

## ISABELLA COUNTY DRAIN COMMISSIONER

Isabella County, Michigan

Rick Jakubiec, Isabella County Drain Commissioner, has adopted the following site development rules for storm water management:

### **SITE DEVELOPMENT RULES TO PROVIDE STORM WATER PERFORMANCE AND DESIGN STANDARDS FOR NEWLY DEVELOPED AND REDEVELOPED PROPERTIES**

#### **§ 1.01 INTRODUCTION.**

- (A) These rules have been prepared as a collaborative effort by the Isabella County Drain Commissioner's office and the municipal entities of the Charter Township of Union, Chippewa Township, and the City of Mt. Pleasant.
- (B) The purpose of these rules is to establish general compliance requirements for storm water management practices. The rules establish the framework through which detention and/or retention measures will be implemented and details the process that must be followed to gain approval for new developments and redevelopment drainage systems and maintenance of storm water systems. Except as provided in Section 1.03, the standards, procedures, and permitting requirements set forth in these rules apply only to development and redevelopment projects (as defined below), and not to projects involving the construction of single family or two-family detached dwellings, or to projects involving additions, extensions, or modifications to such dwellings or the parcels on which they are located.
- (C) The purpose of these rules is to accomplish, among others, the following objectives:
  - (1) Reduce artificially induced flood damage;
  - (2) Minimize increased storm water runoff rates and volumes from identified new land development;
  - (3) Minimize the deterioration of existing watercourses, culverts and bridges, and other structures;
  - (4) Encourage water recharge into the ground where geologically favorable conditions exist;
  - (5) Reduce non-point source pollution;
  - (6) Maintain the integrity of stream channels for their biological functions as well as for drainage and other purposes;
  - (7) Minimize the impact of development upon stream bank and streambed stability;
  - (8) Reduce erosion from development or construction projects;
  - (9) Preserve and protect water supply facilities and water resources by means of controlling increased flood discharges, stream erosion, and runoff pollution;
  - (10) Reduce storm water runoff rates and volumes, soil erosion, and non-point source pollution, wherever practicable, from lands that were developed without storm water management controls meeting the purposes and standards of these rules; and
  - (11) Reduce the adverse impact of changing land use on water bodies and, to that end, these Storm water Rules establish minimum standards to protect water bodies from degradation resulting from changing land use where there are insufficient storm water management controls.

(D) These rules cover the following topics:

- (1) A summary of the procedures to be followed under these rules, including requirements, review procedures, inspection requirements, and other agency requirements;
- (2) A description of design requirements and engineering calculations; and
- (3) A description of minimum design criteria and rules to be followed for design of new drainage systems and the maintenance of those systems.

**§ 1.02 GENERAL DEFINITIONS.**

- (1) *Authority Having Jurisdiction ("AHJ").* An (AHJ) is a political subdivision or other entity (*i.e.* a city, township, or the Isabella County Drain Commissioner) authorized to issue a storm water permit for a given project. When an (AHJ) other than the Drain Commissioner is exercising jurisdiction over a project, the terms of the storm water ordinance adopted by that particular (AHJ) shall apply. For the purpose of these rules, when the (AHJ) is the Drain Commissioner, the term "Drain Commissioner" will be used.
- (2) *Allowable Discharge.* The restricted discharge from a site after development or redevelopment as calculated in accordance with these rules.
- (3) *Base Flood.* The flood having a one percent (1%) chance of being equaled or exceeded in any given year.
- (4) *Base Flood Elevation.* The elevation of surface water from a flood that has a one percent (1%) chance of equaling or exceeding that level in any given year. The base flood elevation is shown on Flood Insurance Rate Maps (FIRMs).
- (5) *Base Floodplain.* The area inundated by the Base Flood.
- (6) *Best Management Practices (BMPs).* 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, (including, but not limited to minimizing storm water runoff and preventing the discharge of pollutants into storm water) and the Low Impact Development Manual for Michigan as determined by the Drain Commissioner and/or designer.
- (7) *Bio-retention Areas.* Areas designed to use soil and plant material to mimic natural processes and store, filter, and infiltrate storm water into the ground. These areas may be used anywhere to achieve a degree of storm water treatment.
- (8) *Clean Water Act.* The Federal Water Pollution Control Act, 33 USC Sec 1251 et seq., as amended, and the applicable regulations promulgated thereunder.
- (9) *Conduit.* Any channel, pipe, sewer or culvert used for the conveyance or movement of water whether open or closed.
- (10) *Construction Site Storm Water Runoff.* Storm water runoff from a development site following an earth change.
- (11) *Control Elevation.* Contour lines and points of predetermined elevation used to denote a detention storm area on a plat or site drawing.
- (12) *Designee.* The engineer formally designated by the Drain Commissioner or its appointee to act as its engineer.
- (13) *Design Professional.* Design professional responsible for the design of a drainage plan, who must have appropriate qualifications and licenses to produce types of plans and perform the types of calculations required under these rules.
- (14) *Detention.* The capture of storm water and release over a given period of time through an outlet structure at a controlled rate.

- (15) *Detention Facility*. A facility constructed or modified to restrict the flow of storm water to a prescribed maximum rate and to concurrently detain the excess waters that accumulate behind the outlet.
- (16) *Detention Storage*. The temporary detaining or storage of storm water in storage basin, on rooftops, in streets, parking lots, school yards, parks, open space, or other areas under predetermined and controlled conditions, with the rate of drainage regulated by appropriately installed devices.
- (A) *Developed or Development*. The installation or construction of impervious surfaces on a development site that requires, pursuant to state law or local ordinance, the Drain Commissioner's or (AHJ's) approval of a site plan, plat, site condominium, special land use, planned unit development, or the erection of buildings or structures; provided, however, the terms "developed" or "development" do not refer to individual single-family or two-family detached dwellings or projects involving the construction of such a dwelling, or to projects involving an addition, extension or modification to such dwelling or the parcel on which it is located (since projects requiring a building permit on the site of a single-family or two-family detached dwelling are subject to the requirements in Section 1.03 of these rules).
- (17) *Developer*. Any person proposing or implementing the development of land.
- (18) *Development Site*. Any land that is being or has been developed or that a developer proposes for development.
- (19) *Discharge*. The release or outflow of water from any source.
- (20) *Discharger*. Any person or entity that directly or indirectly discharges storm water 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 that is or results in a violation of the (AHJ's) storm water ordinance or these rules.
- (21) *Drain*. Any drain as defined in the Drain Code of 1956, as amended, being MCL 280.1, etc. seq., other than an established county or intercounty drain.
- (22) *Drainage*. The collection, conveyance, or discharge of groundwater and/or surface water.
- (23) *Drainage Area*. The area from which storm water runoff is conveyed to a single outlet (i.e. a watershed or catchment area).
- (24) *Drainage Way*. The area within which surface water or groundwater is carried from one part of the lot or parcel to another part of the lot or parcel or to adjacent land.
- (25) *Drain Commissioner*. The Isabella County Drain Commissioner or his designee.
- (26) *Drainage District/Watershed*. All drainage areas contributing surface water runoff upstream of a discharge location of the proposed development.
- (27) *Drains (Privately-Owned)*. Those drains under private ownership and not under the control of the Drain Commissioner's office or any other public entity.
- (28) *Earth Change*. Any human activity, which removes groundcover, changes the slope or contours of the land, or exposes the soil surface to the actions of wind and rain. Earth change includes, but is not limited to, any excavating, surface grading, filling, landscaping, or removal of vegetative roots.
- (29) *EPA*. The United States Environmental Protection Agency.
- (30) *Erosion*. The process by which the ground surface is worn away by action of wind, water, gravity or a combination thereof.
- (31) *Excess Storm Water Runoff*. The volume and rate of flow of storm water discharged from a drainage area, which is in excess of the allowable drainage.
- (32) *Exempted Discharges*. Discharges other than storm water.

- (33) *Federal Emergency Management Agency (FEMA)*. The agency of the federal government charged with emergency management.
- (34) *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 and rapid accumulation of surface water runoff from any source.
- (35) *Floodplain*. Any land area susceptible to being inundated by flood waters from any source.
- (36) *Flood Proofing*. Any combination of structural and nonstructural additions, changes, or adjustments to structures, which reduce or eliminate the risk of flood damage to real estate or improved real property, water and sanitary facilities, or structures with their contents.
- (37) *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 service elevation more than one-tenth of a foot due to the loss of flood conveyance or storage.
- (38) *Floodway Opening*. Any opening of a solid wall such as a window or door, through which floodwaters could penetrate within the floodway.
- (39) *Forebay*. These are manmade surface waters used as pretreatment systems. They are designed to temporarily store the first flush of runoff from a storm event and provide for pollutant removal through settling. A forebay or other pretreatment system is recommended at each inlet to a detention system or retention basin.
- (40) *Forebay Outlets*. Outlets that convey flow from a forebay into detention systems and retention basins. They must include a flow restrictor for restricted flow and a weir for unrestricted flow.
- (41) *Freeboard*. A volume of additional storage designed with a detention basin. A “Safety Factor” within a storm water detention system that is based on a minimum of one foot (1’) detention volume above the proposed high water elevation of a detention pond. This volume provides additional storm water detention in the event that a storm exceeds the design capacity.
- (42) *Grading*. Any stripping, excavating, filling, and stockpiling of soil or any combination thereof and the land in its excavated or filled condition.
- (43) *Green Roofs*. The roofs are constructed of a lightweight soil medium, layered over a waterproofing membrane. The soil is planted with a specialized mix of plants that can thrive in a roof environment. These types of roofs are also known as vegetated roof covers, eco-roofs, or nature roofs.
- (44) *ICDC*. Isabella County Drain Commissioner.
- (45) *Illicit Connection*. Any method or means for conveying an illicit discharge into water bodies or the County’s storm water system.
- (46) *Illicit Discharge*. Any discharge to water bodies that does not consist entirely of storm water, discharges pursuant to the terms of an NPDES permit, or exempted discharges as defined in these rules.
- (47) *Impervious Surface*. Surface that does not allow storm water runoff to percolate into the ground.
- (48) *Infiltration*. A process whereby precipitation or groundwater seeps into the ground.
- (49) *Infiltration Trench*. Also known as a percolation trench, is a shallow excavated trench filled with gravel or crushed stone designed to infiltrate storm water through permeable soils into the ground water aquifer. This type of trench is not considered a preferred means of discharging storm water.
- (50) *Leaching Basin*. A catch basin that is fabricated of barrel and riser sections that permit runoff into the ground. This type of basin is not considered an effective means of controlling and treating storm water runoff.

- (51) *Low-Impact Design (LID)*. A storm water management strategy that aims to control water, both rainfall and storm water runoff, at the source.
- (52) *Lowest Floor*. The lowest floor of the lowest enclosed area (including a basement). An unfinished or flood resistant enclosure, usable solely for parking vehicles, building access, or storage in an area other than a basement area, is not considered a building's lowest floor provided that such enclosure is not built so as to render the structure in violation of requirements.
- (53) *MDEQ*. Michigan Department of Environmental Quality
- (54) *Minimal Flood Protection Elevation (FPE)*. The Base Flood Elevation plus one foot (1') at any given location. That elevation which provides reliable flood protection above the base flood protection, no less than one foot (1').
- (55) *NPDES*. National Pollution Discharge Elimination System.
- (56) *NREPA*. Natural Resources and Environmental Protection Act, Act 451, of 1994, as amended.
- (57) *O & M Plan*. Operations and Maintenance Plan describes resource organization, responsibilities, policies, and general procedures.
- (58) *Overland Flow-way*. Surface area that conveys a concentrated flow of storm water runoff.
- (59) *Owner*. Any person or entity having legal or equitable title to property or any person or entity having or exercising care, custody, or control over any property.
- (60) *Peak Discharge*. The maximum volume of discharge of storm water runoff at a given location.
- (61) *Peak Flow*. The maximum rate of flow of storm water runoff at a given location.
- (62) *Person*. An individual, firm, partnership, association, public or private corporation, public agency, instrumentality, or any other legal entity.
- (63) *Pervious Pavement*. A porous surface that allows rainwater to pass directly through into the soil naturally.
- (64) *Pollutant*. A substance discharged, which includes, but is not limited to the following. Any dredged spoil, 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.
- (65) *Property Owner*. Any person having legal or equitable title to property or any person having or exercising care, custody, or control over any property.
- (66) *Rain Garden*. A landscaping feature planted with perennial native plants. It is a bowl-shaped or saucer-shaped garden designed to absorb storm water runoff from impervious surfaces such as roofs and parking lots.
- (67) *Redevelopment*. Altering, improving, or otherwise changing the use of an existing developed property including but not limited to roof, pavement, or any other impervious surface.
- (68) *Retention*. The capture and containment of storm water until it infiltrates the soil and/or evaporates.
- (69) *Soil Erosion*. The stripping of soil and weathered rock from land creating sediment for transportation by water, wind or ice, and enabling formation of new sedimentary deposits.
- (70) *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.

- (71) *Storm Drain*. A system of open or enclosed conduits and appurtenant structures intended to convey or manage storm water runoff, groundwater, and drainage.
- (72) *Storm Water Permit*. A permit issued pursuant to these rules or an (AHJ's) ordinance.
- (73) *Storm Water Control Plan*. Written narratives, specifications, drawings, sketches, written standards, operating procedures, or any combination of these.
- (74) *Storm Water Runoff*. The water from a rain storm, snow melt or other natural event or process, which flows over the surface of the ground or is collected in a drainage system.
- (75) *Storm Water Runoff Facility*. The method, structure, area, system, or other equipment of measures which are designed to receive, control, store, or convey storm water.
- (76) *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.
- (77) *Tap-in*. Out-letting to an open or closed county drain or municipal storm sewer.
- (78) *Time of Concentration*. The elapsed time for storm water runoff to flow from the most distant point in a drainage area to the outlet or other predetermined point.
- (79) *Twenty-five Year, Twenty-four Hour Storm Event*. Is the maximum 24-hour perception event with a probable recurrence interval of once in 25 years as defined by the National Weather Service.
- (80) *Underground Detention Systems*. An underground system consisting of one or more underground pipes or structures that are designed to provide the required volumes for storage for a development project.
- (81) *Upland Area*. Land located in the upper portion of a watershed whose surface drainage flows toward the area being considered for development.
- (82) *Urbanization*. The development, change, or improvement of any parcel of land consisting of one or more lots for residential, commercial, industrial, institutional, recreational, or public utility purposes.
- (83) *USACE*. United States Army Corps of Engineers is responsible for investigating, developing and maintaining the nation's water and related resources.
- (84) *Vegetated Swales*. Channels that are broad and shallow lined with vegetation that slow and filter storm water runoff and promote infiltration.
- (85) *Water Body*. A river, lake, stream, creek or other watercourse or wetlands.
- (86) *Watercourse*. Any natural or artificial stream, river, creek, channel, ditch, canal, conduit, culvert, drain, waterway, gully, ravine, street, roadway, swale, or wash in which water flows in a definite direction, either continuously or intermittently.
- (87) *Watershed*. A region draining into a water body.
- (88) *Wetlands*. Land characterized by the presence of water at a frequency and duration sufficient to support wetland vegetation or aquatic life as defined by the DEQ.
- (89) *Weir*. A low dam built to raise the level of water upstream and regulate its flow. The flow is frequently controlled by a notch through which water flows. Weir control may be a depression in the side of a tank, reservoir, or channel, or it may be an overflow dam or other similar structure.

### **§ 1.03 PERMIT APPLICATIONS FOR SINGLE-FAMILY AND TWO-FAMILY HOMES.**

- (A) Owners shall apply for and obtain storm water permits from the (AHJ) before commencing any project that requires a building permit on the site (or proposed site) of a single-family or two-family detached dwelling.
- (B) To apply for a storm water permit, the Owner shall submit a drawing to the (AHJ) showing why the project will not adversely affect neighboring properties or public infrastructure (e.g. lack of substantial change in impervious surfaces, natural runoff into a storm water drain or water body with sufficient capacity for receipt, grading alterations, or installation of a retention system). The (AHJ) shall approve a storm water permit upon determining that adverse effects are not likely to occur. If the (AHJ) determines that adverse effects are likely to occur, the (AHJ) may require, as a condition of granting a permit, that the applicant: (1) submit a new plan involving installation of drain or other storm water management system; and (2) enter a maintenance agreement as described in Section 1.06(O) of these rules requiring ongoing maintenance of the system to be installed.
- (C) The governing body in the (AHJ's) jurisdiction may establish a fee for applications submitted under this section.
- (D) Violations of this section are subject to the remedies provided in Section 1.12.

### **§ 1.04 PRE-APPLICATION PROCEDURE AND WAIVER REQUESTS FOR DEVELOPMENT AND REDEVELOPMENT PROJECTS.**

- (A) *Request for Waiver.* Before preparing a permit application for a development or redevelopment project in accordance with the requirements in Section 1.05, an Owner/Developer may submit a written request to the Drain Commissioner for a waiver of the storm water design standards specified in these rules. The waiver application shall include a written statement and a drawing which together show that no retention measures of any type are needed in order to prevent adverse effects on neighboring properties or public infrastructure, because: (1) there will be no more than a *de minimis* increase in impervious surfaces on the site; (2) there will be no increase or only *de minimis* increase in storm water resulting from the project; and (3) the amount of discharge at the project site has historically been within the levels permitted under these rules. The Drain Commissioner shall waive all further requirements under these rules and shall grant a storm water permit if the waiver application makes such showing beyond a reasonable doubt. However, even when issuing a waiver, the Drain Commissioner may require a maintenance agreement between the Owner/Developer and the (AHJ) if the Drain Commissioner determines, in its discretion, that such agreement is needed to ensure the future protection of public infrastructure.
- (B) *Pre-Application Meeting.* It is highly recommended that the Owner/Developer and the Design Engineer meet with the Drain Commissioner and/or its designee, and applicable utility companies where the project is proposed prior to submitting a permit application. The intention of these meetings is to obtain uniform direction and communication to minimize misdirection of early construction and minimize costs to proprietors, developers, and consultants.
- (C) *Permit Application Submittal.* The Owner/Developer or the Engineer of Record on behalf of the Owner/Developer shall submit permit applications to the AHJ. Application for a permit shall be made prior to the start of any work on the proposed development or redevelopment requiring a permit under these rules. Soil test borings, vegetative cutting solely for land surveys, percolation tests, and normal maintenance shall not be considered a start of work under these rules.
- (D) *Sequential Applications for Phased Projects.* For projects on a site which are so large or complex that a plan encompassing all phases of the project cannot reasonably be prepared prior to initial work, sequential applications on major construction activities may be allowed. Requests for sequential applications shall be approved by the Drain Commissioner prior to submittal of the initial permit application.

## **§ 1.05 APPLICATION SUBMITTAL REQUIREMENTS FOR DEVELOPMENT AND REDEVELOPMENT PROJECTS.**

As part of the permit application, the Owner/Developer or Design Professional shall submit two sets of Storm Water Control (SWC) plans, two sets of calculations (made pursuant to the calculation formulas attached in the **Appendix** to these rules), and any other supporting information to the Drain Commissioner or designee. The plans and calculations shall comply with the requirements of these rules. The checklist, design requirements, and design that will be used during the review process of the drainage construction plans are established by these rules. The application materials shall include the following items:

- (A) An application fee in an amount established by resolution of the county board of commissioners. The application fee may vary based on the size and nature of the proposed development;
- (B) An application or agreement for laying out and designating a county drainage district, a certificate of adequate outlet, all necessary rights-of-way, legal descriptions and maintenance deposit pursuant to the Drain Code of 1956, MCL 280.425 and 280.433, as amended.;
- (C) The location of the development site and water bodies that will receive storm water runoff;
- (D) 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 1 foot. The information shall be superimposed on the pertinent Isabella County soil map;
- (E) Baseline datum to be established, assumed datum are not allowed. Contact the Drain Commissioner or (AHJ) for datum information;
- (F) The development tributary area to each point of discharge from the development;
- (G) Calculations for the final peak discharge rates;
- (H) Calculations for any facility's or structure's size and configuration;
- (I) A drawing showing all proposed storm water runoff facilities with existing and final grades;
- (J) 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;
- (K) An implementation plan for construction and inspection of all storm water runoff facilities necessary to the overall drainage plan, including a schedule of the estimated dates of completing construction of the storm water runoff facilities shown on the plan and an identification of the proposed inspection procedures to ensure that the storm water runoff facilities are constructed in accordance with the approved drainage plan;
- (L) A plan to ensure the effective control of construction site storm water runoff and sediment track-out onto roadways;
- (M) Drawings, profiles, and specifications for the construction of the storm water runoff facilities reasonably necessary to ensure that storm water runoff will be drained, stored, or otherwise controlled in accordance with these rules;
- (N) The name and place of employment of the Design Professional that will inspect final construction of the storm water runoff facilities;
- (O) A maintenance agreement, in form and substance acceptable to the (AHJ), shall be required for ensuring maintenance of any privately owned storm water runoff facilities. The maintenance agreement shall include the Owner/Developer's written commitment to provide routine, emergency, and long-term maintenance of the facilities and, in the event that the facilities are not maintained in accordance with the approved drainage plan, the agreement shall authorize the (AHJ) to maintain any onsite storm water runoff facility as reasonably necessary, at the Owner/Developer's expense. The completed, signed, notarized recordable maintenance agreement shall be submitted to the (AHJ's) office. Copies of the maintenance agreement form are available at the (AHJ's) office.

- (P) Any other information necessary for the Drain Commissioner to verify that the drainage plan complies with these rules. All design information must be compatible for conversion to the County's Geographic Information System.

**§ 1.06 PERMIT APPLICATION REVIEW FOR DEVELOPMENT AND REDEVELOPMENT PROJECTS.**

- (A) *General Review Procedure.* The Drain Commissioner or designee will review all plans, calculations, and other information for compliance with the design requirements in Section 1.09 of these rules. All materials will be reviewed for completeness. Calculations will be checked. The minimum design requirements as outlined in these rules will be used as a reference. The drainage plan checklist will be reviewed. The Drain Commissioner shall approve, approve with conditions, or disapprove an application within 21 days. The review period begins upon the receipt of a completed application, plan and fees. Copies of the approval, approval with conditions, or disapproval will be provided by the Drain Commissioner. **THE DRAIN COMMISSIONER AND/OR THE DRAIN COMMISSIONER'S AGENT OR DESIGNEE DOES NOT ACCEPT ANY LIABILITY FOR THE DESIGN OR FUNCTION OF THE STORM WATER COLLECTION AND RETENTION/DETENTION SYSTEM. THE REVIEW IS FOR COMPLIANCE WITH THE STORM WATER MANAGEMENT STANDARDS IN THESE RULES ONLY. IT IS THE REGISTERED DESIGN PROFESSIONAL THAT HAS SIGNED AND SEALED THE FINAL PLANS AND/OR THE APPLICANT'S RESPONSIBILITY FOR THE FUNCTIONALITY OF THE DESIGN.**
- (B) *Approval or Approval with Conditions.* Upon a determination by the Drain Commissioner or designee that the permit application has met or obtained a waiver of the design requirements of these rules, the Drain Commissioner will issue a permit specifying the work approved and any applicable permit conditions. A waterproofed permit must be posted on the site in plain view, along with an approved soil erosion and sedimentation control plan permit, which must be obtained from the Isabella County Community Development Office. The Drain Commissioner shall notify the Owner/Developer of the approval, disapproval, or approval with conditions. The Owner will be emailed (or mailed hard copy) a final approval letter upon completion of the project, prior to release of the bond.
- (C) *Disapproval.* If the proposed drainage system is disapproved, the Drain Commissioner will issue a report outlining the deficiencies. The applicant may resubmit for review. Two sets of plans and calculations shall be resubmitted.
- (D) *Approval of Sequential Applications for Phased Projects.* When additional phases are planned, an approval with conditions will be given addressing the overall storm water requirements of the site. The Drain Commissioner encourages submittal of all phases of a multi-phased project at the onset of a proposed project to the extent possible, but may authorize sequential applications when necessary. The bond and permit will address only the portions to be constructed during the phase to which the application pertains.

**§ 1.07 PERMITEE COMPLIANCE DURING AND AFTER CONSTRUCTION.**

- (A) *Changes to Approved Plan.* Any proposed changes made to the approved plan shall be submitted to the Drain Commissioner and/or designee for review and approval and shall be subject to a revised-plan review fee in an amount established by the county board of commissioners from time to time. Changes made without approval may result in revocation of approval. Revocation of a Soil Erosion and Sedimentation Control (SESC) permit may also be considered. All changes in the approved plan authorized in the permit shall be submitted to the Drain Commissioner for approval prior to any work on the system or earth change.
- (B) *Storm Water Control Plan – "As-Built" Drawings.* Construction record drawings with specific "as built" information as required by the Drain Commissioner, shall be submitted by the registered design professional to the Drain Commissioner.

- (C) *Post-Construction Certification.* A post-construction letter of certification from a design professional certifying construction of the system in compliance with the approved plans shall be submitted to the Drain Commissioner. The Drain Commissioner is authorized to conduct inspections to ensure compliance in accordance with the procedures in Section 1.08.
- (D) *Permit Expiration.* Permits shall expire automatically upon the project completion date provided on the permit. Permits shall also terminate automatically if construction has not commenced within one year of the date of issuance. The Drain Commissioner may extend a permit for a period not to exceed one year upon the request of the Owner/Developer at the Drain Commissioner's discretion.

**§ 1.08 INSPECTION REQUIREMENTS.**

- (A) *Developments and Redevelopments.* The Design Professional responsible for the design of the storm water management system shall be required to complete an inspection report, on a form acceptable to the (AHJ) and certify that the system conforms with the design specified on the permit application. The Design Professional shall also submit as-built drawings to the (AHJ). The (AHJ) may also require inspection of the system by (AHJ) personnel. These inspections may occur during or after construction as determined necessary by the (AHJ) or designee during the review process and would be outlined in the letter of approval. If inspection by the (AHJ) is required, the Owner/Developer and/or Design Professional shall be informed at what stage of construction these inspections will be required. Subsequent inspections may be required if deficiencies exist.
- (B) *Inspection of Facilities to be Publicly Owned.* The Drain Commissioner may require that facilities constructed under these rules be incorporated as part of the county drainage system pursuant to the Drain Code of 1956, MCL 280.425 and 280.433, as amended. The Drain Commissioner may also agree to incorporate facilities as part of the county drainage system upon request of the property owner. Any facilities that are to become part of the county drainage system shall be inspected by the Drain Commissioner at the time of installation. Any work which is concealed at the time of inspection shall be exposed for approval.

**§ 1.09 MINIMUM DESIGN REQUIREMENTS FOR STORM DRAINAGE SYSTEMS.**

This section outlines the requirements for the design of storm water management systems. Engineering judgment must be utilized to accomplish the overall goals of these rules.

(A) General Requirements

- (1) Storm water detention requirements for any new construction development, redevelopment, or land use change occurring within Isabella County will be determined according to the storm water discharge permit procedure.
- (2) The peak runoff rate during a 25-year storm event from a developed or redeveloped site shall not exceed the allowable discharge rate (Qa). This rate is determined using the design impervious factor (IF). The impervious factor of demolished sites is assumed undeveloped. Either detention storage with a regulated discharge must be provided or all impervious surfaces must be removed from the site.
- (3) There shall be no detrimental effect on the floodway or the floodplain elevation during a 25-year design storm upstream or downstream of the proposed development area as a result of the proposed development. All required detention volumes must be stored above 100-year floodplain.
- (4) Overland flow routes and the extent of high water levels for the 100-year flood shall be identified for all sites. Where acceptable overland flow routes do not exist, storm sewers, open channels and detention/retention basins shall include a factor of safety to accommodate the 100-year flood.

- (5) Water quality treatment shall be provided for all sites. A minimum treatment volume equal to 1 inch of runoff over the developed portion of the site is required. Treatment may be provided through settling (permanent pool or extended detention), infiltration, or filtration.
- (6) The drainage area used for computation will be the total area tributary to the site outlet, including off-site properties that drain onto the site.
- (7) Engineering calculations must be submitted with the storm water discharge permit application. The calculations shall follow the procedures outlined in the **Appendix** to these rules.
- (8) Roof drains may be connected to a storm sewer system if the flow through the outlet to the county system is properly restricted. Unrestricted runoff from roof drain will not be accepted; there are no exemptions.
- (9) The Drain Commissioner and/or designee shall in the case of a proposed subdivision, make a determination as to those control elevations that shall be entered on the final plat or make a determination as to the necessity for deed restrictions on any particular lot in the subdivision requiring the preservation of mandatory drainage facilities. Where a non-subdivided parcel of land is proposed for development, the (AHJ) and/or designee shall make a determination as to the need for covenants to maintain responsibility for mandatory drainage facilities. All the facilities in the subdivision shall be located in easements dedicated to the public, and shall be subject to continual inspection during the construction period. Detention facilities within proposed subdivision or condominium developments may be established as county drains under the Drain Code of 1956, MCL 280.1 et seq., as amended.
- (10) Proposed storm sewer enclosures must be designed so they will not adversely impact any adjacent properties, upstream or downstream, and must be designed to the impervious factors of the lands based upon future land use, not necessarily existing conditions.
- (11) SESC measures must be implemented.

(B) Allowable Discharge (Qa)/Detention Requirements

The peak storm water discharge rate from any proposed development or redevelopment site as required in these rules shall be restricted to an allowable discharge (Qa). The allowable discharge from the proposed area of development or redevelopment cannot exceed the calculated discharge from the proposed site based on the following method.

0.15 cubic feet per second per acre of contributing area. (i.e.  $0.15 \text{ cfs/acre} \times 10 \text{ acre site} = 1.5 \text{ cfs Qa}$ )

Excess storm water runoff must be detained on site. Equations for determining the required volume of detention storage are outlined in the **Appendix** to these rules. Detention storage calculations must be included with review submittals.

(C) Storm Water Detention Requirements

The storm water detention storage required for a site is to be calculated using the **Appendix** to these rules. This must meet the 25-year minimum storage storm. The allowable discharge is a maximum of 0.15 cfs per acre.

If there are known existing flooding problem areas that will be impacted by a proposed development, the required detention volume will be determined by the Drain Commissioner.

(D) Discharge Restrictor Requirements

Restrictors are required to regulate the discharge of storm water to the allowable discharge rate established for a site. The circular in-line restrictor is sized based on the orifice formula. The minimum restrictor size shall be two (2) inches without the use of a gravel filter.

$$a = Qa / [ 0.62 (64.4(h))^{1/2} ]$$

**a** = area of orifice (square feet).

**Δh** = head differential from center of orifice to Hydraulic Grade Line of detention pond at maximum capacity, (feet).

(E) Storm Sewer Piping Requirements

- (1) Proposed storm sewer shall be designed to have capacity to pass 10-year design storm runoff rate (Qd).
- (2) All storm sewer materials must comply with the latest edition of MDOT Standard Specifications for Construction. Provide two (2) feet of minimum cover over the storm drainage system.
- (3) Provide 18-inch vertical separation between all other utilities including sanitary sewers and water mains.
- (4) Provide 10-foot horizontal separation from other utilities.
- (5) Manholes/catch basins shall be placed at a maximum distance of 400 feet from any other manholes/catch basins for access/maintenance purposes.
- (6) Provide a sump discharge outlet for each individual lot in all developments. This outlet shall be a catch basin (minimum 4-foot diameter) and/or provide a storm water lead to each lot. Manufactured cored and booted wye leads six (6) inch minimum to each lot are acceptable.
- (7) Minimum pipe grades must be such to produce minimum scouring velocity of 2.5 feet per second when pipe is flowing full without surcharging.
- (8) For storm drainage systems, plastic pipe may be used. This plastic pipe shall be either schedule 80 PVC, smooth walled HDPE, or SDR 35. If pipe is perforated, a manufacturer's "Sock" shall be used over the pipe.
- (9) Minimum pipe diameter for catch basin leads is 12 inches.
- (10) Minimum pipe size for storm sewer main is 12 inches.
- (11) Pipe should be sized for a 10-year design storm without surcharging when possible.
- (12) When two pipes or more of different sizes come into a structure, the 8/10th flow lines shall match when possible.
- (13) Catch basins should have a minimum sump depth of 24 inches.

(F) Detention Requirements

- (1) Proposed storm drainage detention facilities shall be designed to have capacity to detain at minimum the 25-year recurrence interval design storm runoff volume in excess of the allowable discharge from the site. The detention requirement must be discussed with the Drain Commissioner and/or designee.
- (2) The maximum design storage elevation in a detention area must be a minimum of one (1) foot below the lowest ground elevation adjacent to the detention area.
- (3) The design maximum storage elevation in a detention area must not be less than 12 inches below the minimum finish floor elevation of the proposed structure(s) or existing facilities.
- (4) Design of detention facilities will incorporate features that facilitate their inspection and maintenance. The designer shall submit an Operation and Maintenance (O & M) Plan and/or provide a maintenance agreement, as necessary, for a privately owned detention facility prior to its acceptance by the (AHJ).
- (5) Designs of detention facilities shall incorporate safety features, particularly at inlets, outlets, on steep slopes, and at any attractive nuisances. These features may include, but not be limited to, fencing, handrails, lighting, steps, grills, signs, and other protective or warning devices so as to restrict access. Liability for the detention facilities will be the responsibility of the Owner/Developer.
- (6) Side slopes and the bottom of detention basins shall be top soiled, to a minimum of four (4) inches, and seeded. Soil erosion control blankets must be installed to protect slopes if adequate vegetation does not exist between September 1st to May 1st.
- (7) The side slopes and bottom of the basins shall be shaped with maximum slopes of 1 vertical to 4 horizontal to allow mowing of these surfaces.
- (8) Detention basins shall be constructed with the top of banks a minimum of five (5) feet from any pedestrian walkway (i.e. public and private sidewalks/bike paths).
- (9) Underground storm water detention systems will be accepted. Storm water cleaning structures will be required at the inlets of these basins.
- (10) Concrete walled systems will also be considered.

(G) Rear Lot Drainage Requirements

- (1) Rear lot tile drains with contributing drainage areas up to one-half acre shall have a minimum diameter of six (6) inches and a minimum pipe slope of 0.5 percent.
- (2) Rear lot tile drains with contributing drainage areas greater than one-half acre and less than one (1) acre shall have a minimum diameter of 8 inches and a minimum pipe slope of 0.3 percent.
- (3) Rear lot tile drains with a contributing area greater than one (1) acre shall be considered main line storm sewer and shall be designed according to corresponding requirements. Calculations shall be submitted to verify the rear lot drains have the capacity to pass the 10-year design storm event.
- (4) All lots must be provided with rear lot drainage.

- (5) Rear lot drainage tiles shall have a minimum cover of two (2) feet.
- (6) The Drain Commissioner and/or designee shall approve rear lot drainage tile and catch basin material. The minimum diameter of a rear lot catch basin shall be 24 inches.
- (7) An easement must be granted for rear lot drainage serving more than one owner. For drainage improvements from private property across other private property, easements must be obtained from property owners to assure perpetual drainage rights and maintenance commitments by participants sufficient to assure perpetual maintenance of the system. Copies of all executed easements and agreements must be submitted to the Drain Commissioner.

(H) General Compliance Guidelines

The following guidelines are required minimum and maximum, unless written justification is provided and approved.

- (1) The minimum surface slopes for overland drainage are as follows:
  - (a) For bituminous paved surfaces, 1 percent.
  - (b) For concrete paved surfaces, 1 percent.
  - (c) For concrete curb and gutter, 0.4 percent.
  - (d) For drainage swales and valley shaped ditches, 0.5 percent.
  - (e) For rear lot drainage swales and valley shaped ditches, 0.5 percent.
  - (f) Landscape grading, two (2) percent.
- (2) The maximum surface slopes for overland drainage are as follows:
  - (a) For bituminous, concrete paved surfaces, five (5) percent.
  - (b) For concrete curb and gutter, five (5) percent.
  - (c) For drainage swales and valley shaped ditches, five (5) percent.
  - (d) For rear lot drainage swales and valley shaped ditches, five (5) percent.
  - (e) Drainage swales and valley shaped ditches shall have maximum side slopes of 4 horizontal to 1 vertical.
  - (f) Landscape grading, 1 vertical to 4 horizontal.
- (3) Site designer is responsible to meet all ADA requirements.

### **§ 1.10 VARIATIONS FROM DESIGN REQUIREMENTS.**

The Drain Commissioner may issue a storm water discharge permit that waives storm water management requirements. Variation from these requirements shall require the written approval of the Drain Commissioner, whose actions shall be conditioned upon the following:

- (A) The Drain Commissioner has determined that the overall storm water management for drainage system is best suited to allow the site to drain unrestricted so that the timing of the discharge will not adversely impact upstream lands;
- (B) The Owner/Developer shall provide evidence in writing outlining in detail the rationale for the proposed design changes including hydraulic and or hydrologic computations. This document must be signed and sealed by a licensed professional engineer; and
- (C) Granting of the variance will not be detrimental to the public health, safety or welfare, or injurious to other property in the territory in which said property is located.

### **§ 1.11 APPEALS.**

When the County Commissioner is the (AHJ), the decision of the County Drain Commissioner is final.

### **§ 1.12 PENALTIES AND ENFORCEMENT.**

- (A) *Denial and Revocation of Certificate of Use and Occupancy.* The (AHJ's) building official shall deny or revoke a certificate of use and occupancy for any building or structure without a valid storm water permit, where such permit is required under these rules.
- (B) *Storm Water Permit Revocation.* Any storm water permit issued under these rules may be revoked or suspended if there is a violation of the conditions of the permit or if there is a misrepresentation or failure to disclose relevant facts in the application submittal. The Drain Commissioner will provide the Owner/Developer notice of its intent to revoke or suspend the permit via email followed by an original copy by USPS first class mail.
- (C) *Additional Court Remedies.* In addition to the other remedies specified in this section, the court may order compliance with these rules and order other such relief as is appropriate to assure compliance with this article. In addition, the Drain Commissioner may seek injunctive or other relief to conditions in violation of these rules and take such other actions as are provided in these rules or in other applicable laws, rules, and regulations. The election of one remedy shall not prevent the simultaneous or subsequent pursuit of other remedies all of which are cumulative.

### **§ 1.13 OTHER PERMITS AND APPROVALS.**

The granting of a storm water permit only authorizes the discharge of storm water from the development for which the permit is required, subject to the terms of the permit. It shall not be deemed to approve other development, other land use activities, or replace other required permits. Examples of other permits or approvals that may be required include:

- (A) The Drain Commissioner requires that property owners seek and obtain approval before tapping into existing open drain or storm sewer. Approval must be requested at least 72-hours prior to tap-in.
- (B) Site plan approval is required for certain activities under the (AHJ's) zoning ordinance.
- (C) The Isabella County Department of Community Development Permits Office is the County Enforcing Agent for Isabella County, and a permit must be obtained when applicable for Soil Erosion and Sedimentation Control (SESC).
- (D) The Isabella County Road Commission has or shares jurisdiction over drainage along county roads and county rights-of-way within Isabella County. Sites located along county road rights-of-way and discharging to Road Commission drainage systems must obtain a permit from the Road Commission. When a crossing is installed over a county roadside drain, a permit must be obtained from the Road Commission.

- (E) The Michigan Department of Transportation (MDOT) has or shares jurisdiction over drainage along state highways and state rights-of-way within Isabella County. Sites located along MDOT rights-of-way and discharging to MDOT drainage systems must obtain a permit from MDOT.
- (F) The Michigan Department of Environmental Quality (MDEQ) has jurisdiction over proposed work within the 100-year floodplain, inland lake and stream areas, and wetland areas. A permit must be obtained for work proposed in these areas. In addition, the MDEQ is responsible for implementing the National Pollution Discharge Elimination System (NPDES) Storm Water Permitting Program.

Section 2. Publication and Effective Date. The Isabella County Drain Commissioner shall cause to be published a notice of adoption of these rules within 10 days of the date of their adoption. These rules shall take effect 30 days after their adoption.

**CERTIFICATION**

As the Drain Commissioner of the County of Isabella, State of Michigan, I certify this is a true and complete copy of the Site Development Rules for Storm Water Management adopted by my office.

Date: \_\_\_\_\_, 2014

\_\_\_\_\_  
Rick Jakubiec,  
Isabella County Drain Commissioner

Adopted: \_\_\_\_\_, 2014  
Published: \_\_\_\_\_, 2014  
Effective: \_\_\_\_\_, 2014

## **Appendix**

[Attach calculation spreadsheet]