Document

5.7.2.3

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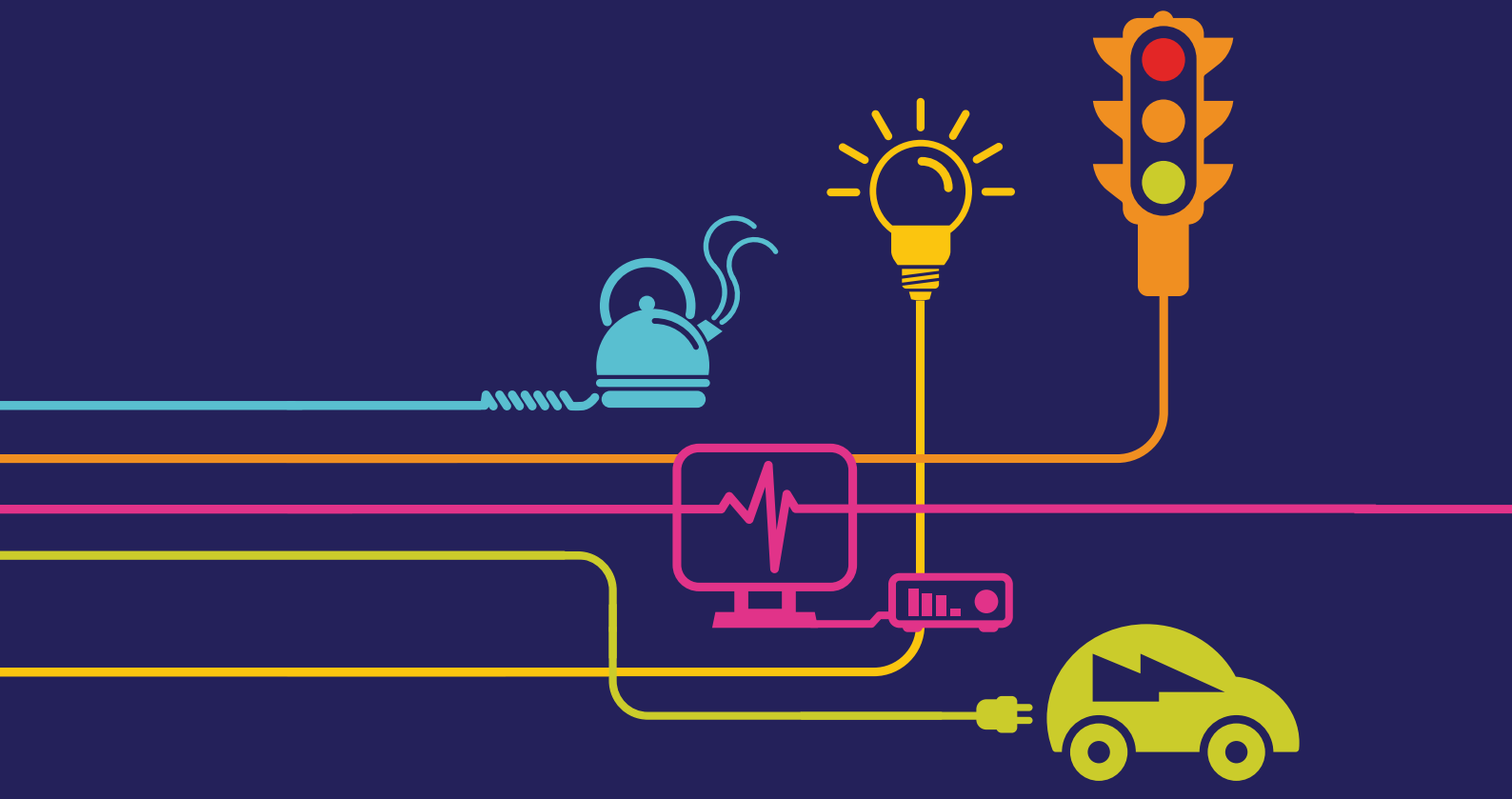
Environmental Statement Visual Effects Appendices 7J to 7K

Hinkley Point C Connection Project

Regulation 5(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



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Environmental Statement

Hinkley Point C Connection Project

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7J	Method for the Production of Verified Photomontages
7K	Landscape Specification for Site-specific Mitigation

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Appendix 7J – Method for the Production of Verified Photomontages

VOLUME 5.7.2, APPENDIX 7J

METHOD FOR THE PRODUCTION OF VERIFIED PHOTOMONTAGES

1. TEP's method for preparing photomontages accords with the guidance contained in the Landscape Institute Advice Note 01/11 (Photography and Photomontage in Landscape and Visual Impact Assessment). Consideration has also been given to guidance included in 'Visual Representations of Windfarms: Good Practice Guidance' prepared for Scottish Natural Heritage (SNH) March 2006. LI Advice Note 01/11 strongly advises (LI) members to follow SNH guidance previously referenced, where applicable in preference to any other guidance or methodology.

2. A photograph from each viewpoint is taken using a 50mm lens on a 21.1-megapixel full frame digital Single Lens Reflex (SLR) camera (Canon EOS 5d Mark II with a 50mm EF 50mm F/1.4 USM lens). A 50mm lens is used as recommended in guidance because this offers an equivalent view to the vision of the human eye and has long been used in comparative and photomontage techniques in environmental assessment.

3. The camera is sited level on a tripod with a panoramic head (Manfrotto 338 Leveling base with Manfrotto 308 Panoramic Head). The camera's position is adjusted so that the nodal point of the lens is on the rotating axis of the panoramic head and also 1.6m above ground level in normal situation. The nodal point of the camera lens is accurately surveyed. Grid co-ordinates and height above ordnance datum (AOD) are recorded. A 'baseline' photograph is taken. A second photograph is taken with a minimum of three specific reference points accurately surveyed. Reference points include surveyor's ranging rods and where possible, existing long distance features in the view which can be surveyed. Reference points are arranged so that one is in the centre of the photograph. The camera remains fixed on the tripod in position for the second photograph so that the only difference is that the reference points are inserted. This is repeated at each viewpoint.

4. From some viewpoints where there is a wide view, 'panorama' baseline photographs are taken by rotating the camera on the tripod (the nodal point of the camera lens is on the rotating axis) to take in a wide expanse of view equivalent to the viewer moving their head when stood still at one place. The rotating angle between adjacent photographs is approximately 20° (about 50% overlap on field of view). This means that each panoramic photograph is constructed using only the centre 50% of each shot with the 25% left and right hand edges being discarded (NB: the far left and right photos only lose 25% edges on one side). Panorama baseline photographs are joined together in Adobe Photoshop, and once joined together are clearly labelled 'panoramic views'.

5. In relation to exposure settings on site, the AV (Aperture-Priority) mode is used. For the greatest depth of view the aperture is set to the minimum available (normally f/16 to f/22, depending on light conditions). If a greater resolution is required a slightly larger aperture of f8 is used.. In some circumstances where the best quality image of the view cannot be achieved using the AV mode, the manual setting is used. Photographs are taken in RAW and high quality JPG formats, and will be further adjusted in Adobe Photoshop to achieve the best quality images.

6. A three-dimensional (3D) model of the proposed development, generally including the proposed landform and landscape proposals, is built in computer aided design

software (CAD) with material finishes being assigned to the proposed development. The camera positions and surveyed reference points are also modelled in CAD. The virtual camera is located at equivalent co-ordinates and height, and with the same 'lens', orientation and settings as used in the photograph at each viewpoint. The 'virtual ranging rods' and/or 'virtual features' (reference points) are set at the same heights and co-ordinates as those used as reference points in the photographs.

7. 'Photographs' of the model are taken or rendered with 'virtual' cameras in the 3D CAD software (3ds Max Design) in positions equivalent to the locations from which the actual photographs were taken at each representative viewpoint. Each photograph view is taken / rendered twice – one with associated reference points and one without).

8. The photograph of the model is compared to the equivalent photograph of the representative viewpoint, with particular emphasis on ensuring the correct alignment of the 'reference points' to align the model correctly in the image. Once the alignment is made using Adobe Photoshop software, the model is 'dropped' into the photograph. The process of using ranging rods to check the appropriate alignment is shown below in Figure 1. This is an image of proposed new buildings and landform. The model being imported shows the building and changed landform in the distance and the 'virtual' ranging rods (black lines) being aligned with the surveyor's ranging rods used on site (red and white poles) in the foreground. The parts of the model that would be behind land, trees, buildings or other structures has been removed, so that only the visible parts of the model remain in Figure 1.

Figure 1 Aligning model in photograph to reference points (surveyor's rods)

9. Once the model is correctly aligned in each reference photograph, the first 'baseline' photograph is used instead of the reference photograph with high confidence that the position of the development is accurately shown.

10. Presentation of photomontages includes a baseline photograph displayed above the relevant photomontage/s for each viewpoint where practicable. Viewpoint OS grid coordinates and viewpoint height above ordnance datum (AOD) are noted on the photomontage figure. Additional information on the photomontage figure (or in the Landscape and Visual Impact Assessment) includes details of the camera, the lens focal length, the horizontal field of view, the date and time when photographs were taken, the orientation of the view, and the distance of the viewpoint from the

site. The correct viewing distance of the photomontage (between 300mm and 500mm between the eye and the photomontage image) is also identified as is the paper size the figure should be printed at. When printing photomontage images, the desired pixels per inch (DPI) is 600. Test prints are produced to ensure the best print quality is achieved within the limitations of the print process.

11. A photograph is a representation of a view and a photomontage shares that limitation. Many people comment that their souvenir or holiday photographs fail to fully convey the experience had at the time they were taken. Baseline photographs are a representation of a view and the photomontages on which they are prepared, regardless of accuracy, share the limitations of the baseline photograph with regard to conveying the overall impression of the final development.

Appendix 7K – Landscape Specification for Site-Specific Mitigation

Hinkley Point C Connection Project

Volume 5.7, Appendix 7K
NBS Landscape Specification for Site-Specific Mitigation

(comprising Bridgwater Tee CSE Compounds, South of Mendip Hills CSE Compound, Sandford Substation, River Axe Cable Bridge and Towerhead Brook Cable Bridge)

March 2014

This Landscape Specification has been produced using National Building Specification Landscape (NBS Landscape) and describes the materials, standards and workmanship expected during construction and implementation of site-specific hard and soft landscape mitigation works proposed as part of the Hinkley Point C Connection Project at site-specific infrastructure comprising:

- *Figures 7.32.1 to 7.32.4: Bridgwater Tee 400kV CSE Compound Landscape Mitigation and Detailed Planting Plans;*
- *Figures 7.33.1 to 7.33.5: South of Mendip Hills 400kV CSE Compound Landscape Mitigation and Detailed Planting Plans;*
- *Figure 7.33.6: River Axe Cable Bridge Option Landscape Mitigation and Detailed Planting Plan;*
- *Figures 7.34.1 to 7.34.5: Sandford 400kV/132kV Substation Landscape Mitigation and Detailed Planting Plans; and*
- *Figure 7.34.6: Towerhead Brook Bridge Landscape Mitigation and Detailed Planting Plan.*

NBS Landscape is a software package used to write concise, technically accurate and up-to-date specifications for hard and soft landscape projects. NBS Landscape is an industry standard specification system that conforms to best practice providing clauses, guidance and product information.

NBS Landscape is a selection of NBS work sections with landscape preliminaries, including those for ICE Minor Works and JCLI Agreement for Landscape Maintenance Works. The product is intended for use on landscape and external works projects.

Section Q of the National Building Specification describes the materials, standards and workmanship expected during construction, implementation and maintenance of paving, planting, fencing and site furniture and the Sections and Clauses relevant to soft hard and landscape works proposed in the Site Specific Mitigation are detailed.

Table of Contents

Q
Paving/Planting/Fencing/Site furniture

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

112 PRECAST CONCRETE KERBS for Sandford Substation Car Park

- Standard: To BS EN 1340.
- Recycled content: Contractor's choice.
- Designations: HB2 Kerb, half battered.
- Size (width x height x length): 125 x 255 x 915 mm.
- Special shapes:
  - Internal radius kerbs;
  - Internal angle HBIA; and
  - External angle HBXA.
- Finish: As cast.
- Colour: Natural.
- Bending strength: as per manfuctured .
- Weathering resistance: as per manfuctured.
- Abrasion resistance: as per manfuctured.
- Slip/ skid resistance: as per manfuctured.
- Bedding: Cement mortar.
- Joints generally: Narrow mortar.
- Sealant movement joints: Not required.
- Accessories: None.

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.

540 CEMENT MORTAR BEDDING

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

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.

630 NARROW MORTAR JOINTS

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

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

140A SURFACING FOR FOOTPATH CYCLE TRACKS

- Subgrade improvement layer: Highways Agency Type 1 unbound mixture (75mm aggregate) as section Q20.
  - Compacted thickness: 150mm.
- Granular sub-base: Highways Agency Type 1 unbound mixture (38mm aggregate) as section Q20.
  - Compacted thickness: 55mm.
- Surface course: Limestone, 3 mm to dust.
  - Thickness: 20 mm.
- Drainage falls: Lay sub-base with 1:40 crossfall or 1:50 central camber.
- Surface of path: 75 mm above existing ground level.
- Completion: Compact to produce a firm, regular surface, stable in use.

160 LOOSE GRAVELSandford Substation Car Park

- Subgrade improvement layer: Highways Agency Type 1 unbound mixture (75mm aggregate), as section Q20.
  - Compacted thickness: 125 mm.
- Granular sub-base: Highways Agency Type 1 unbound mixture (38mm aggregate), as section Q20.
  - Compacted thickness: 75 mm.
- Blinding to sub-base: Required.
- Gravel: Loose laid and raked to uniform thickness.
  - Type: Limestone chippings.
  - Source: Contractor's choice.
  - Colour: White.
  - Size: Graded 8-14 mm.
  - Thickness: 50 mm.

LAYING

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.

Q28
Topsoil, growing media and ameliorants

Q28 Topsoil, growing media and ameliorants

To be read with Preliminaries/ General conditions.

SYSTEM OUTLINE

110 TOPSOIL SYSTEMFOR STRUCTURE PLANTING AREAS IF EXISTING TOPSOIL ON SITE IS DEFFICIENT AND REQUIRES TOPPING UP

- Topsoil: Imported topsoil to BS 3882.
- Ameliorants: None.
- Accessories: None.

PRODUCTS

300 PREPARATION MATERIALS GENERALLY

- Purity: Free of pests, disease, and fungus.
- 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: Peat and Products containing peat.

315 IMPORTED TOPSOIL TO BS 3882

- 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.
  - Grade: 0.6-2 mm.
- Source: Contractor's choice.
  - Product reference: Contractor's choice.

EXECUTION

610 TOPSOIL ANALYSIS

- Soil to be analysed: Imported topsoil.
- Soil analyst: Contractors choice.
- Samples: Collect in accordance with BS 3882.
- Submit:
  - Declaration of analysis:
    - Chemical analysis and contaminants;
    - Maximum stone content, stone size and pH value;
    - pH value and textural classification; and
    - 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 LOADSFOR 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: 5 days.

630 DOCUMENTATION FOR IMPORTED TOPSOILFOR SHRUB 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, Annex E.
- Number of copies: 2.

650 NOTICE

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

655 MECHANICAL TOOLS

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

660 GRADING SUBSOIL

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

665A SUBSOIL SURFACE PREPARATION

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

670 INSPECTING FORMATIONS

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

680 SURPLUS TOPSOIL TO BE RETAINED

- Generally: Spread and level on site:
  - Locations: Any areas where topsoil is required for new planting.

685 SURPLUS MATERIALS TO BE REMOVED

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

690 TOPSOIL STORAGE HEAPS

- Location: Throughout the site.
- Height (maximum): 1.0 m.
- Width (maximum): 2.0 m.
- 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.

695 CULTIVATION

- Compacted topsoil: Break up to full depth.
- Tilth: Loosen, aerate and break up topsoil to a tilth suitable for blade grading.
  - Depth: 150 mm.
  - Particle size (maximum): 2-8 mm.
  - Timing: Within a few days before planting.
  - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: 25 mm above adjoining paving or kerbs and 50 mm above adjoining lawns.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 50 mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

700 GRADING OF TOPSOIL

- Topsoil condition: Reasonably dry and workable.
- Contours: Smooth and flowing, with falls for adequate drainage.
  - Hollows and ridges: Not permitted.
- Finished levels after settlement: 25 mm above adjoining paving, kerbs, manholes etc.
- Blade grading: May be used to adjust topsoil levels provided depth of topsoil is nowhere less than 100 mm.
- Give notice: If required levels cannot be achieved by movement of existing soil.

705 HANDLING TOPSOIL

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

710 SPREADING TOPSOIL

- Temporary roads/ surfacing: Remove before spreading topsoil.
- Layers:
  - Depth (maximum): 150 mm.
  - Gently firm each layer before spreading the next.
- Depths after firming and settlement (minimum): 150 mm for grass areas, 450mm for ornamental planting areas and 800mm for trees.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

720 FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- Above adjoining paving or kerbs: 25 mm.
- Below dpc of adjoining buildings: Not less than 150 mm.
- Shrub areas: Higher than adjoining grass areas by 50 mm.
- Within root spread of existing trees: Unchanged.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: Included.

COMPLETION

905 APPLYING MAINTENANCE FERTILIZER

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

Q30
Seeding/turfing

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.

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

280 FINAL CULTIVATION
- Timing: After grading and fertilizing.
- Seed bed: Reduce to fine, firm tilth with good crumb structure.
  - Depth: 25 mm.
  - Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
  - Remove surface stones/earth clods exceeding:
    General areas: 40 mm.
    Fine lawn areas: 10 mm.
- Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

SEEDING

311 GRASS SEEDFOR ALL GRASSED AREAS
- Supplier: Emorsgate Seeds.
  - Mixture reference: EM18 - St Catherines Mixture (Limestone Grassland).
- Application rate: 16kg per acre.

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

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 June or August to October.

336 WILDFLOWER SOWING SEASON
- Wildflower seed generally: March to May.

PROTECTING/CUTTING

540 FIRST CUT OFWILD FLOWER MEADOWS
- 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: The next suitable planting season.

Q31
External planting

Q31 External planting

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/ REQUIREMENTS

112A 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 scrub to ground level by flail mowing and remove arisings; retain and protect trees.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Additional requirements: Remove remnants of old fence posts and mesh.

118 SOIL CONDITIONS

- Soil for cultivating and planting: Moist, friable and (excepting 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: One week.

165 PREPARATION, PLANTING AND MULCHING MATERIALS

- General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.
- Certification of source, analysis, suitability for purpose and absence of harmful substances: Submit.
  - Certified materials: Submit proposals.

  Give notice before ordering or using.

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: British grown.
  Definition: Origin and Provenance have the meaning given in the National Plant Specification.

215 PLANTS/ TREES - SPECIFICATION CRITERIA

- Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification.

235 CONTAINER GROWN PLANTS/ TREES

- Growing medium: With adequate nutrients for plants to thrive until permanently planted.
- Plants: 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:
  - Country of origin;
  - Potting dates;
  - Propagation method and dates;
  - Pruning dates; and
  - Type of container.

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.

265A PLANT HANDLING, STORAGE TRANSPORT AND PLANTING

- Standard: To HTA 'Handling and establishing landscape plants'.
- Frost: Protect plants from frost.
- Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Plant packaging: Coextruded polyethylene bags with black interior and white exterior.
  - All bare roots plants to be supplied in bags containing and enclosing the whole root system. Transplants should be supplied with shoots and roots fully enclosed in the bag, whereas larger shrubs and trees should have only the root system enclosed. The bag should be coextruded polythene bags with black interior and white exterior with larger trees packaged as follows:
  * 6-8cm and 8-10cm girth trees = 3Nr trees per bag
  - All plants shall be adequately packaged and protected during transportation from source to planting on site. To minimise storage of plant stock, operations are to be arranged so that trees and shrubs are planted immediately after each planting pit is prepared.
- Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
- Storage - Plants and trees to be stored in a secure and protected from site operations and over exposure to adverse weather conditions.
- 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.

PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

300 HERBICIDETO CLEAR OVERGROWN BEDS

- Locations: All planting areas.
- Type: Suitable for supressing perennial weeds.
- Timing: Allow fallow period before cultivation.
  Duration (minimum): As manufacturer's recommendation.

305 WEED CONTROLFOR INVASIVE NON-NATIVE WEEDS

- Locations: All planting areas.
- General: Prevent weeds from seeding and perennial weeds from becoming established, in accordance with the Environment Agency 'Managing Japanese knotweed on development sites. The knotwood code of practice'.

375 CULTIVATION

- Compacted topsoil: Break up to full depth.
- Cultivation: Loosen, aerate and break up soil into particles of 2-8 mm.
  - Depth: 350 mm.
  - Timing: Within a few days before planting.
  - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels:
  - 25 mm above adjoining paving or kerbs;
  - 50 mm above adjoining lawns; and
  - Minimum 150 mm below dpc of adjoining buildings.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 30 mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

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: Permanent ponds.
- 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.

471 NATURALIZED HEDGES

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

472 FENCING SUPPORT FOR NEW HEDGES
- Type: Timber post and general pattern wire mesh.
- Standard: To BS 1722-2.
- Height: 600 mm.
- Timing: Before planting hedge.
- Support: Lightly secure hedge plants to fence wires at appropriate intervals.

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

PLANTING TREES

500 ANTIDESICCANT FOR CONIFERS/ EVERGREENS
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Application: Dip in or thoroughly spray before delivering to site. Spray again soon after planting.
  - Do not apply in wet or frosty weather.
  - Ensure full coverage of underside of foliage.

505 TREE PITS
- Sizes: 75 mm deeper than root system and wide enough to accommodate roots when fully spread.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Pit bottoms: With slightly raised centre. Break up to a depth of 200 mm.
  - Treatment: Soil ameliorant worked into pit bottoms.
- Pit sides: Scarify.
- Backfilling material: Tree backfilling material.
- Accessories: Perforated plastics irrigation/ ventilation pipe.

512A TREE PIT ACCESSORIES IRRIGATION
- Locations: All tree pits.
- Manufacturer: Contractor's choice.
  - Product reference: Submit proposals.
- Type: Perforated plastics irrigation pipe, 50 mm diameter, in circle above and around sides of rootball, with plastics cap.

515 TREE PIT DRAINAGE

- Depth of excavation: Increase from specified size to allow for aggregate layer, with base slightly falling to outlet.
- Aggregate layer: Clean gravel or broken stone, with no fines, graded 40 to 20 mm.
  - Depth: 150 mm.
- Drainage pipes:
  - Type: N/A.
  - Diameter: N/A.
  - Position: Lay around perimeter of pit within aggregate layer.
  - Discharge: N//A.
- Geotextile filter:
  - Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
  - Position: Lay over aggregate before installing tree or backfill.
- Completed pits: Test for free drainage before planting.

525 SEMIMATURE TREES

- Standard: Prepare roots and transplant to BS 4043.
- Backfilling material: As clause 585.
- Support: Short double staking.
- Protection: Not required.

535 STAKING GENERALLY

- Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
  - Preservative treatment: Alkaline Copper Quaternary (ACQ).
- Nails: To BS 1202-1, galvanized, minimum 25 mm long and with 10 mm diameter heads.
- Stake size (minimum): 50 mm diameter.

555 SHORT SINGLE STAKING FORWHIPS AND FEATHERED TREES

- Staking: Position stake close to tree on windward side and drive vertically at least 300 mm into bottom of pit before planting.
  - Backfiling: Consolidate material around stake
- Height of stakes: Cut to approximately 600 mm above ground level.
- Ties: Adjustable ties.
- Tying: Secure tree firmly but not rigidly to stake with at least two ties within 25 mm of top of stake.

575 SHORT DOUBLE STAKING FORHEAVY STANDARD TREES IN SOFT LANDSCAPING

- Staking: Drive stakes vertically at least 300 mm into bottom of pit on either side of tree position before planting.
  - Backfilling: Consolidate material around stakes.
- Height of stakes: Cut to approximately 600 mm above ground level.
- Cross bar: Wood, as stake.
  - Firmly fix on windward side of tree and as close as possible to stem.
- Ties: Adjustable ties.
- Tying: Secure tree firmly but not rigidly to cross bar.

586 TREE BACKFILLING MATERIAL

- Composition: Previously prepared mixture of topsoil excavated from pit and additional topsoil as required.
- Ameliorant/ Conditioner: Sanitized and stabilized compost.
  - Application rate: 1 m^3 per 10 m^3 of topsoil.
- Fertilizer: Organic.

  Application rate: To suit soil report recommendations.

590 MULCHING TREES
- Material: Medium grade bark mulch.
  - Purity: Free of pests, disease, fungus and weeds.
  - Recycled content: None permitted.
- Preparation: Clear all weeds. Water soil thoroughly.
- Coverage: Over an area of 1.2 x.1.2 m with the tree in the centre.
- Finished level of mulch: 50 mm below adjacent grassed or paved areas.

595A TREE PROTECTION FOR SHRUBS
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Type: Spiral.
- Material: Polyethylene.
- Size: 0.6 m high x 150 mm diameter.
- Colour: Transparent.
- Support: Single timber stake.
- General: Ensure that protection methods do not impede natural movement of trees or restrict growth.

595B TREE PROTECTION FOR WHIPS/TREES
- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Type: Spiral.
- Material: Polyethylene.
- Size: 1.2 m high x 50 mm diameter.
- Colour: Transparent.
- Support: Single timber stake.
- General: Ensure that protection methods do not impede natural movement of trees or restrict growth.

WOODLAND/ MATRIX/ BUFFER ZONE PLANTING

600 WOODLAND WORK GENERALLY
- Services: Check for below and above ground services, including land drainage, in the vicinity. Give notice if they may be affected and obtain instructions before proceeding.
- Safety: Comply with Arboriculture and Forestry Advisory Group Safety leaflets.

605 EXISTING VEGETATION/ WEED CLEARANCE
- Surface vegetation clearance: Screef an area one metre diameter around each planting location.
- Arisings: Remove.

615 EXISTING TREES/ SEEDLINGS/ COPPICE SHOOTS
- Existing trees and seedlings: Retain.
- Coppice shoots: Remove all stems and treat with suitable herbicide to prevent regrowth.

625 CULTIVATION
- General: Rotary cultivate to full depth of topsoil.
- Consolidation: Leave for one month.
- Soil within root spread of trees to be retained: Do not plough or cultivate.

635 NOTCH PLANTING IN UNCULTIVATED GROUND
- Notching: Make a vertical 'I', 'L', 'T' or 'H' notch.
  - Depth: To accommodate full depth of roots.
- Planting: Plant tree, close notch with root collar at ground level and firm the soil.

680 SETTING OUT

- Planting density: 1m centres.
- Layout: Random groups of no less than 3 or more than 7 of the same species, ensuring that no three plants are aligned in any one direction.

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

710 MAINTENANCE

- Duration: Carry out the operations in the following clauses from completion of planting until t 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: During the next suitable planting season.

740 CLEANLINESS

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

750 PLANTING MAINTENANCE GENERALLY

- Weed control: Maintain weed free area around each tree and shrub.
  - Diameter (minimum): The larger of 1 m or the surface of original planting pit.
  - Keep planting beds clear of weeds: By use of approved non-residual herbicides.
- Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
- Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
- Staking: Check condition of stakes, ties, guys and guards.
  - Broken or missing items: Replace.
  - Rubbing: Prevent.
  - Ties: Adjust to accommodate growth.
  - Damage to bark: Cut back neatly with sharp knife. Prevent further damage.
  - Frequency of checks: At each scheduled maintenance visit.
- 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.
- Watering: Contractor's choice to maintain and establish.

755 PLANTING MAINTENANCE - FERTILIZER

- Time of year: March or April.
- Fertilizer: Slow release.
  - Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: To manufacturer's recommendations.

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.

770 WOODLAND PLANTING MAINTENANCE

- Watering: Only as necessary to prevent plants wilting.
- Loose plants: Refirm surrounding soil, without compacting.
- Weed control: Cut down and remove weeds prior to setting seed in a 1 m diameter area around each tree.
- Vegetation except trees and coppice shoots to be retained: Cut within the plantation area.
  - Height (maximum): 75 mm.
  - Arisings: Leave between rows.
- Mechanical, chemical or mulching methods of vegetation control: Submit proposals.
- Ditches and drains: Keep clear.
- Watering: Contractor's choice.

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): 75 mm.
- Trees: Remulch.
  Depth (minimum): 75 mm.

Q35
Landscape maintenance

Q35 Landscape maintenance

To be read with Preliminaries/ General conditions.

GENERALLY

105 MAINTENANCE OBJECTIVES
- Location: All landscape areas.
  - Duration: Five years.

  Aims:
  - Enhanced landscape quality;
  - Improved landscape visual amenity;
  - Provide wildlife habitat and increase biodiversity; and
  - To encourage natural woodland regeneration.
- Restrictions: Not applicable.
- Results: As scheduled.

110 NOTICE
- Give notice before:
  - Application of herbicide.
  - Application of fertilizer.
  - Watering.
  - Each site maintenance visit.
- Period of notice: 7 days.

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.

145 CONTROL OF INVASIVE ANIMAL SPECIES
- Specialist firms: Submit proposals.
- Species: European rabbit.
- Location: Whole site.
- Method: Submit proposals.

155 WATERING
- Supply: Potable mains water.
- Quantity: Wet full depth of topsoil .
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to 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.

170 DISPOSAL OF ARISINGS

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

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.

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 six to eight weeks until autumn.
  - Height of growth permitted (maximum): 150 mm.
- Height and frequency of cut in second growing season:
  - Time of cut: October, March and August.
  - Height of cut: 100 mm.
- Trimming: All edges.
  - Arisings: Remove.
- Watering: Contractor's choice.

280 CUTTING SPRING FLOWERING WILD FLOWER MEADOWS

- Times of year/ Frequency of cutting: July, then monthly until October.
- Height of cut: 100 mm.
- Arisings: Remove.

SHRUBS/TREES/HEDGES

500 ESTABLISHMENT OF NEW PLANTING

- Duration: Five years.
- 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: Contractor's choice.

502 ESTABLISHMENT OF NEW PLANTING - FERTILIZER

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

510 TREE STAKES AND TIES

- Inspection/ Maintenance times: As scheduled and immediately after strong winds.
- Stakes:
  - Replace loose, broken or decayed stakes to original specification.
  - If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
- Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.
  - Where chafing has occurred, reposition or replace ties to prevent further chafing.
- Removal of stakes and ties: When instructed.
  Fill stake holes with lightly compacted soil.

520 REFIRMING OF TREES AND SHRUBS

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

525 TREE GUARDS

- Loose or defective guards: Adjust, refix or replace to original specification and to prevent chafing.

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.

630 DEAD AND DISEASED PLANTS

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

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.

655 WEED CUTTING BY HAND OR MACHINE

- Undesirable grass, brambles and herbaceous growth: Cut down cleanly to a maximum height of 50 mm.
- Herbicides: Remove arisings before application.

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

665 WEED CONTROL WITH WINTER HERBICIDE
- Type: Suitable residual soil acting herbicide.
- Time of year: Unless otherwise agreed, complete before end of March.
-

670 WEED CONTROL WITH SUMMER HERBICIDE
- Type: Suitable foliar acting herbicide.
-

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): 75 mm.
  - Top up: Twice per year.
- 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.

710 WOODLAND PLANTING MAINTENANCE
- Watering: In exceptional circumstances to prevent plants dying.
- Loose plants: Refirm surrounding soil, without compacting.
- Vegetation: Except trees and coppice shoots to be retained, cut down to 100 mm above ground level within the plantation area.
  - Arisings: Leave between rows.
- Ditches and drains: Keep clear.

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 as Arboricultural Association Leaflet 'Mature tree management'. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
- Appearance: Leave trees with a well balanced natural appearance.
- Chain saw work: Operatives must hold a Certificate of Competence.
- Tree work: To be carried out by an approved member of the Arboricultural Association.

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

820 PREVENTION OF WOUND BLEEDING
- Standard: To BS 3998, clause 8.

825 PREVENTION OF DISEASE TRANSMISSION

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

830 CLEANING OUT AND DEADWOODING

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

  Climbing plants as schedule.

865 BARK DAMAGE

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

870 CAVITIES IN TREES

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

920 FENCING

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

Q40
Fencing

Q40 Fencing

To be read with Preliminaries/ General conditions.

FENCING SYSTEMS

140 GENERAL PATTERN WIRE MESH FENCING

- Manufacturer: Contractor's choice.
  - Product reference: Submit proposals.
- Standard: To BS 1722-2.
- Height: 1000 mm.
- Mesh: Hexagonal, 31 x 900 x 18 to BS EN10223-2.
- Posts and struts: Round wood.
  - Treatment: Alkaline Copper Quaternary (ACQ).
  - Finish: Contractor's choice.
- 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: Driven to a minimum depth of 600 mm.
- Accessories: None.
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-2.

140A GENERAL PATTERN WIRE MESH FENCING - RABBIT PROOF FENCING

- Manufacturer: Contractor's choice.
  - Product reference: Submit proposals.
- Standard: To BS 1722-2.
- Height: 1000 mm.
- Mesh: Hexagonal, 31 x 900 x 18 to BS EN10223-2.
- Posts and struts: Round wood.
  - Treatment: Alkaline Copper Quaternary (ACQ).
  - Finish: Contractor's choice.
- 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: Driven to a minimum depth of 600 mm.
- Accessories: Single leaf field gate.
- Conformity: Submit manufacturer's and installer's certificates, to BS 1722-2.

210A WOODEN POST AND 4 RAIL FENCING

- Manufacturer: Contractor's choice.
  - Product reference: Contractor's choice.
- Standard: To BS 1722-7, type SPR 13/4.
- Height: 1300 mm.
- Wood: Contractor's choice.
  - Treatment: Alkaline Copper Quaternary (ACQ).
  - Finish: None.
- Maximum centres of posts: 1.8 m.
- Method of setting posts: 300 mm square or round 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 1722-7.

510 FIELD GATES AND POSTS

- Manufacturer: Contractor's choice
  - Product reference: Contractor's choice.

  Standard: To BS 3470.
- Size: 1100 mm high x 3600 mm wide.
- Materials: Steel gate and wood posts.
  - Treatment: Hot dip galvanized to BS EN ISO 1461.
  - Finish: None.
- Fittings: Two adjustable hook and band hinges, hasp and staple and padlock.
  - Finish: Hot dip galvanized to BS EN ISO 1461.
- Method of setting posts: Concrete foundation, 450 mm square x 600 mm deep.
- Accessories: None.

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.

750 DRIVEN POSTS

- Damage to heads: Minimize.

  Repair: Neatly finish post tops after installation.

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.

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.

Q41
Barriers/ guardrails

Q41 Barriers/ guardrails

To be read with Preliminaries/ General conditions.

TYPES OF BARRIERS/ GUARDRAILS

115 MOTORCYCLE BARRIER
- Manufacturer: K Barriers.
  - Product reference: Standard K Barrier.
- Material: Steel, galvanized to BS EN ISO 1461 after fabrication.
- Finish: None.
- Fixings/ Foundations: Tamper-proof fixings.

INSTALLATION

410 WORK ON OR ADJACENT TO HIGHWAYS
- Requirement: Comply with the Department for Transport's 'Safety at street works and road works. A code of practice'. Retain a copy of this document on site at all times during the course of the works.

420 ALIGNMENT
- Erection: Fences/ barriers to present a flowing alignment. Tops of posts to follow ground profile.
- Tolerance: ±30 mm of prescribed alignment and, within any 10 m length, ±15 mm from the straight or required radius.

430 ERECTION GENERALLY
- Protection: Coat all internal and external surfaces of aluminium and steel posts below and up to 150 mm above ground level, with two coats of bituminous paint to BS 6949 type 2, unless other applied surface finish is specified.
- Prevention of electrolytic corrosion: Isolate dissimilar metals.
- Steel components: Do not drill, cut or weld after galvanizing.

480 CONCRETE FOUNDATIONS FOR POSTS
- Excavations: To have vertical sides. Dispose of all arisings. Blind excavation bottoms with a 50 mm layer of concrete.
- Concrete mix: To BS 8500-2, Designated mix not less than GEN 4 or Standard mix not less than ST5. Do not use admixtures.
- Placing concrete: Fill holes to the specified depth and fully compact. Do not backfill for at least four days.
- Temporary support to posts: Provide for a at least four days after placing concrete.

490 DAMAGE REPAIR TO GALVANIZED SURFACES
- Areas of repair: Minor damage, including fixings and fittings.
  - Total area of repair not to exceed 0.5% of total surface area.
  - Each area not to exceed 1000 mm².
- Renovation: Use low melting point zinc alloy repair rods or powders or at least two coats of zinc-rich paint to BS 4652.