

Section 50: Storm Water Management and Erosion Control Guidelines

SECTION 50:

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50.01 Purpose: The purpose of this Section is to establish standards for soil erosion and sediment control so as to protect the environment and neighboring properties from negative effects of land alteration operations and to promote the safety and general welfare of the public by establishing minimum requirements and conditions for land alteration operations. The following standards shall apply to all development and activity that necessitates the grading, stripping, cutting, filling, or exposure of soils.

50.02 Introduction. This outlines the city's expectations for proposed and ongoing construction projects within the city limits with regards to storm water management and erosion control. In broad terms, this document intends to be a "Best Management Practices" Plan.

50.03 Storm Water Management. These guidelines serve as an outline for the city's requirements of all construction projects with regards to storm water. It does not intend to list all specific technical expectations. These requirements will be dealt with at the time of plan review. This section has two divisions. One will deal with *reconstruction* projects and the other with *new construction*. Reconstructions shall be defined as projects that improve existing infrastructure. All other proposed construction shall be considered "new construction."

Subd. 1. Reconstruction Projects. Storm water modeling, using "the Rational Method" will be required. These models will be used to determine inlet capacity requirements and pipe sizes. If the project's storm sewer discharges into an existing system (pipe, ponds, ditches, etc.), Rational Method results will be used to analyze the effect on that system. The proposed construction should not overburden an existing system.

In general, reconstruction projects should result in a net improvement in the storm water management for the affected area.

Subd. 2. New Construction Projects. Storm water modeling will be required for new construction as well. Due to the large variance in modeling systems, the city will require certain methods be used.

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For storm water quality, the National Urban Runoff Program (NURP) standards shall be enforced. These standards are subject to modifications. Recently, NURP standards for pond wet volumes were increased from a 2-inch event to a 2.5-inch rainfall event.

Rate control in storm water systems shall also be analyzed through modeling. Technical Release No. 55 (TR-55) of the Natural Resource Conservation Service (NRCS) will be the standard for hydrological data. Hydraulic analysis shall be completed using computer models such as XP SWIM or HydroCAD.

Attention should also be paid to the inlet capacity of the storm sewer system. Properly designed systems will be designed to handle 10 year events system wide and 100 year events at low points and critical drainage areas. The use of Emergency-Over-Flows (EOF) will be required unless special circumstances exist. In this case structures will require protection from back to back 100 year events.

Ponds shall also be designed to NURP standards. These standards address issues such as maintenance accessibility, plant species propagation, slopes, and soil types. The city will also require that the pond be constructed to allow for perpetual maintenance. Grading plans shall allow proper building setbacks from ponds to avoid large retaining walls. Ponds should be designed to be aesthetically pleasing. This may require the addition of trees, shrubs, or other vegetation.

All new construction should be designed and constructed to minimize the impact on adjacent properties. Existing, natural drainage patterns shall be maintained or improved to reduce runoff leaving the site.

Grading plans need to address lot-to-lot drainage within the development. Lots that shed a significant portion of their water to another lot are not desirable. Drainage swales between lots and intended drainage patterns should be called out on the plan.

At the time of project acceptance, ponds and storm sewers shall be clean and free of sediment.

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50.04 Erosion Control General Standards.

- Subd. 1.** The development shall conform to the natural limitations presented by topography and soil so as to create the least potential for soil erosion.
- Subd. 2.** Erosion and siltation control measures shall be coordinated with the different stages of development. Appropriate control measures shall be installed prior to development when necessary to control erosion.
- Subd. 3.** Land shall be developed in increments of workable size such that adequate erosion and siltation controls can be provided as construction progresses. The smallest practical area of land shall be exposed at any one period of time.
- Subd. 4.** The drainage system shall be constructed and operational as quickly as possible during construction.
- Subd. 5.** Whenever possible, natural vegetation shall be retained and protected.
- Subd. 6.** Where the topsoil is removed, sufficient arable soil shall be set aside for respreading over the developed area. The soil shall be restored to a depth of 4 inches and shall be of a quality at least equal to the soil quality prior to development.
- Subd. 7.** When soil is exposed, the exposure shall be for the shortest feasible period of time. No exposure shall be planned to exceed 60 days. Said time period may be extended only if the City Engineer is satisfied that adequate measures have been established and will remain in place.
- Subd. 8.** The natural drainage system shall be used as far as is feasible for the storage and flow of runoff. Storm water drainage shall be discharged to marshlands, swamps, retention basins, and other treatment facilities. Diversion of storm water to marshlands or swamps shall be considered for existing or planned surface drainage. Marshlands and swamps used for storm water shall provide for natural or artificial water level control. Temporary storage areas or retention basins scattered throughout developed areas shall be encouraged to reduce peak flows, erosion damage, and construction cost.

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50.05 Erosion Control Guidelines. This section has three divisions. For each division, the goal is the same: effectively control erosion to conserve topsoil and protect downstream water bodies from sedimentation.

Subd. 1. Construction Projects. All construction plans shall have an erosion control plan. This plan details, among other things, the placement of silt fence, hay bales, and other erosion control devices as well as areas and methods of turf restoration.

All construction projects that disturb more than one acre shall review the requirements on a National Pollution Discharge Elimination System (NPDES) permit. Those projects that fall under the NPDES guidelines shall be responsible for meeting the storm water management requirements of the permit. An NPDES permit also requires the maintenance of erosion control measures throughout construction. For example, silt fence must be inspected and repaired where necessary on a regular basis and after storm events. The city will require that all erosion control measures be maintained regardless of the necessity of a NPDES permit.

The most effective means of erosion control is through turf establishment. All construction projects shall have provisions for turf establishment, both temporary and permanent.

Upon turf establishment, the contractor shall be responsible for removing temporary erosion control measures such as silt fence and hay bales.

Subd. 2. Homebuilders. Building permit requirements for erosion control are outlined in a notice given out by the city with every building permit. The applicant is required to sign this notice, verifying they have read and understood the requirements. The building inspector will continue to conduct erosion control inspections prior to framing. After framing has begun, the city's erosion control inspector will assist the building inspector in assuring that erosion control measures are properly maintained. Stop work orders will be issued to homebuilders not responding to the notice of violation of the building permit requirements for erosion control in the allotted time frame.

Occupancy permits will be granted after turf has been established at a rate of 70% coverage or upon submittal of documentation for a turf establishment escrow. This escrow should be created at a local bank

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in the amount of \$750.00 and will be released upon turf establishment (again defined by 70% coverage). If turf has not been established within 8 months of issuance of the occupancy permit, the city will arrange for the completion of turf establishment and draw funds from the escrow to pay for the work.

Subd. 3. Residential. Residents living in the city are also responsible for erosion control on their properties regardless of whether or not a construction project is underway. Turf maintenance is the best way for individual residents to help prevent erosion. Residents must also be in conformance with mowing setback ordinances and must obtain land alteration permits prior to changing drainage patterns on their property.