Sustainable Drainage, but better...

Integrated Water Management - Commercial

Sel Environmental
Real Innovation.

Technical

stopping water pollution

giving life to urban areas


DAF
CF

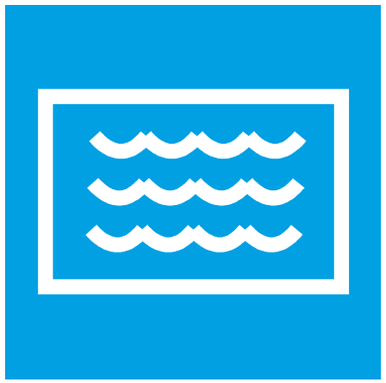
giving wildlife a home

SUSTAINABLE DRAINAGE, but better...

Improve local amenities, reduce the risk of local flooding, and increase biodiversity

The SEL approach to SuDS addresses the following engineering challenges...

Pollution Management



Surface Water Attenuation

Cost Effective

Continued extensive research and development in association with many leading Manufacturers, Engineers and Academic Institutions has given SEL the capability to develop a comprehensive range of SuDS products and solutions to provide Engineers with the flexibility to design 'wholesome' SuDS schemes for commercial developments which incorporate the principles of good SuDS design.

The SEL approach to SuDS can allow easy integration with...

Green Infrastructure

Wetlands

Feature Ponds

Introduction

SUDS are drainage systems that are environmentally beneficial. They are often applied as a sequence of management practices, control structures and strategies designed to efficiently and sustainably manage surface water, while minimising pollution and the impact on local water bodies.

Changes to the National Planning Policy Framework (NPPF) has made SuDS a material consideration in the determination of planning applications for major developments.

SuDS systems used should:

- take account of advice from the Lead Local Flood Authority (LLFA);
- have appropriate proposed minimum operational standards;
- have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development; and
- where possible, provide multi-functional benefits.

Consequently, Developers need to provide SuDS on major developments where appropriate, while paying due regard to the following:

- National Planning Policy Framework
- Written statement on sustainable drainage systems (HCWS161)
- Planning practice guidance
- Non-statutory technical standards for sustainable drainage systems
- District local plan policies

As such LLFA's have become a statutory consultee in the planning process for major development proposals which have surface water implications.

A Clearer Approach

This brochure outlines some typical scenarios and highlights some key aspects of our sustainable drainage solutions which can be combined to produce a flexible and robust site-specific SuDS design for any site.

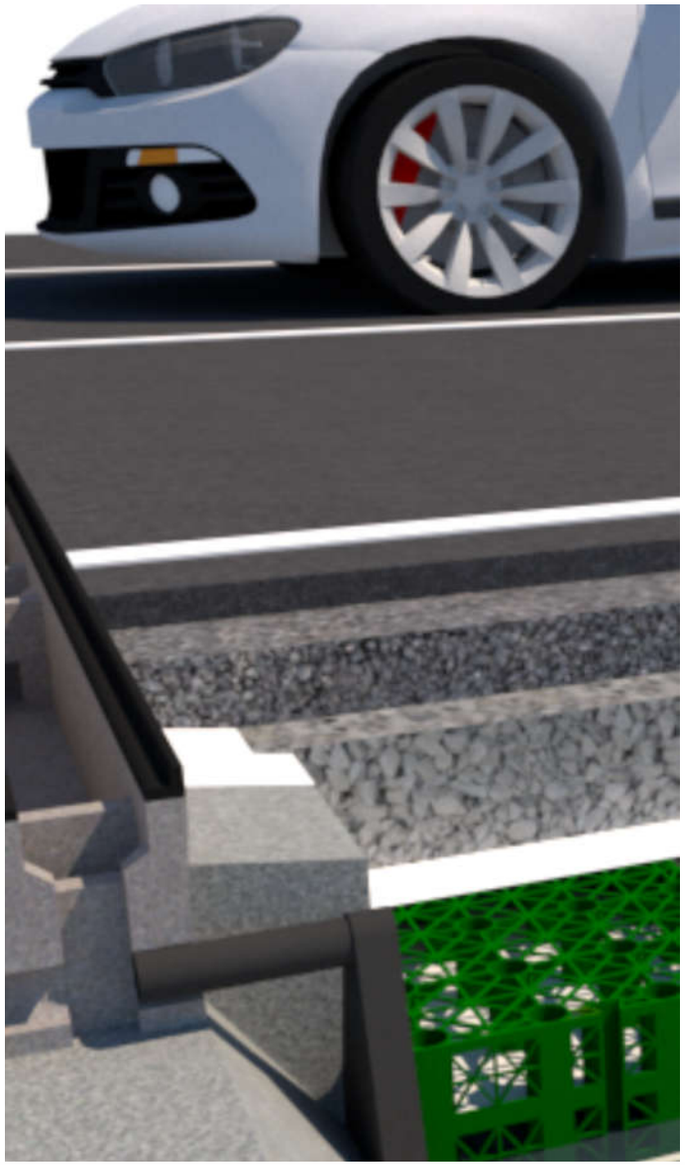
About SEL

SEL have assisted Developers, Architects, Engineers and Contractors with the provision of innovative sustainable drainage solutions throughout the UK for more than 20 years and, over this period, has developed an extensive range of solutions, products and services specifically designed and developed to satisfy the rigorous criteria of local LLFA's.

SEL have been involved in numerous CIRIA projects and the publication of several white papers. SEL have developed a reputation to provide high quality systems and an all-round service. SEL excel where the works are not “run of the mill” and our engineering ability is put to the test to provide a technical solution.

SEL were a steering group member of:

CIRIA Project RP637 Source control using constructed pervious surfaces, hydraulic, structural and water quality performance issues
CIRIA Project RP663 SUDS hydraulic, structural and water quality advice
CIRIA Project RP664 Model Agreements for sustainable water management systems
CIRIA Project RP697: SUDS updated guidance on technical design and construction
CIRIA Project RP698: SUDS – promoting good practice
CIRIA Project RP714 Biodiversity and Buildings
HR Wallingford Report SR656 The use of SUDS in high density developments



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This brochure outlines some typical scenarios and key components of the SEL Modern Sustainable Drainage approach.

All key components can be combined to produce a flexible and robust site-specific SuDS design.

Please contact our technical department for more details.

TYPICAL DRAINAGE LAYOUT

Typical Drainage Layout - Impermeable Parking Bays

Overview

The rationale surrounding this drainage layout is based on achieving source control and treatment of the run-off from potentially contaminated surfaces such as car parks, access roads, service yards and buildings by positioning the storage around the site such that the attenuation and treatment is provided as close to the run-off source as is feasible.

By introducing source control systems (rather than end-of-pipe attenuation and treatment) it is possible to decrease flow rates of run-off which helps to improve water quality. Pollutants as less likely to become emulsified and transported to form problematic concentrated masses and the low flow rates make it easier for siltation control as they allow silts to fall from suspension and settle for later removal.

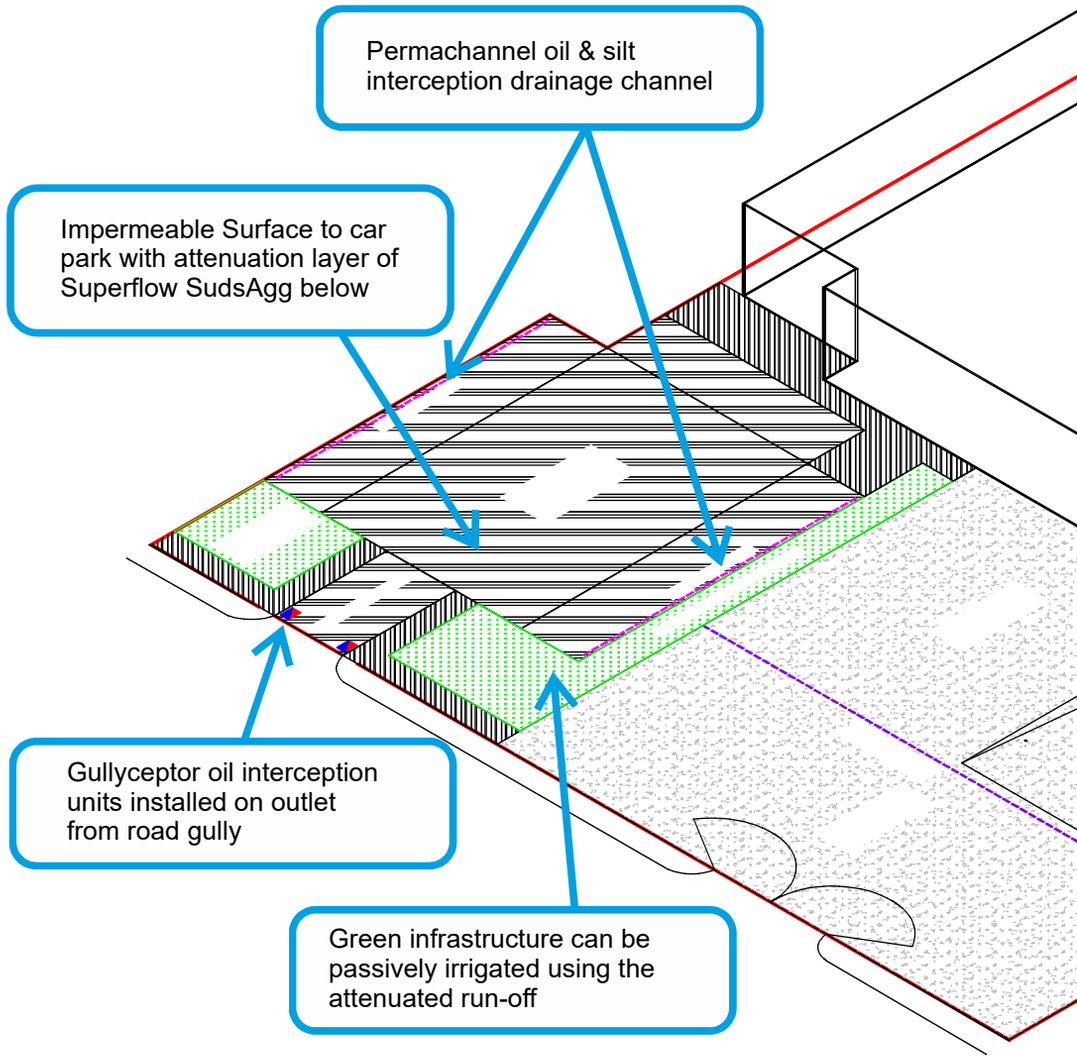
A shallow sustainable drainage system makes it possible to introduce attractive feature detention ponds and wetlands to improve local amenities and increase biodiversity. The entire drainage and attenuation system when properly designed can be accommodated above the formation level, leading to significantly shallower outfalls than traditional pipe systems. The water features are therefore simpler, safer and more attractive. Another benefit of shallow source control systems is reduced pipe depths and chamber sizes. Construction depths are therefore minimized leading to associated cost savings and health and safety benefits.

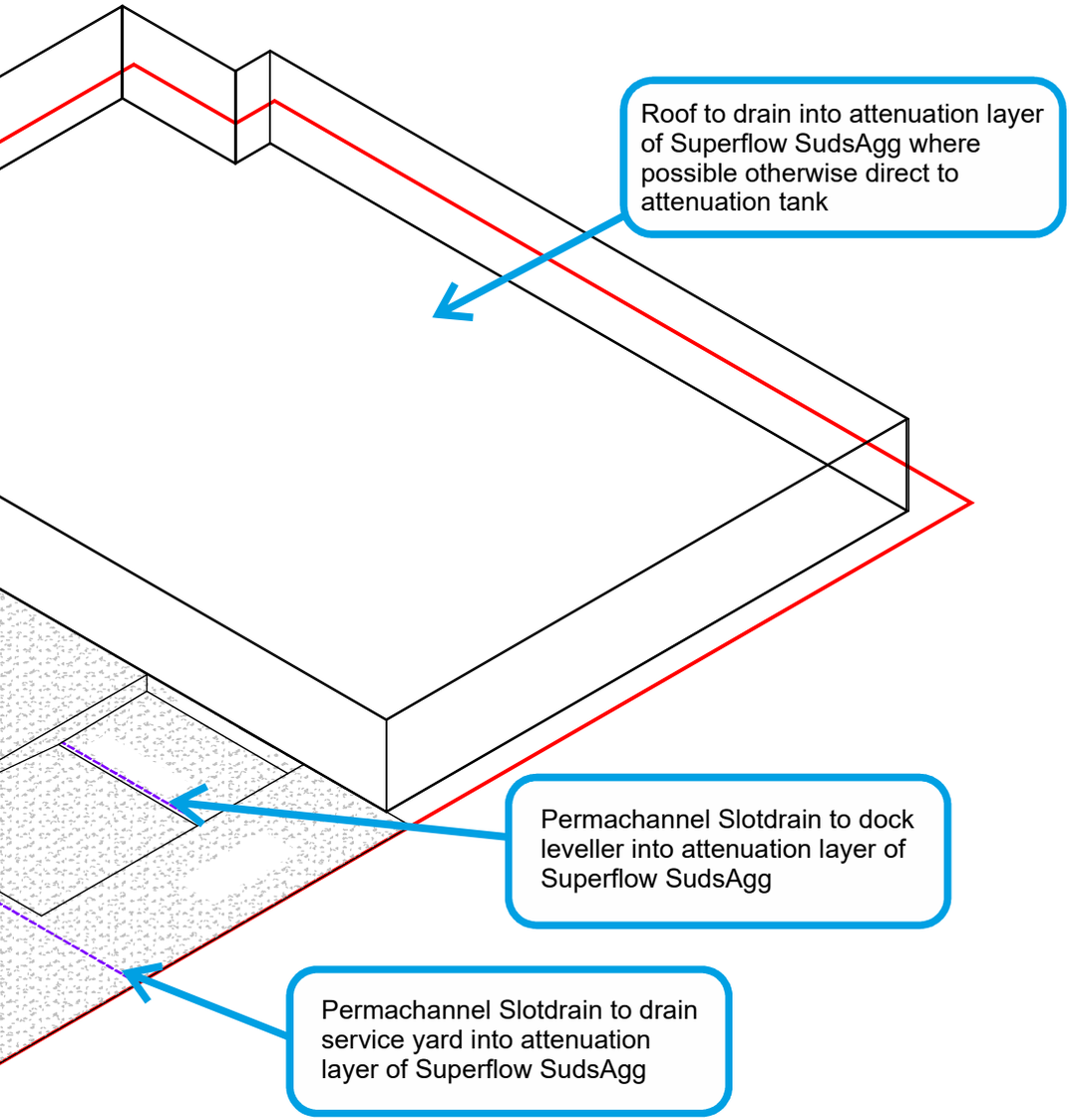
Parking

Runoff from the car park would be collected via permachannel, a combined run-off collection, silt/effluent interception and treatment system which is designed to prevent the development of lateral velocities and encourage silt deposition along the length of each channel. Outlets discharge from the side of the channel via a weir & baffle component, which separates oils and prevents the effluent and silt from progressing beyond the channel into the remaining drainage system.

Treated run-off then passes through a permavoid biomat diffuser conduit. The permavoid biomat contains an oil treating geosynthetic layer that floats on water and is designed to intercept and treat potential residual oils that may be present before diffusing into a Superflow SudsAgg sub-base attenuation layer.

These zones or micro catchments discharge through individually designated flow control devices, connected into a small diameter collection pipe network below formation level.





Service Yard

Run-off from the service yard would be collected via Permachannel Slotdrain, a combined run-off collection, silt/effluent interception and treatment system which is designed to prevent the development of lateral velocities and encourage silt deposition along the length of each channel. Outlets discharge from the side of the slotdrain via a weir & baffle component, which separates oils and prevents the effluent and silt from progressing beyond the channel into the remaining drainage system.

Treated run-off then passes through a permavoid biomat diffuser conduit. The permavoid biomat contains an oil treating geosynthetic layer that floats on water and is designed to intercept and treat potential residual oils that may be present before diffusing into a Superflow SudsAgg sub-base attenuation layer.

Runoff from the dock levellers would be collected via Permachannel Slotdrain at the bottom of the slope. This would pass through a biomat conduit which would then convey the runoff forward into the pipe collection network.

These zones would discharge through its own flow control chamber to allow connection into the small diameter collection pipe network below formation level.

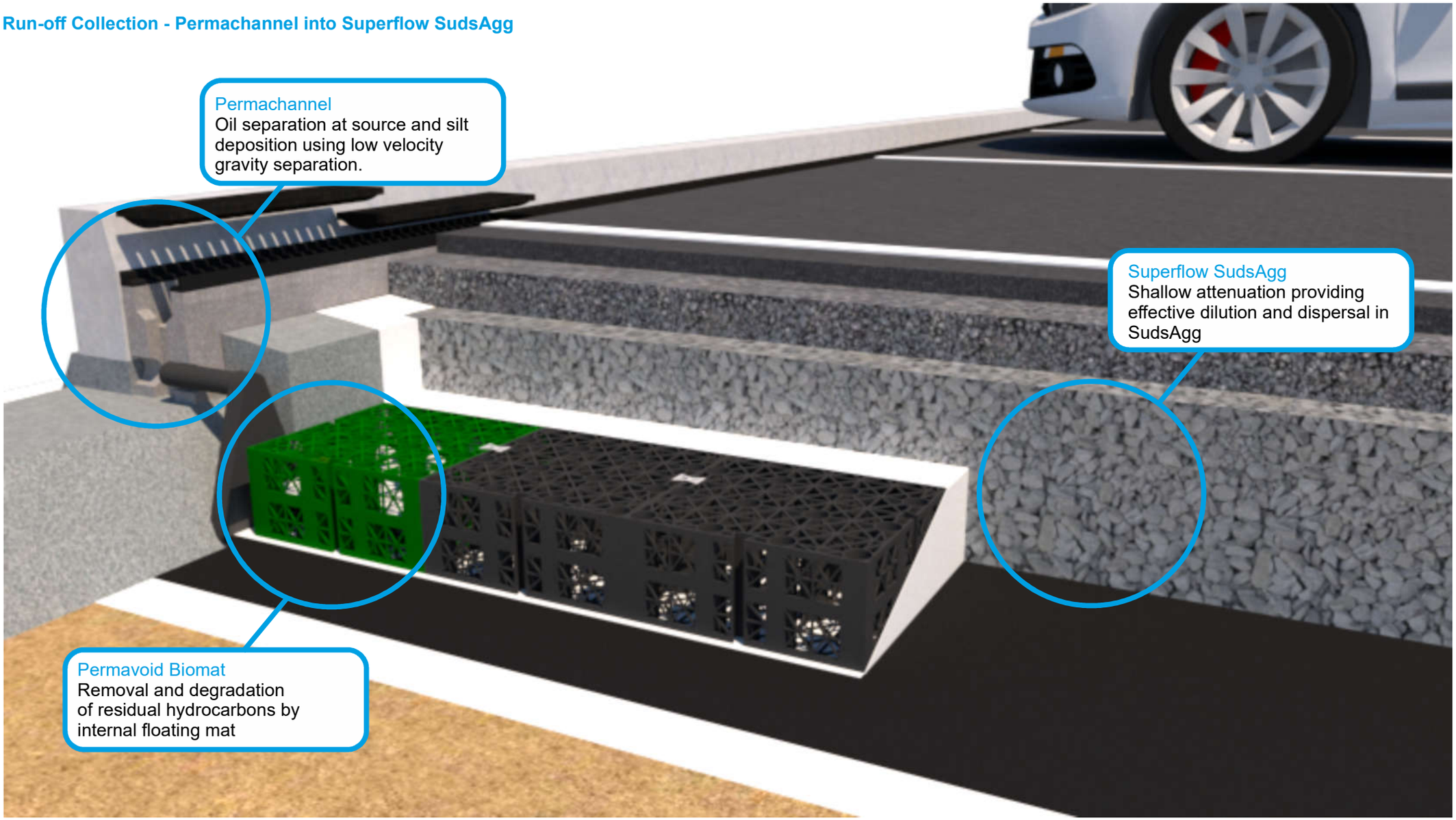
Roof Catchment

Run-off from the roof would be collected by gravity or siphonic outlets. Wherever possible, this would discharge into a Superflow SudsAgg sub-base attenuation layer. We recommend it passes through a silt chamber before discharging into the sub-base attenuation layer through a permavoid diffuser unit. Standard diffuser units will deal with 100m² or 250m² catchment areas, so a manifold arrangement of multiple diffusers may be required. Advice can be provided on an individual basis.

If discharge into a sub-base attenuation layer is not possible, then an appropriately sized attenuation tank would be required. Depending on the building layout and drainage requirements, the attenuation structure could be utilised for conveyance as well.

PERMACHANNEL

Run-off Collection - Permachannel into Superflow SudsAgg



Permachannel

Permachannel functions as a combined run-off collection, silt/oil interceptor and treatment component. Ideally it is laid with zero gradient to prevent lateral velocities, ‘stilling’ sheet run-off from each sub-catchment and encouraging silt deposition within each channel.

The outlets discharge from the side of the channel via a weir and baffle component, which separates oils and prevents effluent and silt from progressing beyond the channel into the rest of the drainage system.

Applications

Permachannel is used for stormwater collection, interception and treatment of associated pollutants. The system comprises of single or multiple interconnected channels appropriately located to collect surface water run-off from sub-catchments of impervious pavements.

Permachannel is suitable for use in a range of applications including residential, industrial estates and car parks. A derivative Permachannel Slotdrain is available for use in service yards where a grating may not be desired.

Performance

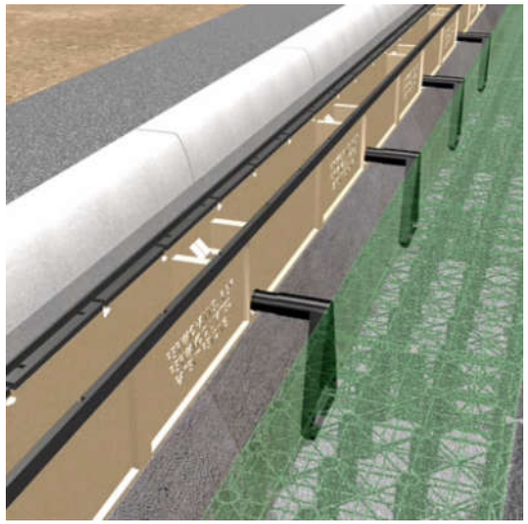
Permachannel is rated to D400 loading in accordance with BS EN 124:1994 when installed with concrete bed and haunch in accordance with site specific construction details.

Permachannel can eliminate the need for end of line petrol/oil interceptors as it reduces hydrocarbon pollution loading below 5mg/l when used at the recommended coverage of 1m of Permachannel per 30m² of catchment.

Installation

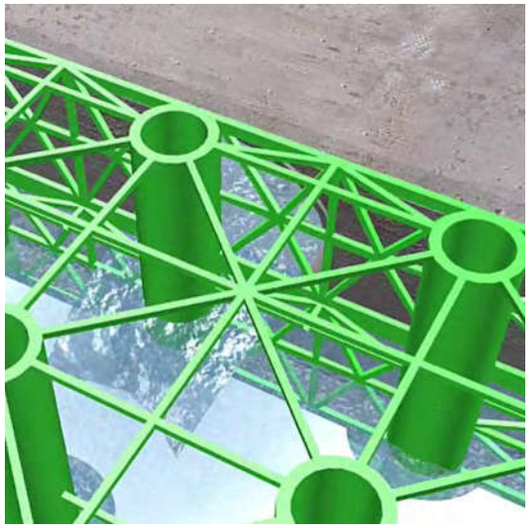
Permachannel must be installed on a load bearing concrete bed and haunch, in accordance with site specific construction details.

Oils are collected in the Permachannel



Permachannel link to biomat conduit

Internal weirs trap oils



Residual oil is trapped and treated within the Permavoid biomat

PERMAVOID BIOMAT

Permavoid Biomat

Permavoid Biomat is a high strength geocellular unit containing a low density, oil treating, geosynthetic floating mat (biomat). The biomat floats on water, intercepting and treating residues or emulsified oils in the surface water. This enhances the oil retention and water treatment capability of the Permavoid attenuation and infiltration system.

Applications

Permavoid Biomat units are used to form a collection / diffuser conduit next to Permachannel, to capture residual hydrocarbons and diffuse run-off into SudsAgg attenuation blanket.

Performance

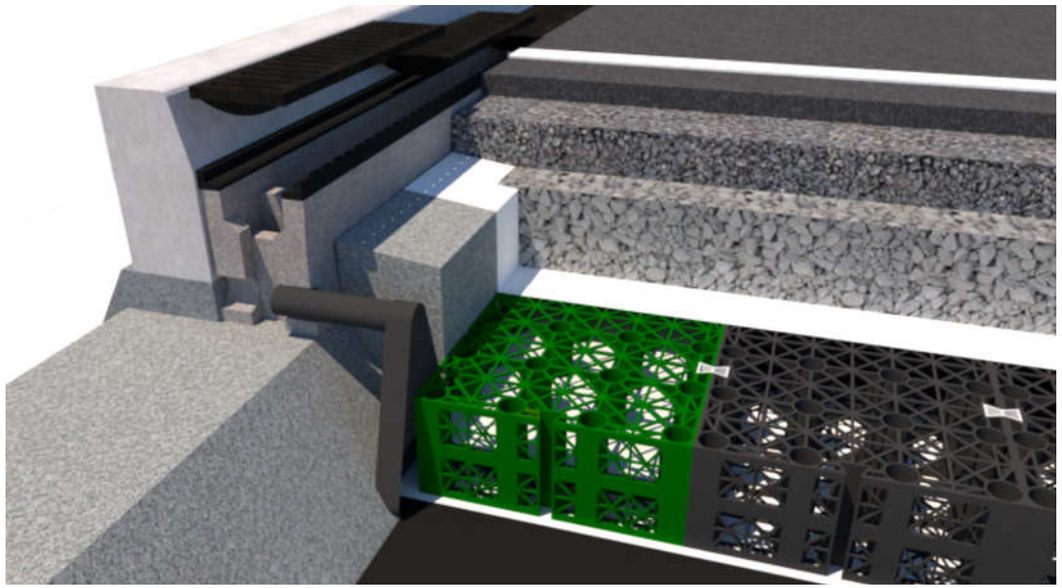
The structural load bearing capacity of the Permavoid units has been tested in accordance with the following European Standard: BS 7533-13:2009. The system's structural design life expectancy, based upon creep test data (tested according to CIRIA guidelines) is as follows; for lightly loaded areas such as car parks a design life of 50 years is achievable. For areas with prolonged HGV loading a typical design life may only be 25 years, depending on the design of the pavement surfacing and structural layers over the tank.

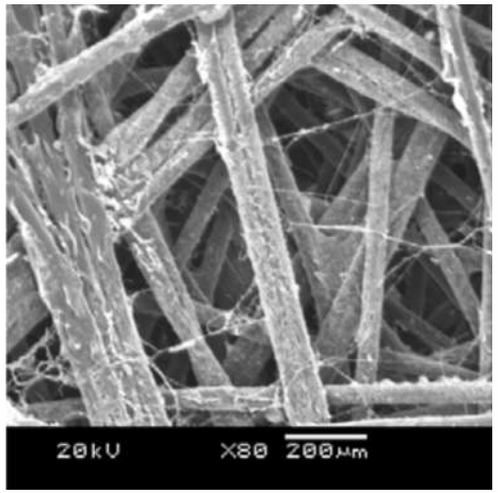
Installation

All calculations for Permavoid Biomat units are based upon site-specific load cases, pavement construction types and thickness, soil cover and ground conditions. Suitability must therefore be approved for each project.

Features & Benefits

- Secondary treatment phase for potential residual hydrocarbons
- Pollutant-intercepting floating mat
- One Permavoid Biomat cell is capable of retaining 56g of oil
- Floating medium maintained at air-water interface allowing optimum conditions for aerobic degradation
- Self maintaining, degrades residual oils by absorption and aerobic digestion
- Units are manufactured from 90% recycled polypropylene (PP)
- 100% recyclable





SUPERFLOW SUDSAGG

SudsAgg

Superflow SudsAgg is a graded, low fines, crushed aggregate with a maximum nominal aggregate size of 40mm. This unique blend has been formulated in partnership between SEL and Aggregate Industries.

It is designed to have a **guaranteed** void ratio greater than 30% and has been designed to be used as a direct replacement for Type 1 and therefore does not require any geogrid type reinforcement membranes engineered into layers.

Laid thickness will be dependent on attenuation requirement, ground conditions and construction methods.

SudsAgg has a special grading for the purpose to provide a 30% void ratio while also maintaining all the physical properties necessary to fulfill the role of a standard granular Type 1 sub-base.

Aggregate Industries offer this material at the same (or less) cost per m^3 as their type 1 sub-base (using the same rock source).

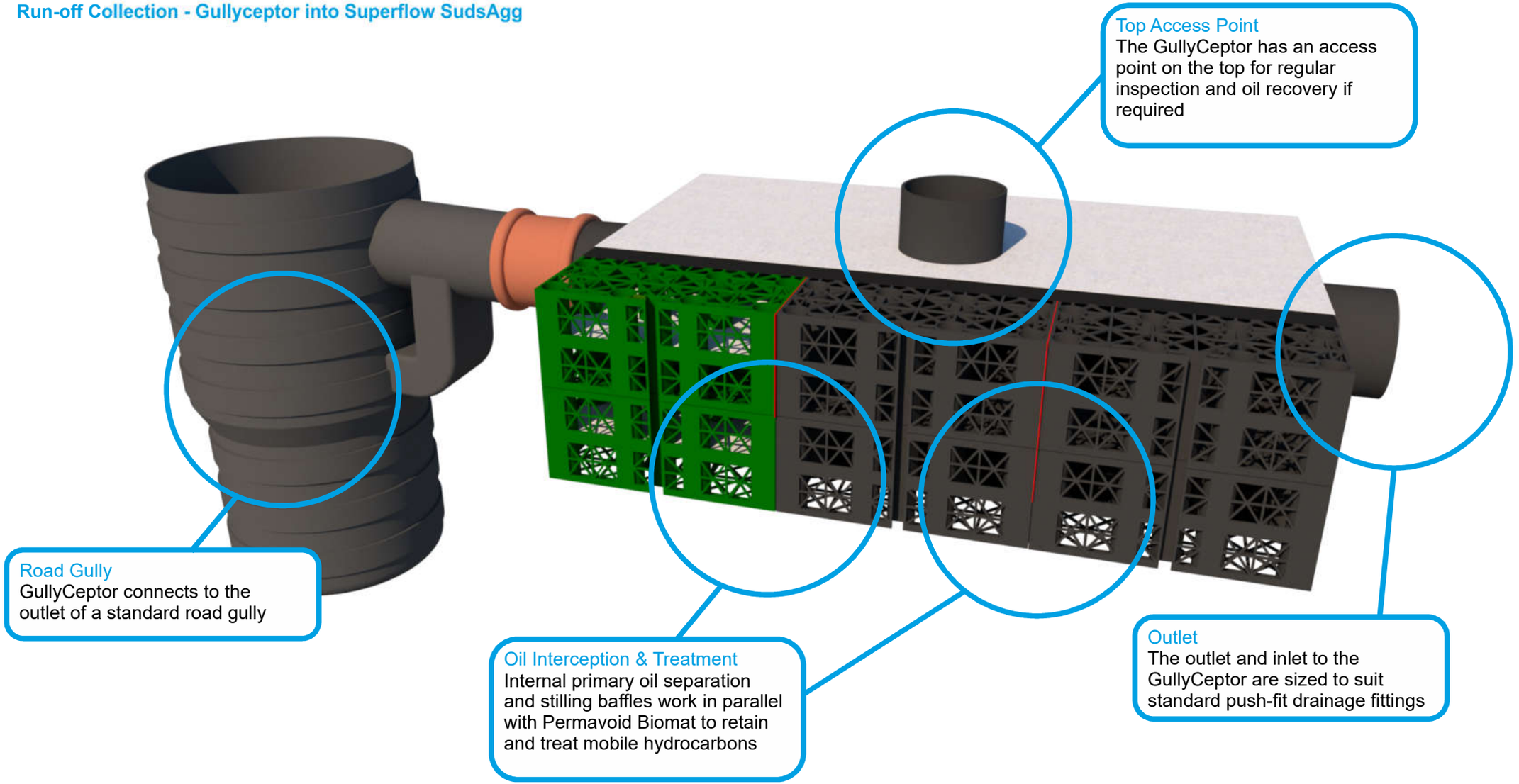
Where required the attenuation capacity of SudsAgg can be boosted by introduction of Permavoid sub-base replacement system. This has a 95% void and can be used in a blanket or strips to improve water storage without increasing overall construction depths.

Laying

SudsAgg, the material, shall be placed and spread evenly. Spreading shall be undertaken either concurrently with placing or without delay; levelling off the material to an even depth. Material laid up to 225 mm compacted thickness shall be spread in one layer so that after compaction the total thickness is as specified. Material of compacted thickness greater than 225 mm shall be laid in two or more layers and the minimum compacted thickness of any such layer shall be 100 mm. Where the layers are of unequal thickness, the lowest layer shall be the thickest layer.

GULLYCEPTOR

Run-off Collection - Gullyceptor into Superflow SudsAgg



GullyCeptor

Oil interception devices have been widely used for dealing with hydrocarbon pollutants emanating from numerous sources. The Gullyceptor takes a significantly different approach to the problem by providing hydrocarbon treatment within a SUDS system serving localised hardstandings thus treating the water close to the source.

Gullyceptor units are designed to serve smaller sub-catchments as part of a source control treatment train. This allows easy integration of conventional hardstanding using a road gully and, where appropriate, within an overall site specific SUDS design. Contemporary SUDS design guidance is moving away from such end of line, large tank oil interceptor designs as these tend to concentrate pollutants in a single location, close to the off-site discharge point and do not satisfy the recognised SUDS criteria.

Applications

GullyCeptor is used for stormwater collection, interception and the treatment of associated pollutants. The system comprises Permavoid and Biomat units located to collect surface water run-off from sub-catchments within impervious or pervious pavements via road or yard gullies. Gullyceptor is suitable for a range of applications including car parks, service yards and access roads.

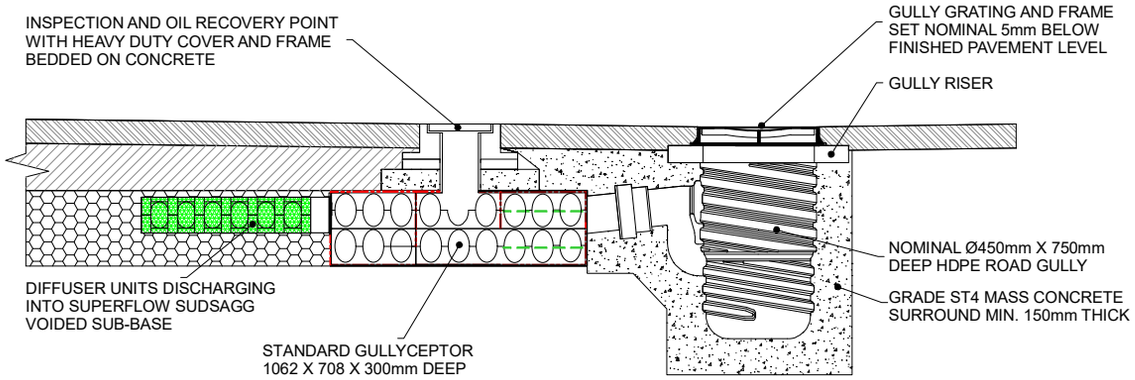
Performance

The structural load bearing capacity of the Permavoid units has been tested in accordance with the following European Standard: BS 7533-13:2009. The system's structural design life expectancy, based upon creep test data (tested according to CIRIA guidelines) is as follows; for lightly loaded areas such as car parks a design life of 50 years is achievable. For areas with prolonged HGV loading a typical design life may only be 25 years, depending on the design of the pavement surfacing and structural layers over the tank.

Installation

All calculations for Gullyceptor units are based upon site-specific load cases, construction types and thickness, soil cover and ground conditions and the suitability must therefore be approved for each project.

TYPICAL PERMAVOID GULLYCEPTOR DETAIL

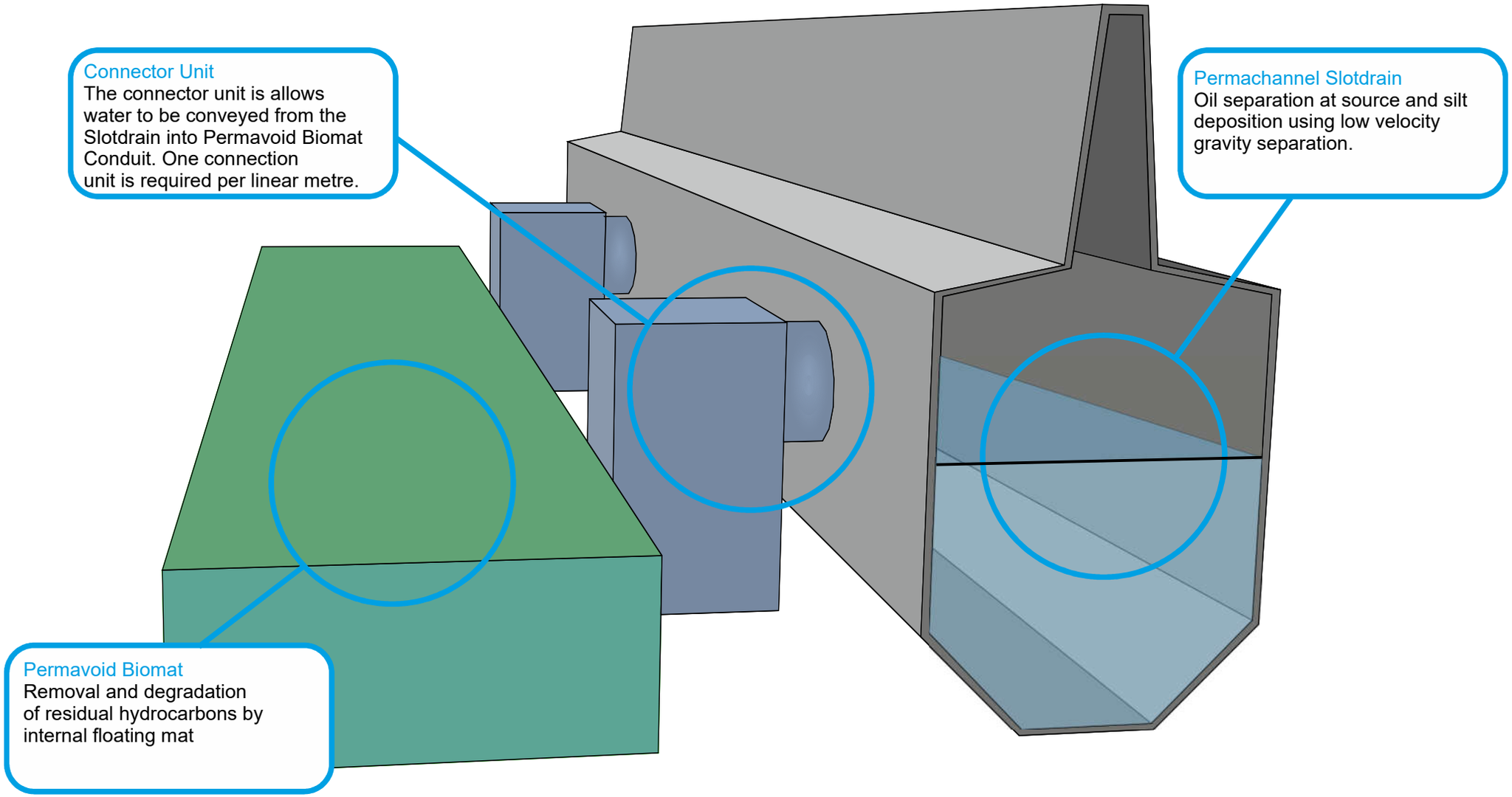


Features & Benefits

- Gravity separation of oils and silts at source
- Accidental/catastrophic spills recoverable at source
- Trapped effluent naturally treated by aerobic digestion
- Can enhance the water quality and eliminate the need for end of line petrol/oil interceptors
- The system complies with the regulations of the treatment train criteria in a SuDS scheme as defined in the PPG3 (now withdrawn)
- A standard GullyCeptor unit can treat a catchment area of 150m²
- 100% recyclable
- Units are manufactured from 90% recycled polypropylene (PP)

PERMACHANNEL SLOTDRAIN

Run-off Collection - Permachannel Slotdrain into Superflow SudsAgg



Permachannel Slotdrain

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The outlets discharge from the side of the slotdrain at 1m intervals via a weir and baffle component, which separates oils and prevents effluent and silt from progressing beyond the channel into the rest of the drainage system.

Applications

Permachannel Slotdrain is used for stormwater collection, interception and treatment of associated pollutants. The system comprises of single or multiple interconnected channels appropriately located to collect surface water run-off from sub-catchments of impervious pavements.

Permachannel Slotdrain is suitable for use in a range of applications including car parks and service yards where a grating may not be desired.

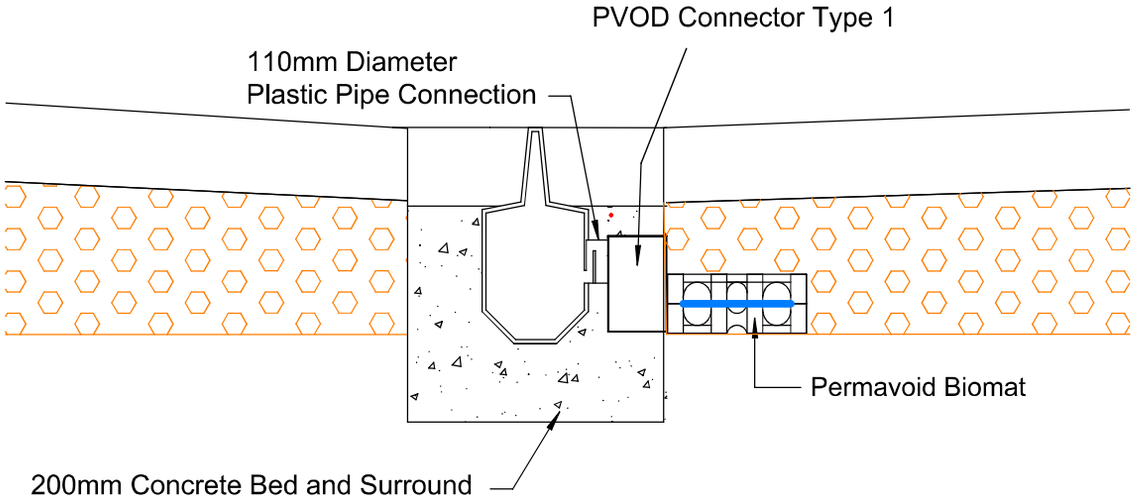
Performance

Permachannel Slotdrain is rated to D400 loading in accordance with BS EN 124:1994 when installed with concrete bed and haunch in accordance with site specific construction details.

Permachannel Slotdrain can eliminate the need for end of line petrol/oil interceptors as it reduces hydrocarbon pollution loading below 5mg/l when used at the recommended coverage of 1m of Permachannel SLotdrain per 30m² of catchment.

Installation

Permachannel must be installed on a load bearing concrete bed and haunch, in accordance with site specific construction details.



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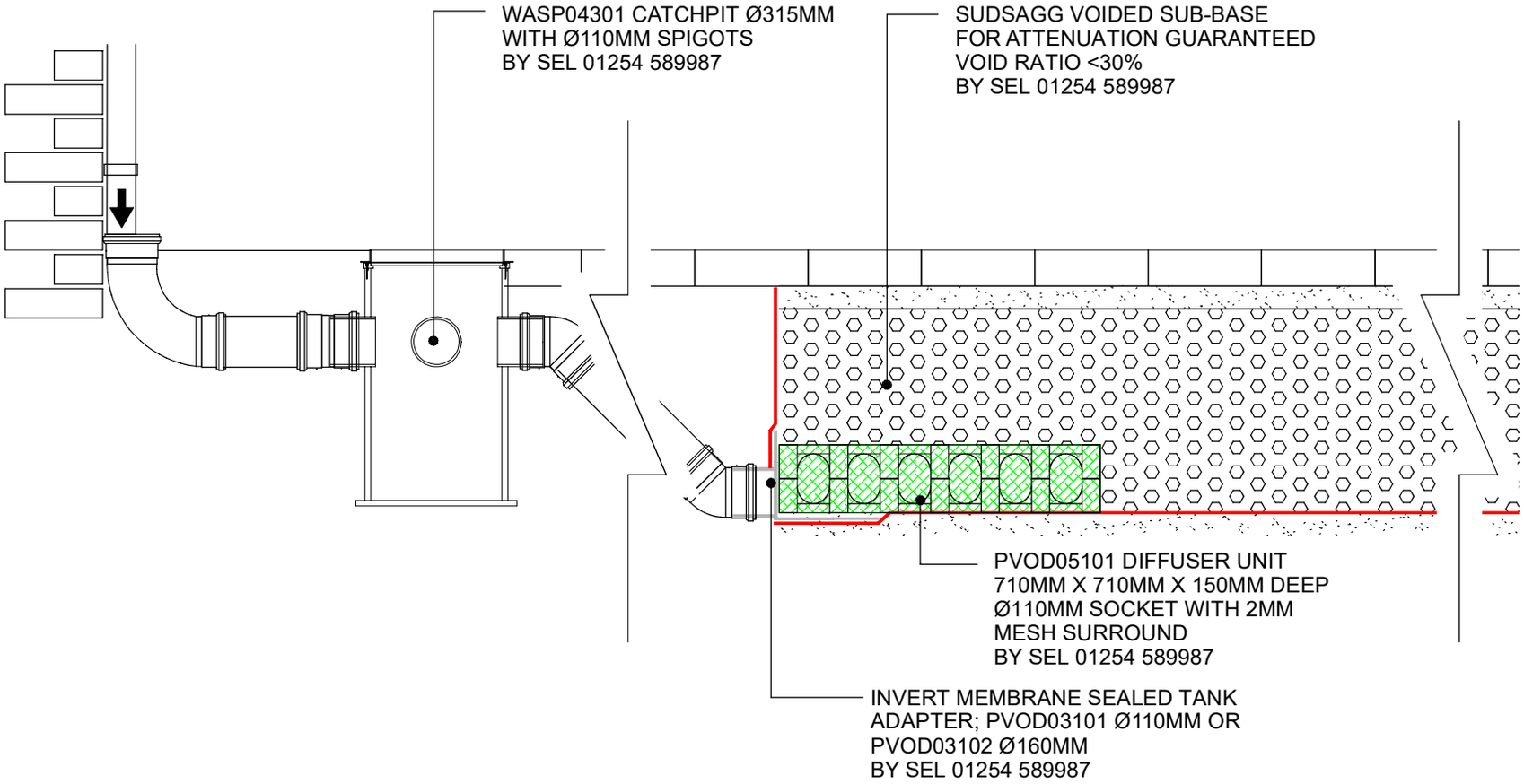
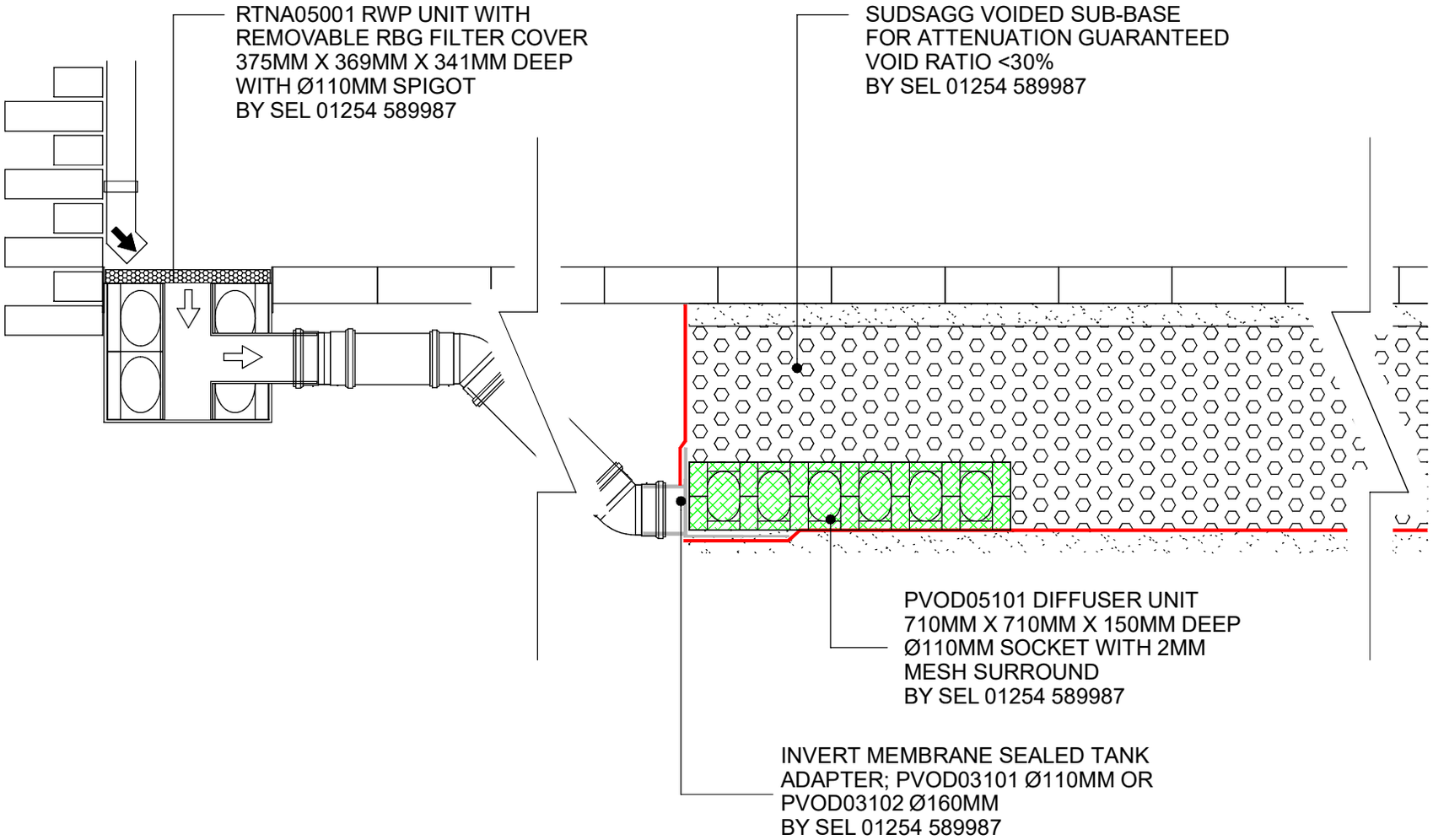
- 100% recyclable

DOWNPIPE CONNECTION

Run-off Collection - Roof into Superflow SudsAgg




RTNA05001 RWP UNIT WITH
REMOVABLE RBG FILTER COVER
375MM X 369MM X 341MM DEEP
WITH Ø110MM SPIGOT
BY SEL 01254 589987
SUDSAGG VOIDED SUB-BASE
FOR ATTENUATION GUARANTEED
VOID RATIO <30%
BY SEL 01254 589987
PVOD05101 DIFFUSER UNIT
710MM X 710MM X 150MM DEEP
Ø110MM SOCKET WITH 2MM
MESH SURROUND
BY SEL 01254 589987
INVERT MEMBRANE SEALED TANK
ADAPTER; PVOD03101 Ø110MM OR
PVOD03102 Ø160MM
BY SEL 01254 589987

TYPICAL DRAINAGE LAYOUT

Typical Drainage Layout - Permeable Parking Bays

Overview

The rationale surrounding this drainage layout is based on achieving source control and treatment of the run-off from potentially contaminated surfaces such as car parks, access roads, service yards and buildings by positioning the storage around the site such that the attenuation and treatment is provided as close to the run-off source as is feasible.

By introducing source control systems (rather than end-of-pipe attenuation and treatment) it is possible to decrease flow rates of run-off which helps to improve water quality. Pollutants as less likely to become emulsified and transported to form problematic concentrated masses and the low flow rates make it easier for siltation control as they allow silts to fall from suspension and settle for later removal.

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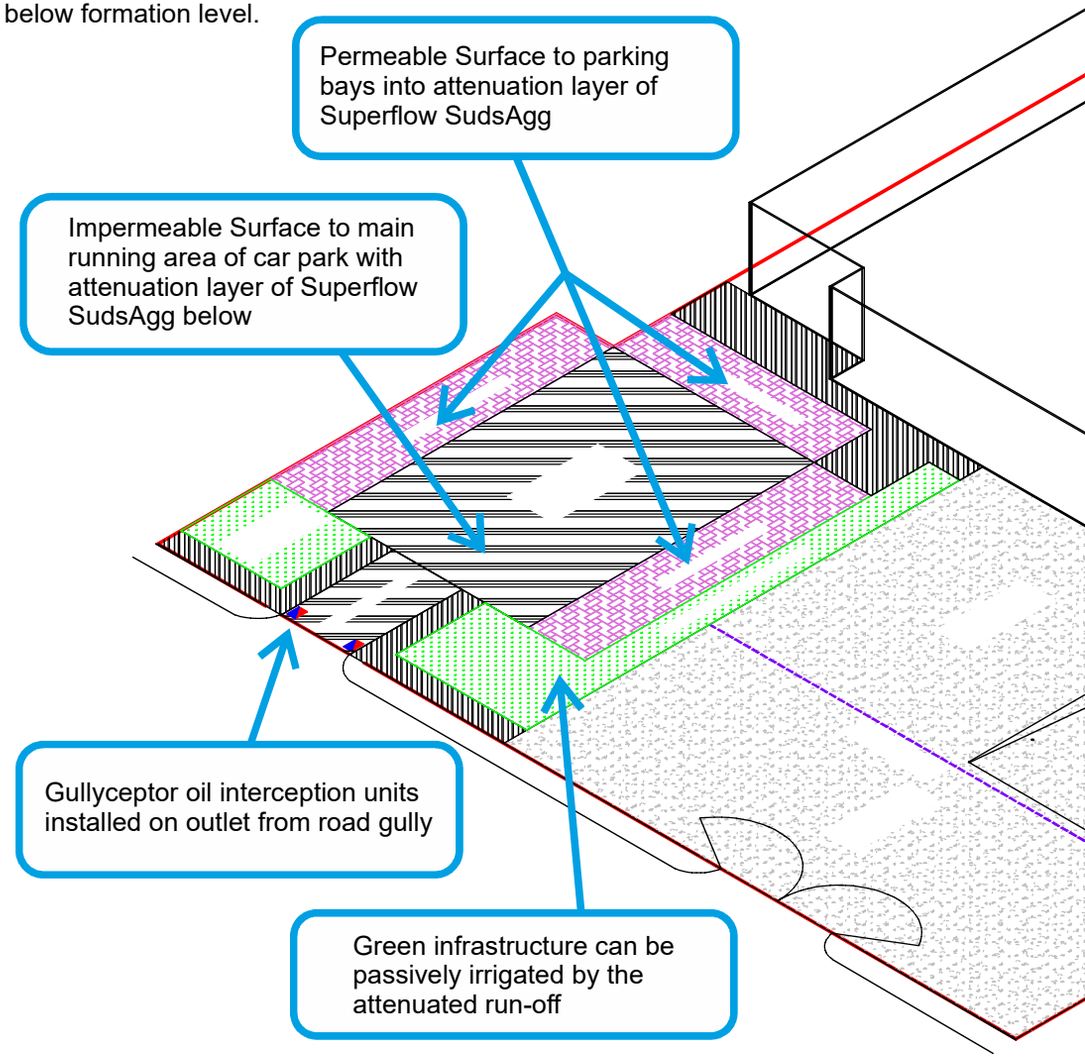
Parking

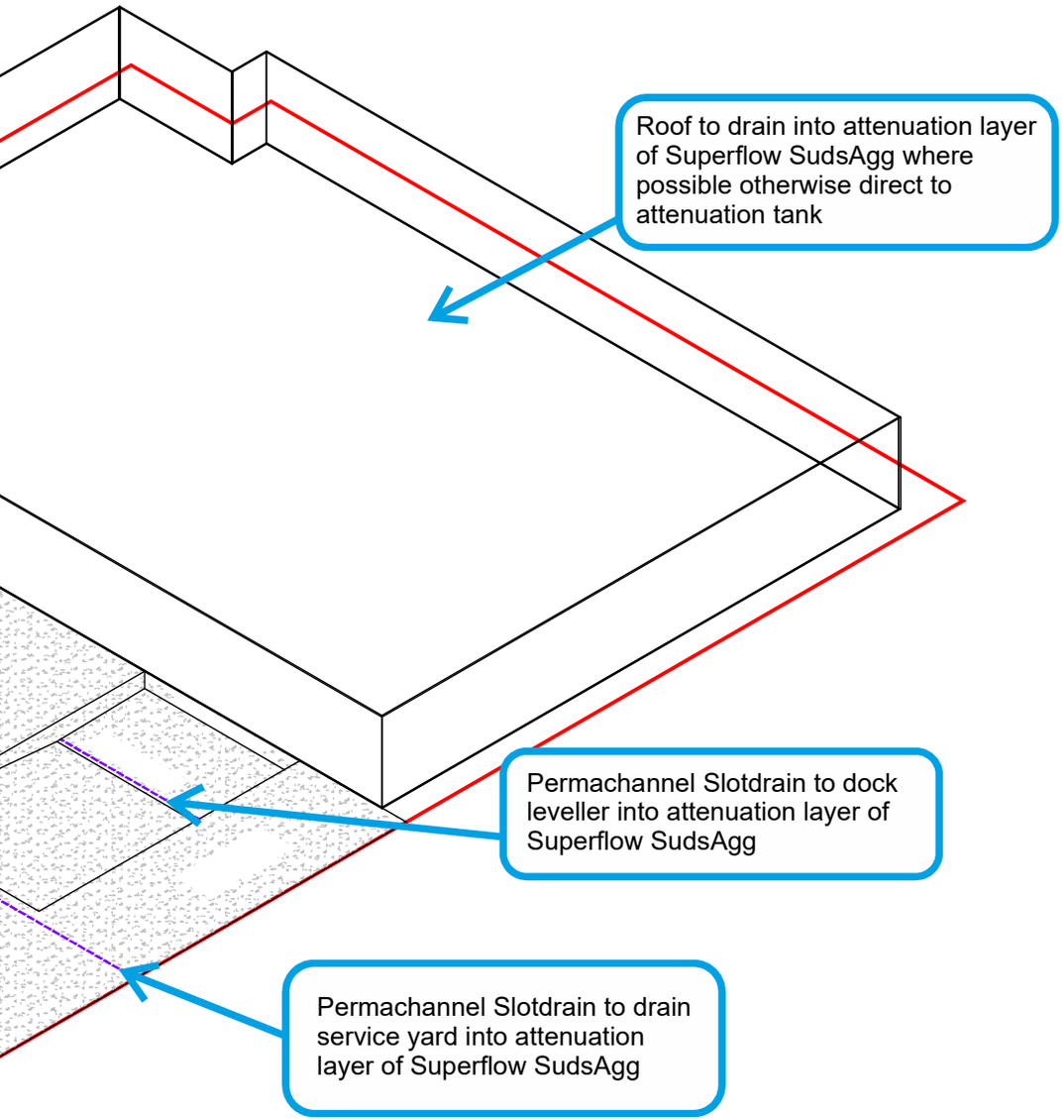
Runoff from the car park would be collected via permeable paving situated within the parkings bays of the car park. Runoff is directed to the permeable surfacing where it filters through into the Superflow SudsAgg below which provides temporary attenuation.

If enhanced hydrocarbon protection is desired, a layer of Permafilter Sudstex can be laid directly below the bedding layer of the permeable block paving.

The stored water is released from the SudsAgg layer through a permavoid diffuser unit which connects to a Controflow flow control chamber.

These zones or micro catchments discharge through individually designated flow control devices, connected into a small diameter collection pipe network below formation level.





Service Yard

Run-off from the service yard would be collected via Permachannel Slotdrain, a combined run-off collection, silt/effluent interception and treatment system which is designed to prevent the development of lateral velocities and encourage silt deposition along the length of each channel. Outlets discharge from the side of the slotdrain via a weir & baffle component, which separates oils and prevents the effluent and silt from progressing beyond the channel into the remaining drainage system.

Treated run-off then passes through a permavoid biomat diffuser conduit. The permavoid biomat contains an oil treating geosynthetic layer that floats on water and is designed to intercept and treat potential residual oils that may be present before diffusing into a Superflow SudsAgg sub-base attenuation layer.

Runoff from the dock levellers would be collected via Permachannel Slotdrain at the bottom of the slope. This would pass through a biomat conduit which would then convey the runoff forward into the pipe collection network.

These zones would discharge through its own flow control chamber to allow connection into the small diameter collection pipe network below formation level.

Roof Catchment

Run-off from the roof would be collected by gravity or siphonic outlets. Wherever possible, this would discharge into a Superflow SudsAgg sub-base attenuation layer. We recommend it passes through a silt chamber before discharging into the sub-base attenuation layer through a permavoid diffuser unit. Standard diffuser units will deal with 100m² or 250m² catchment areas, so a manifold arrangement of multiple diffusers may be required. Advice can be provided on an individual basis.

If discharge into a sub-base attenuation layer is not possible, then an appropriately sized attenuation tank would be required. Depending on the building layout and drainage requirements, the attenuation structure could be utilised for conveyance as well.

FLOW CONTROL

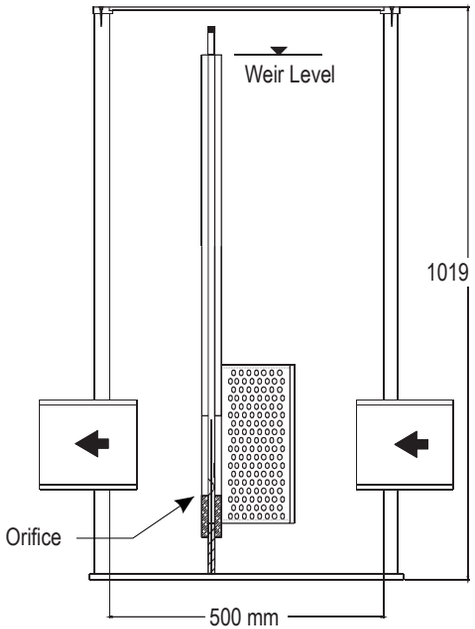
Maximising Storage in Voided Sub-base

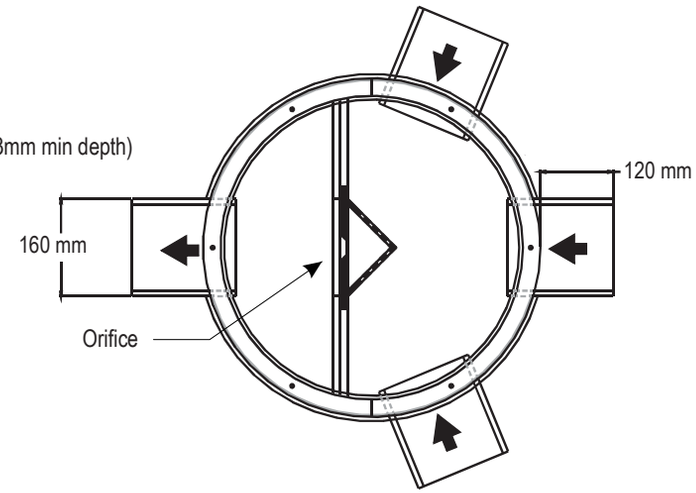
SUDS02005 Controflow 500 Series Universal Level Invert

Controflow® Flow Control Chambers have been developed, in association with Robert Bray Associates, to control flows around developments from shallow SuDS features, such as permeable pavements and swales.

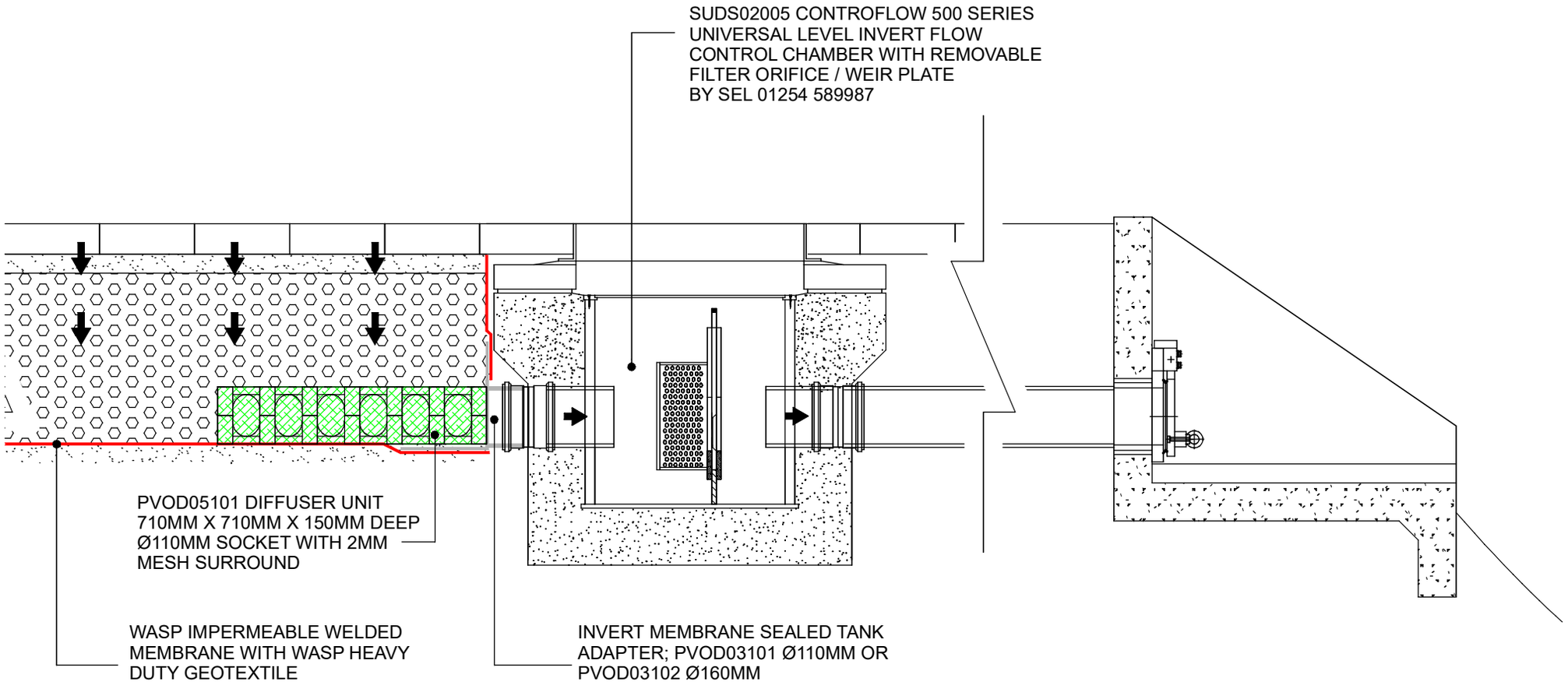
The level invert version allows connection to shallow outfalls e.g. swales and ditches, or other areas of voided sub-base e.g. access roads. This chamber also includes a built-in weir wall, which is removable for easy maintenance.

Controflow® units for permeable pavements are pre-manufactured to site-specific orifice diameter and weir wall height requirements and arrive on site ready for installation. The units incorporate an integral screen to protect the orifice.





SUDS02005 Controflow 500 Series Universal Level Invert


SUDS02005 CONTROFLOW 500 SERIES
UNIVERSAL LEVEL INVERT FLOW
CONTROL CHAMBER WITH REMOVABLE
FILTER ORIFICE / WEIR PLATE
BY SEL 01254 589987
PVOD05101 DIFFUSER UNIT
710MM X 710MM X 150MM DEEP
Ø110MM SOCKET WITH 2MM
MESH SURROUND
WASP IMPERMEABLE WELDED
MEMBRANE WITH WASP HEAVY
DUTY GEOTEXTILE
INVERT MEMBRANE SEALED TANK
ADAPTER; PVOD03101 Ø110MM OR
PVOD03102 Ø160MM

FLOW CONTROL

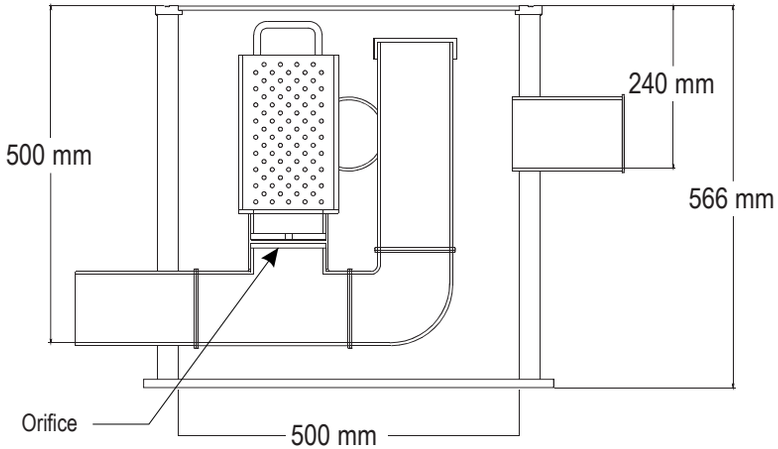
Maximising Storage in Voided Sub-base

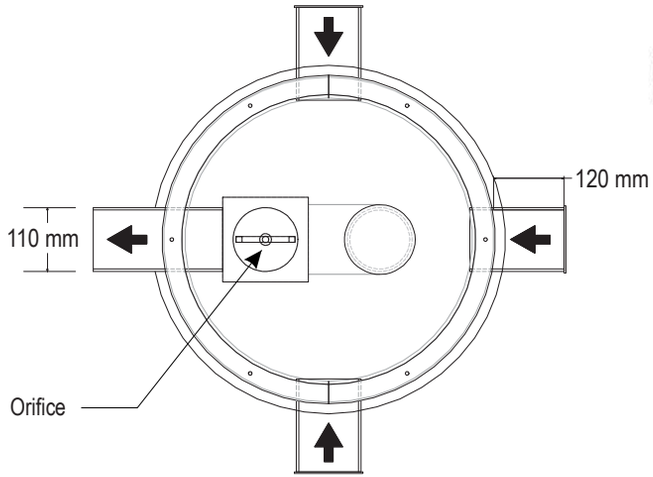
SUDS02008 Controflow 500 Series 110Ø Stubs Stepped Invert Rodable

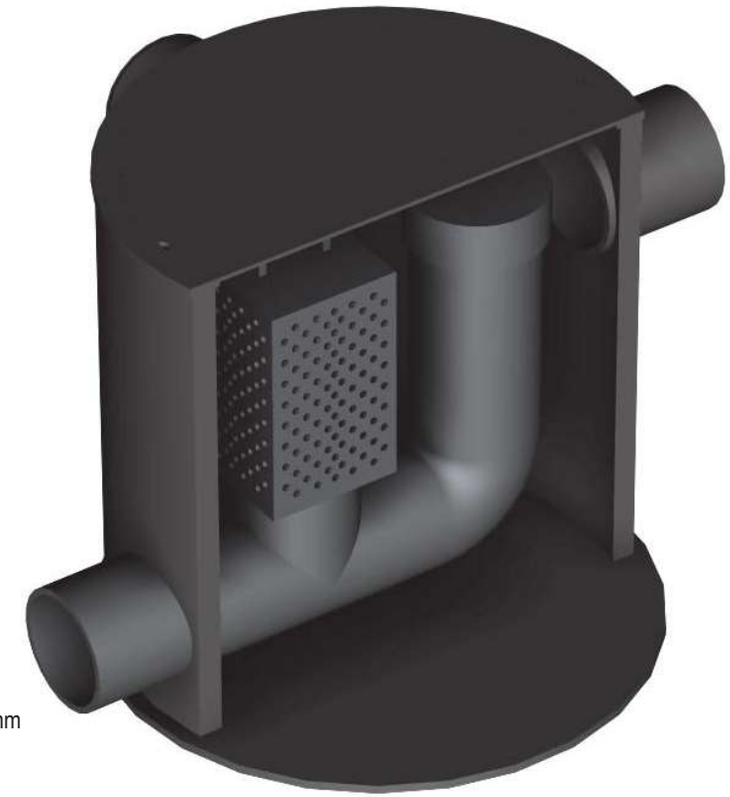
Controflow® Flow Control Chambers have been developed, in association with Robert Bray Associates, to control flows around developments from shallow SuDS features, such as permeable pavements and swales.

The stepped invert version facilitates a simple transition in construction levels, from above to below formation level. This allows for deeper collection pipework to be installed ahead of the individual permeable pavement areas below formation level, away from construction traffic.

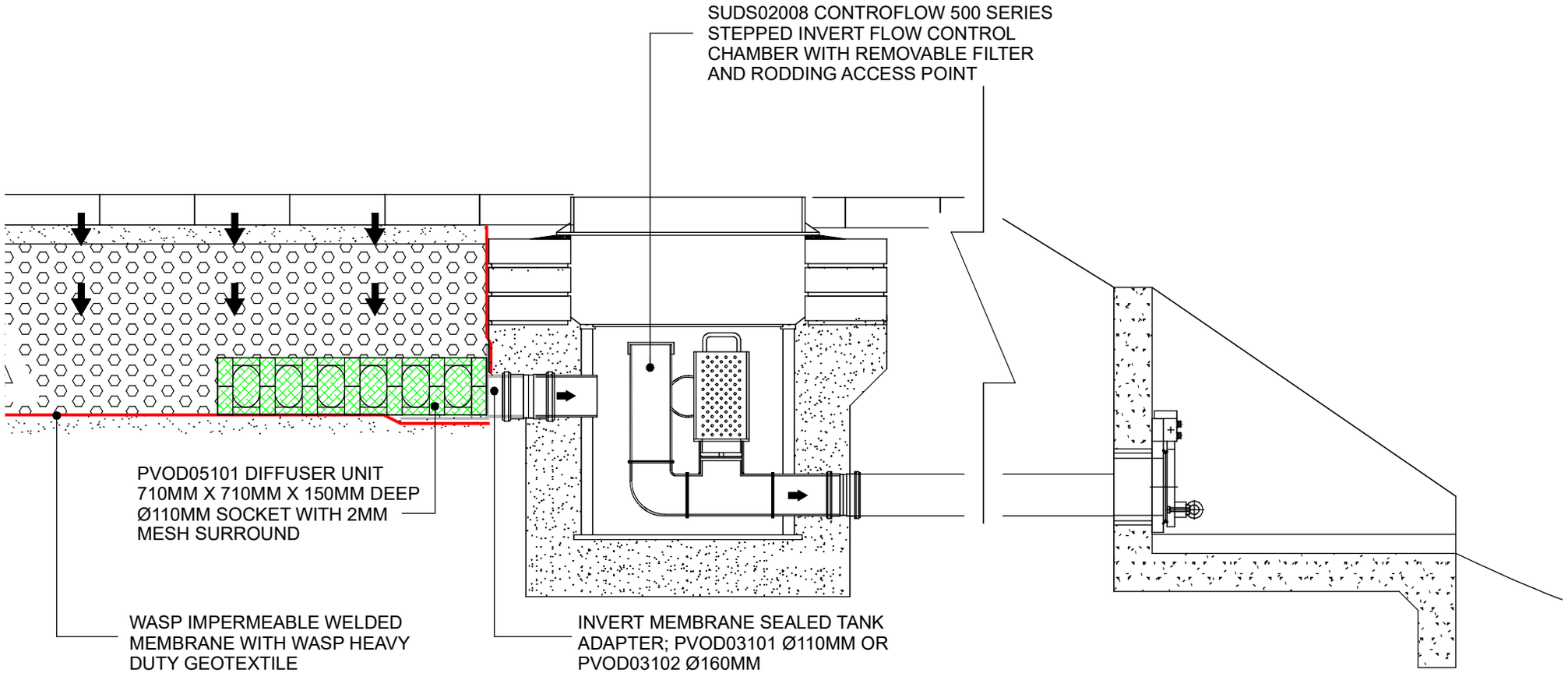
Controflow® units for permeable pavements are pre-manufactured to site-specific orifice diameter requirements and arrive on site ready for installation. The units incorporate rodding access and an integral removeable screen to protect the orifice.





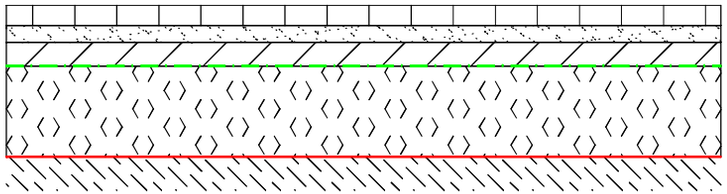


SUDS02008 Controflow 500 Series
110Ø stubs stepped invert rodable


SUDS02008 CONTROFLOW 500 SERIES
STEPPED INVERT FLOW CONTROL
CHAMBER WITH REMOVABLE FILTER
AND RODDING ACCESS POINT
PVOD05101 DIFFUSER UNIT
710MM X 710MM X 150MM DEEP
Ø110MM SOCKET WITH 2MM
MESH SURROUND
WASP IMPERMEABLE WELDED
MEMBRANE WITH WASP HEAVY
DUTY GEOTEXTILE
INVERT MEMBRANE SEALED TANK
ADAPTER; PVOD03101 Ø110MM OR
PVOD03102 Ø160MM

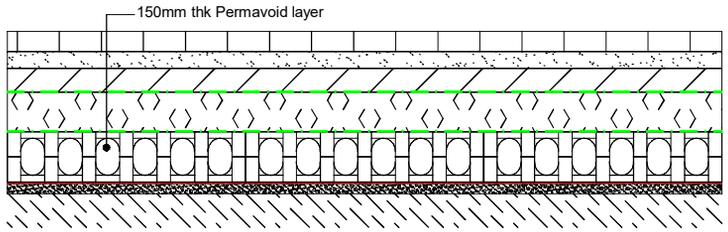
EXAMPLE CAD SECTIONS

POROUS BLOCK PAVING (PARKING BAY)



60mm permeable block paving on
50mm 2-6.3mm Bedding Aggregate on
70mm dense base with drilled holes on
Seperation geotextile on
270mm Sudsagg on
Wasp membrane with Wasp geotextile layer on
Formation

POROUS BLOCK PAVING (PARKING BAY)
Enhanced Attenuation Using Permavoid

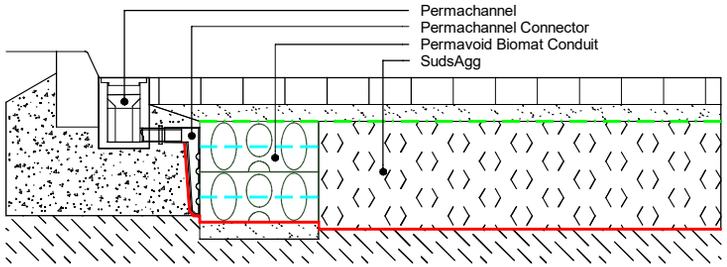


60mm permeable block paving on
50mm 2-6.3mm Bedding Aggregate on
70mm dense base with drilled holes on
Seperation geotextile on
120mm Sudsagg on
Seltex HD300 Geotextile on
150mm Permavoid on
Wasp membrane with Wasp geotextile layer on
50mm Bedding layer on
Formation

Storage Capacity as SudsAgg Only
270mm thk of SudsAgg
= 81 litres per m²

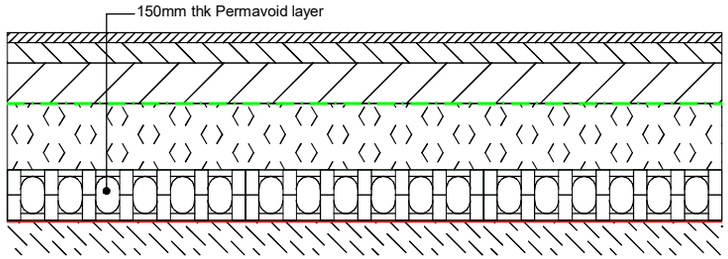
Storage Capacity with 150mm of Permavoid
120mm thk SudsAgg + 150mm Permavoid
= 179 litres per m²

STANDARD BLOCK PAVING (PARKING BAY)



80mm permeable block paving on
50mm 2-6.3mm Bedding Aggregate on
Seperation geotextile on
320mm Sudsagg on
Wasp membrane with Wasp geotextile layer on
Formation

ACCESS ROAD ASPHALT
Enhanced Attenuation Using Permavoid

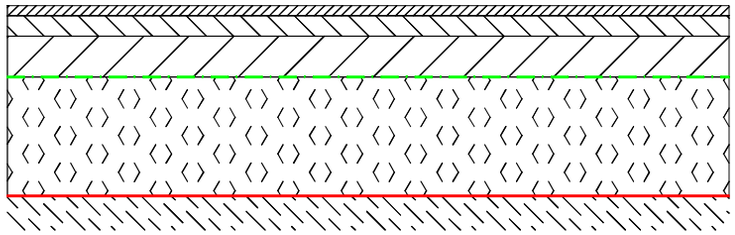


30mm AC10 surface course on
60mm AC20 dense bin on
120mm dense base on
Seperation geotextile on
200mm SudsAgg on
Seltex HD300 Geotextile on
150mm Permavoid on
Wasp membrane with Wasp geotextile layer on
50mm Bedding layer on
Formation

Storage Capacity as SudsAgg Only
350mm thk of SudsAgg
= 105 litres per m²

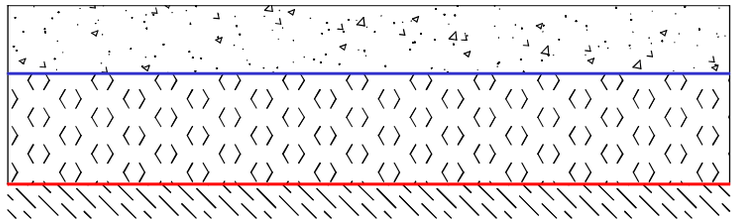
Storage Capacity with 150mm of Permavoid
120mm thk SudsAgg + 150mm Permavoid
= 203 litres per m²

ACCESS ROAD ASPHALT



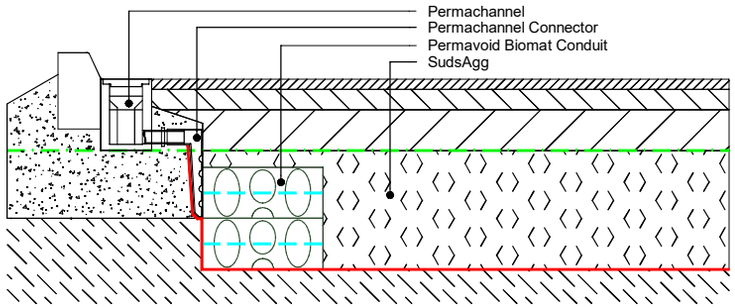
30 AC10 surface course on
60 AC20 dense bin on
120 dense base on
Seperation geotextile on
350 SudsAgg on
Wasp membrane with Wasp geotextile layer on
Formation

CONCRETE ROAD
(Service yard + dock levellers)



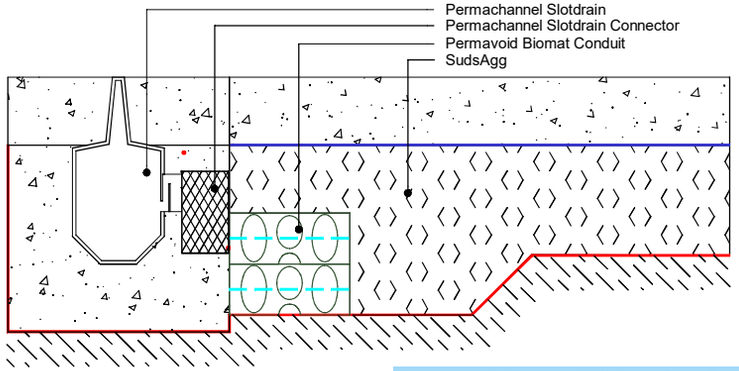
200 reinforced concrete slab on
1200g membrane on
325 Sudsagg on
Wasp membrane with Wasp geotextile layer on
Formation

ACCESS ROAD ASPHALT



30 AC10 surface course on
60 AC20 dense bin on
120 dense base on
Seperation geotextile on
350 SudsAgg on
Wasp membrane with Wasp geotextile layer on
Formation

CONCRETE ROAD
(Service yard + dock levellers)



200 reinforced concrete slab on
1200g membrane on
325 Sudsagg on
Wasp membrane with Wasp geotextile layer on
Formation

Recommended Permavoid Minimum Cover Requirements

130mm cover, Cars Only (Typical parking bay)
260mm cover, Cars, Vans & Occasional HGV (Typical access road)
400mm cover & greater, Cars, Vans & HGV (Typical service yard)

COMPONENT SUMMARY

Permachannel

Product Code: SELW03003
Permachannel MK11; 1m long
c/w heelproof grating and fixings

Permavoid Biomat

Product Code: SELW04003
Permavoid Biomat unit ;
708mm x 354mm x 150mm

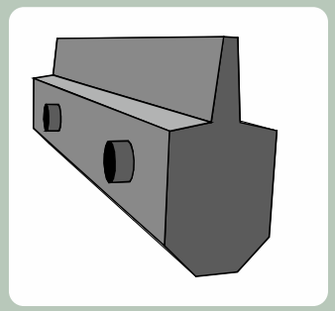
Superflow SudsAgg

Supplier: Aggregate Industries
Voided sub-base aggregate
Guaranteed 30% void ratio

GullyCeptor

Product Code: SELW04002
Gullyceptor
1062mm x 708mm x 300mm deep

Permachannel Slotdrain

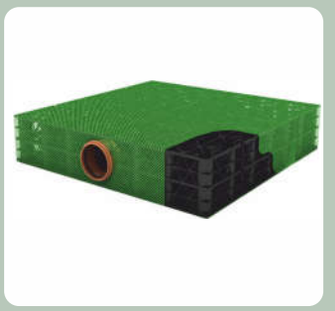


Product Code: SELW10002
Permachannel slotdrain GRC
SD 250 inc S/S inlet; 2m long

Permavoid

Product Code: PVOD00001
Permavoid Unit
710mm x 355mm x 150mm

Diffuser Unit



Product Code: PVOD05101
Diffuser Unit 710mm x 710mm x 150mm;
110mm Ø Socket

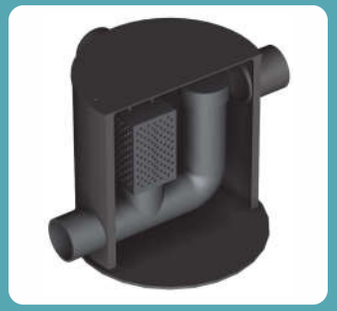
Diffuser Unit

Product Code: PVOD05202
High Performance Diffuser 2124 x 355
x 300mm; 160mmØ Sockets

Controflow® Chamber

Product Code: SUDS02005
Controflow 500 Series
Universal Level Invert

Controflow® Chamber

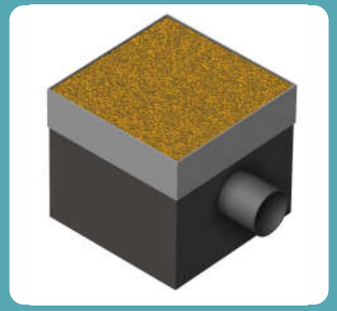


Product Code: SUDS02008
Controflow 500 Series 110Ø Stubs
Stepped Invert Rodable

Silt Chamber

Product Code: WASP04301
315mm Dia. Chamber; 3nr 110mm Dia.
Inlet, 1nr 110mm Dia. Outlet

Raintaina Filter Chamber



RTNA05001 Raintaina RWP Base Unit
& RTNA06001 Raintaina RWP Filter
Cover Bronze Aggregate

Tank Connector

Product Code: WASP08202
160mm Ø Invert
Puddle Flange

Permafilter Geotextile

Product Code: PVOD00501
Permafilter Oil Trapping Geotextile;
2.4m x 50m Roll

HD Suds Membrane

Product Code: WASP01001
Weld Grade HD Suds Membrane;
1.7m x 50m Roll

Suds HD Geotextile

Product Code: WASP02001
Suds HD Geotextile;
2.0m x 50m Roll

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