

Stormwater Management Ordinance Training Session 5 – Construction Site Stormwater Pollution Prevention

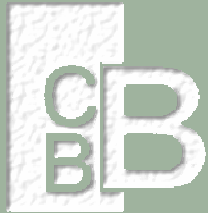
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STRUCTURE OF PRESENTATION

- Applicability and Exemptions
- Construction Site SWPPP Policy
- Construction Sequencing
- Inspection and Maintenance of BMPs
- Best Management Practices
 - Erosion Control BMPs
 - Sediment Control BMPs
 - Other BMPs

APPLICABILITY AND EXEMPTIONS

- Applies to development and re-development projects disturbing 1 acre or more of ground
- Procedures for calculation of land disturbance can be found in Chapter 4 of the Ordinance
- Individual lots < 1 acre and located within a larger project are considered part of the larger permitted project site. However, an Individual Lot Plot Plan permit application must be submitted prior to receiving a building permit
- Individual lots disturbing 1 acre or more must submit an application even if part of a larger project

APPLICABILITY AND EXEMPTIONS (cont.)

- Following activities are exempt:
 - agricultural land disturbing activities
 - forest harvesting activities
- Activities such as certain landfill and coal mining activities are exempt if other State permits require soil erosion control measures

POLICY

1. Minimize the potential for soil erosion by designing a development that fits the topography and soils of the site
2. Existing natural vegetation should be retained and protected wherever possible. Areas immediately adjacent (within 35 feet of top of bank) to watercourses and lakes also should be left undisturbed wherever possible
3. All activities on a site should be conducted in a logical sequence so that the smallest practical area of land will be exposed for the shortest practical period of time during development

POLICY (cont.)

4. The length and steepness of designed slopes should be minimized to reduce erosion potential. Drainage channels and swales must be designed and adequately protected so that their final gradients and resultant velocities will not cause erosion in the receiving channel or at the outlet
5. Sediment-laden water which otherwise would flow from the project site shall be treated by sediment control measures appropriate to minimize sedimentation
6. A stable construction site access shall be provided at all points of construction traffic ingress and egress to the project site
7. Appropriate measures shall be implemented to prevent garbage, debris, packaging material, fuels and petroleum products, hazardous materials, cleaning wastes, wastewater, concrete truck washout, and other substances from being carried from a project site by runoff or wind

POLICY (cont.)

8. Public or private roadways shall be kept cleared of accumulated sediment that is a result of runoff or tracking
9. Collected runoff leaving a project site must be either discharged directly into a well-defined, stable receiving channel, or diffused and released to adjacent property without causing an erosion or pollutant problem to the adjacent property owner
10. Natural features, including wetlands, shall be protected from pollutants associated with stormwater runoff

POLICY (cont.)

11. All storm drain inlets shall be protected against sedimentation with barriers meeting accepted criteria, standards, and specifications, or shall be equipped with temporary catch basin inserts and frequently cleaned
12. Runoff passing through a site from adjacent areas shall be controlled by diverting it around disturbed areas, where practical. Diverted runoff shall be conveyed in a manner that will not erode the channel and receiving areas. Alternatively, the existing channel may be left undisturbed or improved to prevent erosion or sedimentation from occurring
13. All disturbed ground left inactive for fifteen (15) or more days shall be stabilized by seeding, sodding, mulching, covering, or by other equivalent erosion control measures
14. Appropriate sediment control practices shall be installed prior to any land disturbance and thereafter whenever necessary

CONSTRUCTION SEQUENCING – OVERALL DEVELOPMENT

- The sequence of major construction activities in relation to the construction and maintenance of BMPs should be described in sufficient details in the construction plans submitted to the SWCD/reviewing entity for review
- The Designer should keep in mind the following general principles when developing a SWPPP and should relay these principles to the Contractor who is building the project
 1. Install perimeter protection measures prior to disturbing land upstream of such measures
 2. Do not disturb an area until it is necessary for the construction activity to proceed

CONSTRUCTION SEQUENCING – OVERALL DEVELOPMENT (cont.)

3. Cover or stabilize areas as soon as possible
4. Time the construction activities to reduce the impacts from seasonal climatic changes (precipitation and temperature)
5. Stabilize upslope areas first to protect downslope areas from the source of potential erosion
6. Remove temporary silt fence perimeter protection and inlet protection measures after all upstream areas with the limits of disturbance are stabilized
7. Most post-construction BMP measures cannot handle the sediment loads of unstabilized construction!

CONSTRUCTION SEQUENCING – INDIVIDUAL LOTS

- Construction sequence on individual lots should be as follows:
 1. Clearly field-locate areas of trees, shrubs, and vegetation that are to be undisturbed. To prevent root damage, the areas delineated for tree protection should be at least the same diameter as the crown
 2. Install perimeter silt fence at construction limits. Position the fence to intercept runoff prior to entering drainage swales

CONSTRUCTION SEQUENCING – INDIVIDUAL LOTS (cont.)

3. Avoid disturbing drainage swales if vegetation is established. If drainage swales are bare, install erosion control blankets or sod to immediately stabilize
4. Install drop inlet protection for all inlets on the property
5. Install curb inlet protection, on both sides of the road, for all inlets along the property frontage and along the frontage of adjacent lots, or install temporary catch basin inserts in each inlet and frequently clean

CONSTRUCTION SEQUENCING – INDIVIDUAL LOTS (cont.)

6. Install gravel construction entrance that extends from the street to the building pad
7. Perform primary grading operations
8. Contain erosion from any soil stockpiles created on-site with silt fence around the base
9. Establish temporary seeding and straw mulch on disturbed areas
10. Construct the home and install utilities

CONSTRUCTION SEQUENCING – INDIVIDUAL LOTS (cont.)

11. Install downspout extenders once the roof and gutters have been constructed. Extenders should outlet to a stabilized area
12. Re-seed any areas disturbed by construction and utilities installation with temporary seed mix within 3 days of completion of disturbance
13. Grade the site to final elevations
14. Install permanent seeding or sod

MAINTENANCE AND MONITORING

- The developer is responsible for proper installation and maintenance of Construction BMPs
- A trained individual must perform a written evaluation of the project site on behalf of the developer by the end of the next business day following each measurable storm event (≥ 0.5 inch) or, at least, once a week
- The trained individual must complete an evaluation report for each inspection, and the developer must keep those reports in a neat and orderly log

MAINTENANCE AND MONITORING (cont.)

- Evaluation reports must include:
 - Name of the individual performing the evaluation
 - Date of the evaluation
 - Problems identified at the project site
 - Details of maintenance, additional measures, and corrective actions recommended and completed
- The MS4 entity may randomly inspect construction sites to insure compliance and may request to review the log at any time

BMP MENU – EROSION CONTROL

- Erosion Control Measures
 - Temporary Vegetation
 - Temporary Mulch or compost
 - Temporary Seeding
 - BFM's (Bonded Fiber Matrix)
 - Rolled Erosion Control Products

BMP Menu – SEDIMENT CONTROL

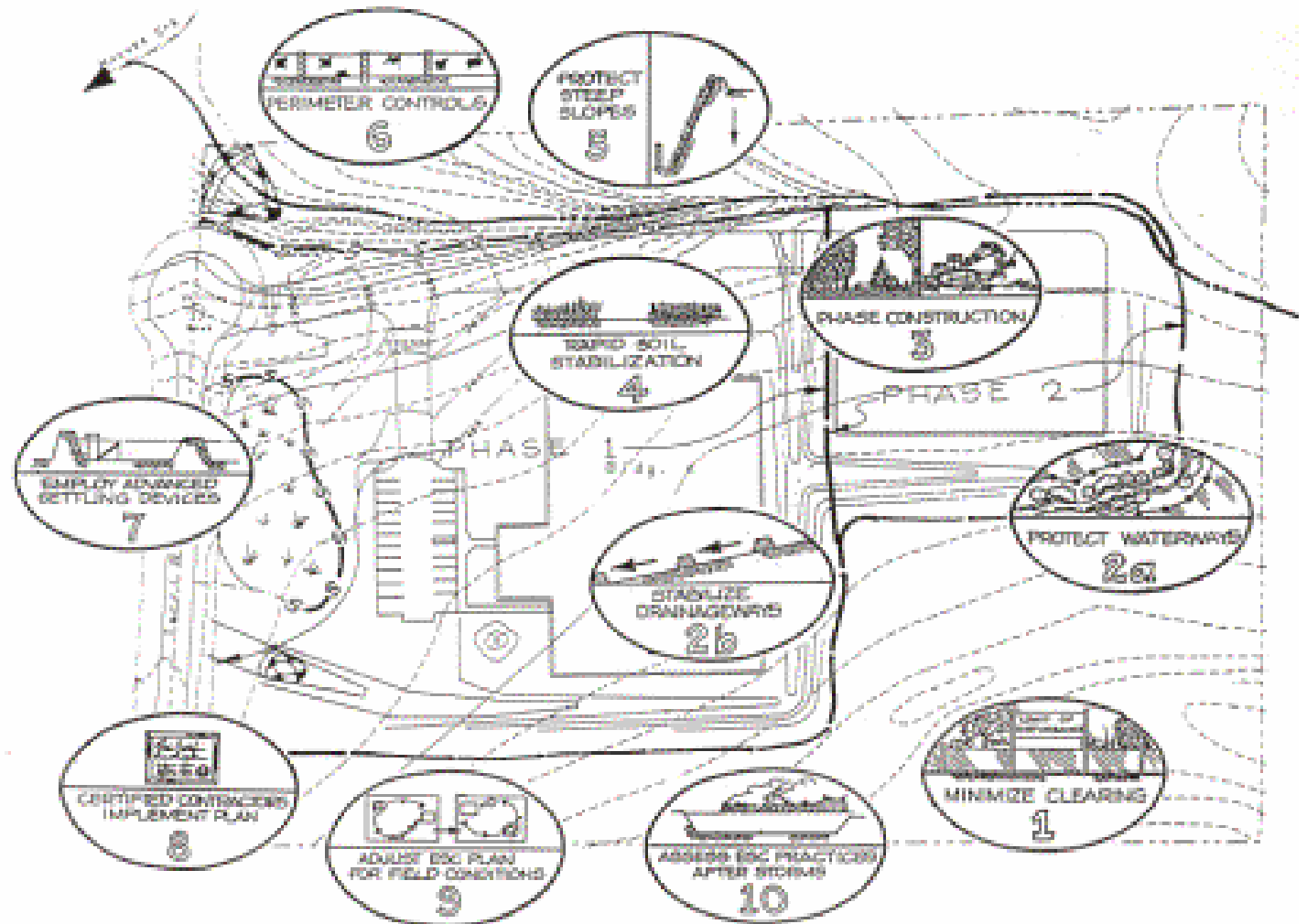
- Sediment Control Measures
 - Straw bales (Beware!)
 - Sediment basins
 - Silt fence barriers
 - Level spreaders
 - Inlet protection
 - Outlet protection
 - Vehicle tracking pad (construction entrance)
 - Rock check dam
 - Slope drains
 - Temporary stream crossing
 - Turbidity curtains

BMP Menu – OTHER

- Other controls
 - Wind and Dust Control
 - Soil Roughening
 - Perimeter barrier
 - Water trucks / water applications
 - Street sweeping
 - Spill prevention and response procedure (typically provided/developed by the Contractor)

1. Minimize Clearing
2. a. Protect Waterways
b. Stabilize drainage ways
3. Phase Construction
4. Rapid Soil Stabilization
5. Protect Steep Slopes
6. Perimeter Controls
7. Employ Advanced Settling Devices
8. Certified Contractors Implement Plan
9. Adjust Site Plan for Field Condition
10. Assess ESC Practices after Storms

10 Elements of an Effective ESC Plan



QUESTIONS

