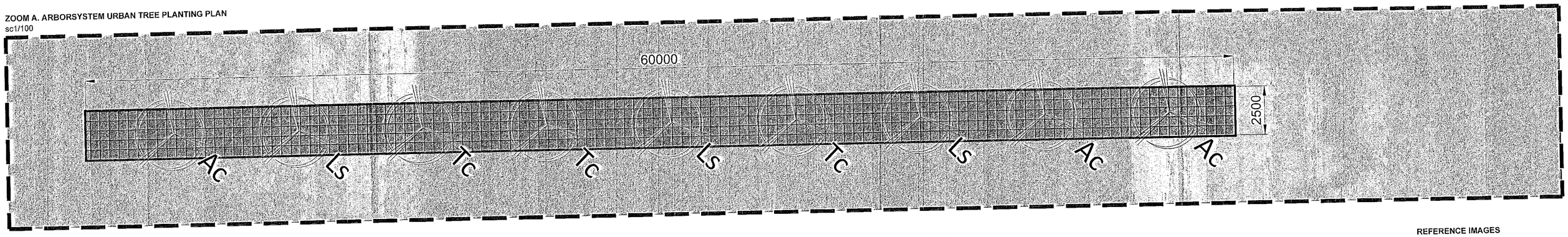
LIFFEY VALLEY HOTEL
Sustainable Urban Drainage Systems

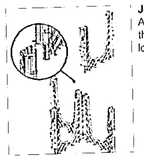
ZOOM A. ARBORSYSTEM URBAN TREE PLANTING PLAN
sc1/100



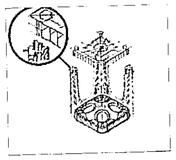
GENERAL INSTALLATION INSTRUCTIONS
(see the RootSpace Airform nstallation & Maintenance Manual and/or the Utilities & RootSpace Airform Guide for additional details)

1.Layout and mark tree locations, area to be excavated and underground utilities. (Note: Include an extra 300mm around the perimeter for ease of installation and backfill compaction.)
2. Determine the excavation depth, and excavate for the ARBORSYSTEM®. (NOTE: Excavation depth is the sum of the aggregate sub-base thickness, the ROOTSPACE® AIRFORM SYSTEM depth (see plan details), the aggregate pavement base thickness, and the pavement material thickness.)
3. Ensure that the native soil meets the engineers load bearing specifications. Always check the pit dimensions at the base of the pit, ensuring that sides are clean and square.
4. If specified, install the the drainage piping. (NOTE: Adequate drainage from tree pit shall be provided if design incorporates stormwater management, or if required by site conditions.)
5. Place the sub-base aggregate at the specified thickness and compact a minimum of three passes using a plate compactor. Level, screed, and properly compact the aggregate sub-base before installing the ROOTSPACE® AIRFORM SYSTEM.
6. If specified, place the ARBORGRID™ SOIL REINFORCEMENT MESH flat on top of the sub-base aggregate allowing it to extend a minimum of 150mm beyond the ROOTSPACE® AIRFORM SYSTEM base footprint.
7. Layout and mark the centerpoint of the tree.
8. Install the base layer of ROOTSPACE® AIRFORM UPRIGHTS according to the plan. (NOTE: Typically you would start from the center point of the tree and work outward to the edges. If specified, leave uprights out of the tree well area.)
9. In applications where a single row of the ROOTSPACE® AIRFORM SYSTEM is installed, anchor the UPRIGHTS to the tree pit sub-base aggregate using 9.5mm x 200mm galvanized spiral spikes.
10. If specified, install the ROOTSPACE® AIRFORM SIDE INFILL PANELS adjacent to vehicle traffic areas.
11. If designed as a two layer system, install the top layer of ROOTSPACE® AIRFORM UPRIGHTS on top of the base layer of ROOTSPACE® AIRFORM UPRIGHTS. (If specified, leave the uprights out of the tree well area.)
12. Install the ROOTSPACE® AIRFORM AIRFLOW™ TOP DECKS around the perimeter.
13. Wrap the ROOTSTOP™ SMOOTH ROOT BARRIER around the outside of the ROOTSPACE® AIRFORM SYSTEM. (NOTE: Overlap the seam 250mm- 300mm, and seal with seam tape. If needed, stakes or duct tape can be used to hold the ROOTSTOP™ flat against the vertical sides of the ROOTSPACE® AIRFORM SYSTEM.) If specified, COMBIGRID™ or ARBORGRID™ SOIL REINFORCEMENT MESH can also be used to wrap the outside of the ROOTSPACE®AIRFORM SYSTEM.
14. Place backfill material in the space between the sides of the excavation and the ROOTSTOP™ SMOOTH ROOT BARRIER in ~ 250mm lifts and compact with a plate compactor, or jumping jack compactor. Ensure that the compaction equipment doesn't damage the ROOTSTOP™. (NOTE: Only backfill 20mm the height of the ROOTSPACE® AIRFORM SYSTEM.) At this stage place the ROOTSPACE® AIRFORM inside of the ROOTSPACE® AIRFORM UPRIGHTS.
15. Place the planting soil inside of the ROOTSPACE® AIRFORM SYSTEM in 300mm lifts and foot compact by walking through the soil. (NOTE: Do no install the ROOTSPACE® AIRFORM AIRFLOW™ TOP DECKS in the area where the tree will be planted.)
16. Place the remaining ROOTSPACE AIRFORM AIRFLOW™ TOP DECKS on the system. (NOTE: Leave four (4) Lids out where the tree is to be planted.)
17. Fill the ROOTSPACE AIRFORM AIRFLOW™ TOP DECKS with planting soil. A plate compactor may be used to settle the soil in the system. (NOTE: This compensates for soil settlement within the system.)
18. If specified, install the ROOTDIRECTOR™ PRE-FORMED ROOT MANAGEMENT SYSTEM at each of the tree pit openings.
19. Lay the COMBIGRID™ (heavy white geogrid/fabric) horizontally on top of the ROOTSPACE AIRFORM AIRFLOW™ TOP DECKS, allowing it to fold vertically down the sides of the ROOTSPACE® AIRFORM SYSTEM and horizontally across the backfill around the perimeter. (NOTE: Typically 250mm- 300mm vertically and 250mm - 300mm horizontally.)
20. At each tree pit opening, cut an "X" in the COMBIGRID™ and fold it back around the ROOTDIRECTOR™ PRE-FORMED ROOT MANAGEMENT SYSTEM, or if forming the treepit opening for concrete, then fold it on the inside of the concrete form.
21. Layout and install the ARBORVENT™ 150 AERATION/IRRIGATION INLETS. (Cut an "X" and fold back the COMBIGRID™. Place the pipe flush with the top of the ROOTSPACE® AIRFORM AIRFLOW™ LID. Trim the pipe as required so that the top of the ARBORVENT™ 150 AERATION/IRRIGATION INLET will be flush with the finished elevation of the pavement.)
22. Place the aggregate pavement base at the specified thickness, on top of the COMBIGRID™ (heavy white geogrid/fabric) and compact with a plate compactor. (NOTE: Place the concrete forms around the inside of the tree pit opening. Hold the aggregate back 100mm - 150mm from the concrete forms and taper it to form a thickened edge around the tree pit opening.
23. Place and finish the concrete.
24. Remove the planting soil as required to plant the tree.
25. Place the tree rootball in the tree well.
26. Place the REROOT™ RIBBED ROOT BARRIER vertically around the inside of the tree pit opening, and against the edge of the tree pit opening. (NOTE: The ribs face the tree. Overlap the seam 1-2 ribs, and seal with seam tape.)
27. Place the tree in the tree well. If specified, install the ROOTRAIN™ AERATION/IRRIGATION ROOTBALL LOOP around the rootball, and install the ROOTRAIN™ INLET. Backfill the planting soil around the rootball as required.
28. Backfill the planting soil around the rootball as required.
29. If specified, install the tree grate and tree guard.
30. Clean up as required and water the tree.

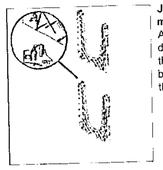
ROOTSAPCE AIRFORM SYSTEM ASSEMBLY INSTRUCTIONS



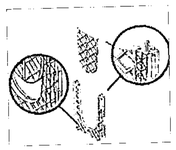
Joining the Uprights
Align the lower tab into the slot and push the the Upright straight down until both tabs are locked into position.



Installing the AirFlow™ Top Deck
Locate the AirFlow™ Top Deck on the top tabs and press down until it clicks into place.

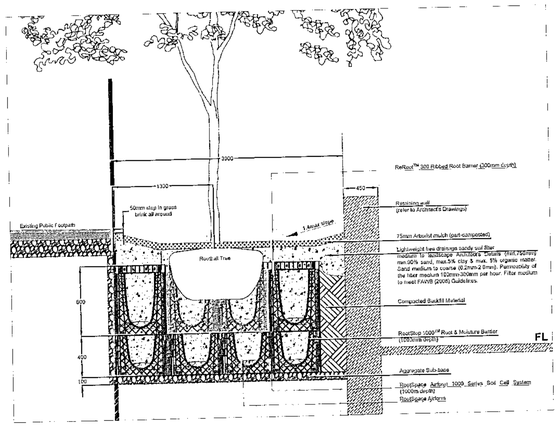


Joining two Uprights vertically for a multi-layer system
Align the Upright on the top tabs and press down until it clicks in place. Continue joining the Uprights across the the base layer. The base layer must be completed before installing the second layer.



Installing the Side Infill Panel (optional)
Align the Side Infill Panel the male and female guides and slide the panel down. Ensure that the panel pins engage and click in place.

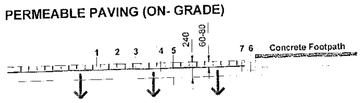
ARBORYSTEM URBAN TREE PLANTING DETAIL sc1/30



PERMEABLE PAVING (PODIUM)

PERMEABLE PAVING
1 - Selected paving blocks
2 - 6.3-2mm grit laying course material to BS EN13242:2002. Compaction: In accordance with BS 7533-3. Determine by trial the depth of loose bedding material needed to ensure specified bedding course thickness after final compaction of paving. Nominal thickness after compaction: 70mm
3 - Well compacted Sub-Base clean stone 4/20mm aggregate to BS EN13242:2002. Compacted thickness: 100-225mm
4 - Water proof layer
5 - Podium slab

PERMEABLE PAVING (ON- GRADE)



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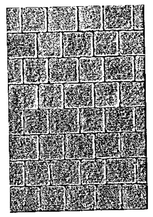
2 - 6.3-2mm grit laying course material to BS EN13242:2002. Compaction: In accordance with BS 7533-3. Determine by trial the depth of loose bedding material needed to ensure specified bedding course thickness after final compaction of paving. Nominal thickness after compaction: 70mm
3 - Polypropylene, Non-woven
4 - 150mm Well compacted Sub-Base clean stone 4/20mm aggregate to BS EN13242:2002.
5 - Subgrade
IN-SUTI KERB
6 - MCD-05b kerb or other as approved
7 - C30N Concrete Haunching

REFERENCE IMAGE



TECHNICAL SPECIFICATION

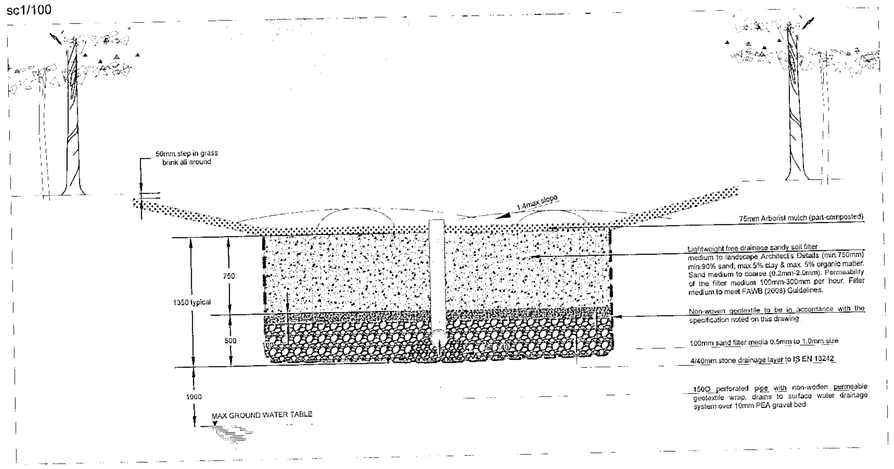
PRODUCT REFERENCE:
Hydropave Tegula

COLOR: mix of 4 colors, including Bracken, Cedar, Charcoal, Slate

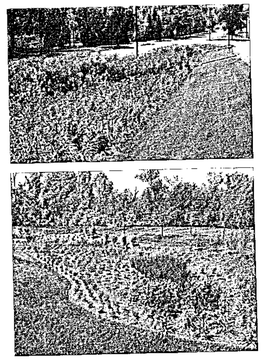
SUPPLIER:
Tobermore.co.uk or similar approved.

QUANTITY: 1351.1 sq.m.

RAIN GARDEN SECTION
sc1/100



REFERENCE IMAGES



MAINTENANCE REQUIREMENTS FOR BIORETENTION SYSTEMS & TREE PITS

REGULAR INSPECTIONS
Inspect infiltration surface for silting and ponding, record de-watering time of the facility and access standing water levels in underdrain (if appropriate) to determine if maintenance is necessary. Frequency - quarterly.
Check operation of underdrains by inspection of flows after rain. Frequency - annually.
Access plants for disease infection, poor growth, invasive species etc and replace as necessary. Frequency - quarterly.
Inspect inflects and outlets for blockage. Frequency - quarterly.

REGULAR MAINTENANCE

Remove litter and surface debris and weeds. Frequency - quarterly (or more frequently for tidiness or aesthetic reasons)
Replace any plants, to maintain planting density. Frequency - as required.
Remove sediment, litter and debris build-up from around inlets or from forebays. Frequency - quarteriy to biannually.
Infill any holes or scour in the filter medium, improve erosion protection if required. Frequency - as required.
Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch. Frequency - as required.

REMEDIAL ACTIONS
Remove and replace filter medium and vegetation above. Frequency - as required but likely to be > 20 years.

NOTE:
1. Non-woven geotextile specification shall:
   - sustain a tensile load of not less than 5.0kN/m at break and have a minimum failure strain of 10% when determined in accordance with IS EN 10319;
   - have a minimum puncture resistance of 1200N when determined in accordance with IS EN 12236;
   - have a size distribution of pore openings such that the apparent opening size 090 when determined in accordance with IS EN 12956, or other appropriate test, is less than 300 microns;
   - allow water to flow through it, in either direction, normal to its principal plane at a rate of not less than 10l/m²/s, under a constant head of water of 100mm and a maximum break through head of 50mm when determined in accordance with IS EN 12958.

TREE PLANTING SPECIFICATION

Tree planting throughout the scheme has been selected to blend the development in to its surrounding environs and create focal points within the development. The tree species selected will maximise food and nectar sources for birds and invertebrates. Trees will be planted as Standard and Heavy Standard to provide a reasonable degree of instant maturity to the development. All trees shall be planted between the months of Nov and March. The trees shall be purchased from a reputable nursery as rootball specimens and final order to be agreed by Landscape Architect; The trees shall be planted on delivery. If this is not possible due to weather conditions (wet or frosty), the plants must be healed in. Maintenance Watering is essential during the first 2 growing seasons regardless of the weather conditions - 1000Lt / Tree/ Month.

Methodology and Guidance Notes: The tree pit should have a diameter at least 100mm greater than that of the root system, with the depth not exceeding the rootball. Any glazed or smeared sides caused by digging shall be scarified with the use of a fork. The tree will be positioned in the centre of the planting pit at the correct depth, taking into account the root flare and finished level. Prior to backfilling the hessian twine/wire cage supporting the rootball shall be loosened or removed. Backfilling shall be carried out in layers of 150mm, ensuring the tree is held upright. At each stage the fill will be carefully firmed in to eliminate air pockets under and around the root system. The final layer of backfill will not be consolidated, but should be of a sufficient depth to allow for settlement and mulching. Formative pruning should be carried out if required, removing dead, damaged, crossing or diseased branches. Refer to Tree planting specification for tree achoring system. All trees planting operation will be carried in accordance with BS8545:2014 Trees: from nursery to independence in the landscape -Recommendations.

ABROSYSTEM

Code	Scientific name	Common name	Size	Quantity
Ac	*Acer Campestre 'elsrijk'*	Field maple	r/b, 4x trpt 20-25cm girth	7
Ls	*Liquidamber styraciflua*	Sweetgum	r/b, 4x trpt 20-25cm girth	7
Tc	*Tilia Cordata 'Greenspire'^*	Small leaved lime	r/b, 4x trpt 20-25cm girth	5

BIO-RETENTION AREA

Code	Scientific name	Common name	Size	Quantity
Al	*Alnus glutinosa*	Alder	2X 8-10cm girth, 2.5-3m tall	6
Sa	*Salix alba*	Willow	2X 8-10cm girth, 2.5-3m tall	4

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C_30/03/23_SUDs - Details PS
REV DATE REVISION DRAWN

CLIENT
WINMAR DEVELOPMENTS ULC.

PROJECT TITLE
Liffey Valley Hotel, Dublin 22

PROJECT ARCHITECT
EMD Architects

SHEET TITLE
Sustainable Urban Drainage System - Details

SHEET NO. 22193_LiffeyValley_FI_C_SUDsD
SHEET SIZE A1
SCALE as shown
REVISION C
STAGE Further Information
DATE March 202