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Sel Environmental Ltd

Real Innovation

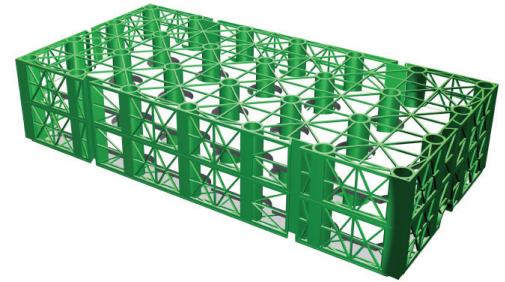
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PROJECT	NORTH MANCHESTER GENERAL HOSPITAL
PROJECT NUMBER	20200 MSCP
DOCUMENT NUMBER	20200-SEL-XX-XX-SP-X-0003
TITLE	PERMAVOID BIOMAT OIL INTERCEPTION, RETENTION AND TREATMENT UNIT
REVISION	P01
STATUS	S2
	FOR INFORMATION

Product code: PV150BM

Permavoid Biomat is a high strength geocellular unit, containing a low density, oil treating, geosynthetic floating mat (biomat). The biomat floats on water and is designed to intercept and treat any potential residue emulsified oils that may be present within the surface water. The use of Permavoid Biomat provides additional oil retention and water treatment capability to an underground water storage system.



Applications

Permavoid Biomat units are suitable for use as a stormwater attenuation and/or infiltration system. The system comprises of single, interconnected cells which can be installed in the ground as part of a sub-base formation. Permavoid Biomat is suitable for use in a range of applications including residential, industrial estates, car parks, sports pitches, roofs, basements, pedestrian areas and rainwater harvesting.

Key Benefits

- Secondary treatment phase for potential residual hydrocarbons
- Pollutant-intercepting floating mat
- Same size as Permavoid 150 so can be incorporated into Permavoid attenuation designs
- Floating medium maintained at air-water interface allowing optimum conditions for aerobic degradation
- Self maintaining, degrades residual oils by absorption and aerobic digestion
- 100% recyclable
- Units are manufactured from 90% recycled polypropylene (pp)

Performance

The structural load bearing capacity of the Permavoid Biomat units have 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 in accordance with 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 and the suitability must therefore be approved for each project.

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 or visit www.polypipe.com/civils-technical-hub

ELEMENT	VALUE
PHYSICAL PROPERTIES	
Weight per unit	3kg
Length	708mm
Width	354mm
Depth	150mm
SHORT TERM COMPRESSIVE STRENGTH	
Vertical	715kN/m ²
Lateral	156kN/m ²
SHORT TERM DEFLECTION	
Vertical	1mm per 126kN/m ²
Lateral	1mm per 15kN/m ²
TENSILE STRENGTH	
Of a single joint	42.4kN/m ²
Of a single joint at (1% secant modulus)	18.8kN/m ²
Bending resistance of unit	0.71kN/m
Bending resistance of single joint	0.16kN/m
OTHER PROPERTIES	
Volumetric void ratio	92%
Average effective perforated Surface area	52%
Intrinsic permeability (k)	Minimum 1.0 x 10 ⁻⁵
Oil retention	56g/m ²
Effluent Discharge at max. oil loading	10ppm
Ancillary	Permavoid Permatie Permavoid Shear Connector

Permavoid Biomat can be utilised in these SuDS techniques

TECHNIQUES													
Blue-Green roofs	Podium Decks	Trees	Sports Pitches	Cycle Paths	Permeable Paving (sub base & podium)	Bioretention & Rain Gardens	Attenuation Storage Tanks	Infiltration	Swales	Filter Drains	Detention Basins	Ponds & Wetlands	Filter Strips
				✓	✓	✓	✓	✓	✓	✓			

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