MAP CODE
WTLD

CONSTRUCTED WETLANDS

USE
Stormwater
Visual
Site Environmental

What

- A modified natural or constructed shallow pond for the treatment of sediment-laden waters by wetland vegetation.

Purpose

- Receives and temporarily holds sediment-laden waters to prevent downstream surface water pollution and to provide biological treatment to help meet acceptable turbidity/suspended solids (TDS) standards.

Photo: Sedun

Where

YES: Where there is adequate space and where runoff may have moderately elevated total suspended solids, oils, pesticides, or nutrients that would be unsuitable for downstream receiving waters.

Materials Equipment & Costs

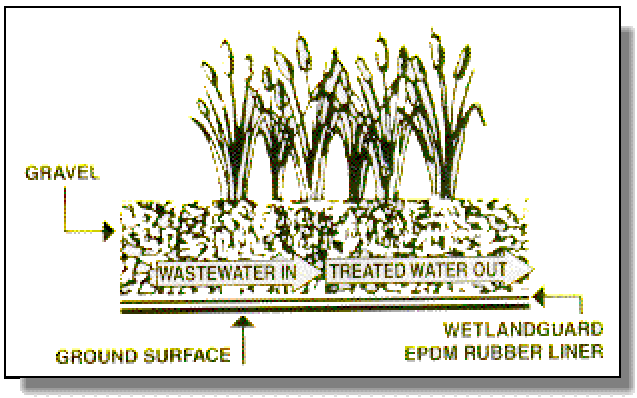
- Suitable land area, liners (if required), inlet and overflow plumbing, fish trap, plants, native vegetation and soils.
- Earth moving equipment, labour.
- $ High.

Plans & Spec's

- The principle behind constructed wetlands is that incoming storm runoff displaces old water, which flows out of the pond. The new runoff is stored in a permanent pool in the pond until the next storm. This situation creates long detention times and high cleansing rates.
- The contributing drainage area to the wetland should be examined for potential contamination sources such as oil from roads and parking areas, yard spray

(pesticides), fertilizer residue, building or driveway washdowns, and runoff from stored materials, debris or bare soil areas.

- The soils at the wetland site should be sufficiently impermeable to be able to hold the turbid water for treatment and protection of the area groundwater.
- The constructed wetland should have sufficient detention volume to store storm runoff volume or the "first flush" of runoff which contains the majority of pollutants.
- The treatment rate is a direct function of the size of the pond: the larger the pond, the greater the treatment removal rate.
- A unique feature of wetlands is the presence of aquatic plants and algae that can remove significant amounts of soluble nutrients from stormwater, effectively reducing downstream algal growth.
- Install a fish guard/barrier or sediment trap to prevent fish from entering and inhabiting the wetland.



Installation

- Consult with environmental professionals**.**

Maintenance

- Clean out excessive sediment at intake.
- Remove excess plant build-up.
- Remove excessive siltation from the entire pond, one section at a time.

Sources

National Conference on Urban Runoff Management: (1993) **Enhancing Urban Watershed Management at the Local, County and State Levels**.

United States Department of Agriculture, (1994) **Planning and Design Manual for the Control of Erosion, Sediment, and Stormwater, Best Management Practice Standards.**

National Risk Management Research Laboratory, **Constructed Wetlands Treatment of Municipal Wastewaters Manual;** *U.S. Environmental Protection Agency*, Office of Research and Development, EPA/625/R-99/010, URL <http://www.epa.gov/ordntrnt/ORD/NRMRL/Pubs/2001/wetlands/625r99010.pdf>, November 2001.

Ministry of Water, Land and Air Protection. **Water Quality Website;** URL <http://www.elp.gov.bc.ca/wat/wq/wqhome.html>, for Constructed Wetland BMP, go to http://wlapwww.gov.bc.ca/wat/wq/NPS_web_page/BMP_Compendium/General/Aquatic_Habitat/Constructed.htm.