

**CUNNANE STRATTON REYNOLDS**

Proposed Strategic House Development Lahardane, Ballyvolane, Co Cork

**Landscape Works Specification**  
**PLANNING STAGE**

**DATE: NOVEMBER 2019**

**Copley Hall, Cotter's St, Cork**  
**Tel: 021- 4969224**  
**Email: [info@csrlandplan.ie](mailto:info@csrlandplan.ie)**  
**Web: [www.csrlanplan.ie](http://www.csrlanplan.ie)**

# **Table of Contents**

**1.0. GENERAL**

**2.0. SITE CLEARANCE**

**3.0 LANDSCAPING AND PLANTING**

**4.0 MAINTENANCE**

## **APPENDICES**

**A FERTILIZERS, HERBICIDES AND MULCHES**

## 1.0 GENERAL

- 1.1. The Contractor is deemed to have visited and inspected the site and surroundings and to have satisfied himself/herself on all matters relating to the nature and extent of the proposed works and contract requirements before tendering.
- 1.2. The Contractor shall, if required, furnish the Employer's Representative with satisfactory evidence that materials are of the origin and quality specified and shall provide samples for approval and for testing by the Employer's Representative who shall have power to reject all materials, which do not correspond with approved samples. All lorries or trucks calibrated to convey soil and sand, ballast, clinker etc. to or from the site shall carry only that amount calibrated there on.
- 1.3. The Contractor shall appoint a Project Supervisor Design Stage (PSCS) and prepare and maintain a health and safety file for the duration of the contract in accordance with the Safety, Health and Welfare at Work: Construction Regulations 2013.
- 1.4. The Contractor shall keep an accurate record of delays due to adverse weather, including description of the weather, type(s) of work affected and number of hours lost. The Contractor shall use all reasonable and suitable aids and methods to prevent or minimise delays during adverse weather conditions.
- 1.5. Where and to the extent that materials, products and workmanship are not fully detailed or specified they are to be of a standard appropriate to The Works and suitable for the functions stated in or reasonably to be inferred from the project documents, and in accordance with relevant good practice.
- 1.6. Materials and workmanship shall comply with current British Standards (BS) and EN standards. For products specified to a British or European Standard obtain certificates of compliance from manufacturers when requested. Do not use materials containing concentrations of toxins, pathogens or other extraneous substances, harmful to plant, animal or human life, unless otherwise approved.
- 1.7. This Specification is to be read in conjunction with all drawings and accompanying documentation and appendices.
- 1.8. Products to be new unless otherwise specified.

Where a different choice of manufacturer or source is allowed for any particular product, the whole quantity required must be of the same type, manufacture and/or source unless otherwise approved. The Contractor shall produce written evidence of sources of supply when requested and submit approval for the products within the first 6 weeks post the award of contract or by a date otherwise agreed with the Employer's Representative.

  - Ensure that the whole quantity of each product required is of consistent kind, size, quality and overall appearance.
  - Where consistency of appearance is desirable ensure consistency of supply from the same source. Do not use different colour batches where they can be seen together.
  - If products are prone to deterioration or have a limited shelf life, order in suitable quantities to a programme and use in appropriate sequence. Do not use if there are any signs of deterioration, setting or other unsatisfactory condition.
- 1.9. Handle, store, prepare and use or fix each proprietary product in accordance with its manufacturer's current printed or written recommendations. Inform the Employer's Representative if these conflict with any other specified requirement. Submit copies when requested.
- 1.10. The tender will be deemed to be based on the products specified and recommendations on their use given in the manufacturers' literature current at the date of tender. For play equipment where British Board of Agreement certified products are used or references to RoSPA, comply with the limitations, recommendations and requirements of the relevant valid certificates.
- 1.11. If the specified product has been withdrawn by the manufacturer or fundamentally changed, particularly in relation to its use in the work, notify the Employer's Representative immediately.
- 1.12. The Contractor shall check all documentation and the products themselves to ensure compliance with the contract documents or approved alternative. Where different types of any product are specified, check to ensure that the correct type is being used in each location. In particular, check that:

- The sources, types, qualities, finishes and colours are correct, and match any approved samples.
  - All accessories and fixings which should be supplied with the products have been supplied.
  - Sizes are correct. Where tolerances are critical, measure a sufficient quantity to ensure compliance.
  - The delivered quantities are correct, to ensure that shortages do not cause delays in the work.
  - The products are clean, undamaged and in good condition. Products which have a limited shelf life are not out of date.
- 1.13. The Contractor shall protect products and materials from over-stressing, distortion and other damage will on site and after installation up to Substantial Completion.
- Keep clean and free from contamination.
  - Prevent staining, chipping, scratching or other disfigurement, particularly of products exposed to view in the finished work.
  - Keep dry to prevent premature setting, moisture movement and similar defects. Where appropriate store off the ground and allow free air movement between stored products.
  - Prevent excessively high or low temperatures and rapid changes of temperature in the products.
  - Protect adequately from rain, damp, frost, sun and other elements as appropriate. Ensure that products are at a suitable temperature and moisture content at time of use.
  - Ensure that storage sheds and covers are of ample size, in good weatherproof condition and well secured.
  - Keep different types and grades of products separately and adequately identified.
  - Keep products in their original wrappings, packings or containers until immediately before they are used. Wherever possible retain protective wrappings after fixing and until shortly before Substantial Completion, Ensure that protective measures are fully compatible with and not prejudicial to the products/materials.
- 1.14. The Contractor's operatives must be appropriately skilled and experienced for the works involved.
- 1.15. Details of all chemicals used shall be submitted to the Employer's Representative prior to its use. Inspection or any other action by the Engineer, Landscape Architect, Architect or Employer's Representative must not be taken as approval of products or work unless the Employer's Representative so confirms in writing in direct terms referring to:
- Date of inspection
  - Part of the work inspected
  - Respects or characteristics which are approved
  - Extent and purpose of the approval
  - Any associated conditions.
- 1.16. Pesticides shall be used only where specified or approved, and then only suitable products as permitted under legislation or Government regulations. Where work is near water, drainage ditches or land drains, comply with the Department of Agriculture, Food and Marine guidelines for the use of herbicides on weeds in or near water courses and lakes. Discovery of any noxious or contaminating weeds, not previously identified, should be reported to the Employer's Representative immediately. When applying herbicide:
- Observe all precautions recommended by the manufacturer and remove containers from site immediately they have been emptied or are no longer required.
  - Operatives must hold a suitable training for the use of chemicals (as defined by the HSA), or work under the supervision of a suitable training person.
- 1.17. The Contractor shall take all necessary precautions to prevent nuisance from smoke, dust, rubbish, vermin and other causes. Burning of materials arising from the work is not permitted on site. The Contractor shall adequately maintain roads and footpaths within and adjacent to the site and keep surfaces and gullies clear of mud and debris. Any damage to roads and footpaths caused by site traffic or otherwise consequent upon the Works must be made good to the satisfaction of the Local Authority or other owner. The Contractor shall bear any costs arising.
- 1.18. The Contractor shall remove rubbish, debris, surplus material and spoil regularly and keep the site and works clean and tidy.
- Ensure that non-hazardous material is disposed of at a tip approved by the waste regulation authorities.
  - Remove all surplus hazardous materials and their containers regularly for disposal off site in a safe and competent manner as approved by the waste regulation authorities and in accordance with relevant regulations. Ensure relevant licenses are obtained by The Contractor or Sub-Contractor and retain waste transfer documentation on site.

- 1.19. The Contractor shall provide adequate temporary protection to the whole of his work and shall include temporary coverings and all other measures for protecting the work from damage. Any work damaged by weather, traffic or other causes due to inadequate temporary protection shall be removed and made good at the cost of the Contractor. Temporary fencing shall comply with the relevant specifications for items to be protected, whether it is services, trees, people or structures.
- 1.20. The Contractor shall prevent damage to existing buildings, fences, gates, walls, roads, paved areas and other site features which are to remain in position during the execution of the Works.
- 1.21. Prevent trespass of work people. Take all reasonable precautions to prevent damage to adjoining property. Obtain permission as necessary from the owners if requiring to gain access to or use adjoining property, and pay all charges. Clear away and make good on completion or when directed. Bear the cost of repairing any damage arising from execution of the Work.
- 1.22. Tools, plant and equipment shall be used in such a way as to avoid damaging or despoiling any structures, road surfaces, drains, grassed areas, fencing, trees, fuel lines, oil, gas, electricity, telephone and water services. Any such damage shall be made good and restored to the satisfaction of the Employer's Representative at the expense of the Contractor.
- 1.23. Where the Employer is to take possession of any section or part of the Works, such section or part will, after its substantial completion, be able to function separately from the adequate functioning of the remaining Works located elsewhere on the site, and shall be of a finish to allow for suitable public access over the area.

During the execution of the remainder of the Works, ensure that completed Sections or parts of the Works have continuous and adequate provision of services, safe access and egress.

- 1.24. The Contractor shall provide for all site accommodation and all materials/equipment required to undertake the Works. Equipment may include mobile canteens, w.c.'s, hired plant, vehicle/trailers for transporting plant material, steel containers for secure overnight storage of plants and fencing material. Location of such is to be submitted as part of the tender.
- 1.25. The Contractor shall provide electricity and all equipment for lighting and power for the Works and make temporary arrangements for distributing about the site.
- 1.26. The Contractor will be responsible for providing a sufficient supply of clean fresh water for the execution of the Works. Obtain Employer's Representative approval before using a supply other than potable mains water.
- 1.27. If the water supply is or is likely to be restricted by emergency legislation, inform the Employer's Representative without delay and ascertain the availability and additional cost of water from alternative sources.

#### 1.28. Site Clearance

All rubbish, debris and foreign matter shall be collected and removed off site to a tip by the Contractor. Excavation shall include any material other than bedrock. All excavation is to allow for depositing off site to a tip by the Contractor. The Contractor shall report to the Employer's Representative if they find any contaminants or noxious substances, which are listed under the EPA's directive.

Where replacing / resurfacing existing surfaces and laying temporary surfaces, excavate as required to receive construction materials, remove any soft spots prior to back filling with foundations of crushed stone (NRA spec., clause 804 or as indicated on the drawings) in 150mm compacted layers up to proposed levels. Where required, a vibration platter or roller is to be used in accordance with the engineer's specifications. Existing footpaths, paths, tracks, plinths and kerbs to be removed, where indicated, are to be broken out to be removed and deposited to tip off site. Care should be taken to ensure adequate growing substrate is provided where planting is to occur in areas in-fill.

#### 1.29. Site Fence

The site and works shall be enclosed by a robust unclimbable site fence, 2.5m high, at all times, which shall be erected at site possession, maintained throughout the contract period and removed on handover of the works. Existing fencing/ walls can be used where appropriate. The Contractor shall submit details of the proposed site fence construction and alignment for approval.

1.30. Site Investigation Works

Where required, the Contractor shall dig site investigation pits as directed by the Employer's Representative. The Contractor shall notify all service authorities and adjacent owners of the proposed works not less than 10 days before commencing site operations. Before starting work check positions of existing services using record drawings, radio-detection devices and site observation.

Take precautions, record locations and follow each service authority's recommendations for work adjacent to existing services. Do not interfere with their operation without consent of the service authorities or other owners. If any services are damaged as a result of the Works, immediately notify the Employer's Representative and the appropriate service authority. Make arrangements for making good without delay to the satisfaction of the service authority or other owner as appropriate.

Replace marker tapes or protective covers disturbed by site operations to the service authority's recommendations.

1.31. The Contractor shall backfill pits as directed by the Employer's Representative or in accordance with the works as per the contract documents.

1.32. Setting out, formation levels & earthworks

A setting out drawing will be provided as part of the construction drawings. Check the levels and dimensions of the site against those shown on the drawing, and record the results on a copy of the drawings. Notify the Employer's Representative in writing of any discrepancies and obtain instructions before proceeding. The Contractor shall be responsible for setting out all areas to the satisfaction of the Employer's Representative. All discrepancies should be raised prior to undertaking the Works.

1.33. Appearance and Fit:

Arrange the setting out, erection, juxtaposition of components and application of finishes to ensure satisfactory fit at junctions. No practically or visually unacceptable changes in plane, line or level shall occur and a true, regular finished appearance is required.

Wherever satisfactory accuracy, fit and/or appearance of the work are likely to be critical or difficult to achieve obtain approval of proposals or of the appearance of the relevant aspects of the partially finished work as early as possible.

## 2.0 SITE CLEARANCE

### 2.1. Demolition

#### 2.1.1. SURVEY AND WORKS METHODOLOGY:

- Scope: Before starting work, review existing survey reports provided with that on site and report any discrepancies along with a method statement covering the following:
  - Form, condition and details of the structures, site and surrounding area.
    - Extent: indicated on drawings and agreed with Employer's Representative.
  - Condition and demolition methods and sequences for the structures.
  - Removal methods of hazardous materials.
  - Form, location and removal methods of materials for reuse or recycling.
  - Type and location of adjoining or surrounding premises which may be adversely affected by the Works.
  - Method if features of historical, archaeological, geological or ecological importance are found during excavation.
  - Identification, location, disconnection and removal of services.
  - Arrangements for protection of personnel and the public.
  - Arrangements for control of site transport and traffic.
  - Special requirements: N/A

#### 2.1.2. EXTENT OF DEMOLITION/ EARTHWORKS

- General: Subject to retention requirements specified elsewhere, reduce earth mounds and indicated structures down to all areas where new works are to occur

#### 2.1.3. BENCH MARKS

- Give notice when benchmarks are located. Do not remove or destroy benchmarks.

#### 2.1.4. LOCATION OF SERVICES

- Services affected by the Works: Locate and mark positions.
- Mains services: Arrange with the appropriate authorities for locating and marking positions.

#### 2.1.5. DISCONNECTION OF SERVICES

- Responsibility: Before starting demolition arrange with the appropriate authorities and the Employer's Representative for disconnection of services where required and removal of fittings and equipment. Do not start demolition until required disconnections are completed.

#### 2.1.6. DRAINS IN USE

- General: Protect drains and fittings still in use and keep free of debris.
- Damage: Make good damage arising from demolition work. Leave clean and in working order at completion.

#### 2.1.7. BYPASS CONNECTIONS

- General: Provide as necessary to maintain continuity of services to occupied areas of the same and adjoining properties.
- Notice: Give adequate notice to occupiers if shutdown is necessary.

#### 2.1.8. SERVICES WHICH ARE TO REMAIN

- Give notice and notify the service authority or owner of damage arising from Works executed.
- Repairs: Complete to the satisfaction of service authority or owner.

#### 2.1.9. WORKMANSHIP

- Standard: Demolish structures in accordance with BS 6187.
- Operatives: Appropriately skilled and experienced for the type of work. Holding or in training for relevant HSA Ticket of Competence.
- Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of demolition to be used.

#### 2.1.10. SITE HAZARDS

- Precautions: Prevent fire or explosion caused by gas or vapour.
- Dust: Reduce by periodically spraying with an appropriate wetting agent.
- Site operatives and general public: Protect from vibration, dangerous fumes and dust arising during the course of the Works.

#### 2.1.11. ADJOINING PROPERTY

- Temporary support and protection: Provide at each stage.
- Damage: Prevent. Promptly repair. Leave no unnecessary or unstable projections.
- Support to foundations: Do not disturb.
- Defects: Report when defects exposed or becoming apparent.

#### 2.1.12. STRUCTURES TO BE RETAINED

- Parts which are to be kept in place: Protect.
- Extent of work: Cut away and strip out the minimum necessary.

#### 2.1.13. PARTLY DEMOLISHED STRUCTURES

- General: Leave partly in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Keep safe outside working hours.
- Debris: Prevent from overloading scaffolding platforms.
- Unauthorized persons: Prevent access.

#### 2.1.14. DANGEROUS OPENINGS

- General: Illuminate and protect as necessary.

#### 2.1.15. UNFORESEEN HAZARDS

- Unrecorded voids, tanks, chemicals, etc discovered during demolition: Give notice.
- Method for safe removal: Submit proposals.

#### 2.1.16. SITE LEVELS AT COMPLETION

- Levels: Ensure site levels tie in with levels on adjoining sites adjacent areas.

#### 2.1.17. RECYCLED MATERIALS

- Materials arising from demolition work: May be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification.

### **2.2. Excavating and filling**

#### 2.2.1. SITE INVESTIGATION REPORT

- Review existing reports provided and submitted method statement.

#### 2.2.2. VARIATIONS IN GROUND WATER LEVEL

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

#### 2.2.3. EXISTING SERVICES/ FEATURES/ STRUCTURES

- Services: Use site probing devices to identify location and services drawings provided.
- Site features to be retained: see drawings or seek confirmation.
- Structures: see drawings or seek confirmation.

### **2.3. CLEARANCE/EXCAVATING**

#### 2.3.1. TREE ROOTS

- Protected area: Do not cut roots within an area which is the larger of:
  - The branch spread of the tree.
  - An area with a radius of half the tree's height, measured from the trunk.
- Excavation in protected area:
  - By using a small digger and by hand under supervision of the arboriculturist.
  - 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: submit details.
- Backfill: with topsoil.

### 2.3.2. SITE CLEARANCE

- Timing: Before topsoil stripping, if any.
- General: Clear site of rubbish, debris and vegetation. Do not compact topsoil.

### 2.3.3. REMOVING SMALL TREES, SHRUBS, HEDGES AND ROOTS

- Identification: Clearly mark trees to be removed.
- Small trees, shrubs and hedges: Remove all in the areas indicated on marked drawing.
- Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas
- Safety: Comply with HSA/ Arboriculture and Forestry Advisory Group Safety Guides.

### 2.3.4. FELLING LARGE TREES

- Definition: Girth over 600 mm.
- Identification: Clearly mark trees to be removed.
- Safety: Comply with HSA/ Arboriculture and Forestry Advisory Group Safety Guides.
- Felling: As close to the ground as possible.
- Stumps: grind remove.
- Work near retained trees: Take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained, where tree canopies overlap and in confined spaces generally.

### 2.3.5. CHIPPING AND SHREDDING

- General: for all woody debris removed, such as shrubs, shrub and trees.

### 2.3.6. 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 depth specified on drawings.
  - Give notice where the depth of topsoil is difficult to determine.
- Handling: Handle topsoil for reuse or sale in accordance with BS 3882.
- Around trees: Do not remove topsoil from below the spread of trees to be retained.

### 2.3.7. TREATING TOPSOIL

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

### 2.3.8. HANDLING TOPSOIL

- Aggressive weeds:
  - Species: Included in the Weeds Act, and as per list determined by the Department of Agriculture, Food and Marine through Teagasc.
  - Give notice: Obtain instructions before moving topsoil.
- Earthmoving equipment: Select and use to minimize disturbance, trafficking and compaction.
- Contamination: Do not mix topsoil with:
  - Subsoil, stone, hardcore, rubbish or material from demolition work.
  - Oil, fuel, cement or other substances harmful to plant growth.
  - Other grades of topsoil.
- Multiple handling: Keep to a minimum. Use 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 as defined by BS3882, Annex N2.

### 2.3.9. HANDLING SUBSOIL

- Definition: Subsoil to be as defined in BS8601 Specification for subsoil and requirements for use & BS3882 Specification for topsoil
- Excavated material: Stockpile in temporary storage heaps.
- Retained material: Spread and level surplus subsoil on site. Fill for areas planted to be of subsoil.
  - Locations of stockpile: to be agreed.
  - Protected areas: Do not raise soil level within root spread of trees that are to be retained.
- Remaining material: Remove from site.

### 2.3.10. ADJACENT EXCAVATIONS

- Proximity: Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto must be completed before the higher excavation is made.
- Angle of line from horizontal: 45 degrees or use trench supports.

#### 2.3.11. PERMISSIBLE DEVIATIONS FROM FORMATION LEVELS

- Beneath mass concrete foundations:  $\pm 25$  mm.
- Embankments and cuttings:  $\pm 50$  mm.
- Ground abutting external walls:  $\pm 50$  mm, but such as to ensure that finished level is not less than 150 mm below dpc.

#### 2.3.12. INSPECTING FORMATIONS

- Give notice: Make advance arrangements for inspection of formations 5 days before inspection.
- Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels, and remove loose material.
- Seal: Within 4 hours of inspection, seal formations with approved material.

#### 2.3.13. UNSTABLE GROUND

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

#### 2.3.14. RECORDED FEATURES

- Recorded foundations, beds, drains, manholes, etc: Ensure undisturbed.
- Contaminated earth: Remove and disinfect as required by local authority.

#### 2.3.15. UNRECORDED FEATURES

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

#### 2.3.16. EXISTING WATERCOURSES

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

#### 2.3.17. UNDERGROUND STRUCTURES IN LANDSCAPE AREAS

- Generally: Remove walls, roads, foundations, disused services, drains, manholes and the like to minimum depth, unless marked for retention.
- Minimum depth below finished levels:
  - Grass, ground cover and perennial planting: 500 mm.
  - Shrub planting: 750 mm.
  - Within 2m of tree planting: 1000 mm.
- Walls and slabs remaining: In every 10m<sup>2</sup> of wall or slab, make a drainage hole at least 600 mm diameter.

## **2.4. DISPOSAL OF MATERIALS**

### **2.4.1. EXCAVATED TOPSOIL STORAGE**

- Storage: to on site stockpiles.

### **2.4.2. TOPSOIL STORAGE HEAPS**

- Location: to areas agreed with the Employer's Representative.
- Size (maximum): 1.5m high and 3m wide.
- 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.
  - Do not raise soil level within root spread of trees that are to be retained.

### **2.4.3. TOPSOIL STORAGE HEAP TREATMENT**

- Treatment: with a herbicide to control noxious weeds during construction period, and spray off 14 days before spreading topsoil.

### **2.4.4. SUBSOIL STORAGE HEAPS**

- Excavated material: Stockpile in temporary storage heaps.
- Retained material: Spread and level surplus subsoil on site.
  - Size of heap: 2.5m high and 5m wide.
  - Locations: to be agreed with Employer's Representative.
  - Protected areas: Do not raise soil level within root spread of trees that are to be retained.
- Remaining material: Remove from site.

### **2.4.5. WATER**

- Generally: Keep all excavations free from water until:
  - Formations are covered.
  - Below ground construction are completed.
  - Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
- Drainage: Form surfaces of excavations and fill to provide adequate falls.
- Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

### **2.4.6. GROUND WATER LEVEL/ RUNNING WATER**

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

### 3.0 LANDSCAPING AND PLANTING

#### 3.1. Topsoil and growing media

##### 3.1.1. PRELIMINARY REQUIREMENTS:

- Submit programme before execution of works.
- Samples: All samples or changes to products to be submitted within 2 weeks of the commencement of the contract.

##### 3.1.2. WORKMANSHIP

- Standard: All works are to be carried out in accordance with BS 4428 and of a consistence supplied/ applied in accordance with BS 3882.
- Operatives: Contractor should have the appropriately skills and experiences for the type of work, having appropriate training and be a competent landscape Contractor with ALCI accreditation or equivalent.
- Site staff responsible for supervision and control of work: minimum 10 years' experience. The assessment of risks involved and methods of demolition to be used.

##### 3.1.3. GRADING SUBSOIL

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

##### 3.1.4. SUBSOIL SURFACE PREPARATION

- General: Excavate and/ or place fill to required profiles and levels..
- Loosening disturbed/compacted ground prior to spreading of topsoil:
  - Light and noncohesive 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 if below subsoil level. If below topsoil level, break up to 500mm depth.
- Stones: Immediately before spreading topsoil, remove stones larger than 50 mm. Remove Arisings, contaminants and debris and Builders rubble.

##### 3.1.5. INSPECTING FORMATIONS

Give notice: Before spreading topsoil for lawn areas and planting beds. Notice period of 5 days.

##### 3.1.6. PREPARATION OF UNDISTURBED TOPSOIL

- Standard: In accordance with BS 4428.
  - Grading and cultivation: To suit cultivation operations specified.
- Hard ground: Break up thoroughly.
- Clearing: Remove visible roots and large stones with a diameter greater than 50mm.
- Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil – minimum depth 450mm.
- Fallow period (minimum): 2 weeks.

Weed control: At appropriate times treat with a suitable translocated nonresidual herbicide.

##### 3.1.7. SURPLUS TOPSOIL TO BE REMOVED

Generally: Remove from site topsoil remaining after completion of all landscaping work to designated CCC site less than 20km from the Site.

##### 3.1.8. 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.
- Grade: sandy loam.
- Source: to be approved.
- Submit: Declaration of analysis including information detailing each of the relevant parameters given in BS 3882, clause 6 and table 2.
- Additional analyses: N/A.

### 3.1.9. COMPOST

- Standard: In accordance with PAS 100.
- Supplier: Submit proposals.
- Product reference: To be agreed.
- Type: Sanitized and stabilized compost.
- Horticultural parameters:
- pH (1:5 water extract): 5.5 – 6.5.
- Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
- Moisture content (m/m of fresh weight): 35-55%.
- Organic matter (minimum): 25%.
- Grading (air dried samples): 99% passing 25 mm screen, and 90% a 10 mm screen mesh aperture.
- Carbon:Nitrogen ratio (maximum): 20:1.
- Texture: Friable.
- Objectionable odour: None.
- Composting Association certification: Required.
- Submit: Declaration of analysis.
- Additional analyses: Not required.
- Samples: Supply 5 kg sample before ordering.
- Application rate: For 6-8cm, 12-14cm, 14-16cm, 18-20cm & 20-25cm girth trees refer to tree pit details, 1L for transplants/whips and for groundcovers and shrubs spread 100mm layer of compost on the bed prior to thoroughly rotovating to 300mm depth. Ensure that the contract administrator is given the opportunity to inspect the planting beds prior to rotovating.
- Timing: Apply prior to cultivation.
- Location: shrubs, hedgerows and trees.

### 3.1.10. CONTAMINATION

- General: 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, do not use subsoil contaminated with the above materials.
- Give notice: If any evidence or symptoms of soil contamination are discovered on the site, or in topsoil to be imported.

### 3.1.11. HANDLING TOPSOIL

- Aggressive weeds: Give notice and obtain instructions before moving topsoil.
- Machinery: Select and use type 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.

### 3.1.12. 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): 300 mm.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

### 3.1.13. SPECIFIC TOPSOIL/GROWING MEDIUM REQUIREMENTS

- Semi-Mature & Standard Trees – Refer to tree pit detailed drawings.
- Woodland Planting Areas – 300mm depth.
- Hedges – Minimum 400mm depth X 700mm wide topsoil.
- Shrub planting and groundcover areas – 400mm depth of topsoil.
- Grass/Lawn Areas – Minimum 150mm depth

#### 3.1.14. FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- Below adjoining paving or kerbs:
  - For grass seeded areas – flush.
  - For planting beds –50mm below.
- Within root spread of existing trees: Unchanged.
- Adjoining soil areas: Marry in.

#### 3.1.15. DOCUMENTATION

- Timing: Submit at handover.
- Contents:
  - Full description of all soil components.
  - Record of source for all soil components.
  - Analyst's report for each test carried out.
  - Record drawings showing the location and depth of all soils by type and grade.
  - Supplier's declaration of compliance with BS 3882.
  - Number of copies: 3.

## **3.2. SEEDING/TURFING**

### **3.2.1. GENERAL INFORMATION/REQUIREMENTS**

#### **3.2.1.1. PRELIMINARY REQUIREMENTS:**

- Submit programme before execution of works.
- Samples: All samples or changes to products to be submitted within 2 weeks of the commencement of the works or within reasonable time to allow for changes to be made prior to practical completion.

#### **3.2.1.2. WORKMANSHIP**

- Standard: All works are to be carried out in accordance with BS 4428: 1989 and BS3936: 1998.
- Operatives: Contractor should have the appropriately skills and experiences for the type of work, having appropriate training and be a competent landscape Contractor with ALCI accreditation or equivalent.
- Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of demolition to be used.

#### **3.2.1.3. 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.

#### **3.2.1.4. CLIMATIC CONDITIONS**

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

#### **3.2.1.5. 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.

#### **3.2.1.6. 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.

#### **3.2.1.7. NOTICE**

- Give notice before:
  - Setting out.
  - Applying herbicide.
  - Applying fertilizer.
  - Preparing seed bed.
  - Seeding or turfing.
  - Visiting site during maintenance period.
  - Period of notice: 5 working days for setting out, all others 2 working days.

#### **3.2.1.8. SETTING OUT**

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

### **3.2.2. PREPARATION**

#### **3.2.2.1. PREPARATION MATERIALS**

- General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

#### **3.2.2.2. HERBICIDE FOR ALL AREAS**

- Type: glyphosate or other equivalent for suppressing perennial weeds.
- Timing: Allow 2 week fallow period before cultivation.
- Duration: As manufacturer's recommendation.
- Product: submit details.

### 3.2.2.3. SOIL AMELIORANT/CONDITIONER

- Type: Alginure Granulate 'S'
- Reference/ Description/ Grading: see drawings.
- Samples: n/a
- Application rate: see drawings.
- Timing: Apply prior to cultivation.
- Product: Submit details.

### 3.2.2.4. PEAT

Peat or products containing peat: Do not use.

### 3.2.2.5. CULTIVATION - GENERAL

- Compacted topsoil: Break up to full depth.
- Soil ameliorant/ Conditioner/ Fertilizer: Fully incorporate into topsoil to a depth of 150mm.
- Tilth: Reduce topsoil to a tilth suitable for blade grading:
  - Depth: 50mm.
  - Particle size (maximum): 30mm.
- Material brought to the surface: Remove stones and clay balls larger than 30 mm in any dimension, roots, tufts of grass, rubbish and debris.

### 3.2.2.6. GRADING

- Topsoil condition: Reasonably dry and workable.
- Contours: Smooth and flowing, with falls for adequate drainage.
- Hollows and ridges: Not permitted.
- Finished levels after settlement: level with adjoining paving, kerbs, manholes etc.
- Blade grading: May be used to adjust topsoil levels provided depth of topsoil is nowhere less than 150mm.
- Give notice: If required levels cannot be achieved by movement of existing soil.

### 3.2.2.7. FERTILIZER FOR ALL PLANTING AREAS

- Type: 9:7:7 NRK slow release granules, or ratio suitable for the time of year when seeding.
- Manufacturer: submit details.
- Product reference: submit details.
- Application: Before final cultivation and three to five days before planting.
- Rate: Spread evenly at 100 gms/sq.m or suitable for product and time of year when planting.

### 3.2.2.8. FERTILIZER FOR ALL GRASSED AREAS

- Types: Apply both:
  - Superphosphate with a minimum of 18% water soluble phosphoric acid.
  - A sulfate of ammonia with a minimum of 20% nitrogen.
- Application: Before final cultivation and 3 to 5 days before seeding/turfing.
- Coverage: Spread evenly, each type at 70g/m<sup>2</sup>, in transverse directions.

### 3.2.2.9. FINAL CULTIVATION

- Timing: After grading and fertilizing.
- Seed bed: Reduce to fine, firm tilth with good crumb structure.
  - Depth: 50mm.
  - Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
  - Remove surface stones/earth clods exceeding:
    - General areas: 30mm.
    - Fine lawn areas: 10mm (play space area only).
- Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

### **3.2.3. SEEDING**

#### **3.2.3.1. GRASS SEED**

- Mixture: 35% Chewings fescue, 35% Slender red fescue, 20% Smooth stalked meadow grass, 10% Brown top bent.
- Application rate: 35 g/m<sup>2</sup>.

#### **3.2.3.2. QUALITY OF SEED**

- 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.

#### **3.2.3.3. SOWING**

- General: Establish good seed contact with the root zone.
- Method: by hand or by petrol drive machine. If to be by Hydraulic submit method statement. .
  - Distribution: to rate specified.

#### **3.2.3.4. GRASS SOWING SEASON**

- Grass seed generally: Optimum dates April or November. Outside March – May and October - December months seeding mixes to be adjusted accordingly.

#### **3.2.3.5. MEADOW GRASS SOWING SEASON**

- Meadow seed generally: April or September

#### **3.2.3.6. PRE-EMERGENT HERBICIDE, to general amenity grassed areas only.**

- Standard: Pesticide Safety Directorate approved.
- Application rate: In accordance with manufacturer's written recommendation.
  - Timing: Immediately after sowing.

### **3.2.4. PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS OF GRASSED AREAS PRE-SUBSTANTIAL COMPLETION**

#### **3.2.4.1. MAINTENANCE**

Duration: Carry out the operations in the following clauses from completion of planting until substantial completion.

#### **3.2.4.2. FAILURES OF SEEDING/ TURFING**

- Defective materials or workmanship: Areas that have failed to thrive.
  - Exclusions: Theft or malicious damage.
- Method of making good: Recultivation and reseeded/ returfing.
  - Timing of making good: The next suitable planting season.

#### **3.2.4.3. MAINTAINING AMENITY GRASSED AREAS**

- 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.

#### 3.2.4.4. MEADOW GRASSED AREAS

- Preparation: Before each cut remove all litter and debris.
- Height and frequency of cut in first growing season:
  - Time of first cut: April, July/August or September.
  - Height of first cut: 150mm.
  - Frequency of subsequent cutting (min.): 1 in 1<sup>st</sup> year. Mown strip along cycle paths 5 cuts /per year.
  - Height of growth permitted (maximum): N/A.
- Height and frequency of cut in second growing season:
  - Time of cut: Year: Year 2 = 2 cuts in spring and autumn. For mown strip along cycle paths 5 cuts per year.
  - Height of cut: 150mm.
- Bulb planting areas: Do not cut until bulb foliage has died down.
- Trimming: All edges.
  - Arisings: Remove.
- Watering: N/A.
- Other: See suppliers specifications included in the appendix of this document.

### 3.3. EXTERNAL PLANTING

#### 3.3.1. GENERAL INFORMATION/ REQUIREMENTS

##### 3.3.1.1. 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.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Additional requirements: Remove remnants of old furniture and CCTV.

##### 3.3.1.2. 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.

##### 3.3.1.3. CLIMATIC CONDITIONS

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

##### 3.3.1.4. TIMES OF YEAR FOR PLANTING

- Deciduous trees and shrubs: November to late March.
- Conifers and evergreens: November to late March.
- 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.
- Green bulbs: After flowering in spring.
- Wildflower plugs: Late August to mid-November or March/ April.

##### 3.3.1.5. MECHANICAL TOOLS

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

##### 3.3.1.6. 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.

### 3.3.1.7. 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.

### 3.3.1.8. 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: 5 working days for setting out, all others 2 working days.

### 3.3.1.9. 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.
- Give notice: before ordering or using.

## 3.3.2. PLANTS/ TREES

### 3.3.2.1. 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: Irish seed provenance where feasible. Origin and Provenance have the meaning given in the National Plant Specification.

### 3.3.2.2. PLANTS/ TREES - SPECIFICATION CRITERIA

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

### 3.3.2.3. 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.

### 3.3.2.4. 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.

#### 3.3.2.5. 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: All ash tree must be supplied with relevant passports and Dept. Agriculture, Food and Marine (DAFM) inspection cert.

#### 3.3.2.6. PLANT/ TREE SUBSTITUTION

- For 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.

#### 3.3.2.7. PLANT HANDLING, STORAGE TRANSPORT AND PLANTING

- Standard: To The Horticultural Trade Association (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: 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.

#### 3.3.2.8. 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.

#### 3.3.2.9. PROTECTION OF EXISTING GRASS

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

#### 3.3.2.10. SURPLUS MATERIAL

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

### 3.3.3. PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

#### 3.3.3.1. HERBICIDE TO CLEAR OVERGROWN BEDS

- Locations: All planting areas.
- Type: Suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
  - Duration (minimum): 2 weeks.

#### 3.3.3.2. PEAT

Peat or products containing peat: Do not use.

### 3.3.3.3. COMPOST

All planted areas: hedges, shrub and groundcover areas, ornamental grass and herbaceous / bedding areas, including feature shrubs and trees within planted areas.

- Locations: All planting areas.
- Type: Sanitized and stabilized compost.
- Manufacturer/ Supplier and product reference: Contractor's choice.
- Standard: To PAS 100.
- Horticulture parameters:
  - pH (1:5 water extract): 5.5-6.5.
  - 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.
- Composting Association certification: Required.
- Application: Spread evenly.
  - Timing: Apply prior to cultivation.
  - Rate: 50mm thick layer.
- Other requirements: Submit 5kg sample before ordering.

### 3.3.3.4. FERTILIZER FOR SHRUBS, HEDEROWS AND TREES

- Type: 10:8:4 NRK slow release granules.
- Manufacturer: submit details.
  - Product reference: contractor's choice.
- Application: cultivated into topsoil before planting or during planting.
  - Rate: Spread evenly at rate indicated on the drawings.

### 3.3.3.5. ANTIDESICCANT FOR CONIFERS/ EVERGREENS

- Manufacturer: Contractor's choice.
  - 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.

### 3.3.3.6. CULTIVATION

All planted areas: hedges, shrub and groundcover areas, ornamental grass and herbaceous / bedding areas, including feature shrubs and trees within planted areas.

- Compacted topsoil: Break up to full depth.
- Cultivation: Loosen, aerate and break up soil into particles of 2-8 mm.
  - Depth: as specified on drawings.
  - Timing: Within a few days before planting.
  - Weather and ground conditions: Suitably dry.
- Surface: Leave regular and even.
- Levels: 50mm above below paving or kerbs.
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 30mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.
- As part of the cultivation process incorporate applied 50mm compost layer, as specified above, thoroughly into cultivated depth.
- Excavation of planting beds to required depth of 400mm, clearance of all debris and the moving of approved topsoil from site stockpile and filling of beds to be undertaken by main contractor.

## 3.3.4. PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

### 3.3.4.1. PLANT LAYOUT AND SPACING TO ALL BEDS

- As indicated on Drawings

#### 3.3.4.2. 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: See drawing details.
- Backfilling material: Reuse excavated material.

#### 3.3.4.3. CLIMBING PLANTS USED AS GROUND COVER

- Planting:
  - Canes or other supports: Remove.
  - Arrangement: Spread stems.
  - Fixing: Pinned to ground to ensure good contact.

#### 3.3.4.4. 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.

#### 3.3.4.5. HEDGES

- Shrubs for hedges: Consistent in species, cultivar and clone to ensure a uniform hedge.
- Planting: In trenches 600mm wide X 400mm deep to take full spread of roots. Set out plants evenly.
- Form: Min. 5-7 breaks no higher than 100mm from base.

#### 3.3.4.6. 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.

#### 3.3.4.7. MULCHING PLANTING BEDS

- Material: Medium grade bark mulch.
  - Purity: Free of pests, disease, fungus and weeds.
- Preparation: Clear all weeds. Water soil thoroughly.
- Coverage: 75 mm depth.
- Finished level of mulch: 25 mm below adjacent grassed or paved areas.

### 3.3.5. PLANTING TREES

#### 3.3.5.1. TREE PITS

- Sizes: As drawings

#### 3.3.5.2. TREE PIT ROOT BARRIERS

- Locations: As per drawing plan & details.
- Manufacturer: Contractor's choice.  
Product reference: Contractor's choice.

#### 3.3.5.3. TREE PIT ACCESSORIES

- Locations: All trees.
- 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.

#### 3.3.5.4. 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: 200 mm.

- Drainage pipes:
  - Type: Perforated plastics.
  - Diameter: 80 mm.
  - Position: Lay around perimeter of pit within aggregate layer.
  - Discharge: Connect to road gully as drawing.
- Geotextile filter:
  - Manufacturer: Contractor's choice.
  - Product reference: Submit proposals.
  - Position: Lay over aggregate before installing tree or backfill.
  - Completed pits: Test for free drainage before planting.

#### 3.3.5.5. SEMI-MATURE TREES

- Standard: Prepare roots and transplant to BS 4043.
- Backfilling material: As clause 585.
- Support: double stake as per drawing detail.
- Protection: Wrap trunks with willow protection and leave on for at least two summers.

#### 3.3.5.6. STAKING GENERALLY

- Stakes: Round softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
  - Preservative treatment: Not required.
- Nails: To BS 1202-1, galvanized, minimum 25mm long and with 10 mm diameter heads.
  - Stake size (minimum): 80mm diameter.

#### 3.3.5.7. LONG SINGLE STAKING FOR ALL TREES except CONIFERS

- Staking: Drive stakes vertically at least 500mm into bottom of pit on either side of tree position before planting.
  - Backfilling: Consolidate material around stakes.
- Height of stakes: Cut off just below lowest branch of tree or 1.2m above ground.
- 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.

#### 3.3.5.8. TRIPLE DOUBLE STAKING FOR CONIFERS

- Staking: Drive stakes vertically at least 500 mm into bottom of pit on either side of tree position before planting.
  - Backfilling: Consolidate material around stakes.
- Height of stakes: Cut to approximately 400-600mm above ground level, suitable so it does not interfere with canopy.
- Ties: Adjustable ties.
- Tying: Secure tree firmly but not rigidly to cross bar.

#### 3.3.5.9. TIES

- Type: Adjustable with buckle and rubber stopper, to allowing for growth and to prevent chaffing.
- Material: Recycle rubber or polycarbonate.
- Durability: To be fit for purpose for min. 3 year.
- Product: Contractors choice.

#### 3.3.5.10. MULCHING TREES

- Material: Medium grade bark mulch.
  - Purity: Free of pests, disease, fungus and weeds.
- Preparation: Clear all weeds. Water soil thoroughly.
- Coverage: As indicated on drawing details.

### 3.3.6. EXISTING TREES/WOODLAND WORKS

#### 3.3.6.1. TREE WORK GENERALLY

- See Appendix for report prepared by Arborist for works required.
- Identification: Before starting work clarify which trees, shrubs and hedges are to be removed or pruned.

- Protection: 2m min. height secure fencing in accordance with BS 3998.
- Standards: All tree works are to be carried out under the BS 3998 and SHWW: Construction regulations.
- 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.
- Reports: Submit Method Statement.

#### 3.3.6.2. PREVENTION OF WOUND BLEEDING

- Standard: To BS 3998, clause 8.

#### 3.3.6.3. PREVENTION OF DISEASE TRANSMISSION

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

### **3.3.7. PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS OF PLANTING PRE- SUBSTANTIAL COMPLETION**

#### 3.3.7.1. MAINTENANCE

Duration: Carry out the operations in the following clauses from completion of planting until substantial completion.

#### 3.3.7.2. 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.

#### 3.3.7.3. 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.

#### 3.3.7.4. 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 suitable 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: When instructed.

#### 3.3.7.5. PLANTING MAINTENANCE – FERTILIZER

- Time of year: March or April.
- Fertilizer: Slow release.
  - Manufacturer: Contractor's choice.

- Product reference: Submit proposals.
- Application: Evenly spread, carefully incorporating below mulch materials.
  - Application rate: To manufacturer's recommendations.

#### 3.3.7.6. PLANTING MAINTENANCE – PRUNING

- General: Prune to promote healthy growth and natural shape.
  - Dead, dying, diseased wood and suckers: Remove.
  - Timing: As appropriate to the species.
  - Trees: Favour a single central leading shoot.
  - Arisings: Remove.

#### 3.3.7.7. 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 a schedule of any ongoing maintenance problems experienced during the defects liability period.

#### 3.3.7.8. 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.

## 4.0 LANDSCAPE MAINTENANCE

### 4.1. GENERALLY

#### 4.1.1. PRELIMINARY REQUIREMENTS:

- Submit programme before execution of works.
- Period: for soft landscaping 12 months and for hard landscaping 12 months after substantial completion.

#### 4.1.2. WORKMANSHIP

- Standard: All works are to be carried out in accordance with BS 4428: 1989, BS 7370-4:1993 and BS7370-1:1991.
- Operatives: Contractor should have the appropriately skills and experiences for the type of work, having appropriate training and be a competent landscape Contractor with ALCI accreditation or equivalent.
- Site staff responsible for supervision and control of work: Experienced in the assessment of risks involved and methods of demolition to be used.

#### 4.1.3. MAINTENANCE OBJECTIVES

- Location: To all areas indicated on the drawings.  
Duration: for the length of the defects period.
- Aims: To ensure the good establishment of planting and grass.
- Restrictions: Working in the facility of a public space, requiring specific control measure.
- Results: A well-established planting area with plants in a healthy and vigorous growing condition and no more than 10% failures.

#### 4.1.4. NOTICE

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

#### 4.1.5. REINSTATEMENT

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

#### 4.1.6. WATERING

- Supply: Potable mains water.
- Quantity: Wet to field capacity.
- 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.

#### 4.1.7. 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.

#### 4.1.8. DISPOSAL OF ARISING

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

#### 4.1.9. CHIPPING OR SHREDDING

General: Not permitted on site.

#### 4.1.10. MECHANICAL EQUIPMENT

- General: Minimize.
- Prohibited equipment: N/A.
- Timing: to be agreed.

#### 4.1.11. LITTER

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

#### 4.1.12. CLEANLINESS

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

### 4.2. GRASSED AREAS

#### 4.2.1. 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.

#### 4.2.2. MAINTENANCE OF GRASSED AREAS

- Standard: To BS 7370-3. Carry out maintenance appropriate to each category of turf, as follows:
  - Objectives: To BS 7370-3, table 6.
  - Programme: To BS 7370-3, clause 11.
  - Mowing methods: To BS 7370-3, table 3.

#### 4.2.3. 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.

#### 4.2.4. TREE STEMS

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

#### 4.2.5. LEAF REMOVAL

- Operations: Collect fallen leaves.
- Disposal: Remove from site for recycling.

#### 4.2.6. MAINTAINING PERENNIAL WILDFLOWERS AND MEADOWS

- Preparation: Before each cut remove all litter and debris.
- Height and frequency of cut in first growing season:
  - Time of first cut: April, July/August or September.
  - Height of first cut: 150mm.
  - Frequency of subsequent cutting (minimum): 1 in 1<sup>st</sup> year, for mown strip along cycle paths 5 cuts per year.
  - Height of growth permitted (maximum): N/A.
- Height and frequency of cut in second growing season:
  - Time of cut: Year: Year 2 = 2 cuts in spring and autumn. For mown strip along cycle paths 5 cuts per year.
  - Height of cut: 150mm.
- Trimming: All edges.
  - Arisings: Remove.

- 4.2.7. LEVELING HOLLOWES AND BUMPS IN TURF
- Standard: To BS 7370-3, clauses 12.4 and 12.5.
- 4.2.8. SPOT WEEDKILLING IN ROUGH GRASS AREAS
- Herbicide: as approved.
  - Operations: Spot treat noxious weeds.
- 4.2.9. FIRST CUT OF ALL GRASSED AREAS
- 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: Spread evenly over cut areas.
- 4.2.10. MOWING AMENITY GRASS
- Grass height: 75 mm maximum.
  - Arisings: Spread evenly over cut areas.
- 4.2.11. TOP DRESSING
- Location: All lawns.
  - Timing: Contractor's choice.
  - Material: Compost/ sand/ loam mix.
  - Supplier: Contractor's choice.
    - Product reference: Contractor's choice.
  - Declaration of analysis: Submit.
  - Additional analyses: Not required.
  - Samples: Not required.
  - Application rate: 1.5 kg/m<sup>2</sup>.
- 4.2.12. EDGES TO SEEDED AREAS
- Location: Planting beds and around newly planted trees.
  - Timing: After seeded areas are well established.
  - Edges: Cut to clean straight lines or smooth curves. Draw back soil to permit edging.
  - Arisings: Remove.
- 4.2.13. RE-FORMING GRASS EDGES
- Location: All edges.
  - Edges: Draw back soil and re-form edges to clean straight lines or smooth flowing curves, sloping slightly back from vertical.
- 4.2.14. LEVELLING HOLLOWES AND BUMPS IN TURF
- Standard: To BS 7370-3, clauses 12.4 and 12.5.
- 4.2.15. REINSTATEMENT OF DAMAGED GRASS
- Damaged grass: Remove to a depth of 30 mm.
  - Preparation: Cultivate substrate to a fine tilth.
  - Reinstatement: Contractor's choice of turfing or topsoiling and reseeding:
    - Turfing: Quality and appearance to match existing.
    - Reseeding: Fill with fine topsoil to BS 3882 general purpose grade, 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.

### 4.3. SHRUBS/TREES/HEDGES

#### 4.3.1. ESTABLISHMENT OF NEW PLANTING

- Duration: One full growing seasons from the date of planting.
- Weed control:
  - Method: Keep planting beds clear of weeds by use of suitable herbicides.
  - 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.
- Trees: When in leaf, spray crowns during warm weather.
  - Timing: After dusk.Watering: When instructed.

#### 4.3.2. 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.

#### 4.3.3. 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.

#### 4.3.4. 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.

#### 4.3.5. PRUNING GENERALLY

- 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.

#### 4.3.6. 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.

#### 4.3.7. PRUNING OF EXCESSIVE HEIGHT

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

#### 4.3.8. PRUNING TREES AND SHRUBS

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

#### 4.3.9. 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.

#### 4.3.10. PRUNING FLOWERING SPECIES OF SHRUBS

- 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.

#### 4.3.11. TRIMMING ESTABLISHING HEDGES

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

#### 4.3.12. 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.

#### 4.3.13. DEAD AND DISEASED PLANTS

- Removal: Within one week of notification.
- Replacement: In the next suitable planting season.

#### 4.3.14. 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 details and cost of plants before ordering.
- Dressing: Slow release fertilizer:
  - Type: Submit proposals.
- Application rate: As manufacturer's recommendations.

### 4.4. WEED CONTROL

#### 4.4.1. 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.

#### 4.4.2. 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.

#### 4.4.3. WEED CUTTING BY HAND OR MACHINE

- Undesirable grass, brambles and herbaceous growth: Cut down cleanly to a maximum height of 50 mm before pulling carefully so as not to disturb shrub roots.
- Herbicides: Give notice before use.

- 4.4.4. WEED CONTROL WITH WINTER HERBICIDE
- Type: Suitable residual soil acting herbicide.
  - Time of year: Unless otherwise agreed, complete before end of March.
  - Timing: Allow recommended period for herbicide to take effect before clearing dead.

- 4.4.5. WEED CONTROL WITH SUMMER HERBICIDE
- Type: Suitable foliar acting herbicide.
  - Timing: Allow recommended period for herbicide to take effect before clearing dead

## **4.5. OTHER REQUIREMENTS**

### **4.5.1. 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.

### **4.5.2. SOIL LEVEL ADJUSTMENT**

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

### **4.5.3. MAINTENANCE OF LOOSE MULCH**

- Thickness (minimum): 75 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 herbicide treatment.

### **4.5.4. FERTILIZING ESTABLISHED TREES AND SHRUBS**

- Time of year: During April or May.
- Type of fertilizer: Slow release.
- Application: Spread evenly.
- Rate: As manufacturer's recommendations.

### **4.5.5. SNOW REMOVAL FROM SHRUBS/ TREES**

- Standard: To BS 7370-4.
- Plants subject to snow removal: As instructed.
- Timing: When instructed.

## **4.6. TREE WORK**

### **4.6.1. TREE WORK GENERALLY**

- See Appendix for report prepared by Arborist for works required.
- Identification: Before starting work clarify which trees, shrubs and hedges are to be removed or pruned.
- Protection: 2m min. height secure fencing in accordance with BS 3998.
- Standards: All tree works are to be carried out under the BS 3998 and SHWW: Construction regulations.
- 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.
- Chainsaw work: Operatives must hold a Certificate of Competence.
- Tree work: To be carried out by an approved member of the Arboricultural Association.
- Reports: Submit Method Statement.

### **4.6.2. ADDITIONAL WORK**

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

#### 4.6.3. PREVENTION OF WOUND BLEEDING

Standard: To BS 3998, clause 8.

#### 4.6.4. PREVENTION OF DISEASE TRANSMISSION

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

#### 4.6.5. CLEANING OUT AND DEADWOODING

- Remove:
  - Dead, dying, or diseased wood, broken branches and stubs.
  - Fungal growths and fruiting bodies.
  - Rubbish, windblown 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: remove if threatening the stability of tree only.

#### 4.6.6. 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 if unavoidable.
  - 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.

#### 4.6.7. CROWN LIFTING

- Clearances: Remove branch systems to give clearance.
  - Height: 2.5 m above surface.
- Removing branches: Remove whole branches back to the stem or cut lower portions of branches back to lateral or sub lateral buds or branches. Do not leave stumps.

#### 4.6.8. CROWN THINNING

- Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.
- Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown.
  - Quantity: 20 %.
- Cutting: Make no cuts of more than 50 mm diameter.
  - Branches: Cut back to lateral or sub lateral buds or branches without leaving stumps.
- Appearance: Leave a uniform and well-balanced structure of branches and foliage.

#### 4.6.9. CUTTING TREE ROOTS

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

#### 4.6.10. REMOVING TREES, SHRUBS AND HEDGES

- Standards: To BS 3998, Appendix A and SHWW: Construction Regulations and the Arboricultural and Forestry Advisory Group Safety Leaflets.
- Existing services: Check for below and above ground services. Give notice if they may be affected.
- Shrubs and smaller trees: Cut down and grub up roots.
- Tree stumps:
  - Removal: Remove mechanically to a minimum depth of 300 mm below ground level.
  - Removal by winching: Give notice. Do not use other trees as supports or anchors.
- Protection: Avoid damage to neighbouring trees, plants and property.
- Work near retained trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
- Filling holes:
  - Material: Use as-dug material and/ or imported soil as required.
- Finishing: Consolidate and grade to marry in with surrounding ground level.

#### 4.6.11. 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.

#### 4.6.12. 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.

#### 4.6.13. ROOT ZONE PROTECTION

- Root zones defined by the crown spread of existing mature trees to be protected during the works. 1.8m high protective fencing to be erected and securely fixed in place to prevent the movement of vehicular traffic or the storage of material under tree crowns.
- Tree trunks to be protected by triple wrap of hessian sacking 1.5m high from ground level held in position by 1.5m high 100x50mm timbers at 300mm centres connected and secured by 3mm diam. line wire and staples.
- Tree protection measures to be put in place on commencement of the works and methodology for tree protection during the construction phase to be provided by the Contractor and approved prior to commencement.

### 4.7. HARD LANDSCAPE AREAS/FENCING

#### 4.7.1. SNOW CLEARANCE

- Clearance: When instructed.
- De-icing: -.
  - Material: sand or grit.
  - Timing: When instructed.
- Application rate: Spread evenly at a rate of As manufacturer's recommendations.

#### 4.7.2. 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.

#### 4.7.3. GRAFFITI REMOVAL

- Method: Reference anti-graffiti paint recommendations
- Subsequent treatment: Transparent, two-part, anti-graffiti coating.
  - Finish: Matt.

#### 4.7.4. FURNISHING, FIXTURES, WALLS AND RAILINGS

All furnishings, fixtures, wall and railings are to be checked to ensure that are securely fixed and in place and maintained in accordance with manufacturer's specification. Loose fittings or damaged surfaces are to be fixed immediately upon identification, in accordance with manufacturer's specification. Damaged or broken furnishes are to be replaced as soon as is possible after identification in accordance with the original spec.

## APPENDIX A - FERTILIZERS, HERBICIDES AND MULCHES

Note: fertilizers and herbicides shall be used in the minimum quantities required to maintain the landscape. Where the following items are required by the Specification or the Designer for the landscape Works they shall be of the type or proprietary product (or equivalent) listed below.

Item	Generic/Proprietary Products/Type
1. Fungicidal sealant (for use only where shown on the drawings)	Latex emulsion containing 6% thiophanate Methyl
2a. Translocated and soil acting herbicide	Ammonium sulphamate
2b. Colouring agent	Methyl violet
3. Translocated herbicide prior to planting	Glyphosate
4. Contact herbicide prior to planting	Paraquat
5. Root dip	Alginure Root Dip, Broadleaf P4
6. Anti-dessicant spray	'Wiltpruf' S600
7. Soil Conditioner	Alginure Granulate 'S'
8. Slow release fertilizer	'Enmag'
9. Post planting fertilizer	Refer to drawings and body text of specification document.
10. Pre-seeding fertilizer	Only required for returning to agriculture.
11. Pre-turfing fertilizer	Superphosphate
12. Autumn top dressing/turf dressing	For roundabouts only.
13. Contact herbicide during establishment period	Paraquat
14. Translocated herbicide for couch grass prior to planting and during establishment period	Alloxydim-sodium (not to be used near ornamental species of Graminae)
15. Mulch	<ul style="list-style-type: none"> <li>o Coarse chipped tree bark composted for 2-4 weeks. Particle size 25-75mm diameter, no fines, no wood chips.</li> <li>o Medium chipped tree bark composted for 2-4 weeks. Particle size 15-50mm, no fines, percentage of wood chips not to exceed 10% by volume.</li> <li>o Medium grade shredded bark composted for a minimum of 4 weeks. Particle size 0-75mm, maximum 25% fines, percentage of wood chips not to exceed 25% by volume.</li> <li>o Sterilized mushroom compost free from toxic matter or disease carrying substances.</li> </ul>

### Minimum nutrient content of rooting medium in Kg/m<sup>3</sup>

	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Mg
Tree planting and mulching compost	0.2	0.2	0.6	0.6
Mushroom compost	0.7	0.6	0.8	N/A

### Dry matter and minimum total nutrient content of poultry manure by percentage

	Ash free dry material	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Manure	21.0	2.4	2.2	1.4