### Permavoid System

## Technical Bulletin

Issue No: 7

#### November 2016 P1

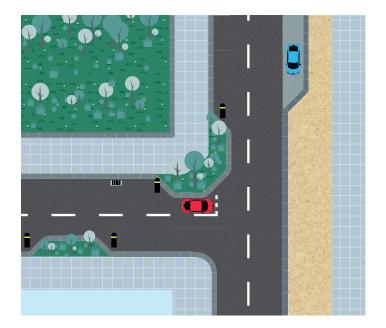
### Permavoid in the Urban Environment - Roads & Highways

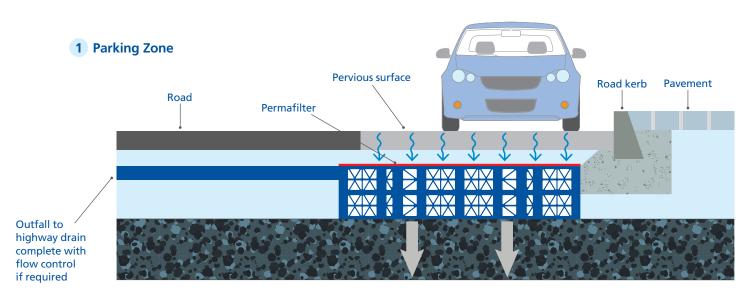
The management of surface water run-off from roads and highways can provide substantial benefits to the built environment, encouraging the use of water as a valuable resource.

As a result, water management features can be prime design elements in road and highway drainage. Incorporated into a new development or retrofitted into an overall SuDs scheme, Permavoid can enhance the natural environment by providing improved detention, attenuation, infiltration/soakaway and treatment at source.

#### **Parking Zones**

Pervious off road parking zones can be incorporated into highway designs, particularly in residential areas. Installed beneath pervious surfaces, the Permavoid range of components perform as a sub-base replacement and drainage system to manage the majority of stormwater events, providing treatment and detention at source, at shallow depths.





Infiltration/soakaway if suitable





Beneath porous &

non-porous surfaces



Source Control



Treatment





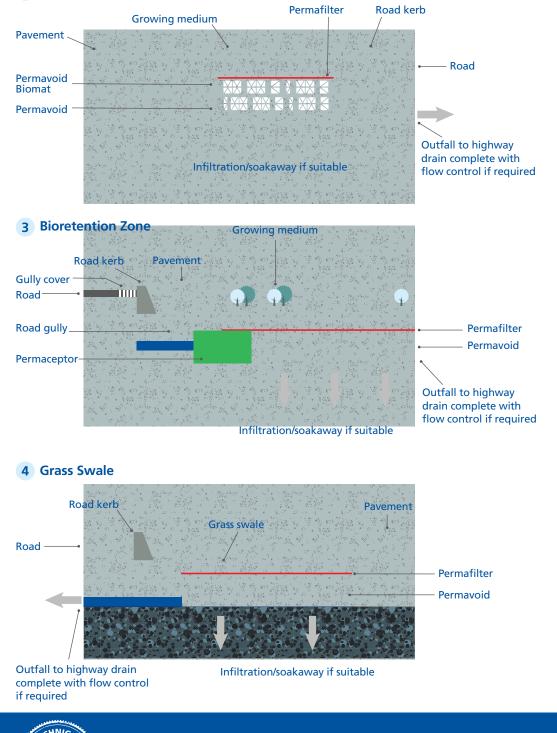


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#### 2 Bioretention Zone



#### **Bioretention Zones**

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The stormwater run-off from highway and pavement areas can be collected and treated using bioretention areas. Incorporated into traffic calming zones, bioretention systems can enhance biodiversity and amenity, along with providing effective stormwater management at source.

### **Key benefits**

- Traffic calming
- Easy to retrofit
- Reduced pollution
  loading
- Aesthetically pleasing spaces
- Shallow, easy to maintain systems
- Create small source control sub-catchments

#### **Grass Swales**

The Highways Agency have used grass swales alongside roads and highways for many years, due to their cost-effective nature. Swales are designed to be shallow for safety reasons, and can be underdrained to provide effective detention, infiltration/soakaway and treatment.

> Look out for our Permavoid Technical Manual, available to download from our website

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