Structured Experience 18.1
Urban BMPs: BMP Mall

Goals

1. To gain experience in selecting BMPs to improve water quality.
2. To experience group cooperation in designing a program of BMPs.

Group Size

Groups of six members or other size as appropriate

Time Required

Approximately one to three hours

Materials

1. One copy of the **BMP Mall instructions** for each participant.
2. Play money—$30,810 per group.
3. One flip chart pad for each group.
4. Set of colored markers for each group.
5. One set of **Urban BMPs** for each group.
6. One copy of two maps for each participant.
7. Dot grids, rulers, markers.

Physical Setting

A room large enough (with movable chairs) to allow participants to move freely and congregate in groups.

Process

1. The facilitator gives a lecturette on urban BMPs. Make sure that the rules of thumb for sizing basins are mentioned.
2. The facilitator divides the class into groups and hands out the **BMP Mall Instructions**, the play money, the flip charts, etc., and explains the goals of the exercise as described above.
3. Meanwhile, the instructor sets up the Mall at the front of the room. Diagrams of BMPs are first copied, cut up, and placed in envelopes, with the name of the BMP and cost on the outside of the envelope.
4. During the exercise, project a blue light at the front of the class once or twice for a few minutes. This means that a deal is being offered. Good items to offer are rain barrels at a highly discounted price.
5. Groups must decide on BMPs to purchase at the Mall and place them on their maps with masking tape.
6. Each group chooses a spokesperson who presents the drawing and BMPs selected.

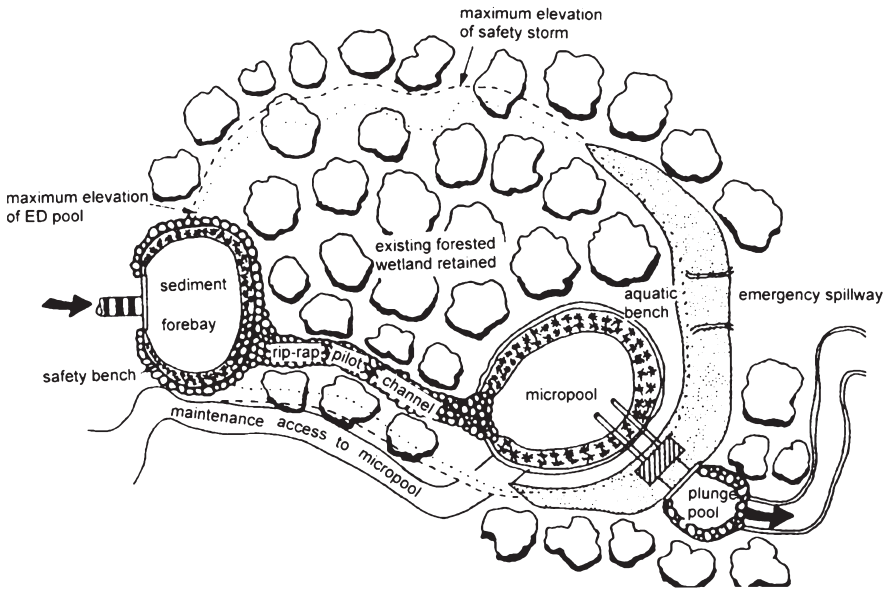
BMP Mall Instructions

A 14-unit townhouse development is being proposed in the town of Waterford, CT. Your objective is to develop a program of best management practices (BMPs) that reduces the potential nonpoint source pollution from the project by 80%. You should consider nonpoint source pollution to include suspended solids, nutrients, oxygen demand, bacteria, and heavy metals. Measures should be recommended for the planning, construction, and long-term operation of the development. You may change the development in reasonable ways, such as building and road locations. However, you may not reduce the number of townhouses (units) on the property, and access must be from Fog Plain Road to the north.

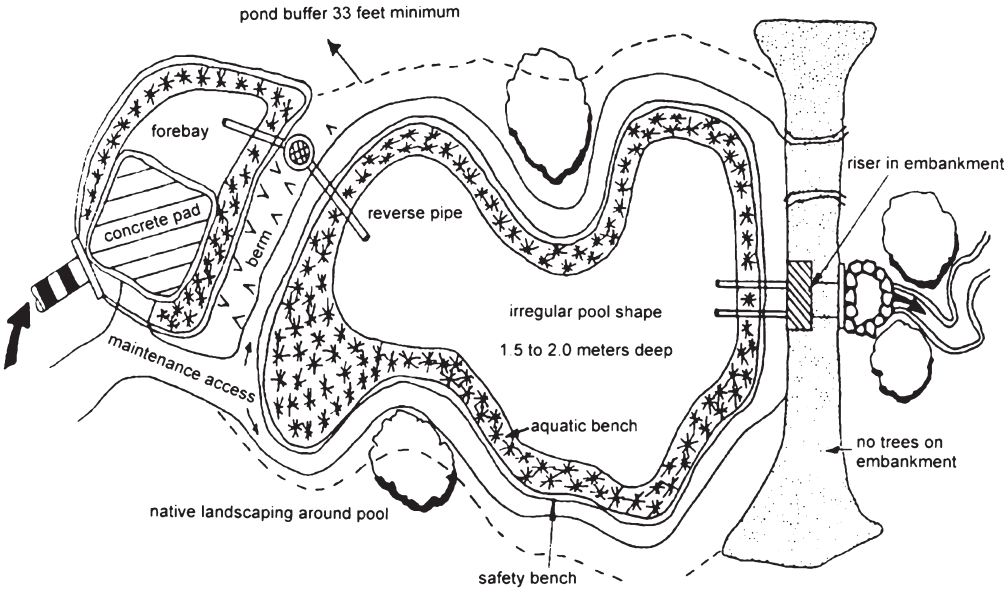
Your group will be given $30,810 with which you can buy the BMPs. To purchase an item, one member of your group should go to the BMP Mall. Watch for the "Blue Light" special. Once you have purchased your BMPs, your group must locate the BMPs on a redrawing of the development on the flip chart pad/white board. Choose a spokesperson to present your results to the rest of the class. You may find it useful to divide up the jobs in this exercise, such as an illustrator, the buyer, someone to calculate any basin sizes, economist, BMP effectiveness expert, spokesperson, etc.

BMP	Cost
Extended detention pond	$0.50/ft^3
Wet pond	$0.50/ft^3
Stormwater wetland	$1.50/ft^3
Multiple ponds	$1.50/ft^3
Infiltration trench	$4.00/ft^3
Infiltration basin	$0.50/ft^3
Porous pavement	$1.50/ft^2
Sand filter	$5.00/ft^3
Grassed swale	$6.50/linear foot
Oil grit separator	$2,000/ea
Roof runoff dry well	$500/ea
Concrete grid pavers	$1.00/ft^2
Lawn nutrient management	$10/yr/home
Rain garden	$5,000/ea
Rain barrel	$100/ea
Pet management	$0
Composting	$0

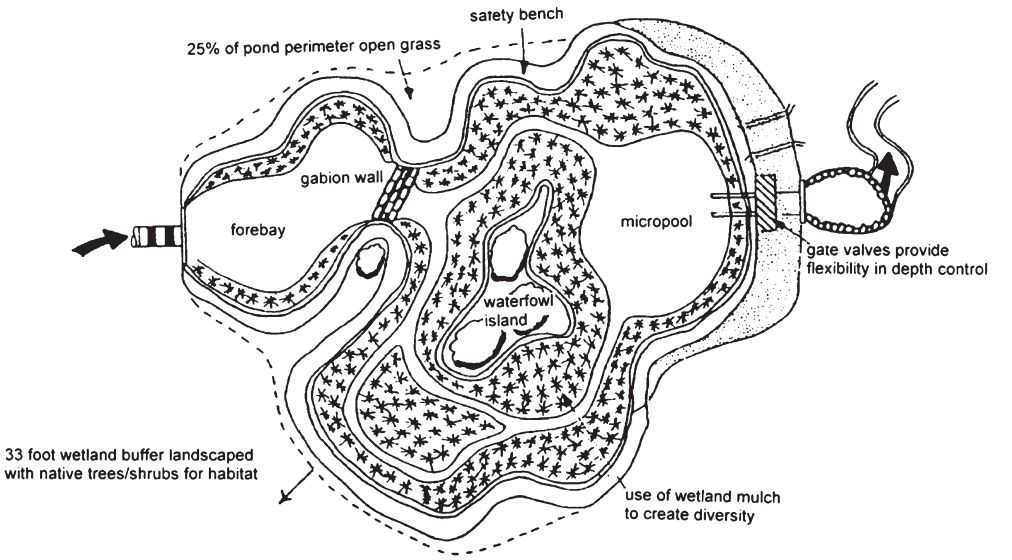
Urban BMPs: BMP Mall



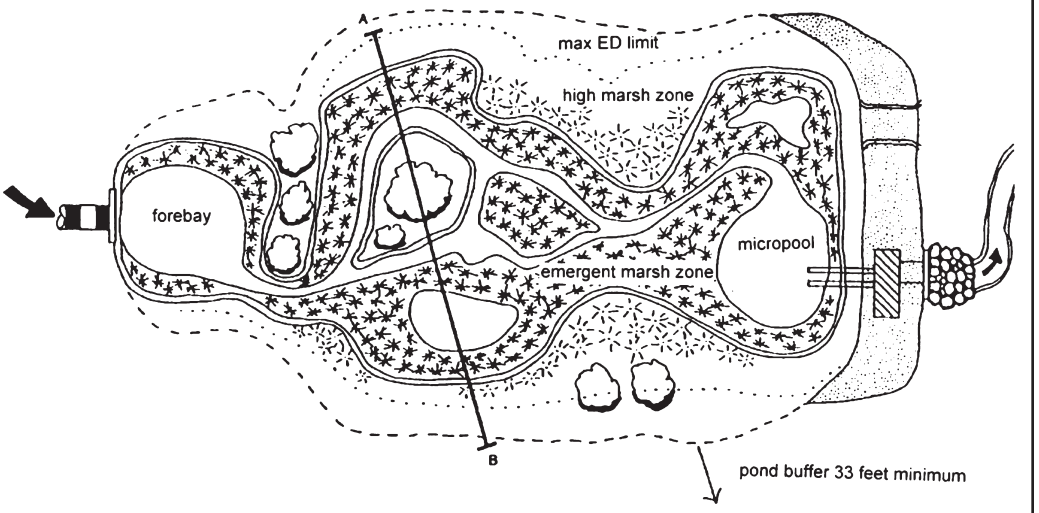
Extended detention ponds $0.50/ft^3



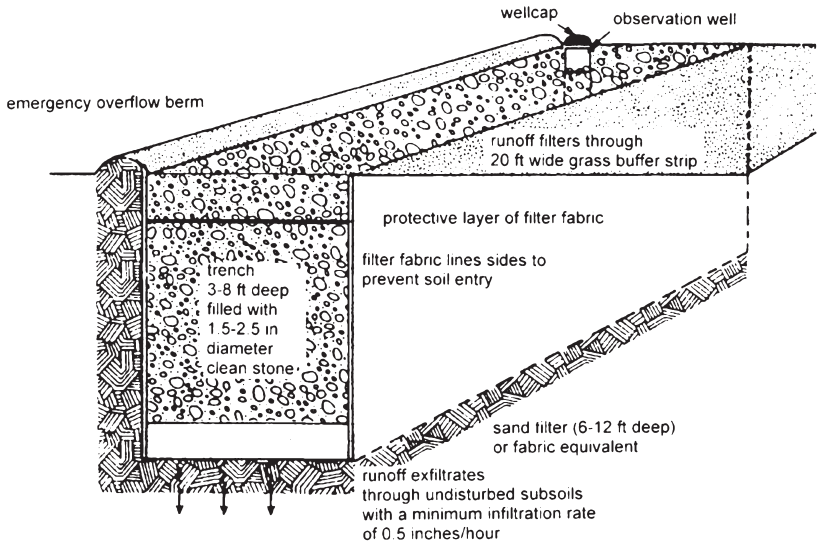
Wet pond $0.50/ft^3



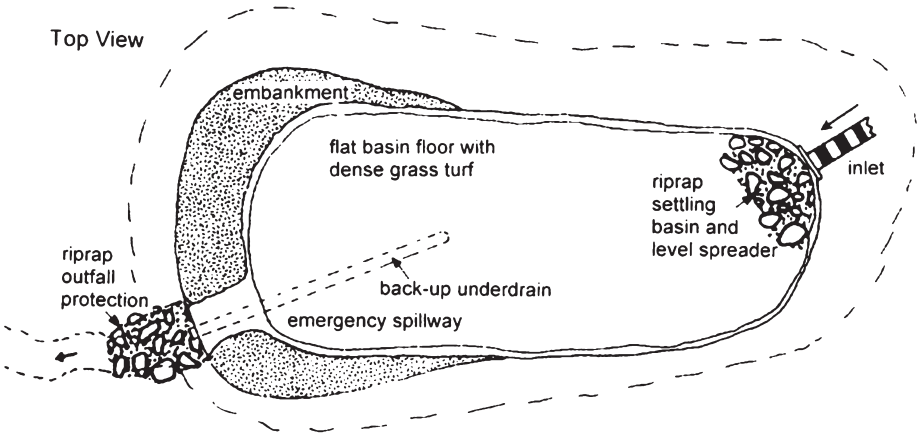
Stormwater wetland $1.50/ft^3



Multiple ponds $1.50/ft^3

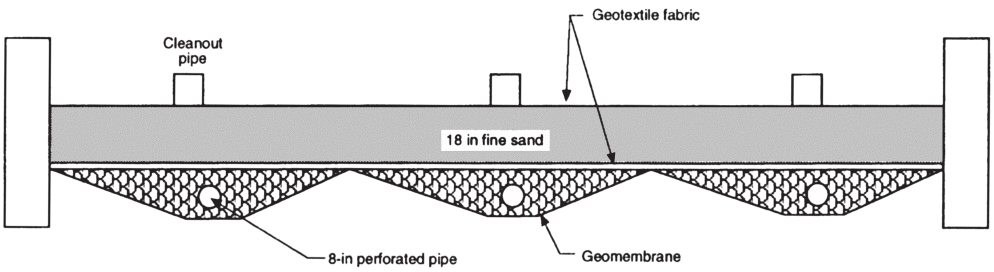


Infiltration trench $4.00/ft^3



Infiltration basin $0.50/ft^3

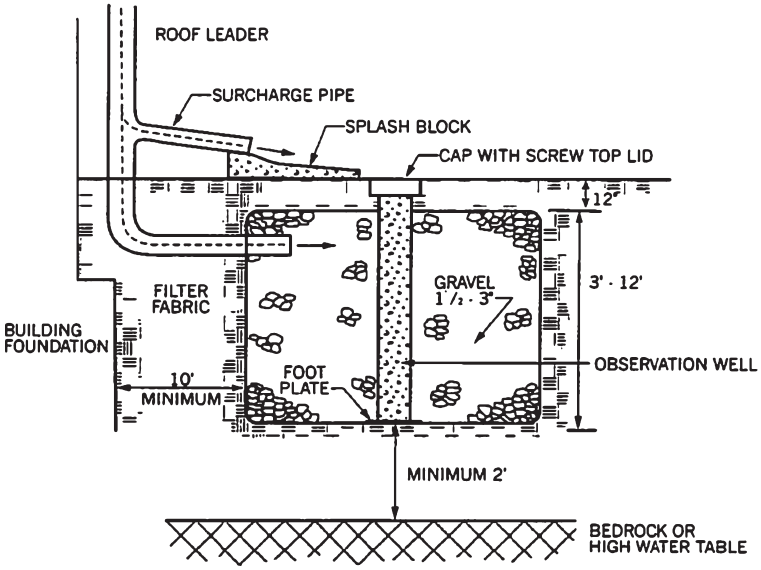
Porous pavement $1.50/ft^2



Sand filter $5.00/ft^3

Grassed swale $6.50/linear foot

Oil grit separator $2,000/ea



Roof runoff dry well $500/ea

Concrete grid pavers $1.00/ft^2

Soil tester for lawn nutrient management $10/yr/home

Rain garden $5,000/ea

Rain barrel $100/ea

Reference:

Wyoming Department of Environmental Quality. 1999. *Urban Best Management Practices for Nonpoint Source Pollution.* Water Quality Division.

Sources:

Sketches on pp. 3–4 from Schueler, T. R. 1991. *Mitigating the Adverse Impacts of Urbanization on Streams.* Proceedings of the National Workshop on the Integration of Storm Water into Local Nonpoint Source Issues, Northern Illinois Planning Commission; p. 5 from Schueler, T. R. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban Best Management Practices.* Metropolitan Washington Council of Governments; p. 8 from Department of Environmental Resources. 1999. *Low-Impact Development: An Integrated Design Approach.* Prince George's County, Largo, MD: Programs and Planning Division; photo on p. 6 by Michael Dietz; photos on p. 7, 8, 9, 10 by John Clausen.