

Project 172
UCLH PROTON BEAM THERAPY
CENTRE

Landscape Maintenance Plan

172-DOC-002 rev B

November 2018





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1 Introduction

1.1 Introduction

The purpose of this plan is to provide a framework for the maintenance and management of the external roof terraces for the UCLH Proton Beam Therapy Centre development near Euston to ensure that it establishes and matures, contributing to a high quality external environment for the area.

1.2 The Development

The proposed development is a hospital building where patients go to receive treatment. Some patients will be staying in the building. There are three roof terraces within the development which have raised planters and planters along the balustrade around the edges of the terraces. There are also balustrade planters on Floor 2.

1.3 Landscape Design

The aim of the landscape design is to provide garden style planting to be viewed from both within the building, by those using the terraces (if access is allowed) and by people outside the building. This plan is focused on the soft landscape and planting. The hard landscape elements fall outside the scope of this management plan.

The theme of the planting is historical medicinal plants, all the specified plants (with the exception of a few filler plants and grasses) have herbal medicinal value and many are used as ingredients in modern medicines today.

The soft landscape elements covered by this plan comprise mixed shrub, perennial and bulb planting beds, small clipped standard trees, clipped hedging and also low rosemary hedges along the edges of the terraces.

1.4 Camden Biodiversity Action Plan

The Camden Biodiversity Action Plan outlines a series of actions to ensure biodiversity is safeguarded in the borough and that Camden's residents are given opportunities to access the natural environment.

The design of the landscaping seeks to meet the aims of the Camden Biodiversity Action Plan through the following measures:

The soft landscape includes a mixture of native and non-native species that have a value for wildlife including six species listed on the Camden BAP for landscape design namely:

- Daffodil
- Crocus
- Snowdrop
- Grape Hyacinth
- Geranium spp.
- Yarrow

The extensive green roof will have native species planted at a density of 8/m².



2 Landscape Maintenance

2.1 Introduction

This section should be read in conjunction with the Landscape Maintenance Programme contained at Appendix I and the Landscape Maintenance Specification at Appendix II and the soft landscape drawings at Appendix III and irrigation drawings at Appendix IV.

It is assumed that the landscape management of the site will be let as a single contract. A five-year plan has been provided for the planning submission, it is advised that this plan is updated at the end of that 5-year period.

2.2 Irrigation

All the soft landscaping (with the exception of the extensive green roofs) will be irrigated with a dripline irrigation system as per the drawings attached in the appendix. Irrigation is controlled to prevent over-watering in accordance by using drip feed subsurface irrigation that incorporates soil moisture sensors. The irrigation control will be zoned to permit variable irrigation to different planting assemblages. Where a sub-surface drip feed irrigation system is installed for external areas, a rainstat will also be installed to prevent automatic irrigation of the planting and the landscape during periods of rainfall.

2.3 Soft Landscape Objectives

2.3.1 Mixed Borders with Shrubs, Grasses and Perennials

The mixed borders are designed to provide year-round colour and texture with a mixture of evergreen and deciduous plants that flower or have interest via leaves or seedheads throughout the year.

The planting in the raised beds should be maintained by regular hand weeding and application of 5cm well-composted bark mulch every year or more frequently if required. Dead leaves and unsightly stems should be removed at the end of the flowering season in late autumn/early winter. Seed heads should generally be left for winter interest unless they have been damaged or broken by bad weather or some other cause.

Any plants that fail to thrive should be replaced to maintain a good ground coverage (which will also help keep weeds at bay). Slow release fertilizer should be applied once a year to provide a feed for the planting throughout the year.

2.3.2 Tree Planting (Urban)

Tree planting is proposed across the site, both within the publicly accessible areas and the private courtyard areas. Some trees are to be planted at ground level within tree pits protected by tree grilles; others are to be planted within raised tree planters. In both cases, the root balls of the tree will be confined to the limits of the pit they are planted in and as such, monitoring the nutrient levels and balance of the soils will be important. Integral drainage systems will be fitted to all tree pits.

The management objective for the tree planting is to provide the optimum growing conditions so that trees remain strong and growth is vigorous. This will be achieved by monitoring soil moisture and nutrient levels and administering water and nutrients through the irrigation system, watering pipe or by hand to maintain the health of the plants. Formative pruning will be



required in later years to ensure that the trees remain healthy and well balanced. As trees reach early maturity by the end of the 5-year management plan, some dead wood removal may be required to maintain the safety of the trees and prevent diseases. All tree works will be carried out by approved arboricultural contractors in accordance with BS 3998:2010.

2.3.3 Clipped Shrubs

The management objective for the clipped Myrtle cubes is to provide the optimum growing conditions monitoring soil moisture and nutrient levels and administering water and nutrients by an irrigation system and applying slow release fertilizer to maintain the health of the plants. Clipping will be required twice a year to maintain the shape of the cubes, this should be carried out in early spring once the new leaves have fully emerged and a second cut in mid-summer to keep them in shape. The area at the base of the clipped shrubs should be mulched with 5cm of well-composted bark mulch twice a year.

2.3.4 Hedge (Rosemary)

The Rosemary hedge is growing in planters along the balustrade on the outside edge of each roof area. It should then be clipped twice annually in early spring once the new leaves have fully emerged and a second cut in mid-summer. The area at the base of the hedge should be mulched with 5cm of well-composted bark mulch twice a year.

2.3.5 Irrigation System and Watering

The scheme includes an integral irrigation system to part of the site, refer to the irrigation system drawings at Appendix IV for details. The contractor will need to ensure that moisture levels of all planting beds and pits including those not included within the irrigation system are monitored and that watering is carried out to maintain the health of all plants.

2.3.6 Specimen Plants in Pots

The pots will be maintained with by regular hand watering or by installing a suitable irrigation system. Slow release fertilizer should be added once a year.

A drip line irrigation system will be installed to maintain the correct soil moisture levels and provide regular watering. The drip line system should be checked regularly and the timings adjusted accordingly.

2.3.7 Extensive Green Roofs

Refer to Scott Tallon Walker Architects drawings for details of the green roofs.

They will be inspected at least once annually, in the spring, for the presence of self-set woody species and other potentially invasive plant species which will be removed to prevent damage to the drainage layer beneath. Maintenance procedures for the seeded areas will provided by specialist green roof contractors on completion.

During the maintenance procedures, remove all debris and leaves from rainwater outlets, double gulleys, gutters etc. Open the lid of the Inspection chambers and ensure all rainwater outlets are free from blockages and that water can flow freely. When undertaking the maintenance inspection, ensure safe access can be gained to the roof and that the relevant Health & Safety procedures are followed.

Biodiverse roofs require minimal maintenance and will not generally require fertilising or watering. The exception to this is within the first year as they will need to be watered if the



plants are at risk of drying out before they are properly established. They will need to be monitored during the first year and watered if necessary to make sure the plants don't die.

3 Conclusion

The ongoing maintenance of the roof gardens is designed to keep the planting in good condition, to develop the garden into a neat and well-maintained communal area for people to enjoy and to learn about medicinal plants using a mixture of native and non-native plant species that provide a habitat and nectar source for invertebrates and other wildlife.

The maintenance of the extensive green roofs is to create a biodiverse and sustainable green roof system requiring minimum weeding and irrigation.



APPENDIX I – Landscape Maintenance Programme



APPENDIX II – Soft Landscape Maintenance Specification

172-UCLH Proton Beam Therapy Centre

FOR PLANNING

22 March 2018

This document includes:

Code	Section	Revision	Dated
Q28	Topsoil and soil ameliorants	-	22 Mar 2018
Q31	External planting	-	22 Mar 2018
Q35	Landscape maintenance	-	22 Mar 2018

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~~Paving/Planting/Fencing/Site furniture~~

Section Revision History

No.	Purpose	
-	FOR PLANNING	22nd Mar 2018

Clauses amended in Revision -

This is the first revision stamp for this section. For all future revision stamps, details of all clauses amended at that revision will be included here.

Q28 Topsoil and soil ameliorants

To be read with Preliminaries/ General conditions.

SYSTEM OUTLINE

135 PLANTING BED SOIL SYSTEM TO RAISED PLANTERS

- Composition:
 - Topsoil: Imported topsoil to BS 3882.
 - Ameliorants: Sanitized and stabilized composted materials.
 - Accessories: None.

155 MULCHING AND TOP DRESSING SYSTEM TO RAISED PLANTERS

- Composition:
 - Material: Composted Ornamental Bark Mulch.

PRODUCTS

300 PREPARATION MATERIALS GENERALLY

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

310 MATERIALS NOT PERMITTED

- Materials: Peat and Products containing peat.

315 IMPORTED TOPSOIL TO BS 3882 TO RAISED PLANTING BEDS

- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard: To BS 3882.
- Classification: Multipurpose.
 - Soil textural class to BS 3882, Figure 1: Sandy clay loam or Sandy loam.
- Source: Contractor's choice.
 - Product reference: Contractor's choice.

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- 345 AGGREGATES TO BASE OF RAISED PLANTERS FOR DRAINAGE
- Source: Contractor's choice.
 - Product reference: Contractor's choice.
 - Reference, description and grading:
 - Sand: Not required.
 - Grit: 10 mm single size pea shingle.
 - Crushed materials: Not required.
 - Other aggregates or particles: none.
 - Recycled content: None permitted.
- 360 SANITIZED AND STABILIZED COMPOSTED MATERIALS CERTIFIED TO PAS 100 TO RAISED PLANTING BEDS
- Standard: In accordance with PAS 100.
 - Source: Contractor's choice.
 - Product reference: Contractor's choice.
 - Horticultural parameters:
 - pH (1:5 water extract): 7.0-8.7.
 - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
 - Moisture content (m/m of fresh weight): 35-55%.
 - Organic matter content (minimum): 25%.
 - Grading (air dried samples): 99% passing 25 mm screen, and 90% passing: 5 mm screen mesh aperture.
 - Carbon:Nitrogen ratio (maximum): 20:1.
 - Texture: Friable.
 - Objectionable odour: None.
 - Compost Certification Scheme certification: Required.
 - Declaration of analysis: Submit.
 - Additional analyses: Not required.
 - Samples: Not required.

EXECUTION

- 630 DOCUMENTATION FOR IMPORTED TOPSOIL TO RAISED PLANTING BEDS
- Timing: Submit at handover.
 - Contents:
 - Full description of all soil components.
 - Record of source for all soil components.
 - Record drawings showing the location and depth of all soils by type and grade.
 - Declaration of analysis: in accordance with BS 3882, clause 6 and Table 1.
 - Number of copies: Two.
- 635 DOCUMENTATION FOR COMPOST AND COMPOSTED MATERIALS TO RAISED PLANTING BEDS
- Timing: Submit at handover.
 - Contents:
 - Full description of all compost components.
 - Record of source for all compost components.
 - Analyst's report for each test carried out.
 - Declaration of compliance: in accordance with PAS 100 and BSI PD CR 13456.
 - Quality Compost Protocol certification: Required.
 - Number of copies: Two.
- 685 SURPLUS MATERIALS TO BE REMOVED
- Topsoil removal from site: Topsoil remaining after completion of all landscaping work.
 - Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, prunings and other arisings: Remove.

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705 HANDLING TOPSOIL

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

710 SPREADING TOPSOIL ON ALL PLANTING BEDS

- Standard: In accordance with BS 3882.
- Temporary roads/ surfacing: Remove before spreading topsoil.
- Layers:
 - Depth (maximum): 150 mm.
 - Gently firm each layer before spreading the next.
- Depth after firming and settlement: 75 mm below top of planter wall to allow for application of 50mm mulch.
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

805 APPLYING SOIL AMELIORANT TO RAISED PLANTING BEDS

- Type: Compost to PAS 100.
- Locations: To all raised planters.
- Fully incorporate into topsoil to a depth of 100mm.
- Application: Spread evenly.
 - Timing: Apply prior to cultivation.
 - Rate: 50mm layer applied to top of soil.
- Timing: Prior to cultivation.
- Other requirements: None.

845 APPLYING LOOSE MULCH TO ALL RAISED PLANTERS

- Timing: Immediately after planting.
- Preparation: Ensure that soil is thoroughly moistened, applying water where necessary.
- Coverage of mulch (minimum):
 - Planting beds (depth): 50 mm depth.
 - Trees: 50 mm depth.
 - Container planting: 50 mm depth.
- Finished level of mulch: 30 mm below top of planter wall.

COMPLETION

905 APPLYING MAINTENANCE FERTILIZER TO SOIL TO RAISED PLANTERS

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

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920 APPLYING MULCH

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

Section Revision History

No.	Purpose	
-	FOR PLANNING	22nd Mar 2018

Clauses amended in Revision -

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Q31 External planting

To be read with Preliminaries/General conditions.

GENERAL INFORMATION/ REQUIREMENTS

118 SOIL CONDITIONS

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

120 CLIMATIC CONDITIONS

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

125 TIMES OF YEAR FOR PLANTING

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

130 MECHANICAL TOOLS

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

146 WATERING

- Quantity: Wet full depth of topsoil.
- Application: Even and without damaging or displacing plants or soil.
- Frequency: assess conditions at each maintenance visit and water if required or adjust irrigation system to suit.

150 WATER RESTRICTIONS

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

160 NOTICE

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

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170 SOIL REQUIREMENTS

- Type
 - Planted beds: Planting bed soil system, as section Q28.
 - Tree pits, shrub pits and other backfilling: use displaced topsoil to backfill.
 - External container planting: use displaced topsoil to backfill.
 - Mulch applied after planting: Mulching and top dressing system, as section Q28.

200 PLANTS/ TREES - GENERAL

- Condition: Materially undamaged, sturdy, healthy and vigorous.
- Appearance: Of good shape and without elongated shoots.
- Hardiness: Grown in a suitable environment and hardened off.
- Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
- Budded or grafted plants: Bottom worked.
- Root system and condition: Balanced with branch system.
 - Standard: The National Plant Specification.
- Species: True to name.
- Origin/ Provenance: Grown in the United Kingdom for at least one growing season, unless otherwise approved (plant passports must be provided for any imported plants).
Definition: Origin and Provenance have the meaning given in the National Plant Specification.

215 PLANTS/ TREES - SPECIFICATION CRITERIA

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

225 BULBS/ CORMS/ TUBERS

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

235 CONTAINER GROWN PLANTS/ TREES

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

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245 LABELLING AND INFORMATION

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

260 PLANT/ TREE SUBSTITUTION

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

265 PLANT HANDLING, STORAGE TRANSPORT AND PLANTING

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

280 TREATMENT OF TREE WOUNDS

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

290 SURPLUS MATERIAL

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

PLANT CONTAINERS

292 PREFABRICATED PLANT CONTAINERS

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Material: plastic planter liners.
- Dimensions/ Shape: to fit within the steel planters designed by the Architect.
- Lining: n/a.
- Accessories: Automatic irrigation system as section S14.

PREPARATION OF PLANTING BEDS/ PLANTING MATERIALS

385 MULCH MATTING/ GEOTEXTILE FABRIC TO SEPERATE SOIL/DRAINAGE LAYERS IN RAISED PLANTERS

- Manufacturer: Contractor's choice.
 - Product reference: Contractor's choice.
- Type: porous fleece membrane.
- Recycled content: Submit proposals.
- Timing: Lay before planting.
- Watering: Water soil thoroughly before laying.
- Laying: In close contact with soil surface. Lap or butt joints as recommended by manufacturer, with no gaps.
- Planting: Cut neat slits or flaps. Refit closely around plant stems.
- Overlay: Not required.

PLANTING SHRUBS/ HERBACEOUS PLANTS/ BULBS

405 SHRUB PLANTING PITS

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

445 PLANTING BULBS/ CORMS/ TUBERS

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

470 FORMAL HEDGES

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

480 AFTER PLANTING

- Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
- Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
- Top dressing: Ornamental composted bark mulch.
 - Depth: 50 mm.

PLANTING TREES

500 TREE PLANTING

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

502 ANTIDESICCANT FOR CONIFERS/ EVERGREENS

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

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505 TREE PITS

- Sizes: 75 mm wider than the root spread, and same depth as the rootball.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Excavated material: stockpile for backfilling.
- Pit bottoms: Excavate with slightly raised centre: take care not to disturb the drainage board or waterproofing.
 - Treatment: Not required.
- Pit sides: Scarify.
- Backfilling material: Excavated material from tree pit.

526 UNDERGROUND GUYING FOR STANDARD TREES.

- Manufacturer: Platipus.
 - Product reference: Contractor's choice.
- Anchoring system: 3 no sleeper dead-man anchors.
- Installation: Ensure tree is positioned correctly and vertically prior to tightening guy line tensioners.

PROTECTING/ MAINTAINING/ MAKING GOOD DEFECTS

710 MAINTENANCE

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

720 FAILURES OF PLANTING

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

740 CLEANLINESS

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

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750 PLANTING MAINTENANCE GENERALLY

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

760 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.

790 FINAL MULCHING

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

Section Revision History

No.	Purpose	
-	FOR PLANNING	22nd Mar 2018

Clauses amended in Revision -

This is the first revision stamp for this section. For all future revision stamps, details of all clauses amended at that revision will be included here.

Q35 Landscape maintenance

To be read with Preliminaries/ General conditions.

GENERALLY

105 MAINTENANCE OBJECTIVES

- Location: Raised planters.
 - Duration: to the end of the rectification period.
- Aims: Enhanced landscape quality.
- Restrictions: Access times and other restrictions to be agreed with the client.
- Results: Adequate establishment in accordance with the grant scheme contract to produce a high quality garden landscape.

110 NOTICE

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

130 REINSTATEMENT

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

157 WATERING

- Supply: Irrigation system from potable mains water
Check irrigation system on each maintenance visit and adjust to ensure suitable functioning
Apply additional hand watering to resolve short-term problems if required
Compacted soil: Loosen or scoop out, to direct water to rootzone.
- Frequency: As necessary for the continued thriving of all planting.

160 WATER RESTRICTIONS

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

170 DISPOSAL OF ARISING

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

180 CHIPPING OR SHREDDING

- General: Not permitted on site.

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181 MECHANICAL EQUIPMENT

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

190 LITTER

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

197 CLEANLINESS

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

FLOWER BEDS/ SEASONAL BEDDINGS

460 BEDS OF PERENNIALS OR PERENNIALS AND ANNUALS

- Plant supports: Stake and tie plants using peony rings.
 - Length: To suit plant height.
 - Maintain throughout the growing season.
- Gaps in planting: Refill by replanting.
- Watering:
 - New plants: Before and after planting out.
 - Ongoing: As necessary for the continued thriving of all planting.
- Operations at end of growing season:
 - Trim: Older flowering stems of herbaceous perennials.
 - Remove: Redundant plant supports, litter, debris and arisings.
 - Cultivate: Fork over the soil, taking care not to cause undue disturbance to plants.
 - Top dress: Apply fertiliser and 50mm mulch each season.

470 FLOWER BEDS GENERALLY

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

SHRUBS/TREES/HEDGES

500 ESTABLISHMENT OF NEW PLANTING

- Duration: to end of the rectification period.
- Weed control:
 - Method: Keep planting beds clear of weeds by hand weeding and maintaining the 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: irrigation system.

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502 ESTABLISHMENT OF NEW PLANTING - FERTILIZER

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

520 REFIRMING OF TREES AND SHRUBS

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

540 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.

605 TRIMMING SLOWLY ESTABLISHING HEDGES

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

620 REMOVAL OF DEAD PLANT MATERIAL

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

635 REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS

- Dead and damaged plants: Remove.
- Mulch/ matting materials:
 - Carefully move to one side and dig over the soil, leaving it fit for replanting.
 - Do not disturb roots of adjacent plants.
- Replacement plants:
 - Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
 - Additional requirements: None.
- Dressing: Slow release fertilizer:
 - Type: Organic.
 - Application rate: As manufacturer's recommendations.

645 WEED CONTROL GENERALLY

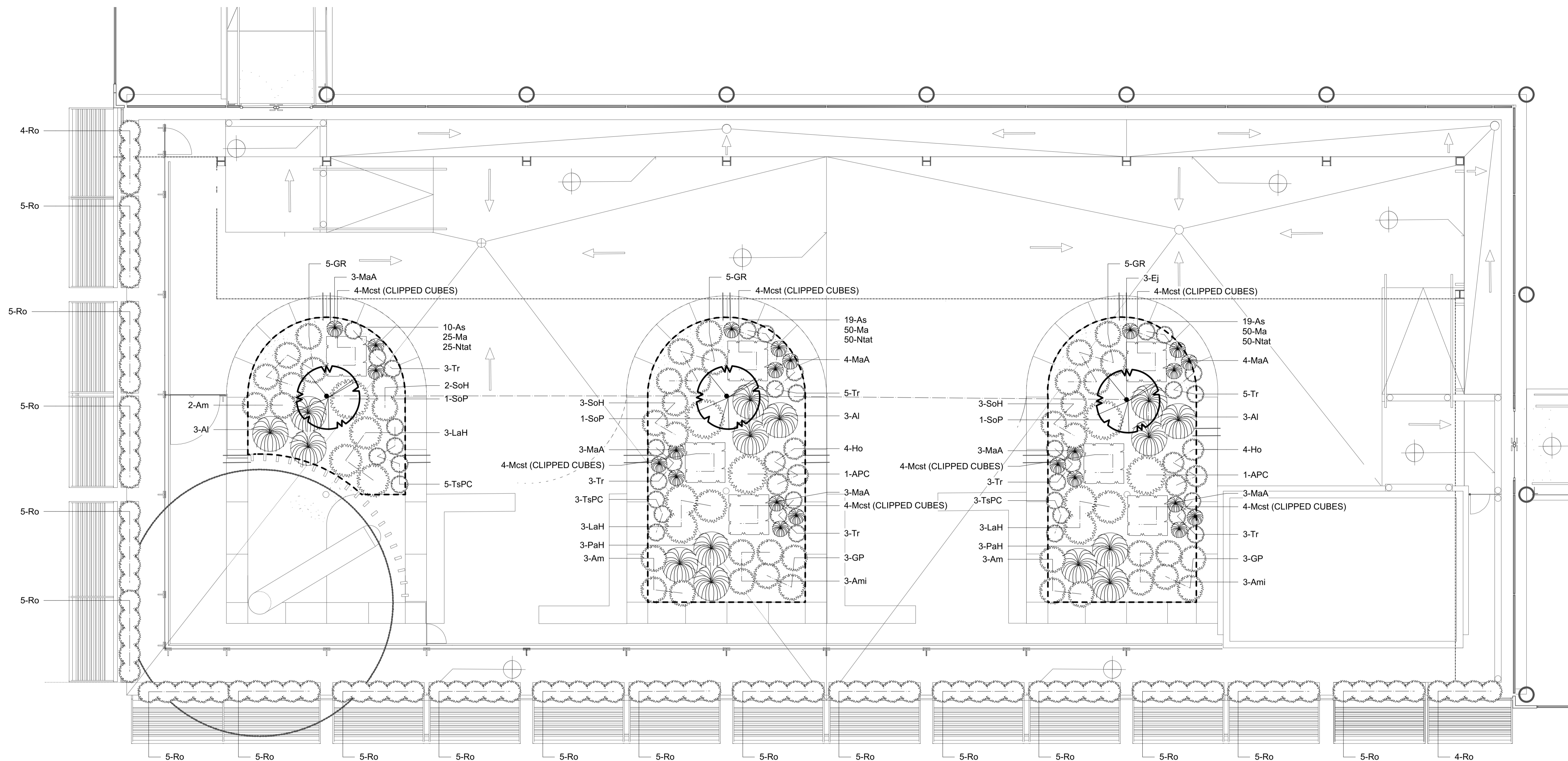
- Weed tolerance: Weed to clear ground at each maintenance visit.
- Adjacent plants, trees and grass: Do not damage.

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- 650 HAND WEEDING
- General: Remove weeds entirely, including roots.
 - Disturbance: Remove the minimum quantity of soil, and disturb plants, bulbs and mulched surfaces as little as possible.
 - Completion: Rake area to a neat, clean condition.
 - Mulch: Reinststate to original depth.
- 658 HERBICIDE
- DO NOT USE.
- 680 SOIL AERATION
- Compacted soil surfaces:
 - Prick up: To aerate the soil of root areas and break surface crust.
 - Size of lumps: Reduce to crumb and level off.
 - Damage: Do not damage plants and their roots.
- 685 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.
- 690 MAINTENANCE OF LOOSE MULCH
- Thickness (minimum): 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.
- 695 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.



APPENDIX III – Landscape Drawings



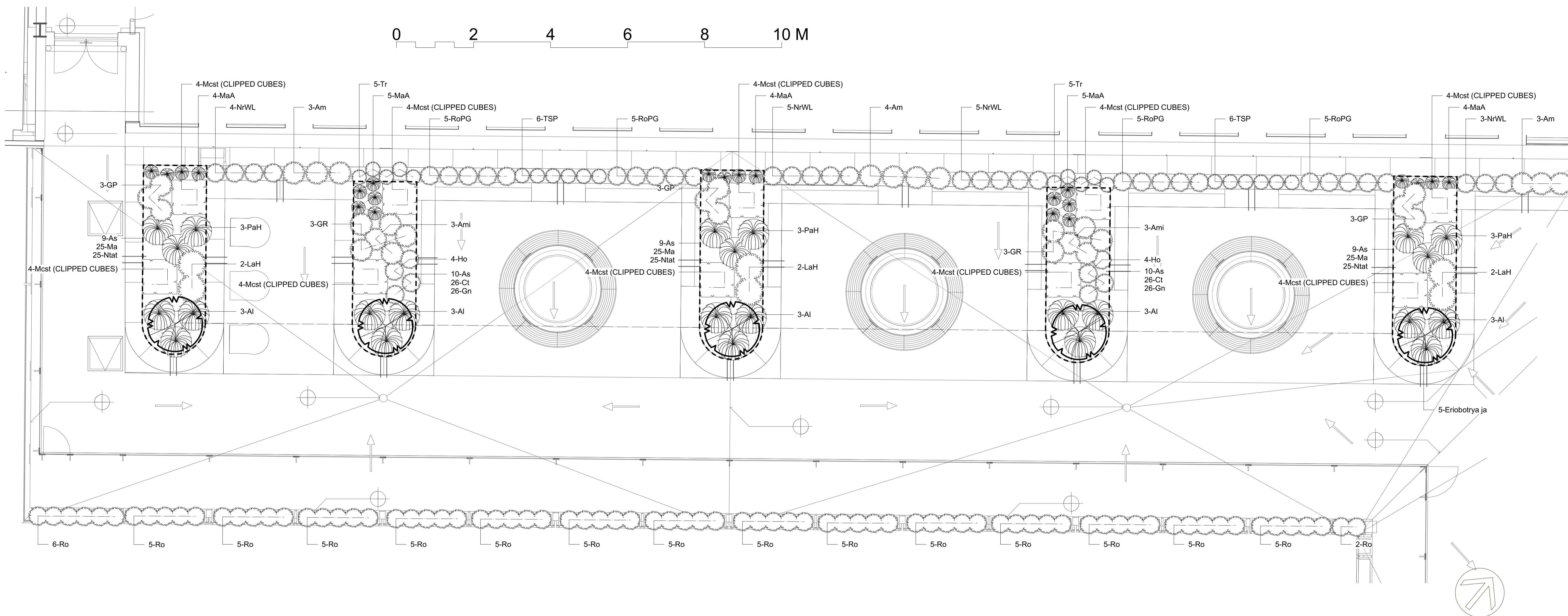
PLANT SCHEDULE - PLANTING PLAN 1			
LATIN NAME	COMMON NAME	SPECIFICATION	QTY
TREES			
Eriobotrya japonica	Loquat	12-14cm 1/2 std	3
TOTAL TREES			3
SHRUBS			
Myrtus communis subsp. tarentina	Myrtle	5 LITRE	28
TOTAL SHRUBS			28
PERENNIALS			
Achillea millefolium	Yarrow	2 LITRE	6
Alchemilla mollis	Lady's Mantle	2 LITRE	8
Artemisia 'Powis Castle'	Wormwood	2 LITRE	2
Geranium 'Patricia'	Cranesbill	2 LITRE	6
Geranium Rozanne	Cranesbill	2 LITRE	15
Hyssopus officinalis	Hyssop	2 LITRE	8
Lavandula angustifolia 'Hidcote'	Lavender	2 LITRE	9
Rosmarinus officinalis	Rosemary	2 LITRE	98
Salvia officinalis 'Purpurescens'	Purple Sage	5 LITRE	3
Stachys officinalis 'Hummelo'	Betony	2 LITRE	8
Thymus serpyllum 'Pink Chintz'	Thyme	2 LITRE	11
Trifolium rubens	Nobel Clover	2 LITRE	25
TOTAL PERENNIALS			199
GRASSES AND BAMBOOS			
Anemanthele lessoniana	Pheasant's Tail Grass	2 LITRE	9
Melica altissima 'Alba'	Siberian Melic	2 LITRE	23
Pennisetum alopecuroides 'Hameln'	Fountain Grass	2 LITRE	6
TOTAL GRASSES AND BAMBOOS			38
BULBS			
Allium sphaerocephalon	Round-headed Leek	BULBS	48
Muscari armeniacum	Grape Hyacinth	BULBS	125
Narcissus 'Tete-a-Tete'	Daffodil	BULBS	125
TOTAL BULBS			298
TOTAL			566

Plant Key	Latin Name
Al	Anemanthele lessoniana
Am	Alchemilla mollis
Ami	Achillea millefolium
APC	Artemisia 'Powis Castle'
As	Allium sphaerocephalon
Ej	Eriobotrya japonica
GP	Geranium 'Patricia'
GR	Geranium Rozanne
Ho	Hyssopus officinalis
LaH	Lavandula angustifolia 'Hidcote'
Ma	Muscari armeniacum
MaA	Melica altissima 'Alba'
Mcst (CLIPPED CUBES)	Myrtus communis subsp. tarentina
Ntat	Narcissus 'Tete-a-Tete'
PaH	Pennisetum alopecuroides 'Hameln'
Ro	Rosmarinus officinalis
SoH	Stachys officinalis 'Hummelo'
SoP	Salvia officinalis 'Purpurescens'
Tr	Trifolium rubens
TsPC	Thymus serpyllum 'Pink Chintz'

D		
C		
B		
A	16.03.18	Bulbs added, Foxgloves and Hellebores removed
Rev	Date	Details


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Client:		
Project: UCLH Proton Beam Therapy Centre		
Drawing Title: Third Floor Planting Plan		
Phase: FOR PLANNING		
Drawing Number: 172-PL-001	Rev: -	Date: 30.01.18
Drawn by: AF	Scale: 1:50@A1	
DO NOT SCALE FROM DRAWING.		



PLANT SCHEDULE - PLANTING PLAN 2			
LATIN NAME	COMMON NAME	SPECIFICATION	QTY
TREES			
<i>Eriobotrya japonica</i>	Loquat	12-14cm 1/2 std	5
TOTAL TREES			
SHRUBS			
<i>Myrtus communis</i> subsp. <i>tarentina</i>	Myrtle		5 LITRE 40
TOTAL SHRUBS			
PERENNIALS			
<i>Achillea millefolium</i>	Yarrow		2 LITRE 6
<i>Alchemilla mollis</i>	Lady's Mantle		2 LITRE 10
<i>Geranium 'Patricia'</i>	Cranesbill		2 LITRE 9
<i>Geranium Rozanne</i>	Cranesbill		2 LITRE 6
<i>Hyssopus officinalis</i>	Hyssop		2 LITRE 8
<i>Lavandula angustifolia</i> 'Hidcote'	Lavender		2 LITRE 6
<i>Nepeta racemosa</i> 'Walker's Low'	Catmint		2 LITRE 17
<i>Rosmarinus officinalis</i>	Rosemary		2 LITRE 78
<i>Rosmarinus officinalis Prostratus Group</i>	Rosemary		2 LITRE 20
<i>Thymus 'Silver Posie'</i>	Thyme		2 LITRE 12
<i>Trifolium rubens</i>	Nobel Clover		2 LITRE 10
TOTAL PERENNIALS			
GRASSES AND BAMBOOS			
<i>Anemanthele lessoniana</i>	Pheasant's Tail Grass		2 LITRE 15
<i>Melica altissima</i> 'Alba'	Siberian Melic		2 LITRE 22
<i>Pennisetum alopecuroides</i> 'Hameln'	Fountain Grass		2 LITRE 9
TOTAL GRASSES AND BAMBOOS			
BULBS			
<i>Allium sphaerocephalon</i>	Round-headed Leek		BULBS 47
<i>Crocus tommasinianus</i>			BULBS 52
<i>Galanthus nivalis</i>	Snowdrop		BULBS 52
<i>Muscari armeniacum</i>	Grape Hyacinth		BULBS 75
<i>Narcissus 'Tete-a-Tete'</i>	Daffodil		BULBS 75
TOTAL BULBS			
TOTAL			

Plant Key	Latin Name
Al	<i>Anemanthele lessoniana</i>
Am	<i>Alchemilla mollis</i>
Ami	<i>Achillea millefolium</i>
As	<i>Allium sphaerocephalon</i>
Ct	<i>Crocus tommasinianus</i>
Ej	<i>Eriobotrya japonica</i>
Gn	<i>Galanthus nivalis</i>
GP	<i>Geranium 'Patricia'</i>
GR	<i>Geranium Rozanne</i>
Ho	<i>Hyssopus officinalis</i>
LaH	<i>Lavandula angustifolia</i> 'Hidcote'
Ma	<i>Muscari armeniacum</i>
MaA	<i>Melica altissima</i> 'Alba'
Mcst (CLIPPED CUBES)	<i>Myrtus communis</i> subsp. <i>tarentina</i>
NrWL	<i>Nepeta racemosa</i> 'Walker's Low'
Niat	<i>Narcissus 'Tete-a-Tete'</i>
PaH	<i>Pennisetum alopecuroides</i> 'Hameln'
Ro	<i>Rosmarinus officinalis</i>
RoPG	<i>Rosmarinus officinalis Prostratus Group</i>
Tr	<i>Trifolium rubens</i>
TSP	<i>Thymus 'Silver Posie'</i>

Rev	Date	Details
A	16.03.18	Bulbs added, Foxgloves and Hellebores removed

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Client: _____

Project: UCLH Proton Beam Therapy Centre

Drawing Title: Fifth Floor Planting Plan - West

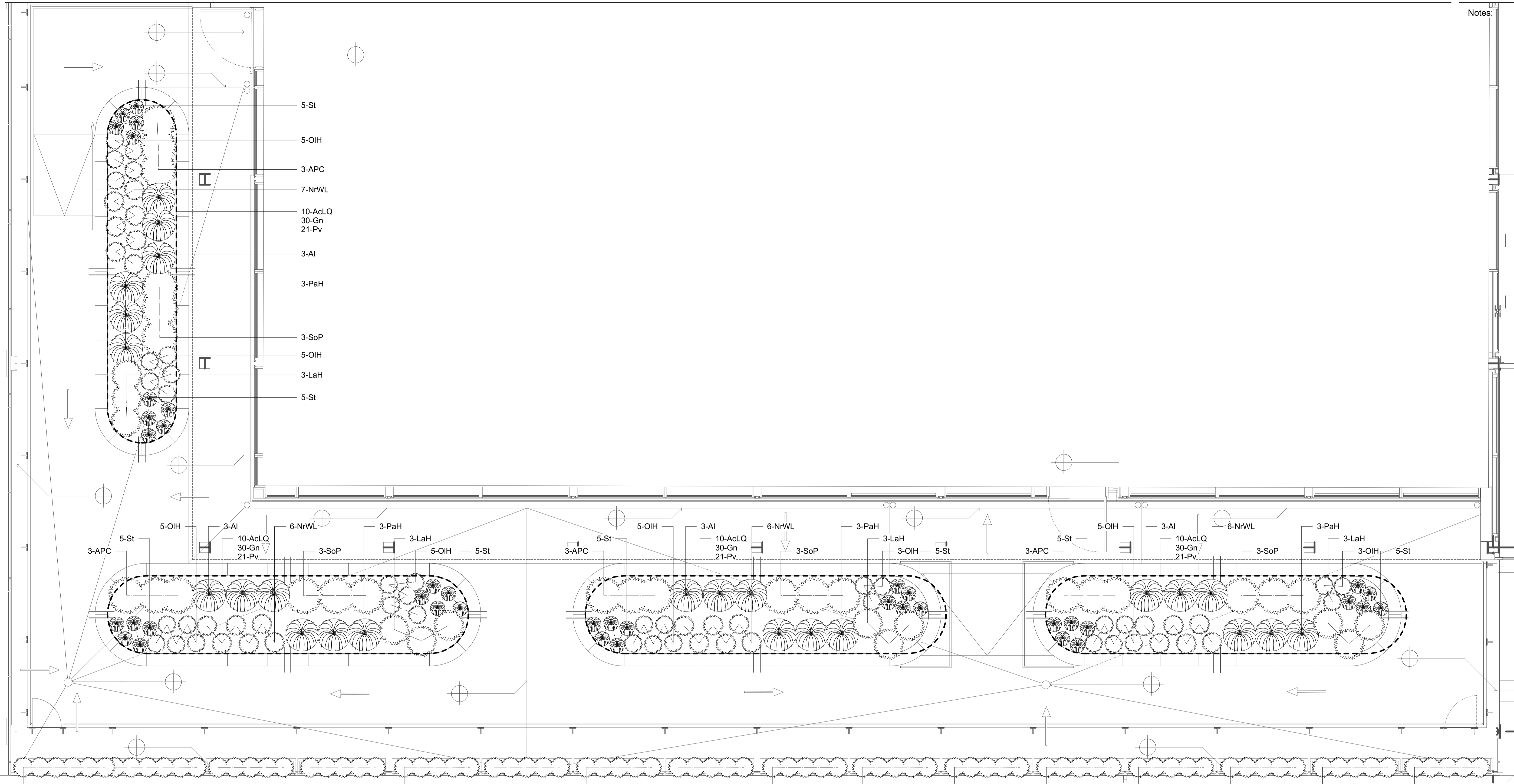
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Drawing Number: 172-PL-002 Rev: - Date: 30.01.18

Drawn by: AF Scale: 1:50@A1

DO NOT SCALE FROM DRAWING.

Notes:



PLANT SCHEDULE - PLANTING PLAN 4			
LATIN NAME	COMMON NAME	SPECIFICATION	QTY
PERENNIALS			
<i>Aquilegia chrysantha</i> 'Yellow Queen'	Granny's Bonnet	2 LITRE	40
<i>Artemisia 'Powis Castle'</i>	Wormwood	2 LITRE	12
<i>Lavandula angustifolia</i> 'Hidcote'	Lavender	2 LITRE	12
<i>Nepeta racemosa</i> 'Walker's Low'	Catmint	2 LITRE	25
<i>Origanum laevigatum</i> 'Herrenhausen'	Origano	2 LITRE	36
<i>Primula vulgaris</i>	Primrose	9CM	84
<i>Rosmarinus officinalis</i>	Rosemary	2 LITRE	82
<i>Salvia officinalis</i> 'Purpurescens'	Purple Sage	5 LITRE	12
TOTAL PERENNIALS			303
GRASSES AND BAMBOOS			
<i>Anemanthella lessoniana</i>	Pheasant's Tail Grass	2 LITRE	12
<i>Pennisetum alopecuroides</i> 'Hamelin'	Fountain Grass	2 LITRE	12
<i>Stipa tenuissima</i>	Mexican Feather Grass	2 LITRE	40
TOTAL GRASSES AND BAMBOOS			64
BULBS			
<i>Galanthus nivalis</i>	Snowdrop	BULBS	120
TOTAL BULBS			120
TOTAL			487

Plant Key	Latin Name
Ro	<i>Rosmarinus officinalis</i>

Rev	Date	Details
A	16.03.18	Bulbs added, Foxgloves and Hellebores removed


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Client:

Project:
UCLH Proton Beam Therapy Centre

Drawing Title:
First Floor Planting Plan

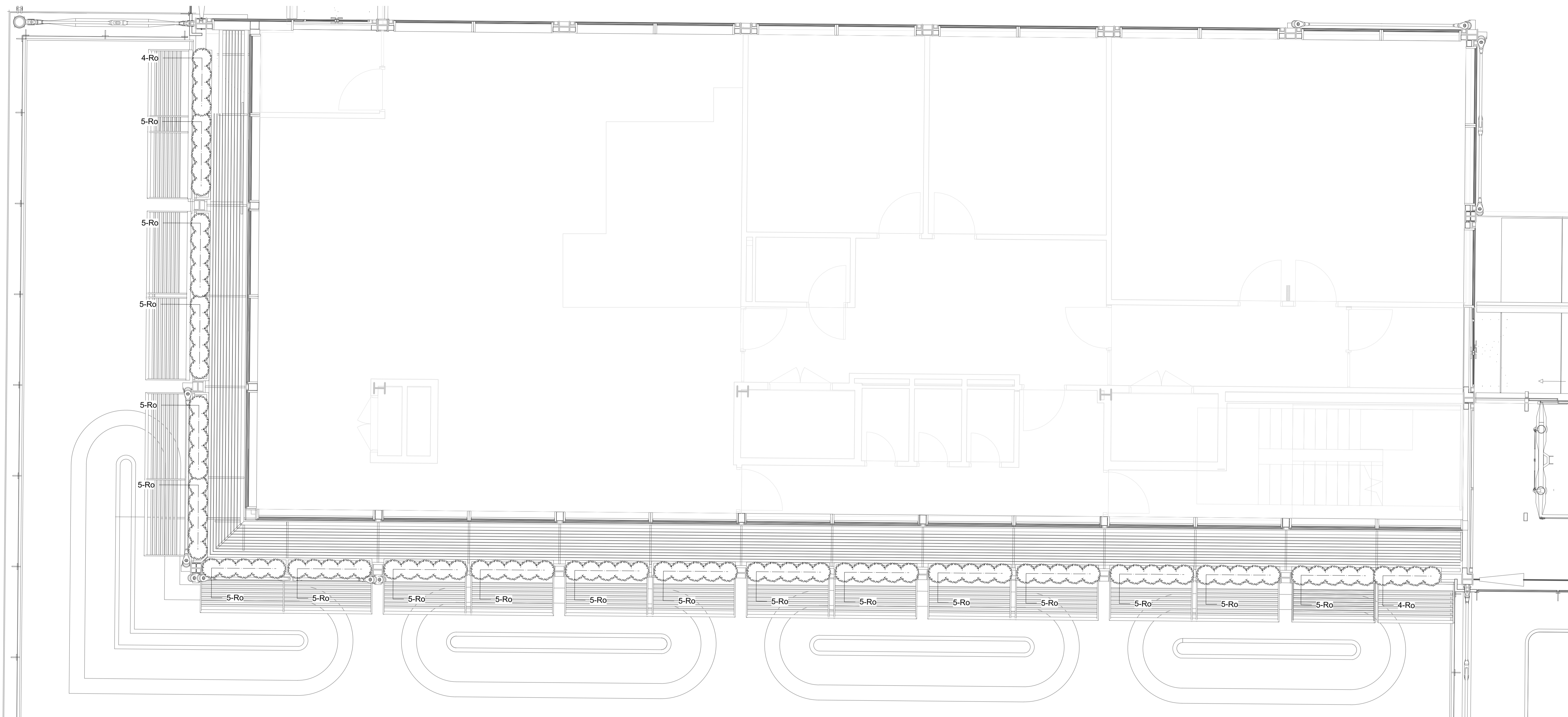
Phase:
FOR PLANNING

Drawing Number: 172-PL-004	Rev: -	Date: 30.01.18
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AF

Scale:
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Client:

Project:
UCLH Proton Beam Therapy Centre

Drawing Title:
Second Floor Planting Plan

Phase:
FOR PLANNING

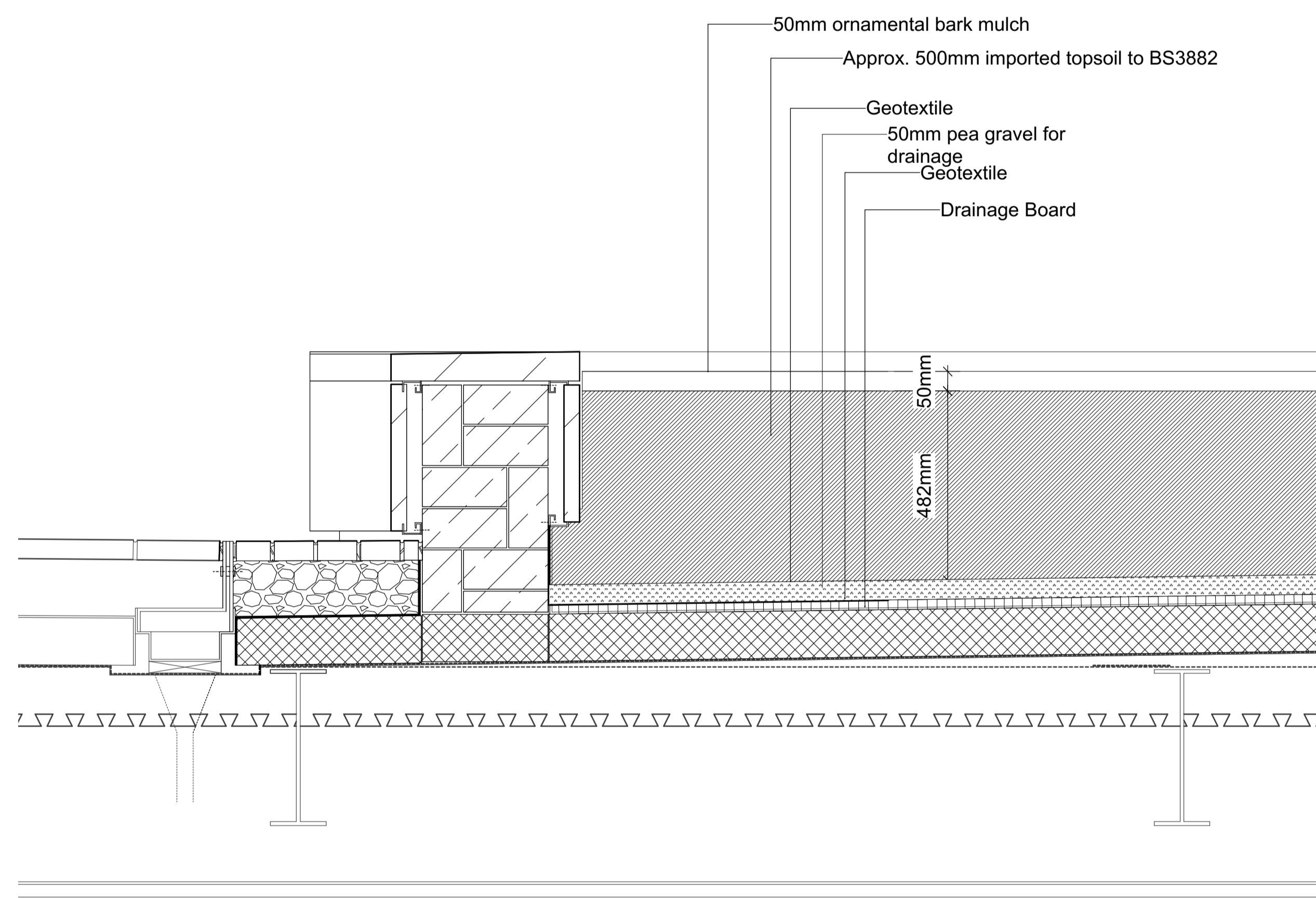
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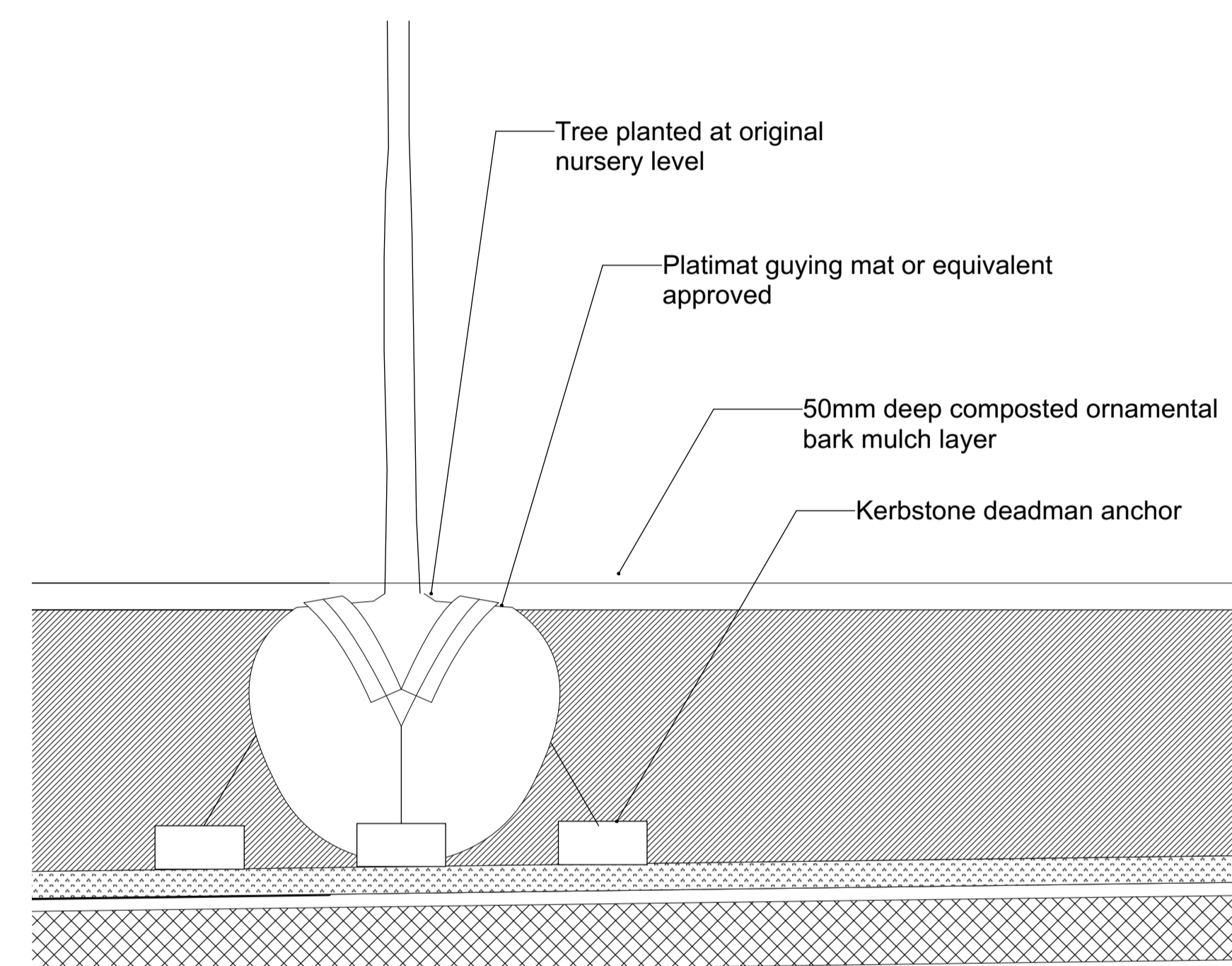
DO NOT SCALE FROM DRAWING.

Plant Key	Latin Name
Ro	Rosmarinus officinalis

PLANT SCHEDULE - PLANTING PLAN 5			
PERENNIALS	COMMON NAME	SPECIFICATION	QTY
Rosmarinus officinalis	Rosemary	2 LITRE	98
TOTAL PERENNIALS			98
TOTAL			98



Detail A - Typical Planter Soils Build-up



Detail B - Tree Anchoring Detail

D		
C		
B		
A		
Rev	Date	Details


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Client:

Project:
UCLH Proton Beam Therapy Centre

Drawing Title:
Soft Landscape Details

Phase:
FOR PLANNING

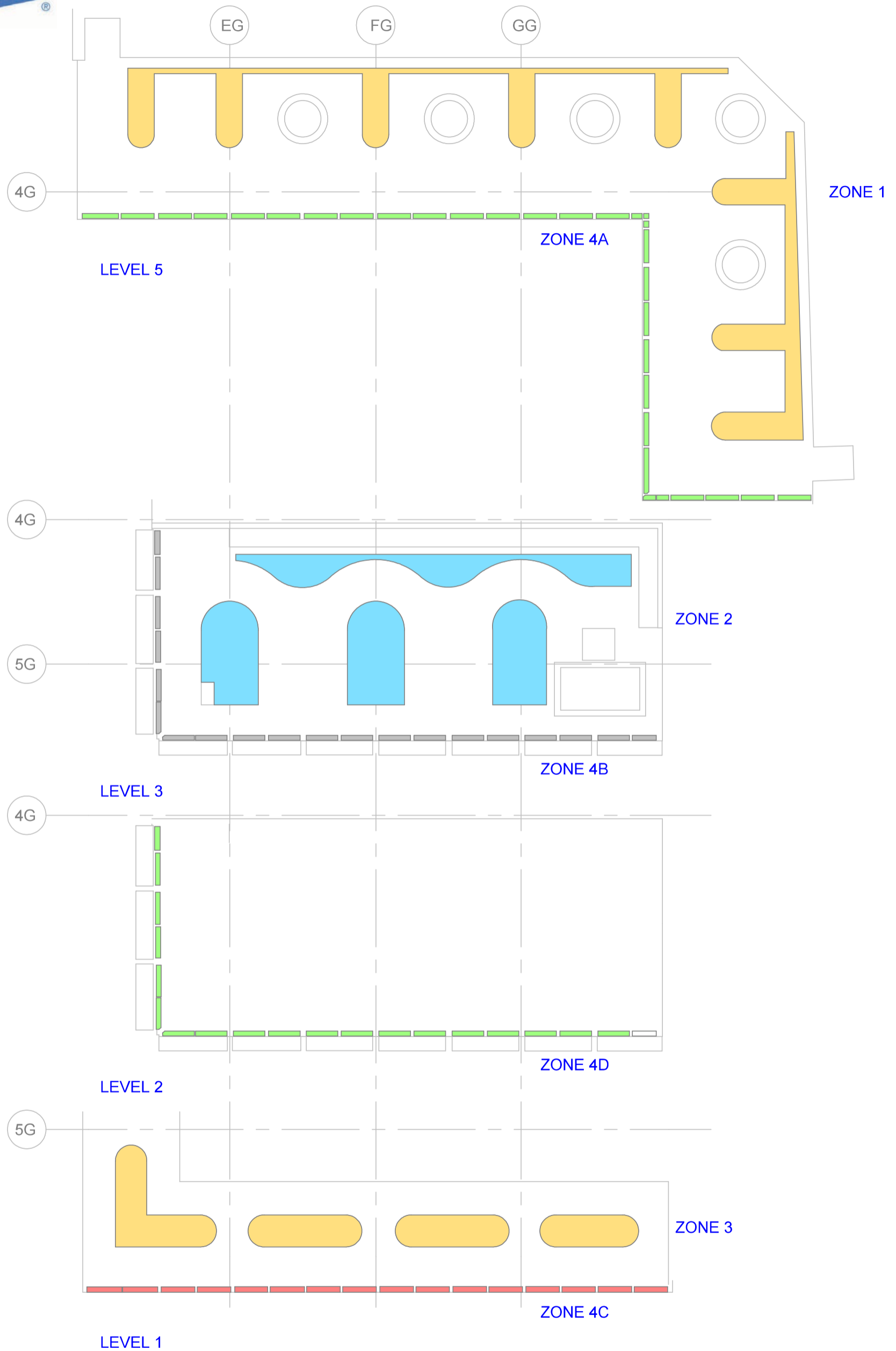
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DO NOT SCALE FROM DRAWING.

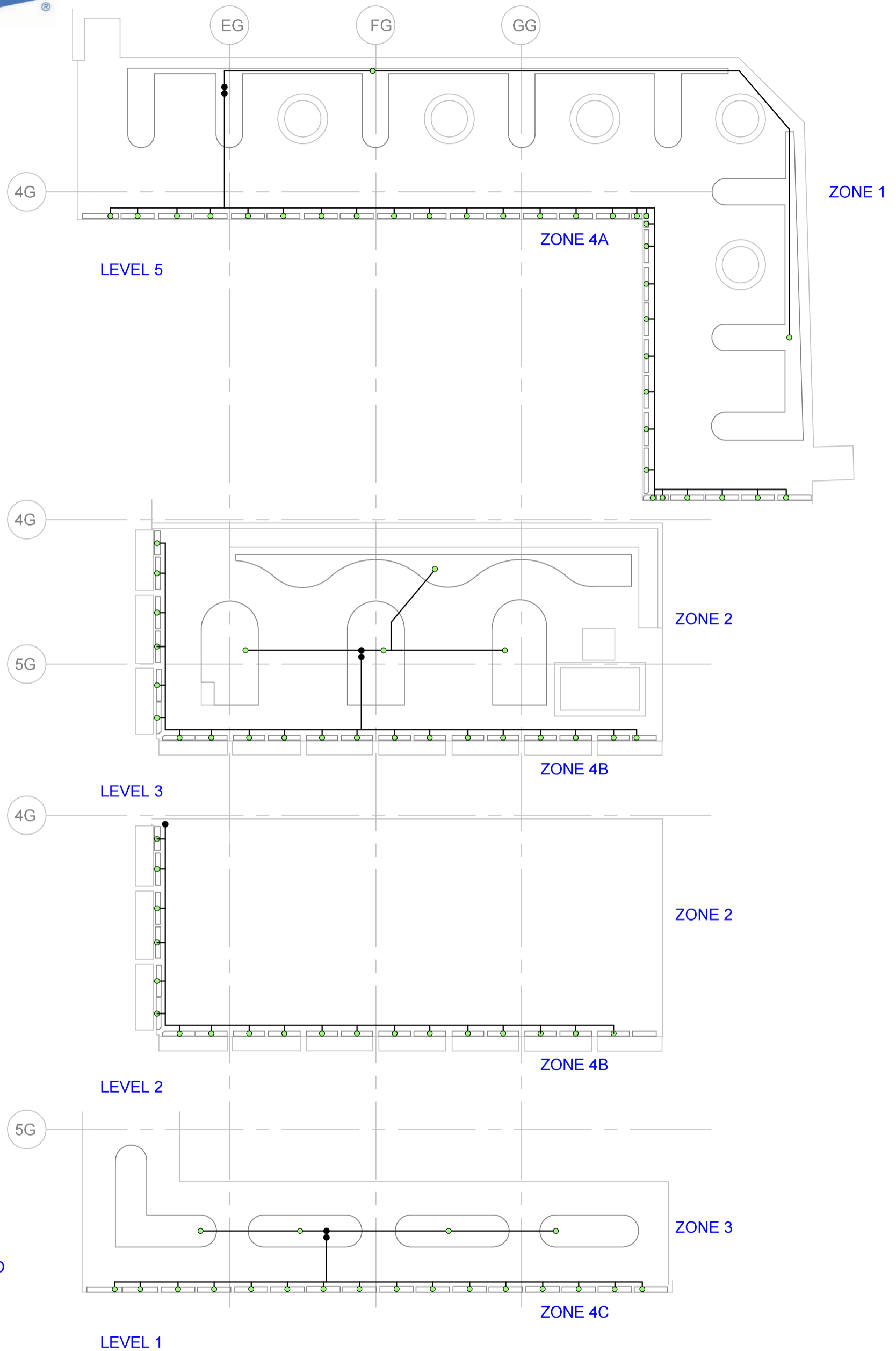


APPENDIX IV – Irrigation Drawings



KEY	
	AREAS WITH PERMADRIIP-PRO DRIPLINE

Project:	UCLH
Title:	IRRIGATED AREAS
Scale:	1:250 @ A3
Date:	22/02/18
Drawing No:	8482R1 01



LOCATION OF PUMP, TANK AND CONTROLS TO BE CONFIRMED

KEY

- CONNECTION TO DRIFLINE
- CONNECTION TO SUPPLY PIPE
- PIPEWORK ROUTE AT ROOF LEVEL

Project: UCLH

Title: SYSTEM LAYOUT

Scale: 1:250 @ A3

Date: 22/02/18

Drawing No: 8482R1 02