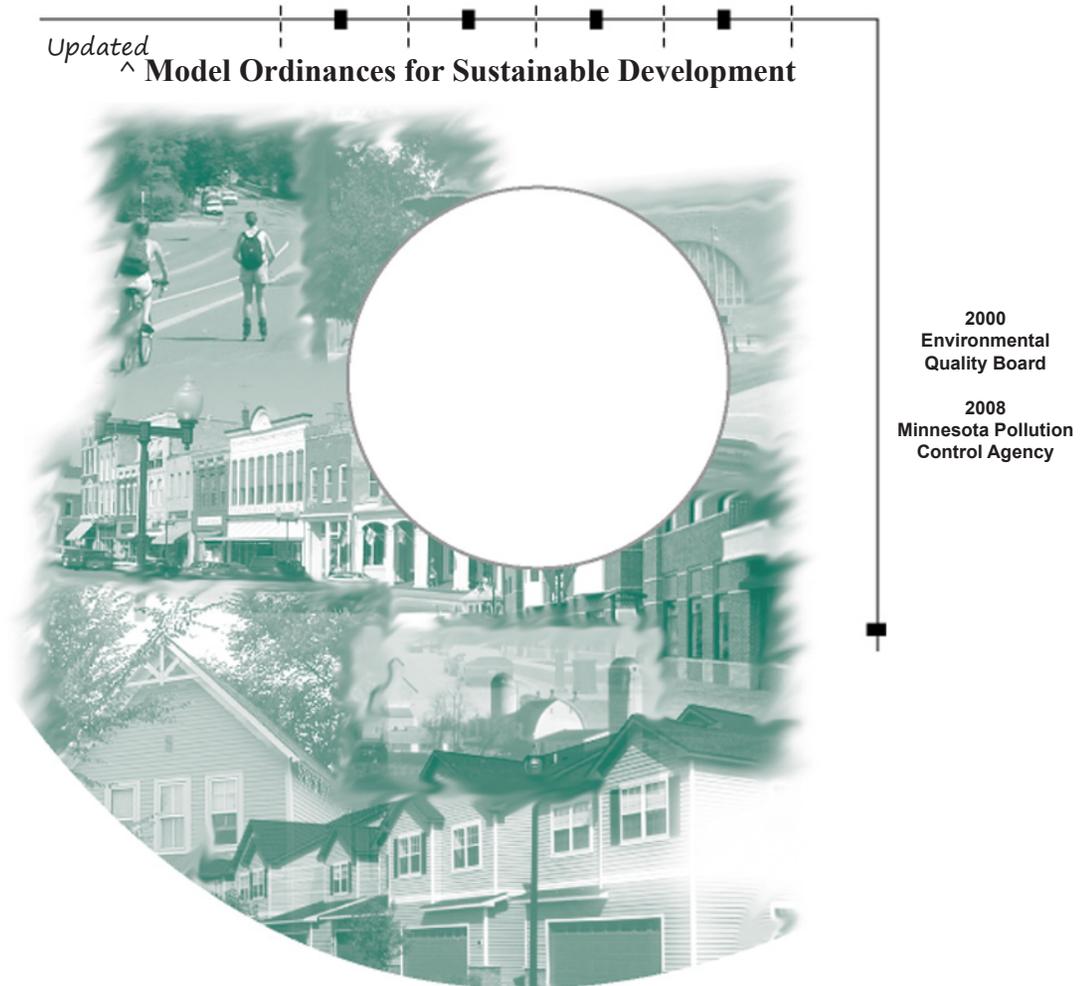


## From Policy to Reality



Primary Authors:



Brian Ross



Diane Desotelle



Jay Michels

Project Coordinator:



## INTRODUCTION

### Background

Nonpoint pollution (i.e. sediment, nutrients, toxics, thermal stress, debris) from stormwater is the number one pollution problem in the nation. Entire watersheds are degraded by stormwater runoff and erosion and sedimentation when Best Management Practices (BMPs) are not installed and maintained properly. Nonpoint pollution is intermittently regulated and threatens the quality of our water resources. Runoff from construction projects is by far the largest source of sediment in areas under development. Another major source of sediment is streambank erosion, which is accelerated by increases in peak runoff rates and increased water volume due to urbanization. Regulation of stormwater and control of erosion and sediment go hand-in-hand in the protection of water quality and quantity. In addition, federal and state rules require that communities manage stormwater and ensure erosion and sediment control under the National Pollution Discharge Elimination System (NPDES) program. Implementation of the NPDES standards, through effective regulation, incentives, and education, offer communities an opportunity to protect the environment, the economy, and the social values in the community.

Through regulation of stormwater, erosion, and sedimentation, communities can enhance and protect water resources. Stormwater control consists of BMPs and permanent infrastructure to retain runoff rates and volumes at or under the pre-development runoff rates and volumes. Management practices include design standards to reduce impervious surfaces and enhance infiltration, treatment of stormwater runoff for water quality, and discharging stormwater runoff at pre-development runoff rates.

Erosion control consists of BMPs designed to intercept precipitation and prevent soil particles from moving. Management practices that prevent erosion include construction staging, protecting existing vegetation, and tracking of disturbed slopes. Products designed for this include straw, mulch, ground covers, fiber blankets, hydro-seeding, etc. Sediment control consists of BMPs designed to capture soil particles after they have been dislodged and have begun to be carried away from the site. Products designed for this include silt fences, check dams, sedimentation ponds, and similar devices.

Local governments are critical to enforcing stormwater and erosion and sediment control regulation because state and federal agencies simply cannot track the development activities happening to the landscape on a day-to-day basis. Local governments keep track of local development through the building code, development ordinances, tax valuations, and general protection of health, safety, and welfare. Many communities have some form of stormwater performance standards and permitting processes in place. Analysis of our surface and ground water shows, however, that these standards frequently fail to protect water quality. More and more of

### Credits

*This model ordinance was developed from a combination of other state-of-the-art language in stormwater and erosion and sediment control rules, ordinances, and plans. In particular we would like thank and give credit to the following:*

- *Minnesota Pollution Control Agency National Pollution Discharge Elimination System (NPDES) Construction Permit and Model Ordinance;*
- *Ramsey-Washington Metro Watershed District's Water Plan and Rules;*
- *State of Wisconsin's NR151 legislation;*
- *Waukesha County Wisconsin's Stormwater and Erosion and Sediment Control Ordinance;*
- *Dane County, Wisconsin's Stormwater Ordinance;*
- *Nonpoint Education for Municipal Officials (NEMO) model ordinance for stormwater and erosion and sediment control;*
- *Center for Watershed Protection;*
- *Minnesota Forest Resources Council Voluntary Site-Level Forest Management Guidelines.*

Minnesota's lakes, rivers, and streams are being designated as impaired. As communities incorporate new permitting requirements into local regulation, they can take the opportunity to address specific local considerations and priorities in managing stormwater, erosion and sedimentation.

### **Concepts for Stormwater and Erosion and Sediment Regulation**

The following key concepts are emphasized in this model ordinance:

- Providing standards for managing the velocity and volume of runoff;
- Maximizing infiltration given the variety of soil types, topographies, and extent of existing development;
- Adapting standards and regulations for cold weather climates;
- Using buffers and vegetative management to treat stormwater runoff on-site;
- Regulating the amount and types of impervious surfaces;
- Scheduling land disturbing activities to prevent erosion and sedimentation; and
- Maintaining soil stability through effective use of BMPs;
- Implementing a cost effective inspection, maintenance, and enforcement program.

Building upon the requirement of the Minnesota Pollution Control Agency's (MPCA) NPDES General Permit, this model ordinance provides alternative language and recommendations explaining how stormwater and erosion and sediment control regulation can be implemented and enforced in different local government settings when land disturbing activities take place.

### **LEED - Neighborhood Design Certification**

The annotation includes references to the Leadership in Energy and Environmental Design (LEED) Neighborhood Design (ND) standards. The LEED process is a third party certification of high quality environmental design for buildings that is developed under national peer review of architects, engineers and planners, and codified for certification. The Neighborhood Design standard, which will become final in 2009, goes beyond certifying environmental performance of buildings within a development by considering how the development relates to its landscape and nearby urban systems. Those stormwater management concepts and standards that are consistent with or are likely to exceed specific LEED-ND standards are noted periodically throughout the ordinance.

### **Non-Urban Stormwater Issues**

Finally, virtually all of the language here considers primarily the impacts of development, and primarily for cities or rural subdivisions. Non-urban runoff, primarily agricultural, is also a water quality issue in Minnesota, although it is exempt from much of the NPDES regulation. Many counties address agricultural runoff through programmatic efforts such as education and cost-sharing efforts of county soil and water conservation districts and the U.S. Natural Resources Conservation Service.

## I. Authorization, Findings, Purpose and Scope

- A. **Statutory Authorization** - This ordinance is adopted pursuant to the authorization and policies contained in Minnesota Statutes Chapters 103B, 105, 462, and 497, Minnesota Rules, Parts 6120.2500-6120.3900, and Minnesota Rules Chapters 8410 and 8420. This ordinance is intended to meet the current construction site erosion and sediment control and post-construction stormwater management regulatory requirements for construction activity and small construction activity (NPDES Permit) as defined in 40 CFR pt. 122.26(b)(14)(x) and (b)(15), respectively.
- B. **Findings** - The community finds that uncontrolled stormwater runoff and construction site erosion from land development and land disturbing activity can have significant adverse impacts upon local and regional water resources diminishing the quality of public health, safety, public and private property and natural resources of the community. Specifically, uncontrolled soil erosion and stormwater runoff can:
1. Threaten public health, safety, property, and general welfare by increasing runoff volumes and peak flood flows and overburdening storm sewers, drainage ways and other storm drainage systems;
  2. Diminish the capacity of lakes and streams to support fish, aquatic life, recreational and water supply uses by increasing pollutant loadings of sediment, suspended solids, nutrients, heavy metals, bacteria, pathogens and other urban pollutants;
  3. Degrade physical stream habitat by increasing stream bank erosion, increasing stream bed scour, diminishing groundwater recharge, diminishing stream base flows and increasing stream temperatures;
  4. Undermine floodplain management efforts by increasing the incidence and levels of flooding;
  5. Alter wetland communities by changing wetland hydrology and increasing pollutant loads;
  6. Impact groundwater by reducing recharge and increasing potential pollutant loading; and
  7. Generate airborne particulate concentrations that are health threatening or may cause other damage to property or the environment.
- C. **Purpose** - The general purpose of this ordinance is to establish regulatory requirements for land development and land disturbing activities aimed at minimizing the threats to public health, safety, public and private property and natural resources within the community from construction site erosion and post-construction stormwater runoff.

*Stormwater management and erosion and sediment control go hand-in-hand to the point where the most effective ordinance and more easily administered ordinance is one that combines the two components. The purpose for this model ordinance is to 1) identify when and how land disturbing activities will require a permit, including a Stormwater Pollution Prevention Plan (SWPPP) that will meet performance standards to protect the watershed within the development from water quality degradation and flooding potential and 2) identify enforcement procedures regarding the permit.*

*The requirements within this ordinance are one component for providing for Low Impact Development (LID). Many LID techniques are included as a part of this ordinance, however, LID also includes streetscape design, density alternatives, open space preservation, etc. Together this and other ordinances will help a community move toward sustainability. For information on the stormwater approach to LID visit the Minnesota Pollution Control Agency (MPCA) website at <http://www.pca.state.mn.us/water/stormwater/stormwater-lid.html>.*

*IMPORTANT NOTE: Throughout this model ordinance there are links to the associated MPCA National Pollution Discharge Elimination System General Permit for Construction Activity (NPDES Permit) included as Appendix I. The NPDES Permit should be included as an appendix to the ordinance adopted by your community because the language within the NPDES Permit is part and parcel of this model ordinance. The NPDES Permit language that is linked to the ordinance provides the additional details for performance criteria and standards.*

### **NPDES Permit Standards**

*The NPDES Permit is located in Appendix I of this ordinance. The Permit sets out the State of Minnesota's minimum requirements. The minimum requirements do not, however, meet all the sustainability goals for many community comprehensive plans, nor do the minimum standards necessarily recognize the particular challenges of stormwater management and erosion control in certain geographic areas of the state. This ordinance includes requirements that go above and beyond the NPDES Permit in an effort to help the community better sustain their natural resources.*

### **One Acre Disturbance**

*The threshold set in subsection II.A.1, of one acre of disturbance, is consistent with the threshold for the NPDES Permit (Appendix I). Within the subwatershed of a special or impaired water, agricultural land preservation area, County Biological Survey site, or other officially designated natural resource areas, a more restrictive threshold may be appropriate. Particularly in urban areas, which have a much higher percentage of total impervious surface and extensive conveyance systems, the community may set a smaller threshold, sometimes as small as 10,000 square feet.*

Specific purposes are to establish performance standards that will:

1. Protect life and property from dangers associated with flooding;
2. Protect public and private property and the natural resources from damage resulting from stormwater runoff and erosion;
3. Ensure the annual stormwater runoff rates and volumes from post development site conditions mimic and/or reduce the annual runoff rates and volumes from predevelopment site conditions;
4. Ensure site design minimizes the generation of stormwater and maximizes pervious areas for stormwater treatment;
5. Promote regional stormwater management by watershed;
6. Provide a single, consistent set of performance standards that apply to all developments;
7. Protect water quality from nutrients, pathogens, toxics, debris, and thermal stress;
8. Promote infiltration and groundwater recharge;
9. Provide vegetated corridors (buffers) to protect water resources from development;
10. Protect functional values of all types of natural waterbodies (e.g., rivers, streams, wetlands, lakes, seasonal ponds); and
11. Sustain or enhance biodiversity (native plant and animal habitat) and support riparian ecosystems.

D. **Scope** - No person shall develop any land for residential, commercial, industrial, or institutional uses without having provided stormwater management measures that control or manage stormwater runoff from such developments.

II. **Applicability** - This ordinance requires that a Stormwater Pollution Prevention Plan or an Erosion Control Plan be completed, submitted for Model Community review, and approved by Model Community. Applicants will complete either a SWPPP or an ESC, but not both, as described in Sections A and B.

A. **Stormwater Management** - An approved **Stormwater Management Permit** including a **Stormwater Pollution Prevention Plan (SWPPP)** shall be required prior to any proposed land development activity, unless otherwise exempted in this ordinance, that meet, any of the following:

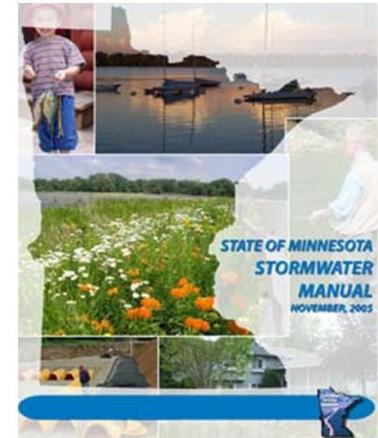
1. Any land development activity that may ultimately result in the disturbance of one or more acres of land, including smaller individual sites that are part of a common plan of development that may be constructed at different times;

2. A subdivision plat;
3. The construction of any new public or private road; or
4. Any land development activity, regardless of size, that the community determines is likely to cause an adverse impact to an environmentally sensitive area or other property.
5. The SWPPP shall identify measures to control or manage runoff and erosion from the proposed land disturbance, both during construction and after final stabilization of the site. No building permit, subdivision approval, or permit to allow land disturbing activities shall be issued until approval of this SWPPP by the Minnesota Pollution Control Agency and Model Community. All SWPPPs shall be consistent with NPDES permit requirements, and the filing or approval requirements of other regulatory bodies.

- B. **Erosion and Sediment Control** - An **Erosion and Sediment Control (ESC) Permit** including an **Erosion and Sediment Control Plan** shall be required to all proposed land disturbing activity, unless otherwise exempted in this ordinance, that meets any or all of the following:
1. Disturbs a total land surface area of 3,000 square feet or more; or
  2. Involves excavation or filling, or a combination of excavation and filling, in excess of 400 cubic yards of material; or
  3. Involves the laying, repairing, replacing, or enlarging of an underground utility, pipe or other facility, or the disturbance of road ditch, grass swale or other open channel for a distance of 300 feet or more; or
  4. Is a land disturbing activity, regardless of size, that the community determines is likely to cause an adverse impact to an environmentally sensitive area or other property, or may violate any other erosion and sediment control standard set forth in this ordinance.
- C. **Design Manual** - All stormwater mitigation and management technologies shall be consistent with a community approved Stormwater Management Design Manual (Design Manual).
- D. **Regional Scale** - This ordinance regulates stormwater discharges throughout the community and may be applied on a site-by-site basis, however, if the community's preferred method of achieving these stormwater performance standards is through their specific stormwater plan on a municipal and/or regional scale then this plan may prescribe regional stormwater devices, practices or systems, any of which may be designed to treat runoff from more than one site prior to discharge to waters of the state.

**Other Regulatory Bodies**

*Subsection 5 makes reference to other regulatory bodies. This includes Watershed Districts, Watershed Management Organizations, Ditch Authorities, and/or other regulatory authorities that may have review or approval powers regarding how a development affects water quality or natural resources. Rather than make a general reference, communities should list the specific names of these agencies which overlap with Model Community's regulatory authority.*



**Design Manual**

*The Design Manual is the compilation of design, performance, and review criteria approved by the community and adopted by the governing body for stormwater management practices. Some communities develop their own, but many are using the Minnesota Stormwater Manual (Nov. 2005). The manual can be found at <http://www.pca.state.mn.us/water/stormwater/stormwater-manual.html>.*

### ***Routine Agricultural Activity***

*Section III.A provides an exception for routine agricultural activities. Agricultural activities may well require stormwater and erosion and sediment control management to protect water quality. If this is case, the community should consider adding a provision for this activity to be permitted, or to link the regulation to an existing program promoting agricultural BMPs. Many soil and water conservation districts in Minnesota administer programs for encouraging agricultural BMPs.*

### ***Silvicultural Activity***

*Forestry and timber harvest practices are exempt from NPDES permits, but also pose significant risks to water quality if appropriate practices are not used. Such silvicultural activities may well require stormwater and erosion and sediment control management. The community should consider adding a provision for this activity to either be permitted or to require that the applicant follow the Minnesota Forest Resources Council - Voluntary Site-Level Forest Management Guidelines (<http://www.frc.state.mn.us/>).*

### ***Definitions***

*This section does not include definitions, due to the large number of terms that communities may wish to define. A compilation of definitions is provided in Appendix I of this model ordinance as part of the NPDES Permit.*

**III. Exemptions** - The following activities shall be exempt from all of the requirements of this ordinance:

- A. **Emergency Work to Protect Life, Limb, or Property**
- B. **Routine Agricultural Activity** - tilling, planting, harvesting, and associated activities. Other agricultural activities are not exempt and including activities such as feedlots, storage sheds.
- C. **Silvicultural Activity**

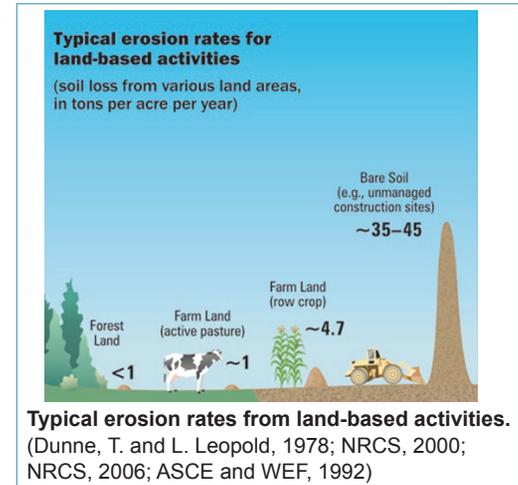
**IV. Definitions** - Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the same meaning as they have in common usage and to give this ordinance its most reasonable application. For the purpose of this ordinance, the words “must” and “shall” are mandatory and not permissive. All distances, unless otherwise specified, shall be measured horizontally. As used in this ordinance, the following words and terms shall have the meanings ascribed to them in this Section (Appendix I of the Construction Permit).

**V. Stormwater and Erosion and Sediment Control Specifications**

- A. **Stormwater Criteria** - Site plans for new development of any kind will be assessed for stormwater quantity control and stormwater quality management. The general policy on stormwater runoff rates is to protect surface and ground water and other natural resources by maintaining pre-development hydrological conditions in the following ways:
  - 1. Decrease runoff volume
  - 2. Decrease erosion and sedimentation
  - 3. Decrease flow frequency, duration, and peak runoff rates
  - 4. Increase infiltration (groundwater recharge)
  - 5. Maintain existing flow patterns
  - 6. Reduce time to peak flows by increasing the time of concentration to and through storm sewers
  - 7. Storage of stormwater runoff on-site
  - 8. Avoid channel erosion

- B. **Erosion and Sediment Control Criteria** - Site plans for development any kind will be assessed for effective erosion and sediment control in the following ways:
1. Minimize disturbance of natural soil cover and vegetation
  2. Minimize, in area and duration, exposed soil and unstable soil conditions
  3. Protect receiving water bodies, wetlands and storm sewer inlets
  4. Protect adjacent properties from sediment deposition
  5. Minimize off-site sediment transport on trucks and equipment
  6. Minimize work in and adjacent to waterbodies and wetlands
  7. Maintain stable slopes
  8. Avoid steep slopes and the need for high cuts and fills
  9. Minimize disturbance to the surrounding soils, root systems and trunks of trees adjacent to site activity that are intended to be left standing
  10. Minimize the compaction of site soils

- C. **SWPPP Requirements** - The minimum information requirements of the SWPPP shall be consistent with the most recent version of the NPDES Permit requirements including all the following information:
1. Project name and type (residential, commercial, industrial, road construction, or other);
  2. Project location;
  3. County parcel identification number (legal description);
  4. Names and addresses of the record owner, developer, land surveyor, engineer, designer of the plat, and any agents, contractors, and subcontractors who will be responsible for project implementation;
  5. Estimated start date, time frames and schedules for each construction phase, and completion date;
  6. Copies of permits or permit applications required by any other governmental entity or agencies including mitigation measures required as a result of any review for the project (e.g. wetland mitigation, EAW, EIS, archaeology survey);
  7. **Existing (Predevelopment) Conditions** - An existing site map and calculations, signed by a certified professional drawn to a legible scale and clearly labeled with a north arrow and date of preparation. In addition, the following information is required at a minimum;



**SWPPP Information Requirements**

*If the proposed activity requires a subdivision permit, much of the information will also be required in the subdivision application. Under this ordinance all subdivisions require SWPPPs - the community should ensure that the information requirements in the subdivision ordinance matches those noted here.*

### **Special and Impaired Waters**

*Section 7.g. refers to the current list of special and impaired waters. Minnesota's Special Waters list can be found at:*

*(<http://www.pca.state.mn.us/publications/wq-strm1-05.pdf>)*

*Every two years the 303(d) list of impaired waters is updated by the MPCA. The most recent listing of impaired waters in Minnesota can be found at:*

*(<http://www.pca.state.mn.us/water/tmdl/tmdl-303dlist.html>)*

### **LEED - ND Standard**

*The definition of a steep slope (12% slope) with appropriate protection under the performance standards (Section IV) should meet or exceed the SLL Steep Slope Protection requirement for LEED Neighborhood Design certification.*

### **Bluff Areas**

*7.k. requires identifying all bluffs. The percent slope defining a bluff ranges from 18 - 30%, depending on the type of topographic and natural features in the community. Bluffs in shoreland areas are defined under the State rules as having a run (horizontal length) of 50 feet, including 25 feet of 30% or more and all contiguous areas of 18% or greater.*

- a. **Project Map** - An 8.5 by 11 inch United States Geological Survey (USGS) 7.5 minute quad, aerial photo, or equivalent map indicating site boundaries and existing elevations.
- b. Property lines and lot dimensions
- c. Existing zoning classifications for land within and abutting the development, including shoreland, floodway, flood fringe, or general floodplain, and other natural resource overlay districts.
- d. All buildings and outdoor uses including all dimensions and setbacks
- e. All public and private roads, interior roads, driveways and parking lots
- f. Identify all natural and artificial water features (i.e., stormwater ponds, drain tiles) on site and within one (1) mile of project boundary, including, but not limited to lakes, ponds, streams (including intermittent streams), wetlands, and ditches. Show ordinary high water marks of all navigable waters, 100-year flood elevations and delineated wetland boundaries, if any. If not available, appropriate flood zone determination or wetland delineation, or both, may be required at the applicant's expense.
- g. Identify all special waters and impaired waters as identified in the most recent listing by the MPCA that receive runoff from the project within one mile of the project.
- h. Map of watershed drainage areas
- i. Map of soil types, infiltration rates, depth to bedrock, and depth to seasonal high water table
- j. Steep slopes where areas of 12% or more existing over a distance for 50 feet or more
- k. Bluff areas where the slope rises at least 25 feet above the toe of the bluff and the grade of the slope from the toe of the bluff to a point 25 feet or more above the toe of the bluff averages X% or greater.
- l. Wooded areas and/or provide a tree survey as defined by the community
- m. Agricultural land preservation area(s), County Biological Survey sites, or other officially designated natural resource areas
- n. Hydrologic calculations for total runoff volume and peak discharge rates by subwatershed, for the 1.0-yr 24-hour storm event, 2.0-yr 24-hour storm event, 10-yr 24-hour storm event, and 100-yr 24-hour storm event or the 100-year 10-day snowmelt, whichever is greater. These shall include:
  - i. Assumed runoff curve numbers
  - ii. Time of concentration used in calculations
  - iii. Pre-existing total runoff volume and peak discharge rates

- iv. If a flood insurance study has been done by the National Flood Insurance Program, the 100-year flood elevation with and without the floodway.
  - o. Bankfull discharge rate of creek, stream, or river if there is a water course on the site or if the site discharges directly to the water course.
8. **Construction and Post Construction Conditions**
- a. Maps identifying areas discussed in 7.a through 7.n above
  - b. Location, size, and approximate grade of proposed public sewer and water mains
  - c. Elevations, sections, profiles, and details as needed to describe all natural and artificial features of the project
  - d. Hydrologic calculations for total runoff volume and peak discharge rates by subwatershed, for the 1.0-yr 24-hour storm event, 2.0-yr 24-hour storm event, 10-yr 24-hour storm event, and 100-yr 24-hour storm event or the 100-year 10-day snowmelt, whichever is greater. These shall include:
    - i. Assumed runoff curve numbers
    - ii. Time of concentration used in calculations
    - iii. Total amount of new impervious surfaces created by the project
    - iv. Post construction total runoff volume and peak discharge rates with no detention
    - v. Post construction total runoff volume and peak discharge rates with detention
  - e. If a flood insurance study has been done by the National Flood Insurance Program, the 100-year flood elevation with and without the floodway, flood fringe, and/or general flood boundary, if available.
  - f. Locations of all stormwater management practices, infiltration areas, and areas not to be disturbed during construction.
  - g. Drain tiles on the project site shall be identified and rendered inoperable.
  - h. Location and engineered designs for structural stormwater management practices including stormwater treatment devices that remove oil and floatable material (e.g., basin outlets with submerged entrances).
  - i. Normal water level, high water level, and emergency overflow elevations for the site and all ponding systems.

**Bankfull Discharge**

*Bankfull discharge is the flow rate (approximately the 1.5-year recurrence interval) at which a channel defines its' meander pattern. When the discharge rate to a channel increases due to increased runoff rates and volumes, the channel meander pattern will change in an effort to re-define the change in flow rates and volumes, causing undo erosion and sedimentation to the channel and receiving waterbodies. The 1 and 2 year, 24-hour storm calculations are required in order to make sure that post development flows sustain the channel pattern of the nearby creek or stream.*

- j. For discharges to cold water resources, a description and plans to control temperature from stormwater runoff.
  - k. Location of areas where construction will be phased to minimize duration of exposed soil areas. Include map and calculations as necessary of areas of grubbing, clearing, tree removal, grading, excavation, fill and other disturbance; areas of soil or earth material storage; quantities of soil or earth material to be removed, placed, stored or otherwise moved on site, and delineated limits of disturbance.
  - l. Location and type of all temporary and permanent erosion prevention, sediment control, stormwater runoff, and soil stabilization BMPs along with procedures to be used to establish additional temporary BMPs as necessary for the site conditions during construction. Standard plates and/or specifications for the BMPs used on the project must be included in the final plans and specifications for the project. Location and design of temporary sediment basins where 10 acres or more (5 acres or more for special or impaired waters) are disturbed and drained to a single point. When site restrictions do not allow for a temporary sediment basin or less than the required acreage is being developed, temporary sediment basins where appropriate are encouraged, but not required in areas with steep slopes or highly erodible soils or to take equivalent measures such as smaller basins, check dams, and vegetated buffer strips.
  - m. An estimate of the quantities tabulation must be included for all erosion prevention and sediment control BMPs in the SWPPP.
  - n. Methods to be used for final stabilization of all exposed soil areas.
- 9. All proposed stormwater practices, hydrologic models, and design methodologies shall be reviewed by community and certified for compliance by the community in accordance with their plans and specifications.
  - 10. A long term maintenance plan and schedule for all permanent stormwater practices along with the identity of the party responsible for the maintenance of the project.
  - 11. A snow management plan identifying where and how snow will be stored/removed in order to protect stormwater facilities and BMPs.
- D. **ESC Plan Requirements** - The minimum requirements of the ESC Plan shall be consistent with the most recent version of the NPDES Permit requirements including:
- 1. Project name and type (residential, commercial, industrial, road construction, or other);
  - 2. Project location;
  - 3. County parcel identification number (legal description);
  - 4. Names and addresses of the record owner, developer, land surveyor, engineer, designer of the plat, and any agents, contractors, and subcontractors who will be responsible for project implementation;
  - 5. Estimated start date, time frames and schedules for each construction phase, and completion date;

6. Copies of permits or permit applications required by any other governmental entity or agencies including mitigation measures required as a result of any review for the project (e.g. wetland mitigation, EAW, EIS, archaeology survey);
7. **Existing (Predevelopment) Conditions** – An existing site map and calculations, drawn to a legible scale and clearly labeled with a north arrow and date of preparation. In addition, the following information is required at a minimum;
  - a. **Project Map** – An 8.5 by 11 inch United States Geological Survey (USGS) 7.5 minute quad, aerial photo, or equivalent map indicating site boundaries and existing elevations.
  - b. Property lines and lot dimensions
  - c. Existing zoning classifications for land within and abutting the development, including shoreland, floodway, flood fringe, or general floodplain, and other natural resource overlay districts.
  - d. All buildings and outdoor uses including all dimensions and setbacks
  - e. All public and private roads, interior roads, driveways and parking lots
  - f. Identify all natural and artificial water features (i.e., stormwater ponds, drain tiles) on site and within one (1) mile of project boundary, including, but not limited to lakes, ponds, streams (including intermittent streams), wetlands, and ditches. Show ordinary high water marks of all navigable waters, 100-year flood elevations and delineated wetland boundaries, if any. If not available, appropriate flood zone determination or wetland delineation, or both, may be required at the applicant's expense.
  - g. Identify all special waters and impaired waters as identified in the most recent listing by the MPCA that receive runoff from the project within one mile of the project.
  - h. Location of drainage areas
  - i. Steep slopes where areas of 12% or more existing over a distance for 50 feet or more
  - j. Bluff areas as defined in Model Community's Shoreland Ordinance or general development standards, whichever is applicable.
  - k. Wooded areas and/or tree survey as defined by the community
  - l. Agricultural land preservation area(s), County Biological Survey sites, high quality native plant communities protected under Model Community's Natural Resource Design Standards or other officially designated natural resource areas.

**ESC Information Requirements**

*Many of the information requirements in for the ESC permit are the same as for the SWPPP, and are repeated here. These requirements can be linked to other permits, such as a grading permit, a minor subdivision permit, or platting requirements if a subdivision permit is not required.*

**Bluff Areas**

*The percent slope defining a bluff ranges from 18% to 30% depending on the unique topographic features of a community, as noted in the discussion for the SWPPP.*

**8. Construction and Post Construction Conditions**

- a. Maps identifying areas discussed in 7.a through 7.l above.
- b. Location, size, and approximate grade of proposed public sewer and water mains.
- c. Elevations, sections, profiles, and details as needed to describe all natural and artificial features of the project.
- d. If a flood insurance study has been done by the National Flood Insurance Program, the 100-year flood elevation with and without the floodway, flood fringe, and/or general flood boundary, if available.
- e. Locations of all stormwater management practices, infiltration areas, and areas not to be disturbed during construction.
- f. Normal water level, high water level, and emergency overflow elevations for the site and all associated ponding systems.
- g. For discharges to cold water resources, a description and plans to control temperature from stormwater runoff.
- h. Location of areas where construction will be phased to minimize duration of exposed soil areas. Include map and calculations as necessary of areas of grubbing, clearing, tree removal, grading, excavation, fill and other disturbance; areas of soil or earth material storage; quantities of soil or earth material to be removed, placed, stored or otherwise moved on site, and delineated limits of disturbance.
- i. Location and type of all temporary and permanent erosion prevention, sediment control, stormwater runoff, and soil stabilization BMPs along with procedures to be used to establish additional temporary BMPs as necessary for the site conditions during construction.
- j. Methods to be used for final stabilization of all exposed soil areas.

## VI. Stormwater and Erosion and Sediment Control Performance Standards

- A. **Stormwater Management Performance Standards** - The applicant must meet the following stormwater performance standards.
1. **Use of Natural Topography** - The applicant shall incorporate the use of natural topography and land cover such as natural swales and depressions as they exist before development to the degree that they can accommodate the additional flow of water without compromising the integrity or quality of the receiving waterbody.
  2. **Minimize Impact to Natural Features** - The development shall minimize impact to significant natural features. Applicant shall review the site for natural features protected under Model Community, State, or Federal requirements, including steep slopes, wetlands, wooded areas, endangered or threatened species, or species of concern habitat, areas designated by the County Biological Survey, greenways, parks and open space, groundwater recharge areas, wellhead or surface water protection areas, or regional stormwater pond locations.
  3. **Conform with Stormwater Design Manual** - All volume control for water quality and quantity and pond design specifications shall conform to the current version of the current requirements found in the NPDES Permit and the approved Model Community Stormwater Design Manual. In addition, stormwater performance design standards shall be designed, engineered and implemented to achieve the following results for volume control for water quality and quantity and pond design as discussed below.
    - a. **Volume Control for Water Quality** – (see NPDES permit requirements):
      - i. **New Developments** - At a minimum, the first ½-inch of runoff from newly created impervious surfaces equal to or greater than one acre is treated. If the site is within one mile of a special or impaired water or a wellhead or surface water protection area, the first 1-inch of runoff from newly created impervious surfaces shall be treated and the first ½-inch of runoff shall be infiltrated where site conditions allow. The methods used to treat this volume of water include wet sedimentation basins, infiltration/filtration practices, regional ponds, combination of practices, or other alternative methods as defined by the NPDES permit requirements.
      - ii. For those areas of a project where there is no feasible way to meet the treatment requirement for the water quality volume, other treatment such as grassed swales, smaller ponds or grit chambers are required prior to discharge to surface waters. A cumulative maximum of three (3) acres or 1% of project size whichever is larger can be treated in this manner.

### *LEED - ND Standard*

*If the performance standard protects slopes of 12%, this ordinance should meet or exceed the SLL requirements for LEED - ND.*

### *New/Existing Development*

*The volume control subsection (IV.A.3.a) provides for separate standards for new development (greenfield sites) and existing development (redevelopment of an existing site). Existing developed areas were typically not built adequately to protect water quality and watershed functions. Stormwater from developed parts of the community continue to contribute to the degradation of receiving water quality. Re-development presents an opportunity to retrofit stormwater practices that can mitigate past mistakes. Consideration should be given for the land constraints and additional site costs by requiring a reduction from existing problem issues (e.g., total suspended solids, phosphorus, or some other element that the community is trying to address). The sample language (following page, subsection IV.A.3.a.iii) requires a 40% reduction in total suspended solids.*

### *LEED - ND Standard*

*This ordinance is consistent with the LEED GCT Credit 9: Stormwater Management for 0.5-inches of infiltration and 1-inch of infiltration for special waters LEED points. For previously developed sites, designing for 0.5 inches of infiltration will provide 2 points and 1-inch of infiltration will provide 4 points. For all other sites, 0.5 inches of infiltration will provide 1 point and 1-inch infiltration will provide 2 points.*

### **Options for Water Quality Treatment beyond the NPDES Permit**

*The requirements of the NPDES permit are sometimes inadequate for meeting local water quality protection goals. The Ramsey-Washington Metro Watershed District Rules (Appendix II) provide an example that exceeds NPDES standards. Stormwater runoff volume retention must manage onsite the runoff generated from a one inch rainfall. The required stormwater runoff volume reduction is calculated as follows:*

- *Required Volume (ft<sup>3</sup>) = Impervious surfaces (ft<sup>2</sup>) × 0.9 (in) × 1/12 (ft/in)*

*Similarly, the Waukesha County (WI) Storm Water Management and Erosion Control Ordinance (Appendix III) requires residential developments infiltrate at least 90% of the pre-development runoff volume, based on an average annual rainfall and 25% of the post-development runoff volume from the 2-year, 24-hour storm. No more than 1% of the project site is required, however, as an effective infiltration area. Non-residential developments must infiltrate at least 60% of the pre-development runoff volume, based on an average annual rainfall and 10% of the post-development runoff volume from the 2-year, 24-hour storm. No more than 2% of the project site is required, however, as an effective infiltration area.*

### **Sizing Stormwater Facilities**

*The volume, rate, and type of precipitation are important in predicting hydrologic events such as the 2, 10, and 100-year, 24-hour stormwater rates and flood levels. Current stormwater design relies heavily on the rainfall frequency statistics in the U.S. Department of Agriculture's Technical Publication Number 40 (TP40). This document was published in 1961 and was based on precipitation patterns occurring during the*

- iii. **Re-Developments** - For re-development and street reconstructions resulting in surface parking lots and traffic areas, water quality practices must be designed to retain soil particles greater than 20 microns on the entire site (a 40% reduction from pre-development) resulting from a 1-year, 24-hour storm event according to approved procedures and assuming no sediment re-suspension. Under no circumstances shall the site's existing sediment control level or trapping efficiency be reduced as a result of the re-development.
- b. **Volume Control for Water Quantity - New Development**
  - i. **Runoff Calculations** - All runoff calculations shall be according to the methodology described in the Natural Resources Conservation Service's Technical Release 55, "Urban Hydrology for Small Watersheds" (commonly known as TR-55), or other methodology approved by the community. For agricultural land subject to this section, the maximum runoff curve number (RCN) used in such calculations shall be 56 for Hydrologic Soil Group (HSG) A, 70 for hydrologic soil group B, 79 for HSG C, and 83 for HSG D. The TR-55-specified RCN for other land uses shall be used. Heavily disturbed sites will be lowered one permeability class for hydrologic calculations. Lightly disturbed areas require no modification. Where practices have been implemented to restore soil structure to pre-developed conditions, no permeability class modification is required.
  - ii. **Facility Design** - All stormwater facilities shall be designed, installed and maintained to effectively accomplish the following:
    - 1) Maintain predevelopment peak runoff rates for the 1-year and 2-year, 24-hour storm events.
    - 2) Maintain predevelopment peak runoff rates for the 10-year, 24-hour storm event. At a minimum the storm sewer conveyance system shall be designed for this storm event. Low areas must have an acceptable overland drainage route with the proper transfer capacity when the storm event is exceeded.
    - 3) Provide a stable emergency overflow to safely pass the 100-year, 24-hour storm event or the 100-year 10-day snowmelt, whichever is greater.
    - 4) Discharges must have a stable outlet capable of carrying designed flow at a non-erosive velocity. Outlet design must consider flow capacity and flow duration. This requirement applies to both the site outlet and the ultimate outlet to stormwater conveyance or waterbody.

- 5) The project shall use existing natural drainage ways and vegetated soil surfaces to convey, treat, filter, and retain stormwater runoff before discharge into public waters or a stormwater conveyance system. The applicant shall limit the impervious surface of the developed site or subdivision by incorporating design considerations identified in the Minnesota Stormwater Manual such as narrowing street widths, reducing parking lot space, reducing setbacks and driveways, maximizing open space while incorporating smaller lot sizes to conserve natural areas to help reduce the amount of stormwater runoff generated at the site.
  - 6) Runoff from rooftops, driveways and other impervious areas shall be directed to pervious surfaces, where feasible, or unless the applicant can demonstrate the practice is likely to result in nuisance flooding and/or groundwater contamination.
- c. **Infiltration for Volume Reduction** - The following requirements must be met:
- i. Infiltration volumes and facility sizes shall be designed using the procedures in Chapter 12 of the Minnesota Stormwater Manual.
  - ii. The applicant may complete double-ring infiltrometer test measurements at the proposed bottom elevation of the infiltration BMP to the requirements of ASTM D3385. The measured infiltration rate shall be divided by the appropriate correction factor selected from the Minnesota Stormwater Manual. This test must be completed by a licensed soil scientist or engineer.
  - iii. The infiltration area shall be capable of infiltrating the required volume within 48 hours for surface and subsurface BMPs.
  - iv. Infiltration areas shall be limited to the horizontal areas subject to prolonged wetting.
  - v. Areas of permanent pools tend to lose infiltration capacity over time and shall not be accepted as an infiltration practice.
  - vi. Stormwater runoff must be pretreated to remove solids before discharging to infiltration areas to maintain the long term viability of the infiltration areas.
  - vii. Design and placement of infiltration BMPs shall be done in accordance with the most recent Minnesota Department of Health guidance document “Evaluating Proposed Stormwater Infiltration Projects in Vulnerable Wellhead Protection Areas” or successor.
- d. **Permanent Pond Requirements** - For all projects creating more than one acre of impervious surface, ponding is also required. Ponds must meet the following standards:

*1930-50s. However, the frequency and intensity of precipitation have changed dramatically since that time, and continue to change. Storms have a greater intensity than 70 years ago, meaning that stormwater facilities need to be designed with more capacity than is the current practice. Minnesota has organized an effort among states in the upper Midwest to revise the publication under the auspices of the National Oceanic and Atmospheric Administration. Preparation of the new document, to be known as Atlas 14, is expected to begin in October 2008 and be ready for use by October 2011. All stormwater facility designs done in the interim should assume that the TP-40 assumptions are inadequate and are likely to result in underdesigned systems.*

**Runoff Threshold**

*Section b.ii.1. sets predevelopment runoff limitations. In some circumstances (i.e., sandy soils), runoff may not be generated. However, with the addition of new impervious surface runoff may be generated at these storm events and this requirement accounts for sustaining runoff rates to protect channel integrity (i.e., bankfull flows) in the watershed.*

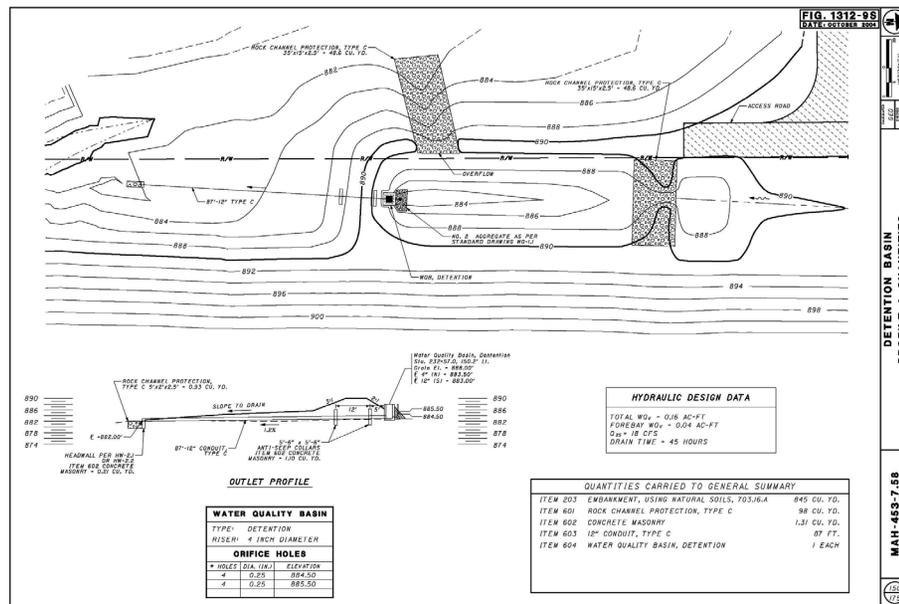
**Alternative Compliance Sequencing**

*This introduces the concept of stormwater credits for trading within the watershed. A program needs to be established in the community to make this effective. See the Ramsey-Washington Metro Watershed District Rules (Appendix II) for applying stormwater credits for infiltration and Chapter 11 of the Minnesota Stormwater Manual for applying stormwater credits to development sites in general.*

**LEED - ND Standard**

The floodplain provisions are consistent with the Floodplain Avoidance LEED SLL Prerequisite 6. See the NFIP website: Managing floodplain development through the NFIP at [www.fema.gov/library/viewRecord.do?id=2108](http://www.fema.gov/library/viewRecord.do?id=2108)

- i. All stormwater ponds shall provide a forebay area or other approved pre-treatment to provide for the settlement and efficient removal of fine sand sized particles.
- ii. Pond side slopes shall not exceed 4 feet horizontal to 1 foot vertical (4:1) and should provide a bench just at the normal water level with side slopes no less than 10 feet horizontal to 1 foot vertical (10:1) for safety considerations.
- iii. All stormwater ponds shall be designed to provide seasonal drawdown for spring runoff control as recommended in the Minnesota Stormwater Manual, Chapter 12.
- iv. All public and private owned stormwater management facilities shall provide an unobstructed access path (minimum of 20 feet) capable of supporting light truck traffic during normal weather for the purpose of conducting inspections and maintenance of the facility. Private stormwater facility must provide an easement allowing model community inspectors access for maintenance and inspection.
- v. To provide proper protection for adjacent property within the first tier from the pond, the design storm interval for the ponding area is a 100-year, 24-hour storm or the 100-year 10-day snowmelt, whichever is greater. Correctly size conveyances for cold climates consistent with the standards as described in the most recent version of the Minnesota Stormwater Manual. The low floor and low opening elevation of structures that are adjacent to ponds should be certified by the builder during basement construction to ensure adequate freeboard. A stabilized emergency overflow system must be established for the health and safety of the area. If the area is landlocked (no natural drainage outlet), the low floor and low opening elevation of structures should be five feet above the calculated high water level. In consideration of the groundwater table, the low floor and low opening elevation of structures should be four feet above the normal groundwater elevation. The table below provides the recommended flood control and freeboard criteria.



during basement construction to ensure adequate freeboard. A stabilized emergency overflow system must be established for the health and safety of the area. If the area is landlocked (no natural drainage outlet), the low floor and low opening elevation of structures should be five feet above the calculated high water level. In consideration of the groundwater table, the low floor and low opening elevation of structures should be four feet above the normal groundwater elevation. The table below provides the recommended flood control and freeboard criteria.

- vi. Floodplain filling shall be consistent with a Minnesota DNR and FEMA approved floodplain ordinance and shall not cause a net decrease in flood storage capacity below the projected 100-year flood elevation. Exceptions are allowed if applicant shows that the proposed filling, together with the filling of all other properties on the affected reach of the waterbody to the same degree of encroachment as proposed by the applicant, will not cause high water to the point of flooding or unduly aggravate flood flows on other properties. The allowable fill area shall be calculated by a professional engineer registered in the State of Minnesota.

Condition	Water Bodies with Piped Outlets (includes graded areas that will create ponded conditions during the 100-yr storm event)	Landlocked Water Bodies	Flowing Channels Passing Through Roadways
New Road Construction (low point in roadway)	No lower than the 100-yr flood level	1 foot above the 100-yr 24-hr or the 100-year 10-day snowmelt, whichever is greater elevation.	No lower than the 50-yr flood level. Overflow swale for flows over the 50-yr flood level to protect downstream roadway embankment
Existing Roadways (low point in roadway)	If the existing road is below the 100-yr flood level, the community should require a variance for the road. This will allow for proper review of safety standards.	No lower than 10 inches below 100-yr 24-hr elevation or the 100-year 10-day snowmelt, whichever is greater elevation	No lower than the 50-yr flood level.
New construction and additions to existing structures (low floor elevation and lowering opening of building) <i>(NOTE: Areas delineated as a state approved FEMA floodplain ordinance will likely have additional standards for the lowest floor including basement elevations in the ordinance. If the structure is in a floodplain, often the floodplain ordinance will have more restrictive standards requiring the lowest floor including basement elevation to start at one foot above the mapped 100 year floodplain.)</i>	Minimum of 2 feet above 100-yr, 24-hr storm event or the 100-year 10-day snowmelt, whichever is greater elevation. Additional recommendations: 1. At least 1 foot above the emergency overflow elevation. 2. At least 4 feet above normal groundwater elevation. 3. At least 2 feet above hydric or mottled soils elevation.	Minimum of 5 feet above 100-yr 24-hr elevation or the 100-year 10-day snowmelt, whichever is greater elevation.	N/A
Existing Structures (low floor elevation and low opening of building)	Existing structures should require a proper review of safety standards, but in any event must be a minimum of 2 feet above the 100-yr, 24-hr storm event or the 100-year 10-day snowmelt, whichever is greater elevation.	Minimum of 5 feet above 100-yr 24-hr elevation or the 100-year 10-day snowmelt, whichever is greater elevation.	N/A

**Flood Control and Freeboard Criteria**

The starting water surface elevation and the duration storm used to determine the flood level depends on the watershed characteristics. Usually several duration storms are analyzed and the “critical event” is the duration that causes the highest flood stage. If the basin has an outlet the duration is typically the 24 hr precipitation and 10-day runoff events. The starting elevation can be the average summer or spring elevation. If data are insufficient to calculate an average, use the outlet elevation or the Ordinary High Water Level (OHW). Keep in mind, climate change variation when considering the OHW and storm durations.

**Protection of Surface Waters - Wetlands**

Wetlands must not be drained or filled, wholly or partially, unless replaced by either restoring or creating wetland areas of at least equal public value. Compensation, including the replacement ratio and quality of replacement should be consistent with the requirements outlined in the Board of Water and Soil Resources rules that implement the Minnesota Wetland Conservation Act 1991 including any and all amendments to it.

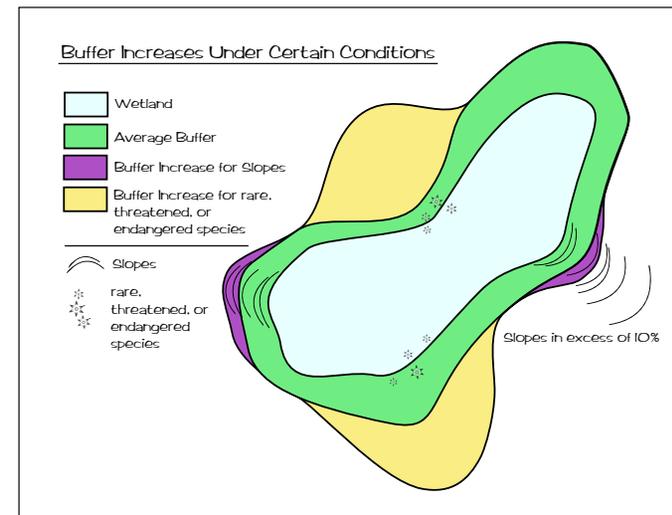
**Buffer Averaging**

Buffer area averaging in cases where averaging will provide additional protection to either the resource or environmentally valuable adjacent upland habitat is acceptable provided that the resource’s total buffer area remains the same. Care should be taken in averaging so that the buffer’s usefulness is not short circuited. Detailed buffer design is site specific, and therefore, the community can require a wider buffer than the minimum specified.

- e. **Protection of Surface Waters** - Waterbodies shall be protected from runoff generated during construction and after completion of the development in accordance with Minnesota State Statutes and the NPDES Permit. Runoff shall not be discharged directly into surface waters without appropriate quantity and quality runoff control.
- f. **Buffers** - Buffers are areas of vegetation located adjacent to receiving waters to protect water quality. Buffers help minimize runoff of sediment, debris, nutrients and pesticides into receiving waters by providing an area of undisturbed vegetation in order to trap sediment and debris from adjacent land areas.
  - i. Buffers for water quality protection shall commence at the “ordinary high water mark”, or at the delineated boundary of the waterbody. The widths are established by the slope of land between the activity and the water body as follows:

Slope of Land between Activity and Water Body	Recommended Width of Filter Strip (slope distance)*
0-10%	50 feet
11-20%	51-70 feet
21-40%	71-110 feet
41-70%	111-150 feet

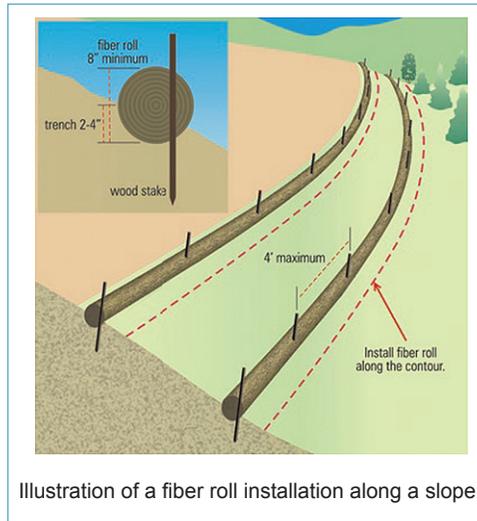
\* For roads, distance is measured from the edge of soil disturbance. For fills, distance is measured from the bottom of the fill slope, Filter strip width increases approximately 2 feet for each percent increase in slope above 10%. For example, the filter strip recommendation for a range in slope values from 11 to 20% is 51 to 70 feet. If the slope is 18%, then the filter strip width is 66 feet.



- ii. The applicant shall maintain the buffer for the first year after completion of the project.
  - iii. Impervious surfaces shall not be allowed in the buffer area.
  - iv. Where land disturbing construction activity occurs within a buffer area, and where no impervious surface is present, adequate approved native vegetative cover of 70% or greater shall be established and maintained. The native vegetative cover shall be sufficient to provide for bank stability from upslope overland flow areas under sheet flow conditions. Non-vegetative materials, such as rock riprap, may be employed on the bank as necessary to prevent erosion, such as on steep slopes or where high velocity flows occur.
  - v. BMPs such as filter strips, swales, or wet detention basins, designed to control pollutants from nonpoint pollution sources may be located in the buffer area.
  - vi. For special waters, impaired waters, and wetlands in areas identified by the community as exceptional buffers shall be a minimum of 100 feet.
- g. **Special, Impaired, and/or TMDL Water Requirements** – All projects to **special, impaired, and/or TMDL waters** must meet the minimum requirements of the **NPDES Permit** to discharge stormwater associated with construction activity.
- h. **Regional Ponding** – Regional ponds must meet the minimum requirements of the **NPDES Permit** to discharge stormwater associated with construction activity.

**B. Erosion and Sediment Control Performance Standards**

1. **NPDES Permit Requirements** - Erosion and sediment control requirements for construction activities are provided in the NPDES Permit. They include stormwater pollution prevention plans, erosion prevention practices, sediment control practices, dewatering and basin draining, and final stabilization.
2. **Street Cleaning Required** - Streets shall be cleaned and swept within 24-hours whenever tracking of sediment occurs and before sites are left idle for weekends and holidays.



**Stormwater Control Requirements**

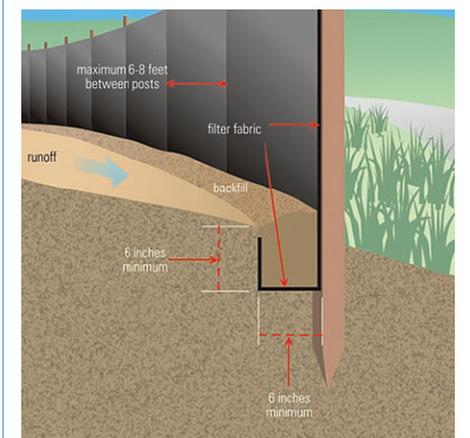
*The community may establish stormwater control requirements more stringent than those set forth in the NPDES permit if the community determines that an added level of protection is needed to protect sensitive resources.*

**LEED - ND Standard**

*Minnesota's NPDES Permit is consistent with the LEED SLL Credit 9: Site Design for Habitat or Wetland Conservation, option 3 requirements for sites with wetlands and/or waterbodies.*

**Regional Ponding**

*The community may establish off-site stormwater management and associated fees, provided that provisions are made to manage stormwater by an off-site facility, and provided that all of the following conditions for the off-site facility are met:*



- a. *The facility is in place;*
- b. *The facility is designed and adequately sized to provide a level of stormwater control that at least meets the ordinance standards*
- c. *The local approval authority is satisfied that the facility has a legally obligated entity responsible for its long-term operation and maintenance.*
- d. *Where a regional treatment option exists such that the community exempts the applicant from all or part of the minimum on-site stormwater management requirements, the applicant shall be required to pay a fee in an amount determined in negotiation with the community. In determining the fee for post-construction runoff, the community shall consider an equitable distribution of the cost for land, engineering design, construction, and maintenance of the regional treatment option.*

**VII. Pollution Prevention** - In addition to the following the applicant will comply with NPDES Permit for **pollution prevention management measures**.

**A. Illegal Disposal**

- 1. **Discarded Materials** - No person shall throw, deposit, place, leave, maintain, or keep or permit to be thrown, placed, left, maintained or kept, any refuse, rubbish, garbage, or any other discarded or abandoned objects, articles, or accumulations, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin conduit or drainage structure, business place, or upon any public or private plot of land in community, so that the same might be or become a pollutant, except in containers, recycling bags, or other lawfully established waste disposal facility.
- 2. **Landscape Debris** - No person shall intentionally dispose of grass, leaves, dirt, or other landscape debris into a water resource buffer, street, road, alley, catch basin, culvert, curb, gutter, inlet, ditch, natural watercourse, flood control channel, canal, storm drain or any fabricated natural conveyance.

**B. Illicit Discharges and Connections** - No person shall intentionally convey or cause any non-storm water discharge to enter the community storm water system unless such discharge: (1) consists of non-storm water that is authorized by an NPDES point source permit obtained from the MPCA or (2) is associated with fire fighting activities.

**C. Good Housekeeping Provisions** - Any owner or occupant of property within the community shall comply with the following good housekeeping requirements:

- 1. **Chemical or Septic Waste** - No person shall leave, deposit, discharge, dump, or otherwise expose any chemical or septic waste in an area where discharge to streets or storm drain system may occur. This section shall apply to both actual and potential discharges.
  - a. For pools, water should be allowed to sit seven days to allow for chlorine to evaporate before discharge. If fungicides have been used, water must be tested and approved for discharge to the wastewater treatment plant.
- 2. **Runoff Minimized** - Runoff of water from residential property shall be minimized to the maximum extent practicable. Runoff of water from the washing down of paved areas in commercial or industrial property is prohibited unless necessary for health or safety purposes and not in violation of any other provisions in community codes.
- 3. **Storage of Materials, Machinery, and Equipment** - Materials or equipment shall be stored to limit risk of contamination by runoff.

- a. Objects, such as motor vehicle parts, containing grease, oil or other hazardous substances, and unsealed receptacles containing hazardous materials, shall not be stored in areas susceptible to runoff.
- b. Any machinery or equipment that is to be repaired or maintained in areas susceptible to runoff shall be placed in a confined area to contain leaks, spills, or discharges.
- 4. **Removal of Debris and Residue** - Debris and residue shall be removed, as noted below:
  - a. All motor vehicle parking lots shall be swept, at a minimum of twice a year to remove debris. Such debris shall be collected and properly disposed.
  - b. Fuel and chemical residue or other types of potentially harmful material, such as animal waste, garbage or batteries, which is located in an area susceptible to runoff, shall be removed as soon as possible and disposed of properly. Household hazardous waste may be disposed of through community collection program or at any other appropriate disposal site and shall not be placed in a trash container.

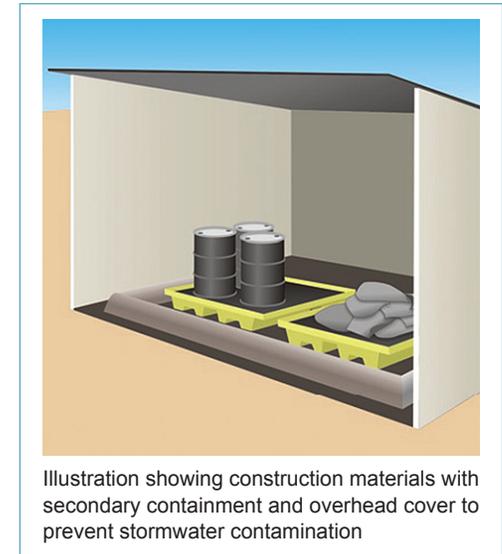


Illustration showing construction materials with secondary containment and overhead cover to prevent stormwater contamination

### VIII. Inspections and Maintenance

- A. **Inspections and Enforcement** - The Applicant is responsible for inspections and record keeping in accordance with the NPDES Permit requirements. The community shall conduct inspections on a regular basis to ensure that both stormwater and erosion and sediment control measures are properly installed and maintained prior to construction, during construction, and at the completion of the project. Mandatory inspections are required as follows:
  - 1. Before any land disturbing activity begins;
  - 2. At the time of footing inspections;
  - 3. At the completion of the project; and,
  - 4. Prior to the release of financial securities.
- B. **Stop Work Orders and Assessing Fees** - In cases where cooperation is withheld, construction stop work orders shall be issued by the community until stormwater and erosion and sediment control measures meet the requirements of this ordinance. An inspection must follow before work can commence. A charge of \$XXX per hour will be assessed for any inspections by the community.
  - 1. **Construction Stop Order** - The community may issue construction stop orders until stormwater management measures meet specifications. A second stormwater management inspection must then be scheduled and passed before the final inspection will be done.

#### **Fees**

*The hourly fee must reflect actual cost to the community. Costs can be determined by using the estimated hourly rate for qualified staff or the cost of engineering consulting.*

2. **Perimeter Breach** - If stormwater and/or erosion and sediment control management measures malfunction and breach the perimeter of the site, enter streets, other public areas, or waterbodies, the applicant shall immediately develop a cleanup and restoration plan, obtain the right-of-way from the adjoining property owner, and implement the cleanup and restoration plan within 48 hours of obtaining permission. If in the discretion of the community, the applicant does not repair the damage caused by the stormwater runoff the community can do the remedial work required and charge the cost to the applicant.
3. **Actions to Ensure Compliance** - The community can take the following action in the event of a failure by applicant to meet the terms of this ordinance:
  - a. Withhold inspections or issuance of certificates or approvals
  - b. Revoke any permit issued by the community to the applicant
  - c. Conduct remedial or corrective action on the development site or adjacent site affected by the failure
  - d. Charge applicant for all costs associated with correcting the failure or remediating damage from the failure. If payment is not made within thirty days, payment will be made from the applicant's financial securities.
  - e. Bring other actions against the applicant to recover costs of remediation or meeting the terms of this ordinance.
  - f. Any person, firm or corporation failing to comply with or violating any of these regulation, shall be deemed guilty of a misdemeanor and be subject to a fine or imprisonment or both. Each day that a separate violation exists shall constitute a separate offense.

### C. Long Term Inspection and Maintenance of Stormwater Facilities

1. **Private Stormwater Facilities** - No private stormwater facilities may be approved unless a maintenance plan is provided that defines who will conduct the maintenance, the type of maintenance and the maintenance intervals. All private stormwater facilities shall be inspected annually and maintained in proper condition consistent with the performance standards for which they were originally designed.
  - a. **Facility Access** - Access to all stormwater facilities must be inspected annually and maintained as necessary. The applicant shall obtain all necessary easements or other property interests to allow access to the facilities for inspection or maintenance for both the responsible party and the community.
  - b. **Removal of Settled Materials** - All settled materials including settled solids, shall be removed from ponds, sumps, grit chambers, and other devices, and properly disposed of.
  - c. **Community Inspections** - All stormwater facilities within the community shall be inspected during construction, during the first year of operation, and at least once every five years thereafter.

2. **Public Stormwater Facilities**

- a. **Acceptance of Publicly Owned Facilities** - Before work under the permit is deemed complete, the permittee must submit as-builts and a maintenance plan demonstrating at the time of final stabilization that the stormwater facilities conform to design specifications. A final inspection shall be required before the community accepts ownership of the stormwater facilities.
- b. **Inventory of Stormwater Facilities** - Upon adoption of this ordinance, the community shall inventory and maintain a database for all private and public stormwater facilities within community requiring maintenance to assure compliance with this ordinance. The community shall notify owners of public and private stormwater facilities of the need for conducting maintenance at least every five years, starting in \_\_\_\_\_.
- c. **Maintenance** - The community shall perform maintenance of publicly owned stormwater facilities in accordance with their comprehensive stormwater management plan and other regulatory requirements.

**IX. Permit Review Process, Financial Procedures, and Enforcement Actions**

- A. **Pre-Review** - The community shall make a determination regarding the completeness of a permit application within ten (10) days of the receipt of the application and notify the applicant if the application is not complete.
- B. **Permit Review** - The applicant shall not commence any construction activity subject to this ordinance until a permit has been authorized by the community. A complete review of the permit application shall be done within fourteen (14) business days of the receipt of a complete permit application from the applicant. The community will work with the necessary state, county, and local agencies to complete the review.
- C. **Permit Authorization** - If the community determines that the application meets the requirements of this ordinance, the community may issue approval authorizing the project or activity. The approval shall be valid for one year. Approval will typically be in the form of a letter from the community to the applicant.
- D. **Permit Denial** - If community determines the application does not meet the requirements of this ordinance, this application must be resubmitted for approval before activity begins. All land use and building permits shall be suspended until the applicant has an authorized permit.
- E. **Modification of Plans** - The applicant must amend the ESC Plan or SWPPP as necessary to include additional requirements such as additional or modified BMPs designed to correct problems identified or address situations whenever:
  1. A change in design, construction, operation, maintenance, weather, or seasonal conditions that has a significant effect on the discharge of pollutants to surface waters or underground waters.

### Variations

*The community is likely to have an Article on the variance process elsewhere in its ordinances. This model language is offered only as a place holder.*

2. Inspections or investigations by site operators, local, state or federal officials indicate the plans are not effective in eliminating or significantly minimizing the discharge of pollutants to surface waters or underground waters or that the discharges are causing water quality standard exceedances; or
  3. The plan is not achieving the general objectives of minimizing pollutants in stormwater discharges associated with construction activity; or
  4. The plan is not consistent with the terms and conditions of this permit.
- F. **Variance Requests** - The community may grant a variance on a case-by-case basis. The content of a variance shall be specific, and shall not affect other approved provisions of a permit.
1. The variance request shall be in writing and include the reason for requesting the variance.
  2. Economic hardship is not sufficient reason for granting a variance.
  3. The community shall respond to the variance request in writing and include the justification for granting or denying the request.
- G. **Financial Securities** - The applicant shall provide security for the performance of the work described and delineated on the approved permit and related remedial work in an amount of \$3,000 per gross acre (\$6,000 for work done in special or impaired waters as determined by the Community) or \$1,500 for each single or twin family home, whichever is greater. This amount shall apply to the maximum acreage of soil that will be simultaneously exposed during the project's construction. The form of the securities shall be one or a combination of the following to be determined by the community:
1. **Cash Deposit** - The first \$3,000 of the financial security for erosion and sediment control shall be by cash deposit to the community.
  2. **Securing Deposit** - Deposit, either with the community, a responsible escrow agent, or trust company, at the option of the community, either,
    - a. An irrevocable letter of credit or negotiable bonds of the kind approved for securing deposits of public money or other instruments of credit from one or more financial institutions, subject to regulation by the state and federal government wherein said financial institution pledges funds are on deposit and guaranteed for payment;
    - b. Cash in U.S. currency; or
    - c. Other forms and securities (e.g., disbursing agreement) as approved by the community.This security shall save the community free and harmless from all suits or claims for damages resulting from the negligent grading, removal, placement or storage of rock, sand, gravel, soil or other like material within the community.

- H. **Maintaining the Financial Security** - If at anytime during the course of the work this amount falls below 50% of the required deposit, the developer shall make another deposit in the amount necessary to restore the cash deposit to the required amount. If the developer does not bring the financial security back up to the required amount within seven (7) days after notification by the community that the amount has fallen below 50% of the required amount the community may:
1. **Withhold Inspections** - Withhold the scheduling of inspections and/or the issuance of a Certificate of Occupancy.
  2. **Revocation of Permits** - Revoke any permit issued by the community to the applicant for the site in question or any other of the applicant's sites within the community's jurisdiction.
- I. **Proportional Reduction of the Financial Security** - When more than one-third of the applicant's maximum exposed soil area achieves final stabilization, the community can reduce the total required amount of the financial security by one-third. When more than two-thirds of the applicant's maximum exposed soil area achieves final stabilization, the community can reduce the total required amount of the financial security to two-thirds of the initial amount. This reduction in financial security will be determined by the community staff.
- J. **Action Against the Financial Security** - The community may access financial security for remediation actions if any of the conditions listed below exist. The community shall use the security to finance remedial work undertaken by the community, or a private contractor under contract to the community, to reimburse the community for all direct costs incurred in the process of remedial work including, but not limited to, staff time and attorney's fees.
1. **Abandonment** - The developer ceases land disturbing activities and/or filling and abandons the work site prior to completion of the grading plan.
  2. **Failure to Implement the SWPPP or ESC Plan** - The developer fails to conform to the grading plan and/or the SWPPP as approved by the Community.
  3. **Failure to Perform** - The techniques utilized under the SWPPP fail within one year of installation.
  4. **Failure to Reimburse Community** - The developer fails to reimburse the Community for corrective action taken.
- K. **Returning the Financial Security** - The security deposited with the community for faithful performance of the SWPPP or the ESC Plan and any related remedial work shall be released one full year after the completion of the installation of all stormwater pollution control measures as shown on the SWPPP or ESC Plan.
- L. **Emergency Action** - If circumstances exist such that noncompliance with this ordinance poses an immediate danger to the public health, safety and welfare, as determined by the community, the community may take emergency preventative action. The community shall also take every reasonable action possible to contact and direct the applicant to take any necessary action. Any cost to the community may be recovered from the applicant's financial security.

- M. **Notification of Failure of the Permit** - The community shall notify the permit holder of the failure of the permit's measures.
1. **Initial Contact** - The initial contact will be to the party or parties listed on the application and/or the SWPPP as contacts. Except during an emergency action, forty-eight (48) hours after notification by the community or seventy-two (72) hours after the failure of erosion and sediment control measures, whichever is less, the community at its discretion, may begin corrective work. Such notification should be in writing, but if it is verbal, a written notification should follow as quickly as practical. If after making a good faith effort to notify the responsible party or parties, the community has been unable to establish contact, the community may proceed with corrective work. There are conditions when time is of the essence in controlling erosion. During such a condition the community may take immediate action, and then notify the applicant as soon as possible
  2. **Erosion Off-site** - If erosion breaches the perimeter of the site, the applicant shall immediately develop a cleanup and restoration plan, obtain the right-of-entry from the adjoining property owner, and implement the cleanup and restoration plan within forty-eight (48) hours of obtaining the adjoining property owner's permission. In no case, unless written approval is received from the community, may more than seven (7) calendar days go by without corrective action being taken. If in the discretion of the community, the permit holder does not repair the damage caused by the erosion, the Community may do the remedial work required. When restoration to wetlands and other resources are required, the applicant should be required to work with the appropriate agency to ensure that the work is done properly.
  3. **Erosion Into Streets, Wetlands or Water Bodies** - If eroded soils (including tracked soils from construction activities) enter or appear likely to enter streets, wetlands, or other water bodies, cleanup and repair shall be immediate. The applicant shall provide all traffic control and flagging required to protect the traveling public during the cleanup operations.
  4. **Failure to do Corrective Work** - When an applicant fails to conform to any provision of this policy within the time stipulated, the community may take the following actions.
    - a. Issue a stop work order, withhold the scheduling of inspections, and/or the issuance of a Certificate of Occupancy.
    - b. Revoke any permit issued by the community to the applicant for the site in question or any other of the applicant's sites within the community's jurisdiction.
    - c. Correct the deficiency or hire a contractor to correct the deficiency.
    - d. Require reimbursement to the community for all costs incurred in correcting stormwater pollution control deficiencies. If payment is not made within thirty (30) days after costs are incurred by the community, payment will be made from the applicant's financial securities as described in Section G above.

- e. If there is an insufficient financial amount in the applicant's financial securities as described in Section G above then the Community may assess the remaining amount against the property. As a condition of the permit, the owner shall waive notice of any assessment hearing to be conducted by the community, concur that the benefit to the property exceeds the amount of the proposed assessment, and waive all rights by virtue of Minnesota Statute 429.081 to challenge the amount or validity of assessment.

N. **Enforcement** - The community shall be responsible enforcing this ordinance.

1. **Penalties** - Any person, firm, or corporation failing to comply with or violating any of these regulations, shall be deemed guilty of a misdemeanor and be subject to a fine or imprisonment or both. All land use and building permits must be suspended until the applicant has corrected the violation. Each day that a separate violation exists shall constitute a separate offense.

O. **Right of Entry and Inspection**

1. **Powers** - The issuance of a permit constitutes a right-of-entry for the community or its contractor to enter upon the construction site. The applicant shall allow the community and their authorized representatives, upon presentation of credentials to:
  - a. Enter upon the permitted site for the purpose of obtaining information, examination of records, conducting investigations or surveys.
  - b. Bring such equipment upon the permitted development as is necessary to conduct such surveys and investigations.
  - c. Examine and copy any books, papers, records, or memoranda pertaining to activities or records required to be kept under the terms and conditions of this permitted site.
  - d. Inspect the stormwater pollution control measures.
  - e. Sample and monitor any items or activities pertaining to stormwater pollution control measures.
  - f. Correcting deficiencies in stormwater and erosion and sediment control measures.

P. **Abrogation and Greater Restrictions** - It is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance imposes greater restrictions, the provisions of this ordinance shall prevail. All other ordinances inconsistent with this ordinance are hereby repealed to the extent of the inconsistency only.

Q. **Severability** - The provisions of this ordinance are severable, and if any provision of this ordinance, or application of any provision of this ordinance to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this ordinance must not be affected thereby.