

Appendix G: Model Stormwater Ordinance and Performance Standards

1. Rein in the Runoff Model Low Impact Development Stormwater Ordinance for the Communities in the Spring Lake Watershed
2. Rein in the Runoff Draft Stormwater Performance Standards

Rein in the Runoff Model Low Impact Development Stormwater Ordinance for the communities in the Spring Lake Watershed

This model ordinance is general guidance to assist local communities interested in implementing a stormwater ordinance. This ordinance is NOT legal advice. Details of both substance and process in an ordinance will vary from community to community based on local conditions and institutional structures. Proposed ordinances should not be finalized without advice and involvement of legal counsel.

AN ORDINANCE to provide for the regulation and control of stormwater runoff, which results in protecting <Insert Community Name> waterways and sensitive areas in the community. This ordinance is intended to protect sensitive areas and local waterways, but at the same time allowing the designer the flexibility in protecting these resources.

ARTICLE I. GENERAL PROVISIONS

Section 1.01 Statutory Authority and Title

This ordinance is adopted in accordance with the constitution and laws of Michigan that authorize local units of government to provide stormwater management services and systems that will contribute to the protection and preservation of the public health, safety, and welfare and to protect natural resources, including the Drain Code of 1956, as amended, being MCL 280.1 et seq.; the Land Division Act, as amended, being MCL 560.1 et seq.; the Revenue Bond Act, as amended, being 141.101 et seq.; and the Natural Resources and Environmental Protection Act, as amended, being MCL 324.101 et seq.; Section 401(p) of the Federal Water Pollution Control Act (also known as the Clean Water Act), as amended, being 33 USC 1342(p) and 40 CFR Parts 9, 122, 123 and 124, and other applicable state and federal laws.

This ordinance shall be known as the “<Insert Community Name> Stormwater Management Ordinance” and may be so cited.

Section 1.02 Findings

<Insert Community Name> finds that:

- Water bodies, roadways, structures, and other property within, and downstream of <Insert Community Name> are at times subjected to flooding;
- Flooding is a danger to the lives and property of the public and is also a danger to the natural resources of <Insert Community Name> and the region;
- Land development alters the hydrologic response of watersheds, resulting in increased stormwater runoff rates and volumes, increased flooding, increased stream channel erosion, increased sediment transport and deposition, and increased nonpoint source pollutant loading to the receiving water bodies and the Great Lakes;
- Stormwater runoff produced by land development contributes to increased quantities of water-borne pollutants;

- Increases of stormwater runoff, soil erosion, and nonpoint source pollution have occurred as a result of land development, and have impacted the water resources of the Spring Lake Watershed;
- Stormwater runoff, soil erosion, and nonpoint source pollution, because of land development within <Insert Community Name>, have resulted in deterioration of the water resources of <Insert Community Name> and downstream municipalities;
- Increased stormwater runoff rates and volumes, and the sediments and pollutants associated with stormwater runoff from future development projects within <Insert Community Name> will, absent proper regulation and control, adversely affect <Insert Community Name> water bodies and water resources, and those of downstream municipalities;
- Stormwater runoff, soil erosion, and nonpoint source pollution can be controlled and minimized by the regulation of stormwater runoff from development;
- Adopting the standards, criteria and procedures contained in, or cited by, this ordinance and implementing the same will address many of the deleterious effects of stormwater runoff;
- Adopting these standards is necessary for the preservation of the public health, safety and welfare;
- Illicit discharges contain pollutants that will significantly degrade <Insert Community Name>'s water bodies and water resources;
- Illicit discharges enter the municipal storm sewer system (MS4) through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the storm drain system or spills connected by drain inlets);
- Establishing the measures for controlling illicit discharges and connections contained in this ordinance and implementing them will address many of the deleterious effects of illicit discharges.

Section 1.03 Purpose

It is the purpose of this ordinance to establish minimum stormwater management requirements and controls to accomplish, among others, the following objectives:

- (1) To reduce artificially induced flood damage;
- (2) To minimize increased stormwater runoff rates and volumes from identified land development;
- (3) To prevent an increase in nonpoint source pollution;

- (4) To minimize the deterioration of existing watercourses, culverts and bridges, and other structures;
- (5) To encourage water recharge into the ground where geologically favorable conditions exist;
- (6) To maintain the ecological integrity of stream channels for their biological functions, as well as for drainage and other purposes;
- (7) To minimize the impact of development upon streambank and streambed stability;
- (8) To reduce erosion from development or construction projects;
- (9) To control non-stormwater discharges to stormwater conveyances and reduce pollutants in stormwater discharges;
- (10) To preserve and protect water supply facilities and water resources by means of controlling increased flood discharges, stream erosion, and runoff pollution;
- (11) To reduce stormwater runoff rates and volumes, soil erosion, and nonpoint source pollution, wherever practicable, from lands that were developed without stormwater management controls meeting the purposes and standards of this ordinance;
- (12) To reduce the adverse impact of changing land use on water bodies and, to that end, this ordinance establishes minimum standards to protect water bodies from degradation resulting from changing land use where there are insufficient stormwater management controls;
- (13) To ensure that storm drain drainage or stormwater BMPs are adequate to address stormwater management needs within a proposed development, and for protecting downstream landowners from flooding and degradation of water quality. The procedures, standards, and recommendations set forth in this Ordinance and the Low Impact Development Manual for Michigan are designed for these purposes;
- (14) To regulate the contribution of pollutants to the municipal separate storm sewer system (MS4) by stormwater discharges by any user;
- (15) To prohibit illicit discharges and connection to the municipal separate storm sewer system; and
- (16) To establish legal authority to carry out all inspection, surveillance, monitoring and enforcement procedures necessary to ensure compliance with this ordinance.

Section 1.04 Applicability, Requirement of a Stormwater Permit

- (1) This ordinance shall apply to every development requiring approval of a plat, a site development plan, building permit or any other permit for work which will alter stormwater drainage characteristics of the development site in **<Insert Community Name>**, including but not necessarily limited to:
 - (a) Land development proposals subject to site plan review requirements in the **<Insert Community Name>** Zoning Ordinance;
 - (b) Subdivision plat proposals;
 - (c) Site condominium developments pursuant to the Condominium Act, P.A. 59 of 1978 as amended; MCLA 559.101 et seq.;
 - (d) Any development on property divided by land division, on platted subdivision lots, or on site condominium lots;
 - (e) Any proposal to mine, excavate, or clear and grade, compact, or otherwise develop one acre or more of land for purposes other than routine single-family residential landscaping and gardening, or any proposal within 500 feet of the top of the bank of an inland lake or stream;
 - (f) Development projects of federal, state, and local agencies and other public entities subject to the **<Insert Community Name>** NPDES Permit for Municipal Separate Storm Sewer Systems;
 - (g) Maintenance of a stormwater basin constructed prior to the effective date of the regulations of which this subsection is a part.
- (2) This ordinance shall apply to all discharges entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted in Section 1.05.

Section 1.05 Exemptions

Notwithstanding the requirements of Section 1.04, this ordinance shall not apply to:

- (1) Activities protected by the Right to Farm Act 93 of 1981, although this exemption shall not apply to livestock production facilities as defined in this ordinance, greenhouses and other similar structures;
- (2) Routine single-family residential landscaping and/or gardening which does not otherwise materially alter stormwater flow from the property in terms of rate and/or volume;
- (3) The installation or removal of individual mobile homes within a mobile home park. This exemption shall not be construed to apply to the construction, expansion, or modification of a mobile home park.

- (4) Plats that have received preliminary plat approval and other developments with final land use approval prior to the effective date of this ordinance, where such approvals remain in effect.

ARTICLE II. DEFINITIONS

Section 2.01 Definition of Terms

The following terms, phrases, words, and derivatives shall have the meaning defined below:

Authorized Enforcement Agency. Identify individual(s) and their agency affiliation responsible for enforcing this ordinance.

Applicant. Any person proposing or implementing the development of land.

Base Flood. A flood having a one (1) percent chance of being equaled or exceeded in any given year.

Base Flood Elevation. The high water elevation of the Base Flood, commonly referred to as the “100-year flood elevation”.

Base Floodplain. The area inundated by the Base Flood.

BMP or “Best Management Practice”. A practice, or combination of practices and design criteria that comply with the Michigan Department of Environmental Quality’s Guidebook of BMPs for Michigan Watersheds, and Low Impact Development Manual for Michigan, or equivalent practices and design criteria that accomplish the purposes of this ordinance (including, but not limited to minimizing stormwater runoff and preventing the discharge of pollutants into stormwater) as determined by the <Insert Community Name> Engineer, Environmental Consultant and/or, where appropriate, the standards of the <Ottawa or Muskegon> County Drain Commissioner.

Building Opening. Any opening of a solid wall such as a window or door, through which floodwaters could penetrate.

Clean Water Act. The Federal Water Pollution Control Act, 22 USC 1251, et seq., as amended, and the applicable regulations promulgated under it.

Construction Site Stormwater Runoff. Stormwater runoff from a development site following an earth change.

Conveyance facility. A storm drain, pipe, swale, or channel.

Design Engineer. The registered and licensed, professional engineer responsible for the design of the stormwater management plan.

Detention. A system which is designed to capture stormwater and release it over a given period of time through an outlet structure at a controlled rate.

Developed or Development. The installation or construction of impervious surfaces on a development site that require, pursuant to state law or local ordinance, <Insert Community Name>'s approval of a site plan, site condominium, special land use, planned unit development, rezoning of land, land division approval, private road approval, or other approvals required for the development of land or the erection of buildings or structures. This shall include construction or improvement project on lands owned by <Insert Community Name> and local school districts.

Developer. Any person proposing or implementing the development of land.

Development Site. Any land that is being or has been developed, or that a developer proposes for development.

Discharger. Any person or entity who directly or indirectly discharges stormwater from any property. Discharger also means any employee, officer, director, partner, contractor, or other person who participates in, or is legally or factually responsible for, any act or omission which is or results in a violation of this ordinance.

Drain. Any drain as defined in the Drain Code of 1956, as amended, being MCL 280.1, et seq., other than an established county or intercounty drain.

Drainage. The collection, conveyance, or discharge of groundwater and/or surface water.

Drainageway. The area within which surface water or groundwater is carried from one part of a lot or parcel to another part of the lot or parcel or to adjacent land.

Drain Commissioner. <Muskegon or Ottawa> Drain Commissioner.

Earth Change. A human made change in the natural cover or topography of land, including cut and fill activities. Earth change includes, but is not limited to, any excavating, surface grading, filling, landscaping, or removal of vegetation roots. Earth change does not include the practice of plowing and tilling soil for the purpose of crop production.

EPA. The United States Environmental Protection Agency.

Erosion. The process by which the ground surface is worn away by action of wind, water, gravity or a combination of any or all.

Exempted Discharges. Discharges other than stormwater as specified in Section 5.02.

Federal Emergency Management Agency (FEMA). The agency of the federal government charged with emergency management.

Flood or Flooding. A general and temporary condition of partial or complete inundation of normally dry land areas resulting from the overflow of water bodies or the unusual or rapid accumulation of surface water runoff from any source.

Floodplain. Any land area subject to periodic flooding.

Flood-Proofing. Any structural and/or nonstructural additions, changes, or adjustments to structures or property that reduce or eliminate flood damage to land or improvements, including utilities and other structures.

Flood Protection Elevation (FPE). The Base Flood Elevation plus one (1) foot at any given location.

Floodway. The channel of any watercourse and the adjacent land areas that must be reserved to carry and discharge a base flood without cumulatively increasing the water surface elevation more than one-tenth (1/10) of a foot because of the loss of flood conveyance or storage.

Grading. Any stripping, excavating, filling, and stockpiling of soil or any combination thereof and the land in its excavated or filled condition.

Hazardous Materials. Any material, including any substance, waste or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illicit Connection. Any method or means for conveying an illicit discharge into water bodies or the <Insert Community Name>'s stormwater system.

Illicit Discharge. Any discharge to water bodies that does not consist entirely of stormwater, discharges pursuant to the terms of a NPDES permit, or exempted discharges as defined in this ordinance.

Impervious Surface. A surface, such as a paved or gravel driveway, roof, parking area or road, that prevents the infiltration of water into the soil.

Infiltration. The percolation of water into the ground, expressed in inches per hour.

Livestock Production Facilities. An agricultural activity in which 100 or more livestock are fed, bred, and/or raised within a confined area, other than an open pasture either inside or outside an enclosed building.

Lowest Floor. The lowest floor or the lowest enclosed area (including a basement), but not including an unfinished or flood-resistant enclosure which is usable solely for parking of vehicles or building access.

Maintenance Agreement. A binding agreement that sets forth the terms, measures, and conditions for the maintenance of stormwater systems and facilities.

MDEQ. Michigan Department of Environmental Quality.

Municipal Separate Storm Sewer System (MS4). A publicly owned conveyance system designed or used for collecting or conveying stormwater.

NPDES. National Pollution Discharge Elimination System.

National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit. A permit issued by EPS (or by a state under authority delegated pursuant to 33 USC 1342(b)) that authorizes the discharge of pollutants to waters of the United States. The permit may be applicable on an individual, group, or general area-wide basis.

Non-Stormwater Discharge. Any discharge to the storm drain system that is not composed entirely of stormwater.

Offsite Facility. All or part of a drainage system that is located partially or completely off the development site which it serves.

Overland Flow-way. Surface area that conveys a concentrated flow of stormwater runoff.

Peak Rate of Discharge. The maximum rate of stormwater flow at a particular location following a storm event, as measured at a given point and time in cubic feet per second (CFS).

Person. An individual, firm, partnership, association, public or private corporation, public agency, instrumentality, or other legal entity.

Plan. Written narratives, specifications, drawings, sketches, written standards, operating procedures, or any combination of these which contain information pursuant to this ordinance.

Pollutant. A substance discharge which includes, but is not limited to the following: any dredged soil, solid waste, vehicle fluids, yard wastes, animal wastes, agricultural waste products, sediment, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological wastes, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt, and industrial, municipal, commercial and agricultural waste, or any other contaminant or other substance defined as a pollutant under the Clean Water Act.

Premises. Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

Property Owner. Any person having legal or equitable title to property or any person having or exercising care, custody, or control over any property.

Retention. A system which is designed to capture stormwater and contain it until it infiltrates the soil, or evaporates, or drains.

Runoff. That part of precipitation, which flows over the land.

Sediment. Mineral or organic particulate matter that has been removed from its site of origin by the processes of soil erosion, is in suspension in water, or is being transported.

Soil Erosion. The stripping of soil and weathered rock from land creating sediment for transportation by water, wind or ice, thereby enabling formation of new sedimentary deposits.

State of Michigan Water Quality Standards. All applicable State rules, regulations, and laws pertaining to water quality, including the provisions of Section 3106 of Part 31 of 1994 PA 451, as amended.

Storm Drain. A conduit, pipe, swale, natural channel, or manmade structure which serves to transport stormwater runoff. Storm drains may be either enclosed or open.

Stormwater Best Management Practice (BMP). Any facility, structure, channel, area, process or measure which serves to control stormwater runoff in accordance with the purposes and standards of this ordinance.

Stormwater Permit. A permit issued by either the <Muskegon or Ottawa> County Drain Commissioner pursuant to state law or <Insert Community Name> pursuant to this ordinance.

Stormwater Pollution Prevention Plan. A document prepared by a registered engineer, registered landscape architect, or registered surveyor which describes the BMPs and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to stormwater water, stormwater conveyance systems, and/or receiving waters to the maximum extent possible.

Stormwater Runoff. The runoff and drainage of precipitation resulting from rainfall or snowmelt or other natural event or process.

Stormwater Management Facility. The method, structure, area, system, or other equipment or measures which are designed to receive, control, store, or convey stormwater.

Stream. A river, stream or creek which may or may not be serving as a drain, or any other water body that has definite banks, a bed, and visible evidence of a continued flow or continued occurrence of water.

Swale. Defined contour of land with gradual slopes that transport and direct the flow of stormwater.

Wastewater. Any water or other liquid, other any uncontaminated stormwater, discharged form a facility.

Water Body. A river, lake, stream, creek, or other watercourse or wetlands.

Watercourse. Any natural or manmade waterway or other body of water having reasonably well defined banks. Rivers, streams, creeks and brooks, and channels, whether continually or intermittently flowing, as well as lakes and ponds are watercourses for purposes of stormwater management.

Watershed. An area in which there is a common outlet into which stormwater ultimately flows, otherwise known as a drainage area.

Wetlands. Land characterized by the presence of hydric soils and water at a frequency and duration sufficient to support, and that under normal circumstances does support wetland vegetation or aquatic life and is commonly referred to as a bog, swamp, or marsh, as defined by state law.

ARTICLE III. STORMWATER PERMITS

Section 3.01 Permit Required

- (1) A developer shall not engage in any development without first receiving a stormwater permit from **<Insert Community Name>** pursuant to Section 3.02 of this ordinance.
- (2) The granting of a stormwater permit shall authorize only such development for which the permit is required, subject to the terms of the permit, and it shall not be deemed to approve other development or other land use activities.

Section 3.02 Stormwater Permit Review Procedures

<Insert Community Name> shall grant a stormwater permit which may impose terms and conditions in accordance with Section 3.09, and which shall be granted only upon compliance with each of the following requirements:

- (a) The developer has submitted a drainage plan complying with Section 3.03.
- (b) The drainage plan contains a description of an adequate, temporary stormwater retention or system to prevent construction site stormwater runoff, satisfying the requirements of Section 3.05, and the developer has obtained a soil erosion permit, if necessary.
- (c) The developer provides:

- (i) A permanent on-site stormwater management system complying with the <Muskegon or Ottawa> County Drain Commissioner Standards & Specifications and the <Insert Community Name> Performance and Design Standards adopted by <Insert Community Name>.
 - (ii) Written construction plan approval from the <Muskegon or Ottawa> Drain Commissioner.
- (d) The developer has paid or deposited the stormwater permit review fee pursuant to Section 3.04.
- (e) The developer has paid or posed the applicable financial guarantee pursuant to Section 3.06.
- (f) The developer provides all easements necessary to implement the approved drainage plan and to otherwise comply with this ordinance including, but not limited to Section 8.02. All easements shall be acceptable to <Insert Community Name> in form and substance and shall be recorded with the <Ottawa or Muskegon> County Register of Deeds.
- (g) The drainage plan is designed in conformity with <Insert Community Name> or <Muskegon or Ottawa> County Drain Commissioner design and performance standards adopted by <Insert Community Name>.
- (h) All stormwater runoff facilities shall be designed in accordance with the current BMP design standards.
- (i) The developer provides the required maintenance agreement for routine, emergency, and long-term maintenance of all stormwater management facilities. This agreement shall be in compliance with the approved drainage plan and this ordinance, including, but not limited to Section 8.04. The maintenance agreement shall be acceptable to <Insert Community Name> in form and substance and shall be recorded with the <Muskegon or Ottawa> County Register of Deeds.

Section 3.03 Drainage Plan

During the site plan approval process, the developer shall provide a drainage plan to <Insert Community Name> for review and approval by <Insert Community Name> and <Muskegon or Ottawa> County Drain Commissioner. The drainage plan shall identify and contain all of the following:

- (1) The location of the development site and water bodies that will receive stormwater runoff.

- (2) The existing and proposed topography of the development site, including the alignment and boundary of the natural drainage courses, with contours having a maximum interval of one foot (using USGS datum). The information shall be superimposed on the pertinent <Muskegon or Ottawa> County soil map.
- (3) The development tributary area to each point of discharge from the development.
- (4) Calculations for the final peak discharge rates.
- (5) Calculations for any facility or structure size and configuration.
- (6) A drawing showing all proposed stormwater runoff facilities with existing and final grades.
- (7) The sizes and locations of upstream and downstream culverts serving the major drainage routes flowing into and out of the development site. Any significant off-site and on-site drainage outlet restrictions other than culverts should be noted on the drainage map.
- (8) An implementation plan for construction and inspection of all stormwater management facilities necessary to the overall drainage plan, including a schedule of estimated dates of completing construction of the stormwater runoff facilities shown on the plan and an identification of the proposed inspection procedures to ensure that the stormwater management facilities are constructed in accordance with the approved drainage plan.
- (9) A plan to ensure the effective control of construction site stormwater runoff and sediment tracking onto roadways.
- (10) Drawings, profiles, and specifications for the construction of the stormwater runoff facilities reasonably necessary to ensure that stormwater runoff will be drained, stored, or otherwise controlled in accordance with this ordinance.
- (11) A maintenance agreement, in form and substance acceptable to <Insert Community Name>, for ensuring maintenance of any privately-owned stormwater management facilities. The maintenance agreement shall include the developer's written commitment to provide routine, emergency, and long-term maintenance of the facilities in perpetuity and, in the event that the facilities are not maintained in accordance with the approved drainage plan, the agreement shall authorize <Insert Community Name> to maintain an on-site stormwater management facility as reasonably necessary, at the developer's expense.
- (12) The name of the engineering firm and the registered professional engineer that designed the drainage plan and that will inspect final construction of the stormwater runoff facilities.
- (13) All design information must be compatible with the <Muskegon or Ottawa> County Geographic Information System.

- (14) Any other information necessary for <Insert Community Name> and/or <Muskegon or Ottawa> County Drain Commissioner to verify that the drainage plan complies with the <Insert Community Name> and/or <Muskegon or Ottawa> County Drain Commissioner's design and performance standards for drains and stormwater management systems.

Section 3.04 Stormwater Permit Review Fees

- (1) All expenses and costs incurred by <Insert Community Name> and/or <Muskegon or Ottawa> County Drain Commissioner directly associated with processing, reviewing, and approving or denying a stormwater permit application shall be paid (or reimbursed) to <Insert Community Name> and/or <Muskegon or Ottawa> County Drain Commissioner from the funds paid directly to the <Muskegon or Ottawa> County Drain Commissioner or from a separate escrow account established by the developer, as provided in subsection (2). <Insert Community Name> may draw funds from a developer's escrow account to reimburse <Insert Community Name> and/or <Muskegon or Ottawa> County Drain Commissioner for out-of-pocket expenses incurred by <Insert Community Name> and/or <Muskegon or Ottawa> County Drain Commissioner relating to the application. Such reimbursable expenses include, but are not limited to, expenses related to the following:
- (a) Services of the <Insert Community Name> Attorney directly related to the application.
 - (b) Services of the <Insert Community Name> Engineer directly related to the application.
 - (c) Services of other independent contractors working for <Insert Community Name>, which are directly related to the application.
 - (d) Any additional public hearings, required mailings and legal notice requirements necessitated by the application.
- (2) At the time a developer applies for a stormwater permit, the developer shall deposit with the <Insert Community Name> Clerk, as an escrow deposit, an initial amount as determined by resolution of the <Insert Community Name> Board/Council for such matters and shall provide additional amounts as requested by <Insert Community Name> in such increments as area specified in said resolution or shall pay the required fees established by <Muskegon or Ottawa> County Drain Commissioner for a stormwater review. Any excess funds remaining in the escrow account after the application has been fully processed, reviewed and the final <Insert Community Name> approval and acceptance of the development has occurred will be refunded to the developer with no interest to be paid on those funds. At no time prior to <Insert Community Name>'s final decision on an application shall the balance in the escrow account fall below the required initial amount. If the funds in the account are reduced to less than the required initial amount, the developer shall deposit into the account an additional amount to restore the balance to the required initial amount, before the

application review process will be continued. Additional amounts may be required to be placed in the escrow account by the developer, at the discretion of <Insert Community Name>.

Section 3.05 Construction Site Runoff Controls

Prior to making any earth change on a development site regulated by this ordinance, the developer shall first obtain a soil erosion permit from the <Muskegon or Ottawa> County Drain Commissioner issued in accordance with Part 91 of Act No. 451 of the Public Acts of 1994, as amended, if one is required. The developer shall install stormwater management facilities that conform to the <Insert Community Name>'s Stormwater Performance and Design Standards and shall phase the development activities so as to prevent construction site stormwater runoff and off-site sedimentation. During all construction activities on the development site, the <Insert Community Name> Engineer or other <Insert Community Name> representative may inspect the development site to ensure compliance with the approved construction site runoff controls.

Section 3.06 Financial Guarantee

- (1) The <Insert Community Name> Engineer shall not approve a stormwater permit until the developer submits to <Insert Community Name>, in a form and amount satisfactory to <Insert Community Name>, a letter of credit or other financial guarantee for the timely and satisfactory construction of all stormwater runoff facilities and site grading in accordance with the approved drainage plan. Upon certification by a registered professional engineer that the stormwater management facilities have been completed in accordance with the approved drainage plan including, but not limited to, the provisions contained in Section 3.03(8), the <Insert Community Name> may release the letter of credit or other financial guarantee subject to final <Insert Community Name> acceptance and approval.
- (2) Except as provided in subsection (3), the amount of the financial guarantee shall be equal to the construction costs estimate provided by the developer of all stormwater runoff facilities and site grading, unless the <Insert Community Name/Enforcement Authority> determines that a greater amount is appropriate, in which case the basis for such determination shall be provided to the developer in writing. In determining whether an amount greater is appropriate, <Insert Community Name/Enforcement Authority> shall consider the size and type of the development, the size and type of the on-site stormwater system, and the nature of the off-site stormwater management facilities the development will utilize.
- (3) <Insert Community Name/Enforcement Authority> may waive the financial guarantee for a development if the <Muskegon or Ottawa> County Drain Commissioner or the <Muskegon or Ottawa> County Road Commission, as part of their review process, requires a letter of credit or other financial guarantee for the satisfactory construction of all stormwater management facilities.

- (4) <Insert Community Name/Enforcement Authority> may reduce or waive the amount of the financial guarantee for a development that will not increase the percentage of impervious surface of the development site by more than ten percent (10%).
- (5) This ordinance shall not be construed or interpreted as relieving a developer of its obligation to pay all costs associated with on-site private stormwater runoff facilities as well as those costs arising from the need to make other drainage improvements in order to reduce the development's impact on a drain consistent with <Insert Community Name>'s adopted Stormwater Performance and Design Standards.

Section 3.07 Certificate of Occupancy

No certificate of occupancy shall be issued until stormwater management facilities have been completed in accordance with the approved drainage plan; provided, however, <Insert Community Name> may issue a temporary certificate of occupancy if an acceptable letter of credit or other financial guarantee has been submitted to <Insert Community Name>, the <Muskegon or Ottawa> County Drain Commissioner, or the <Muskegon or Ottawa> County Road Commission for the timely and satisfactory construction of all stormwater management facilities and site grading in accordance with the approved drainage plan.

Section 3.08 No Change in Approved Facilities

Stormwater management facilities, after construction and approval shall be maintained in good condition, in accordance with the approved drainage plan, and shall not be subsequently altered, revised or replaced except in accordance with the approved drainage plan, or in accordance with approved amendments or revisions in the plan.

Section 3.09 Terms and Conditions of Permits

In granting a stormwater permit, <Insert Community Name> and/or the <Muskegon or Ottawa> County Drain Commissioner, may impose such terms and conditions as are reasonably necessary to effectuate the purposes of this ordinance. A developer shall comply with such terms and conditions.

A permit is considered to be granted by <Insert Community Name> when approval is granted to a development, unless authorization is required to be granted by the <Muskegon or Ottawa> County Drain Commissioner under state law and this approval has not been offered.

ARTICLE IV. STORMWATER SYSTEM, FLOODPLAIN AND OTHER STANDARDS, SOIL EROSION

Section 4.01 Management and Responsibility for Stormwater System

<Insert Community Name> is not responsible for providing drainage facilities on private property for the management of stormwater on that property. The property owner shall be responsible to provide for, and maintain, private stormwater runoff facilities serving the property and to prevent or correct the accumulation of debris that interferes with the drainage function of a water body.

Section 4.02 Stormwater System

All stormwater management facilities shall be constructed and maintained in accordance with applicable federal, state, and local laws, ordinances, rules and regulations, and they shall not conflict with any existing local stormwater management and watershed plans.

Section 4.03 Stormwater Discharge Rates and Volumes

<Insert Community Name> shall utilize the Performance and Design Standards adopted pursuant to Article VI of this ordinance for stormwater discharge and release rates. However, if the <Insert Community Name> Board/Council makes a specific finding that these standards are insufficient, <Insert Community Name> is authorized to establish minimum design standards for stormwater discharge release rates and to require dischargers to implement on-site retention, detention or other methods necessary to control the rate and volume of surface water runoff discharged into the stormwater drainage system, in the following circumstances:

- (1) A parcel of land is being developed in a manner that increases the impervious surface area of the parcel; or
- (2) The discharge exceeds the <Insert Community Name> approved pre-development discharge characteristics for the subject property, and <Insert Community Name> determines that the discharge is a violation of the drainage, flooding or soil erosion regulations of this ordinance.

Section 4.04 Floodplain Standards

- (1) All new buildings and substantial (per state or federal laws or regulations) improvements to existing buildings shall be protected from flood damage up to the Flood Protection Elevation (FPE) and shall be in accordance with all applicable federal, state and local laws, ordinances, rules and regulations. Floodplain/floodway alteration shall be permitted only upon review and approval by <Insert Community Name> and <Muskegon or Ottawa> County Drain Commissioner, in accordance with an approved drainage plan. If authorized under state law, MDEQ review and approval is also required.

- (2) A drainage plan providing for the filling or alteration of a floodplain/floodway shall include provisions to minimize erosion, stabilize the streambank and to protect water quality. A natural vegetation strip shall be maintained on each parcel or lot between the top of the streambank and a line, each point of which is twenty-five (25) feet horizontal from the top of the streambank toward the stream.
- (3) Within any required buffer zone, no earth change shall take place except in accordance with the approved drainage plan and Soil Erosion and Sedimentation Control Permit as described in Section 4.05. Such a plan may also include provisions for the acceptable replacement of floodplain storage volume, where such storage volume is lost or diminished as a result of approved development.

Section 4.05 Soil Erosion and Sedimentation Control

- (1) All persons who cause, in whole or in part, any earth change to occur shall provide soil erosion and sedimentation control so as to adequately prevent soils from being eroded and discharged or deposited onto adjacent properties or into a stormwater drainage system, a public street or right-of-way, wetland, wetland buffer, creek, stream, water body, or floodplain. All development shall be in accordance with Part 91 of Act No. 451 of the Public Acts of 1994, as amended, and all applicable federal, state and local laws, ordinances, rules and regulation.
- (2) A Soil Erosion and Sedimentation Control (SESC) Permit is required for any earth change that is greater than one acre or less than 500 feet from any lake or stream. Permits are obtained from the SESC Agent in the <Muskegon or Ottawa> County Drain Commissioner office.
- (3) During any earth change which exposes soil to an increased risk of erosion or sediment tracking, the property owner and other persons causing or participating in the earth change shall do the following:
 - (a) Comply with the stormwater management standards of this ordinance;
 - (b) Obtain and comply with the terms of a soil erosion and sedimentation control permit from the <Muskegon or Ottawa> County Drain Commissioner office;
 - (c) Prevent damage to any public utilities or services within the limits of grading and within any routes of travel or areas of work of construction equipment;
 - (d) Prevent damage to or impairment of any water body on or near the location of the earth change or affected by the earth change;
 - (e) Prevent damage to adjacent or nearby land;
 - (f) Apply for all required approvals or permits prior to the commencement of work;
 - (g) Proceed with the proposed work only in accordance with the approved plans and in compliance with this ordinance;

- (h) Maintain all required soil erosion and sedimentation control measures, including but not limited to measures required for compliance with the terms of this ordinance;
- (i) Promptly remove all soil, sediment, debris, or other materials applied, dumped, tracked, or otherwise deposited on any lands, public streets, sidewalks, or other public ways or facilities, including catch basins, storm sewers, ditches, drainage swales, or water bodies. Removal of all such soil, sediment, debris or other materials within 24 hours shall be considered prima facie compliance with this requirement, unless such materials present an immediate hazard to public health and safety;
- (j) Refrain from grading land at locations near or adjoining lands, public streets, sidewalks, alleys, or other public or private property without providing adequate support or other measures so as to protect such other lands, streets, sidewalks, or other property from settling, cracking or sustaining other damage.

Section 4.06 Building Openings

(1) No building opening shall be constructed below the following elevations:

(a) The Flood Protection Elevation;

(b) The building opening established at the time of plat or development approval and on file in <Insert Community Name> and/or the <Muskegon or Ottawa> County Drain Commissioner.

(2) A waiver from elevations stated in Section 4.06(1) may be granted by the <Insert Community Name> Engineer following receipt of a certification from a registered professional engineer demonstrating that the proposed elevation does not pose a risk of flooding.

(3) If the <Muskegon or Ottawa> County Drain Commissioner has specified a minimum building opening at the time of plat or development approval or if construction occurs within the 100-year floodplain, upon completion of construction of the structure's foundation of slab on grade, a registered land surveyor shall certify any minimum building opening elevation specified by this ordinance. This certificate shall attest that the building opening elevation complies with the standards of this ordinance. The permittee for the building permit shall submit the certificate to <Insert Community Name> Building Inspector prior to the commencement of framing and/or structural steel placement. If the surveyor should find that the minimum building opening elevation is below the elevation specified in Section 4.06(1), that opening must be raised using a method that meets with the approval of <Insert Community Name>. After reconstruction, a registered land surveyor or engineer shall re-certify that the minimum building opening elevation complies with the standards of this ordinance prior to the commencement of framing and or structural steel placement.

- (4) The <Insert Community Name> Building Inspector may waive the required land survey under Section 4.06(3) if the minimum building opening appears to be at or above the elevation of adjacent buildings that have already been certified, or if a grade map shows that the low opening elevation of the building is at least three feet higher than the minimum building opening established pursuant to Section 4.06(1).

Section 4.07 Sump Pump Discharge

- (1) Whenever building footing drains are required or utilized, a direct connection between the footing drains through a sump pump-check valve system to a storm sewer is required. A gravity system is not permitted.
- (2) In cases where Section 4.07(1) applies, a stormwater lateral shall be provided for each parcel at the time of storm sewer construction.
- (3) Laundry facilities or other similar features shall not be connected to a footing drain or pump system discharging to footing laterals and the storm sewer system.

Section 4.08 Public Health, Safety and Welfare

Protection of the public health, safety and welfare shall be a primary consideration in the design of all stormwater runoff facilities.

ARTICLE V. PROHIBITIONS AND EXEMPTIONS

Section 5.01 Prohibited Discharges

- (1) No person shall discharge to a water body, directly or indirectly, any substance other than stormwater or an exempted discharge. Any person discharging stormwater shall effectively prevent pollutants from being discharged with the stormwater, except in accordance with BMPs.
- (2) <Insert Community Name> is authorized to require dischargers to implement pollution prevention measures, utilizing BMPs, necessary to prevent or reduce the discharge of pollutants into the <Insert Community Name>'s stormwater drainage system.

Section 5.02 Exempted Discharges

The following non-stormwater discharges shall be permissible, provided that they do not result in a violation of the State of Michigan's water quality standards:

- Water supply line flushing
- Landscape irrigation
- Diverted stream flows
- Rising groundwater
- Uncontaminated groundwater infiltration to storm drains
- Uncontaminated pumped ground water

Discharges from potable water sources
Foundation drains
Air conditioning condensate
Individual residential car washing
Dechlorinated swimming pool water
Street wash water
Discharges or flows from emergency fire fighting activities
Discharges for which a specific federal or state permit has been issued

Section 5.03 Interference with Natural or Artificial Drains

- (1) It shall be unlawful for any person to stop, fill, dam, confine, pave, alter the course of, or otherwise interfere with any natural or constructed drain or drainageway without first submitted a drainage plan to **<Insert Community Name>** and receiving approval of that plan. Any deviation from the approved plan is a violation of this ordinance. This section shall not prohibit, however, necessary emergency action so as to prevent or mitigate drainage that would be injurious to the environment or the public health, safety, or welfare. When any of the above activity involves an established County Drain, a Drain Use Permit is require from the **<Muskegon or Ottawa>** County Drain Commissioner.
- (2) No filling, blocking, fencing or above-surface vegetation planting shall take place within a floodplain/floodway.
- (3) For an overland flow-way:
 - (a) Silt fence shall not be permitted below the top of the bank of a water body.
 - (b) Chain link fences shall be permitted if **<Insert Community Name>** or the **<Muskegon or Ottawa>** County Drain Commissioner determine that the fence will not obstruct or divert the flow of water.
 - (c) If a fence is removed by **<Insert Community Name>** or the **<Muskegon or Ottawa>** County Drain Commissioner for drain access or drain maintenance, the fence shall be replaced by the owner of the fence at the owner's expense, as long as the owner complied with subsection (b) above.
 - (d) No shrubs or trees shall be planted below the top of the bank of a water body.
- (4) Shrubs, trees or other above ground vegetation shall not be planted over the top of an underground storm sewer or over the top of the easement within which the storm sewer has been installed.

Section 5.04 Storage of Hazardous or Toxic Materials in Drainageway

Except as permitted by law, it shall be unlawful for any person to store or stockpile within a drainageway any hazardous or toxic materials unless adequate protection and/or containment has been provided so as to prevent any such materials from entering a drainageway.

Section 5.05 Discharge Prohibitions

(1) Prohibition of Illicit Discharges

No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than stormwater. The commencement, conduct, or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

- (a) The prohibition shall not apply to discharges specified in writing by the authorized enforcement agency as necessary to protect public health and safety.
- (b) The prohibition shall not apply to any non-stormwater discharge permitted under an NPDES permit, waiver, or water discharge order issued to the discharger and administered under the authority of the Federal Environmental requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

(2) Prohibition of Illicit Connections

- (a) The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.
- (b) This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.
- (c) A person is considered to be in violation of this ordinance if the person connects a line conveying wastewater to the MS4, or allows such a connection to continue.

ARTICLE VI. PERFORMANCE AND DESIGN STANDARDS, BEST MANAGEMENT PRACTICES (BMPS)

Section 6.01 Resolution to Adopt and Implement Performance and Design Standards

The <Insert Community Name> Board/Council shall adopt by resolution Stormwater Performance and Design Standards to achieve the goals and purposes set for this ordinance.

Section 6.02 Responsibility to Implement Best Management Practices (BMPs)

The owner or operator of a commercial or industrial establishment, or any developer, shall provide, at the person's own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and nonstructural BMPs. Further, any person responsible for the property of premise, which is or may be the source of an illicit discharge, may be required to implement, at that person's expense, additional structural and nonstructural BMPs to prevent the further discharge of pollutants to the stormwater drainage system or waterbody. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section. These BMPs shall be part of the stormwater pollution prevention plan (SWPP) as necessary for compliance with requirements of the NPDES permit.

Section 6.03 Off-Site Stormwater Management

(1) Requirements

- (a) In lieu of on-site stormwater BMPs, the use of off-site stormwater BMPs and storm drains may be proposed. Off-site stormwater BMPs shall be designed to comply with the requirements specified in the Stormwater Performance and Design Standards adopted by <Insert Community Name>, and all other standards provided by this Ordinance that are applicable to on-site facilities.
- (b) Off-site stormwater management areas may be shared with other landowners, provided that the terms of the proposal are approved by the <Insert Community Name> Board/Council and <Insert Community Name> Attorney. Approval hereunder shall not be granted for off-site stormwater BMPs unless the applicant demonstrates to the <Insert Community Name>, following recommendation by the <Insert Community Name> staff, that the use of off-site stormwater management areas shall protect water quality and natural resources to an equal or greater extent than would be achieved by the use of on-site stormwater management areas.

(c) Adequate provision and agreements providing for maintenance and inspection of stormwater management facilities shall be made, and the documents, in recordable form, recorded instrument, including an access easement, approved by <Insert Community Name>.

(d) Accelerated soil erosion shall be managed off-site as well as on-site.

(2) Performance Guarantees, Inspections, Maintenance, and Enforcement

All provisions for performance guarantees shall apply to off-site stormwater conveyance and detention.

ARTICLE VII. INSPECTION, MONITORING, REPORTING, AND RECORD KEEPING

Section 7.01 Inspection and Sampling

To assure compliance with the standards described in this ordinance, <Insert Community Name> may inspect and/or obtain stormwater samples from stormwater management facilities of any discharger to determine compliance with the requirements of this ordinance. Upon request, the discharger shall allow the <Insert Community Name>'s or the <Muskegon or Ottawa> County Drain Commissioner's properly identified representative to enter upon the premises of the discharger at all hours necessary for the purposes of such inspection or sampling. <Insert Community Name> shall provide the discharger reasonable advance notice of such inspection and/or sampling. <Insert Community Name> or its properly identified representative may place on the discharger's property the equipment or devices used for such sampling or inspection.

Section 7.02 Stormwater Monitoring Facilities

A discharger of stormwater runoff shall provide and operate equipment or devices for the monitoring of stormwater runoff, so as to provide for inspection, sampling, and flow measurement of each discharge to a water body or a stormwater runoff facility, when directed in writing to do so by the <Insert Community Name>. <Insert Community Name> may require the discharger to provide and operate such equipment and devices if it is necessary to appropriate for the inspection, sampling and flow measurement of discharges in order to determine whether adverse effects from or as a result of such discharges may occur. All such equipment and devices for the inspection, sampling and flow measurement of discharges shall be installed and maintained in accordance with applicable laws, ordinances and regulations.

Section 7.03 Accidental Discharges

Any discharger who accidentally discharges into a water body any substance other than stormwater or an exempted discharge shall immediately inform **<Insert Community Name>** and/or the **<Muskegon or Ottawa>** County Drain Commissioner concerning the discharge. If such information is given orally, a written report concerning the discharge shall be filed with **<Insert Community Name>** or the **<Muskegon or Ottawa>** County Drain Commissioner within five (5) days. The written report shall specify:

- (a) The composition of the discharge and the cause thereof.
- (b) The exact date, time, and estimated volume of the discharge.
- (c) All measures taken to clean up the accidental discharge, and all measures proposed to be taken to reduce and prevent any recurrence.
- (d) The name and telephone number of the person making the report, and the name of a person who may be contacted for additional information on the matter.

Section 7.04 Record Keeping Requirement

Any person subject to this ordinance shall retain and preserve for no less than three (3) years any and all books, drawing, plans, prints, documents, memoranda, reports, correspondence and records, including records on magnetic or electronic media and any and all summaries of such records, relating to monitoring, sampling and chemical analysis of any discharge or stormwater runoff from any property.

ARTICLE VIII. STORMWATER MANAGEMENT EASEMENTS AND MAINTENANCE AGREEMENTS

Section 8.01 Applicability of Requirements

Requirements of this Article concerning stormwater management easements and maintenance agreements shall apply to persons required to submit a drainage plan to the **<Insert Community Name>** for review and approval.

Section 8.02 Stormwater Management Easements

(1) Necessity of Easements

Stormwater management easements shall be provided in a form required by the applicable approving body of the **<Insert Community Name>** and the **<Insert Community Name>** Attorney, and recorded as directed as part of the approval of the applicable **<Insert Community Name>** body to assure (1) access for inspections; (2) access to stormwater BMPs for maintenance purposes; and (3)

preservation of primary and secondary drainageways which are needed to serve stormwater management needs of other properties.

(2) Easements for Off-site Stormwater BMPs

The proprietor shall obtain easements assuring access to all areas used for off-site stormwater management, including undeveloped or undisturbed lands

(3) Recording of Easements

Easements shall be recorded with the <Ottawa or Muskegon> County Register of Deeds according to county requirements.

(4) Recording Prior to Building Permit Issuance

The applicant must provide the <Insert Community Name> Clerk with evidence of the recording of the easement prior to final subdivision plat or condominium approval or other applicable final construction approval.

Section 8.03 Maintenance Bond

(1) A maintenance bond shall be provided to the <Insert Community Name>.

(2) The maintenance bond shall be provided for a period of two years commencing from the date of final approval of the stormwater permit.

Section 8.04 Maintenance Agreement

(1) Purpose of Maintenance Agreement

The purpose of the maintenance agreement is to provide the means and assurance that maintenance of stormwater BMPs shall be undertaken.

(2) Maintenance Agreement Required

(a) A maintenance agreement shall be submitted to the <Insert Community Name>, for review by the <Insert title> and his/her designee and <Insert Community Name> Attorney, for all development, and shall be subject to approval in accordance with the stormwater permit. A formal maintenance plan shall be included in the maintenance agreement.

(b) Maintenance agreements shall be approved by the <Insert Community Name> Board/Council prior to final subdivision plat or condominium approval, as applicable, and prior to construction approval in other cases.

(c) A maintenance agreement is not required to be submitted to the <Insert Community Name> for Chapter 18 of the Michigan Drain Code (P.A. 40 of

1956, as amended) that will be maintained by the <Ottawa or Muskegon> County Drain Commission.

(3) Maintenance Agreement Provisions

- (a) The maintenance agreement shall include a plan for routine, emergency, and long-term maintenance of all stormwater BMPs, with a detailed annual estimated budget for the initial three years, and a clear statement that only future maintenance activities in accordance with the maintenance agreement plan shall be permitted without the necessity of securing new permits. Written notice of the intent to proceed with maintenance shall be provided by the party responsible for maintenance to the <Insert Community Name> at least fourteen (14) days in advance of commencing work.
- (b) The maintenance agreement shall be binding on all subsequent owners of land served by the stormwater BMPs and shall be recorded in the office of the <Ottawa or Muskegon> County Register of Deeds prior to the effectiveness of the approval of the <Insert Community Name> Board/Council.
- (c) If it has been found by the <Insert Community Name> Board/Council, following notice and an opportunity to be heard by the property owner, that there has been a material failure or refusal to undertake maintenance as required under this ordinance and/or as required in the approved maintenance agreement as required hereunder, the <Insert Community Name> shall then be authorized, but not required, to hire an entity with qualifications and experience in the subject matter to undertake the monitoring and maintenance as so required, in which event the property owner shall be obligated to advance or reimburse payment (as determined by the <Insert Community Name>) for all costs and expenses associated with such monitoring and maintenance, together with a reasonable administrative fee. The maintenance agreement required under this ordinance shall contain a provision spelling out this requirement and, if the applicant objects in any respect to such provision or the underlying rights and obligations, such objection shall be resolved prior to the commencement of construction of the proposed development on the property.

Section 8.05 Establishment of County Drains

Prior to final approval, all stormwater management facilities for planned subdivisions and site condominium developments shall be established as county drains, as authorized in Section 433, Chapter 18 of the Michigan Drain Code (P.A. 40 of 1956, as amended) for long-term maintenance.

ARTICLE IX. ENFORCEMENT

Section 9.01 Sanctions for Violations

- (1) Any person violating any provision of this ordinance shall be responsible for a municipal civil infraction and subject to a fine of not less than \$50.00 for a first offense, and not less than \$250.00 for a subsequent offense, plus costs, damages, expenses, and other sanctions as authorized under Chapter 87 of the Revised Judicature Act of 1961 and other applicable laws, including, without limitation, equitable relief; provided, however, that the violations stated in Section 8.01(2) shall be a misdemeanor. Each day such violation occurs or continues shall be deemed a separate offense and shall make the violator liable for the imposition of a fine for each day. The rights and remedies provided for in this section are cumulative and in addition to any other remedies provided by law. An admission or determination of responsibility shall not exempt the offender from compliance with the requirements of this ordinance.

For purposes of this section, "subsequent offense" means a violation of the provisions of this ordinance committed by the same person within 12 months of a previous violation of the same provision of this ordinance for which said person admitted responsibility or was adjudicated to be responsible.

The <Insert Community Name> [zoning administrator, building inspector, enforcement officer, etc.] is authorized to issue municipal civil infraction citations to any person alleged to be violating any provision of this ordinance.

- (2) Upon conviction, a person is guilty of a misdemeanor, punishable by a fine of not more than \$500 or imprisonment in the county jail for not more than 93 days, or both such fine and imprisonment, plus costs as may be imposed in the discretion of the court, for any of the following:
- (a) Neglecting or failing to comply with a stop work order issued under Section 9.02;
 - (b) Knowing, at the time of violation, that hazardous materials, pollutants, toxic materials, wastewater, or substance was discharged contrary to any provision of this ordinance, or contrary to any notice, order, permit, decision or determination promulgated, issued or made by the Authorized Enforcement Agency under this ordinance;
 - (c) Intentionally making a false statement, representation, or certification in an application for, or form pertaining to a permit, or in a notice, report, or record required by this ordinance, or in any other correspondence or communication, written or oral, with the Authorized Enforcement Agency regarding matters regulated by this ordinance;
 - (d) Intentionally falsifying, tampering with, or rendering inaccurate any sampling or monitoring device or record required to be maintained by this ordinance;

(e) Committing any other act that is punishable under state law.

(3) Any person who aids or abets a person in a violation of this ordinance shall be subject to the sanctions provided in this section.

Section 9.02 Stop Work Order

Where there is work in progress that causes or constitutes in whole or in part, a violation of any provision of this ordinance, the <Insert Community Name> is authorized to issue a Stop Work Order so as to prevent further or continuing violations or adverse effects. All persons to whom the stop work order is directed, or who are involved in any way with the work or matter described in the stop work order shall fully and promptly comply therewith. The <Insert Community Name> may also undertake or cause to be undertaken, any necessary or advisable protective measures so as to prevent violations of this ordinance or to avoid or reduce the effects of noncompliance herewith. The cost of any such protective measures shall be the responsibility of the owner of the property upon which the work is being done and the responsibility of any person carrying out or participating in the work, and such cost shall be a lien upon the property.

Section 9.03 Failure to Comply; Completion

In addition to any other remedies, should any owner fail to comply with the provisions of this ordinance, the <Insert Community Name> may, after the giving of reasonable notice and opportunity for compliance, have the necessary work done, and the owner shall be obligated to promptly reimburse the <Insert Community Name> for all costs of such work.

Section 9.04 Emergency Measures

When emergency measures are necessary to moderate a nuisance, to protect public safety, health and welfare, and/or to prevent loss of life, injury or damage to property, the <Insert Community Name> is authorized to carry out or arrange for all such emergency measures. Property owners shall be responsible for the cost of such measures made necessary as a result of a violation of this ordinance, and shall promptly reimburse the <Insert Community Name> for all of such costs.

Section 9.05 Cost Recovery for Damage to Storm Drain System

A discharger shall be liable for all costs incurred by the <Insert Community Name> as the result of causing a discharge that produces a deposit or obstruction, or causes damage to, or impairs a storm drain, or violates any of the provisions of this ordinance. Costs include, but are not limited to, those penalties levied by the EPA or MDEQ for violation of an NPDES permit, attorney fees, and other costs and expenses.

Section 9.06 Collection of Costs; Lien

Costs incurred by the <Insert Community Name> and the Drain Commissioner pursuant to Sections 9.02, 9.03, 9.04 and 9.05 shall be a lien on the premises which shall be enforceable in accordance with Act No. 94 of the Public Acts of 1933, as amended from time to time. Any such charges which are delinquent for six (6) months or more may be certified annually to the <Insert Community Name> Treasurer who shall enter the lien on the next tax roll against the premises and the costs shall be collected and the lien shall be enforced in the same manner as provided for in the collection of taxes assessed upon the roll and the enforcement of a lien for taxes. In addition to any other lawful enforcement methods, the <Insert Community Name> or the Drain Commissioner shall have all remedies authorized by Act No. 94 of the Public Acts of 1933, as amended.

Section 9.07 Suspension of MS4 Access

(1) Suspension because of Illicit Discharges in Emergency Situations

<Insert Community Name> may, without prior notice, suspend MS4 discharge access to a person when the suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment or to the health and welfare of persons or to the MS4. If the violator fails to comply with a suspension order issued in an emergency, <Insert Community Name> may take steps deemed necessary to prevent or minimize damage to the MS4 or the environment, or to minimize danger to the health or welfare of persons.

(2) Suspension because of the Detection of Illicit Discharge

Any person discharging to the MS4 in violation of this ordinance may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. <Insert Community Name> will notify a violator of the proposed termination of its MS4 access. A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this Section, without the prior approval of <Insert Community Name>.

Section 9.08 Appeals

Any person to whom any provision of this ordinance has been applied may appeal the decision in writing to the <Insert Community Name> Board/Council, not later than thirty (30) days after that action or decision. The appeal shall identify the matter being appealed, and the basis for the appeal. The <Insert Community Name> Board/Council shall consider the appeal and make a decision to affirm, reject or modify the appealed action. In considering any appeal the <Insert Community Name> Board/Council may consider the recommendations of the <Insert Community Name> Engineer and the comments of other persons having knowledge of the matter. In considering any appeal, the <Insert Community Name> Board/Council may grant a variance from the terms of

this ordinance so as to provide relief, in whole or in part, from the appealed action, but only upon finding that the following requirements are satisfied:

ARTICLE X. OTHER MATTERS

Section 10.01 Construction of Language

For purposes of this Ordinance, the following rules of construction apply:

- (1) Words and phrases in this ordinance shall be construed according to their common and accepted meanings, except that words and phrases defined in Article II shall be construed according to the respective definitions given in that article.
- (2) Particulars provided by way of illustration or enumeration shall not control general language.
- (3) Ambiguities, if any, shall be construed liberally in favor of protecting natural land and water resources.
- (4) Words used in the present tense shall include the future, and words used in the singular number shall include the plural, and the plural the singular, unless the context clearly indicates the contrary.
- (5) Technical words and technical phrases which are not defined in this ordinance but which have acquired particular meanings in law or in technical usage shall be construed according to such meanings.

Section 10.02 Catch-Line Headings

The catch-line headings of the articles and sections of this ordinance are intended for convenience only, and shall not be construed as affecting the meaning or interpretation of the text of the articles or sections to which they may refer.

Section 10.03 Severability

The provisions of this ordinance are severable. If any section, clause, provision or portion of this ordinance is adjudged unconstitutional, invalid or unenforceable by a court of competent jurisdiction, the remainder of this ordinance shall remain in force and effect.

Section 10.04 Other Ordinances

This ordinance shall be in addition to the other ordinances of <Insert Community Name>. This ordinance shall not be deemed to repeal or replace other ordinances or parts of ordinances, except to the extent that repeal is specifically provided for in this Article.

Rein in the Runoff Draft Stormwater Performance and Design Standards

Stormwater management facilities for new and redevelopment shall be designed in accordance with current **Ottawa or Muskegon** County Standards and the requirements adopted pursuant to the **(Township/City)** Stormwater Management Ordinance. In general, these standards are more stringent than the County standards to further protect the integrity of downstream surface waters, including Spring Lake.

1.0 Retention of Storm Water Runoff

All new developments within the **(insert municipality name here)** shall provide sufficient stormwater management facilities to fully retain stormwater runoff from events up to and including the 100-year, 24-hour storm onsite. Infiltration and/or capture and reuse technologies should be utilized to meet this standard.

2.0 Exceptions for Full Retention

Under a few circumstances, the **(Township/City)** **(Board/Planning Commission)** may waive the requirement for full retention of stormwater onsite. It will be the responsibility of the developer to adequately demonstrate why infiltration and/or capture and reuse technologies cannot be utilized to meet the retention requirement. Situations for which the **(Township/City)** **(Board/Planning Commission)** may consider waiving (or reducing) the retention requirement include:

- **Soil contamination.** Infiltration may not be feasible in areas of soil contamination if there is a risk of contaminating groundwater. The developer will need to demonstrate why soil remediation is not feasible. Capture and reuse technologies should be utilized to the extent possible for these sites.
- **Poorly draining soils.** The developer will need to provide documentation (based on on-site infiltration tests) identifying the permeability rates of the existing soils. Capture and reuse technologies should be utilized to the extent possible for these sites.
- **High groundwater table.** The developer will need to provide documentation (based on on-site tests) identifying the elevation of the groundwater table. Capture and reuse technologies should be utilized to the extent possible for these sites.

In approving a waiver to the full retention requirement, **(Township/City)** **(Board/Planning Commission)** will determine the appropriate alternate performance standards. In no instances will the alternate standard be less than what is required by **Ottawa or Muskegon** County.

3.0 Requirements for Redevelopment

Note to Reviewers – A few options are presented below. Individual components of each option may be combined if desired. Twenty percent (20%) is a fairly arbitrary number that should be adjusted based on the needs of the communities.

Option 1 Text:

- A. It is the intention of the (City/Township) that redevelopment of all properties within the (City/Township) shall require the existing stormwater management facilities be upgraded to meet the current standards of the County and the requirements adopted pursuant to the (Township/City) Stormwater Management Ordinance. At the discretion of the (Township/City) (Board/Planning Commission), a redevelopment may not be required to fully upgrade the existing storm water management facilities of the site if all of the following apply:
 - a. The impacted area of the site associated with the redevelopment is less than twenty percent (20%) of the total site area.
 - b. The total impervious surface of the site is reduced or unchanged.
- B. Where full compliance with the requirements of the current standards of the County and the requirements adopted pursuant to the (Township/City) Stormwater Management Ordinance is not required, the following reduced performance criteria will be required:
 - a. Where the total impervious surface of the site is increased, retention shall be provided for the proposed impervious surfaces. Retention of a 100-year storm event shall be provided.
 - b. Where feasible, stormwater quality BMPs shall be installed to provide treatment for runoff from the existing impervious surfaces.

Option 2 Text:

- A. All redevelopment projects shall reduce the existing site impervious area by at least twenty percent (20%). Where site conditions prevent the reduction of impervious area then stormwater management practices shall be implemented to provide for retention of stormwater runoff from at least twenty percent (20%) of the site's existing impervious area. When a combination of impervious area and stormwater storage is used, the combined area shall equal or exceed twenty percent (20%) of the site.
- B. Where conditions prevent impervious area reduction or on-site stormwater management, practical alternatives may be considered, including but not limited to:
 - a. Fees;
 - b. Off-site BMP implementation for a drainage area comparable in size and percent imperviousness to that of the project;
 - c. Watershed or stream/lake restoration;
 - d. Retrofitting; or
 - e. Other practices approved by the (City/Township).

Appendix H: Animal Waste Management Ordinances

1. Animal Waste Ordinance
2. Waterfowl Ordinance

Animal Waste Ordinance

This sample ordinance is general guidance to assist local communities interested in implementing an animal waste control ordinance. This ordinance is NOT legal advice. Details of both substance and process in an ordinance will vary from community to community based on local conditions and institutional structures. Proposed ordinances should not be finalized without advice and involvement of legal counsel.

Animal Excrement Control

- (a) Every person having any animal under his or her ownership, custody, supervision, or control shall promptly and thoroughly remove all excrement left by the animal upon any private or public property. Provided, however, a person may fail to remove such excrement from private property which that person owns or in which he or she has a lawful possessory interest, or on which he or she is an invitee with permission of the owner or lawful possessor to not remove animal excrement.
- (b) It shall be unlawful for any person to appear with any animal or any private or public property unless that person has then in his or her possession an appropriate device for the immediate and thorough removal of any excrement left by that animal. Provided, however, a person may fail to have in his or her possession an appropriate device for the immediate and thorough removal of animal excrement from private property which that person owns or in which he or she has a lawful possessory interest, or on which he or she is an invitee with permission of the owner or lawful possessor to not have such a device.
- (c) Penalty
 - (1) A violation of this provision shall constitute a municipal civil infraction, which, upon an admission or finding of responsibility, shall result in a fine of not less than fifty dollars (\$50).
 - (2) A second violation of this provision within two (2) years shall constitute a municipal civil infraction which, upon an admission or finding of responsibility, shall result in a fine of not less than one hundred dollars (\$100.00).
 - (3) A third or subsequent violation of this provision within two (2) years of the first such violation shall constitute a municipal civil infraction which upon an admission or finding of responsibility shall result in a fine of not less than three hundred dollars (\$300.00).
 - (4) All police officers, public service department technicians, and the Building Inspector and Zoning Administrator are authorized to issue civil infraction citations pursuant to this section.

Waterfowl Ordinance

This sample ordinance is general guidance to assist local communities interested in implementing a waterfowl control ordinance. This ordinance is NOT legal advice. Details of both substance and process in an ordinance will vary from community to community based on local conditions and institutional structures. Proposed ordinances should not be finalized without advice and involvement of legal counsel.

Prohibition of Waterfowl Feeding Ordinance

- (a) No person may feed waterfowl on public or private property within the (Township/City/Village), or place or permit to be placed on the ground, shoreline, waterbody, or any structure, food, food by-products, garbage, or animal food, which may reasonably be expected to intentionally result in waterfowl feeding, unless such items are screened or protected in a manner that prevents waterfowl from feeding on them.
- (b) This prohibition shall not apply to:
 - (1) Veterinarians, municipal animal control officers, or state or federal game officials who while operating within the course and scope of their duties have waterfowl in custody or under their management;
 - (2) Persons authorized by the (Township/City/Village) to implement a Canada goose management program or any other waterfowl management programs approved by the (Township/City/Village) council;
 - (3) Any food place upon the property for purposes of trapping or otherwise taking geese or other waterfowl, where such trapping or taking is pursuant to a permit issued by the Michigan Department of Natural Resources.
- (c) Penalty
 - (1) The first violation of this section shall result in a written warning from the (Township/City/Village);
 - (2) Subsequent violations shall be a municipal civil infraction, which, upon an admission or finding of responsibility, shall result in a fine of not less than fifty dollars (\$50).

Appendix I: Stormwater Education and Outreach Resources

1. Grand Valley State University, Annis Water Resources Institute. Rein in the Runoff: Stormwater Education. URL: <http://gvsu.edu/wri/director/index.cfm?id=4D8ED095-9CAD-958E-6D667C05AFE3E95B> (accessed January 17, 2010).
2. Southeast Michigan Council of Governments (SEMCOG), Low Impact Development. Low Impact Development Manual for Michigan: A Design Guide for Implementers and Reviewers. URL: <http://www.semco.org/lowimpactdevelopmentreference.aspx> (accessed January 18, 2010).

Chapter 4: Integrating LID at the Community Level. URL: http://www.semco.org/uploadedfiles/Programs_and_Projects/Water/Stormwater/LID/LID_Manual_chapter4.pdf (accessed January 18, 2010).
3. U.S. Environmental Protection Agency, National Pollutant Discharge Elimination System (NPDES). National Menu of Stormwater Best Management Practices: Public Education and Outreach on Stormwater Impacts. URL: http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=min_measure&min_measure_id=1 (accessed January 17, 2010).
4. Michigan Department of Transportation. Outreach Materials: Storm water education materials you can use. URL: <http://www.michigan.gov/stormwatermgmt/0,1607,7-205-30103---,00.html> (accessed January 17, 2010).
5. Center for Watershed Protection. Resources: Residential Stewardship. URL: http://www.cwp.org/Resource_Library/Restoration_and_Watershed_Stewardship/residential.htm (accessed January 17, 2010).
6. University of Wisconsin, National Farm*A*Syst/Home*A*Syst Program. URL: <http://www.uwex.edu/homeasyst/index.html> (accessed January 17, 2010).
7. Mississippi Coastal Management and Planning Office. Stormwater Management Toolbox: Public Education BMPs. URL: <http://www.dmr.state.ms.us/CMP/Storm/SECTION-2/Public-Education-BMPs.pdf> (accessed January 17, 2010).

Appendix J: Stormwater Utility Ordinance Guidance

1. City of Marquette (MI) Stormwater Utility Ordinance
2. Guidance on Establishing Stormwater Utility Fees

City of Marquette (MI) Stormwater Utility Ordinance

This sample ordinance is general guidance to assist local communities interested in implementing a stormwater utility ordinance. This ordinance is NOT legal advice. Details of both substance and process in an ordinance will vary from community to community based on local conditions and institutional structures. Proposed ordinances should not be finalized without advice and involvement of legal counsel.

CHAPTER 57 - STORM WATER UTILITY

57.1 Definitions.

“Best Management Practices” or “BMP”. Combining of practices that form an effective, predictable means of preventing or reducing storm water pollution generated by dischargers into the system.

“Clean Water Act”. The Federal Water Pollution Control Act, 33 USC Sec. 1251 et. seq., as amended, and applicable regulations promulgated thereunder.

“Developed Parcel”. A parcel upon which man-made improvements have been made, such as buildings, roads, parking areas and lawns. Undeveloped areas include forested areas and property in its natural state, free of man-made improvements.

“Discharger”. Any individual, firm, partnership, association, public or private corporation or public agency or instrumentality or any other entity owning or in possession of a parcel of property which directly or indirectly impacts, influences or has an effect upon the system. For purposes of any judicial proceeding in connection with a violation of this Chapter, “Discharger” shall include any employee, officer, director, partner or other individual who was affiliated with such property owners or operator and was directly involved with, or responsible for, any act or omission which violated this Chapter.

“Equivalent Hydraulic Acre” or “EHA”. A measure of the amount of storm water runoff a parcel will produce from a precipitation event. A parcel’s EHA is based upon the amount of pervious and impervious areas within the parcel multiplied by the runoff factors applicable to each.

“Impervious Land Area”. The surface area within a parcel that is covered by any material which retards or prevents the entry of water into the soil. Impervious Land Area includes, but is not limited to, surface areas covered by buildings, porches, patios, parking lots, driveways, walkways and other structures. Generally, all non-vegetative land areas shall be considered impervious.

“On-Site Retention”. The withholding of all storm water from the system in an on-site area for a sufficient time to provide for it to dissipate by evaporation, infiltration into the soil, or other natural means in which no connection is made to the storm water system directly or indirectly.

“On-Site Detention”. Any facility employed to reduce to rate of storm water discharge from a property to the storm water system.

“Parcel”. A designated lot, tract or other area of land established by plat, subdivision, tax record description or as otherwise permitted or existing by law.

“Person”. An individual, firm, partnership, association, public or private corporation, or public agency or instrumentality or any other entity.

“Pervious Land Area”. All surface area within a parcel which is not Impervious Land Area.

“Pollutant”. Any substance defined as a pollutant under the Clean Water Act.

“Precipitation Event”. For purposes of this Ordinance, a precipitation event is any occurrence of atmospheric precipitation of water which can be characterized as a separate storm event. The terms rain, rainstorm, rainfall, snow, snowstorm, sleet, hailstorm, etc., shall be considered synonymous with the term precipitation event.

“Storm water”. The runoff and drainage of precipitation resulting from rainfall or snowmelt or similar precipitation event.

“Storm water System or Systems”. All rivers, streams, tributaries and lakes, including Lake Superior, within the City limits of the City of Marquette and all City owned storm sewers, culverts, retention and detention facilities, lift stations, curbs, gutters, and all other appurtenances now and thereafter existing, used or useful, in connection with the collection, control, transportation, treatment, or discharge of storm water. The storm water system does not include sewers or facilities connected with the sanitary sewage disposal system, or streets.

“User Charge”. A service fee imposed upon Dischargers into the system.

“Water Quality Factor”. A factor to adjust for the quality of storm water leaving the parcel.

57.2 Storm Water Service Charge.

Dischargers shall be charged for the administration, construction, operation, maintenance and replacement of the storm water system. The charge shall be based on the assigned or calculated equivalent hydraulic area as modified by any applicable water quality factor.

57.3 Flat Rate Charges.

The monthly charge per parcel for the following properties shall be:

Residential Developed, four living units or less on the following parcel size:

EFFECTIVE:	7/1/2005	7/1/2006	8/1/2006	7/1/2007
1/5 acres or less	\$1.76	\$1.87	\$2.45	\$ 2.58
Over 1/5 to 1 acre	\$3.01	\$3.19	\$4.18	\$ 4.39
Over 1 acre to 2 acres	\$4.77	\$5.06	\$6.63	\$ 6.97
Over 2 acres to 6 acres	\$9.11	\$9.68	\$12.66	\$13.30

Dischargers shall have the option to have their charges calculated pursuant to Section 57.4 of this ordinance if all or some of the parcel is serviced by a retention or detention facility designed by a licensed engineer in the State of Michigan and approved by the City Engineer.

57.4 Charges Based on Land Area.

1) Monthly Charges: The monthly charges for properties other than described in Section 57.3 shall be computed in the following manner:

EFFECTIVE:	7/1/2005	7/1/2006	8/1/ 2006	7/1/2007
Rate per EHA	\$35.04	\$37.23	\$48.71	\$51.15

multiplied by any applicable Water Quality Factor as determined by the City Engineer. The Water Quality Factor may be adjusted annually as additional supporting data becomes available. The minimum monthly charge shall be equal to the flat rate residential charge for a parcel of same acreage as defined in Section 57.3. except where charge is \$0.00 due to use of approved retention area.

2) Calculation of EHAs: Individual EHAs are calculated by multiplying each parcel's pervious and impervious area by the following runoff factors:

(a) 0.15 for pervious area.

(b) 0.00 for impervious area discharging to an approved retention area. To receive credit under this section, the retention area shall be constructed and maintained pursuant to a permit approved by the City.

(c) 0.15 for impervious area discharging to an approved detention facility. To receive credit, the detention facility shall be approved pursuant to a permit issued by the City or a permanent dedication in a deed or plat.

(d) 0.00 for pervious area serviced by an approved retention area.

(e) 0.95 for impervious area.

Any detention basin permit issued pursuant to this section shall be supported by a certification of a professional engineer that runoff rates from the parcel for a 100 year, 24 hour duration storm event will not exceed a 10 year, 24 hour duration storm event for an equivalent undeveloped parcel. Any retention basin permit issued pursuant to this section shall be supported by a certification of a professional engineer that the basin volume is capable of holding the runoff from the parcel from a 100 year, 24 hour event.

57.5 Property Affected.

All dischargers shall be subject to the storm water service charge, regardless of whether privately or publicly owned property is involved, unless an exemption applies under 57.3 herein.

57.6 Billing.

The billing for storm water service shall be sent to the property owner or the owner's designee and may be: (1) combined with the billing for other utility services; (2) sent individually; or, (3) sent with property tax statements at the City's discretion. The basis for the billing shall be computed by the City Manager's designee.

57.7 Appeals.

Property owners may appeal to the City Commission the property classification or the computation of the service charge. Appeals of the decisions of the City Commission shall be by petition to a court of appropriate jurisdiction. Each storm water service bill sent out shall contain a telephone number that may be called for information regarding the appeal process. All due and delinquent storm water charges must be paid, or satisfactory arrangements for payment made with the City Commission, prior to the Commission's consideration of the appeal.

57.8 Payment.

All charges not paid on or before the established due date shall be considered delinquent and subject to the following:

- (a) Interest charges.
- (b) Rebilling charges.
- (c) Property lien.

(d) Attorney fees, if a civil suit is filed to collect delinquent charges.

57.9 Collection.

Unpaid storm water service charges shall constitute a lien against the property affected from the date the charges were incurred. Charges which have remained unpaid for a period of three (3) months prior to April 1st of any year may, after notice to the owner, by resolution of the City Commission, be certified to the City Assessor who shall place the charge on the City Tax Roll. In the alternative, the City may file suit to collect unpaid charges.

57.10 Use of Funds.

All funds collected for storm water service shall be placed in an enterprise fund and used solely for the administration, construction, operation, maintenance and replacement of the storm water system. This storm water utility or enterprise fund shall be deemed to regulate and manage storm water quality and quantity in the City of Marquette.

57.11 Regulations.

The City Manager is authorized to promulgate regulations that require dischargers to implement pollution prevention measures, best management practices, and other methods to prevent or reduce the discharge of pollutants into, or by, storm waters. Regulations promulgated hereunder shall be effective ten (10) days after approval by the Marquette City Commission.

57.12 Severability.

If any portion of this Ordinance or the application thereof to any person or circumstances shall be found to be invalid, such invalidity shall not affect the remaining portions or applications of the ordinance which can be given effect without the invalid portion or application, provided such remaining portions are not determined to be inoperable, and to this end the ordinance is declared to be severable.

57.13 Penalty.

A person who violates any section of this chapter shall be responsible for a civil infraction. All sections in conflict herewith are repealed.

Guidance on Establishing Stormwater Utility Fees

Stormwater utility fees must be based on the costs associated with maintaining and improving the municipality's storm sewer system. Improvements could include installation of new BMPs or retrofits to existing BMPs. Costs associated with maintaining the system could include regular inspection and maintenance (including cleaning) of catch basins and other facilities and street sweeping.

To ensure equitability of the fee among users, stormwater fees should be assigned based on the amount of runoff generated from the site. The rational method is a commonly accepted method for determining peak stormwater flows for a given storm event. The calculation is based on total impervious acreage, which is the product of the watershed area (A) and a runoff coefficient (c). The portion of the total stormwater runoff generated by any given site will be directly proportional to the portion of impervious acreage for the site relative to the impervious acreage for the drainage area of the entire system.

The municipality will need to determine the total cost associated with treating stormwater within their community, and base utility fees on that amount. Adjustments to the fees (or quarterly usage fees) may be required as expenses are not likely to remain consistent with initial estimates. Additionally, the municipality should determine the total impervious acreage ($A \times c$) served by the public system.

Utility fees for each site should be based on the following ratio:

$$\frac{(A \times c)_{site}}{(A \times c)_{total}}$$

Ideally, the municipality would determine the exact impervious acreage for each site using aerial photographs. The municipality could then identify a cost per impervious acre and assess each property a unique fee. Alternatively, a fee schedule may be generated that would assign a cost per acre for various ranges of percentage of imperviousness of a site. If identification of the exact imperviousness of each site is not feasible, the municipality could alternatively determine a "typical" imperviousness for various land uses, based on lot size. Generally, smaller properties have higher percentages of imperviousness than larger lots, and a fee per acre for a range of land use types and parcel sizes could be generated. A landowner will have the opportunity to appeal for a reduction in the fee if the actual imperviousness of the site is less than "typical." To be conservative, the "typical" value for imperviousness could be higher than what might be an average imperviousness.

Credits for LID-BMPs must be provided so that landowners can limit their use of the municipality's stormwater services. A good strategy for determining the value of these credits would be to identify what impact the BMP would have on the overall stormwater runoff within the community. This could be relative to the percent reduction in runoff from a "typical" site, or relative to the percent reduction in runoff for the entire system.