MODULAR SYSTEM FOR THE CREATION OF ACCUMULATION AND DRAINING BASINS

drainpanel

the innovative solution for water management

- HIGH DRAINING CAPACITY
- RESISTANT
- STACKABLE

www.geoplast.it

DRAINPANEL VISION

Every day in Europe we cement 250 acres of land. The consequences are obvious for everyone: disastrous floods, prolonged droughts and violent rainstorms.
Water is vital to humans, but if we do not respect Nature, it may turn into a source of grave danger.

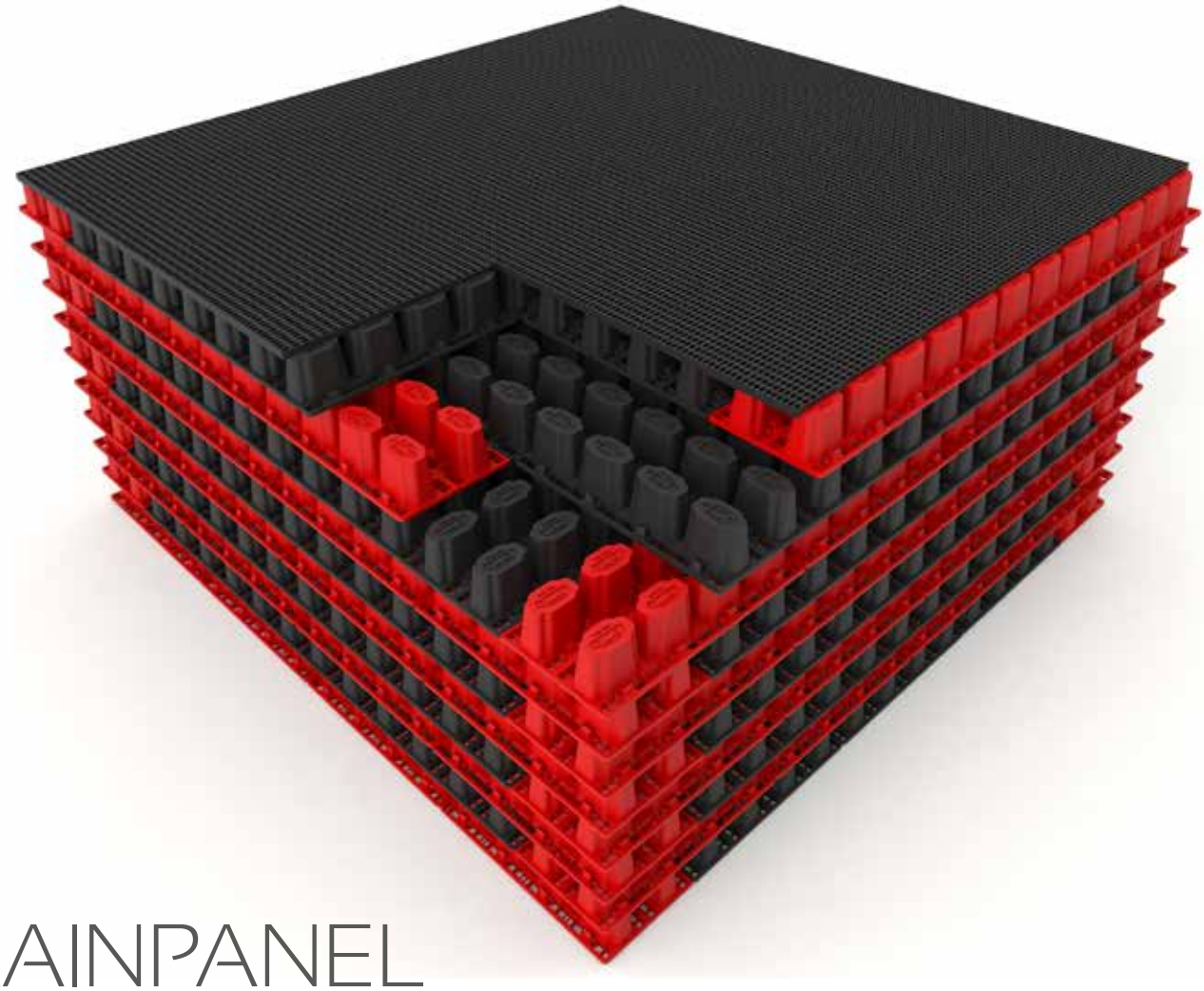
WATER AND MAN, THE QUEST FOR A NECESSARY BALANCE: THIS IS OUR TASK

Not only we transform our ideas into innovative and succesful products, but also we study and select the right materials to guarantee high quality and respect of the environment.

Polypropylene (PP) is a recyclable material that can be obtained from the regeneration of plastic waste.

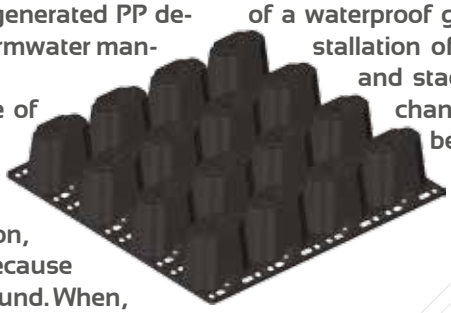
Strong and solid, it can easily resist to high breaking loads and abrasions. Regenerated polypropylene is chemically inert, neutral towards the environment and non-polluting when in contact with ground and water.

Geoplast S.p.A. in Green Building Council Italy,
The network of eco-friendly building.



DRAINPANEL
THE SOLUTION

DRAINPANEL is a modular element in regenerated PP designed for the creation of underground stormwater management basins.
DRAINPANEL contributes to the recharge of groundwater acquifers and can be used to create either a retention or an infiltration basin in order to subsequently reuse the water. When we use the system for infiltration, it has to be wrapped with the geo-textile, because it allows the drainage of the water in the ground. When, by contrast, the water needs to be held in the basin, the use of a waterproof geomembrane is recommended. The installation of the elements is dry, they are hooked and stacked together. Thanks to the high mechanical resistance of DRAINPANEL, it can be installed also under heavy trafficked areas because the basin can developed at greater depths under the ground.



- INFILTRATION BASINS
- LAMINATION TANKS
- RECOVERY AND REUSE OF RAINWATER

DRAINPANEL ADVANTAGES

High resistance modular system for the creation of high capacity draining or retention basins

light

Weighing less than 10 kg, **DRAINPANEL** can be handled manually without using any lifting device.

quick

The low weight and simple method of installation make the creation of the basin easy and quick

superposed

DRAINPANEL elements stacked on a pallet, fit into each other: the result is a greater water storage volume per pallet than other equivalent water storage methods..

strong

The structure and the material of **DRAINPANEL** ensure a high mechanical strength and the system can be installed under heavy trafficked areas.

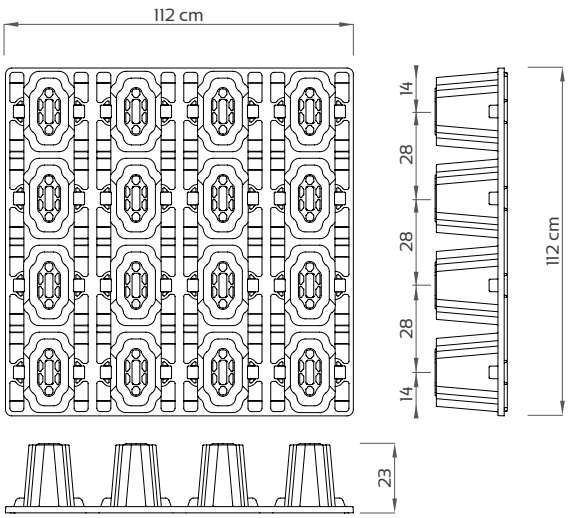
capacity

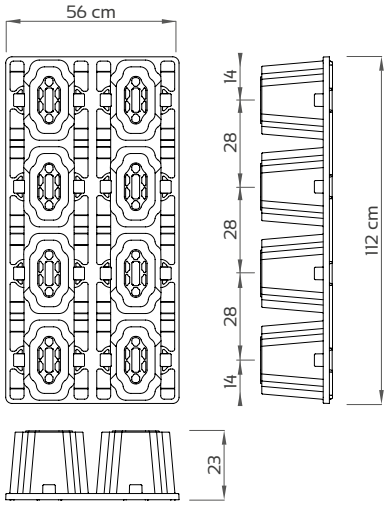
DRAINPANEL elements are designed to obtain an high void ratio, greater than an infiltration trench filled with gravel.

stackable

DRAINPANEL can be stacked and developed at greater depths. Moreover, it resists to heavy loads.

DRAINPANEL TECHNICAL DATA





MAXIMUM LOAD WITH SUITABLE COMPLETED STRATIGRAPHY:
up to SLW60

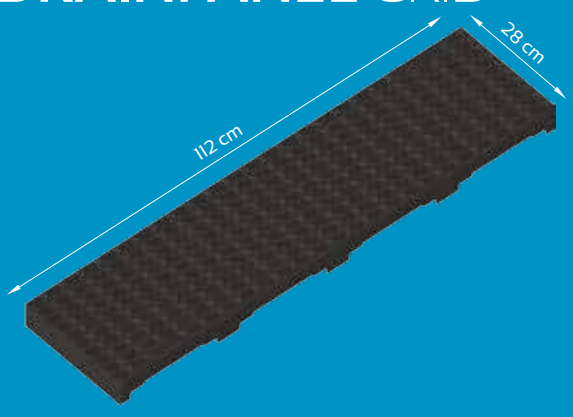
DRAINPANEL

Actual size (cm)	112 x 112 x 23
Material	PP
Weight (kg)	10
Void ratio (m^3)	0,25
Voids percentage	96%
Packaging size (cm)	112 x 112 x 250
No. pcs. per pallet	75

DP-HALF

Actual size (cm)	112 x 56 x 23
Material	PP
Weight (kg)	5
Void ratio (m^3)	0,125
Voids percentage	96%
Packaging size (cm)	112 x 112 x 250
No. pcs. per pallet	150

DRAINPANEL GRID



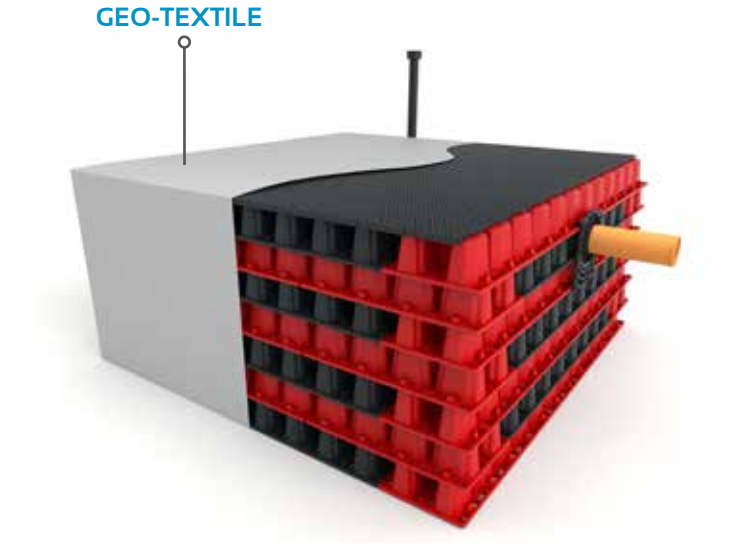
This the element that allows the upper closure of the system to facilitate the installation of the geo-textile and of the waterproof geomembrane.

Size: 112 x 28 cm
Thickness: 3,8 cm
Weight: 2,1 kg

DRAINPANEL
OPERATION MODE

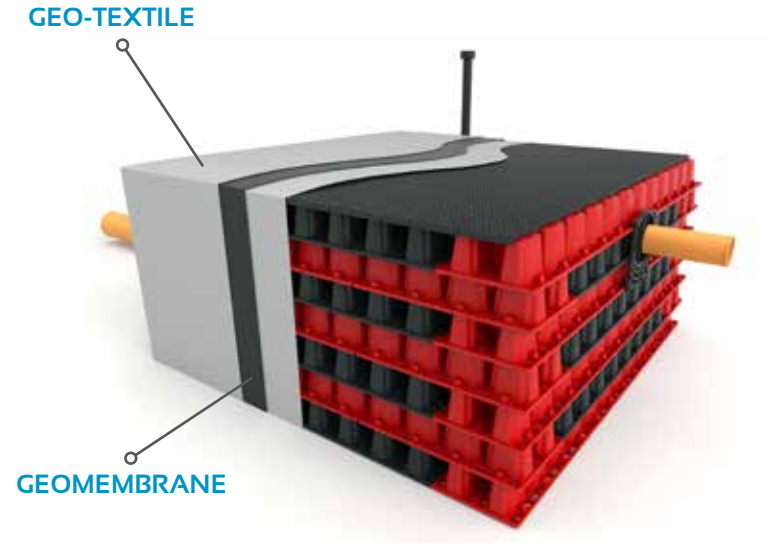
Depending on the type of geo-textile used, the structure of DRAINPANEL is ideal for the dispersion of water in the ground and also for the lamination or accumulation of water.

DISPERSION



The geo-textile layer allows a correct water flowing and helps the water penetration into the ground.

ACCUMULATION

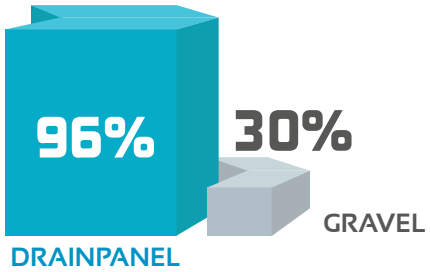


The waterproof membrane is covered by a geo-textile on the sides in order to retain the water in the structure.

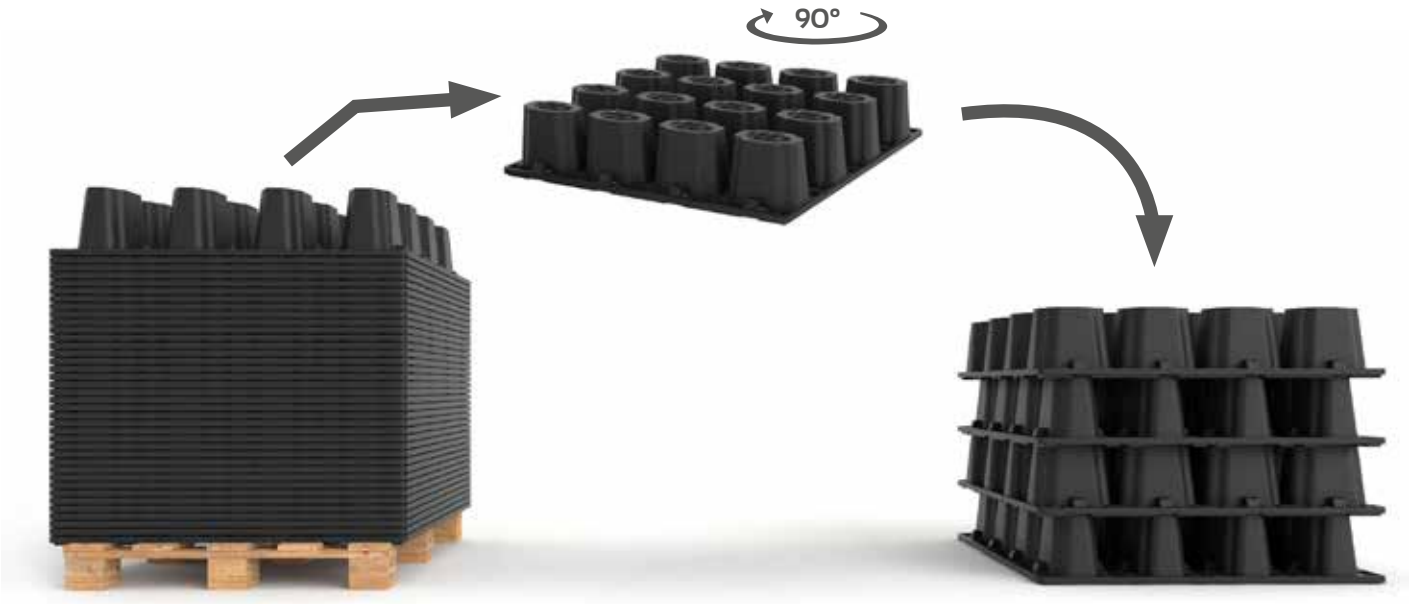
DRAINPANEL VS GRAVEL

DRAINPANEL is an alternative to gravel systems, when creating trenches or rainwater draining areas. The structure of the panel guarantees a regular void ratio which is 3 times higher than the gravel one (the cone-shaped elements are hollowed inside and can be easily filled with water). In this way, an high storage capacity is guaranteed and the digging volume can be contained.

VOID PERCENTAGE



DRAINPANEL STORAGE AND TRANSPORT



DRAINPANEL innovative design permits the easy stacking of the elements (the ones in the same direction) and the reduction of the space used for the storage and transport of the materials. It is also possible to create larger water retention volumes by stacking the elements in layers, oriented alternatively by 90 degrees.

TRANSPORT COMPARISON BETWEEN GRAVEL AND **DRAINPANEL**

A truck can transport aproximately 25 pallets of DRAINPANEL (footprint of approx. 80 cbm.). The 25 pallets allow the installation of a basin with a capacity of 450 cbm. and considering that a truck that generally transports inerts can contain up to 20 cbm. of material per time, this is a great advantage in terms of logistics. By contrast, the transport of gravel usually requires 75 trucks.

x 75 of gravel (20 cbm.)

VS

x 1 da 80 cbm.

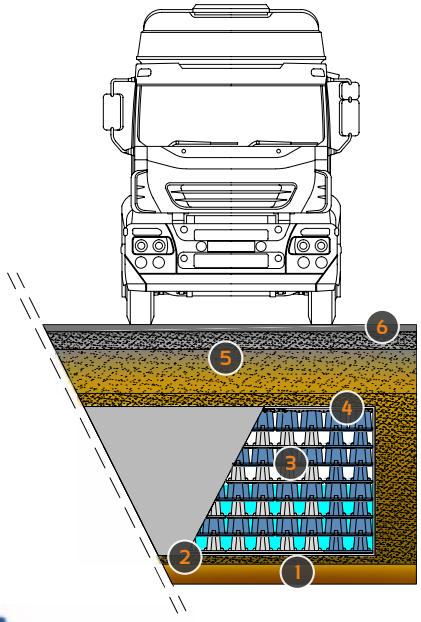
=

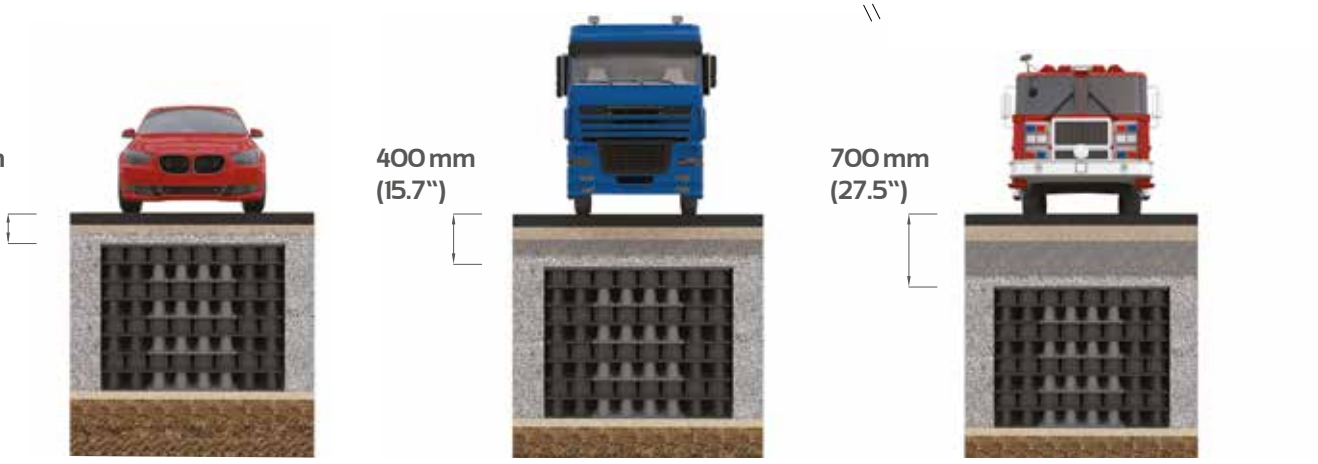
450 cbm.

DRAINPANEL STRATIGRAPHY

LEGEND

1. Natural soil
2. Bedding layer
3. Drainpanel system
4. Geo-textile or Geomembrane
5. Ground covering
6. Road finishing





Cars

Commercial vehicles

Heavy vehicles

DRAINPANEL INSTALLATION METHOD

1 EXCAVATION

Dig the ground, on the basis of the design dimensions.

2 PREPARATION

Coat a layer of gravel or sand in order to regulate the bottom of the excavation and place the geo-textile.

3 PLACE

Place DRAINPANEL manually and place DRAIPANEL GRID over the last layer.

4 CONNECTIONS

Creation of the supplying and discharging ducts of the basin.

5 GEO-TEXTILE

Cover the sides of the plastic structure's upper part with the geo-textile.

6 FINISHING

Backfill the excavation and proceede with the creation of the road or of the green area.

DIMENSIONING **PARAMETERS**

Required data for the right calculation of the basin

RAINFALL

This data refers to an intense but short rain event (at least 30 minutes)

DRAINING SURFACE

Valuation of the draining surface applying the suitable outflow coefficients

GROUND PERMEABILITY

Valuation of the emptying times of the basin and of the system's suitability for the right installation of the system

LEGISLATION

Discharge limitations, treatments from the first rainfall, period of return to take into consideration

LOADS APPLIED

Valuation of the applied loads in order to define the maximum depth of the system and the coating thickness

Example of a **preliminary evaluation**

PROJECT DATA

DRAINING SURFACE	5.000 m^2
OUTFLOW COEFFICIENT	1
RAINFALL (at least 30')	45 mm
APPLIED LOADS	1ª category
INFILTRATION SPEED	10^{-4} m/s

CALCULATIONS

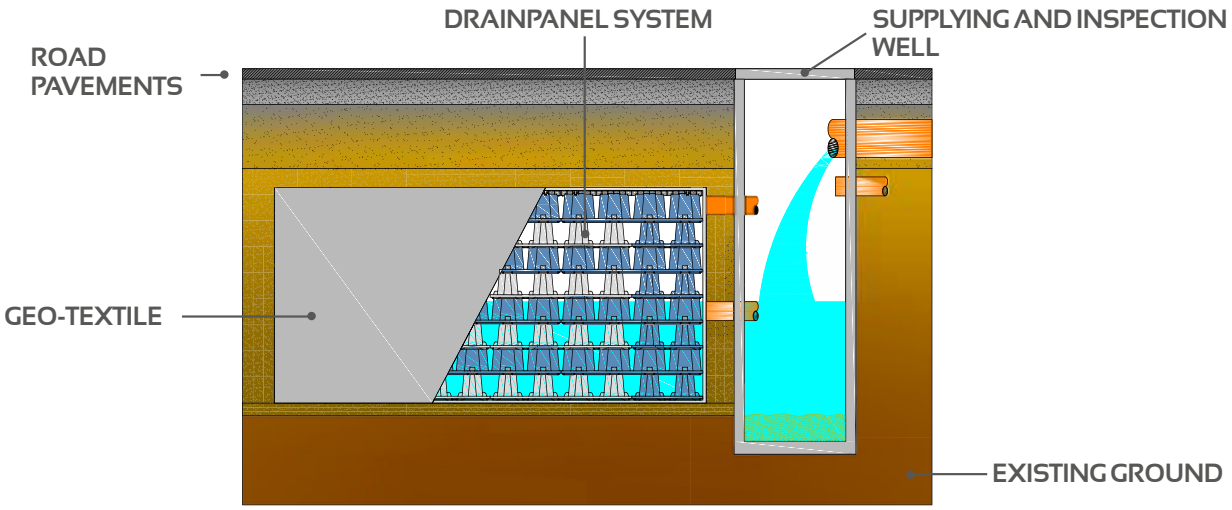
VOLUME OF THE RAINWATER TO DISCHARGE	225 m^3
NO. DRAINPANEL	940 pz
BASIN DEPTH	2 m
SURFACE OCCUPIED BY THE DRAINING BASIN	118 m^2
RESIDENCE TIMES OF THE WATER (the required period of time to empty the dimensioned basin)	5.3 h

DRAINAGE

Excellent drainage
with reduced footprint

DRAINPANEL is the ideal solution for the creation of basins or draining trenches that developes in a large depth. The solid and strong structure gives an high load-bearing capability to the product so that it can be placed also under heavy trafficked areas. DRAINPANEL large voids are ideal to reduce the excavation volume which is larger with the traditional gravel systems.

High volume of voids
Excellent filtration
High load-bearing capability

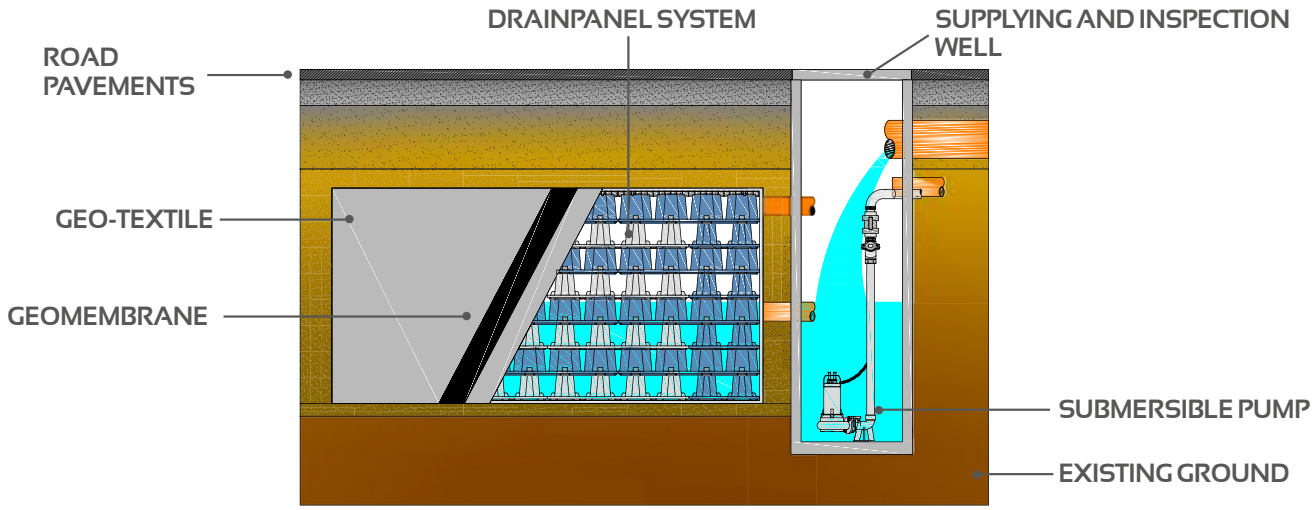


ACCUMULATION & LAMINATION

Excellent regulation of **the flow rates**

DRAINPANEL should be coated with a waterproof geomembrane in order to create rainwater accumulation chambers that allow the subsequent reuse of the water. The product's conformation allows to stack the elements in many different layers, guaranteeing at the same time, an high resistance to applied loads. Moreover, thanks to DRAINPANEL high capability it is possible to store an high quantity of water in a limited place.

Multi-layer system
High accumulation
Dry place



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