OUTLINE SPECIFICATION NOTES FOR PUBLIC OPEN SPACE

250x300mm golden coloured CE-marked granite kerb, bull-nosed with radiused corner to exposed edge. Mitre-cut at corners. with a medium bush-hammered finish. All works and finishes in public realm to be agreed with

- local authority by means of condition or compliance. 2. 2.00m width public footpath of insitu concrete treated with an exposed aggregate retarder, joints at 3.00m centres. All works and finishes in public realm to be agreed with local authority by means of condition or compliance.
- 3. 1.20m ht 'estate railing' galvanised and painted mild steel fence along public footpath
- 4. Hornbeam transplant hedge to be formally clipped and to mature to approx 1.20m ht above the finished level of the public footpath (mature form shown dashed) 5. 8-10° gradient side slope down to filter medium of SuDS tree pit, planted with appropriate vegetation such as
- ornamental grasses; at kerb-cut to be hard-landscaped with cobbles/setts to slow surface water ingress speed/scour/erosion
- pits at 8.00m centres along Firhouse Road and Mount Carmel Park. Tree to grow to approx 10.00 to 15.00m in height 7. Green-roofed cycle shelter with wildlife panels (integrated bee nesting logs, bird boxes, insect hotels), and steel 20. Tree rootball guyed underground with 'Arborguy' tree guying system or equivalent approved, proprietary mesh sides to provide parking for 8 no. cycles on Sheffield-style cycle racks. Mesh provided so that people can see through the shelters and feel safe to proceed through the space.
- 8. Large semi-mature native evergreen *Pinus sylvestris* (Scot's Pine) planted at focal areas such as gathering spaces and along the 3.00m pathway route. The open canopy of Scot's Pine allows light through to the base of the tree. This large tree is suitable to have bird boxes hung from its branches. Evergreen Pine chosen to recall the place-name 'Firhouse', Teach na Giuise, named for evergreen conifers
- 9. Interactive playful sculpture located at way-finding point, midway along the 3.00m width path. 2.50-3.00m ht 'Singing Stone' carved out of basalt, which is suitable for play by people of all ages and abilities, to recall menhirs and
- ogham stones that would have dotted the landscape. 10. 3.00m width golden-granite surfaced path, detailed as permeable. This width of path has been identified as a key child-friendly measure in neighbourhoods according to research, especially when placed on the sunny side of the
- 11. Path widens into a sheltered arcade under the building, helping to activate the elevation and the commercial units contained there

OUTLINE SPECIFICATION NOTES FOR SuDS TREE PIT TP-03

- 12. Granular back-fill: CL505 Clean Angular Stone to sides and base of pit. Break up base of trench to ensure free drainage and no standing water
- 13. Underdrain: Aeration/Drainage Pipe: 60mm Ø perforated pipe to run the full length of the trench; incl. T-Connection's; Vertical connections to 'RootRain Urban' inlets. Min. 100mm cover to pipe. Inlets and outlets to SuDS tree pits to engineer's design detail and specification



TREE PIT TP-01

- 14. 'Arborflow RootSpace 400' structure by GreenBlue Urban or equivalent approved 1 module deep x 5 modules wide, loaded with washed sand as per specification - C/W air flow deck/aeration lid
- 15. 'Arborflow RootSpace 600' structure by GreenBlue Urban or equivalent approved 1 module deep x 5 modules wide, loaded with 'Rootsoil 20' or EQA as per specification - C/W air flow deck/aeration lid. Leave gap in structure for tree rootballs
- 16. Tree pit lined with proprietary root barrier, 'ReRoot 1000' root barrier by GreenBlue 1.00mm depth to line all sides of tree planting pit, or equivalent approved 1mm thick ribbed root barrier to line perimeter of planting trench, made of recycled HDPE
- 17. 'Arborflow RootSpace' structure lined with 'GLGRN20' reinforcing mesh 20mm aperture; laid horizontal under entire tree pit & vertical along pit perimeter
- 18. 'GLTWGNA' twinwall geonet laid on top of 'Arborflow RootSpace' structure 19. Root Director: 'RD1000-RSA' recycled HDPE medium root director by GreenBlue Urban, to accommodate 6. Avenue of ornamental street semi-mature tree planting, *Liquidambar styraciflua* 'Fastigiata' planted in SuDS tree maximum root-ball diameter of 700mm. Clear opening width of 800mm. Root Director held in place with C8/C10
 - concrete haunching to perimeter. system to work with tree pit system
 - 21. Rootball irrigation: 'RootRain Arborvent 150' irrigation and aeration system by GreenBlue Urban with aluminium inlet, body and lid, with recycled HDPE 3.0m length pipe to encircle rootball, proprietary tee and manifold
 - 22. Non-organic mulch layer: 50-75mm depth washed and dried river pea gravel or 50mm depth washed and dried angular aggregate, e.g. locally sourced sandstone/granite. Sample to be approved by Landscape architect. Plants to be part-planted into mulch layer, part-planted into filter layer
 - 23. Tree Wrap: Willow bark wrap protection to tree trunk, 'Provence' 1500mm high by Decker Horticultural Supplies or equivalent approved to suit 18-20cmg size tree. Secured to itself with plastic-coated wire, not affixed to tree. Slow-release irrigation bag to tree, 'RootRain ArborDrench' bag by GreenBlue Urban or equivalent approved
 - 24. Bio-retention soil mix by Enrich Soils, with appropriate sub-soil layer as per CIRIA SuDS guidance 'Rootsoil 20' soil mix by GreenBlue Urban or equivalent approved as per CIRIA SuDS guidance
 - 25. 26. Washed sand as per CIRIA SuDS guidance

OUTLINE SPECIFICATION NOTES FOR LANDSCAPE

- 27. 250x300mm CE-marked golden granite kerb to edge 3.00m width path through site 28. 100mm depth CE-marked golden granite paving to 3.00m width path and to area under architectural colonaded arcade, to highlight the east-west child-friendly/universal access route through the subject site. This paving has been
- detailed as permeable
- 29. Perennial planting refer to planting plan and schedule 30. Rounded glacial erratic boulders set in landscape finish, max. 0.60m ht off finished landscape level 31. Multi-stemmed seasonally flowering trees



SPECIFICATION OUTLINE **SuDS Tree Back-Fill Substrates**

- Provide specialist SuDS tree planting soil within the 600mm ht cells in the SuDS tree pits to function as a rooting medium for t a drainage and water attenuation medium for surface water run rootzone is a specialist material, and normal topsoil should not
- Provide specialist Washed Sand to backfill the 400mm ht 'Roots' the SuDS tree pits only. • Sand content and size, porosity and percolation are important
- substrates. • The most appropriate types of rootzone will be from a rootzone operation that utilises washed, graded sands and high quality ameliorants, which can be processed and blended to achieve t
- rootzone composition on a consistent basis. • The washed sand should comprise quarried, washed, graded s not consist of recycled sand or marine-dredged sand.

SUBSTRATES

- Materials generally Purity: Free of pests, disease and fungus • Foreign matter: on visual inspection, free from non-soil material, brick and other building materials and wastes, sharps, hydrocarbons, plant matter, weed roots, stolons, rhizomes, and any other foreign matter or material or substance that would render the substrate unsuitable for landscape use.
- Contamination: Do not use substrate contaminated with rubbish or other materials that are:
- Corrosive, explosive or flammable Hazardous to human or animal life
- Detrimental to healthy plant growth
- Give notice: if any evidence or symptoms of contamination are discovered in the substrate to be used

SuDS TREE PIT SITE PLAN SCALE 1:500@A1

TREE PIT TP-02

28

00

TREE PIT TP-03

• 'RootSpace 600' structure - 1 module deep, loaded with tree back-fill soil as per Specification - C/W airflow deck • 'RootSpace 400' structure - 1 module deep, loaded with washed sand as per Specification - C/W airflow deck • 'GLTWGNA' twin wall geonet laid on top of 'RootSpace' structure • 'GLGRN20' reinforcing mesh 20mm aperture; laid horizontal under entire tree pit and pit perimeter with hessian • Aeration and drainage pipe: 60mm Ø perforated pipe to run the full length of the trench, including T-connections. Vertical connection to 'Arborvent' inlets

DRAWING KEY: SuDS TREE PITS

'RootSpace' cells

'GLASAPA Arborguy' anchor-plate kit including 3 no. wired

• 'RER1000' ribbed root barrier 1.00m ht., laid vertical as per

manufacturer's instructions around perimeter of all

anchor plates, webbing strap and ratchet tensioner



ALTERNATING GRANITE FLAGS, ON

MARKER TAPE



INFILTRATION

| ction of SuDS', ndbook for the dens: A | Rootzone Tree Backfill So Quantity: Provide as n The rootzone shall con |
|--|---|
| | Physical Parameters |
| | Particles < 0.125 |
| | Fine Sand (0.125-0.25mm) |
| | Medium Sand (0.25-0.50m |
| 'RootSpace' | Coarse Sand (0.50-1.0mm) |
| trees as well as | Very Coarse Sand (1.0-2.0 |
| n-off. The | Fine Gravel (2-4mm) |
| be used in this | Stones (>4mm) |
| | Percolation Rate |
| tSpace' cells in | Total Porosity |
| | pH Value |
| features of the | Electrical Conductivity (1:2 |
| | Electrical Conductivity (Ca |
| e production | Exchangeable Sodium Pere |
| organic | Organic Matter |
| the required | Total Nitrogen |
| | Carbon: Nitrogen Ratio |
| sand. It should | Extractable Phosphorus |

one Tree Backfill Soil Quantity: Provide as necessary to complete the work he rootzone shall comply with the following lower and upper limits: cal Parameters les <0.125

m Sand (0.25-0.50mm) Sand (0.50-1.0mm) Coarse Sand (1.0-2.0mm) Gravel (2-4mm) (>4mm) ation Rate Porosity ical Conductivity (1:2.5 water extract) --1500µS/cm ical Conductivity (CaSO⁴ extract) ngeable Sodium Percentage ic Matter Nitrogen n: Nitrogen Ratio

Extractable Phosphorus Extractable Potassium Calcium Carbonate Washed Sand • Quantity: Provide as necessary to complete the work

Physical Parameters

| Fine Sand (0.125-0.25mm) | |
|------------------------------|--|
| Medium Sand (0.25-0.50mm) | |
| Coarse Sand (0.50-1.0mm) | |
| Very Coarse Sand (1.0-2.0mm) | |
| Stones (2-10mm) | |
| Stones (>4mm) | |
| Percolation Rate | |
| pH Value | |

Electrical Conductivity (1:2.5 water extract) --600µS/cm Organic Matter

Total Nitrogen

- The rootzone and washed sand to be considered for use shall be sampled before placement and preferably while stockpiled off site at its source or manufacture location.

--1.0%

0.1---%

- The sample(s) shall be truly representative of the substrate to be offered. One composite sample shall be taken for every 250m³ of rootzone or washed sand to be used.
- Each composite sample should be made up of 10 no. sub-samples taken from evenly-spaced locations across the stockpile. The sub-samples shall be mixed together and guartered down to form a 5kg composite sample.
- Each composite sample shall be placed in a clean strong plastic bag and a 250ml brown glass, wide necked jar (for organics testing) and each labelled with the source reference and the date of sampling.
- Rootzones or sands of different types should never be mixed to form a composite sample.

Substrate samples shall be sent to an independent soil science facility with a request for each sample to be analysed strictly in accordance with a Testing Schedule

Rootzone Testing

The following parameters shall be requested (methods in accordance with BS3882:2015 or as indicated): Visual examination to record presence of any deleterious materials or

- unusual odours (e.g. petroleum hydrocarbons)
- Particle Size Analysis (clay, silt, 4 sands ASTM sieve sizes) Gravel Content by % weight (2-4mm, >4mm)
- Percolation (ASTM F1815) Porosity (ASTM F18185)
- pH Value (1:2.5 soil/water extract)
- Electrical Conductivity (1:2.5 soil/water extract) Electrical Conductivity (1:2.5 soil/CaSO⁴ extract)
- Total Nitrogen 9. Exchangeable Phosphorus, Potassium & Magnesium

- The following parameters shall be requested (methods in accordance with BS8601:2013 or as indicated):
- unusual odours (e.g. petroleum hydrocarbons)
- Stone Content by % weight (2-10mm, >10mm)
- Percolation (ASTM F1815) pH Value (1:2.5 soil/water extract)
- Calcium Carbonate

ROOTZONE MANAGEMENT

- Sample Loads • Deliver to site a sample load of the proposed and approved substrate.
- Give notice: Allow inspection before making further deliveries to site. Retain for comparison with subsequent loads. Notice period: 72 hours

Substrate Handling

- Contamination: Do not mix substrate with: topsoil, subsoil, stone, hardcore, rubbish or material from demolition work
- Multiple handling: Keep to a minimum.
- Select and use plant to minimise disturbance, trafficking and compaction.
- Fertiliser Application
- dependent on the findings of the substrate tests • A provisional allowance shall be made for the application of a slow release fertiliser (11% N:22% P²O⁵:9% K²O: 6% MgO) at a rate of 80gs/m² to the upper RootSpace layer.

10. Organic Matter

- 11. Carbon: Nitrogen ratio (by calculation) 2. Calcium Carbonate
- 13. Potential Contaminants
- Washed Sand Testing

- Visual examination to record presence of any deleterious materials or
- Particle size analysis (clay, silt, 5 sands ASTM sieve sizes)
- Organic Matter

- Substrate handling shall be stopped during and after heavy rainfall, and should not continue until the rootzone is capable of infilling the cell voids.

- The use of additional fertilisers or any other soil ameliorants in the soil is

Calcium Carbonate Sampling Protoco

INLET AND OUTLET TO SuDS TREE PITS TO ENGINEER'S DESIGN DETAIL AND SPECIFICATION

0-10%

5-15%

0-5%

45-70%

20-45%

0-10%DW

--0%DW

30-55%

--9%

0.1---%

--20.1

0-5%

5-20%

45-70%

0-5%

25-45%

--0%DW

0-10%DW

100mm/hr

5.0-8.5 units

• The washed sand shall comply with the following lower and upper limits:

2.5-4.0%

40-90mm/hr

5.5-8.5 units

--3300µS/cm

26-100 mg/L

240-1500 mg/L

50-600 mg/L

Substrate Testing

OUTLINE SPECIFICATION NOTES FOR PLANTING BED SOIL SYSTEMS FOR RAIN GARDENS AND BIO-RETENTION AREAS Contractor to familiarise themselves with 'Guidance on the Construction of

SuDS', SDCC's guidance on SuDS 2022, CIRIA C768, 2017; 'The SuDS Manual', CIRIA C753, 2015, 'Site Handbook for the Construction of SuDS' CIRIA C698, 2007, and 'Designing Rain Gardens: A Practical Guide', Urban Design London

Rocks/verge stones to break water velocity at kerb-cut inlets: Salvaged natural stone cobbles or setts set in concrete haunching, sloped at 8-10% and grading into bed of rounded natural stone river-washed pebbles to non-organic mulch such as sandstone grit or pea gravel to match CIRIA criteria. pathogens.

Non-organic mulch layer: Washed and dried river (pea) golden gravel surfacing in bio-retention area. Depth: 75mm. Provide 5kg sample before opening.

Filter growing media: 'Filter Media for Bioretention Area' by Enrich or equivalent approved to meet CIRIA criteria for bio-retention area soils. Filter growing media must be sufficiently permeable to allow water to pass through it. The filter medium must be manufactured to BS 3882:2015 and suitable for use in a bio-retention/swale area. The filter medium should be well-graded and the composition should contain limited particle size range: organic matter content 3-5%;

- pH range of 5.5-8.5 (1:2.5 soil/water extract);
- electrical conductivity (EC) should be <3300µS/cm (1:2.5 soil/CaSO4 extract):
- total nitrogen should be 0.10-0.30%;
- extractable phosphorous 16-100mg/l; extractable potassium 120-900mg/l
- Method of analysis in accordance with BS 3882:2015. clay and silt (<0.063mm) <5%
- fine sand (0.063-0.2mm) <20%
- <35%-65% medium sand (0.2-0.6mm) <50%-60% coarse sand (0.60-2.0mm)
- <10% fine gravel (2.0-6.0mm)

Filter growing media can comprise a free-draining amended soil mix comprising 55% sand, graded as above: 30% multi-purpose grade topsoil to BS Crushed materials:

3882:2015 and 15% peat-free compost to IS 441. Material should be well-mixed and meet the permeability requirements as listed above.

Filter growing media can comprise a custom mix of crushed and sandy silt loam to provide a very free-draining growing medium. Volume of filter growing media should be based on 110% of plan volume, to account for settling or compaction.

Provide 5kg sample with details of proposed soil mix. Size distribution: 100% passing through a 25mm screen; 50% passing through a 10mm screen.

Moisture content: 12-30%

Permeability range: 100-300mm/h Purity: sustainable, free from physical and chemical contaminants and

Transition Layer or Geotextile Separator Layer:

Non-woven geotextile fabric with a flow rate of >110 litres per minute per metre, to prevent inter-mixing of granular materials and soils, and prevent the ingress of fines into drainage media. Provide sample.

Drainage layer:

Sub-base materials such as 4/20 aggregate or crushed recycled concrete with 'no fines' particles (tested to ensure it will not leach contaminants into the water). Coarse graded aggregate 4/20 and 4/40 to BS 7533-13-2009. Provide sample and description

Care should be taken not to over-compact soils below the bio-retention area, and particularly the filter and soil planting bed, as this will reduce infiltration capacities

To excavate a bio-retention area, use a back-hoe excavator, and avoid running over the area with construction equipment. - Take care to ensure that geotextiles are not clogged or torn during construction.

- Do not place the filter medium if the drainage layer is saturated or the ground below the system is saturated. Do not over-compact soils below the bio-retention area as this will

reduce infiltration capacities.

Aggregates for planting beds

coarse, grained sharp sand with neutral pH. 2-5mm horticultural grit

crushed and graded rubble Recycled materials: submit proposals



CONSTRUCTION DETAIL - SuDS TREE PIT TP-03 SCALE 1:20@A1

GENERAL NOTES 9. For details of finished building and site levels, approaches to buildings For details of existing ecology, please refer to ecologist's and bat surveyor reports if available. 2. For details of existing vegetation and vegetation to be removed and specification. retained, please refer to arborist's reports if available. 3. For details of sightlines and services, please refer to consulting civils, This drawing has not been prepared to indicate compliance with DAC, BCAR or Disability Access Act. lighting, mechanical and electrical engineer's drawings and reports. Indicative-only layout of existing and proposed utilities shown to illustrate existing water mains, underground and overground services, drainage and ancillary infrastructure, as they relate to landscape. For details of same, please refer to consulting engineer's design, detail

and specifications. All materials to be agreed with local authority by way of compliance. This drawing is to be read in conjunction with all relevant architect, engineer and other specialist's drawings and specifications. All levels are in metres and relate to Malin Head Ordnance Data.

The site layout is based on the topographical site survey.

such as sloped or level access, ramps or steps, and retaining walls, please refer to architects'/consulting engineers' design detail and

All paving bedding, site-specific sub-bases, build-ups, joints, footings, foundations, joint detailing, reinforcing bar details and bolts to consulting engineer's design, detail and specification, and to BS7997

Levels and falls, crossings and blister tactile surfacings, line markings etc. to consulting engineer's design detail and specification. For details of tactile paving to hazards such as steps and crossings, please refer to engineers' drawings.

All services access covers and underground services shall be coordinated with landscape finishes, tree pit locations and street

furniture locations. 14. Services access covers to be located 100% in one finish or the other.

This drawing is the copyright of **studioAULA** landscape architects. This drawing must be read in conjunction with all relevant design team and surveyor's drawings, details and specifications. Unless otherwise stated all dimensions are in millimetres. Where dimensions are not given, drawings must not be scaled and the matter must be referred to the Landscape Architect. Similarly if the drawings contain conflicting details or

limensions. If the drawing includes conflicting details/dimensions the matter must be referred to the Landscape Architect.

All dimensions must be checked on site prior to construction or fabrication. The Landscape Architect must be informed, by the Contractor, of any discrepancies

efore work proceeds. This drawing has not been prepared for BCAR, BCMS or DAC purposes, and has not been prepared to demonstrate compliance with the Building Regulations.

a: 86, Baggot Lane, **ISSUE STATUS:** Ballsbridge, D04 P9H t: + 353 86 362 0492 AULA e: joanne@studioaula www.studioaula.com CHITECTURE / URBANISM / LANDSCAPE ARCHITECTURE DRAWING NO: 1st ISSUE: 2021-09-03 **CLIENT:** Bluemont Developments (Firhouse) Limited 21_477-PD-012 RAWN BY PROJECT: FIRHOUSE INN SHD DATE ISSUED: 2022-05-27 NORTH SuDS TREE PIT DETAILS + SPECIFICATION NOTES PROJECT NO: SCALE: SHEET SIZE: PROJECT ARCHITECTS DRAWING: 21_477 1:500, 1:20 A1 OMP ARCHITECTS