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# Go green with rainwater

## Water should run into earth, not the storm-drain pipes

By introducing rain gardens into their subdivision projects, home developers and builders are striving to reduce the impact of home construction on local watersheds and help lower municipal infrastructure and maintenance costs at the same time.

*COURTESY OF THE CRD*



**Bricks set over gravel provide a flat surface that rain water can trickle through, unlike solid asphalt or concrete.**

The original rain garden is the native ecosystem. In nature's rain garden, rainwater is either taken up by plants or filtered slowly through the soil, eventually making its way to streams and rivers. In a forest, less than one per cent of rainwater leaves the area as runoff.

The introduction of manmade rain gardens is a way of reducing runoff by making engineered landscapes that imitate the function of the natural filtering systems that were lost in the course of human development.

Also referred to as bioretention gardens, a rain garden usually consists of a depressed garden space where runoff can pond and naturally infiltrate into the soil. Most gardens are designed to pond no more than five to seven centimetres of water.

A drain rock reservoir and a perforated drain system is used where the native soil has a low infiltration rate.

Low Impact Development is a storm water management design strategy adopted for new subdivisions in some municipalities.

The strategy emphasizes conservation of the natural landscape features and also the use of engineered solutions that reduce harm to streams, lakes, wetlands and other aquatic regions.

"A well-designed storm water management program helps nature," said Gordon English of Genco Construction, a builder who has adopted Low Impact Development practices in several of his projects, including the Holly Farm Townhomes project in Central Saanich.

"It wasn't a municipal requirement at the time, but we wanted to do it for the right reasons."

The driveways of his 15 townhouse subdivision use permeable pavers that allow rainfall to percolate to an underlying base. Water that does not get absorbed by the undersurface soils drains towards a grease trap for pollutants such as motor oil and finally a settling pond.

The contents of the pond are absorbed by the surrounding soil or eventually passed into an overflow that empties into the municipal storm drain system.

Pollution from the driveways includes dust from the operation of cars — particles of copper, zinc, cadmium, lead, hydrocarbons and rubber. These contaminants accumulate during dry periods and are picked up by rainfall.

Bioretention ponds collect and filter these pollutants instead of allowing them to be washed into the storm water system.

In comparison, runoff from non-managed urban areas can be more than 25 per cent, which makes it necessary to employ storm drains to remove the excess water.

Roads, paved driveways, parking lots and roofs are all non-permeable surfaces that prevent rain from reaching the soil below. Water exiting from poorly managed storm water systems can lead to soil erosion, water pollution and the loss of marine habitat. "By integrating water management components in a project today, owners will likely be saved from facing some issues down the road," English said.

The Capital Regional District is one of the early proponents of rain water management.



It has been promoting the benefits of shifting from a storm water management to rain water management.

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