

# Landscape Works Specification

## Limerick City Roundabouts Landscape Design and Maintenance Plans

24th June 2020



An Chomhairle Oidhreachta  
The Heritage Council



Comhairle Cathrach  
& Contae **Luimnigh**

**Limerick** City  
& County Council

This Landscape Specification has been produced to describe the materials, standards and workmanship expected during construction and implementation of soft and hard landscape works proposed as part of the Limerick City Roundabout Project. This document is to be read in conjunction with the following drawings

<b>Limerick City Roundabouts Drawing Schedule</b>			
Drawing Number	Drawing Title	Scale	Print Size
T399-102	2-Tipperary Roundabout Existing Situation Plan	1:250	A2
T399-103	3-Kilmallock Roundabout Existing Situation Plan	1:250	A2
T399-104	4-Roxborough Roundabout Existing Situation Plan	1:250	A2
T399-106	6-Ballycummin Roundabout Existing Situation Plan	1:250	A2
T399-107	7-Greenpark Roundabout Existing Situation Plan	1:250	A2
T399-108	8-Clondrinagh Roundabout Existing Situation Plan	1:250	A2
T399-112	2-Tipperary Roundabout Hardworks	1:200	A1
T399-113	3-Kilmallock Roundabout Hard and Softworks	1:200	A1
T399-114	4-Roxborough Roundabout Hardworks	1:100	A1
T399-116	6-Ballycummin Roundabout Hardworks	1:200	A1
T399-117	7-Greenpark Roundabout Hardworks	1:200	A1
T399-118	8-Clondrinagh Roundabout Hard and Softworks	1:200	A1
T399-122	2-Tipperary Roundabout Softworks	1:100	A1
T399-124	4-Roxborough Roundabout Softworks	1:100	A1
T399-126	6-Ballycummin Roundabout Softworks	1:100	A1
T399-127	7-Greenpark Roundabout Softworks	1:100	A1

All Works to be carried out in accordance with BS 4428 - Code of Practice for General Landscape Works.

## Table of Contents

### LANDSCAPE SPECIFICATION FOR HARDWORKS AND PLANTING

1. Introduction and General Requirements	4
2. Excavating and Site Clearance	5
3. Hardworks	7
4. Topsoil, growing media and ameliorants	10
5. Seeding	14
6. External Planting	18
7. Landscape Maintenance	26

## **1. Introduction and General Requirements**

1.1. SCOPE OUTLINE DESCRIPTION: Including but not necessarily limited to:

- Preparation, cultivation of landscape areas,
- Supply and Construction of Gabion Feature Walls and timber edging,
- Supply and spreading of topsoil and mulch,
- Supply and planting of trees, shrubs, perennials and groundcovers,
- Grassing and wildflower
- Maintenance

1.2. STANDARDS REFERENCED DOCUMENTS: The following standards are referred to in this document and should be consulted to assist in the delivery of this project:

- BS 1377 2 and 4 - Methods of Testing Soils for Engineering Purposes
- BS 4428:1989 - General Landscape Operations
- BS EN 844 - Timber - Preservative Treated - Sawn and Round
- BS 8417:2003 - Preservative Treated Farm Fencing Timber
- BS 3882:2007 - Soils for Landscaping and Garden Use
- BS PAS 100 - Composts, Soil Conditioners and Mulches
- BS 8545:2014 - Trees from Nursery to Independence
- BS 3936-1 - National Plant Specification
- BS 5837:2005 - Pruning of amenity trees
- BS 3998 - British Standard for Tree Work
- BS 7370-4 - Grounds Maintenance
- BS EN 10218-2 2012- Steel Wire and Wire Products. General.
- BS 1202-1- Specification of Nails

1.3. INSPECTION NOTICE: Give not less than 1 weeks notice so that inspection may be made of the following, as applicable:

- Plant materials delivered to the site
- Setting out completed
- Clearing completed
- Sub-grades cultivated and/or prepared prior to placing topsoil.
- Grassing bed prepared prior to turfing, seeding, or temporary grassing
- Tree holes excavated and prepared for planting
- Plant material purchased
- Plant material set out before planting
- Grassing or turfing completed
- Practical completion
- Upon completion of Defects Liability work.

1.4. PERIODIC INSPECTIONS: There will be regular periodic inspections at the beginning of each month during the establishment period and the Defects Liability Period. Digital photo records will be kept throughout the roundabout development.

## **2. Excavating and Site Clearance**

### 2.1. GENERALLY/THE SITE

#### 2.1.1. EXISTING SERVICES/ FEATURES/ STRUCTURES

- Services: Contractor is responsible for identifying and locating all services and associated infrastructure on the site.

#### 2.1.2. CLEARANCE/EXCAVATING

#### 2.1.3. 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:
  - Method: By hand.
  - 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: Not required.
- Backfill: As dug material, enriched with amelioration as section

#### 2.1.4. SITE CLEARANCE

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

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

- Standard: BS 3998
- Identification: Clearly mark trees to be removed.
- Small trees, shrubs and hedges: Cut down
- Roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.
- Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group Safety Guides.

#### 2.1.6. FELLING LARGE TREES

- Standard: BS 3998
- Definition: Girth over 600 mm.
- Identification: Clearly mark trees to be removed.
- Safety: Comply with HSE/ Arboriculture and Forestry Advisory Group Safety Guides.
- Felling: As close to the ground as possible.
- Stumps: Remove completely by mechanical means.
- 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.

#### 2.1.7. TOPSOIL

- General: Before beginning general excavation or filling, strip topsoil from areas where there will be regrading as shown on drawings.
- Depth: - Remove to an average depth of 250 mm. as topsoil depth varies, remove such that there is no contamination of subsoil. - Give notice where the depth of topsoil is difficult to determine.
- Handling: Handle topsoil for reuse in accordance with clause 225.
- Around trees: Do not remove topsoil from below the spread of tree crowns to be retained.
- Site storage: Keep separate from excavated sub-soil.

#### 2.1.8. TREATING TOPSOIL

- Treatment: Apply Roundup or a similar and approved translocated non residual herbicide.
- Timing: Not less than two weeks before excavating topsoil.

#### 2.1.9. HANDLING TOPSOIL

- Aggressive weeds: - Species: Included in the Weeds Act, section 2 or the Wildlife and Countryside Act, Schedule 9, part II. - Give notice: Obtain instructions before moving topsoil. Refer to <https://invasivespeciesireland.com/invasive-plant-management/>.
- 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 BS 3882, Annex N2.

#### 2.1.10. RECORDED FEATURES

- Recorded foundations, beds, drains, manholes, etc: Break out and seal drain ends.
- Contaminated earth: Remove and disinfect as required by local authority.

#### 2.1.11. UNRECORDED FEATURES

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

#### 2.1.12. UNDERGROUND STRUCTURES IN LANDSCAPE AREAS

- Generally: Remove disused services, drains, manholes and the like to minimum depth.
- Minimum depth below finished levels:
  - Grass, ground cover and perennial planting: 500 mm.
  - Shrub planting: 750 mm.
  - Within 2 m of tree planting: 1000 mm.

#### 2.1.13. EXISTING PAVING TO BE RETAINED

- Generally: renovation, repair and maintenance of existing paving
- Location: Tipperary Roundabout
- Cleaning: Powerwashing of existing paving surface
- Identification of defects: Inspection by contractor and identification of areas that require spot repair
- Treatment: Replace individual pavers (to match existing and as approved by architect) as required.
- Safety: Comply with HSA Code of Practice for Three or Less Working on roads

### **3. Hardworks Elements**

#### **3.1. GENERAL**

- Timing: Where possible all construction of hardworks elements shall be carried out and completed before the commencement of softworks on site to avoid damage to planting areas. Care is to be taken to avoid any unnecessary machinery traffic on completed areas.

- Discription: Supply and Installation of:

- Gabion Walls

  - Location: Ballycummin Roundabout

- Timber Edging to planting areas

  - Location: Ballycummin Roundabout

- Gravel Mulch

  - Location: Ballycummin Roundabout

#### **3.2. DIMENSIONS, SHAPE AND SETTING OUT.**

- Refer to the contract documents for all dimensions, shapes and setting out. All setting out operations in accordance with the approved drawings and shall ensure all curves are smoothly formed, with no faceted edges and corners.

- Set out using the following methods:

- Site marker spray paint cans

  - Pegs and line

  - Tapes and Chains

  - Mark out the site carefully to the approved plans, ensuring that radii are accurately scribed, using a peg in the radius point.

  - Measure any key site dimensions carefully and ensure beds generally have a minimum width of 1m, unless otherwise stated.

- Maintain setting out lines through the process of cultivation – to ensure no loss of line and define all bed edges well, with clear level changes.

- Give notice of the requirement site inspection of setting out.

- Any works commenced before written approval of the setting out and found not to be to the approval of the Landscape Architect, shall be broken out and rebuilt to the lines shown in the contract documents.

#### **3.3. SAMPLES AND APPROVALS**

- Where approval of materials or goods is specified, samples are to be submitted or other evidence of suitability to Landscape Architect.

- Orders for such materials and goods should not be confirmed until approval of samples has been obtained and approved.

- Approved samples of materials such as mulch type and gravel are to be retained on site for comparison with the works and with subsequent deliveries.

- Any works carried out without first being approved, if not to the satisfaction of Landscape Architect, shall be broken out/removed and then replaced.

#### **3.4. HARD LANDSCAPE MATERIALS AND WORKMANSHIP**

- All materials and workmanship is strictly in accordance with the construction details and the detailed hard and soft landscape plans, as numbered and issued within the tender pack (listed on page 2 of this document) .

- Hard surfaces shall be constructed after suitable base courses have been laid, taking full account of local site conditions, soft spots and substrate.

- The indicative depths of base courses on construction details are minimum depths assuming suitable substrate conditions and CBR values. Deepen sub-bases where ground conditions are found to require greater thickness of make-up.

#### **3.5. GABION WALLS**

- Constructed by specialist
- General: supply and install welded mesh cage and stone gabion low walls as landscape feature as indicated in drawings and details.
- Products: Welded Cage:
  - Mesh: Bi-axial welded Mesh, Square, 50.8 x50.8mm
  - Wire: 4mm gauge wire
  - Wire Coating: Galvan.
  - Cage Size: 2 x 1 x 1m (L,W&H)
  - Tensile Strength:540 to 770N/mm<sup>2</sup>
  - Weld Strength: 75% of the minimum ultimate tensile strength of the wire
- Stone Fill:
  - Type: Limestone
  - Size: 100 -150mm
  - Finish: quarried stone G6 and angular in shape

### 3.5.1. BASE COURSE PREPARATION

- Weeds: Prior to laying sub-base or base courses the surface shall be treated where directed with Roundup or similar and approved herbicide applied in accordance with manufacturer's instructions.
- Excavate surface: even and firm. Remove any soft or unsuitable material. Fill holes, ruts or uneven areas with good granular material.
- Geotextile fabric: laid below sub-base materials as specified
- Clause 804 Hardcore material: Supply and spread hard-core, to no less than 100mm, evenly over existing compacted sub-base avoiding damage thereto, and thoroughly blind top surface with sharp sand.

### 3.5.2. INSTALLATION:

- Layout and placement: Each gabion box should be opened out and laid flat. The sides of the boxes are stood up and temporarily held together with plastic cable ties or wire ties. Lift the gabion box into their final position.
- Lacing: lacing wire shall be of a nominal 2.2mm wire diameter in accordance with BS EN 10218-2:2012 and shall have a tensile strength that falls within a range of 350 to 550 N/mm<sup>2</sup>. Each edge of gabion is laced to the adjacent edge wire with lacing wire to provide a continuous join. Adjacent boxes are also connected to each other at the same time. Lace all edges including diaphragms with single loops and double loops in turn at intervals of one mesh length. Secure the ends of the lacing wire at each corner with triple loops and turn the ends of the wire into the box. Do not forget to also lace to boxes below and behind so that the whole structure is laced together.
- Filling: Face of gabion to be filled by hand. Stones should be tightly packed. Care should be taken not to damage the cage. Fill in stages so that the difference in fill level between adjacent gabions does not exceed half a metre.
- Bracing : All exposed faces should be braced. Metre high box to be braced when filled to a third and two thirds of a metre height. Brace by forming a 'Figure of 8' using tie wire, twist to tighten and so tension the faces. Repeat at two thirds of a metre height. The loop of the brace should pass through the face of the gabion for at least two mesh lengths.

Closing lids: Gabions should be overfilled by 25 to 50mm before closing to allow for settlement. The lids are then stretched over the stonefill and laced down. Secure the corners first to make sure the lid can be laced down without over-stretching the mesh. Remove or redistribute some of the stones at this stage if necessary. The lids are then laced down securely.

### 3.6. TIMBER EDGING TO PLANTING BEDS

- Standard: BS EN 844 and BS 8417
- General: supply and lay timber edge restraint to demarcate change in surface or planting as indicated in drawings and details.
- Material: Boards - sawn softwood boards, 38mm x 150mm, except where they are to be curved around corners when the boards can be reduced in size to 25mm x 100mm in order to ensure that they can be moulded to the radii in a smooth and continuous fashion, in accordance with the drawings.
- Stakes: Boards shall be attached to softwood stakes 50 x 50 x 100mm using 2no. galvanised nails (ref BS 1202-1)



per stake at an average of 1.2m centres.

- Treatment: All timber shall be ACQ treated

### 3.7. STAINLESS STEEL EDGING

- General: supply and lay steel edge restraint to demarcate change in surface or planting as indicated in drawings and details.
- Installation: By mounting the edging using 305 mm flat stakes and backfilling with landscape surfacing. No haunching required.
- Product: ExcelEdge - BL30U Borderline Flexible edge restraint in Untreated steel or similar and approved.
  - Height: 100 mm
  - Thickness: 3 mm
  - Length: 2 m Anchored with 305 mm flat stakes (supplied) every 1 m approximately.
- Installation: in accordance with Exceledge installation instructions.

### 3.8. GRAVEL MULCH

- General: supply and lay gravel mulch as indicated on the drawings and details
- Material: 10mm pea gravel. Free of organic and inorganic debris and rubbish.
- Samples: submitted for approval by Landscape Architect before purchase
  - Notice:1 week
- Depth: 75-100mm

#### **4. Topsoil, growing media and ameliorates**

##### **4.1. TOPSOIL SYSTEM FOR PLANTING AREAS**

###### **4.1.1. IF EXISTING TOPSOIL ON SITE IS DEFICIENT AND REQUIRES TOPPING UP**

- Topsoil: Imported topsoil to BS 3882.

###### **4.1.2. EXISTING SERVICE DUCTS**

- Identification: Contractor to screen for and locate services before commencing work on site.
- Safety: Contractor to screen for and locate services before commencing work on site.

#### **4.2 PRODUCTS**

##### **4.2.1. PREPARATION MATERIALS GENERALLY**

###### **4.2.2. PREPARATION OF UNDISTURBED TOPSOIL**

- Standard: In accordance with BS 4428 - Code of practice for general landscape operations (excluding hard surfaces)
- Hard ground: Break up thoroughly.
- Clearing: Remove visible roots and large stones with a diameter greater than 50 mm.
- Areas covered with turf or thick sward: Plough or dig over to full depth of topsoil.
- Fallow period (minimum): One month.
- Weed control: At appropriate times treat with a suitable translocated non-residual herbicide. Ensure that topsoil is entirely weed free, paying special attention to the removal of all perennial weeds, dock roots, scutch grass roots and Japanese knotweed, at point of planting and seeding. All existing vegetation and weeds to be removed from site.

###### **4.2.3. TOPSOIL**

- Purity: Free of all 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.

###### **4.2.4. IMPORTED TOPSOIL TO BS 3882**

- Quantity: to a depth of 50mm as required, to make up any deficiency of topsoil existing on site and to complete the work.
- Location:
  - Tipperary Roundabout
  - Roxborough Roundabout
- Standard: To BS 3882.
- Classification: Multipurpose. - Grade: 0.6-2 mm.
- Source: Contractor's choice.
  - Product reference: Contractor's choice.

### **4.3. EXECUTION**

#### 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.

#### 4.3.1. IMPORTING TOPSOIL

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

#### 4.3.2. PROTECTION OF EXISTING GRASS AREAS TO BE RETAINED ☒

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

#### 4.3.3. SAMPLE LOADS FOR IMPORTED TOPSOIL

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

#### 4.3.4. DOCUMENTATION FOR IMPORTED TOPSOIL FOR PLANTING BEDS

- Timing: Submit at handover.
- Contents:
  - Full description of all soil components.
  - Record of source for all soil components.
  - Record drawings showing the location and depth of all soils by type and grade.
  - Declaration of analysis: in accordance with BS 3882, Annex E.
- Number of copies: 2.

#### 4.3.5. NOTICE

- Give notice before:
  - Setting out.
  - Spreading topsoil.
  - Applying herbicide.
  - Applying fertilizer (not required for Wildflower Areas).
  - Visiting site during maintenance period.
- Period of notice: One week.

#### 4.3.6. MECHANICAL TOOLS

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

#### 4.3.7. GRADING SUBSOIL

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

#### 4.3.8. SUBSOIL SURFACE PREPARATION

- General: Excavate and/ or place fill to required profiles and levels as per Landscape Architect's Drawings and Details.
- 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

#### 4.3.9. INSPECTING FORMATIONS

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

#### 4.3.10. SURPLUS TOPSOIL TO BE RETAINED

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

#### 4.3.11. 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.

#### 4.3.12. TOPSOIL STORAGE HEAPS

- Location: Throughout the order limits.
- 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.

#### 4.3.12. CULTIVATION OF EXISTING TOPSOIL

- 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 all visible weeds, roots and large stones with any dimension exceeding 50 mm.
- Soil within root spread of existing trees to be retained: Do not dig or cultivate in area below the canopy of the tree.

#### 4.3.13. 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.

#### 4.3.14. 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.

#### 4.3.15. 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, 300mm for shrub, 600mm for hedge planting areas and 800mm for trees.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

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

- Above adjoining paving or kerbs: 25 mm.
- Shrub and Perennial planting 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.

## **5. Seeding**

### **5.1. GENERAL INFORMATION/REQUIREMENTS**

#### **5.1.1. PROTECTION OF EXISTING GRASS AREAS TO BE RETAINED**

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

#### **5.1.2. SEEDED 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.

#### **5.1.3. CLIMATIC CONDITIONS**

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

#### **5.1.4. 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.

#### **5.1.5. 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.

#### **5.1.6. SETTING OUT**

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

### **5.2. PREPARATION**

#### **5.2.1. HERBICIDE FOR ALL CLOVER AND GRASS AREAS**

- To achieve sterile soil and allow successful germination of clover and grass seeds
- Standard: In line with the Sustainable Use Directive and Irish National Action Plan for the Sustainable Use of Pesticides 2019.
- Type: Roundup suitable or similar and approved for suppressing perennial weeds.
- Application: following manufacturer's instructions and to 1997 Control of Pesticides Regulations and 2008 COSHH regulations on all areas for clover and grass seeding.
- Timing: Allow fallow period of 14 days before cultivation.
  - Duration: As manufacturer's recommendation.
  - Raking: lightly rake surface after fallow period and remove all dead material from site.
- Climate: conduct spraying in suitable weather. Do not apply when rain or showers are forecast within six hours or when wind may cause drift (over 24kph/15mph). If rain falls within the minimum period, retreat.
- Annual Weeds: If post initial treatment annual weeds have developed then a contact herbicide may be used as required.

### 5.2.2. 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.
  - Weed free: ensure that there are no weeds or other vegetation present at seeding.
- Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

## **5.3. SEEDING**

### 5.3.1. CLOVER (*Trifolium repens*) SEEDS FOR ALL LAWN AREAS (NON WILDFLOWER)

- Supplier: Submit proposals.
  - Mixture reference: Submit proposals.
- Application rate: 50 g/m<sup>2</sup>.

### 5.3.2. QUALITY OF SEED FOR ALL CLOVER AND 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.

### 5.3.3. 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.

### 5.3.4. CLOVER SOWING SEASON

- Clover seed generally: April to June.

## **5.4. PROTECTING/CUTTING**

### 5.4.1. FIRST CUT OF CLOVER AREAS

- Timing: When clover is reasonably dry. First cut to clients approval.
  - 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: 40 mm.
- Mower type: Rotary.
- Arisings: Remove from site.

### 5.4.2. CLEANLINESS

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

## **5.5. MAINTENANCE**

5.5.1. ROUTINE CUTTING GRASS AND CLOVER - over the summer period post first cut will provide favourable conditions and reduce competition from weeds and other grass species. All Clover meadow cutting to clients approval.

- Timing: As per clients instructions and approval, from April to October. The number of cuts will depend on the establishment of the clover meadow.
- Preparation:
  - Debris and litter: Remove.
  - Stones and earth clods larger than 25 mm in any dimension: Remove
- Height of cut: 40 mm.
- Mower type: Rotary.
- Arisings: Remove from site.

### 5.5.2. FAILURES OF SEEDING

- Duration: Carry out the following operations from completion of seeding 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.

## **5.6. SEEDING: WILDFLOWER AREAS**

### 5.6.1. GRASS SEED FOR WILDFLOWER AREAS

- Mixture as per specifications in drawings planting palette.
- Application rate: 1.5grams/metre squared.

### 5.6.2. QUALITY OF SEED FOR ALL GRASSED AREAS

- Supplier: Design By Nature: Sandro Cafolla, Seed House, Monavea, Carlow, Ireland, R93 T289. Or other supplier of local seed, to be approved by client.

All seed are to be guaranteed Irish/native provenance (local genotype if possible).

- 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.

### 5.6.3. SOWING

- General: Establish good seed contact with the root zone. No addition of nutrients or fertilizers to soils
- Method: To suit soil type, proposed usage, location and weather conditions during and after sowing. A friable firm seed bed required, fully weed free, alleviation of compaction to a depth of 100- 200mm, sowed on a firm and fine tilth. Seed bed preparation to be conducted in dry conditions, close to the time of sowing.
  - Distribution: 2 equal sowings at right angles to each other. By hand in small areas, by mechanical means if areas are large.

### 5.6.4. WILDFLOWER SOWING SEASON

- Grass seed generally: March to May or September to October.

## **5.7. PROTECTING/CUTTING**



#### 5.7.1. FIRST CUT OF WILDFLOWER GRASSED AREAS

- Timing: When grass is reasonably dry.
  - Height of initial growth: 150-200 mm.
- Preparation:
  - Debris and litter: Remove.
  - Stones and earth clods larger than 25 mm in any dimension: Remove
- Height of first cut: 75-100 mm.
- Mower type: Rotary or strimming (area dependant).
- Arisings: Remove from site.

### **5.8. MAINTENANCE**

#### 5.8.1. FAILURES OF SEEDING

- Duration: Carry out the following operations from completion of seeding 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.
- Timing of making good: The next suitable planting season.
- Herbicide: Not to be used once planting has taken place.

## **6. External planting**

### **6.1. GENERAL INFORMATION/ REQUIREMENTS**

#### **6.1.1. 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; retain and protect trees.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.

#### **6.1.2. SOIL CONDITIONS**

- Soil for cultivating and planting: Moist, friable and 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.

#### **6.1.3. CLIMATIC CONDITIONS**

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

#### **6.1.4. TIMES OF YEAR FOR PLANTING**

- Deciduous trees and shrubs: Late October to late March.
- Conifers and evergreens: September/ October or April/ May.
- Herbaceous plants : September/ October or March to 1st week in 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: Autumn and Spring (Crococsmia and Liatris only available in Spring).
- Crocus: September/October.
- Green bulbs: After flowering in spring.
- Wildflower plugs: Late August to mid-November or March/ April.

#### **6.1.5. MECHANICAL TOOLS**

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

#### **6.1.6. 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.

#### **6.1.7. 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.

#### **6.1.8. NOTICE**

- Give notice before:
  - Setting out.
  - Applying herbicide.
  - Applying fertilizer.
  - Purchase of plants/trees
  - Planting plants.
  - Planting trees into previously dug pits.
  - Watering.

- Visiting site during maintenance period.
- Period of notice: One week.

## **6.2. PREPARATION, PLANTING AND MULCHING MATERIALS**

The selection of plant material is based on objectives of all Ireland Pollinator Plan 2015-2020 to provide resources for pollinators in sustainable planting schemes.

- 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.

### **6.2.1. 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: National Plant Specification BS 3936-1
- Species: True to name.
- Origin/ Provenance: Irish grown with Provenance Declaration Form
- Predelivery Inspection: Give Notice

### **6.2.2. PLANTS/ TREES - SPECIFICATION CRITERIA**

- Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification and BS 3936-1.

### **6.2.3. CONTAINER GROWN PLANTS/ TREES**

- Growing medium: With adequate nutrients for plants to thrive until permanently planted. In compost for 9 months with slow release fertilizer.
- Plants: Well established, centred in containers, firmed and well watered.
- Health: Free from all pests, diseases and fungus.
- Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
- Hardiness: Hardened off before supply. 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.

### **6.2.4. 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.

### **6.2.5. 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 and BS 3936-1.
- Additional information: Submit on request:
  - Country of origin;
  - Potting dates;
  - Propagation method and dates;
  - Pruning dates; and
  - Type of container.

#### 6.2.6. 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.

#### 6.2.7. 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.

#### 6.2.8. 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.

#### 6.2.9. 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.

#### 6.2.10. SURPLUS MATERIAL

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

### **6.3. PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS**

#### 6.3.1. HERBICIDE TO CLEAR OVERGROWN BEDS

- Locations: All planting areas.

- Type: Roundup or similar and approved and suitable for suppressing perennial weeds.
- Timing: Allow fallow period before cultivation.
  - Duration: As manufacturer's recommendation.

#### 6.3.2. WEED CONTROL FOR INVASIVE NON-NATIVE WEEDS

- Locations: All planting areas.
- General: Prevent weeds from seeding and perennial weeds from becoming established, in accordance with <https://invasivespeciesireland.com/invasive-plant-management/>.

#### 6.3.3. 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
- 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.

#### 6.3.4. PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

#### 6.3.5. PLANT LAYOUT TO SHRUB/PERENNIAL/HERBACEOUS PLANTING

- Spacing: As Landscape Architect drawing.
- Density: As Landscape Architect drawing.

#### 6.3.6. 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 Break up to a depth of 150 mm, incorporating soil ameliorate/ conditioner at 50 g/m<sup>2</sup>.
- Backfilling material: Finely broken previously prepared weed free topsoil. Lightly firm to existing ground level.

#### 6.3.7. 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.

#### 6.3.8. PLANTING BULBS/ CORMS/ TUBERS

- Timing: To be planted September/October before final seeding of surface with Clover or Wildflower seeds April to September.
- 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:
  - Scattering: Random. Plant bulbs/ corms/ tubers where they fall.
  - Planting: Neatly remove a plug of turf and replace after planting.

#### 6.3.9. HERBACEOUS AND BULB BACKFILLING MATERIAL

- Composition: Previously prepared sterile, weed free mixture of topsoil excavated from pit and additional topsoil

as required.

#### 6.3.10. 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.

#### 6.3.11. HEDGES

- Planting: In trenches 600 x 450mm, large enough to take full spread of roots. Set out plants evenly as per Landscape Architects Drawing in double rows.

#### 6.3.12. AFTER PLANTING

- Standard: BS PAS 100
- 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: Mulch
  - fine grade
  - Soil enricher, Soil Enricher Mulch by [www.mulch.ie](http://www.mulch.ie) or similar and approved
  - 50mm depth
  - Purity: Free of pests, disease, fungus and weeds.
  - Recycled content: None permitted.

#### 6.3.13. PLANTING TREES

##### 6.3.14. TREE PITS

- Sizes: 1200mm wide x 600 deep or 75 mm deeper than root system and wide enough to accommodate roots when fully spread, whichever is bigger.
- Pit bottom: With slightly raised centre. Break up base to a depth of 150 mm.
  - Treatment: Mycorrhizal fungal Rootgrow Professional 150ml sprinkle granules in base of pit .
- Pit sides: Scarify to 150mm.
- Backfilling material: Topsoil to BS 3882.
- Accessories: Perforated plastics irrigation/ ventilation pipe and Root barrier.

##### 6.3.15. TREE PIT ROOT BARRIERS

- Locations: Wherever the installed rootball will be within 2.0 m of an existing underground service route.
- Manufacturer: Greenleaf. - Product reference: ReRoot 2000.
- Depth of top of root barrier below finished soil level: 25 mm.
- Installation: With sides vertical.

##### 6.3.16. 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.

#### 6.3.17. STAKING GENERALLY

- Standard: BS EN 844, BS 8417 and BS1202-1
- 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): 75 mm diameter.

#### 6.3.18. TRIPLE STAKING FOR STANDARD TREES IN SOFT LANDSCAPING

- Staking: Drive stakes vertically at least 1500 mm into bottom of pit on either side of tree position before planting.
  - Backfilling: Consolidate material around stakes.
- Height of stakes: Cut to approximately 1200 mm above ground level.
- Ties: 3 x 12 gauge wire and rubber hose ties attached to each stake.
  - Position: Within 25 mm of top of stake.

#### 6.3.19. TREE BACKFILLING MATERIAL

- Composition: Previously prepared mixture of topsoil excavated from pit and additional topsoil as required.
- Ameliorate/ Conditioner: Sanitized and stabilized compost PAS 100.
  - Application rate: 1 m<sup>3</sup> per 10 m<sup>3</sup> of topsoil.
- Fertilizer: Organic. Enmag 4 nitrogen +19 phosphorus + 10 potassium + 7.5 magnesium at a rate of 70 grms per pit.
  - Application rate: To suit soil report recommendations.

#### 6.3.20. MULCHING TREES

- Standard: BS PAS 100
- Material: Mulch
  - fine grade
  - Soil enricher, Soil Enricher Mulch by [www.mulch.ie](http://www.mulch.ie) or similar and approved
  - 50mm depth
  - Purity: Free of pests, disease, fungus and weeds.
  - Recycled content: None permitted.
- Preparation: Clear all weeds. Water soil thoroughly.
- Coverage: Over an area of 2 x 2 m with the tree in the centre.
- Finished level of mulch: 50 mm below adjacent grassed or paved areas.
- Watering Basin: 1.4 m with the tree in the centre. Create basin effect around base of tree for easy watering.

#### 6.3.21. EXISTING VEGETATION/ WEED CLEARANCE

- Surface vegetation clearance: Scree an area one metre diameter around each planting location.
- Arisings: Remove.

#### 6.3.22. 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.

### **6.4. PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS**

#### 6.4.1. MAINTENANCE

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

#### 6.4.2. 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: During the next suitable planting season.

#### 6.4.3. 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.

#### 6.4.4. 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 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 hedge fencing.
  - 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.

#### 6.4.5. PLANTING MAINTENANCE - FERTILIZER

- Time of year: March or April.
- Fertilizer: Slow release and organic.
  - Manufacturer: Hexafly <https://hexafly.com/product/hexafrass/> or similar and approved
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: To manufacturer's recommendations.
- Fertilizer not to be applied to Wildflower areas.

#### 6.4.6. 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.

#### 6.4.7. HERBACEOUS/PERENNIAL MATERIAL

- Herbicide: No herbicide treatment permitted on herbaceous planting areas post planting.
- Timing: After first winter cut back herbaceous/perennial planting.
- Arisings: Remove from site.



- Mulch: No mulching of herbaceous/perennial planting

#### 6.4.8. 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.

#### 6.4.9. FINAL MULCHING

- Standard: BS PAS 100
- Timing: At end of the maintenance period.
- Watering: Ensure that soil is thoroughly moistened prior to remulching, applying water where necessary.
- Shrub and Hedge Planting: Remulch. Depth (minimum): 50 mm.
- Trees: Remulch.
- Material:Mulch
  - fine grade
  - Soil enricher, Soil Enricher Mulch by [www.mulch.ie](http://www.mulch.ie) or similar and approved
  - 50mm depth
  - Purity: Free of pests, disease, fungus and weeds.
  - Recycled content: None permitted.

Limerick City Roundabouts Planting Palates See following Drawings:			
Drawing Number	Drawing Title	Scale	Print Size
T399-113	3-Kilmallock Roundabout Hard and Softworks	1:200	A1
T399-118	8-Clondrinagh Roundabout Hard and Softworks	1:200	A1
T399-122	2-Tipperary Roundabout Softworks	1:100	A1
T399-124	4-Roxborough Roundabout Softworks	1:100	A1
T399-126	6-Ballycummin Roundabout Softworks	1:100	A1
T399-127	7-Greenpark Roundabout Softworks	1:100	A1

## **7. Landscape Maintenance**

### **7.1. GENERALLY MAINTENANCE OBJECTIVES**

- Location: All landscape areas.
  - Duration: 1 Year
- Aims:
  - Enhanced landscape quality;
  - Improved landscape visual amenity;
  - Provide wildlife habitat and increase biodiversity
- Restrictions: Not applicable.
- Results: As scheduled.

#### **7.1.2. NOTICE**

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

#### **7.1.3. REINSTATEMENT**

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

#### **7.1.4. CONTROL OF MAMMALIAN PESTS**

- Specialist firms: Submit proposals.
  - Method: Submit proposals.

#### **7.1.5. CONTROL OF INVASIVE ANIMAL SPECIES**

- Specialist firms: Submit proposals.
  - Method: Submit proposals.

#### **7.1.6. WATERING**

- Supply: Potable mains water.
- Quantity: Wet full depth of topsoil. Trees to receive minimum of 40 litres at each scheduled watering.
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to rootzone.
- Frequency: Twice monthly from April to October.

#### **7.1.7. 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.

#### **7.1.8. DISPOSAL OF ARISING**

- General: Unless specified otherwise, dispose of arising from all operations and remove from site to a suitably licensed tip.

#### **7.1.9. CHIPPING OR SHREDDING**

- General: Not permitted on site.

#### **7.1.10. 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.

#### 7.1.11. LITTER

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

#### 7.1.12. PROTECTION OF EXISTING GRASS

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

#### 7.1.13. CLEANLINESS

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

#### 7.1.14. TREE STEMS

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

#### 7.1.15. BULBS AND CORMS IN GRASSED AREAS

- Before flowering: Do not cut.
- Interval between end of flowering and start of grass cutting (minimum):

#### 7.1.16. LEAF REMOVAL

- Timing: Twice yearly, October and December.
- Operations: Collect fallen leaves.
- Special requirements: Remove by hand raking.
- Disposal: Remove from site for recycling.

#### 7.1.17. FERTILIZER - SPRING APPLICATION

- Time of year: March or April
- Fertilizer: Slow release and organic.
  - Manufacturer: Hexafly <https://hexafly.com/product/hexafrass/> or similar and approved by the Client.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: To manufacturer's recommendations.
- Fertilizer not to be applied to Wildflower areas.

#### 7.1.18. FERTILIZER - AUTUMN APPLICATION

- Time of year: September or October
- Fertilizer: Slow release and organic.
  - Manufacturer: Hexafly <https://hexafly.com/product/hexafrass/> or similar and approved by the Client.
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: To manufacturer's recommendations.
- Fertilizer not to be applied to Wildflower areas.

### **7.2. SHRUBS/TREES/HEDGES**

#### 7.2.1. ESTABLISHMENT OF NEW PLANTING

- Duration: 1 year.
- 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: Water Twice Monthly from April to October.
  - Each tree to receive 40L of water at each scheduled watering operation to ensure roots are well irrigated
  - Soil moisture: To ensure trees are well irrigated in dry conditions, Client to instruct additional watering operations as required
  - CA may omit scheduled watering operations subject to assessment of prevailing weather conditions and soil moisture levels
  - Crown spraying. During evening hours, when instructed by Client

#### 7.2.2. ESTABLISHMENT OF NEW PLANTING - FERTILIZER

- Time of year: March or April
- Fertilizer: Slow release and organic.
  - Manufacturer: Hexafly <https://hexafly.com/product/hexafrass/> or similar and approved
- Application: Evenly spread, carefully incorporating below mulch materials.
- Application rate: To manufacturer's recommendations.
- Fertilizer not to be applied to Wildflower areas or herbaceous planting.

#### 7.2.3. 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 by the Client.
  - Fill stake holes with lightly compacted soil.

#### 7.2.4. 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. Back-fill with topsoil and refirm.

#### 7.2.5. PRUNING GENERALLY

- Standard: To BS 7370-4, BS 5837 2005
- 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.

#### 7.2.6. PRUNING OF EXCESSIVE OVERHANG

- Timing: Annually.
- Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.

- Special requirements: None.

#### 7.2.7. PRUNING OF EXCESSIVE HEIGHT

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

#### 7.2.8. 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.

#### 7.2.9. DEAD AND DISEASED PLANTS

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

#### 7.2.10. REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS

- Timing: Check beds twice a year March and September.
- Dead and damaged plants: Remove.
- Mulch: - Carefully move to one side and dig over the soil, leaving it fit for replanting.
  - Do not disturb roots of adjacent plants.
- Replacement plants: - Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater. - Additional requirements: Submit proposals.

#### 7.2.11. WEED CONTROL GENERALLY

- Timing: Twice Monthly March to October.
- 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.
- Herbicide: not desirable after planting within defects liability period.

#### 7.2.12. HAND WEEDING

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

#### 7.2.18. MAINTENANCE OF LOOSE BARK MULCH

- Thickness (minimum): Bark Mulch 50 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.

#### 7.2.19. WILDFLOWER PLANTING MAINTENANCE

- Timing: June post planting Initial Assessment
  - establishment
  - spread
  - weeds
  - flowering
- Autumn flower stalks and grasses to be left in situ as natural resources for fauna.
- Cut Back in Mid February: Arisings to be removed from site.
- Weeding: all weeding to be undertaken by hand in wildflower areas
- Fertilizer: not to be applied to Wildflower areas.

#### 7.2.20. PRUNING ORNAMENTAL SHRUBS

- Timing: When required.

- 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.

### **7.3. TREE WORK**

#### **7.3.1. TREE WORK GENERALLY**

- Standard: BS 5837:2005, BS 8545: 2014
- 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.

#### **7.3.2. ADDITIONAL WORK**

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

#### **7.3.3. PREVENTION OF WOUND BLEEDING**

- Standard: To BS 3998, clause 8.

#### **7.3.4. PREVENTION OF DISEASE TRANSMISSION**

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

#### **7.3.5. 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.

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

#### 7.3.7. FORMATIVE PRUNING OF YOUNG TREES

- Standard: Type and timing of pruning operations to suit the plant species.
- Time of year: Do not prune during the late winter/ early spring sap flow period.
- Young trees up to 4 m high:
  - Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader.
  - Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
- Operatives: Approved specialist contractor.

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

- Standards: To BS 3998, Appendix A and Health & Safety Executive (HSE)/ 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.

#### 7.3.9. 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.

#### 7.3.10. 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.