

Surface Water Management Plan (SWMP)

Manor Court
High Street, Harmondsworth, UB7 0AQ

for

Heathrow 1 Limited

A21138

September 2021

Surface Water Management Plan (SWMP)

Manor Court

for

Heathrow 1 Limited

Revision	Date of issue	Comments	Prepared By	Checked By
1.0	29.09.2021	Initial Issue	AJ	DB

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1.0 Introduction

- 1.1.1 Heathrow 1 Limited is planning a proposed development on the site at Manor Court, High Street, Harmondsworth, UB7 0AQ.
- 1.1.2 Patrick Parsons has been instructed by Heathrow 1 Limited, to produce a Surface Water Management Plan (SWMP) to assist with the scheme.
- 1.1.3 This report aims to demonstrate the proposed measures for temporary drainage on site and the exceedance flow management.
- 1.1.4 The general limitations of this assessment are that:
- Several data sources have been used in compiling this report. Whilst Patrick Parsons believe them to be trustworthy; it is unable to guarantee the accuracy of the information that has been provided by others.
 - This report is based on information available at the time of preparation. There is potential for further information to become available, which may create a need to modify conclusions drawn in this report.

2.0 Location of Site

- 2.1.1 The site is located off High Street in Harmondsworth. A site location plan is enclosed in **Appendix A**.
- 2.1.2 The Local Authority is the London Borough of Hillingdon.

3.0 Purpose of the SWMP

- 3.1.1 The SWMP will ensure that during the construction phase, any surface water runoff leaving the development site is sufficiently treated as to be acceptable for disposal into controlled waters.
- 3.1.2 This will be achieved by:
- Identifying potential entry and collection points of surface water runoff onto or within the site.
 - The implementation of specific measures for capture of this surface water runoff.
 - Final treatment of surface water runoff, within the development site boundary, prior to being discharged off-site.
 - Implementation of Emergency Measures/ Arrangements.
- 3.1.3 Additionally, the plan will identify the requirements to ensure that any implemented measures are adequate and effective. This will be achieved/supported through monitoring, maintenance, sample collections and other means.
- 3.1.4 Records (logs, photographs etc.) are to be kept and will form part of the site handover documentation.
- 3.1.5 The plan will identify the responsible parties for each management item and the frequency of any actions to be undertaken.
- 3.1.6 The plan will be reviewed at appropriate frequencies dependent on risk and impact.

4.0 Drainage Strategy

4.1 Permanent Phase Plan

- 4.1.1 The proposed drainage layout has been included at **Appendix B** for reference.
- 4.1.2 The philosophy and calculations for the permanent situation has been defined in the accompanying drainage strategy report.

4.2 Potential Water Sources

- 4.2.1 The existing buildings are being retained and so there is a potential for water in these systems during a storm event.
- 4.2.2 If there are any potential works that would disrupt the routes to the existing soakaways on site, then over pumping or diversions need to be considered.

4.3 Discharge Points

- 4.3.1 The surface water from the proposed system discharges to the ground via existing soakaways and through the porous surfacing as noted on the drainage plan.
- 4.3.2 Construction surface water runoff captured via the measures described in this SWMP will be treated, and then discharged into the proposed main drainage system.

4.4 Temporary Drainage Plan

- 4.4.1 The proposed drainage layout for the SWMP (temporary phase) has been produced and included at **Appendix C**.
- 4.4.2 The key issue with potential surface water ponding on site will be compaction of the ground during the works. Any areas subject to construction traffic should be served with temporary land drainage until the surfacing is fully installed.

5.0 Capture & Treatment

5.1 Capture

- 5.1.1 A suitable location on site should be selected for the site compound to minimise disruption to the site.
- 5.1.2 The established site compound, storage and car park areas are to have a 0.5m high bund or silt barriers installed around the perimeter, as appropriate for the scheme.
- 5.1.3 These are to be complemented with French drains that discharge through a temporary catch pit manhole, prior to discharging into the site drainage system.
- 5.1.4 Silt barriers are to be installed upstream of all existing soakaways in the existing surface water drainage system. Existing soakaways are to be fully cleaned out and free of debris prior to the hand over of site.
- 5.1.5 Vehicle washdown areas (as required) are to be constructed with collecting French drains and large catch pits.
- 5.1.6 All existing gully grates are to be installed with geotextile wrapping, to minimise debris entering the drainage system.
- 5.1.7 Areas to have new porous surfacing are to be served by temporary land drainage with silt trap / catchpit chambers to manage site run-off.

5.2 Treatment

- 5.2.1 All proposed access roads, parking areas and paths are to be regularly washed and cleaned.
- 5.2.2 The geotextile wrapping on road gully grates will treat runoff at surface level.
- 5.2.3 The clean granular stone fill within the trenches of the French drains will provide initial treatment of the construction runoff.
- 5.2.4 The French drains discharge via perforated pipe into catch pits before discharging into the ground via infiltration, providing a second level of treatment.
- 5.2.5 Should temporary pumping be required throughout the site, Dirtbags should be installed at the outflow pipe to treat any discharge before it enters the drainage system.

5.3 SuDS Protection

- 5.3.1 Permeable paved areas can be constructed with bitumen base course above the sub-base, to allow construction vehicle over-run (contractor's choice).
- 5.3.2 Following completion of construction, the base course surface is to be thoroughly washed and cleaned. 75mm diameter holes are to be pierced through the base course at 750mm centres, before laying of permeable block paving

6.0 Exceedance Management

- 6.1.1 National SuDS standards, the Design and Construction Guidance 2020 and Sewers for Adoption recommend that the 1 in 30 year storm event is managed below ground with exceedance flows managed above ground.
- 6.1.2 Any water up to a 1 in 100 year storm event including 40% climate change will be attenuated within the curtilage of the site in the proposed drainage system.
- 6.1.3 The proposed layout indicating management of exceedance flows has been produced and included at **Appendix D**.
- 6.1.4 The drawing should be read in conjunction with the current drainage plan and MicroDrainage calculations, that indicate the flood pathways.
- 6.1.5 Emergency pumping will be undertaken should areas be inundated with flood water. The construction manager will be made aware of low points and will monitor these during excessive storm events.

7.0 Monitoring

7.1.1 The monitoring and maintenance regime for the temporary and permanent drainage during construction is shown below:

Element	Maintenance Action	Frequency	Responsible Party
Silt Barriers	Inspect for build-up of debris and damage. Debris should be removed regularly and damaged to the barrier should be repaired immediately	Weekly	Site Manager
Gully pots and geotextile wrapping	Inspected, and cleaned of debris as necessary to prevent entry into the main drainage system.	Every two weeks, or at a greater frequency due to site conditions	Site Manager
Vehicle washdown areas – Catch pits	Catch pits inspected and cleaned of debris as necessary to prevent entry into the main drainage system.	Daily	Site Manager
Vehicle washdown areas – French Drains	Surface stone to be inspected and cleaned of debris by removal and replacing of top 75mm of stone to insure adequate infiltration.	Every two weeks, or at a greater frequency due to site conditions	Site Manager
Catch pits	Inspected and cleaned of debris as necessary to prevent entry into the main drainage system	Every two weeks, or at a greater frequency due to site conditions	Site Manager
French drains	Surface stone to be inspected and cleaned of debris by removal and replacing of top 75mm of stone to insure adequate infiltration	Following heavy rainfall	Site Manager
Flow control chambers and non-return valves	Inspected and cleaned of debris/ blockages, as necessary. Bypass mechanisms within flow control chambers should be checked to be operating adequately	Every two weeks, or at a greater frequency due to site conditions.	Site Manager
Site entry and exit points	Inspected and cleaned of debris with road sweeper plant, as necessary	Daily	Site Manager
Testing/ analysis of samples	Suspended solids test, hydrocarbons, sample from watercourse	Before to set a baseline and then every 1 month, or at a greater frequency if required	Project Manager

7.2 Reporting

7.2.1 The following incidents should be reported to Site Management immediately:

- Breaches of measures to control flows (e.g. damage to filter mediums, gaps in bunds etc.)
- Inadequacy of implemented measures to control flows (localised flooding, new sources of water flow, etc.)
- Changes of visual water quality through the outfalls
- Changes to suspended solids or hydrocarbons in sampled water analysis.

7.3 Review Frequencies

7.3.1 The SWMP, environmental objective and any actions required must be reviewed periodically. The frequencies of each review are shown below:

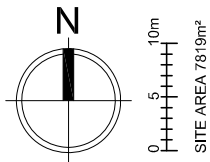
	Review Procedure	Frequency	Responsible Party
Surface Water Management Plan	A set procedure – minimum every two weeks and following/ during severe weather conditions	Every two weeks and following adverse weather.	Site Manager
Environmental objective	Silt/ slurry collection, also visual assessments, flow rate assessments	Every two weeks and following adverse weather.	Site Manager
Actions	System amendment if potential failures identified.	Immediate	Site Manager

8.0 Product Standards

8.1.1 All components specified in the SWMP shall meet the standards shown below:

Item	Equipment	Manufacturer	Installer
Geotextile	Terram T700 GT – 95 micron	Terram.	Groundworker
Filter bag medium	Dirtbag – 100 micron	Dirtbag	Groundworker
Silt Fence	Terrastop Premium – 250 micron	Hy-Tex	Groundworker
Pumping (if needed)	Specialist pump capable of delivering 600 litres per minute	Specialist	Specialist

Appendix A Location Plan



Wakelin Associates
Architects



The Old School House Bridge Road Hunton Bridge

The Old School House Bridge Road Hunton Bridge
Kings Langley Hertfordshire WD4 8RQ

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www.wakelin.co.uk

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NOTES:

Figural dimensions to be used in preference to scaled.

The Contractor is to check all five dimensions and get/set-out and obtain the Architect's instructions in respect of any discrepancy revealed before work is put in hand.

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Subject to survey

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 Drawn By: TH Date: APR 15
 Scale: 1:500@A3 Rev:
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 Surveys

Rev. | Date | Details
Project:
Manor Court
High Street
Harmondsworth

Appendix B

Proposed Drainage Layout (Constructed)

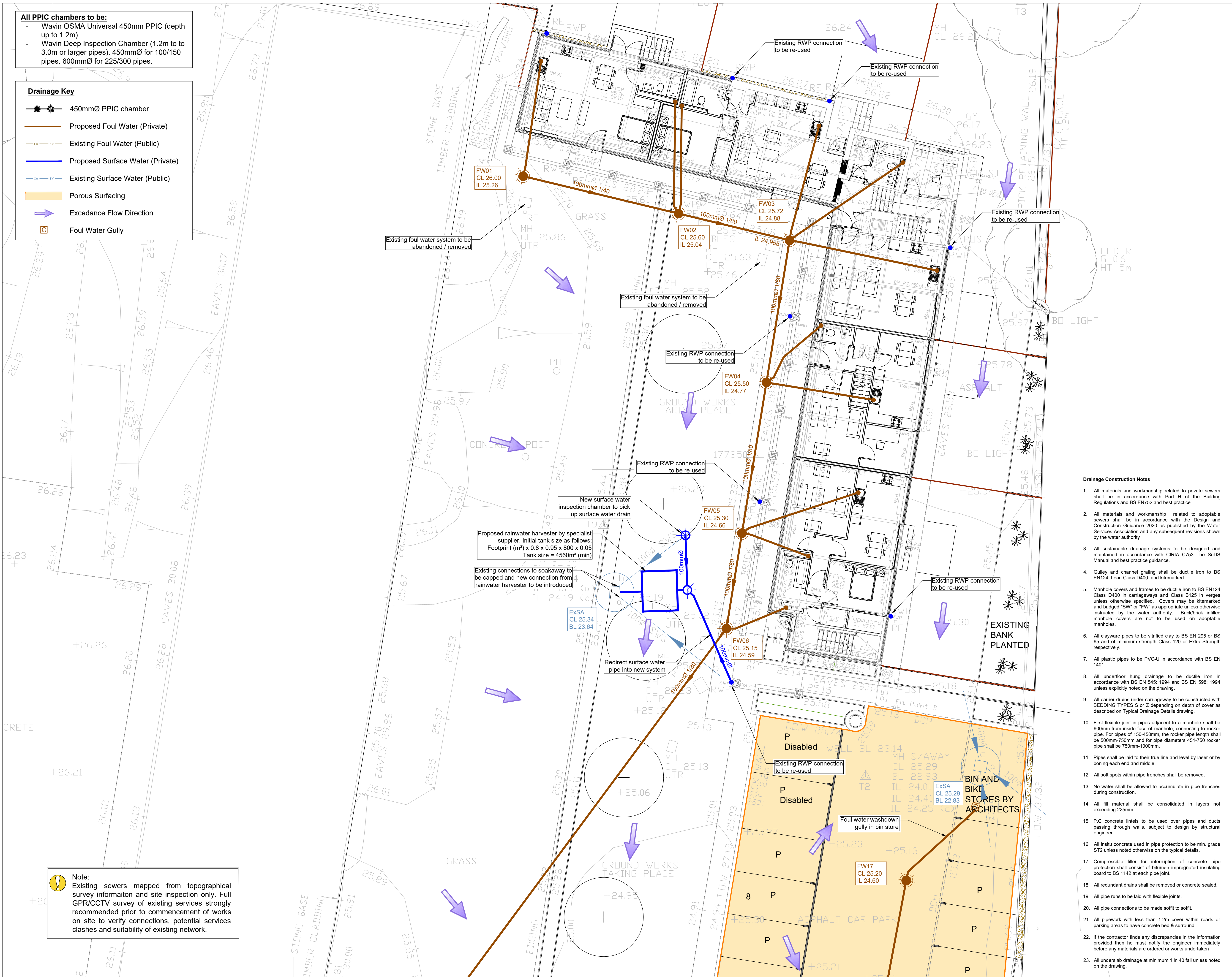
All PPIC chambers to be:

- Wavin OSMA Universal 450mm PPIC (depth up to 1.2m)
- Wavin Deep Inspection Chamber (1.2m to 3.0m or larger pipes). 450mmØ for 100/150 pipes. 600mmØ for 225/300 pipes.

Drainage Key

- 450mmØ PPIC chamber
- Proposed Foul Water (Private)
- Existing Foul Water (Public)
- Proposed Surface Water (Private)
- Existing Surface Water (Public)
- Porous Surfacing
- Exceedance Flow Direction
- Foul Water Gully

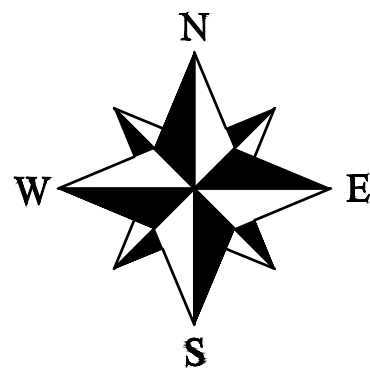
Note:
Existing sewers mapped from topographical survey information and site inspection only. Full GPR/CCTV survey of existing services strongly recommended prior to commencement of works on site to verify connections, potential services clashes and suitability of existing network.



- Drainage Construction Notes**
- All materials and workmanship related to private sewers shall be in accordance with Part H of the Building Regulations and BS EN752 and best practice
 - All materials and workmanship related to adoptable sewers shall be in accordance with the Design and Construction Guidance 2020 as published by the Water Services Association and any subsequent revisions shown by the water authority
 - All sustainable drainage systems to be designed and maintained in accordance with CIRIA C753 The SuDS Manual and best practice guidance.
 - Gully and channel grating shall be ductile iron to BS EN124, Load Class D400, and kitemarked.
 - Manhole covers and frames to be ductile iron to BS EN124 Class D400 in carriageways and Class B125 in verges unless otherwise specified. Covers may be kitemarked and badged "SW" or "FW" as appropriate unless otherwise instructed by the water authority. Brick/brick infilled manhole covers are not to be used on adoptable manholes.
 - All clayware pipes to be vitrified clay to BS EN 295 or BS 65 and of minimum strength Class 120 or Extra Strength respectively.
 - All plastic pipes to be PVC-U in accordance with BS EN 1401.
 - All underfloor hung drainage to be ductile iron in accordance with BS EN 545: 1994 and BS EN 598: 1994 unless explicitly noted on the drawing.
 - All carrier drains under carriageway to be constructed with BEDDING TYPES S or Z depending on depth of cover as described on Typical Drainage Details drawing.
 - First flexible joint in pipes adjacent to a manhole shall be 600mm from inside face of manhole, connecting to rocker pipe. For pipes of 150-450mm, the rocker pipe length shall be 500mm-750mm and for pipe diameters 451-750 rocker pipe shall be 750mm-1000mm.
 - Pipes shall be laid to their true line and level by laser or by boning each end and middle.
 - All soft spots within pipe trenches shall be removed.
 - No water shall be allowed to accumulate in pipe trenches during construction.
 - All fill material shall be consolidated in layers not exceeding 225mm.
 - P.C concrete lintels to be used over pipes and ducts passing through walls, subject to design by structural engineer.
 - All insitu concrete used in pipe protection to be min. grade ST2 unless noted otherwise on the typical details.
 - Compressible filler for interruption of concrete pipe protection shall consist of bitumen impregnated insulating board to BS 1142 at each pipe joint.
 - All redundant drains shall be removed or concrete sealed.
 - All pipe runs to be laid with flexible joints.
 - All pipe connections to be made soffit to soffit.
 - All pipework with less than 1.2m cover within roads or parking areas to have concrete bed & surround.
 - If the contractor finds any discrepancies in the information provided then he must notify the engineer immediately before any materials are ordered or works undertaken
 - All underslab drainage at minimum 1 in 40 fall unless noted on the drawing.

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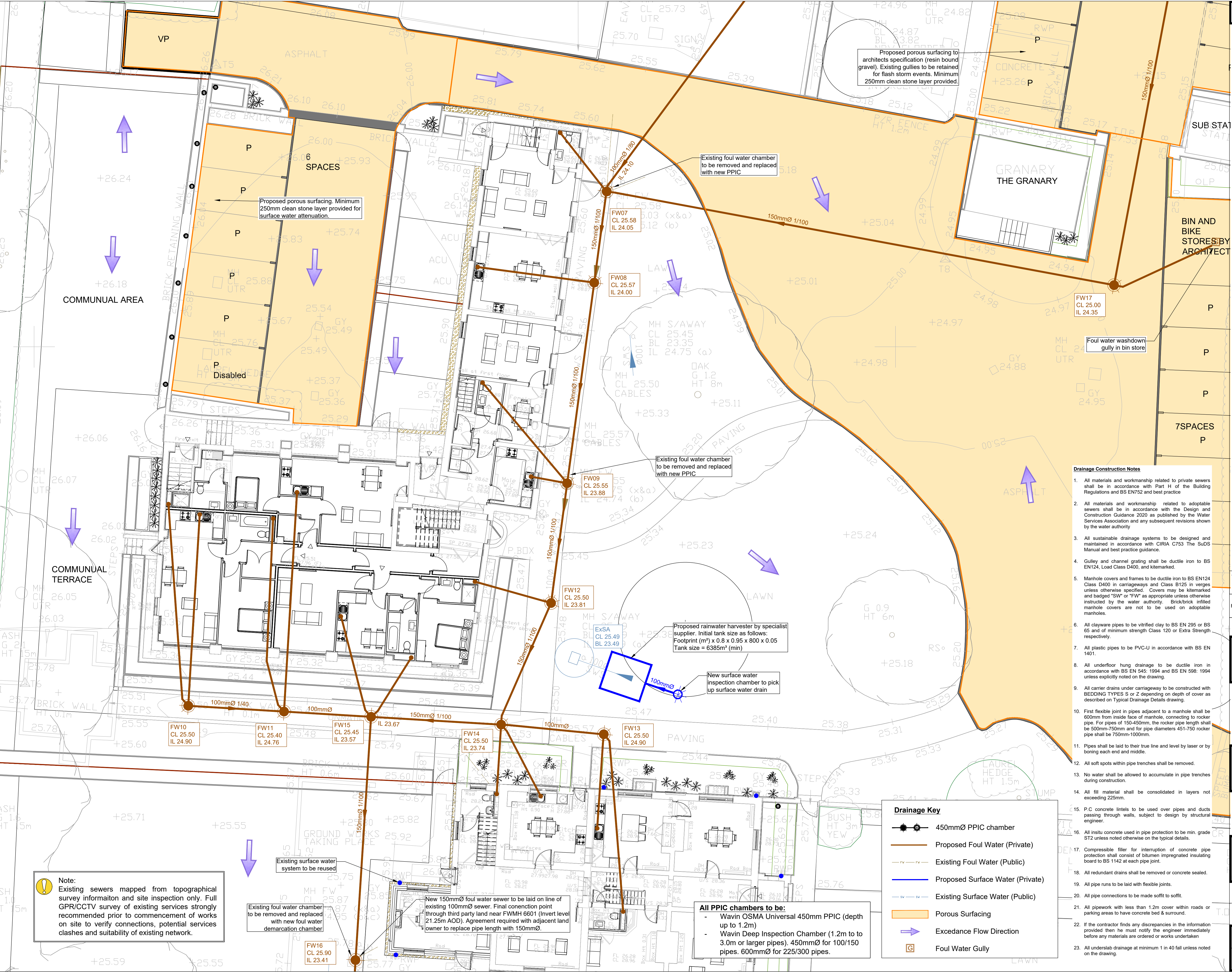
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**Drainage Layout
Sheet 1 of 2**

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Date	Aug 2021		

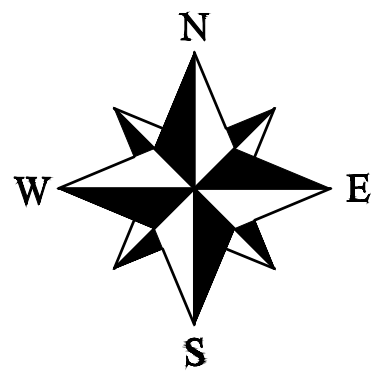
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Proposed porous surfacing to architects specification (resin bound gravel). Existing gullies to be retained for flash storm events. Minimum 250mm clean stone layer provided.

Proposed porous surfacing. Minimum 250mm clean stone layer provided for surface water attenuation.

Existing foul water chamber to be removed and replaced with new PPIC

Existing foul water chamber to be removed and replaced with new PPIC

Proposed rainwater harvester by specialist supplier. Initial tank size as follows:
Footprint (m²) x 0.8 x 0.95 x 800 x 0.05
Tank size = 6385m³ (min)

New surface water inspection chamber to pick up surface water drain

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- 23. All underdrain drainage at minimum 1 in 40 fall unless noted on the drawing.

Drainage Key

- 450mmØ PPIC chamber
- Proposed Foul Water (Private)
- Existing Foul Water (Public)
- Proposed Surface Water (Private)
- Existing Surface Water (Public)
- Porous Surfacing
- Excedance Flow Direction
- Foul Water Gully

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Note:
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Existing surface water system to be reused

Existing foul water chamber to be removed and replaced with new foul water demarcation chamber

New 150mmØ foul water sewer to be laid on line of existing 100mmØ sewer. Final conenction point through third party land near FWMH 6601 (Invert level 21.25m AOD). Agreement required with adjacent land owner to replace pipe length with 150mmØ.

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Client
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Project
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Drawing
Drainage Layout
Sheet 2 of 2

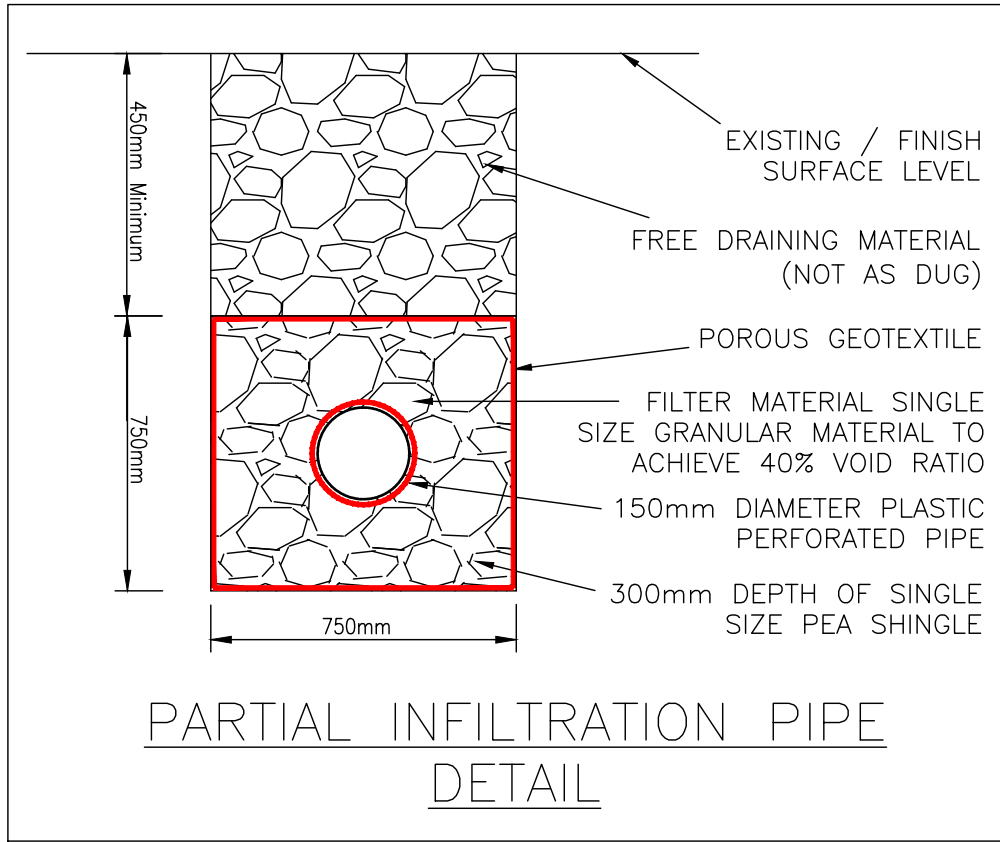
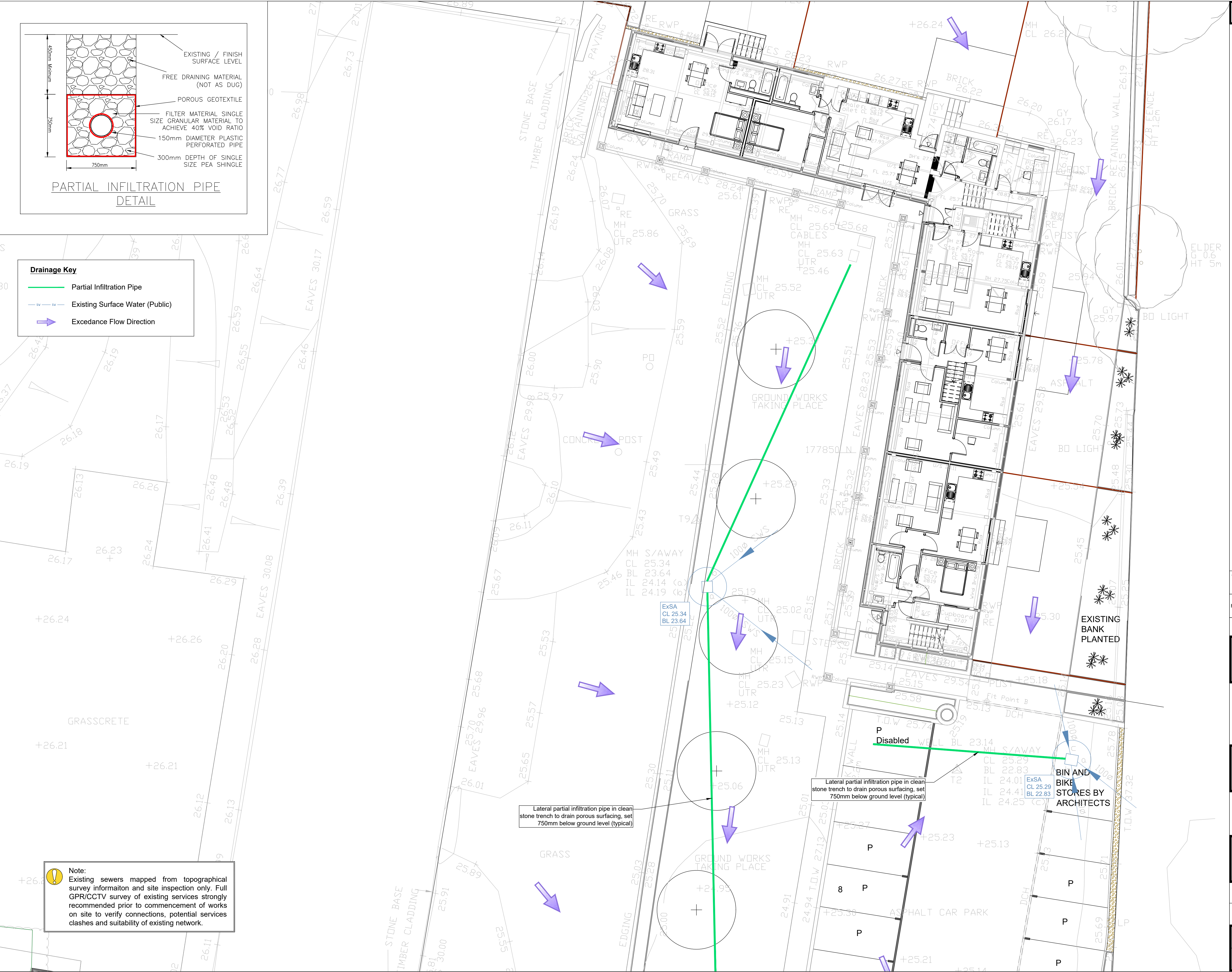
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Appendix C

Temporary Drainage Layout



Drainage Key

- Partial Infiltration Pipe
- Existing Surface Water (Public)
- Exceedance Flow Direction

Note:
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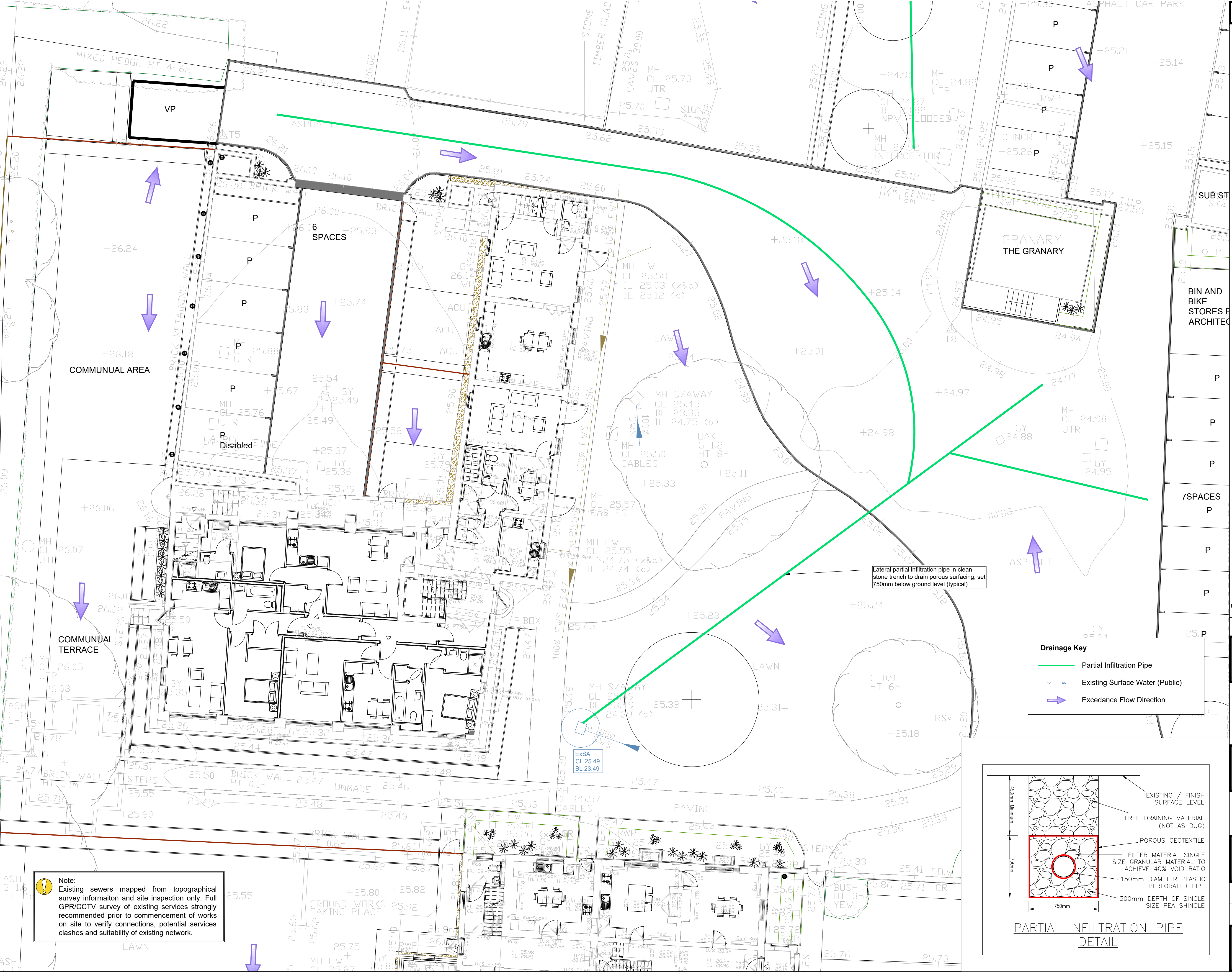
Temporary Drainage Plan
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Date	Sep 2021		

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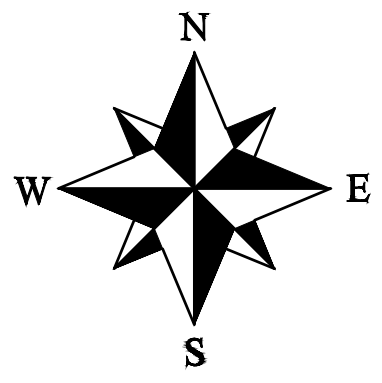
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Manor Court, High Street, Harmondsworth

Drawing
**Temporary Drainage Plan
Sheet 2 of 2**

Scales 1:100 At original size A1

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TENDER

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Drainage Key

- Partial Infiltration Pipe
- Existing Surface Water (Public)
- Exceedance Flow Direction

PARTIAL INFILTRATION PIPE DETAIL

450mm Minimum
750mm
750mm

EXISTING / FINISH SURFACE LEVEL
FREE DRAINING MATERIAL (NOT AS DUG)
POROUS GEOTEXTILE
FILTER MATERIAL SINGLE SIZE GRANULAR MATERIAL TO ACHIEVE 40% VOID RATIO
150mm DIAMETER PLASTIC PERFORATED PIPE
300mm DEPTH OF SINGLE SIZE PEA SHINGLE

UK locations:

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London

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