

Pervious Paving

... allows water to infiltrate

2009

Pervious Paving Systems

Pervious paving allows water to infiltrate into layers of limestone placed below the paving and then into soil and groundwater below. By infiltrating most of the storm water on-site, the amount of water and pollution flowing into storm sewers and directly to rivers and streams is greatly reduced. This, in turn, protects water quality, maintains more stable base flows to streams, reduces flood peaks, and reduces stream bank erosion. With infiltration, groundwater is recharged and streams are replenished with cool, clean groundwater in a more natural way. Pervious paving is one component of Low Impact Development (LID).

Depending on the site, pervious paving systems may result in significant savings by eliminating required retention and detention ponds and reducing conventional storm sewers.

Design

Pervious paving systems may be installed at new or existing building sites. On a new or existing site, careful planning is important, including soils tests. Following design standards developed by manufacturers and government agencies is vitally important in assuring the systems work effectively.

Pervious paving systems can be designed to infiltrate any storm event, including the 100-year storm. They can also be used strategically with less costly traditional paving to infiltrate small, frequent rains and the first flush of large storms. Because the first flush of storm water carries the most pollutants, cleaning the first flush has excellent water quality benefits.

Maintenance

To maintain pervious paving systems:

- Inspect the site annually.
- Vacuum the paving periodically to remove any build-up of leaves and dirt. Vacuum-type street sweeping is most effective.

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Types of Pervious Paving Systems

Type of Paving System	General Description
Porous asphalt	Porous asphalt or porous concrete installed over an infiltration storage bed of uniformly graded limestone.
Permeable pavers (modular paver blocks)	Modular concrete pavers that fit together with funnel-like openings installed over an infiltration storage bed of uniformly graded limestone.



A walking path at Metro Waste Authority in Bondurant, Iowa, includes both porous asphalt and non-porous asphalt. The porous asphalt allows rainwater to infiltrate, while the non-porous surface has standing water.

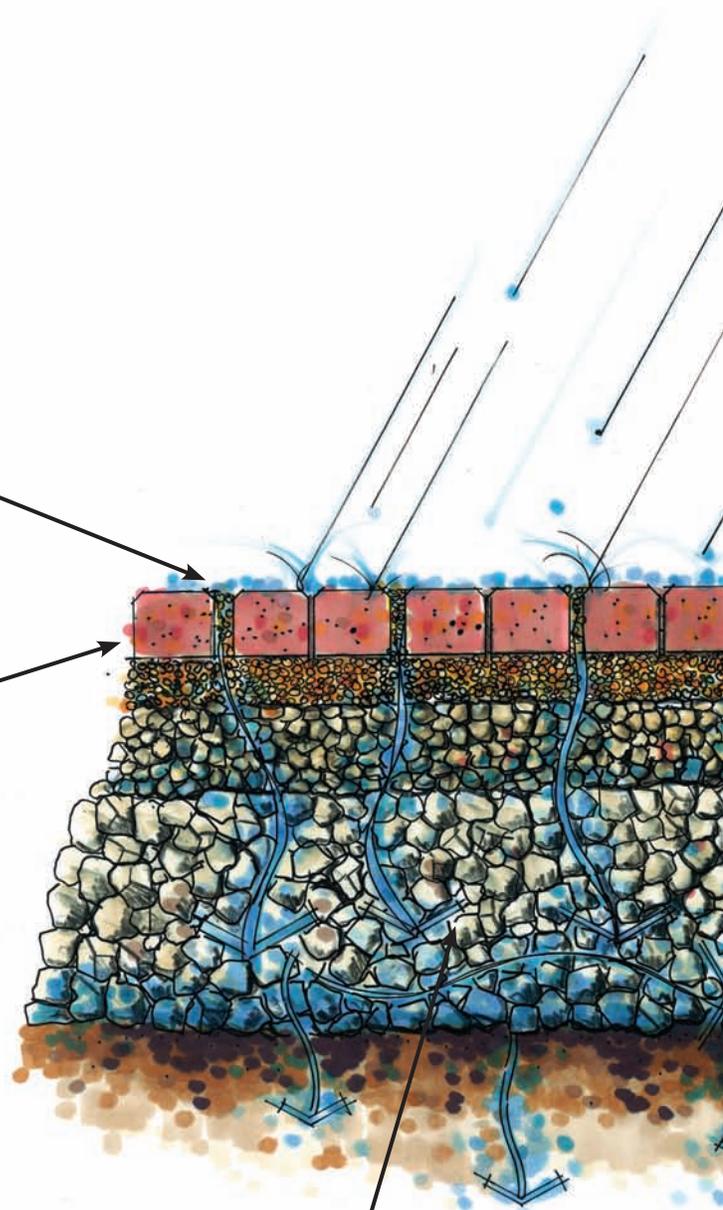
Pervious Paving

Modular paver blocks installed over a storage area of uniformly-sized limestone

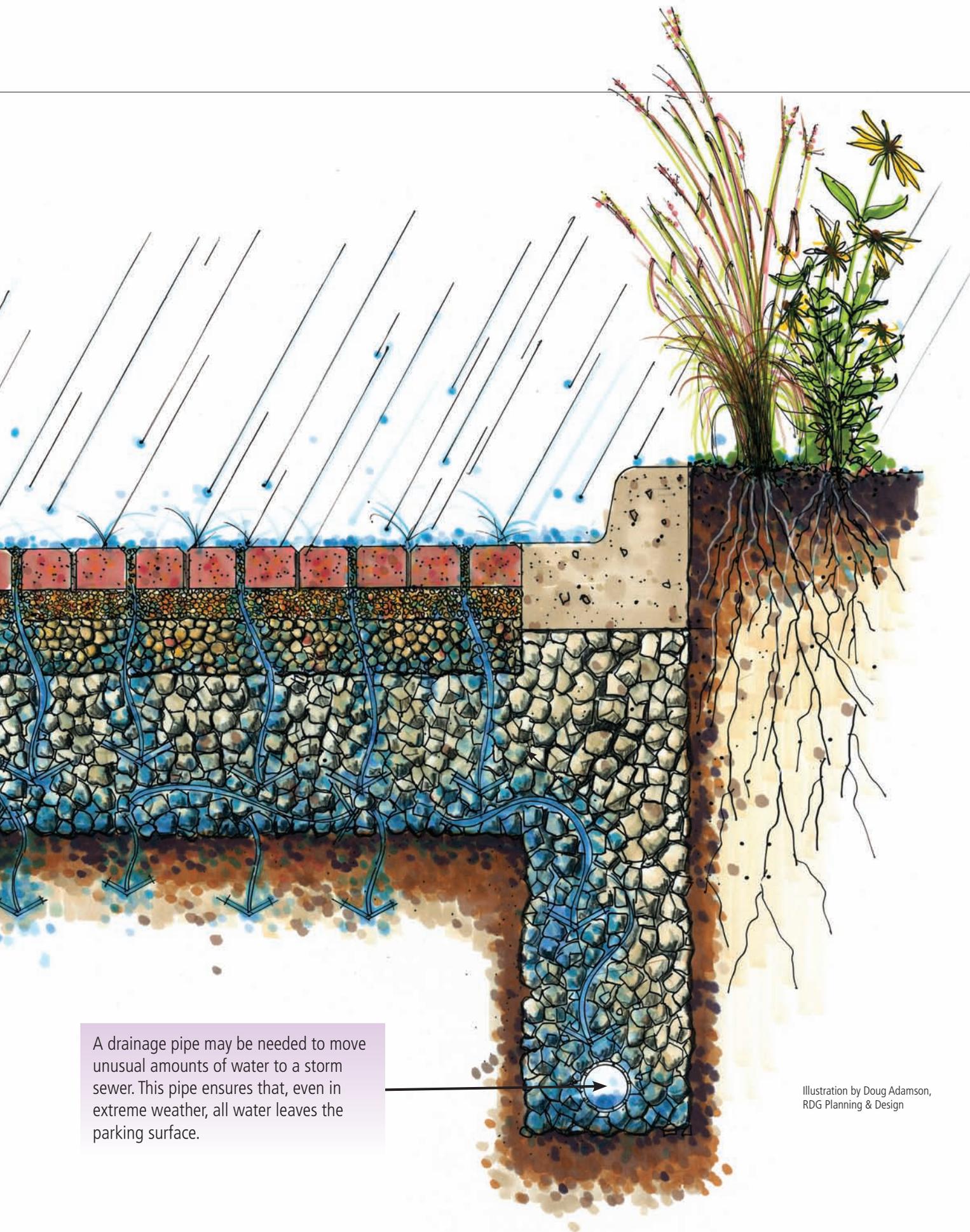
This system prevents car-related pollutants on parking areas from reaching our rivers and streams.



Spaces between modular pavers funnel storm water into an 18-inch layer of limestone below. Here, water is temporarily stored as it infiltrates into the soil and groundwater below.



Limestone layers provide support for vehicles and a storage area to hold water for a short time as it infiltrates into the soil and groundwater below.



A drainage pipe may be needed to move unusual amounts of water to a storm sewer. This pipe ensures that, even in extreme weather, all water leaves the parking surface.

Illustration by Doug Adamson, RDG Planning & Design

... Maintenance, continued

- Inspect the site after extremely large storms to assure it is fully functioning.
- Use scrapping and shoveling of snow and ice; avoid chemicals and sand.

Potential Sites for Pervious Paving Systems

- Parking Lots
- Overflow Parking
- Roadway Aprons
- Boat Ramps
- Emergency Access Areas
- Plazas
- Private Roads
- Driveways
- Sidewalks
- Bike Paths
- Walking Trails
- Campgrounds
- Patios



Photo courtesy of Dick Woodard.

A main street business in West Union, Iowa, installed a paver block system on its back patio.

Low Impact Development (LID)

Traditionally, storm water management has involved the rapid conveyance of water via storm sewers to surface waters. Low impact development (LID) is a different approach that retains and infiltrates rainfall on-site.

The LID approach emphasizes site design and planning based on the natural path of water: infiltrating through healthy soils and gradually replenishing groundwater. This process sustains our streams with groundwater rather than the hard rush of storm water which brings pollution, degradation, and flooding.

Why is LID important?

to the environment?

- protects local and regional water quality by reducing sediment, nutrients, and other pollutants
- reduces stream bank erosion by controlling surges from storm sewers after rain
- stabilizes stream levels by restoring groundwater recharge into streams
- may reduce potential for flooding

to residents?

- protects recreational and scenic waters
- adds open space and trails
- increases a sense of community and creates community character
- may increase re-sale value of property

to developers?

- reduces land clearing and grading costs
- increases value and marketability

to communities?

- may reduce infrastructure and maintenance costs
- enhances livability
- balances growth needs with environmental quality
- improves quality of life

More information about Pervious Paving and LID

www.thcahill.com
www.lpspavement.com
www.advancedpavement.com
www.perviouspavement.com
www.lowimpactdevelopment.org
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