

210141



Property Services

**Pantanas House
Pantanas
Treharris
South Wales
CF46 5BN**

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Surface Water Discharge Arrangements

Property Details:

**New Dwelling
Plot 1 Heolpenferthyr
Merthyr Tydfil**

Client Details:

Mr C Cronin

Surface Water Discharge Destination

Surface water from the dwelling impermeable area is to be discharged into the existing DCWW drainage network.

The surface water will be discharged at a rate of 2 l/sec as agreed with DCWW

Surface Water Attenuation

An attenuation structure with a flow control set at 2 l/sec will be constructed within the curtilage of the dwelling.

Attenuation Structure Size

Based on the dwelling impermeable area and site specific rainfall an attenuation structure of 6 cu/m will be required.

Using Permavoid storage crates an attenuation structure of 3.0m x 2.5m x 0.8m (LxWxD) will be required.

A discharge orifice of 32.5mm dia will be required in the Flow control chamber

Attachments

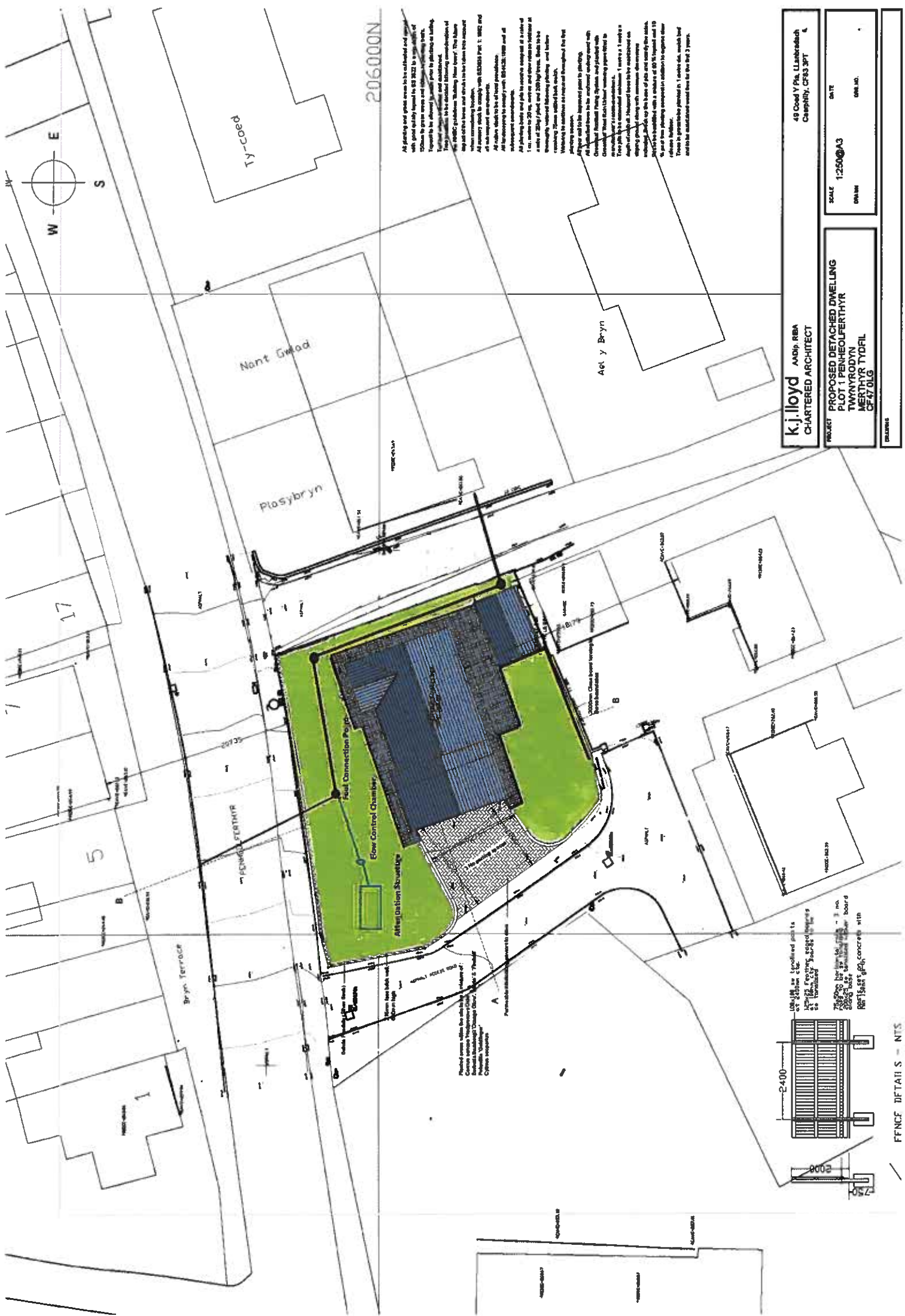
Site Plan

Attenuation Calculations

Attenuation Product information

Site Plan





k.j.lloyd
A.A.D.P. RIBA
CHARTERED ARCHITECT

49 Coed Y Pla, Llanbradach
Campilly, CF83 3PT &

SCALE 1:2500A3

PROJECT
PROPOSED DETACHED DWELLING
PLOT 1 PENHOULFERTHYR
TWNVYRODYN
MERTHYR TYDFIL
CF47 0LG

DISCUSS

FFNCF DETAILS - NTS

Attenuation Calculations



MasterDrain
SW

GWP **Property Services** www.gwpropertyservices.com

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Job No. Attenuation		
Sheet no. 1		
Date 25/03/21		
By RAF	Checked	Reviewed

Project Plot 1 Heolpenferthyr	By RAF	Checked	Reviewed
Title Hydrograph storage analysis (Winter profile) for MERTHYR TYDFIL			

ata:-

Location = MERTHYR TYDFIL
M5-60 (mm) = 20
Soil index = 0.50
Return period = 30
UCWI = 0.0

Grid reference = SO0406
r = 0.22
SAAR (mm/yr) = 1600
WRAP = 5
Climate change = +30%

Soils of wet uplands -

- i) with peaty or humose surface horizons and impermeable layers at shallow depth;
- ii) deep raw peat associated with gentle upland slopes or basin sites;
- iii) bare rock cliffs and screes;
- iv) shallow, permeable rocky soils on steep slopes.

Percentage runoff = 95.0% (manual setting)

Imperv. area = 201 m²
Total area = 201 m²
Total runoff = 7.6 m³

Pervious area = 0 m²
Equiv area = 191 m² (Tot. area x % runoff).
Discharge rate = 2.000 l/s

Design Head = 0.8m
Control device = Orifice
Max. calc. depth = 0.62 m

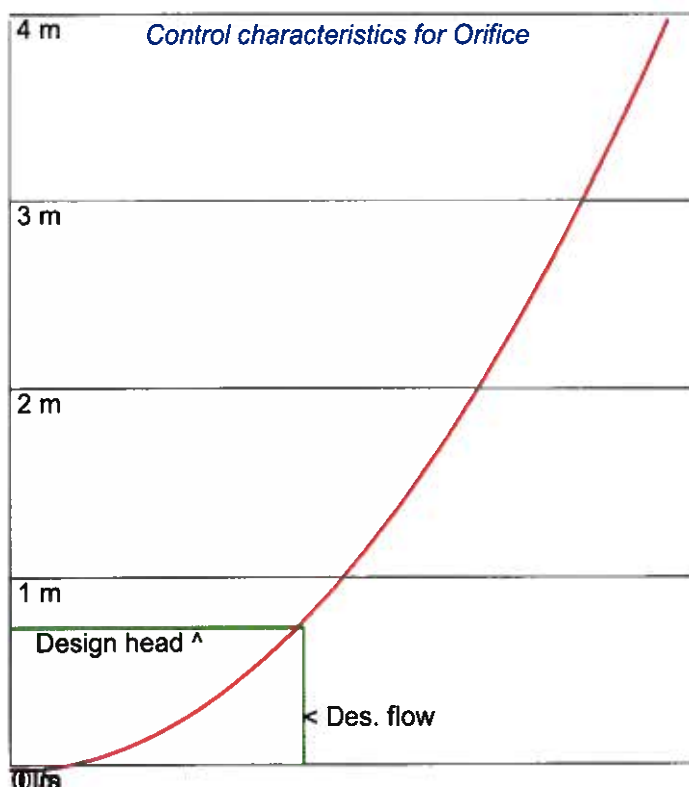
Peak flow = 1.75 l/s
Orifice diam = 32.5 mm
Available depth = 0.0 m³

Available system storage = 6.00 m³ under a system plane at the design head level.

Offline storage = 0.0 m³

Total storage = 6.0 m³

Peak input flow = 5.31 l/s



Head (m)	Flow (l/s)	Head (m)	Flow (l/s)
0.01	0.22	2.01	3.17
0.05	0.50	2.05	3.20
0.10	0.71	2.10	3.24
0.15	0.87	2.15	3.28
0.20	1.00	2.20	3.32
0.25	1.12	2.25	3.35
0.30	1.22	2.30	3.39
0.35	1.32	2.35	3.43
0.40	1.41	2.40	3.46
0.45	1.50	2.45	3.50
0.50	1.58	2.50	3.54
0.55	1.66	2.55	3.57
0.60	1.73	2.60	3.61
0.65	1.80	2.65	3.64
0.70	1.87	2.70	3.67
0.75	1.94	2.75	3.71
0.80	2.00	2.80	3.74
0.85	2.06	2.85	3.77
0.90	2.12	2.90	3.81
0.95	2.18	2.95	3.84
1.00	2.24	3.00	3.87
1.05	2.29	3.05	3.91
1.10	2.35	3.10	3.94
1.15	2.40	3.15	3.97
1.20	2.45	3.20	4.00
1.25	2.50	3.25	4.03
1.30	2.55	3.30	4.06
1.35	2.60	3.35	4.09
1.40	2.65	3.40	4.12
1.45	2.69	3.45	4.15
1.50	2.74	3.50	4.18
1.55	2.78	3.55	4.21
1.60	2.83	3.60	4.24
1.65	2.87	3.65	4.27
1.70	2.92	3.70	4.30
1.75	2.96	3.75	4.33
1.80	3.00	3.80	4.36
1.85	3.04	3.85	4.39
1.90	3.08	3.90	4.42
1.95	3.12	3.95	4.44
2.00	3.16	4.00	4.47



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SW

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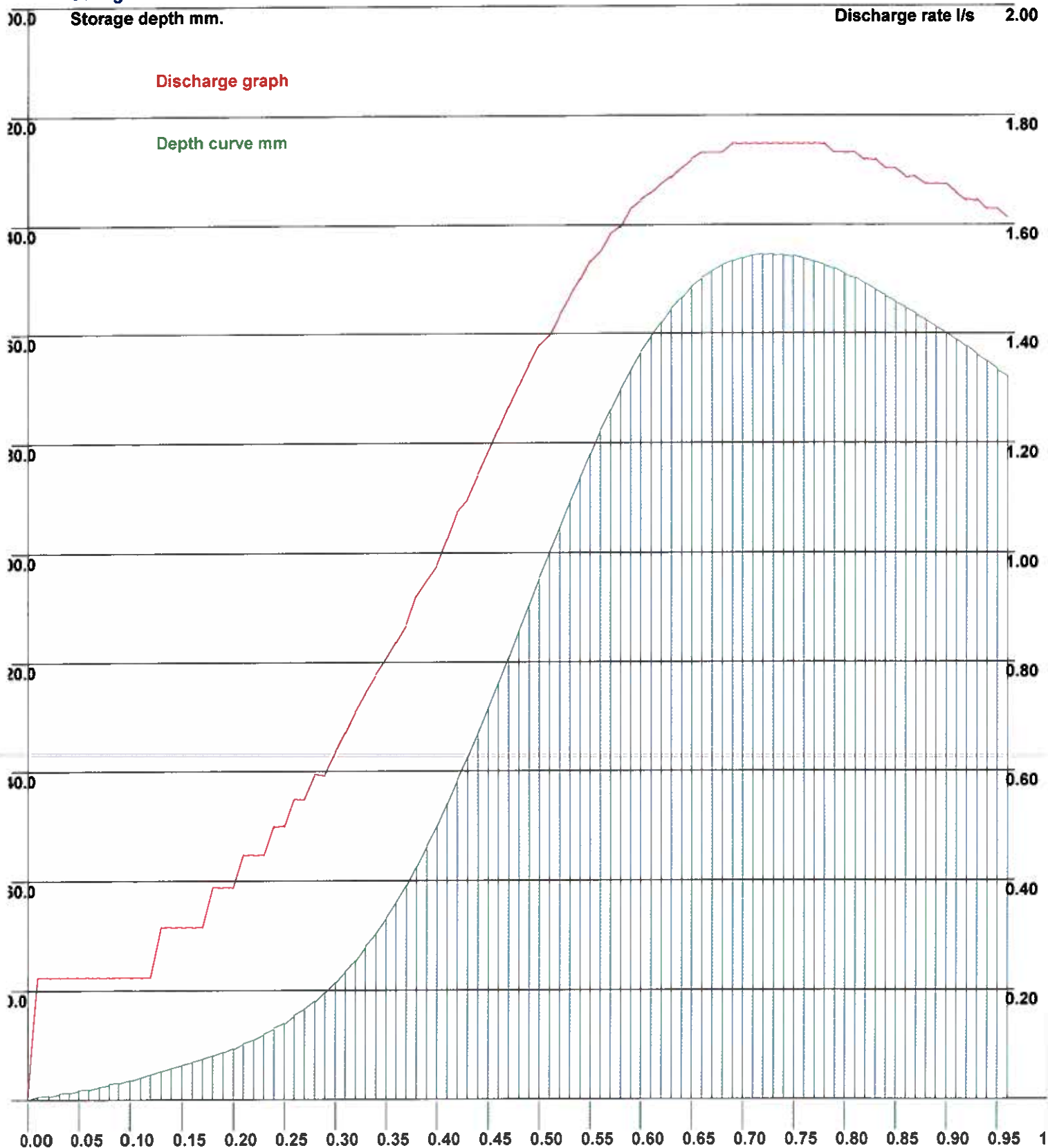
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Job No.	Attenuation		
Sheet no.	2		
Date	25/03/21		
By	Checked	Reviewed	
RAF			

Project **Plot 1 Heolpenferthyr**

Title **Hydrograph storage analysis (Winter profile) for MERTHYR TYDFIL**

Storage curves for a 1 hours storm.





Authentication		
Sheet no.	3	
Date	25/03/21	
By	RAF	Checked Reviewed

asterDrain
SW

Project	Plot 1 Heolpenferthyr
Title	Hydrograph storage analysis (Winter profile) for MERTHYR TYDFIL

Incremental rainfall figures.

Storm Mins	Storage Depth mm	Control Flow l/s	Storm Mins	Storage Depth mm	Control Flow l/s
0.6	2.0	0.22	30.6	399.5	1.40
1.2	3.0	0.22	31.2	418.2	1.43
1.8	4.1	0.22	31.8	436.6	1.47
2.4	5.1	0.22	32.4	454.5	1.50
3.0	6.3	0.22	33.0	471.7	1.53
3.6	7.6	0.22	33.6	488.1	1.55
4.2	9.0	0.22	34.2	503.7	1.58
4.8	10.5	0.22	34.8	518.4	1.60
5.4	12.2	0.22	35.4	532.4	1.63
6.0	14.1	0.22	36.0	545.4	1.64
6.6	16.2	0.22	36.6	557.3	1.66
7.2	18.4	0.22	37.2	568.0	1.67
7.8	20.7	0.32	37.8	577.6	1.69
8.4	22.6	0.32	38.4	586.2	1.70
9.0	24.8	0.32	39.0	593.7	1.72
9.6	27.1	0.32	39.6	600.1	1.73
10.2	29.6	0.32	40.2	605.5	1.73
10.8	32.2	0.39	40.8	610.0	1.73
11.4	34.6	0.39	41.4	613.3	1.75
12.0	37.3	0.39	42.0	615.6	1.75
12.6	40.4	0.45	42.6	617.2	1.75
13.2	43.7	0.45	43.2	618.1	1.75
13.8	47.4	0.45	43.8	618.3	1.75
14.4	51.5	0.50	44.4	617.8	1.75
15.0	55.9	0.50	45.0	616.6	1.75
15.6	60.7	0.55	45.6	615.0	1.75
16.2	65.9	0.55	46.2	612.9	1.75
16.8	71.9	0.59	46.8	610.3	1.75
17.4	78.3	0.59	47.4	607.3	1.73
18.0	85.5	0.63	48.0	604.0	1.73
18.6	93.1	0.67	48.6	600.3	1.73
19.2	101.5	0.71	49.2	596.3	1.72
19.8	110.9	0.74	49.8	592.1	1.72
20.4	121.1	0.77	50.4	587.8	1.70
21.0	132.0	0.81	51.0	583.5	1.70
21.6	143.8	0.84	51.6	579.0	1.69
22.2	156.5	0.87	52.2	574.4	1.69
22.8	170.0	0.92	52.8	569.7	1.67
23.4	184.2	0.95	53.4	564.9	1.67
24.0	199.5	0.97	54.0	560.0	1.67
24.6	215.6	1.02	54.6	555.0	1.66
25.2	232.3	1.07	55.2	549.7	1.64
25.8	249.5	1.10	55.8	544.5	1.64
26.4	267.3	1.14	56.4	539.1	1.63
27.0	285.6	1.18	57.0	533.6	1.63
27.6	304.3	1.22	57.6	528.0	1.61
28.2	323.3	1.26	58.2	522.4	1.61
28.8	342.5	1.30	58.8	516.8	1.60
29.4	361.6	1.34	59.4	511.2	1.60
30.0	380.7	1.38	60.0	505.6	1.58

Using the Get Max button causes the program to step through a series of storm durations until a maximum volume is obtained.

Each duration is sampled 600 times and the results recorded. The storm durations (hrs) are:-

0.25, 0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 18, 20, 24, 30, 36, 42, 48, 54, 60, 66, 72, 84, 96, 120, 150, 175, 200, 250, 300, 375, 500, 750, 1000, 1250, 1500, 1570, 2000, 2500, 3000, 3500, 4000

It should be noted that the six hour storm frequently requested rarely demonstrates the worst case for storage.

Attenuation Storage Product Information

Attenuation System Product Details

On site Surface Water Drainage Layout:

- As per site plans

Pipe Size

- 100mm

Silt Trap:

- Polypipe PSMST 110mm

Attenuation Tank:

- Polystorm Modular Cell System-Polystorm Lite

Geo Textile:

- Geomembrane for Retention and Attenuation: PV13010

Discharge Orifice:

- Rigidstorm Orifice Flow Chamber-Orifice size 32.5mm

Installation:

- All products should be installed in line with the manufactures specification and technical details.

Manufactures Contact Details

- www.polypipewms.co.uk

Disclaimer

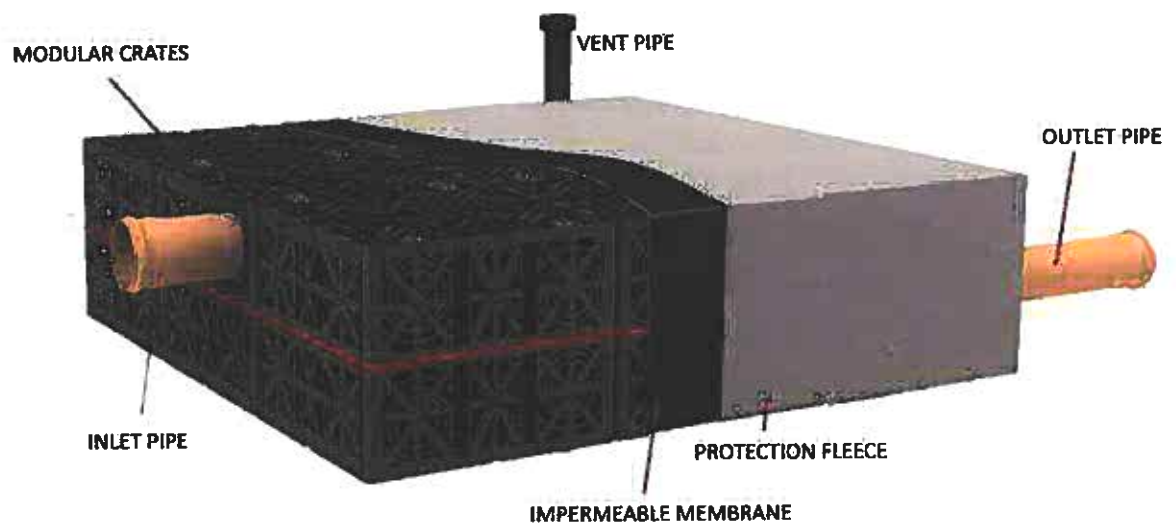
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The report is based on information both written and oral obtained from the client and his representatives

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Typical Attenuation Structure Detail



» Best practice Attenuation using Polystorm...

A typical attenuation solution using Polystorm shows rainwater collected from both roofs and car parking areas. It is prevented from discharging off site at full bore flow rate by the flow control unit therefore reducing peak flows in the downstream watercourse. The rainwater backs up into the Polystorm structure and is stored for discharge at the reduced flow rate. A silt trap is positioned on the inlet of the Polystorm to intercept any debris entering the system which has been picked up by the rainwater. As the Polystorm units from an underground storage tank they are wrapped in an impermeable geo-membrane.

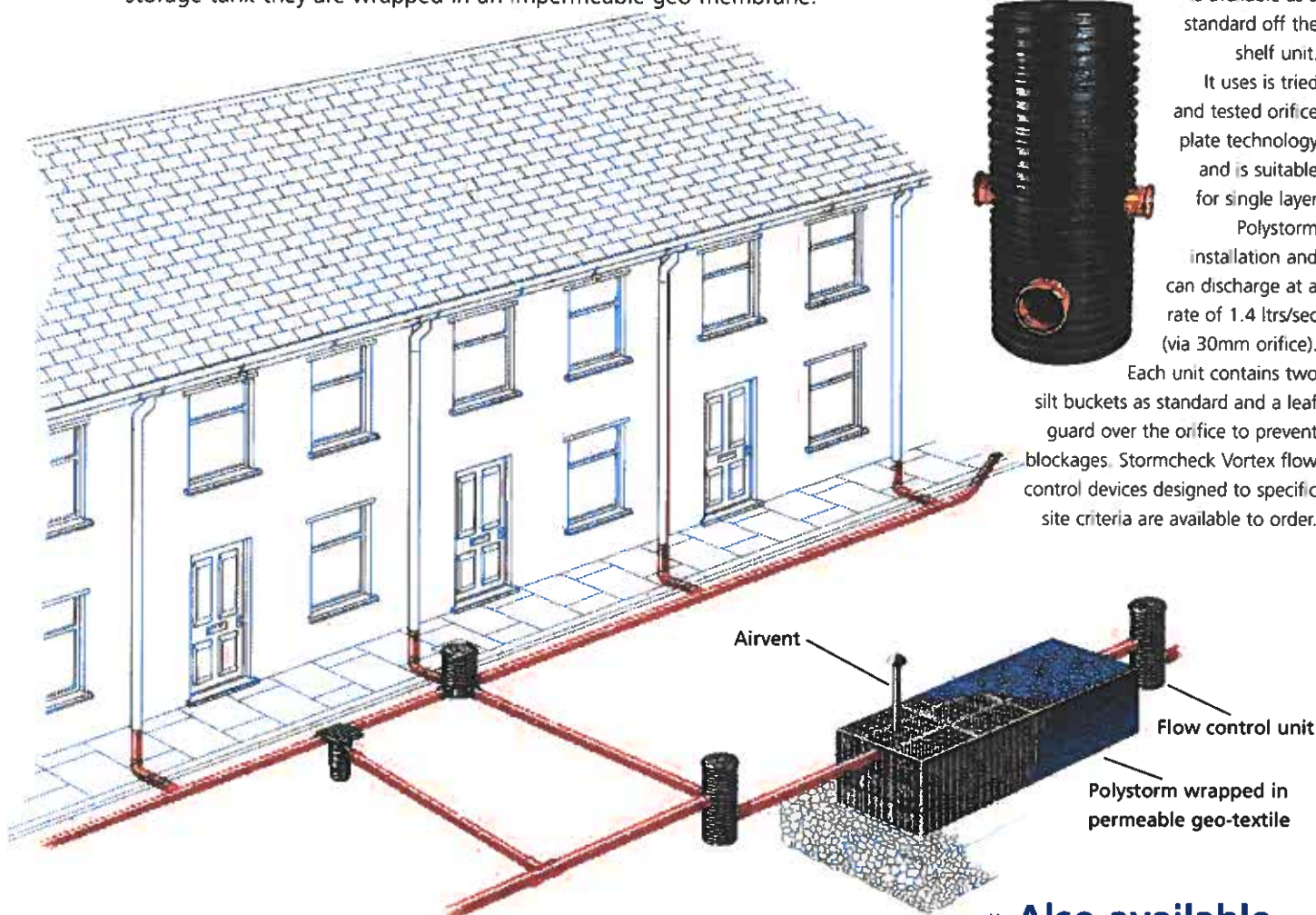
» Polystorm Attenuation

Our philosophy for SUDS is always use best practice techniques. This philosophy is also carried through to our recommendations for storing, handling and installing our products. All installations should be carried out in a safe and responsible manner.

The Polystorm flow control chamber is available as a standard off the shelf unit.

It uses a tested orifice plate technology and is suitable for single layer Polystorm installation and can discharge at a rate of 1.4 ltrs/sec (via 30mm orifice).

Each unit contains two silt buckets as standard and a leaf guard over the orifice to prevent blockages. Stormcheck Vortex flow control devices designed to specific site criteria are available to order.



» Products to consider



Advanced Silt Trap



320mm diameter Silt Trap



Underground Drainage System



Inspection Chambers



Rainwater Gutter Systems



Polysewer Gravity Sewer System

450mm silt trap.

Other silt trap options include a 320mm silt trap (product code PSMST110) which is ideal for small systems e.g. single storey extensions.

» Also available...

» Stormcheck Vortex Flow Control Chambers

- Pre-fabricated to specification
- Choice of Depth up to a maximum invert level of six metres
- Chamber sizes from 1050, 1200, 1500, and 1800mm diameters
- All Vortex flow controllers are casters are manufactured from A2-304 Stainless Steel

Product code: PSM2

Polystorm Lite has been specifically designed for non-trafficked applications. With a compressive strength of up to 20 tonnes/m², it will support general maintenance vehicles such as grass cutters. Polystorm Lite can be used for retention, attenuation and infiltration applications. The modular structure receives rainwater collected from roofs or surface drains ready to release within a set drainage limit or wrapped in a permeable geotextile for infiltration. Polystorm Lite can be used typically for landscaped areas, pedestrian or public open spaces such as underneath playgrounds.



Key Benefits

- Compressive strength of 20 tonnes/m²
- Ideal for retention, attenuation and infiltration with a suitable geomembrane or geotextile
- Designed for landscaped, pedestrian or other non-loaded applications
- BBA approved
- Visual and maintenance access can be achieved when used in conjunction with Polystorm Access & Inspect
- Can be used as part of a value engineered hybrid system with Polystorm-R, Polystorm & Polystorm Xtra
- Integrated inlet and outlet
- 3D flow throughout the structure
- 95% void ratio
- 100% recyclable
- 50 years creep limited life expectancy

Technical Support

Detailed guidance and assistance is available.

For further information, please contact our Technical Team on +44 (0) 1509 615100 or email civils@polypipe.com



ELEMENT	VALUE
PHYSICAL PROPERTIES	
Length	1m
Width	0.5m
Depth	0.4m
Total volume	0.2m ³
Unit weight	7kg
Cube storage volume	0.19m ³ (190 litres)
Volumetric void ratio	95%
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	Maximum 200kN/m ² **
Lateral	Maximum 40kN/m ² **
SHORT TERM DEFLECTION	
Short-term vertical deflection	6.4kN/m ² per mm
OTHER PROPERTIES	
Maximum burial depths: Non-trafficked	2.5m***

* Each unit includes 4 Clips and 2 Shear Connectors.

** Compressive strength at yield, maximum recommended value for design purposes.

*** Based on ground conditions being dense sand and gravel with no groundwater present using the calculation methodology detailed within CIRIA C680 (2008). Where ground conditions differ please consult our water management solutions technical department on +44 (0) 1509 615100.

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 **Polypipe**

Attenuation Tank Fleece

Multitrack NW8 White Non-Woven Geotextile Fleece Membrane 1.125 X 100m (112.5sqm) Terram 1000 Equivalent - 100gsm

Be the first to review this product

1.125m x 100m = 112.5 square metres

Multitrack NW8 100gsm is the most common of our non-woven geotextile membranes. It is designed for filtration and separation applications such as:

- equestrian: horse arenas, paddocks etc
- road construction
- french drains, trench lining
- weed prevention
- soakaway and attenuation tank wrapping
- driveways



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- equestrian: horse arenas, paddocks etc
- road construction
- french drains, trench lining
- preventative measure against weeds
- soakaway and attenuation tank wrapping
- driveways

All NW products are thermally bonded to provide a durable, tough fabric which has proven to be one of the highest quality general purpose membranes on the market.

Geomembranes are impermeable liners used in sustainable drainage systems (SuDS) to form water tight tanks. The membrane used depends on a risk assessment of the site and the ground and groundwater conditions.



Key Benefits

- Heavy duty polypropylene membrane
- Used to create a water-tight construction and minimise risk of subgrade softening
- 100% recyclable

Applications

The Geomembrane is suitable for use in a range of applications including residential, industrial estates, swales, sports pitches, car parks, roofs, basements, pedestrian areas and rainwater harvesting.

Performance

A robust, heavy duty geomembrane resistant to puncture. Geomembrane combines excellent chemical resistance with low flexural modulus to provide a malleable, flexible membrane suitable for non-smooth surfaces and factory pre-fabrication to optimise on-site installation. Jointing shall be formed using fusion or extrusion bead welding in accordance with manufacturing recommendations. Double-sided tape may be used when specifically requested by the contractor.

Laying generally

For retention and attenuation applications the units need a sealed geomembrane to prevent the release of water and prevent the ingress of groundwater. All joints should be sealed, using proprietary techniques recommended by the manufacturer. Advice on seam testing procedures as given in CIRIA SP 124:1996. Barriers, lines and cover systems for containment and control of land contamination.

Technical Support

Detailed guidance and assistance is available.

For further information, please contact our Technical Team on +44 (0) 1509 615 100 or email civils@polypipe.com

ELEMENT	VALUE	TEST METHOD
PHYSICAL PROPERTIES		
Thickness mm $\pm 10\%$	1.0	ASTN D-751
Density g/cm ³ minimum	0.9	ASTM D-792
Tensile stress at break minimum N/mm ²	18	ASTM D-638
Elongation at break %	>700	ASTM D-638
Puncture resistance minimum N	150	FTMS 101C method 2065
Tear resistance minimum N	60	ASTM D-104
Dimensional stability % change max	± 2.0	ASTM D-1204 1hr at 100°C
Stress crack resistance	100%	ASTM 5397
Volatile loss 5% loss max	0.2	ASTM D-1203 method A
Ozone resistance	No cracks	ASTM D-1149
Carbon black content	2-3%	ASTM 1603
Moisture vapour g/m ² /day	<0.1	ASTM E96
Friction angle (non woven Geotextile)	21°	Shear box
Methane permeability	0.11 g/m ² /day/atm	European standard
Methane transmission rate	1.8×10^{-9} m ³ /m ² /s/atm	BRE
Permeability coefficient	1.8×10^{-12}	
Core material	Polypropylene	

ROLL OPTIONS	
CODE & DESCRIPTION	DIMENSIONS
PV13007 Geomembrane Roll	2m x 100m
PV13008 Geomembrane Roll	3m x 100m
PV13009 Geomembrane Roll	4m x 100m
PV13010 Geomembrane Roll	6m x 100m
PV13011 Double Sided Tape	100mm x 15m

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» Installation guidelines - attenuation tanks



1. Installing a Polystorm attenuation structure requires the same preparation as a Polystorm soakaway. Excavate safely as required and compact a level bedding layer of coarse sand.



2. Install the impermeable geomembrane, forming joints in accordance with the manufacturers instructions. Mark the positions of pipe inlets and outlets as required. Care should be taken not to pierce or tear the membrane, as this forms the tank wall any damage will require remedial work to ensure a water tight seal.



3. Lay Polystorm/Polystorm Lite modular water storage units as required following the guidelines set out regarding burial depths.



4. Make the pipe inlet and outlet connections as required using the Polystorm flange adaptors. The flange adaptors provide a flat surface for the membrane to be attached.



5. All attenuation tanks require venting to avoid stagnant water. Allowance should be made for a 110mm air vent for every 7,500m³ of drained catchment area. A Polypipe 110mm pipe topped with a vent cowl (SCV40) will be adequate. Precautions should be taken to ensure the vent is protected from damage during and after construction whilst still allowing air passage.



6. Complete the side fill of the structure in preparation for the tank to be closed and sealed.



7. Completely enclose the structure with the geomembrane and seal joints in accordance with the manufacturers instructions. Installations deeper than one layer of Polystorm/Polystorm Lite should also have welded joints on the membrane. For small domestic installations simply tape the joints.



8. Once the Polystorm/Polystorm Lite structure has been completely enclosed with the geomembrane and all joints have been made a 100mm layer of coarse sand can be compacted on top.



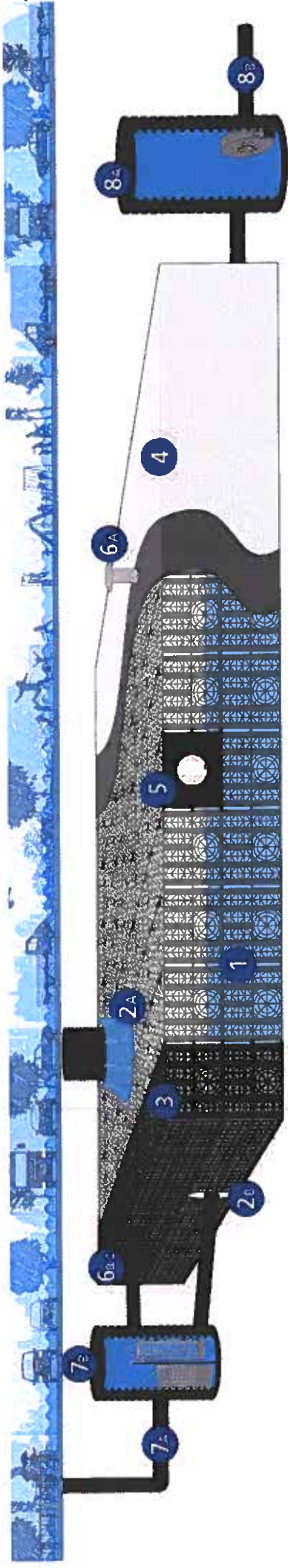
9. Final backfilling can then be completed using as dug materials (free from large/sharp objects) for landscaped areas and Class 1 or 2 materials in accordance with Manual or Contract Documents for Highway Works for light trafficked areas. For heavy trafficked areas contact our Technical Dept.



10. The flow control unit should be installed on the outlet of the tank and should be fully functional prior to any discharge being allowed through the system. A silt trap (above) should be installed on the inlet to prevent debris entering the structure.

An 8 step guide to a total Polystorm system

Issue 02 | February 2017



1 Select modular cell



Polystorm Lite

Product code: PSM2

Compressive strength: 20 tonne/m²

Landscaped/pedestrian

Polystorm Lite has been specifically designed for non-trafficked, landscaped and pedestrian applications at lower depths.



Polystorm-R

Product code: PSM1A

Compressive strength: 61 tonne/m²

Trafficked

The standard Polystorm cell for trafficked and loaded applications at greater depths has the added benefits of a higher recycled material content.



Polystorm

Product code: PSM1

Compressive strength: 44 tonne/m²

Trafficked

The original Polystorm cell made of virgin material for trafficked and loaded applications at greater depths.



Polystorm Xtra

Product code: PSM3

Compressive strength: 83 tonne/m²

Heavy trafficked, deep or reduced cover

Designed for use in deeper burial depths for heavily trafficked applications making it suitable for use in very heavily trafficked areas, deep applications and where reduced cover is required.



2 Select access if maintenance and inspection is required

2A



Polystorm Access

Polystorm Access provides a 1m x 0.5m vertical shaft within a Polystorm geocellular structure to enable surface access for remote camera inspection and maintenance activities such as flushing and rodding.

2B



Polystorm Inspect

Polystorm Inspect provides a tunnel along the length of a fully installed Polystorm system to enable horizontal access for inspection and maintenance. It can also be used in conjunction with Polystorm Access.

Connection accessories



- Shear Connectors
Product code: PSMSC



- Brick Bond Connectors
Product code: PSMBBSC



- Clips
Product code: PSMCLIP

3 Select if treatment is required

Permavoid Medium Duty with Biomat

Product code: PSM1BM
Comprising of a high strength, low density, oil treating geosynthetic floating mat for use with the Polystorm range of modular geocellular units. For multi-stage oil interception the Permavoid Medium Duty with Biomat can be used in conjunction with Permachannel (linear treatment) or a pre-fabricated RIDGISTORM Separate Weir and Baffle Chamber (point treatment).



5 Pipe Connections

A flange adaptor is attached at both the inlet and outlet points to allow water to enter and exit the tank via connecting pipes.



Flange Adaptor to EN1401

Polystorm Cell with Drainage Flange Connection

5a. Polystorm cells with Flange Connections to Ridgidrain drainage pipes: PSMCRD225 (225mm), PSMCRD300 (300mm), PSMCRD375 (375mm)

5b. Polystorm Inspect cells with Flange Connections to Ridgidrain drainage pipes: PSM4CRD225 (225mm), PSMCRD300 (300mm)

5c* Flange Adaptor to EN1401: PSMFA110 (110mm), PSMFA160 (160mm)

5d* Flange Adaptor to Ridgidrain: PSMFA150 (150mm), PSMFA225 (225mm), PSMFA300 (300mm), PSMFA375 (375mm), PSMFA450 (450mm), PSMFA600 (600mm)

* Note: If PSM flanges PSMFA110-600 are used for lateral connections on to the side of a PSM tank, then Head loss will occur due to the lattice structure of a PSM unit (circa 48% void). This should be considered during hydraulic calculations.

4 Select wrap



Geomembrane for retention & attenuation

Product Code: PV13010
An impermeable membrane for wrapping around geocellular structures to form watertight tanks. This is then wrapped in a geotextile which protects the geomembrane during installation.



Permatex 300 for infiltration or protection

Product code: PV23006
A non-woven protective geotextile that can be used for soakaway infiltration solutions or to wrap a geocellular tank before a geomembrane is installed for added protection.



Permafilter Geotextile for infiltration

Product code: PV23002
This geotextile has been specifically designed to remove hydrocarbon pollution, treating the captured water before infiltrating it into the ground for treatment and infiltration.



Polypipe Soakaway Geotextile

Product code: PVT51000
Polypipe Soakaway Geotextile is a UV stabilized, polypropylene geotextile, designed to complement our existing Polystorm geocellular system.

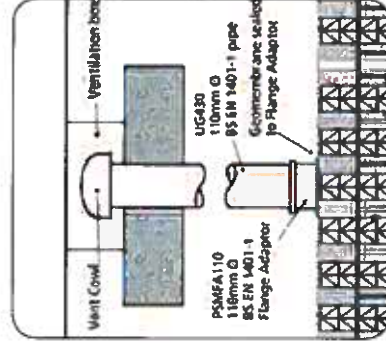


Polypipe Heavy Duty Soakaway Geotextile

Product code: PVT52000
Polypipe HD Soakaway Geotextile is a heavy duty, UV stabilized, polypropylene geotextile, designed to complement our existing Polystorm geocellular system.

6 Venting

Every attenuation tank requires at least one vent to maximise hydraulic performance, reduce stress on encapsulating geomembranes and avoid stagnant water. This can be done by installing either a Vent Cowl or a connection pipe to vent air directly into an upstream chamber.



6A

Vent Cowl

Product code: SCV40
To vent air above ground.



6B

BS EN1401-1 pipe

Product code: UG430
Joint to tank PSMFA110 with UG430.



6C

150mm Ridgidrain pipe

Product code: RD150X6PE
For ventilation into the upstream chamber. Joint to tank PSMFA150 with RD150X6PE.



7 Associated upstream products

7A

Ridgidrain

Ridgidrain can be utilised within a Polystorm system by allowing captured surface water to enter the attenuation or infiltration tank.



7B

RIDGISTORMSeparate Chambers

RIDGISTORMSeparate Chambers are self-cleaning and prevent the ingress of debris, silt, organic and even other particles into the Polystorm structure, extending its useful life.

Silt Traps

Small diameter
(320-460mm)

Silt traps are available from the RIDGISTORMSeparate Silt Traps range.

Catchpits

Larger diameter
(450-3000mm)

Catchpits are available from the RIDGISTORMSeparate range.

Filter Chambers

Large diameter
(500-3000mm)

In addition to silt traps and catchpits, we also offer RIDGISTORMSeparate Filter Chambers with additional treatment features.



8 Associated downstream products

8A

RIDGISTORMCheck

A choice of Vortex or Orifice Plate Flow Control Chambers for precise control of site discharge rates.



RIDGISTORMControl

Pre-fabricated structured wall chambers which feature 'in-line' system components such as penstocks, gate valves or flap valves to control system flows and facilitate maintenance.



Penstock



Gate valve



Flap valve

8B

Ridgidrain

Ridgidrain can be utilised to drain away stored water from a Polystorm attenuation tank.



For full datasheets of products in the Polystorm system, please visit our website www.polypipe.com/toolbox

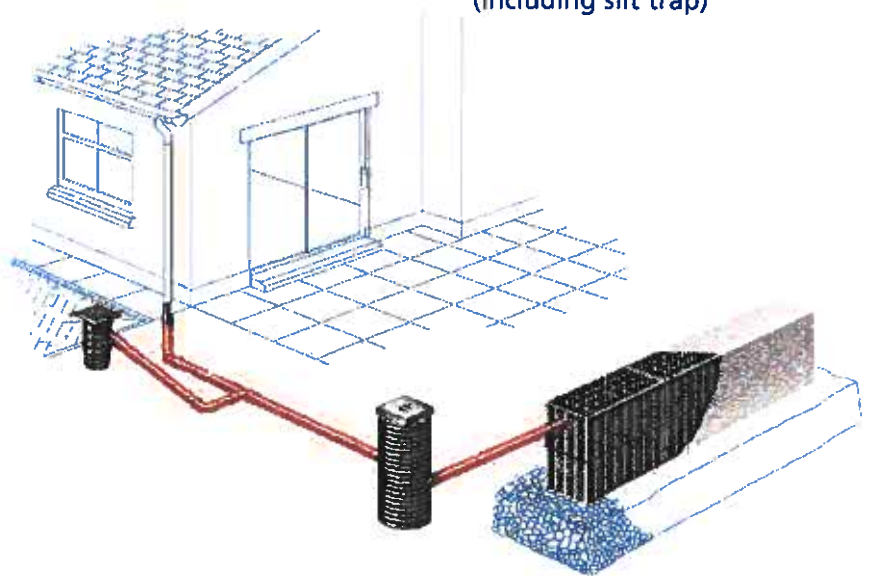
» Flexible solutions for individual sites...

Every site is different. Different ground conditions, different planning requirements, different design considerations

Polystorm products are flexible enough for any situation. Whether a Soakaway or Attenuation System, trafficked or non-trafficked, deep or shallow there is a solution to suit the problem every developer faces. And with land space at a premium as a result of the pressures on Housebuilders to increase units per hectare, Polystorm has the flexibility to squeeze into the tightest of spots.

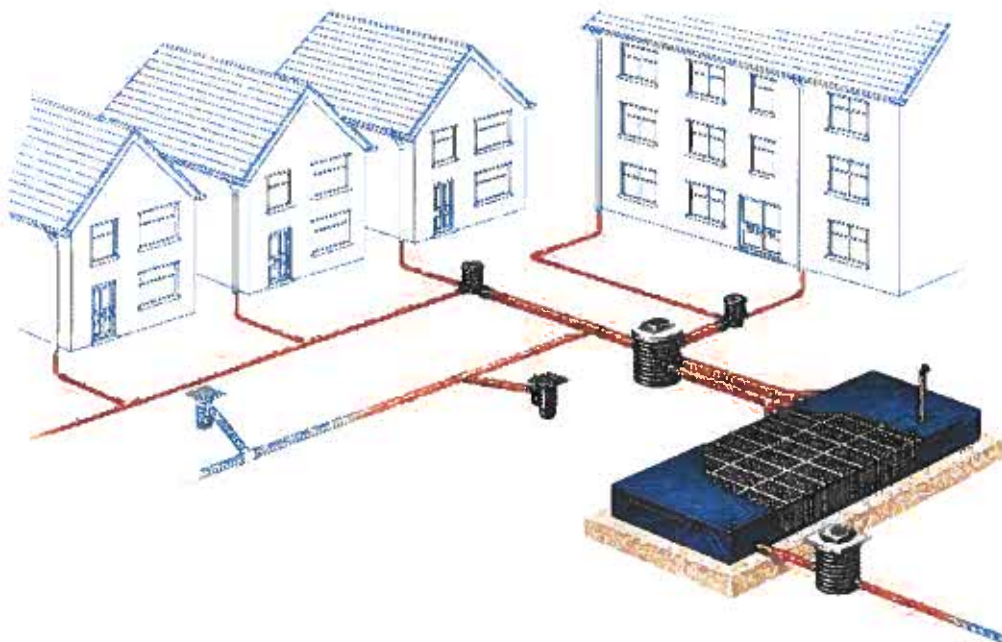
Soakaway

» Single row x 2 deep Polystorm units used as a soakaway (including silt trap)



Attenuation

» Large scale attenuation tank with silt trap and flow control device





PSM1 Light
trafficked Polystorm



PSM2 Non trafficked
Polystorm lite

» Product Range



PSMST110 Mini silt
trap (110mm)



PSMST160 Basic silt
trap (160mm)



PSMSTA160/15
Advanced silt trap (160mm)



PSMFC160/30
Flow control unit

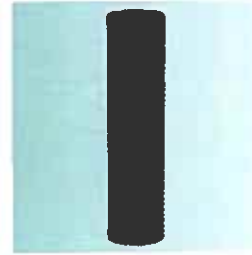
Up to depths of 1.2 metre (one layer of Polystorm) the dual filter advanced silt trap is always recommended. For depths over 1.2 metre the basic silt trap can be used up to depths of 4 metres. Both advanced and basic silt trap are available with 160mm ring seal pipe connections.



PSMBBSC Brick bond
connector (PSM1 only)



PSMCLIP Spare
Polystorm clips



PSMSC Spare
Polystorm shear
connectors



PSMFA110 110mm
Polypipe flange adaptor



PSMFA150 150mm
Ridgidrain flange
adaptor



PSMFA160 160mm
Polypipe EN1401-1
flange adaptor



UG621 160mm x
110mm level invert
reducer

» and don't forget
these products



Polypipe Underground
Drain EN1401-1



Polysewer gravity
system WIS4-35-01

Specification Detail Sheet

	Polystorm	Polystorm Lite
Product Code	PSM1	PSM2
Colour	Grey	Black
Length (mm)	1000	1000
Width (mm)	500	500
Depth (mm)	400	400
Weight (kg)	9	7
Void ratio	95%	95%
Storage volume (litres)	190	190
Vertical loading (kNm-2)	440	200
Lateral loading (kNm-2)	63	35
Maximum burial depths (metres) (to base of units with no ground water present)		
• Soil type - clay	2.1	1.5
• Soil type - sand and gravel	3.7	2.0
For further information on burial depths in specific soil types please contact our technical office		
Minimum cover depths (metres) (to top of units)		
• Landscaped areas	0.5	0.5
• Light trafficked (vehicle mass up to 2,500 kg)	0.6	n/a
• Light trafficked (vehicle mass above 2,500 kg)	0.8	n/a

All dimensions are nominal

	Flow Control Unit	Mini Silt Trap	Basic Silt Trap	Advanced Silt Trap
Product Code	PSMFC160/30	PSMST110	PSMST160	PSMST160/15
Diameter (mm)	450	320	450	450
Height (mm)	1200	600	1000	1000
Inlet Pipe Connection (mm)	2 x 110	110	160	160
Outlet Pipe Connection (mm)	110	110	160	160
Overflow Pipe Connection	160	n/a	n/a	n/a
Filters	2 x Silt Bucket	1 x Silt Bucket	n/a	1 x Silt Bucket 1 x Mesh Filter
Maximum burial depth (mm)	1200	1000	4000	1200

All dimensions are nominal and exclude covers and frames

Attenuation Storage Tanks

Operation and Maintenance Requirements.

The location of the attenuation storage tank should be clearly identified on the development plan, therefore allowing a point of reference to any future property owners or those involved in maintenance.

Regular inspection and maintenance is required to ensure the effective long-term operation of below ground storage systems.

Table 21.3 of The SuDS manual (CIRIA 753) provides guidance on the type of operational and maintenance requirements that may be appropriate. The list of actions is not exhaustive and some actions may not always be required.

Maintenance requirements for the attenuation tank chosen can vary between types of tanks.

Reference should be made to manufacturers' recommendations regarding maintenance requirements.

CIRIA SuDS Manual 2015

TABLE 21.3 Operation and maintenance requirements for attenuation storage tanks

Maintenance schedule	Required action	Typical frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter, remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

