The ABC’s of BMP’s

Aux Sable Watershed Plan

Christopher B. Burke Engineering West, Ltd.
St. Charles, IL

Why are BMP’s Important

- Best Management Practices (BMPs) developed as a set of practices which help to achieve goals of the Clean Water Act and its amendments, NPDES Phase 1 and 2 General Permits, and Municipal Separate Storm Sewer Systems (MS4) program.

6 Major Categories

- Categories based on required minimum control measures:
  1. Public Education
  2. Public Involvement
  3. Illicit Discharge
  4. Construction
  5. Post Construction
  6. Good House Keeping
Conservation Tillage

- Reduce tillage
- Increases residue
- Reduces erosion
- Increases available moisture
- Reduces compaction
- Increases Organic Matter Content
- Increases available spring moisture

Contour Farming

- Rows are parallel to slope
- Reduces run-off velocity
- Reduces erosion of top soil
- Increases amount of water infiltration
- Can include grasses rows

Heavy Use Area Protection

- Provide stone protection over heavy traffic areas
- Reduce sediment tracked by vehicles
- Reduce sediment load in storm sewers and roadside ditches
Stream Bank Fencing

- Fencing along stream bank or buffer
  - Eliminates livestock traffic through stream
  - Reduces amount of fecal matter reaching water
  - Protects banks from compaction and destruction from over grazing

Open Space Development Planning

- Protect Natural Resources while meeting economic goals
  - Smaller lots clustered together
  - Retain natural features and topography
  - Reduce necessary grading of site

Protection of Natural Features

- Incorporating existing features into development
  - Create buffers along streams and wetlands
  - Reduce tree clearing for manicured lawns
Eliminating Curbs and Gutters

- Design new subdivisions to use road side swales
  - More filtering of stormwater
  - More infiltration of stormwater run-off

Minimize Grading

- Plan developments to utilize natural topography without much grading
  - Reduces visual uniformity of subdivision
  - Reduces amount of "open" soil potential for erosion

Construction Entrances

- Stone protection at site entrances
  - Reduce sediment tracked by vehicles
  - Reduce sediment load in storm sewers and roadside ditches
Permanent Diversions

- Graded channel to direct run-off
  - Carries run-off and sediment to areas where sediment can be filtered
  - Usually used during grading and removed before site is finished

Rock Check Dams

- Rock placed across channels to reduce water velocity
  - Allows sediment to settle before continuing down stream
  - Reduces down cutting and erosion

Erosion Control Blanket / Mulch

- Used to provide temporary or permanent cover after vegetation has been seeded
  - Protects seeds and soil from being washed away during precipitation events
  - Helps to maintain final grades before vegetation establishment
Permeable Pavers / Porous Cement

- Hard material with spaces for water to infiltrate into the ground
  - Reduces volume needed in basins
  - Allows filtering of water during infiltration
  - Reduces quantity of surface run-off in storm sewer and eventually streams

Conservation Easement

- Legal protection of land from development
  - Various types of protection allowed
  - Can protect streams, farmland, wetlands, etc.

Dry Bottom Detention Basin

- Storm water basin with manicured turf grass
  - Bottom is not usually wet
  - Used in areas where basin can be used as open space for residents
  - Not favored by regulators
**Wet Bottom Detention Basin**

- Typical detention basin or pond
  - Usually has standing water
  - Can also be used for recreational purposes

**Wetland Bottom Detention Basin**

- Basin is designed to have enough water to support wetland vegetation without being dominated by open water
  - Favored by regulators
  - Provides potential habitat for many species
  - Increases water quality leaving basin

**Level Spreader**

- Device used to reduce water velocities at outlets
  - Spreads flow out over large distance
  - Prevents scour from high velocity or quantity events
  - Minimal visibility
**Bioswales**
- Swale planted with native vegetation to direct water
- Filters contaminants out of stormwater run-off
- Aesthetically pleasing
- Promotes infiltration

**Rain Gardens**
- Similar to Bioswale, but does not transport water
- Collects run-off to filter, infiltrate, and evaporate
- Water is not transported away from BMP by storm sewer
- Specific vegetation chosen
- Aesthetically pleasing

**Infiltration Gallery**
- A trench filled with specific material to catch run-off and transport it to a larger chamber
- Chamber can retain storm water in place of pond, underground
- Sediment can settle before water is discharged
Further Reference

- US EPA BMP Menu

- USDA – NRCS

- DuPage County List of MS4 Resources

- Illinois Urban Manual