

CHARTER TOWNSHIP OF UNION
STORMWATER MANAGEMENT ORDINANCE NUMBER 23-03

Notice is hereby given that the Charter Township of Union Board of Trustees adopted a new Stormwater Management Ordinance Number 23-03 following a second reading at their regular meeting on March 22, 2023 in the Township Hall Board Room at 2010 S. Lincoln Road, Mt. Pleasant, MI 48858.

The first reading of the proposed ordinance was held during the regular March 8, 2023 Board of Trustees meeting in the Township Hall Board Room. Following the first reading, an ordinance summary and notice of the date, time, and place of the second reading was published in The Morning Sun newspaper and posted at the Township Hall as required by the Charter Township Act, Public Act 359 of 1947, as amended (MCL 42.1 et seq.).

A true copy of the adopted ordinance may be inspected or obtained upon request during business hours at the Charter Township of Union office, 2010 South Lincoln Road, Mt. Pleasant, MI 48858, or on the Township's website at <http://www.uniontownshipmi.com> under Public Notices. The following is an ordinance summary:

Article 1 (Purpose, Findings, and Effective Date) establishes the title, purpose, and intent of the ordinance, confirms that state law publication requirements will be met and ordinance elements are severable as provided by law, establishes the ordinance effective date based on adoption and publication requirements, and repeals the Ordinance No. 1992-9.

Article 2 (Regulated Activities) lists activities which require a Stormwater Management Permit from the Township and activities exempt from permit requirements.

Article 3 (Stormwater Management Permit Requirements) establishes permit application requirements, approval process, provisions for permit expiration, revocation, suspension, and revision, and requirements for construction certification.

Article 4 (Stormwater Plan and Technical Design Standards) lists specifications for stormwater plans and design, operation, and maintenance of stormwater management improvements.

Article 5 (Administration and Enforcement) establishes provisions for fees, escrow deposits, and performance guarantees, inspections, appeals, emergency actions, and penalties for violations of this ordinance, including a municipal civil infraction and other remedies available to the Township to correct, remedy or abate non-compliance.

Article 6 (Definitions) Defines certain terms used in the ordinance.

Publication was made by this notice and posting of a true copy of the adopted ordinance at the Charter Township of Union office and on the Township's website pursuant to Charter Township Act requirements. The ordinance is effective immediately upon publication of this notice.

**CHARTER TOWNSHIP OF UNION
ISABELLA COUNTY, MICHIGAN**

STORMWATER MANAGEMENT ORDINANCE NO. 23-03

[An ordinance adopted under provisions of the Charter Township Act (Public Act 359 of 1947, as amended, being MCL 42.1 – MCL 42.34) and Section 192 of the Land Division Act (Public Act 288 of 1967, as amended, being MCL 560.101 et seq.) to protect the general health, safety, and welfare by reducing hazards to public health and safety and the potential for economic losses to individuals and the community at large caused by excessive stormwater runoff; to enhance broader social and economic objectives; to protect, conserve, and promote the orderly development of land and water resources; and to provide for severability, repeal, publication, and an effective date.]

CHARTER TOWNSHIP OF UNION, ISABELLA COUNTY, MICHIGAN HEREBY ORDAINS:

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ARTICLE 1
PURPOSE, FINDINGS, AND EFFECTIVE DATE

Section 1.1 TITLE

This Ordinance shall be known and may be cited as the Stormwater Management Ordinance No. _____, and shall be referred to herein as “this Ordinance.”

Section 1.2 STATEMENT OF FINDINGS

The Township Board of Trustees finds that:

- (A) Inadequate management of surface water runoff resulting from new development can overtax the carrying capacity of storm sewers, roadside ditches, County Drains, and the Chippewa River.
- (B) Stormwater management regulations are necessary to protect the general health, safety, and welfare, to protect water quality in the Chippewa River watershed, and to preserve the resources, infrastructure, and the environment of the Township and downstream communities.
- (C) Uncontrolled surface water drainage and development of land without reasonable provisions for stormwater management will cause serious adverse impacts for the community, including:
 - (1) Stormwater runoff carries pollutants into receiving waterbodies, degrading water quality.
 - (2) The increase in nutrients, such as phosphorus and nitrogen, accelerates eutrophication of receiving waters, adversely affecting flora and fauna.
 - (3) Uncontrolled or improperly channeled surface water runoff increases water velocity, soil erosion, and sedimentation within the Chippewa River watershed.
 - (4) Siltation of waterbodies resulting from increased erosion decreases their capacity to hold and transport water, interferes with navigation, and harms flora and fauna.
 - (5) Increasing the amount of impervious surfaces on a site without adequate provisions for managing surface water runoff can increase the volume and rate of stormwater runoff and decrease groundwater recharge by inhibiting on-site percolation into the soil.
 - (6) Improperly managed stormwater runoff can increase the incidence of flooding and the intensity and height of flooding that occurs, endangering property and human life.
 - (7) Improperly managed stormwater runoff has the potential to disrupt and degrade aquatic environments and disrupt biological productivity in the Chippewa River watershed.

Section 1.3 PURPOSE AND INTENT

- (A) The purpose of this Ordinance is to reduce the hazards to public health and safety caused by excessive stormwater runoff; to reduce potential for economic losses to individuals and the community at large; to enhance broader social and economic objectives; and to protect, conserve, and promote the orderly development of land and water resources.
- (B) The further purpose of this Ordinance shall be to:
 - (1) Protect the public health, safety, and welfare by requiring certain stormwater management improvements as part of new, expanded, or modified development projects.
 - (2) Promote the most efficient and beneficial uses of land and water resources.
 - (3) Assure that stormwater runoff from new and expanded development activity is controlled so that water quality is protected, siltation is minimized, and flooding problems are avoided.
 - (4) Provide for cost-effective and functionally effective stormwater management and to reduce the need for future remedial projects.

- (5) Protect and utilize the natural drainage system for conveying and receiving stormwater runoff in an environmentally appropriate manner.
 - (6) Encourage multiple-purpose stormwater management that enhances the environmental character of the Township.
 - (7) Recognize the private responsibility of incorporating stormwater management systems into the early stages of site planning and design.
 - (8) Allow wetlands to be used for stormwater detention in selected locations, while ensuring that the natural functions and the quality of wetlands throughout the Township are protected to the maximum feasible extent.
 - (9) Allow for off-site or regional stormwater management solutions under specified conditions.
 - (10) Ensure that all stormwater conveyance and detention facilities will be properly maintained.
 - (11) Provide penalties for violation of the provisions of this Ordinance.
- (C) It is the intent of this Ordinance to be fully consistent with the requirements of the Natural Resources and Environmental Protection Act (Public Act 451 of 1994, as amended, being MCL324.101 et seq.), and for consistency across jurisdictional boundaries within the Chippewa River watershed to generally align the Township’s stormwater management standards with the adopted Isabella County Drain Commissioner standards and the 2021 Multijurisdictional Stormwater Master Plan as adopted by City of Mt. Pleasant.
- (D) It is the further intent of this Ordinance to provide clear standards for the Township to review stormwater applications, to require new developments and certain redevelopment activities to conform to current stormwater management standards, to ensure that stormwater management facilities are constructed to approved plans, and to establish standards for ongoing maintenance of approved and constructed stormwater management improvements.

Section 1.4 COMPATIBILITY WITH OTHER PERMIT AND ORDINANCE REQUIREMENTS

Permits and approvals issued pursuant to this Ordinance do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance. If more stringent requirements concerning regulation of stormwater or erosion and sedimentation control are contained in the other code, rule, act, or ordinance, the more stringent regulation shall apply.

Section 1.5 SEVERABILITY

The provisions, sections, sentences and phrases of this Ordinance are declared to be severable and if any such portion is declared unconstitutional or invalid for any reason by a court of competent jurisdiction, such finding shall in no way affect or invalidate the remainder of this Ordinance.

Section 1.6 REPEAL

All ordinances or parts thereof in conflict with this Ordinance, including the Union Township Stormwater Management Ordinance No. 1992-9, are hereby repealed, except that this Ordinance shall not repeal any provision in the Township’s Zoning Ordinance, Subdivision Control Ordinance, Land Division Ordinance, or Construction Codes Ordinance.

Section 1.7 PUBLICATION

The Clerk for the Township shall cause this Ordinance to be published in the manner required by law.

Section 1.8 EFFECTIVE DATE

This Ordinance was approved and adopted by the Township Board of Trustees, Isabella County, Michigan, on March 22, 2023 after a first reading by the Township Board of Trustees on March 8, 2023 and publication of a notice of the first reading and the date, time, and place of the second reading in accordance with the Charter Township Act (Public Act 359 of 1947, as amended, being MCL 42.1 – MCL 42.34). This Ordinance shall become effective on _____, 202__ following publication of a summary of the Ordinance and notice of adoption in a newspaper of general circulation in the Township.

ARTICLE 2 REGULATED ACTIVITIES

Section 2.1 REGULATED ACTIVITIES

The following shall be regulated activities and require a Stormwater Management Permit from the Township, unless exempt pursuant to Section 2.2 or as otherwise provided for in this Ordinance:

- (A) Farm-based tourism and entertainment activities (agri-tourism), public stables, permanent auction facilities, and religious institutions as allowed in the Agricultural (AG) District per Section 3 of the Township Zoning Ordinance.
- (B) Multiple-family residential buildings and uses, independent or dependent senior housing, assisted living facilities, nursing homes; homes for the aged, and religious institutions as allowed in the Residential Districts per Section 3 of the Township Zoning Ordinance.
- (C) Establishment of any multiple-family, including mobile home park, mixed use or non-residential development.
- (D) Expansion of an existing multiple-family, mixed use or non-residential principal building exceeding ten percent (10%) of the existing gross floor area.
- (E) All land uses allowed in the Business Districts (B-4, B-5, B-7, OS), Industrial Districts (I-1, I-2) and Planned Unit Development District (PUD) per Section 3 of the Township Zoning Ordinance.
- (F) Construction or expansion of buildings, equipment storage yards, and associated above-ground site improvements occupied by or intended for occupancy by essential services as defined in the Township Zoning Ordinance.
- (G) Establishment of any subdivision plat in accordance with the Land Division Act and the Township's Subdivision Ordinance.
- (H) Establishment or alteration of any condominium development in accordance with the Condominium Act and Section 5.1 of the Township Zoning Ordinance.
- (I) Expansion of any multiple-family, mixed use or non-residential off-street parking facility exceeding 2,750 square feet.
- (J) Construction, extension or alteration of a private road that is located outside of a subdivision plat.
- (K) Earthwork involving a parcel of one-half (0.5) or more acres for construction of new impervious surfaces (driveways, parking lots, etc.), or for construction of new buildings or additions to existing buildings.
- (L) Diversion or piping of any natural or manmade stream channel.
- (M) Installation of stormwater management systems or appurtenances thereto.

Section 2.2 EXEMPTIONS

- (A) The following development activities shall be provided a limited exemption from provisions of this Ordinance, as follows:
 - (1) Use of land for gardening for home consumption.
 - (2) Farming and agricultural operations.
 - (3) Land disturbance associated with existing single- and two-family dwellings.

- (4) Construction of, addition to, or alteration of one (1) single-family dwelling or one (1) two-family residential building and customary accessory structures on a single lot of record.
 - (5) Any maintenance, alteration, use, or improvement to an existing structure not changing or affecting quality, rate, volume, or location of surface water discharge.
 - (6) The division of land subject to the Township's Land Division Ordinance or Subdivision Control Ordinance.
 - (7) Redevelopment of or alterations to existing multiple-family, commercial, or industrial sites with previously-approved stormwater management facilities on record with the Township, subject to verification by the Township Engineer that the existing facilities have sufficient capacity to support the redevelopment or alterations as proposed. Applicant shall indicate the size and scope of the changes of the site which contribute to the existing stormwater facilities.
 - (8) Logging operations that are operating under an approved Isabella County erosion and sedimentation control plan.
- (B) The Township Engineer may also recommend and the Community and Economic Development Director may grant written exceptions from any requirements of this Ordinance using the following criteria:
- (1) There are special circumstances applicable to the subject property or its intended use.
 - (2) The granting of an exception will not:
 - (a) Significantly increase or decrease the rate or volume of surface water runoff.
 - (b) Have a significant adverse impact on a wetland, watercourse, or water body.
 - (c) Significantly contribute to the degradation of water quality.
 - (d) Otherwise significantly impair attainment of the objectives of this Ordinance.
 - (3) The following types of development shall not be eligible to receive an exemption:
 - (a) Industrial or commercial facilities
 - (b) Platted subdivisions or site condominiums
 - (c) Impervious surfaces greater than 10,000 square feet.
- (C) Exempted activities may be required to provide a simplified stormwater management plan that would identify stormwater facilities and how stormwater would be managed on site and the expected off-site impact. Simplified plans may utilize creative and innovative stormwater management techniques, such as:
- (1) Swales in back-lot areas
 - (2) Parking lot depressions
 - (3) Leaching basins and underground storage
 - (4) Gravel berms
 - (5) Gravel underlayment

Section 2.3 OFF-SITE STORMWATER MANAGEMENT ALLOWED

The use of off-site stormwater conveyance, infiltration, or off-site regional detention facilities may be proposed to satisfy the requirements of this Ordinance in lieu of or as a supplement to on-site stormwater detention. Off-site stormwater management facilities may be shared with other landowners, and shall be subject to all applicable requirements of this Ordinance.

ARTICLE 3

STORMWATER MANAGEMENT PERMIT REQUIREMENTS

Section 3.1 PERMIT REQUIREMENTS

For purposes of this Ordinance, a Stormwater Management (SWM) Permit for regulated activities as identified in Section 2.1 is required before any earth changes commence. The SWM Permit requirements are independent of any other regulations governing the proposed earth change or development activity that may require additional permitting through other enforcing agencies. The granting of a SWM Permit shall authorize only such earth changes for which the permit has been issued, and shall not be deemed to approve a development as a whole or any land use activities.

Section 3.2 PERMIT APPLICATION SUBMITTAL

- (A) An application for a SWM Permit shall be submitted on the form provided by the Township, signed by the landowner or duly authorized agent, and shall include a description of the stormwater management controls and the development activity, a stormwater management plan, prepared in accordance with Article 4 (Stormwater Plan and Technical Design Standards), and the appropriate permit and review fee or escrow deposit.
- (B) Applications that are found by the Township Engineer to be incomplete or inaccurate shall be returned to the applicant and noted as incomplete, additional information required.
- (C) The Township Engineer may request additional plan details or supporting documentation determined to be necessary for verification of compliance with this Ordinance.
- (D) Permit approval shall be required prior to the initiation of any work activity. Any unauthorized work shall be considered a violation of this Ordinance subject to the enforcement and penalty provisions of this Ordinance. Soil test borings including those utilizing reasonable backhoe test excavation, vegetative cutting for land surveys, percolation tests, and normal maintenance shall not be considered a start of work under this Ordinance.

Section 3.3 SEQUENTIAL APPLICATIONS

For development proposals that are so large or complex that a stormwater management plan encompassing all phases of the project cannot reasonably be prepared prior to initial groundbreaking, an application for a sequential SWM Permit based on successive major incremental earth change activities shall be allowed as an option. The Township Engineer shall only consider written requests for sequential applications as follows:

- (A) Approval of sequential applications shall take place in two phases. First, the overall conceptual plan for the entire development shall be submitted for review and approval. Second, detailed plans for each phase of the total project shall be submitted for review and approval.
- (B) All permits processed and issued for phases of a project shall be clearly defined as to the nature and extent of work covered for that phase. Each phase of the project shall be reviewed and permitted individually prior to construction.
- (C) A phase shall not be dependent upon subsequent phases for long-term functionality or purpose.

Section 3.4 PERMIT APPLICATION REVIEW PERIOD

An application for a SWM Permit shall be acted upon within ten (10) business days of notification by the

Township Engineer to the Community and Economic Development Director that a SWM Permit application submittal is complete and accurate.

Section 3.5 PERMIT APPROVAL OR DENIAL

- (A) Upon determination by the Township Engineer that the SWM Permit application and associated stormwater management plans comply with all applicable requirements of this Ordinance, a SWM Permit shall be issued specifying the work approved, along with any supplemental conditions. If the permit application or stormwater management plans do not comply with these requirements, the applicant shall be directed to modify the permit request or the permit shall be denied by the Township Engineer. When necessary, the Township Engineer may request additional information from the applicant upon which to base the permit decision.
- (B) The Township Engineer shall notify the applicant in writing if the application is denied, citing the reasons for the denial.
- (C) The Township Engineer shall notify the Community and Economic Development Director after a permit decision has been made.

Section 3.6 PERMIT EXPIRATION , REVOCATION, OR SUSPENSION

- (A) SWM Permits shall terminate automatically upon completion of the project or 365 calendar days from the date of issuance, whichever occurs first.
- (B) The applicant may request an extension of up to an additional 365 calendar days, which shall be reviewed and shall be granted by the Township Engineer upon determination of good cause for the extension and that the SWM regulations governing the proposed development and conditions on the site have not changed since the date the SWM Permit was first approved.
- (C) A SWM Permit issued by the Township Engineer under this Ordinance may be revoked or suspended, subject to the provisions of Article 5 (Administration and Enforcement), for any of the following causes:
 - (1) A violation of a condition of the permit.
 - (2) Obtaining a permit by misrepresentation or failure to fully disclose relevant facts in the application or stormwater management plan.
 - (3) A change in a condition that requires a temporary or permanent change in the activity.
 - (4) Noncompliance with or failure to implement any provision of the permit,
 - (5) A violation of any provision of this Ordinance or any other applicable law, ordinance, rule, or regulation relating to the project.
 - (6) The creation of any condition or the commission of any act during construction or development that constitutes or creates a hazard or nuisance or that endangers the life or property of others.
- (D) A suspended permit shall be reinstated by the Township when:
 - (1) The Township has inspected and approved the corrections to the stormwater management control measure(s) or the elimination of the hazard or nuisance; or
 - (2) The Township is satisfied that the violation of the Ordinance, law, or rule and regulation has been corrected.
- (E) A permit that has been revoked by the Township cannot be reinstated. The applicant may apply for a new permit under the procedures outlined in this Ordinance.

Section 3.7 REVISIONS TO AN APPROVED PERMIT

Revisions to an approved SWM Permit, permit condition, or approved stormwater management plan shall first be approved by the Township Engineer, subject to the following:

- (A) Requests for revisions shall be submitted to and approved by the Township Engineer in writing before becoming effective, unless approved by the Township Engineer on-site. If a change is approved on-site, the following actions shall be required subsequent to the on-site approval:
 - (1) The permit holder shall provide updated sealed drawings, calculations, or other documentation to reflect the on-site-approved revisions within ten (10) business days of the on-site approval.
 - (2) The Township Engineer shall provide the permit holder with written verification of acceptance or denial of the updated sealed drawings, calculations, or other documentation within ten (10) business days of the on-site approval.
- (B) The Township may require submittal of a new fee/escrow deposit for review of the revisions.

Section 3.8 PENALTIES FOR INITIATING EARTH CHANGE ACTIVITIES WITHOUT A PERMIT

Any earth change activity, subject to regulation under this Ordinance, which has commenced without a valid SWM Permit, or is not proceeding in accordance with an issued SWM Permit, or is in violation of an SWM Permit condition, shall be considered a violation of this Ordinance subject to the enforcement and penalty provisions of this Ordinance.

Section 3.9 CONSTRUCTION CERTIFICATION

- (A) A certification letter shall be submitted to the Township Engineer by a professional engineer registered in Michigan after the stormwater management facilities have been installed to affirm that construction has been completed in accordance with the approved stormwater management plan. The certification shall be accompanied by sealed record drawings of the as-completed stormwater management improvements.
- (B) The Township Engineer shall issue a letter of compliance to the SWM Permit holder after the following has occurred:
 - (1) Receipt and acceptance of the certification letter and sealed record drawings of the as-completed improvements.
 - (2) Verification that the site is completely stabilized and in compliance with all applicable requirements of this Ordinance.

ARTICLE 4

STORMWATER PLAN AND TECHNICAL DESIGN STANDARDS

Section 4.1 GENERAL PLAN REQUIREMENTS

A stormwater management plan shall be prepared for any regulated earth change subject to requirements of this Ordinance. The plan shall be designed to effectively manage the runoff from the site to no more than the rate prior to development. The required stormwater management plan shall identify means for controlling the stormwater runoff release rate from the development and providing storage potential for the excess stormwater runoff, where applicable. Pretreatment shall be required if deemed necessary by the Township Engineer and shall be in accordance with provisions specified within this Ordinance.

Section 4.2 PLAN CONTENT

All computations, plans, and specifications related to the implementation of this Ordinance shall be prepared and sealed by a professional engineer registered in Michigan. The stormwater management plan shall contain but not be limited to the following information unless specifically excluded as unnecessary by determination of the Township Engineer. The plans shall be prepared at a standard engineer's scale of not more than 100 feet to the inch and shall at a minimum include the following:

- (A) Site Location Map
- (B) Existing Information:
 - (1) Legal descriptions
 - (2) Topographic information suitable to show property lines, drainage patterns and contributing watershed
 - (3) Existing land uses, site improvements, and vegetative cover
 - (4) Existing roads, utilities and associated easements that affect the site
 - (5) Existing features impacting the drainage of the site (i.e. management basins, culverts, ditches, storm sewer)
 - (6) Indicate upstream and downstream flow paths to and through the site
 - (7) Overlay existing soil types and boundaries from soil survey
 - (8) Indicate location of wetlands, lakes, streams and associated buffers
- (C) Proposed Information:
 - (1) Earth Changes to land surface and vegetative cover
 - (2) Proposed structures, roads, paved areas, and buildings
 - (3) Proposed underground utilities, sewers, and water lines
 - (4) Final contours at intervals of one (1) foot
 - (5) Location, size, and slope of proposed stormwater conveyance systems
 - (6) Indicate location of soil borings, test holes, and infiltration test locations
 - (7) Indicate presence of and depth to water table
 - (8) Location, size, inlet/outlet configuration of stormwater management facilities
 - (9) Pretreatment forebay/structure locations
 - (10) Areas of snow storage
 - (11) Description and location of all proposed temporary and permanent stormwater and soil erosion control facilities and measures
 - (12) Indicate watershed boundaries to each stormwater management facility

- (D) For each stormwater management facility also list the following:
 - (1) Applicable design criteria
 - (2) Contributing area and weighted runoff curve number
 - (3) Required and proposed management volumes
 - (4) Required and proposed release rate
 - (5) Design high water elevation and berm elevations
 - (6) Outlet control structure and emergency overflow details
- (E) Timing and sequencing of construction activities.
- (F) Maintenance program for stormwater facilities to identify ownership and fiscal responsibility for maintenance and operations during and after construction.
- (G) Stormwater management plans shall include all other calculations, details, and data necessary to verify compliance with the applicable requirements of this Ordinance.

Section 4.3 GENERAL STANDARDS

Stormwater control and management conveyance, storage, infiltration measures, and facilities shall be designed to prevent flood hazards and water pollution related to stormwater runoff and soil erosion from the proposed development, and shall conform to the following general standards:

- (A) **Stormwater Management:** All regulated earth changes subject to review under the requirements of this Ordinance shall be designed, constructed, and maintained to provide for the retention/detention of stormwater runoff and to protect water quality.
- (B) **Natural Features:** Measures required for stormwater management shall take into consideration natural features, proximity of the site to lakes, streams, and wetlands, extent of impervious surfaces, potential for flooding, and the size of the site.
- (C) **Drainage Patterns:** Alterations to natural drainage patterns shall not create flooding down gradient or off-site, or water pollution for adjacent or downstream property owners. Stormwater from upstream and off-site locations shall be conveyed around or through the site or may be stored on site.
 - (1) There shall be no detrimental effect on the floodway or the floodplain elevation during the design storm event upstream or downstream of the proposed development area as a result of the proposed development. All required detention volumes shall be stored above the 100-year floodplain elevation.
 - (2) The drainage areas used for computation will be the total area of land on the subject property that flows to the site outlet. Extraneous flows from off-site upland areas shall be permitted to bypass or pass through the stormwater management system on the subject property. Bypass or pass-through devices shall be sized with sufficient capacity to receive the flow generated by a 10-year storm from upland areas. The applicant shall provide engineering calculations showing compliance with this Section as part of the permit process.
- (D) **Preferred Outlet Conveyance:** Unless otherwise approved, stormwater discharge shall be conveyed through swales and vegetated buffer strips so as to decrease runoff velocity, to allow for natural infiltration, to allow suspended sediment particles to settle, and to remove pollutants.
- (E) **Watercourses:** Watercourses shall not be dredged or cleared of vegetation or deepened, widened, straightened, stabilized, or otherwise altered without applicable permits or approvals from the State of Michigan and all other agencies with jurisdiction.

- (F) **Treatment Requirements:** Stormwater management improvements shall include adequate facilities to trap or contain discharge of runoff from any site that may contain oil, grease, toxic chemicals, or other polluting materials, subject to Township Engineer acceptance.
- (G) **Safety and Aesthetics:** Drainage systems shall be designed to protect public health and safety, and to be visually attractive in a manner consistent with Township ordinances.
- (H) **Operations and Maintenance:** All operation and maintenance plans and associated documentation shall be provided as required per Section 4.9 (Operation and Maintenance Requirements).

Section 4.4 USE OF LOW IMPACT DEVELOPMENT (LID) METHODS ENCOURAGED

All stormwater management improvement projects are encouraged to incorporate Low Impact Development (LID) methods to decrease stormwater impacts, consistent with accepted standards in the State of Michigan for both Nonstructural Best Management Practices (BMPs) and Structural BMPs, which are summarized below for reference:

- (A) **Nonstructural Best Management Practices** reduce stormwater impacts through limiting site disturbances, maintaining a more natural longer time of concentration, and preserving areas to naturally intercept and infiltrate stormwater.
 - (1) Configuring and clustering uses to limit site impacts and encourage green open spaces. This can provide a good fit to natural topography, avoid destruction of beneficial natural areas, and allow for better siting of stormwater management practices.
 - (2) Minimize soil compaction, total disturbed areas, and reduce impervious areas will reduce the increase in a project's runoff potential.
 - (3) Protect natural flow pathways, maintain existing vegetative cover, and incorporate use of natural drainage features such as swales and depressions.
- (B) **Structural Best Management Practices** consist of constructed conveyance, treatment, and management systems. A collective approach of BMPs that are decentralized and dispersed can better mimic the natural water cycle and limit the total rate and volume that would reach a typical end-of-pipe management facility and/or the flows that leave the site.

Section 4.5 STORMWATER MANAGEMENT STANDARDS

Stormwater management facilities that protect water quality and minimize flooding shall be required for all developments. Storage facilities may include but are not limited to detention basins, constructed wetlands, retention basins, infiltration trenches, underground management areas, swales with check dams, and other facilities. The following standards shall apply:

- (A) **Feasibility of the Site and Soils:** An evaluation of site feasibility and soil suitability for selection, siting, and sizing of the proposed stormwater management facilities shall be completed, which shall include:
 - (1) Certification of adequate downstream conveyance.
 - (2) Depth to known seasonal high-water table
 - (3) Infiltrative capacity of site soils
 - (4) Ability of the site to contain and to treat anticipated stormwater runoff both during and after construction.
- (B) **Management Volumes:** A stormwater facility shall, at a minimum, be designed to manage runoff

volume from storms up to a 24-hour duration, 25-year storm event, subject to the following:

- (1) All required volumes shall be stored above the 100-year floodplain elevation.
 - (2) Facility shall also be designed to manage up to two (2) 24-hour duration, 100-year storm events on-site when certified adequate downstream conveyance is not available.
- (C) **Allowable Release Rate:** Maximum release rate for detention systems, or allowable flow denoted as Q_a , shall not exceed the peak rate of 0.15 cubic feet per second per acre of contributing area. Where these standards cannot realistically be achieved, the applicant shall demonstrate that existing higher runoff rates meet the intent and spirit of this Ordinance. The peak runoff rate during a 25-year storm event from a developed or redevelopment site shall not exceed the allowable release rate. This rate is determined using the design impervious area.
- (D) **Overflow:** Overflow from basins and conveyance systems shall be designed to safely control and accommodate a secondary drainage system to direct runoff from storms greater than a 25-year and 24-hour frequency and duration up to a 100-year event.
- (1) Significant off-site watersheds shall be evaluated for a 10-year storm event peak runoff to pass through or around the site.
 - (2) Overflow conveyance spillways/structures shall be sized for a 100-year storm event peak runoff for the contributing area of the subject site.
- (E) **Water Quality:** All detention basins shall be designed to maximize the ability of the basin to hold and trap sediment. Water quality treatment shall be provided at a minimum volume, or Water Quality Volume denoted as WQV equal to one (1) inch over the contributing impervious area. The following types of basins are listed in order of Township preference, with infiltration basins being the most desirable, to satisfy the requirements of this Ordinance:
- (1) Infiltration facilities, provided that soils and groundwater conditions are suitable.
 - (2) Detention basins with a fixed minimum water elevation between runoff events (wet basins). Wet basins that serve to trap soil particles on site are preferable to dry basins.
 - (3) Detention basins that hold stormwater from the one (1) year storm event for more than 24 hours before completely draining to become a dry basin (extended detention).
 - (4) Filtration.
- (F) **Outlets:** Detention and retention basins shall be safely and adequately designed to control runoff. Retention and detention basins shall have an overflow system designed to safely control a 100-year frequency storm event. Basins shall be permanently stabilized to minimize erosion.
- (G) **Slopes:** The allowable slope for detention and retention basins with banks shall be no steeper than 3:1 (horizontal: vertical [H:V]).
- (H) **Discharge of Stormwater Runoff to Wetlands:**
- (1) Stormwater runoff discharged to wetlands shall be diffused to nonerosive velocities before it reaches the wetland.
 - (2) Wetlands may be used for stormwater detention if all of the following conditions are met:
 - (a) The wetland storage or detention area is set back at least 100 feet from the edge of any lake or stream.
 - (b) The wetland does not have significant wildlife habitat or ecological values that would

likely be impaired or destroyed.

- (c) The wetland has sufficient holding capacity for stormwater, based upon calculations prepared by the applicant and reviewed and approved by the Township.
- (d) Adequate on-site sediment control is provided to protect the natural functioning of the wetland.
- (e) All required permits and approvals from the State of Michigan and other agencies with jurisdiction are obtained, with documentation provided to the Township.

(I) Infiltration and Retention Systems:

- (1) An infiltration system is designed to promote percolation of stormwater into the ground. The system may be required to include an outlet or emergency spillway based on the adequacy of downstream conveyance systems.
- (2) A retention system is designed to completely retain stormwater runoff without a low flow outlet. The system may be required to include an emergency spillway based on the adequacy of downstream conveyance systems.

(J) Infiltration Criteria:

- (1) Infiltration systems will be required at all sites with soil permeability greater than one (1) inch per hour.
- (2) The bottom of the infiltration system shall be a minimum of four (4) feet above the highest known water table elevation.
- (3) The volume of the infiltration system shall be calculated by comparing the volume of runoff of the predeveloped site during a 24-hour duration two (2) year storm versus the volume of runoff from the developed site during a 24-hour duration 25-year storm.
- (4) If it is determined that discharge will cause downstream flooding or has inadequate means of conveyance, the infiltration system shall be designed to store the 100-year storm event runoff volume and manage back-to-back 100-year storm event runoff volumes on-site.
- (5) Certification that an adequate outlet for infiltration systems is available shall be provided by a licensed professional engineer, as accepted by the Township Engineer.
- (6) The design infiltration rate shall be listed on the plans.
- (7) The freeboard between the design high water level and top of berm shall be a minimum of one (1) foot.
- (8) The required and provided volumes and stage elevations shall be listed on the plans.

(K) Retention Criteria:

- (1) All retention systems shall be designed to store the 100-year storm event runoff volume and manage back-to-back 100-year storm event runoff volumes on-site.
- (2) The freeboard between the design high water level and top of berm shall be a minimum of one (1) foot.
- (3) The required and provided volumes and stage elevations shall be listed on the plans.

(L) Volume Reduction Criteria. Infiltration of runoff within the basin may be used to reduce the

required storage volume subject to the following provisions, subject to acceptance by the Township Engineer:

- (1) An infiltration test with a report shall be done within each proposed basin to a depth of five (5) feet below the bottom of the basin.
- (2) The infiltration test shall be conducted and report prepared in accordance with a standard test method for field measurement of the infiltration rate of soils, as accepted by the Township Engineer.
- (3) The maximum allowable infiltration rate used in the calculation for runoff storage shall be 0.5 times the actual measured infiltration rate.
- (4) The most restrictive soil lens shall be used in the infiltration calculation. The topsoil lens may be the most restrictive in sandy soils. If necessary, specify that only sandy topsoil is to be used in the basin bottom.
- (5) For basins without outlets the maximum water level shall be calculated without deduction for infiltration and shown on the plan where areas outside of the basin will be inundated with runoff. This is necessary to ensure buildings, roads, etc. will not be flooded during frozen soil conditions. The basin shall be sized using the allowable infiltration rate, but this second calculation shall be used for safety and flood control.
- (6) Maximum allowable deduction for the infiltration volume shall be based on a 24-hour period or the time of concentration, as was used in the total runoff volume calculation.

(M) Underground Infiltration and Retention Systems:

- (1) Underground infiltration or retention systems shall be allowed only when adequate space for an aboveground system is not available, as confirmed by the Township Engineer. The site grading shall provide for parking lot storage of excess runoff should the underground infiltration or retention system fail to function adequately.
- (2) Design infiltration rates for underground infiltration systems shall be supported by testing data and shall not exceed one (1) inch/hour.
- (3) The freeboard between the design high water level and top of berm shall be a minimum of one (1) foot.
- (4) The required and provided volumes and stage elevations shall be listed on the plans.
- (5) The infiltration basin shall be designed to drain completely within 72 hours. A maximum design infiltration rate of 0.5 times the infiltration rate determined by geotechnical investigation [not to exceed one (1) inch/hour for underground systems], or an infiltration rate of 0.52 inch/hour shall be used to estimate the maximum time to drain by the equation:

$$72 > \frac{12 D}{I}$$

- Where 72 = Maximum allowable drain time (hours)
12 = Unit conversions – inches to feet
D = Basin depth (feet)
I = Design infiltration rate (inch/hour)

- (6) The contractor shall avoid compacting the soil in the infiltration or retention basin area during excavation and grading. Use of equipment with low earth pressure loading is required. The final two (2) feet of depth shall be removed by excavating to finished grade.

- (7) Snow storage in the infiltration or retention system shall not displace more than fifty percent (50%) of the available storage volume and shall not impede drainage through the system.

(N) 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.
- (2) The maximum design storage elevation in a detention area shall be a minimum of one foot below the lowest ground elevation adjacent to the detention area and above the 100-year floodplain.
- (3) The design maximum storage elevation in a detention area shall not be less than 24 inches below the minimum finish floor elevation of the proposed structure(s) or existing facilities.
- (4) Stormwater management facilities shall be maintained in accordance with approved operation and maintenance plans and any maintenance agreement.
- (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 shall be the responsibility of the applicant, developer, and owner.
- (6) Side slopes and the bottom of detention basins shall be evenly covered with topsoil to a minimum depth of four (4) inches and seeded with appropriate groundcover plantings. Soil erosion control blankets shall be installed to protect slopes if adequate vegetation does not exist between September 1 and May 1 of the calendar year.
- (7) The side slopes and bottom of the basins shall be shaped with maximum slopes of 1:3 [one (1) vertical to three (3) horizontal] to allow mowing of these surfaces.
- (8) Detention basins shall be constructed with the top of banks a minimum of 10-feet horizontally from any pedestrian walkway (i.e., public and private sidewalks/bike paths).
- (9) Underground stormwater detention systems can be accepted, subject to the applicable requirements of this Ordinance and adequate provisions for stormwater cleaning structures at the inlets of these basins.

- (O) **Discharge Restrictor Requirements.** Restrictors shall be required to regulate discharge up to the maximum release rate. The following orifice formula shall be used to properly size such restrictors. The minimum restrictor size shall be two (2) inches without use of a gravel filter or other means to prevent clogging.

$$a = \frac{Qa}{0.62 (64.4(h))^{\frac{1}{2}}}$$

a = area of orifice (square-feet)

Qa = Allowable Release Rate (cubic feet/second)

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

- (P) **Sediment Forebays:** Sediment forebays or equivalent upstream treatment shall be used to provide energy dissipation and to trap and localize incoming sediment.

- (1) The forebay shall be a separate sump, which can be formed by grading, a compacted earthen

berm, or other suitable structure.

- (2) The capacity of the forebay shall be equivalent to 15% of the water quality volume (WQV). The length to width ratio shall be a minimum of 1.5:1 (L:W) and a maximum of 4:1.

(Q) Treatment Forebay: A treatment forebay or equivalent stormwater filter shall be used to treat stormwater runoff prior to an infiltration or retention system for all sites with a significant potential of exposing stormwater to oil, grease, toxic chemicals, or other polluting materials.

- (1) The treatment forebay shall be designed with adequate spill containment volume to store the first flush of pollutants typically found in urban stormwater runoff, and to capture slug pollutant loads from accidental spills of toxic materials.
- (2) The treatment forebay shall be a wet basin or approved structure with an impermeable bottom and sides to the design high water level.
- (3) Capacity for the water quality volume shall be provided above the normal water level.
- (4) The overflow structure from the treatment forebay shall be sized for the peak inflow from the design rainfall event.
- (5) The top-of-berm elevation between the treatment forebay and the infiltration basin shall be a minimum of one (1) foot below the outer berm elevation.
- (6) The treatment forebay shall have a minimum one (1) foot-deep sump below the inlet pipe for sediment accumulation.
- (7) The outlet structure from the treatment forebay shall be designed to draw water from the central portion of the water column within the forebay to trap floatables and contain sediments. The top of the inlet structure shall be located a minimum of one (1) foot below the normal water level, and the invert shall be a minimum of 1.5 feet above the bottom of the treatment forebay.
- (8) Premanufactured systems for oil/water separation and sedimentation can be used as treatment forebays for sites of less than five (5) acres of paved surface. The premanufactured treatment systems shall be sized in accordance with manufacturer's recommendations.
- (9) A treatment forebay shall be required for retention and infiltration facilities, and facilities with five (5) acres or greater of contributing impervious area.

Section 4.6 STORMWATER CONVEYANCE STANDARDS

(A) Culverts and Bridges:

- (1) **Sizing:**
 - (a) Crossings shall meet the requirements of the Floodplain Control Section (Part 31) of Act 451, where applicable.
 - (b) Bridges shall be designed to provide a one (1) foot minimum freeboard to the underside (low chord) of the bridge for a 100-year flood. Footings shall extend at least 4 feet below the bottom of the channel.
 - (c) Culverts not requiring a permit under Part 31 shall be designed for a minimum 10-year storm in the developed watershed with a maximum outlet velocity of eight (8) feet/second. A maximum of one (1) foot of inlet submergence may be permitted, if this

does not backup water out of the storm drain.

- (d) Sizing of culverts and bridges shall include consideration for entrance and exit losses, and tail water condition.
 - (e) Minimum diameter of a driveway culvert shall be 12 inches.
 - (f) Minimum diameter of a road crossing culvert shall be 15 inches or equivalent pipe arch.
- (2) **End Treatment.** Headwalls, wingwalls, and all other end treatments shall be designed to ensure the stability of the surrounding soil. MDOT, Isabella County Road Commission, or manufacturer's designs may be used, as accepted by the Township Engineer.
- (3) **Material.** Culverts may be reinforced concrete pipe, smooth interior wall polyethylene pipe, corrugated steel pipe, box culvert, or pipe arch in accordance with the current MDOT Standard Specifications.

(B) Vegetated Swales:

(1) **Sizing:**

- (a) The minimum required discharge capacity shall be for a 10-year frequency rainfall event with 0.5 foot of freeboard to top of bank.
- (b) Minimum bottom width for grassed waterways shall be one (1) foot or an equivalent parabolic section. Minimum bottom slope shall be 0.50%.
- (c) Side slopes shall be no steeper than 3:1 (horizontal: vertical [H:V]).

(2) **Layout:**

- (a) Outlets into the grassed waterway shall enter at an angle of 90 degrees or less with the direction of flow.
- (b) A minimum clearance of four (4) feet is required between vegetated swale and ditch inverts and underground utilities unless special provisions are approved. In no case will less than two (2) feet of clearance be allowed.

(C) Stormwater Piping Requirements:

- (1) Proposed storm sewer shall be designed to have capacity to pass the 10-year design storm runoff rate and check on 25-year storm to ensure no adverse increase in water elevation of development property, or flooding of structures within the development.
- (2) All storm sewer materials shall comply with current MDOT construction standards.
- (3) Provide two (2) feet of minimum cover over the storm drainage system.
- (4) Provide 18-inch vertical separation from all other utilities, including sanitary sewers and water mains.
- (5) Provide 10-foot horizontal separation from other utilities.
- (6) Manholes/catch basins shall be placed at a maximum distance of 400 feet from any other manholes/catch basins for access/maintenance purposes.
- (7) Provide a sump discharge outlet for each individual lot in all developments. This outlet shall be a catch basin (minimum four (4) foot diameter) or provide a stormwater lead to each lot. Manufactured cored and booted wye leads, six (6) inch diameter minimum, to each lot are acceptable.
- (8) Minimum pipe grades shall produce a minimum scouring velocity of 2.5 feet/second when

pipe is flowing full without surcharging.

- (9) For storm drainage systems, any plastic pipe shall be either schedule 80 PVC, smooth walled HDPE, SDR 35, or equivalent as accepted by the Township Engineer. If pipe is perforated, a manufacturer's sock shall be used over the pipe.
- (10) Minimum pipe diameter for catch basin leads shall be 12 inches.
- (11) Minimum pipe size for storm sewer main shall be 12 inches.
- (12) Pipe shall be sized for a 10-year design storm runoff rate without surcharging.
- (13) Wherever pipes of different sizes come into a structure, the 8/10th flow lines shall match.
- (14) Catch basins shall have a minimum sump depth of 24 inches.

Section 4.7 STANDARDS FOR OFF-SITE STORMWATER MANAGEMENT EASEMENTS

- (A) If any portion of the stormwater management facilities will be located on property other than the property on which the stormwater will originate, then the owner of the property on which the stormwater will originate shall obtain a stormwater management easement from the owner of the property on which all or a portion of the stormwater management facilities will be located.
- (B) The stormwater management easement shall define the scope of the easement to include at a minimum the legal right of the owner of the property on which the stormwater will originate to access the property on which the stormwater management facilities will be located for the purpose of installing, inspecting, and maintaining the stormwater management facilities; shall run in perpetuity with the land benefitted by the easement, or until the stormwater management facilities are removed, whichever is sooner; and shall be recorded in the office of the Isabella County Register of Deeds.
- (C) A recorded copy of the stormwater management easement shall be filed with the Township Engineer prior to the issuance of a SWM Permit.
- (D) The recorded stormwater management easement shall not be revoked, terminated, reconveyed, or amended without the prior written authorization of the Township Engineer. Any such extinguished or revised stormwater management easement shall be recorded in the office of the Isabella County Register of Deeds, and a recorded copy shall be filed with the Township Engineer.

Section 4.8 SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS

- (A) Grassed waterway flow velocities shall be neither siltative nor erosive. The minimum velocity for vegetated channels shall be 1.5 feet/second. The maximum velocity shall be four (4) feet/second. Riprap protection or equivalent erosion control measures shall be used where the velocity exceeds four (4) feet/second, up to maximum allowable design velocity of eight (8) feet/second.
- (B) Where maximum velocities are exceeded due to channel slope, rock check dams or grade control structures shall be used to reduce overall flow velocities.
- (C) Erosion control blankets shall be used to protect bare channels.
- (D) Sediment resulting from accelerated soil erosion shall be removed from runoff water before it leaves the site of the development or earth change.
- (E) Surface water shall be discharged or conveyed around, through, or from the development or earth change area at a controlled release rate sufficient to prevent erosion.

- (F) If lakes, ponds, rivers, creeks, streams, or other watercourses and wetlands are located on or near the site, erosion control measures that trap sediment shall be encouraged and may be required if reasonably determined to be necessary by the Township Engineer to protect a watercourse or wetland.
- (G) The creation or retention of vegetated buffer strips shall be required along the edge of all lakes, ponds, creeks, streams, other watercourses, and wetlands when reasonably determined to be necessary by the Township Engineer to protect the watercourse.

Section 4.9 OPERATION AND MAINTENANCE REQUIREMENTS

(A) Maintenance, Inspection, and Recordkeeping:

All temporary and permanent stormwater management facilities shall be consistently maintained and inspected as necessary during the life of the facility to provide adequate protection against adverse impacts from stormwater runoff and to ensure the continued and proper operation of the facility for the protection of downstream properties. Maintenance records shall be kept by the property owner indicating the date and items inspected and maintained.

(B) Maintenance Requirements. Where maintenance is required, it shall be performed in accordance with the following general provisions, as well as any specific conditions that may be included with the SWM Permit:

- (1) All stormwater management facilities shall be maintained in accordance with the SWM Permit conditions, maintenance agreement provisions, and all applicable requirements of this Ordinance.
- (2) The person(s) or organization(s) responsible for maintenance shall be designated in the stormwater management plan or the permit application submitted to the Township Engineer. Options may include:
 - (a) The owner(s) of the property.
 - (b) Property owners association or other designated qualified party as determined to be acceptable by the Township Engineer, if provisions for financing of necessary maintenance are included in the deed restrictions or other contractual agreements.
- (3) The Township Engineer is not required to accept the applicant’s desired responsible party for maintenance purposes in any given situation. Natural features, proximity of site to lakes, streams and regulated wetlands, extent of impervious surfaces, size of the site and potential need for ongoing maintenance activities will be considered when making this decision, as well as the overall complexity of the stormwater management facilities. Where deemed necessary by the Township Engineer, third party maintenance may be required for the adequate protection of sensitive sites, or complex stormwater management facilities.
- (4) Upon determination and written notice from the Township that a stormwater management facility has not been properly maintained or is no longer functioning as designed, the property owner shall have 30 calendar days to complete necessary maintenance, or within 36-hours of notification of an emergency condition unless an identified threat to public health, safety, and welfare requires immediate action. If this maintenance is not completed as required, the Township may take all necessary legal actions to compel prompt completion of the required maintenance or to have any necessary maintenance completed at the owner's expense, unless other arrangements have been authorized as part of an executed maintenance agreement.

(C) **Operation and Maintenance Plans:** Stormwater management facility operation and maintenance plans may be required by the Township Engineer to be included with the SWM Permit application materials and plans. At a minimum, these plans shall include the following:

- (1) An annual maintenance budget, itemized by task. The financing mechanism shall also be described.
- (2) A listing of typical maintenance tasks and activities defined for each component of the stormwater management facility.
- (3) The party responsible for performing each maintenance activity.
- (4) A detailed description of the procedures for recordkeeping of maintenance operations and expenditures.
- (5) A schedule for implementation, and a period for corrective measures to be taken consistent with the requirements of this Ordinance. Language shall be included which states that if the property owner fails to act within the period specified, the Township may make arrangements to have a contractor perform the needed maintenance and assess the costs at the property owner's expense.
- (6) The plan shall specify that the property owner responsible for maintenance shall conduct routine maintenance inspections at least twice a year, in the spring and in the fall, and shall inspect all structural elements at least annually. Corrective action shall be completed within 30 calendar days of a regularly scheduled inspection or notification that action is required.
- (7) The plan shall also specify that emergency inspections shall be promptly conducted on an as-needed basis. Corrective action shall be completed within 36-hours of notification of the emergency condition unless an identified threat to public health, safety, and welfare requires immediate action.

(D) **Maintenance agreement:**

Adequate provision shall be made for stormwater management facility maintenance, subject to requirements of this Ordinance and a maintenance agreement which shall specify responsibilities for financing and for performing all necessary maintenance and emergency repairs in accordance with approved operation and maintenance plans and all applicable requirements of this Ordinance.

- (1) The maintenance agreement shall be executed by the property owner or owner's representative before final SWM Permit approval is granted. The agreement shall be included in any property deed restrictions or condominium master deed documents and shall be binding on all subsequent property owners.
- (2) The maintenance agreement shall include adequate provisions to authorize the Township access to inspect and, if necessary, to take corrective action should the owner fail to properly maintain the stormwater management facilities..
- (3) The approved and executed maintenance agreement and approved stormwater management plans shall be recorded by the property owner or owner's representative at the Isabella County Register of Deeds office, with a recorded copy provided to the Township Engineer for the Township's record.

ARTICLE 5 ADMINISTRATION AND ENFORCEMENT

SECTION 5.1 FEES, ESCROW DEPOSITS, AND PERFORMANCE GUARANTEES

- (A) **Fees and Escrow Deposits:** All fees and/or escrow deposits applicable under this Ordinance shall be specified in a fee schedule determined from time to time by Board of Trustees resolution, and shall be paid in full by the applicant to the Township at the time of application. The established amounts of such fees or escrow deposits shall be directly related to the actual costs of administering the SWM Permit program, including design review, site inspection, enforcement and permit administration.
- (B) **Performance Guarantees:** To ensure compliance with this Ordinance, the Community and Economic Development Director may, after recommendation from the Township Engineer, require that a performance guarantee be deposited with the Township to insure faithful completion of improvements, subject to the following:
- (1) **Form of the guarantee.** The performance guarantee shall be in the form of an insurance bond, an irrevocable bank letter of credit, or cash escrow. Any such performance guarantee shall not have an expiration date and shall include a provision that calls for notification of the Township if the bond, letter of credit or escrow is canceled. If the applicant posts a letter of credit, the credit shall require only that the Township present the bank with a sight draft and an affidavit signed by the Township Manager attesting to the Township's right to draw funds under the letter of credit. If the applicant posts a cash escrow, the escrow instructions shall provide that the escrow agent shall have a legal duty to deliver the funds to the Township whenever the Township presents to the agent an affidavit signed by the Township Manager attesting to the Township's right to receive funds whether or not the applicant protests that right.
 - (2) **When Required.** The performance guarantee shall be submitted at the time of issuance of the SWM Permit authorizing the activity or project. If appropriate based on the type of performance guarantee submitted, the Township shall deposit the funds in an account in a financial institution with which the Township regularly conducts business.
 - (3) **Amount.** The amount of the performance guarantee shall be sufficient to cover the estimated cost of the improvements for which the performance guarantee is required. The applicant shall provide an itemized schedule of estimated costs to complete all such improvements. The exact amount of the performance guarantee shall be determined by the Community and Economic Development Director, after recommendation from the Township Engineer.
 - (4) **Return of Performance Guarantee.** The entire performance guarantee shall be returned to the applicant following inspection by the Township Engineer and a determination that the required improvements have been completed satisfactorily. The performance guarantee may be released to the applicant in proportion to the work completed on various elements, provided that a minimum of ten percent (10%) shall be held back on each element until satisfactory completion of the entire project.
 - (5) **Retainage for Establishment of Groundcover Plantings.** An amount not less than ten percent (10%) of the total performance guarantee may be retained for a period of at least one year after installation of groundcover plant materials or seeding to ensure establishment

and healthy growth to minimize soil erosion. This amount shall be released to the applicant following inspection by the Township Engineer and a determination that the groundcover plantings are fully established and healthy.

- (6) **Unsatisfactory Completion of Improvements.** Whenever required improvements are not installed or maintained within the time stipulated or in accordance with the standards set forth in this Ordinance, the Township may complete the necessary improvements itself or by contract, and may assess all costs of completing required improvements against the performance guarantee. Prior to completing required improvements, the Township shall notify the owner, applicant, or other firm or individual responsible for completion of the required improvements.

SECTION 5.2 INSPECTIONS

- (A) The Township Engineer shall have the right to conduct on-site inspections of the stormwater management facilities to verify compliance with the requirements of this Ordinance, including that maintenance is being performed as required by this Ordinance. Any such inspections may take place before, during, and after any earth change activity has occurred for which a permit has been issued. Submission of an application for a permit under this Ordinance shall be deemed as providing written consent for the Township Engineer to conduct on-site inspections of the stormwater management facilities. The Township Engineer shall exercise this right to inspect by written consent of the person having the right to possession of the property, or by administrative search warrant issued by a court of competent jurisdiction.
- (B) If upon inspection, existing site conditions are found not to be as stated in the SWM Permit or approved stormwater management plan, the SWM Permit may be revoked. No earth disrupting work shall be undertaken or continued, except preventative stormwater measures as authorized by the Township Engineer, until revised plans have been submitted and a valid SWM Permit issued.
- (C) For the purpose of this Ordinance, the Township Engineer or other duly authorized Township ordinance enforcement official may enter, at all reasonable times, in or upon any private or public property for the purpose of inspecting or investigating the condition and practices that may be a violation of this Ordinance. A written notice shall be sent to a person, firm, or corporation who is deemed to be in violation.

SECTION 5.3 VIOLATIONS AND PENALTIES.

Any person, firm, corporation, or agent, or any employee, contractor, or subcontractor of same, who fails to comply with any of the provisions of this Ordinance, or who impedes or interferes with the enforcement of this Ordinance, shall be deemed in violation of this Ordinance and shall be subject to the following:

- (A) **Public nuisance.** Violations of any provision of this Ordinance are hereby declared to be a nuisance per se and shall be subject to abatement or other action by a court of appropriate jurisdiction.
- (B) **Violators.** Each owner or other person who commits, participates in, assists in, or maintains any violation of the Ordinance may be held responsible for a separate offense and may be subject to the penalties provided in this Section. The cost of prosecution shall also be assessed against each violator. The imposition of any penalty shall not exempt the offense from compliance with the requirement of this Ordinance.
- (C) **Enforcement.** Anyone may report apparent violations of this Ordinance to the Township Manager, Community and Economic Development Director, Township Engineer, or other

designated Township ordinance enforcement official. All violations shall be addressed by following the procedures outlined in the Township's Municipal Ordinance Violation Bureau Ordinance. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the Township from taking such other lawful action as is necessary to prevent or remedy any violation.

- (D) **Municipal civil infraction.** Any person who violates or permits the violation of this Ordinance shall be responsible for a municipal civil infraction and shall be subject to a fine not to exceed the limits specified in the Township's Municipal Ordinance Violation Bureau Ordinance. Proceedings for the municipal civil infraction shall proceed as provided in that ordinance.
 - (1) The imposition of a municipal civil infraction fine for any violation shall not excuse the violation or permit it to continue.
 - (2) A person who violates or permits the violation of this Ordinance shall also be subject to additional sanctions, remedies, injunctions, judicial orders, penalties, enforcement costs and expenses as provided for under Chapter 87 of the Revised Judicature Code, being MCL §600.8701, et. seq., as amended. Each day a violation of this Ordinance continues to exist constitutes a separate violation.
- (E) **Other remedies.** The rights and remedies set forth above shall not preclude the use of other remedies provided by law, including any additional rights of the Township to initiate proceedings in an appropriate court of law to restrain or prevent any noncompliance with any provisions of this Ordinance, or to correct, remedy or abate such non-compliance.
- (F) **Rights and remedies preserved.** Any failure or omission to enforce provisions of this Ordinance or to prosecute a violation of this Ordinance shall not constitute a waiver of any rights and remedies provided by this Ordinance or by law, and shall not constitute a waiver nor prevent any further prosecution of violations of this Ordinance.

SECTION 5.4 STOP WORK ORDERS

If necessary to assure compliance with the permit requirements, standards, and other provisions of this Ordinance or to protect public health, safety, welfare, or natural resources, the Township Engineer may issue a stop work order for the purpose of preventing uncontrolled stormwater, or other conditions posing imminent and substantial danger to public health, safety, welfare or natural resources. The stop work order, when issued, shall require all specified activities to be stopped immediately. The order shall describe the specific alleged violation and the steps deemed necessary to bring the project back into compliance.

SECTION 5.5 EMERGENCY ACTION

Where necessary to protect public safety or water resources, including lakes, streams, regulated wetlands, and other receiving bodies of water, the Township, through a Circuit Court abatement proceeding, may seek a temporary restraining order or preliminary injunction from the court authorizing entry onto private property for the purpose of initiating emergency action to abate imminent and substantial danger and risk. Except as otherwise provided through maintenance agreements, the property owner shall reimburse the Township for all expenses incurred as a result of the emergency action, including but are not limited to reasonable attorney's fees, administrative costs, inspection fees, and the costs of any remedial action taken to abate the emergency condition.

SECTION 5.6 APPEALS

It shall be the duty of the Community and Economic Development Director to consider appeals from any determination or order made or issued by the Township Engineer in connection with the enforcement of this Ordinance.

- (A) Any person aggrieved by any determination or order made or issued by the Township Engineer in connection with the enforcement of this Ordinance may file a written appeal with the Community and Economic Development Director setting forth their name, address, phone number, and email address and including a written statement of the grounds for the appeal.
- (B) No fee is required for this appeal.
- (C) Any determination or order subject to an appeal shall be stayed until a disposition of the appeal is made by the Community and Economic Development Director, unless such a stay is determined by the Community and Economic Development Director to create or exacerbate a public health or safety issue.
- (D) For any appeal, the Community and Economic Development Director may sustain, modify, or withdraw the determination or order as determined necessary consistent with the purpose and intent of this Ordinance. The Director may postpone action on a matter under review to a date certain for the purpose of requesting additional information or to seek legal or other expert counsel prior to taking final action on the appeal.
- (E) Within ten (10) business days after final action on the appeal, the Community and Economic Development Director shall prepare and send a written record of the final action to the appellant and to the Township Engineer. Any appeal of the Community and Economic Development Director's final action shall be made to the Isabella County Circuit Court within 30 calendar days of the date that the written record of the final action is sent to the appellant.

ARTICLE 6 DEFINITIONS

This Article sets forth the definitions of certain terms used within the Ordinance which have a meaning specific to the interpretation of the text of the Ordinance. Any word not defined herein shall first be interpreted as defined within Act 451 , and where not defined there, shall be interpreted within its common and approved usage:

ACT 451. The Natural Resources and Environmental Protection Act, Michigan Public Act 451, of 1994, as amended (being MCL 324.101 et seq.).

ALLOWABLE DISCHARGE. The restricted discharge from a site after development or redevelopment as calculated in accordance with this Ordinance.

APPLICANT. The landowner or authorized agent for the property upon which is regulated earth change is proposed and who has submitted an application for a Stormwater Management (SWM) Permit.

CLEAN WATER ACT. The Federal Water Pollution Control Act, 33 USC §§ 1251 et seq., as amended, and the applicable regulations promulgated thereunder.

COMMUNITY AND ECONOMIC DEVELOPMENT DIRECTOR. The individual, firm, or employee designated by the Township Manager to oversee and manage the work of the Township's Community and Economic Development Department.

CONDUIT. Any channel, pipe, sewer or culvert used for the conveyance or movement of water whether open or closed.

CONTROL ELEVATION. Contour lines and points of predetermined elevation used to denote a detention storm area on a plat or site drawing.

COUNTY DRAIN. Drains established or constructed pursuant to the Michigan Drain Code.

DETENTION FACILITY. A facility constructed or modified to restrict the flow of stormwater to a prescribed maximum rate and to concurrently detain the excess waters that accumulate behind the outlet.

DETENTION STORAGE. The temporary detaining or storage of stormwater 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.

DETENTION. The capture of stormwater and release 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 requires, pursuant to state law or local ordinance, Township approval of a site plan, plat, site condominium, special land use, planned unit development, or permit for the erection of buildings or structures; provided, however, the terms DEVELOPED or DEVELOPMENT do not refer to individual single-family or two-family 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.

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.

DISCHARGE. The release or outflow of water from any source.

DISCHARGER. Any person or entity that 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 that is or results in a violation of this Ordinance.

DRAIN COMMISSIONER. The Isabella County Drain Commissioner or designee.

DRAINAGE AREA. The area from which stormwater runoff is conveyed to a single outlet (i.e., a watershed or catchment area).

DRAINAGE. The collection, conveyance, or discharge of groundwater or surface water.

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.

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

EXEMPTED DISCHARGES. Discharges other than stormwater.

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

FLOODPLAIN. Any land area susceptible to being inundated by flood waters from any source.

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 of a foot.

FOREBAY. 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.

FREEBOARD. A volume of additional storage designed within a detention basin. A safety factor within a stormwater detention system that is based on a minimum of one foot detention volume above the proposed high water elevation of a detention pond. This volume provides additional stormwater detention in the event that a storm exceeds the design capacity.

GRADING. Any stripping, excavating, filling, and stockpiling of soil or any combination thereof.

IMPERVIOUS SURFACE. Surface that does not allow stormwater runoff to percolate into the ground.

INFILTRATION FACILITIES. A Structure designed to direct runoff into the ground (e.g., French drains, seepage pits, and seepage trenches).

INFILTRATION TRENCH. Also known as a PERCOLATION TRENCH, is a shallow excavated trench, filled with gravel or crushed stone, designed to infiltrate stormwater through permeable soils into the ground water aquifer. This type of trench is not considered a preferred means of discharging stormwater.

INFILTRATION. A process whereby precipitation or groundwater seeps into the ground.

LAND DISTURBANCE. Any activity involving grading, tilling, digging, or filling of ground; stripping of vegetation; or any other activity that causes land to be exposed to the danger of erosion.

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 stormwater runoff.

LOW-IMPACT DESIGN (LID). A stormwater management strategy that aims to control water, both rainfall and stormwater runoff, at the source.

OPERATIONS AND MAINTENANCE PLAN. One or more documents that describe in some detail the responsible organization, responsibilities, policies, and general procedures for maintaining and operating the specified

stormwater management facilities.

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.

PEAK RUNOFF. The maximum rate of flow of stormwater runoff discharge at a given location.

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

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 discarded 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.

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. Ordinary maintenance of impervious surfaces to address the effects of weathering (including, for example, pothole repair or overlays, crack seal, and seal coating to address pavement defects) does not constitute REDEVELOPMENT. However, crush and shape projects affecting pavement base materials shall constitute REDEVELOPMENT.

RETENTION. The capture and containment of stormwater until it infiltrates the soil and/or evaporates.

RETENTION BASIN. An area of excavated earth for the collection and storage of runoff without subsequent discharge to surface waters and into which surface water is directed into the ground.

RUNOFF. That part of precipitation that flows over the land.

SEDIMENT. Soil material, both mineral and organic, that is in suspension, which is being transported, or that has been moved from its site of origin by water.

SINGLE-FAMILY DWELLING. A building used exclusively for one-family occupancy.

SITE. Any tract, lot, or parcel of land or combination of tracts, lots, or parcels of land that are in one ownership or that are contiguous and in diverse ownership where development is to be performed as part of a unit, subdivision, or project.

SOIL EROSION. The stripping of soil and weathered rock from land, creating sediment for transport by water, wind or ice, and enabling formation of new sedimentary deposits.

STORM DRAIN. A system of open or enclosed conduits and appurtenant structures intended to convey or manage stormwater runoff, groundwater and drainage.

STORM EVENT. A precipitation event of specific frequency and duration having a probable recurrence interval of once in the specified frequency (i.e., a 25-year, 24-hour storm event).

STORMWATER. Water that results from precipitation that is not absorbed by the soil or vegetation or evaporated and that flows over the ground surface or is collected in channels or conduits.

STORMWATER PLAN. Written narratives, specifications, drawings, sketches, written standards, operating procedures, or any combination of these.

STORMWATER MANAGEMENT FACILITY. The method, structure, area, system, or other equipment or measures designed to receive, control, store, or convey stormwater.

STORMWATER MANAGEMENT (SWM) PERMIT. A permit issued pursuant to this Ordinance.

STORMWATER RUNOFF. The water from a rainstorm, snow melt or other natural event or process, which flows over the surface of the ground or is collected in a drainage system.

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.

SUBDIVISION. The division or redivision of a lot, tract, or parcel of land by any means into two or more lots, tracts, parcels, or other divisions of land, including changes in existing lot lines for the purpose, whether immediate or future, of lease, transfer of ownership, or building or lot development.

TIME OF CONCENTRATION. The elapsed time for stormwater runoff to flow from the most distant point in a drainage area to the outlet or other predetermined point.

TOWNSHIP. The Charter Township of Union, Isabella County, Michigan, except where otherwise stated.

TOWNSHIP ENGINEER. The Townships' designated civil engineering consultant, employee, or other designated representative as determined from time to time by the Township.

TWO-FAMILY DWELLING. A building used exclusively for the occupancy of two individual families living independently of each other.

UNDERGROUND DETENTION SYSTEM. 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.

UPLAND AREA. Land located in the upper portion of a watershed whose surface drainage flows toward the area being considered for development.

VEGETATED SWALES. Channels that are broad, shallow, and lined with vegetation that slow and filter stormwater runoff and promote infiltration.

WATER BODY. A river, lake, stream, creek or other watercourse or wetlands.

WATER QUALITY VOLUME (WQV). The amount of stormwater runoff from any given storm that should be captured and treated in order to remove a majority of stormwater pollutants on an average annual basis.

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.

WATERSHED. A region draining into a water body.

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.

WETLANDS. Land characterized by the presence of water at a frequency and duration sufficient to support wetland vegetation or aquatic life as defined in Act 451.