Construction Inspection Manual

Lexington-Fayette Urban County Government
Lexington, Kentucky

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CHAPTER 13
EROSION AND SEDIMENT CONTROL

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13.1 Introduction

13.1.1 General

Erosion is the process by which the land surface is worn away by the action of water, ice, and wind. While all lands erode, not all land can be considered a source of sediment pollution. There has always been a certain amount of erosion that occurs naturally. However, erosion that occurs as a result of man's disturbances generally occurs at a much quicker rate. When left uncontrolled, erosion results in muddy roads, clogged storm sewers and ditches, and sediment filled lakes and streams.

It is not possible to conduct construction without exposing soils to erosive forces. However, it is possible to plan construction and implement control devices that will greatly reduce sediment production and off-site deposition. This deposition of eroded soil particles is called sedimentation.

13.1.2 Definitions

Best Management Practices (BMPs) - Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from material storage; with regards to construction, these may include structural devices or nonstructural practices that are designed to prevent pollutants from entering water or to direct the flow of water.

Erosion - The process by which the ground surface is worn away or detached by the action of wind, water, ice, or other geological agent, including such processes as gravitational creep.

Scour - To abrade and wear away; used to describe the wearing away of terraces, diversion channels, or streambeds.

Sediment - Any solid material, both mineral and organic that is in suspension, is being transported, or has been moved from its site or origin by air, water, or gravity as a product of erosion.

Sedimentation - The process by which eroded particles are transported to a lake, stream or river where the particles then fall out of suspension or are deposited.

Stripping - Any activity that removes or significantly disturbs the vegetation surface cover including clearing and grubbing operations.

Stormwater - Runoff from a storm event, snow melt runoff, and surface runoff and drainage.

Swale - An elongated depression in the land surface that is at least seasonally wet, is usually heavily vegetated, and is normally without flowing water.

13.2 Erosion and Sediment Control Facilities

There are a number of erosion and sediment control facilities available to reduce the amount of erosion from a construction site. In order for the facilities to function properly, the correct type of control must be selected for the given situation, and the controls must be installed and maintained properly. Erosion and sediment control practices that may be implemented on infrastructure projects are described in the LFUCG Stormwater Manual. The Inspector shall review this manual and develop a thorough understanding of the appropriate application and implementation of these practices.

Site design must also include preparation of an Erosion and Sediment Control Plan (ESCP) that is to be followed during construction to reduce soil loss and properly manage storm water. The ESCP must be prepared and accepted by LFUCG prior to construction. The requirements of an ESCP are detailed in the LFUCG Stormwater Manual.

13.3 Inspection of Erosion and Sediment Control Facilities

Erosion and sediment control are important aspects of construction that are often overlooked. The adverse impact that erosion and sedimentation from construction sites has on the environment is well documented. For this reason alone, erosion and sediment control should be considered a high priority on every infrastructure project.

Therefore, the Inspector shall inspect all disturbed areas of the project site, and the areas where materials are stored to ensure compliance with the ESCP. All erosion and sediment controls that are identified in the ESCP shall be inspected and maintained. The Inspector shall obtain a copy of the site specific ESCP and become familiar with the practices to be utilized. The Inspector shall review these documents and become familiar with the installation and maintenance procedures.

The Inspector shall confirm that sediment control facilities have been properly installed in accordance with the ESCP. Any deficiencies with respect to location or proper installation shall immediately be brought to the Contractor's attention. If the Contractor does not correct the deficiency, the Inspector shall notify the Engineer.

Maintenance of erosion and sediment control facilities is also very important for the facilities to function as designed. The ESCP should discuss maintenance procedures to be utilized by the Contractor. The Inspector shall verify that the Contractor is utilizing these procedures to maintain the facilities. Generally, this will involve checking the facilities periodically and after heavy rainfalls to verify that the facilities are working properly and are not damaged. Any erosion and sediment control devices that are damaged shall be repaired or replaced immediately. In addition, the Contractor will need to periodically remove sediment from the facilities.

In addition, the Inspector shall verify that the sequencing of the construction as outlined in the ESCP is being followed. The best practice is to limit the amount of time that the soil surface is exposed to erosion. The Contractor should not strip areas of vegetative cover long before the area is to be worked in. In addition, the Contractor shall establish vegetation in an area as soon as practical after construction in the area is complete. The Contractor must provide stabilization measures in all areas where construction activities have temporarily or permanently ceased.

The Inspector shall verify that the erosion and sediment control facilities used on the project are effectively minimizing erosion and sedimentation from the site. To do this, the Inspector shall check areas downhill or downstream from the control devices for evidences of siltation. This includes checking ditches, swales, or streams for muddy water that is obviously caused by the construction site. If the facilities are not properly preventing erosion or sedimentation, the devices should first be checked to verify that they were installed and maintained properly. If all devices are installed and maintained per the ESCP, the Contractor shall be advised and new approaches to minimize erosion and sedimentation shall be explored. This shall also be brought to the attention of the Engineer.

Lastly, to aid in the inspection and maintenance of erosion and sediment control facilities, the Inspector shall maintain an Erosion and Sediment Control Inspection and Maintenance Report Form as presented in Section 3.0. This form shall be used to record erosion and sediment control

inspections throughout the project duration. An inspection shall be performed weekly and after rainfall events.

13.4 References

13.4.1 Publications

Stormwater Manual, Lexington-Fayette Urban County Government, Draft, 1998.

Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices, United States Environmental Protection Agency, September 1992.

Kentucky Best Management Practices for Construction Activity, Division of Conservation and Division of Water, Natural Resources and Environmental Protection Cabinet, August 1994.

Zoning Ordinance, Lexington-Fayette Urban County Government, Current Edition.

Land Subdivision Regulations, Lexington-Fayette Urban County Government, Current Edition.

Construction Inspection Guidance Manual, Louisville and Jefferson County Metropolitan Sewer District (MSD), Revised Edition, May 1993.

13.5 Erosion and Sediment Control Facilities Inspection Check List

	Yes	No	N/A	
(1)	____	____	_____	Has a copy of the Erosion and Sediment Control Plan (ESCP) been obtained and has it been reviewed?
(2)	____	____	_____	Does the ESCP appear to match site conditions?
(3)	____	____	_____	Is the Contractor implementing control practices in accordance with the ESCP?
(4)	____	____	_____	Is the Contractor following the construction sequence outlined in the ESCP?
(5)	____	____	_____	Are proper maintenance practices being followed?
(6)	____	____	_____	Do the control practices appear effective?
(7)	____	____	_____	Is siltation of the receiving waters occurring?