION

210 HERBICIDE FOR ALL GRASSED AREAS
- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
  - Duration: 1 week.

SEEDING

312 WILDFLOWER SEED MIXTURE G2 Shade tollerant mixture

- Supplier: EMORSGATE SEEDS
  Limes Farm
  Tilney All Saints
  King's Lynn
  Norfolk
  PE34 4RT or similar and approved.
  - Mixture reference: EW1.
- Origin of each species (as defined in Flora Locale's Code of practice for collectors, growers and suppliers of native flora): UK origin.
- Application rate: 5 g/m².

312A WILDFLOWER SEED MIXTURE G3 Biodiverse roof seed mixtures

- Supplier: Bauder.
  - Mixture reference: For the Pavilion houses, Flora 5, for the Skeel Library Flora 3.
- Origin of each species (as defined in Flora Locale's Code of practice for collectors, growers and suppliers of native flora): UK origin.
- Application rate: in accordance with Manufacturer's guidelines.
  Other: use latest seed blends that does not include Red Valerian (Centranthus ruber)

330 SOWING

- General: Establish good seed contact with the root zone.
- Method: To suit soil type, proposed usage, location and weather conditions during and after sowing.
  - Distribution: 2 equal sowings at right angles to each other.

335 GRASS SOWING SEASON

- Grass seed generally: April to October.

336 WILDFLOWER SOWING SEASON

- Wildflower seed generally: March to May or August to October.

TURFING

400 CULTIVATED TURF G1 Daisy Lawn

- Supplier: Wildflower Turf Ltd.
  - Product reference: Species Rich Lawn Turf WFT-Species-Rich-26 or similar and approved.
- Properties of soil used for turf production: Peat-free, well drained sandy loam.

420 DELIVERY AND STORAGE

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

430 TURFING GENERALLY

- Time of year: To be agreed.
- Timing of laying:
  - Spring and summer: Within 18 hours of delivery.
  - Autumn and winter: Within 24 hours of delivery.
- 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.
- Working access: Planks laid on previously laid turf. Do not walk on prepared bed or newly laid turf.
- Jointing: Laid with broken joints, well butted up. Do not stretch turf.
- Edges: Whole turfs, trimmed to a true line.
- Adjusting levels: Remove high spots and fill hollows with fine soil.
- Consolidating: Lightly and evenly firm as laying proceeds to ensure full contact with substrate. Do not use rollers.
- Dressing, brushed well in to completely fill all joints: None.
- Watering: Thoroughly water completed turf immediately after laying. Check that water has penetrated into the soil below.

450 TRIMMING TURF

- Newly planted tree pits: Neatly cut away around individual trees.
  - Diameter: 800 mm.
  - Tree pit surface: Respread existing mulch.

PROTECTING/CUTTING

510 PROTECTIVE FENCING

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

530 FIRST CUT OF GRASSED AREAS

- Timing: When grass is reasonably dry.
  - Height of initial growth: 75 mm.
- Preparation:
  - Debris and litter: Remove.
  - Stones and earth clods larger than 25 mm in any dimension: Remove
- Height of first cut: 50 mm.
- Mower type: Contractor's choice.
- Arisings: Remove from site.

590 CLEANLINESS

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

MAINTENANCE

610 FAILURES OF SEEDING/TURFING

- Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
- Defective materials or workmanship: Areas that have failed to thrive.
  - Exclusions: Theft or malicious damage.
- Method of making good: Recultivation and reseeding/ returfing.
- Timing of making good: Submit proposals.

620 MAINTAINING LAWNS

- Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
- Maximum height of growth at any time: 75 mm.
- Preparation: Before each cut remove all litter and debris.
- Cutting: As and when necessary to a height of 35 mm.
  - Arisings: Spread evenly over cut areas.
- Bulb planting areas: Do not cut until bulb foliage has died down.
- Trimming: All edges.
  - Arisings: Remove.
- Weed control: Substantially free of broad leaved weeds.
  - Method: Application of a suitable selective herbicide.
- Stones brought to the surface: Remove regularly.
  - Size: Exceeding 25 mm in any dimension.
- Areas of settlement: Make good.
- Watering: When instructed.

650 MAINTAINING GRASSED AREAS WITH PERENNIAL WILD FLOWERS

- Duration: Carry out the following operations from completion of seeding/ turfing until: the end of the rectification period.
- Preparation: Before each cut remove all litter and debris.
- Height and frequency of cut in first growing season:
  - Time of first cut: Dependant on sowing.
  - Height of first cut: 100 mm.
  - Frequency of subsequent cutting (minimum): Every 6-8 weeks until autumn.
  - Height of growth permitted (maximum): 150 mm.
- Height and frequency of cut in second growing season:
  - Time of cut: Single cut in October.
  - Height of cut: 75 mm.
- Trimming: All edges.
  - Arisings: Remove.
- Watering: When instructed.

Q31
External planting

Q31 External planting

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/ REQUIREMENTS

112 SITE CLEARANCE GENERALLY
- General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
- Stones: Remove those with any dimension exceeding 50 mm.
- Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Vegetation: Clear surface vegetation in areas shown on drawings using suitable nonresidual herbicide.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Additional requirements: none.

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

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

125 TIMES OF YEAR FOR PLANTING
- Deciduous trees and shrubs: Late October to late March.
- Conifers and evergreens: September/ October or April/ May.
- Herbaceous plants (including marginal): September/ October or March/ April.
- Container grown plants: At any time if ground and weather conditions are favourable.
  - Watering and weed control: Provide as necessary.
- Dried bulbs, corms and tubers: September/ October.
- Colchicum (crocus): July/ August.
- Green bulbs: After flowering in spring.
- Wildflower plugs: Late August to mid November or March/ April.
- Aquatic plants: May/ June or September/ October.

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

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

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

160 NOTICE

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

170 SOIL REQUIREMENTS

- Type
  - Planted beds: Planting bed soil system, as section Q28.
  - Tree pits, shrub pits and other backfilling: Plant pit backfilling soil system, as section Q28
  - External container planting: N/A.
  - Mulch applied after planting: Mulching and top dressing system, as section Q28.

200 PLANTS/ TREES - GENERAL

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

215 PLANTS/ TREES - SPECIFICATION CRITERIA

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

216 PLANTS/ TREES - SPECIFICATION CRITERIA

- Name, forms, dimensions and other criteria: To the relevant part of BS 3936.

225 BULBS/ CORMS/ TUBERS

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

235 CONTAINER GROWN PLANTS/ TREES

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

245 LABELLING AND INFORMATION

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

246 LABELLING AND INFORMATION

- Standard: To BS 3936.

255 PLANTS/ TREES RESERVED AT SUPPLIER'S PREMISES

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

260 PLANT/ TREE SUBSTITUTION

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

265 PLANT HANDLING, STORAGE TRANSPORT AND PLANTING

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

280 TREATMENT OF TREE WOUNDS

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

290 SURPLUS MATERIAL

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

PLANT CONTAINERS

292 PREFABRICATED PLANT CONTAINERS

- Manufacturer: The Garden Trellis Co.
  355A Old Road
  Clacton-on-Sea
  Essex
  CO15 3RQ
  t: 01255 688361
  e: info@gardentrellis.co.uk .
  - Product reference: Prestige Contemporary Planter (Bespoke).
- Material: Timber / Western Red Cedar.
- Dimensions/ Shape: 1200mm x 1200mm x 615mm.
- Lining: integral fibre glass lining.
- Accessories: n/a.

PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

400 RANDOM PLANT LAYOUT To native Hedgerow

- Spacing: Random groups of 3-11 plants of the same species..
- Density: As plant schedule.

401 REGULAR PLANT LAYOUT TO ALL BEDS

- Spacing: As per Soft Landscape General Arrangment drawings.
- Density: As plant schedule.

405 SHRUB PLANTING PITS

- Timing: Excavate 1-2 days (maximum) before planting.
- Sizes: Wide enough to accommodate roots when fully spread and 75 mm deeper than root system.
- Pit bottom improvement Not required.

415 ANTIDESICCANT FOR CONIFERS/ EVERGREENS

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

420 CLIMBING PLANTS

- Planting: 150 mm clear of supporting structure (e.g. wall/ fence) with roots spread outward.
  - Branches: Lightly secured to supports.
- Climber supports: Stainless steel wire.
  - Base height: 600 mm above ground.
  - Extent: As drawings.
  - Centres: As drawings
  - Distance from wall: As drawings.
- Fixings: Stainless steel screw eyes.
  - Centres: 1.5 m.

445 PLANTING BULBS/ CORMS/ TUBERS

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

457 PLANTING AQUATIC/ MARGINAL PLANT PLUGS

- Handling: Keep plants watered and in shade until planted. Do not allow to dry out.
- Preparation: Remove coarse weeds etc. from planting sites.
- Planting sites: Pond.
- Waterproofing membrane below soil: Do not puncture.
- Planting: Into a hole to suit plug size and shape. Create a cleft at bottom of hole to improve rooting. Gently firm plant into hole to ensure good root hold into substrate.

461 PLANTING CONTAINERIZED, BAGGED AND WEIGHTED BUNCH AQUATIC PLANTS

- Preparation: Remove coarse weeds, debris, etc.
- Waterproofing membrane below soil: Do not puncture.
- Planting sites: Form level, stepped or gently sloping areas as scheduled and/ or appropriate to planting water depths and container/ bag sizes and shapes.
- Planting: Lower containers/ bags/ bunches gently into place, keeping plants upright.

462 BALLASTING AQUATIC AND MARGINAL PLANTING

- Requirement: Where containers/ bags are not preweighted, cover with sufficient ballast to prevent flotation and keep plants secure against likely maximum water flow.
  - Ballast: Washed gravel, maximum size 10 mm.

470 FORMAL HEDGES

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

471 NATURALIZED HEDGES

- Planting: In trenches large enough to take full spread of roots. Set out plants evenly.

480 AFTER PLANTING

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

PLANTING TREES

505 TREE PITS

- Sizes: As Plant Schedule.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Excavated material: Separate topsoil and subsoil material and stockpile for backfilling.
- Pit bottoms: Excavate with slightly raised centre: Do not disturb base.
  - Treatment: As drawing.
- Pit sides: Scarify.
- Backfilling material: Topsoil, as section Q28.

510A TREE PIT ROOT BARRIERS

- Locations: Wherever the installed rootball will be within 3 m of an existing underground service route.
- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Barrier depth: 1000 mm.
- Foil liner: Not required
- Top of root barrier in relation to finished topsoil level: Flush.
- Installation: With sides vertical. Remove all sharp objects adjacent to barrier.

512 TREE PIT IRRIGATION AND VENTILATION ACCESSORIES

- Locations: To all tree pits .
- Manufacturer: GreenBlue Urban or similar and approved.
  - Product reference: RootRain Metro.
- Type: Submit proposals.
- Pipe diameter: 35 mm.
- Ring diameter: 2500 mm.
- Inlet: Cast aluminium.
- Installation:
  - Pipe: Lay in loop above root ball with slight fall away from inlet pipe. Trim length to ensure a close fit in the tree pit. Connect both ends of pipe securely into plastics tee junction on inlet.
  - Top cap of inlet: Protruding slightly above finished surround level.
  - Backfill material: Carefully compact in layers.

526 UNDERGROUND GUYING FOR trees on podium.

- Manufacturer: Platipus or similar nad approved.
  - Product reference: RFDM1.
- Anchoring system: 3 no dead-man anchors.
- Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

526A UNDERGROUND GUYING FOR trees in open ground.

- Manufacturer: Platipus or similar and approved.
  - Product reference: RootRain Metro.
- Anchoring system: RF1P.
- Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

710 MAINTENANCE

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

720 FAILURES OF PLANTING

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

740 CLEANLINESS

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

750 PLANTING MAINTENANCE GENERALLY

- Weed control: Maintain weed free area around each tree and shrub.
  - Diameter (minimum): The larger of 1 m or the surface of original planting pit.
  - Keep planting beds clear of weeds: By maintaining full thickness of mulch.
- Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
- Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
- Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
- Trees: Spray crown when in leaf during warm weather.
  - Timing: After dusk.
- Tree accessories: Check condition of stakes, ties, guys, guards and irrigation and ventilation systems.
  - Broken or missing items: Replace.
  - Loose stakes: Re-firm in the ground or replace as necessary to provide support to the tree.
  - Loose guys: Re-firm anchor points and adjust as necessary to provide support to the tree.
  - Ties: Adjust to accommodate growth and prevent constriction or abrasion.
  - Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
  - Frequency of checks: At each scheduled maintenance visit.
- Watering: When instructed.

760 PLANTING MAINTENANCE - PRUNING

- General: Prune to promote healthy growth and natural shape.
  - Dead, dying, diseased wood and suckers: Remove.
  - Timing: In accordance with the agreed maintenance schedule.
  - Trees: Favour a single central leading shoot.
- Arisings: Remove.

780 MAINTENANCE INSTRUCTIONS

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

790 FINAL MULCHING

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

Q35
Landscape maintenance

Q35 Landscape maintenance

To be read with Preliminaries/ General conditions.

GENERALLY

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

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

140 CONTROL OF MAMMALIAN PESTS
- Specialist firms: Submit proposals.
  - Method: Submit proposals.

155A WATERING by means of the irrigation system or should this fail or prior to commission
- Supply: Potable mains water.
- Quantity: Wet full depth of topsoil .
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to rootzone.
- Frequency: As necessary for the continued thriving of all planting.

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

175 DISPOSAL OF ARISINGS
- General: Unless specified otherwise, dispose of arisings as follows: remove from site.

180 CHIPPING OR SHREDDING
- General: Not permitted on site.

181 MECHANICAL EQUIPMENT
- General: Minimize.
- Prohibited equipment: Chippers.
- Timing: Use of mechanical equipment allowed between the hours of 10:00 am and 4:00 pm only.

190 LITTER
- Extraneous rubbish not arising from the contract work: Collect and remove from site.

195 PROTECTION OF EXISTING GRASS
- General: Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on grass.

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

GRASSED AREAS

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

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

235 BULBS AND CORMS IN GRASSED AREAS
- Before flowering: Do not cut.
- Interval between end of flowering and start of grass cutting (minimum): 6 weeks.

250 LEAF REMOVAL
- Operations: Collect fallen leaves.
- Special requirements: Remove by hand raking.
- Disposal: Remove from site for recycling.

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

272 MAINTAINING GRASSED AREAS WITH PERENNIAL WILD FLOWERS
- Preparation: Before each cut remove litter and debris.
- Height and frequency of cut in first growing season:
  - Time of first cut: March/ April.
  - Height of first cut: 100 mm .
  - Frequency of subsequent cutting (minimum): Every 6–8 weeks until autumn.
  - Height of growth permitted (maximum): 150 mm.
- Height and frequency of cut in second growing season:
  - Time of cut: Single cut in October.
  - Height of cut: 100 mm.
- Trimming: All edges.
  - Arisings: Remove.
- Watering: When instructed.

320 LEVELLING HOLLOWS AND BUMPS IN TURF
- Standard: To BS 7370-3, clauses 12.4 and 12.5.

380 REINSTATEMENT OF DAMAGED LAWNS

- Damaged turf: Remove to a depth of 30 mm.
- Preparation: Cultivate substrate to a fine tilth.
- Reinstatement: Contractor's choice of returfing or topsoiling and reseeding:
  - Returfing: Quality and appearance to match existing.
  - Reseeding: Fill with fine topsoil to BS 3882 multi purpose class, free from stones, debris and weeds. Reseed with a seed mix to match existing grass in quality and appearance.
- Protection and watering: Provide as necessary to promote successful germination and/ or establishment.

SHRUBS/TREES/HEDGES

500 ESTABLISHMENT OF NEW PLANTING

- Duration: Two full growing seasons from the date of planting.
- Weed control:
  - Method: Keep planting beds clear of weeds by maintaining full thickness of mulch.
  - Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
- Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
- Watering: When instructed.

502 ESTABLISHMENT OF NEW PLANTING - FERTILIZER

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

515 TREE GUY WIRES

- Inspection/ Maintenance times: monthly.
- Operations:
  - Replace or resecure loose or missing guy wires.
  - Adjust to suit stem growth and to provide correct and uniform tension.
- Removal: When instructed.

520 REFIRMING OF TREES AND SHRUBS

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

540A PRUNING GENERALLY TO NEW TREES

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

540B NOTE

- Pruning: existing tree exempt from pruning.
- Removal of dead wood to existing tree only. To be in line with advise from a qualified Arboriculturist and recomendations made within the tree condition report.

545 PRUNING OF EXCESSIVE OVERHANG

- Timing: As instructed.
- Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
- Special requirements: None.

550 PRUNING OF EXCESSIVE HEIGHT

- Timing: As instructed.
  Operations: Remove excessive height As instructed.

575 PRUNING ORNAMENTAL SHRUBS

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

580 PRUNING FLOWERING SPECIES OF SHRUBS AND ROSES

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

605 TRIMMING SLOWLY ESTABLISHING HEDGES

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

620 REMOVAL OF DEAD PLANT MATERIAL

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

625 CLIMBING PLANTS

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

630 DEAD AND DISEASED PLANTS

- Removal: As soon as possible.
- Replacement: In the next scheduled round of replacement planting.

635 REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS

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

640 THINNING BY REMOVAL OF SURPLUS PLANTS

- Plants to be thinned: Shrub beds.
- Standard: BS 7370-4.
- Timing: When foliage of adjacent plants has begun to touch.
- Roots:
  - Disturbance to adjacent plants: Minimise.
  - Soil: Refill holes with topsoil to leave an even graded surface.
  - Mulch: Maintain mulch as original specification.
  - Adjacent plants: Make good any minor damage immediately.
- Plants for retention: Select plants with a strong healthy habit.
- Mature planting density: 4 plants per m².

645 WEED CONTROL GENERALLY

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

650 HAND WEEDING

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

680 SOIL AERATION

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

690 MAINTENANCE OF LOOSE MULCH

- Thickness (minimum): 50 mm.
  - Top up: Annually.
- Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
- Weeding: Remove weeds growing on or in mulch by hand weeding.

695 FERTILIZING ESTABLISHED TREES AND SHRUBS

- Time of year: After flowering.
- Type of fertilizer: Slow release.
- Application: Spread evenly.
  - Rate: As manufacturer's recommendations.

TREE WORK

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

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

820 PREVENTION OF WOUND BLEEDING
- Standard: To BS 3998.

825 PREVENTION OF DISEASE TRANSMISSION
- Standard: To BS 3998.

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

HARD LANDSCAPE AREAS/FENCING

900 SNOW CLEARANCE
- Clearance: When instructed.
- Deicing: To roads and footpaths.
  - Material: Rock salt to BS 3247.
  - Timing: When instructed.
  - Application rate: Spread evenly at a rate of As manufacturer's recommendations.

910 HARD SURFACES AND GRAVEL AREAS

- Herbicide: Apply a suitable foliar acting or residual herbicide. Allow recommended period for herbicide to take effect before clearing arisings.
- Hard surfaces: Remove litter, leaves and other debris.
- Surface gutters and channels: Remove mud, silt and debris.
- Drainage gullies: Empty traps and flush clean.
- Gravel areas: Rake over. Remove weeds, litter, leaves and debris, and level off.
- Repairs to flexible bituminous pavings: In accordance with the original paving specification or BS 7370-2, clause 4.12.
- Stain removal: In accordance with BS 7370-2, table 4.

920 FENCING

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

Q37
Green roofs

Q37 Green roofs

To be read with Preliminaries/General conditions

GENERAL

110 INTENSIVE GREEN ROOF all planting over podium
- Roof type: Cold.
  - Substrate: In situ concrete slab minimum 350 mm thick.
  - Slope: To Structural Engineers Details.
- Waterproofing: To approved Contractors proposals.
- Thermal insulation: n/a.
- Protection: Root barrier.
- Moisture control layers: Drainage layer.
- Growing medium: Topsoil as section Q28.
  - Depth: As per Drawings.
- Vegetation: Planting as section Q31.
- Accessories: None.

110A INTENSIVE GREEN ROOF all seeding over podium
- Roof type: Cold.
  - Substrate: In situ concrete slab minimum 350 mm thick.
  - Slope: To Structural Engineers Details.
- Waterproofing: To approved Contractors proposals.
- Thermal insulation: n/a.
- Protection: Root barrier.
- Moisture control layers: Drainage layer.
- Growing medium: Topsoil as section Q28.
  - Depth: As per Drawings.
- Vegetation: Seeding as section Q30.
- Accessories: None.

130A EXTENSIVE GREEN ROOF Biodiverse roof area
- Roof type: Warm.
  - Substrate: In situ concrete slab .
  - Slope: To Structual Engineers details.
- Waterproofing: To architects Specification.
- Thermal insulation: To Architects Specification .
- Protection: Root barrier.
- Moisture control layers: Drainage layer.
- Growing medium: As shown on drawings.
  - Depth: Achieve 150 - 200mm of substrate with a minimum of 100mm depth.
- Vegetation: Seeding as section Q30.
- Accessories: As drawing DE016.

PERFORMANCE

210 GENERAL DESIGN
- Green roof and associated features: Complete the detailed design.
- Proposals: Submit drawings, technical information, calculations and manufacturers' literature.
- Performance criteria: Planted areas must be fully waterproofed and tested before roof build up is installed. Areas to be irrigated have been identified on drawing 9300-DRG-PE005 .

PRODUCTS

320 ROOT BARRIER To all tree pits and soft landscape areas over podium
- Manufacturer: Alumasc or similar and approved .
  - Product reference: Hydrogard .
- Material: Bitumen sheet with root inhibitor .
  - Thickness: To Manufacturers specification .

330 PROTECTION LAYER Biodiverse roofs over insulatiion
- Manufacturer: Bauder or similar and approved .
  - Product reference: FSM600 Protection Mat .
- Material: Plyproylene fleece .
  - Thickness: 5.0 mm .

350 DRAINAGE LAYER To all Tree pits and planters over podium
- Manufacturer: Alumasc or similar and approved .
  - Product reference: FLORADRAIN 60 .
- Material: ACRYLONITRILE-BUTADIENE STYRENE .
  - Depth: 60 mm .
- Infill: ZINCOLIT .

360 FILTER MEMBRANE To all soft landscape over podium
- Manufacturer: Alumasc or similar and approved .
  - Product reference: FILTER SHEET SF .
- Material: Woven polypropylene fabric .
  - Mass: 100 g/m² .

EXECUTION

710 INSTALLATION GENERALLY
- Preparation: Clear all surfaces of debris.
  - Timing: After certification of waterproof membrane integrity.
  - Surface condition: Visually inspect waterproof membrane, report any damage.
- Faults in waterproof membrane: Report.
- Contamination: Do not use materials detrimental to healthy plant growth.
- Storage: Do not overload.
  - Point loads: Avoid.
- Outlets: Do not block.
  - Outlet grilles: Installed.

720 ADVERSE WEATHER
- Unfinished work: Secure from damage and wind uplift.
- Conditions: Do not install or work with frozen materials.

740 ROOT BARRIER INSTALLATION
- Joints: Minimize.
  - Overlaps (minimum): Manufacturer's recommendation .
- Upstands: Extend to top of growing medium.

750 PROTECTION LAYER INSTALLATION
- Joints: Minimize.
  - Overlaps (minimum): Manufacturer's recommendation .
- Upstands: Extend to top of growing medium.

755 SEPARATION LAYER INSTALLATION
- Joints: Minimize.
  - Overlaps (minimum): Manufacturer's recommendation .
- Upstands: Extend to top of growing medium.

770 DRAINAGE LAYER INSTALLATION
- Extent: Continuous over entire roof area.
- Fitting: Manufacturer's recommendation .
- Upstands: Fit closely around penetrations and outlets.

780 FILTER MEMBRANE INSTALLATION
- Joints: Minimize.
  - Overlaps (minimum): Manufacturer's recommendation .
- Fitting: Manufacturer's recommendation .
- Upstands: Extend to top of growing medium.

790 GROWING MEDIUM INSTALLATION
- Handling: Minimize.
  - Conditions: Handle in the driest condition possible. Do not handle or install when wet or frozen.
- Layers:
  - Depth (maximum): 150 mm.
  - Sequence: Gently firm each layer before spreading the next.

COMPLETION

910 INSPECTION
- Timing: Before handover.
  - Give notice (minimum): 3 days.

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

930 DOCUMENTATION
- Timing: Submit at handover.
- Contents:
  - Growing medium declaration of analysis.
  - Manufacturers' guarantees and warranties.
  - Procedures for maintenance of the green roof.
  - Record drawings showing the location of planting and associated features.
- Number of copies: 3 .

Q40
Fencing

Q40 Fencing

To be read with Preliminaries/ General conditions.

FENCING SYSTEMS

150B GENERAL PATTERN STRAINED WIRE FENCING Boundary Type 16

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS 1722-2, type SS 120.
- Wire: High tensile steel wire, 3.15 mm diameter.
- Posts and struts: Steel angle.
  - Treatment: Hot dip galvanized to BS EN ISO 1461.
  - Finish: Hot dip galvanized to BS EN ISO 1461.
- Maximum centres of posts:
  - Straining posts: 150 m in straight runs and at all ends, corners, changes of direction and acute variations in level.
  - Intermediate posts: 3.5 m.
- Method of setting posts and struts:
  - Straining posts: 450 mm square or 300 mm diameter holes, 600 mm deep filled to two thirds depth with concrete.
  - Struts: 300 x 450 mm holes, 450 mm deep filled to not less than half the depth with concrete.
  - Intermediate posts: Minimum 75 mm surround or 300 mm diameter holes, 600 mm deep filled to not less than half the depth with concrete.
- Accessories: None.
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-2.

310A CLOSE BOARDED FENCING BT4

- Manufacturer: Jackson Fencing or similar and approved.
  - Product reference: Submit proposals.
- Standard: To BS 1722-5, type BW180A.
- Height: 1800 mm.
- Wood: Softwood.
  - Treatment: Manufacturers recommendations.
  - Finish: Manufacturers recommendations.
- Boards/ rails: Softwood feather edged boards on rectangular rails.
- Posts: Wood.
- Centres of posts (maximum): 2.4 m.
- Method of setting posts: 300 mm square or round holes, 750 mm deep filled to not less than half the depth with concrete .
- Accessories:
  - Wood gravel board;
  - Wood panel capping; and
  - Wood post caps.
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-5.

340A STEEL VERTICAL BAR FENCING BT1

- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS 1722-9.
- Height: Refer to 9300-DRG-DE006.
- Verticals: Refer to 9300-DRG-DE006.
- Centres of verticals: 100.
- Posts: Refer to 9300-DRG-DE006.
  - Finish: Refer to 9300-DRG-DE006.
    Colour: Refer to 9300-DRG-DE006.
- Method of setting posts/ stays/ legs: To engineers details.
- Accessories: Single leaf pedestrian gate.
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-9.

560 STEEL GATES AND POSTS

- Manufacturer: Submit proposals.
- Standard:
  - Domestic gates: To BS 4092-1.
  - Steel palisade gates: To BS 1722-12.
- Manufacturer: Submit Proposals.
  - Product reference: Submit proposals.
- Materials and workmanship: As section Z11.
- Finish: Hot dip galvanized to BS EN ISO 1461 and Polyester powder coated, as section Z31.
  - Colour: Black.
- Jointing: Welded.
- Fittings: Two hook and eye adjustable hinges, return spring, cushioned slam plate and a heavy duty automatic latch.
- Finish: Hot dip galvanized to BS EN ISO 1461 and Polyester powder coated, as section Z31, black.
- Method of fixing: Concrete foundation, 450 mm square x 750 mm deep.
- Accessories: Lock.

EXECUTION

710 INSTALLATION GENERALLY

- Set out and erect:
  - Alignment: Straight lines or smoothly flowing curves.
  - Tops of posts: Following profile of the ground.
  - Setting posts: Rigid, plumb and to specified depth, or greater where necessary to ensure adequate support.
  - Fixings: All components securely fixed.

720 SETTING POSTS IN CONCRETE

- Standard: To BS 8500-2.
- Mix: Designated concrete not less than GEN1 or Standard prescribed concrete not less than ST2.
- Alternative mix for small quantities: 50 kg Portland cement to 150 kg fine aggregate to 250 kg 20 mm nominal maximum size coarse aggregate, medium workability.
- Admixtures: Do not use.
- Holes: Excavate neatly and with vertical sides.
- Filling: Position post/ strut and fill hole with concrete to not less than the specified depth, well rammed as filling proceeds and consolidated.
- Backfilling of holes not completely filled with concrete: Excavated material, well rammed and consolidated.

730 EXPOSED CONCRETE FOUNDATIONS
- Filling: Compact until air bubbles cease to appear on the upper surface.
- Finishing: Weathered to shed water and trowelled smooth.

740 SETTING POSTS IN EARTH
- Holes: Excavated neatly, with vertical sides and as small as practicable to allow refilling.
- Filling: Position posts/ struts and replace excavated material, well rammed as filling proceeds.

750 DRIVEN POSTS
- Damage to heads: Minimize.
  - Repair: Neatly finish post tops after installation.

760 NAILED WOOD RAILS
- Length (minimum): Two bays, with joints in adjacent rails staggered.
- Fixing: Nail each length of rail to each post with two 100 mm galvanized nails.
- Rails with split ends: Replace.

766 ARRIS RAILS
- Fixing:
  - Rail end section: Shaped to adequately fill the post mortice or recess.
  - Recessed posts: Rails bolted to each post.
  - Top rails: Fixed at both ends using One 12 mm diameter wooden peg .
- Rails with split ends: Replace.

770 SITE CUTTING OF WOOD
- General: Kept to a minimum.
- Below or near ground level: Cutting prohibited.
- Treatment of surfaces exposed by minor cutting and drilling: Two flood coats of solution recommended for the purpose by main treatment solution manufacturer.

780 MAKING GOOD GALVANIZED SURFACES
- Treatment of minor damage (including on fasteners and fittings): 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.
- Thickness: Apply sufficient material to provide a zinc coating at least equal in thickness to the original layer.

790 SITE PAINTING
- Timing: Prepare surfaces and apply finishes as soon as possible after fixing.

COMPLETION

910 CLEANING
- General: Leave the works in a clean, tidy condition.
- Surfaces: Clean immediately before handover.

920 FIXINGS
- All components: Tighten.
  - Timing: Before handover.

930 GATES
- Hinges, latches and closers: Adjust to provide smooth operation. Lubricate where necessary.
  - Timing: Before handover.

Q50
Site/street furniture/equipment

Q50 Site/street furniture/equipment

To be read with Preliminaries/ General conditions.

GATES, BARRIERS AND PARKING CONTROLS

120 STEEL GATE AND GATE POSTS to match BT1
- Manufacturer: Submit proposals.
  - Product reference: Submit proposals.
- Standard: To BS 4092-1.
- Materials and workmanship: As section Z11.
- Jointing: Welded.
- Finish as delivered: Polyester powder coated, as section Z31.
  - Colour: Black to match boundary type.
- Fittings and accessories: Two hook and band hinges, return spring and heavy duty automatic latch.
- Method of setting posts: Concrete foundation.

196 REMOVABLE BOLLARDS to limit vehicles to cobble walkway between Bay House and Skeel Library
- Manufacturer: Vekso or similar and approved.
  - Product reference: Classic 86 removable.
- Material: Cast iron.
  - Finish as delivered: Polyester powder coated, as section Z31.
  - Colour: RAL 9005 Black.
- Height above ground: 850 mm.
- Sectional size: 150 mm diameter.
- Top: Domed.
- Special features: Lock.
- Method of fixing: Concrete base with manufacturer's standard lockable socket.

SITE AND STREET FURNITURE

210 CYCLE STANDS
- Manufacturer: Marshalls or similar and approved.
  - Product reference: Sheffield Cycle Stand.
- Type: Single stands.
- Material: Stainless steel.
  - Finish: Brushed.
  - Colour: None.
- Accessories: None.
- Method of fixing: Root, 300 mm below ground, set in concrete base.

220 BENCHES In Garden
- Manufacturer: Stuart Garden Architecture or similar and approved.
  - Product reference: HURLINGHAM BENCH.
- Material: Wood.
  - Finish: PLANED AND SANDED.
  - Colour: NATURAL.
- Size: 1.8 X 0.65 X 0.9M.
- Accessories/ Special requirements: None.
- Method of fixing: Two base plates bolted to 400 x 400 x 400 mm concrete bases 100 mm below paving surface.

340 BESPOKE SCULPTURE/ LANDSCAPE ART
- Artist: Lorenzo Quinn.
- Material: Aluminum.
- Approximate weight: TBC.
- Approximate size: 2m x 2m.
- Delivery/ Handling/ Storage requirements: TBC.
- Method of fixing: TBC.

350 NESTING BOXES House Sparrow Nesting Box
- Manufacturer: Schwegler.
  - Product reference: 1B/ 32mm dia.
- Material: wood concrete.
  - Finish: As manufactured.
  - Colour: None.
- Accessories/ Special requirements: Adjustable fixing brackets.
- Method of fixing: Tree-mounted.

350A NESTING SWIFT NESTBOX
- Manufacturer: Schwegler.
  - Product reference: TYPE NO 17.
- Material: wood concrete.
  - Finish: As manufactured.
  - Colour: tba.
- Accessories/ Special requirements: Concealed, vandal proof fixings.
- Method of fixing: Wall-mounted.

350B NESTING BOXES BAT BOX
- Manufacturer: Schwegler.
  - Product reference: 1FF/ 32mm dia.
- Material: wood concrete.
  - Finish: As manufactured.
  - Colour: None.
- Accessories/ Special requirements: Adjustable fixing brackets.
- Method of fixing: Tree-mounted.

350C NESTING BOXES Hedgehog Dome
- Manufacturer: Schwegler.
  - Product reference: Hedgehog Dome.
- Material: wood concrete.
  - Finish: As manufactured.
  - Colour: Brown.
- Accessories/ Special requirements: None.
- Method of fixing: none.

INSTALLATION

510 CONCRETE FOUNDATIONS GENERALLY
- Standard: To BS 8500-2.
- Concrete: To Engineers Specification.
- Admixtures: Do not use.
- Foundation holes: Neat vertical sides.
- Depth of foundations, bedding, haunching: Appropriate to provide adequate support and to receive overlying soft landscape or paving finishes.

515 SETTING COMPONENTS IN CONCRETE

- Holes: Refer to Drawings.
- Components: Accurately positioned and securely supported.
- Concrete fill: Fully compacted as filling proceeds.
- Concrete foundations exposed to view: Compacted until air bubbles cease to appear on the upper surface, then weathered to shed water and trowelled smooth.
- Temporary component support: Maintain undisturbed for minimum 48 hours.

530 PRESERVATIVE TREATED TIMBER

- 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.
- Heavily worked sections: Re-treat.

540 BUILDING IN TO MASONRY WALLS

- Components being built in: Accurately positioned and securely supported. Set in mortar and pointed neatly to match adjacent walling.
- Temporary support: Maintain for 48 hours (minimum) and prevent disturbance.

550 DAMAGE TO GALVANIZED SURFACES

- Minor damage in areas up to 40 mm² (including on fixings and fittings): Make good.
  - 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.
  - Thickness: Sufficient to provide a zinc coating at least equal to the original layer.

560 SITE PAINTING

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

S14
Irrigation

S14 Irrigation

To be read with Preliminaries/ General conditions.

PERFORMANCE

210 DESIGN AND DETAILING
- Requirement: Complete the design of the irrigation system.
- Proposals: Submit drawings (showing equipment positions and pipeline routes), technical information, calculations and manufacturer's literature.
- General: Design the irrigation systems to comply with the relevant parts of BS 7562, BS 8558, BS EN 805, BS EN 806-2, -3 and -5 and BS EN 12484-4, and in accordance with HSE publication 'The control of legionella bacteria in water systems. Approved code of practice and guidance', water supply regulations and the requirements of the water supply undertaker.

220 PIPELINE DESIGN
- Sizes: Calculate to suit probable simultaneous demand for the entire system and to ensure:
  - Flow rates (minimum): Submit proposals.
  - Suitable discharge rates at distribution points.

230 DISCHARGE REQUIREMENTS
- Fitting: Submit proposals .
- Operation of appliances: Provide adequate flow rates from available water pressure.

PRODUCTS

TO SPECIALIST CONTRACTORS DESIGN

EXECUTION

610 INSTALLATION GENERALLY
- Standard: In accordance with the relevant parts of BS 7562-5, BS 8558, BS EN 805, BS EN 806-4 and BS EN 12484-4, water supply regulations and the requirements of the water supply undertaker.
- Generally:
  - Fixing: Secure and neat in locations and depths suitable for the purpose.
  - Outlets and valves: Adequately support to prevent pipes being strained during operation.
  - Open ends of pipes: Temporarily seal with purpose made plugs or blanking caps to prevent ingress of dirt, insects or rodents during installation.
- Equipment, components and accessories:
  - Store in original packaging in dry conditions.
  - Where appropriate, securely fix parallel or perpendicular to the enclosing structure.
- Corrosion resistance: In locations where moisture is present or may occur, provide corrosion resistant fittings/ fixings and avoid contact between dissimilar metals by use of suitable washers, gaskets, etc.
- Performance: Free from leaks and the audible effects of expansion, vibration and water hammer.
- Access: Allow adequate space for inspection, servicing and maintenance.

611 INSTALLATION OF PUMPS

- Pipeline connections: Prevent transmission of pipeline forces to pump casing.
- Pipeline mounted pumps: Support on purpose made brackets lined with vibration absorbent material.
- Alignment: Align and balance to minimize vibration.
- Drive belts: Correctly tensioned.
- Access: Provide adequate space for service and maintenance.
- Identification plate: Engrave showing:
  - Manufacturer's name and address.
  - Serial number.
  - Duty and maximum head.
  - Speed.
  - Electrical loading.

612 PIPELINE INSTALLATION

- Appearance: Install pipes straight, and parallel or perpendicular to walls, floors, ceilings, and other building elements.
- Joints, bends and offsets: Minimize.
- Access: Locate runs to facilitate installation of equipment, accessories and insulation and allow access for maintenance.
- Electrical equipment: Install pipelines 150 mm (minimum) clear of electrical equipment. Do not run pipelines through electrical enclosures or above distribution boards, controllers or outlets.
- Insulation: Allow space around pipelines to fit insulation without compression.
- Drains and vents: Fix pipelines to falls. Fit draining taps at low points and vents at high points.
- Thermal expansion and contraction: Allow for thermal movement of pipelines. Isolate from structure. Prevent noise or abrasion of pipelines caused by movement. Sleeve pipelines passing through walls, floors or other building elements.

COMPLETION

910 TESTING

- Standard: To BS EN 12484-5.
- Notice (minimum): Three days.
- Condition of pipework and equipment prior to testing: Correctly installed, secure and clean.
- Pressure testing: Joints, fittings and components must be free from leaks and signs of physical distress when tested for at least one hour as follows:
  - Systems fed directly from the mains: Apply a test pressure equal to 1.5 times the maximum pressure to which the installation or relevant part is designed to be subjected in operation.
  - Systems fed from storage: Apply a test pressure equal to the pressure produced when the storage cistern is filled to its normal maximum operating level.
- Other test procedures: As recommended by the manufacturer and required by the water undertaker.
- Test results: Submit.

911 INSPECTION TESTING

- Standard: To BS EN 806-4, clause 6.1.

912 FLUSHING AND DISINFECTION

- Standard: To BS EN 806-4, clauses 6.2 and 6.3.

920 COMMISSIONING

- Equipment: Check and adjust operation of equipment and controls.
- Outlets: Check operation of outlets for satisfactory rate of flow.

930 DOCUMENTATION

- Submit prior to completion:
  - Full technical description of each system installed.
  - Manufacturers' operating and maintenance instructions for all equipment and controls.
  - Manufacturers' guarantees and warranties.
  - Operating instructions for the system as a whole giving optimum settings for all controls.
  - Record drawings showing the location of circuits, fittings, pipes, apparatus and operating controls.
  - Electrical inspection and completion certificates to BS 7671.
- Number of copies: Three.

940 OPERATING TOOLS

- Tools: Supply tools for operation, maintenance and cleaning purposes.
- Keys: Supply keys for valves, vents and cabinets.

S15
Fountains and water features

S15 Fountains and water features

To be read with Preliminaries/ General conditions.

PERFORMANCE

200 GENERAL DESIGN

- Design: Complete the design of the water feature.
- Proposals: Submit drawings (showing equipment positions and pipeline routes), technical information, calculations and manufacturers' literature.
- Performance criteria: To design intent 9300-DRG-DE015 .

V91
Electrical systems - landscape

V91 Electrical systems - landscape

To be read with Preliminaries/ General conditions.

GENERAL

115A EXTERNAL LIGHTING SYSTEM Refer to MKP Mechanical and Electrical engineers for details
Refer to 9300-DRG-PE009 for lighting strategy

Z10
Purpose made joinery

Z10 Purpose made joinery

110 FABRICATION

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

120 CROSS SECTION DIMENSIONS OF TIMBER

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

130 PRESERVATIVE TREATED WOOD

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

140 MOISTURE CONTENT

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

250 FINISHING

- Surfaces: Smooth, even and suitable to receive finishes.
  - Arrises: Eased unless shown otherwise on drawings.
- End grain in external components: Sealed with primer or sealer as section M60 and allowed to dry before assembly.

Z11
Purpose made metalwork

Z11 Purpose made metalwork

To be read with Preliminaries/ General conditions.

PRODUCTS

310 MATERIALS GENERALLY

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

FABRICATION

515 FABRICATION GENERALLY

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

520 COLD FORMED WORK

- Profiles: Accurate, with straight arrises.

527 WELDING ..

- Welding procedures:
  - Method and standard: TIG or MIG welding to BS EN 1011-4.
  - Welding Procedure Specification (WPS): Not required.
- Preparation:
  - Joint preparation: Clean thoroughly.
  - Surfaces of materials that will be self-finished and visible in the completed work: protect from weld splatter.
- Jointing:
  - Joints: Fully bond parent and filler metal throughout with no inclusions, holes, porosity or cracks.
  - Dissimilar metals: Welding not permitted.
  - Strength requirements: Welds to achieve design loads.
  - Heat straightening: Obtain approval.
  - Complex assemblies: Agree priority for welding members to minimize distortion caused by subsequent welds.
  - Tack welds: Use only for temporary attachment.
  - Jigs: Provide to support and restrain members during welding.
  - Filler plates: Obtain approval.
  - Lap joints: Minimum 5 x metal thickness or 25 mm, whichever is greater.
  - Weld terminations: Clean and sound.

FINISHING

710 FINISHING WELDED AND BRAZED JOINTS VISIBLE IN COMPLETE WORK

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

745 PREPARATION FOR APPLICATION OF COATINGS

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

780 GALVANIZING

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

Z12
Preservative/ fire retardant treatment

Z12 Preservative/ fire retardant treatment

To be read with Preliminaries/ General conditions.

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

120 COMMODITY SPECIFICATIONS
- Standard: Current edition of the Wood Protection Association (WPA) publication 'Industrial wood preservation specification and practice'.

130 PRESERVATIVE TREATMENT SOLUTION STRENGTHS/ TREATMENT CYCLES
- General: Select to achieve specified service life and to suit treatability of specified wood species.

150 WATER-BASED ORGANIC PRESERVATIVE TREATMENT
- Solution:
  - Manufacturer: Contractor's choice.
    Product reference: Submit proposals.
  - Application: High pressure impregnation.
- Moisture content of wood:
  - At time of treatment: Not more than 28%.
  - After treatment: Timber to be surface dry before use.

180 RECYCLED TIMBER CONTAINING CREOSOTE OR CHROMIUM/ ARSENIC BASED PRESERVATIVE
- Usage: not permitted.

610 MAKING GOOD TO PRESERVATIVE TREATMENT ON SITE
- Preservative solution: Compatible with off-site treatment.
- Application: In accordance with preservative manufacturer's recommendations.

Z20
Fixings and adhesives

Z20 Fixings and adhesives

To be read with Preliminaries/ General conditions.

PRODUCTS

310 FASTENERS GENERALLY
- Materials: To have:
  - Bimetallic corrosion resistance appropriate to items being fixed.
  - Atmospheric corrosion resistance appropriate to fixing location.
- Appearance: Submit samples on request.

320 PACKINGS
- Materials: Noncompressible, corrosion proof.
- Area of packings: Sufficient to transfer loads.

340 MASONRY FIXINGS
- Light duty: Plugs and screws.
- Heavy duty: Expansion anchors or chemical anchors.

350 PLUGS
- Type: Proprietary types to suit substrate, loads to be supported and conditions expected in use.

390 ADHESIVES GENERALLY
- Standards:
  - Hot-setting phenolic and aminoplastic: To BS 1203.
  - Thermosetting wood adhesives: To BS EN 12765.
  - Thermoplastic adhesives: To BS EN 204.

410 POWDER ACTUATED FIXING SYSTEMS
- Types of fastener, accessories and consumables: As recommended by tool manufacturer.

EXECUTION

610 FIXING GENERALLY
- Integrity of supported components: Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
- Components, substrates, fixings and fasteners of dissimilar metals: Isolate with washers/ sleeves to avoid bimetallic corrosion.
- Appearance: Fixings to be in straight lines at regular centres.

620 FIXING THROUGH FINISHES
- Penetration of fasteners and plugs into substrate: To achieve a secure fixing.

630 FIXING PACKINGS
- Function: To take up tolerances and prevent distortion of materials and components.
- Limits: Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.
- Locations: Not within zones to be filled with sealant.

640 FIXING CRAMPS

- Cramp positions: Maximum 150 mm from each end of frame sections and at 600 mm maximum centres.
- Fasteners: Fix cramps to frames with screws of same material as cramps.
- Fixings in masonry work: Fully bed in mortar.

670 PELLETED COUNTERSUNK SCREW FIXING

- Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
- Pellets: Cut from matching timber, match grain and glue in to full depth of hole.
- Finished level of pellets: Flush with surface.

680 PLUGGED COUNTERSUNK SCREW FIXING

- Finished level of countersunk screw heads: Minimum 6 mm below timber surface.
- Plugs: Glue in to full depth of hole.
- Finished level of plugs: Projecting above surface.

690 USING POWDER ACTUATED FIXING SYSTEMS

- Powder actuated fixing tools: To BS 4078-2 and Kitemark certified.
- Operatives: Trained and certified as competent by tool manufacturer.

700 APPLYING ADHESIVES

- Surfaces: Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
- Support and clamping during setting: Provide as necessary. Do not mark surfaces of or distrort components being fixed.
- Finished adhesive joints: Fully bonded. Free of surplus adhesive.

Z21
Mortars

Z21 Mortars

To be read with Preliminaries/ General conditions.

CEMENT GAUGED MORTARS

110 CEMENT GAUGED MORTAR MIXES
- Specification: Proportions and additional requirements for mortar materials are specified elsewhere.

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

131 READY-MIXED LIME:SAND FOR CEMENT GAUGED MASONRY MORTARS
- Standard: To BS EN 998-2.
- Lime: Nonhydraulic to BS EN 459-1.
  - Type: CL 90S.
- Pigments for coloured mortars: To BS EN 12878.

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

160 CEMENTS FOR MORTARS
- Cement: To BS EN 197-1 and CE marked.
  - Types: Portland cement, CEM I.
    Portland limestone cement, CEM II/A-L or CEM II/A-LL.
    Portland slag cement, CEM II/B-S.
    Portland fly ash cement, CEM II/B-V.
  - Strength class: 32.5, 42.5 or 52.5.
- White cement: To BS EN 197-1 and CE marked.
  - Type: Portland cement, CEM I.
  - Strength class: 52.5.
- Sulfate resisting Portland cement:
  - Types: To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
    To BS EN 197-1 fly ash cement, CEM II/B-V and CE marked.
  - Strength class: 32.5, 42.5 or 52.5.
- Masonry cement: To BS EN 413-1 and CE marked.
  - Class: MC 12.5.

180 ADMIXTURES FOR SITE MADE CEMENT GAUGED MORTARS

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

190 RETARDED READY TO USE CEMENT GAUGED MASONRY MORTARS

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

210 MAKING CEMENT GAUGED MORTARS

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

LIME:SAND MORTARS

310 LIME:SAND MORTAR MIXES

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

320 SAND FOR LIME:SAND MASONRY MORTARS

- Type: Sharp, well graded.
  - Quality, sampling and testing: To BS EN 13139.
  - Grading/ Source: As specified elsewhere in relevant mortar mix items.

330 READY PREPARED LIME PUTTY

- Type: Slaked directly from CL 90 quicklime to BS EN 459-1, using an excess of water.
  - Maturation: In pits/ containers that allow excess water to drain away.
  - Density of matured lime putty: 1.3-1.4 kg/litre.
- Maturation period before use (minimum): Seek instructions.

345 ADMIXTURES FOR HYDRAULIC LIME:SAND MORTARS

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

360 MAKING LIME:SAND MORTARS GENERALLY

- Batching: By volume. Use clean and accurate gauge boxes or buckets.
- Mixing: Mix materials thoroughly to uniform consistency, free from lumps.
- Contamination: Prevent intermixing with other materials, including cement.

390 KNOCKING UP NONHYDRAULIC LIME:SAND MORTARS

- Knocking up before and during use: Achieve and maintain a workable consistency by compressing, beating and chopping. Do not add water.
  - Equipment: Roller pan mixer or submit proposals.

400 MAKING HYDRAULIC LIME:SAND MORTARS

- Mixing hydrated hydraulic lime:sand: Follow the lime manufacturer's recommendations for each stage of the mix.
  - Water quantity: Only sufficient to produce a workable mix.
- Working time: Within limits recommended by the hydraulic lime manufacturer.

Z22
Sealants

Z22 Sealants

To be read with Preliminaries/General conditions.

PRODUCTS

310 JOINTS
- Primer, backing strip, bond breaker: Types recommended by sealant manufacturer.

EXECUTION

610 SUITABILITY OF JOINTS
- Presealing checks:
  - Joint dimensions: Within limits specified for the sealant.
  - Substrate quality: Surfaces regular, undamaged and stable.
- Joints not fit to receive sealant: Submit proposals for rectification.

620 PREPARING JOINTS
- Surfaces to which sealant must adhere:
  - Remove temporary coatings, tapes, loosely adhering material, dust, oil, grease, surface water and contaminants that may affect bond.
  - Clean using materials and methods recommended by sealant manufacturer.
- Vulnerable surfaces adjacent to joints: Mask to prevent staining or smearing with primer or sealant.
- Backing strip and/ or bond breaker installation: Insert into joint to correct depth, without stretching or twisting, leaving no gaps.
- Protection: Keep joints clean and protect from damage until sealant is applied.

630 APPLYING SEALANTS
- Substrate: Dry (unless recommended otherwise) and unaffected by frost, ice or snow.
- Environmental conditions: Do not dry or raise temperature of joints by heating.
- Sealant application: Fill joints completely and neatly, ensuring firm adhesion to substrates.
- Sealant profiles:
  - Butt and lap joints: Slightly concave.
  - Fillet joints: Flat or slightly convex.
- Protection: Protect finished joints from contamination or damage until sealant has cured.

Z31
Powder coatings

Z31 Powder coatings

To be read with Preliminaries/ General conditions.

120A POWDER COATING MATERIALS
- Manufacturer: Obtain from one supplier only.
- Selected manufacturer: Submit details before commencement of powder coating including:
  - Name and contact details.
  - Details of accreditation schemes.
  - Technical data of product including current Agrément certificates.

210 WORKING PROCEDURES
- Comply with the follow following standards.
  - Aluminium components: To BS 6496 or BS EN 12206-1.
  - Steel components: To BS EN 13438.
  - Safety standards: To British Coatings Federation 'Code of safe practice - Application of thermosetting powder coatings by electrostatic spraying'.

220 POWDER COATING APPLICATORS
- Applicator requirements:
  - Approved by powder coating manufacturer.
  - Currently certified to BS EN ISO 9001.
  - Comply with quality procedures, guarantee conditions, standards and tests required by powder coating manufacturer.
  - Applicator to use only one plant.
  - Selected applicator: Submit details before commencement of powder coating including: Name and contact details.
    Details of accreditation schemes.

225 GUARANTEES
- Powder coating manufacturer and applicator guarantees:
  - Submit sample copies before commencement of powder coating.
  - Submit signed project specific copies on completion of work.

230 CONTROL SAMPLES
- Sequence: Prior to ordering materials for the works, obtain approval of appearance for:
  - Powder coated samples: Of various grades and forms of background metal to be used, showing any colour, texture and gloss variation.
  - Fabrication samples: Showing joint assembly, how powder coating is affected and how any cut metal edges are finished and protected.
- Samples to include the following information:
  - Product reference.
  - Colour.
  - Reference number.
  - Name.
  - Gloss level.

240 QUALITY ASSURANCE SYSTEM
- Requirement: Powder and coating application to the following designated components is to be tested and approved in accordance with the Qualicoat system.
  - Designated components: all.

250 COMPONENT DESIGN

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

310 PRETREATMENT OF ALUMINIUM COMPONENTS

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

320 PRETREATMENT OF STEEL COMPONENTS

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

430 EXTENT OF POWDER COATINGS

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

435 APPLICATION OF POWDER COATINGS

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

440 PERFORMANCE AND APPEARANCE OF POWDER COATINGS

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

450 ALUMINIUM ALLOY FABRICATIONS

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

460 STEEL FABRICATIONS

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

470 FIXINGS

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

480 DAMAGED COMPONENTS - REPAIR/ REPLACEMENT

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

510 PROTECTION

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

535 DOCUMENTATION

- Submit the following information for each batch of powder coated components:
  - Supplier.
  - Trade name.
  - Colour.
  - Type of powder.
  - Method of application.
  - Batch and reference number.
  - Statutory requirements.
  - Test certificates.
  - Maintenance instructions.

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- Protection: Remove.
- Cleaning and maintenance of powder coatings: Carry out in accordance with procedures detailed in powder coating manufacturer and applicator guarantees.