Slow Can Be Good

Let's face it—it rains on Texada!

Before roads and concrete, rooftops and asphalt, there was forest and natural land. Rain fell onto leaves, soft ground, was drawn into roots and dribbled through into streams which connected to rivers and the ocean. Natural life was abundant, fish were healthy and vegetation lush.

Many forests were replaced by houses, avenues, gardens and driveways. Now, rain falls onto rooftops, driveways and flows into storm drains and the sewer system. It moves fast and picks up pollutants along the way. There is no time for the water to soak into the ground, feed plants, be breathed back into the air. Fast-flowing water carries pollutants and chemicals, and affects the health of intertidal life.

When water is slowed down, it gives it a chance to drop the pollutants and return to the water cycle. It replenishes groundwater and aquifers. There is no surge entering storm drains and affecting sewer systems. Flooding is reduced. There is less disturbance of fish habitat. Plants have a chance to soak up the water and evapo-transpirate it back into the air.

In the City of Powell River, developers wishing to use greenfield for their housing development have to mitigate storm water runoff into the storm sewer system. They need to mimic the previous material's (forests, perhaps) ability to soak up the water. There are examples of this around Powell River. Head up to the Powell River Academy of Music and look just east of the parking lot. Before reaching the housing development you will encounter a rainwater retention pool. It is a dip in the land with trees and wetland. There is a channel in the bottom ending with a vertical grate just under the roadway. Water raining onto the housing development naturally collects in this lower land area. It is slowed down by plants and rocks and the general natural ground cover, and has chance to soak into the groundwater or be breathed back into the air. The grate catches any large debris.

Another example is the new Willingdon Creek Village. A similar scenario exists there, behind the building, closer to Abbotsford Street. And then there are the French drains in the Selkirk Avenue area off Toba Street. This is a margin of small rocks at the bottom of a bank, before the avenue. The rocks cause water to slow down, drop pollutants, and soak into the ground before spewing over onto the road.

The North Harbour and Wharf at Westview provide another two great examples. Separating the ocean and the road long the top side of the North Harbour is a rain garden, built on top of the rip rap wall. The location is at the foot of Westview—dense residential area with oil and gasoline on roads and chemicals leaching from rooftops. The garden receives runoff and gives it the chance to soak through the garden's filtering system. There is drainage rock, gravel, sandy growing medium and bark mulch. Into this is planted Kinnick Kinnick, grasses and tulips. The plants are easy to tend, and provide a pleasing aesthetic as well as mitigating water flow into the ocean. The south and west side of the new wharfinger's building has a great example of a working rain garden, too.

Residential Rain Gardens

Take a look at your property. Where does water naturally flow? Downhill toward the house? Flooded basement? Roof runoff is likely heading into gutters, down the drainpipe and either into the garden or into the storm water system.

[Show diagram of houses and where rain gardens are well located]

Rain gardens should be at least 10 feet away from the house, at least 25 feet away from the septic field, at least 25 feet away from a well, avoid underground utility lines, use an area where the water table is at least 2 feet below the surface of the ground, and choose an area in partial to full sun.

As for size, make it approximately 5% of the impermeable area feeding the flow. So, perhaps water runs off a rooftop and off a driveway onto a wet area. Calculate the square footage of the rooftop and the driveway then divide by 20. That will give 5%.

[Show diagram of rain garden cross section]

Dig out 2.5 feet at the deepest (upper) end. The dug-out earth becomes a berm on the other side of the garden. Place in 1 foot deep of drainage gravel, followed by 1.25 feet of sand, garden soil and compost mix. Then, add 0.25 feet of humus/leafy loam/bark mulch. The heavier the material on top, the more it prevents erosion, removes pollutants and retains moisture.

Use plants that tolerate fluctuating water levels. Use plants natural to the area. Use plants for cleaning up pollutants—bioremediation. Use plants easy to maintain, and use plants that you like.

There are many examples available online for rain gardens and lots more information. Here are some examples:

https://www.crd.bc.ca/education/low-impact-development/rain-gardens

http://www.lowimpactdevelopment.org/raingarden_design/downloads/InfiltrationRainGardenPosterVancouverCan.pdf

http://www.lowimpactdevelopment.org/raingarden_design/downloads/RaingardenHow2HomeownerUWExtension.pdf

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