

ORDINANCE NO. 2007-108

AN ORDINANCE ESTABLISHING CHAPTER 1352 OF THE CODIFIED ORDINANCES OF THE CITY OF WILLOUGHBY, OHIO, ENTITLED, "STORM WATER MANAGEMENT".

WHEREAS, flooding is a significant threat to property, public health and safety, and storm water management lessens flood damage by reducing and holding runoff and releasing it slowly; and

WHEREAS, stream bank erosion is a significant threat to property, public health and safety, and storm water management slows runoff and reduces its erosive force; and

WHEREAS, insufficient control of storm water can result in significant damage to receiving water resources, impairing the capacity of these areas to sustain aquatic systems and their associated aquatic life use designations; and

WHEREAS, land development projects and associated increases in impervious cover alter the hydrologic response of local watersheds and increase storm water runoff rates and volumes, flooding, stream channel erosion, and sediment transport and deposition; and

WHEREAS, storm water runoff contributes to increased quantities of pollutants to water resources; and

WHEREAS, storm water runoff, stream channel erosion, and nonpoint source pollution can be controlled and minimized through the regulation of runoff from land development projects; and

WHEREAS, there are watershed-wide efforts to reduce flooding, erosion, and water quality problems in the Chagrin River and Lake Erie and to protect and enhance the water resources of the Chagrin River and Lake Erie; and

WHEREAS, the City of Willoughby finds that the lands and waters within its borders are finite natural resources and that their quality is of primary importance in promoting and maintaining public health and safety within its borders; and

WHEREAS, the City of Willoughby desires to establish standards, principles, and procedures for the regulation of soil disturbing activities that may increase flooding and erosion and may cause adverse impacts to water resources resulting from storm water runoff; and

WHEREAS, the City of Willoughby is a member of the Chagrin River Watershed Partners and recognizes its obligation as a part of the Chagrin River and Lake Erie watersheds to manage storm water within its borders; and

WHEREAS, 40 C.F.R. Parts 9, 122, 123, and 124, and Ohio Administrative Code 3745-39 require designated communities, including the City of Willoughby, to develop a Storm Water Management Program that, among other components, requires the City of Willoughby to implement standards, principles, and procedures to regulate the quality of storm water runoff during and after soil disturbing activities; and

WHEREAS, Article XVIII, Section 3 of the Ohio Constitution grants municipalities the legal authority to exercise all powers of local self-government and to adopt and enforce within their limits such local police, sanitary, and other similar regulations, as are not in conflict with general laws;

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF WILLOUGHBY, THE COUNTY OF LAKE, AND THE STATE OF OHIO:

SECTION 1. That Chapter 1352 of the Codified Ordinances of the City of Willoughby, Ohio, entitled, "Storm Water Management" is hereby established to read and provide as follows:

**CHAPTER 1352
STORM WATER MANAGEMENT**

1352.01 PURPOSE AND SCOPE

- (a) The purpose of this regulation is to establish technically feasible and economically reasonable storm water management standards to achieve a level of storm water quality and quantity control that will minimize damage to property and degradation of water resources and will promote and maintain the health, safety, and welfare of the citizens of the City of Willoughby.
- (b) This regulation requires owners who develop or redevelop their property within the City of Willoughby to:
 - (1) Control storm water runoff from their property and ensure that all storm water management practices are properly designed, constructed, and maintained.
 - (2) Reduce water quality impacts to receiving water resources that may be caused by new development or redevelopment activities.
 - (3) Control the volume, rate, and quality of storm water runoff originating from their property so that surface water and ground water are protected and flooding and erosion potential are not increased.

- (4) Minimize the need to construct, repair, and replace subsurface storm drain systems.
 - (5) Preserve natural infiltration and ground water recharge, and maintain subsurface flow that replenishes water resources, except in slippage prone soils.
 - (6) Incorporate storm water quality and quantity controls into site planning and design at the earliest possible stage in the development process.
 - (7) Reduce the expense of remedial projects needed to address problems caused by inadequate storm water management.
 - (8) Maximize use of storm water management practices that serve multiple purposes including, but not limited to, flood control, erosion control, fire protection, water quality protection, recreation, and habitat preservation.
 - (9) Design sites to minimize the number of stream crossings and the width of associated disturbance in order to minimize the City of Willoughby's future expenses related to the maintenance and repair of stream crossings.
 - (10) Maintain, promote, and re-establish conditions necessary for naturally occurring stream processes that assimilate pollutants, attenuate flood flows, and provide a healthy water resource.
- (c) This regulation shall apply to all parcels used or being developed, either wholly or partially, for new or relocated projects involving highways and roads; subdivisions or larger common plans of development; industrial, commercial, institutional, or residential projects; building activities on farms; redevelopment activities; grading; and all other uses that are not specifically exempted in Section 1352.01.
- (d) Public entities, including the State of Ohio, Lake County, and the City of Willoughby shall comply with this regulation for roadway projects initiated after March 10, 2006 and, to the maximum extent practicable, for projects initiated before that time.
- (e) This regulation does not apply to:
- (1) Activities regulated by, and in compliance with, the Ohio Agricultural Sediment Pollution Abatement Rules.
 - (2) All single family or duplex construction on a single lot not part of a development that is part of a storm water management plan.

- (3) Any addition or modification of an existing single family or duplex structure.
- (4) Linear construction projects, such as pipeline or utility line installations that do not result in the installation of new or more impervious surface as determined by the City Engineer.

1352.02 DEFINITIONS

For the purpose of this regulation, the following terms shall have the meaning herein indicated:

- (a) **ACRE:** A measurement of area equaling 43,560 square feet.
- (b) **AS-BUILT SURVEY:** A survey shown on a plan or drawing prepared by a Registered Surveyor indicating the actual dimensions, elevations, and locations of any structures, underground utilities, swales, detention facilities, and sewage treatment facilities after construction has been completed.
- (c) **BEST MANAGEMENT PRACTICES (BMPs):** Schedule of activities, prohibitions of practices, operation and maintenance procedures, treatment requirements, and other practices to reduce the pollution of water resources and to control storm water volume and rate.
- (d) **CLEAN WATER ACT:** Pub. L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. 96-483, Pub. L. 97-117, and Pub. L. 100-4, 33 U.S.C. 1251 et. seq. Referred to as the Federal Water Pollution Control Act or the Federal Water Pollution Control Act Amendments of 1972.
- (e) **COMMUNITY:** The City of Willoughby, its designated representatives, boards, or commissions.
- (f) **STORM WATER MANAGEMENT PLAN:** The written document and plans meeting the requirements of this regulation that sets forth the plans and practices to minimize storm water runoff from a development area, to safely convey or temporarily store and release post-development runoff at an allowable rate to minimize flooding and stream bank erosion, and to protect or improve storm water quality and stream channels.
- (g) **CRITICAL STORM:** A storm that is calculated by means of the percentage increase in volume of runoff by a proposed development area. The critical storm is used to calculate the maximum allowable storm water discharge rate from a developed site.

- (h) **DETENTION FACILITY:** A basin, pond, oversized pipe, or other structure that reduces the peak flow rate of storm water leaving the facility by temporarily storing a portion of the storm water entering the facility.
- (i) **DEVELOPMENT AREA:** A parcel or contiguous parcels owned by one person or persons, or operated as one development unit, and used or being developed for commercial, industrial, residential, institutional, or other construction or alteration that changes runoff characteristics.
- (j) **DEVELOPMENT DRAINAGE AREA:** A combination of each hydraulically unique watershed with individual outlet points on the development area.
- (k) **DISTURBED AREA:** An area of land subject to erosion due to the removal of vegetative cover and/or soil disturbing activities.
- (l) **DRAINAGE:** The removal of excess surface water or groundwater from land by surface or subsurface drains.
- (m) **EROSION:** The process by which the land surface is worn away by the action of wind, water, ice, gravity, or any combination of those forces.
- (n) **EXTENDED CONVEYANCE:** A storm water management practice that replaces and/or enhances traditional open or closed storm drainage conduits by retarding flow, promoting percolation of runoff into the soil, and filtering pollutants during the storm water quality event.
- (o) **EXTENDED DETENTION:** A storm water management practice that replaces and/or enhances traditional detention facilities by releasing the runoff collected during the storm water quality event over at least 24 to 48 hours, retarding flow and allowing pollutants to settle within the facility.
- (p) **FINAL STABILIZATION:** All soil disturbing activities at the site have been completed and a uniform perennial vegetative cover with a density of at least 80% coverage for the area has been established or equivalent stabilization practices, such as the use of mulches or geotextiles, have been employed.
- (q) **GRADING:** The process in which the topography of the land is altered to a new slope.
- (r) **IMPERVIOUS COVER:** Any surface that cannot effectively absorb or infiltrate water. This may include roads, streets, parking lots, rooftops, sidewalks, and other areas not covered by vegetation.

- (s) **INFILTRATION:** A storm water management practice that does not discharge to a water resource during the storm water quality event, requiring collected runoff to either infiltrate into the groundwater and/or be consumed by evapotranspiration, thereby retaining storm water pollutants in the facility.
- (t) **LARGER COMMON PLAN OF DEVELOPMENT:** A contiguous area where multiple, separate, and distinct construction activities may be taking place at different times on different schedules under one plan.
- (u) **MAXIMUM EXTENT PRACTICABLE:** The level of pollutant reduction that operators of small municipal separate storm sewer systems regulated under 40 C.F.R. Parts 9, 122, 123, and 124, referred to as NPDES Storm Water Phase II, must meet.
- (v) **NPDES:** National Pollutant Discharge Elimination System. A regulatory program in the Federal Clean Water Act that prohibits the discharge of pollutants into surface waters of the United States without a permit.
- (w) **NONSTRUCTURAL STORM WATER MANAGEMENT PRACTICE:** Storm water runoff control and treatment techniques that use natural practices to control runoff and/or reduce pollution levels.
- (x) **POST-DEVELOPMENT:** The conditions that exist following the completion of soil disturbing activity in terms of topography, vegetation, land use, and the rate, volume, quality, or direction of storm water runoff.
- (y) **PRE-CONSTRUCTION MEETING:** Meeting prior to construction between all parties associated with the construction of the project including government agencies, contractors and owners to review agency requirements and plans as approved and submitted.
- (z) **PRE-DEVELOPMENT:** The conditions that exist prior to the initiation of soil disturbing activity in terms of topography, vegetation, land use, and the rate, volume, quality, or direction of storm water runoff.
- (aa) **PROFESSIONAL ENGINEER:** A Professional Engineer registered in the State of Ohio with specific education and experience in water resources engineering, acting in conformance with the Code of Ethics of the Ohio State Board of Registration for Engineers and Surveyors.
- (bb) **REDEVELOPMENT:** A change to previously existing, improved real estate, including but not limited to the demolition or building of structures, fillings, grading, paving, or excavating.

- (cc) RIPARIAN AREA: Naturally vegetated land adjacent to any brook, creek, river, or stream having a defined bed and bank that, if appropriately sized, helps to stabilize streambanks, limit erosion, reduce flood size flows, and/or filter and settle out runoff pollutants, or performs other functions consistent with the purposes of this regulation.
- (dd) RIPARIAN AND WETLAND SETBACK: A designated transition area around water resources left in a natural, usually vegetated, state so as to protect the water resources from runoff pollution.
- (ee) RUNOFF: The portion of rainfall, melted snow, or irrigation water that flows across the ground surface and is eventually returned to water resources.
- (ff) SEDIMENT: The soils or other surface materials that can be transported or deposited by the action of wind, water, ice, or gravity as a product of erosion.
- (gg) SEDIMENTATION: The deposition of sediment in water resources.
- (hh) SITE OWNER/OPERATOR: Any individual, corporation, firm, trust, commission, board, public or private partnership, joint venture, agency, unincorporated association, municipal corporation, county or state agency, the federal government, other legal entity, or an agent thereof that is responsible for the overall construction site.
- (ii) SOIL DISTURBING ACTIVITY: Clearing, grading, excavating, filling, or other alteration of the earth's surface where natural or human made ground cover is destroyed and that may result in, or contribute to, increased storm water quantity and/or decreased storm water quality.
- (jj) STABILIZATION: The use of Best Management Practices that reduce or prevent soil erosion by storm water runoff, trench dewatering, wind, ice, gravity, or a combination thereof.
- (kk) STRUCTURAL STORM WATER MANAGEMENT PRACTICE: Any constructed facility, structure, or device that provides storage, conveyance, and/or treatment of storm water runoff.
- (ll) WATER QUALITY VOLUME. The volume of runoff from a contributing watershed that must be captured and treated, equivalent to the maximized capture volume as defined in the American Society of Civil Engineers (ASCE) Manual and Report on Engineering Practice No. 87 and Water Environment Federation Manual of Practice No. 23 titled *Urban Runoff Quality Management*.

- (mm) **WATER RESOURCE:** Any public or private body of water; including wetlands; the area within the ordinary high water level of lakes and ponds; as well as the area within the ordinary high water level of any brook, creek, river, or stream having a defined bed and bank (either natural or artificial) which confines and conducts continuous or intermittent flow.
- (nn) **WATER RESOURCE CROSSING:** Any bridge, box, arch, culvert, truss, or other type of structure intended to convey people, animals, vehicles, or materials from one side of a watercourse to another. This does not include private, non-commercial footbridges or pole mounted aerial electric or telecommunication lines, nor does it include below grade utility lines.
- (oo) **WATERSHED:** The total drainage area contributing storm water runoff to a single point.
- (pp) **WETLAND:** Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas (40 CFR 232, as amended).

1352.03 DISCLAIMER OF LIABILITY

- (a) Compliance with the provisions of this regulation shall not relieve any person from responsibility for damage to any person otherwise imposed by law. The provisions of this regulation are promulgated to promote the health, safety, and welfare of the public and are not designed for the benefit of any individual or any particular parcel of property.
- (b) By approving a Storm Water Management Plan under this regulation, the City of Willoughby does not accept responsibility for the design, installation, and operation and maintenance of storm water management practices.

1352.04 CONFLICTS, SEVERABILITY, NUISANCES & RESPONSIBILITY

- (a) Where this regulation is in conflict with other provisions of law or ordinance, the most restrictive provisions, as determined by the City Engineer, shall prevail.
- (b) If any clause, section, or provision of this regulation is declared invalid or unconstitutional by a court of competent jurisdiction, the validity of the remainder shall not be affected thereby.
- (c) This regulation shall not be construed as authorizing any person to maintain a nuisance on their property, and compliance with the provisions of this regulation shall not be a defense in any action to abate such a nuisance.

- (d) Failure of the City of Willoughby to observe or recognize hazardous or unsightly conditions or to recommend corrective measures shall not relieve the site owner from the responsibility for the condition or damage resulting therefrom, and shall not result in the City of Willoughby, its officers, employees, or agents being responsible for any condition or damage resulting therefrom.

1352.05 DEVELOPMENT OF STORM WATER MANAGEMENT PLANS

- (a) This regulation requires that a Storm Water Management Plan be developed and implemented for soil disturbing activities disturbing one (1) or more acres of total land, or less than one (1) acre if part of a larger common plan of development or sale disturbing one (1) or more acres of total land, and on which any regulated activity of Section 1352.01(c) is proposed unless exempted in Section 1352.01(f).
- (b) The City of Willoughby shall administer this regulation, shall be responsible for determination of compliance with this regulation, and shall issue notices and orders as may be necessary. The City of Willoughby may consult with the Lake County SWCD, private engineers, storm water districts, or other technical experts in reviewing the Storm Water Management Plan.

1352.06 APPLICATION PROCEDURES

- (a) Pre-Application Meeting: The applicant shall attend a Pre-Application Meeting with the City Engineer to discuss the proposed project, review the requirements of this regulation, identify unique aspects of the project that must be addressed during the review process, and establish a preliminary review and approval schedule.
- (b) Preliminary Storm Water Management Plan: The applicant shall submit two (2) sets of a Preliminary Storm Water Management Plan (Preliminary Plan) and the applicable fees to the Chief Building and Zoning Inspector. The Preliminary Plan shall show the proposed property boundaries, setbacks, dedicated open space, public roads, water resources, storm water control facilities, and easements in sufficient detail and engineering analysis to allow the City Engineer to determine if the site is laid out in a manner that meets the intent of this regulation and if the proposed storm water management practices are capable of controlling runoff from the site in compliance with this regulation. The applicant shall submit two (2) sets of the Preliminary Plan and applicable fees as follows:
 - (1) For subdivisions: In conjunction with the submission of the preliminary subdivision plan.

- (2) For other construction projects: In conjunction with the application for a building permit.
- (3) For general clearing projects: In conjunction with the application for a building permit.
- (c) Final Storm Water Management Plan: The applicant shall submit two (2) sets of a Final Storm Water Management Plan (Final Plan) and the applicable fees to the Chief Building and Zoning Inspector in conjunction with the submittal of the final plat, improvement plans, or application for a building or zoning permit for the site. The Final Plan shall meet the requirements of Section 1352.08 and shall be approved by the City Engineer prior to approval of the final plat and/or before issuance of a building permit by the Chief Building and Zoning Inspector.
- (d) Review and Comment: The City Engineer shall review the Preliminary and Final Plans submitted, and shall approve or return for revisions with comments and recommendations for revisions. A Preliminary or Final Plan rejected because of deficiencies shall receive a narrative report stating specific problems and the procedures for filing a revised Preliminary or Final Plan.
- (e) Approval Necessary: Land clearing and soil-disturbing activities shall not begin and zoning and/or building permits shall not be issued without an approved Storm Water Management Plan.
- (f) Sublots Will Not Proceed: Storm Water Management Plans for individual sublots in a subdivision will not be approved and building permits will not be issued unless the larger common plan of development or sale containing the subplot is in compliance with this regulation.
- (g) Valid for Two Years: Approvals issued in accordance with this regulation shall remain valid for two (2) years from the date of approval.

1352.07 COMPLIANCE WITH STATE AND FEDERAL REGULATIONS

Approvals issued in accordance with this regulation do not relieve the applicant of responsibility for obtaining all other necessary permits and/or approvals from other federal, state, and/or county agencies. If requirements vary, the most restrictive shall prevail. These permits may include, but are not limited to, those listed below. Proof of compliance with the appropriate and applicable state and federal regulations shall be submitted with each Storm Water Management Plan.

- (a) Ohio EPA NPDES Permits authorizing storm water discharges associated with construction activity or the most current version thereof: Proof of compliance with these requirements shall be the applicant's Notice of Intent (NOI) number from

Ohio EPA, a copy of the Ohio EPA Director's Authorization Letter for the NPDES Permit, or a letter from the site owner certifying and explaining why the NPDES Permit is not applicable.

- (b) Section 401 of the Clean Water Act: Proof of compliance shall be a copy of the Ohio EPA Water Quality Certification application tracking number, public notice, project approval, or a letter from the site owner certifying that a qualified professional has surveyed the site and determined that Section 401 of the Clean Water Act is not applicable. Wetlands, and other waters of the United States, shall be delineated by protocols accepted by the U.S. Army Corps of Engineers at the time of application of this regulation.
- (c) Ohio EPA Isolated Wetland Permit: Proof of compliance shall be a copy of Ohio EPA's Isolated Wetland Permit application tracking number, public notice, project approval, or a letter from the site owner certifying that a qualified professional has surveyed the site and determined that Ohio EPA's Isolated Wetlands Permit is not applicable. Isolated wetlands shall be delineated by protocols accepted by the U.S. Army Corps of Engineers at the time of application of this regulation.
- (d) Section 404 of the Clean Water Act: Proof of compliance shall be a copy of the U.S. Army Corps of Engineers Individual Permit application, public notice, or project approval, if an Individual Permit is required for the development project. If an Individual Permit is not required, the site owner shall submit proof of compliance with the U.S. Army Corps of Engineer's Nationwide Permit Program. This shall include one of the following:
 - (1) A letter from the site owner certifying that a qualified professional has surveyed the site and determined that Section 404 of the Clean Water Act is not applicable.
 - (2) A site plan showing that any proposed fill of waters of the United States conforms to the general and special conditions specified in the applicable Nationwide Permit. Wetlands, and other waters of the United States, shall be delineated by protocols accepted by the U.S. Army Corps of Engineers at the time of application of this regulation.
- (e) Ohio Dam Safety Law: Proof of compliance shall be a copy of the ODNR Division of Water permit application tracking number, a copy of the project approval letter from the ODNR Division of Water, or a letter from the site owner certifying and explaining why the Ohio Dam Safety Law is not applicable.

1352.08 STORM WATER MANAGEMENT PLANS

- (a) Storm Water Management Plan Required: The applicant shall develop a Storm Water Management Plan describing how the quantity and quality of storm water

will be managed after construction is complete for every discharge from the site and/or into a water resource. The Plan will illustrate the type, location, and dimensions of every structural and non-structural storm water management practice incorporated into the site design, and the rationale for their selection. The rationale must address how these storm water management practices will address flooding within the site as well as flooding that may be caused by the development upstream and downstream of the site. The rationale will also describe how the storm water management practices minimize impacts to the physical, chemical, and biological characteristics of on-site and downstream water resources and, if necessary, correct current degradation of water resources that is occurring or take measures to prevent predictable degradation of water resources.

- (b) The structural and non-structural storm water management plan for any construction site should not include any parcel not part of the construction site. In the event the storm water management plan includes premises not part of the construction parcel, the owner shall provide an easement permitting ingress and egress to the non-construction parcel in a form that is acceptable to the City engineer and the law director of the City. The easement shall be an encumbrance on both parcels and shall be binding upon the owner or owners of both parcels and their/its successors or assigns. Operation, maintenance and repair responsibilities shall be that of the owner or any association created to manage the common areas on the construction site and any parcel that is included in the storm water management plan. Minor subdivisions of land that separate the construction site from any site included in the storm water management plan shall include easements for ingress and egress that are the obligation of the construction site owner or association created to operate, maintain and repair the storm water plan and shall need approval by the City engineer and the law director of the City.
- (c) Preparation by Professional Engineer: The Storm Water Management Plan shall be prepared by a registered professional engineer and include supporting calculations, plan sheets, and design details. To the extent necessary, as determined by the City Engineer, a site survey shall be performed by a Registered Professional Surveyor to establish boundary lines, measurements, or land surfaces.
- (d) Community Procedures: The City Engineer shall prepare and maintain procedures providing specific criteria and guidance to be followed when designing the storm water management system for the site. These procedures may be updated from time to time, at the discretion of the City Engineer based on improvements in engineering, science, monitoring, and local maintenance experience. The City Engineer shall make the final determination of whether the practices proposed in the Storm Water Management Plan meet the requirements of this regulation. The City Engineer may also maintain a list of acceptable Best

Management Practices that meet the criteria of this ordinance to be used in the City of Willoughby.

- (e) Contents of Storm Water Management Plan: The Storm Water Management Plan shall contain an application, narrative report, construction site plan sheets, a long-term Inspection and Maintenance Agreement, and a site description with the following information provided:

- (1) Site description:

- A. A description of the nature and type of the construction activity (e.g. residential, shopping mall, highway, etc.).
- B. Total area of the site and the area of the site that is expected to be disturbed (i.e. grubbing, clearing, excavation, filling or grading, including off-site borrow areas).
- C. A description of prior land uses at the site.
- D. An estimate of the impervious area and percent of imperviousness created by the soil-disturbing activity at the beginning and at the conclusion of the project.
- E. Existing data describing the soils throughout the site, including the soil series and association, hydrologic soil group, porosity, infiltration characteristics, depth to groundwater, depth to bedrock, and any impermeable layers.
- F. If available, the quality of any known pollutant discharge from the site such as that which may result from previous contamination caused by prior land uses.
- G. The location and name of the immediate water resource(s) and the first subsequent water resource(s).
- H. The aerial (plan view) extent and description of water resources at or near the site that will be disturbed or will receive discharges from the project.
- I. Describe the current condition of water resources including the vertical stability of stream channels and indications of channel incision that may be responsible for current or future sources of high sediment loading or loss of channel stability.

- (2) Site map showing:

- A. Limits of soil-disturbing activity on the site.
 - B. Soils types for the entire site, including locations of unstable or highly erodible soils.
 - C. Existing and proposed one-foot (1') contours. This must include a delineation of drainage watersheds expected before, during, and after major grading activities as well as the size of each drainage watershed in acres.
 - D. Water resource locations including springs, wetlands, streams, lakes, water wells, and associated setbacks on or within 200 feet of the site, including the boundaries of wetlands or streams and first subsequent named receiving water(s) the applicant intends to fill or relocate for which the applicant is seeking approval from the Army Corps of Engineers and/or Ohio EPA.
 - E. Existing and planned locations of buildings, roads, parking facilities, and utilities.
 - F. The location of any in-stream activities including stream crossings.
- (3) Contact information: Company name and contact information as well as contact name, addresses, and phone numbers for the following:
- A. The Professional Engineer who prepared the Storm Water Management Plan.
 - B. The site owner.
- (4) Phase, if applicable, of the overall development plan.
- (5) List of subplot numbers if project is a subdivision.
- (6) Ohio EPA NPDES Permit Number and other applicable state and federal permit numbers, if available, or status of various permitting requirements if final approvals have not been received.
- (7) Location, including complete site address and subplot number if applicable.
- (8) Location of any easements or other restrictions placed on the use of the property.
- (9) A site plan sheet showing:

- A. The location of each proposed post-construction storm water management practice.
- B. The geographic coordinates of the site AND each proposed practice in North American Datum Ohio State Plan North.

It is preferred that the entire site be shown on one plan sheet to allow a complete view of the site during plan review. If a smaller scale is used to accomplish this, separate sheets providing an enlarged view of areas on individual sheets should also be provided.

- (10) An Inspection and Maintenance Agreement binding on the owner and all subsequent owners of lands served by the system of storm water management practices designed for the site. Such Agreements shall include all post-construction BMPs, shall be recorded with the deed of the property(s) within the site, and shall provide and stipulate the following:
 - A. The location of each storm water management practice, including those practices permitted to be located in, or within 50 feet of, water resources.
 - B. The method of funding long-term maintenance and inspections of all storm water management practices.
 - C. Features of the design that facilitates maintenance of the practice.
 - D. The on-going procedures needed to assure the continued performance of storm water management practices.
 - E. Additional standards, as required by the City Engineer, to ensure continual performance of storm water management practices permitted to be located in, or within 50 feet of, water resources.
 - F. The party responsible for long-term maintenance, including repairs. This party shall also hold the easements required under Section 1352.11.
 - G. A prohibition on alteration of the practice without prior written approval from the City Engineer.
 - H. An easement that allows the City of Willoughby access to the storm water management practice at reasonable times for inspections to

document the condition of the practice and to ensure it is functioning as originally designed and approved.

- I. Permission for City of Willoughby to enter upon the property and take whatever action is deemed necessary to maintain facilities that do not perform as specified in the Inspection and Maintenance Agreement, and to be reimbursed by the property owner(s) served by the facility for all expenses incurred within 10 days of receipt of invoice from the City of Willoughby.
- J. A release of the City of Willoughby from all damages, accidents, casualties, occurrences, or claims that might arise or be asserted against said parties from the construction, presence, existence, or maintenance of the storm water management practices.

Alteration or termination of these stipulations is prohibited. The applicant must provide a draft of this Inspection and Maintenance Agreement as part of the Storm Water Management Plan submittal. Once a draft is approved, a recorded copy of the Agreement must be submitted to the City of Willoughby to receive final inspection approval of the site.

- (11) Calculations required: The applicant shall submit calculations for projected storm water runoff flows, volumes, and timing into and through all storm water management practices for flood control, channel protection, water quality, and the condition of the habitat, stability, and incision of each water resource and its floodplain, as required in Section 1352.09 of this regulation. These submittals shall be completed for both pre- and post-development land use conditions and shall include the underlying assumptions and hydrologic and hydraulic methods and parameters used for these calculations. The applicant shall also include critical storm determination and demonstrate that the runoff from upper watershed areas have been considered in the calculations.
- (12) List of all contractors and subcontractors before construction: Prior to construction or before the pre-construction meeting, provide the list of all contractors and subcontractors names, addresses, and phones involved with the implementation of the Storm Water Management Plan including a written document containing signatures of all parties as proof of acknowledgment that they have reviewed and understand the requirements and responsibilities of the Storm Water Management Plan.
- (13) Existing and proposed drainage patterns: The location and description of existing and proposed drainage patterns and storm water management

practices, including any related storm water management practices beyond the development area and the larger common development area.

- (14) For each storm water management practice to be employed on the development area, include the following:
- A. Location and size, including detail drawings, maintenance requirements during and after construction, and design calculations, all where applicable.
 - B. Final site conditions including storm water inlets and permanent nonstructural and structural storm water management practices. Details of storm water management practices shall be drawn to scale and shall show volumes and sizes of contributing drainage areas.
 - C. Any other structural and/or non-structural storm water management practices necessary to meet the design criteria in this regulation and any supplemental information requested by the City Engineer.

1352.09 PERFORMANCE STANDARDS

- (a) General: All components of the storm water system, including storm water management practices for storage, treatment and control, and conveyance facilities, shall be designed to prevent structure flooding during the 100-year, 24-hour storm event; to maintain predevelopment runoff patterns, flows, and volumes; and to meet the following criteria:
- (1) Integrated practices that address degradation of water resources. The storm water management practices shall function as an integrated system that controls flooding and minimizes the degradation of the physical, biological, and chemical integrity of the water resources receiving storm water discharges from the site. Acceptable practices shall:
- A. Not disturb riparian areas, unless the disturbance is intended to support a watercourse restoration project and complies with the riparian setback requirements.
 - B. Maintain predevelopment hydrology and groundwater recharge on as much of the site as practicable.
 - C. Only install new impervious surfaces and compact soils where necessary to support the future land use.

- D. Compensate for increased runoff volumes caused by new impervious surfaces and soil compaction by reducing storm water peak flows to less than predevelopment levels.

Storm water management practices that meet the criteria in this regulation, and additional criteria required by the City Engineer, shall comply with this regulation.

- (2) Practices designed for final use: Storm water management practices shall be designed to achieve the storm water management objectives of this regulation, to be compatible with the proposed post-construction use of the site, to protect the public health, safety, and welfare, and to function safely with minimal maintenance.
- (3) Storm water management for all lots: Areas developed for a major subdivision, as defined in Chapter 1109, shall provide storm water management for the development of all subdivided lots. This shall include provisions for lot grading and drainage that prevents structure flooding during the 100-year storm; and maintain, to the extent practicable, the pre-development runoff patterns, volumes, and peaks from the lot.
- (4) Storm water facilities in water resources: Storm water management practices shall not be constructed in water resources unless the applicant obtains all appropriate permits from the Ohio EPA, the U.S. Army Corps, and other applicable federal, state, and local agencies, and the activity is in compliance with Section 1351, all as determined by the City Engineer.
- (5) Storm water ponds and surface conveyance channels: All storm water pond and surface conveyance designs must provide a minimum of one (1) foot freeboard above the projected peak stage within the facility during the 100-year storm. When designing storm water ponds and conveyance channels, the applicant shall consider public safety as a design factor and alternative designs must be implemented where site limitations would preclude a safe design. Grading in all developments must be designed such that the 100-year storm runoff reaches the storm water management basins for said development.
- (6) Exemption: The site where soil-disturbing activities are conducted shall be exempt from the requirements of Section 1352.09 if it can be shown to the satisfaction of the City Engineer that the site is part of a larger common plan of development where the storm water management requirements for the site are provided by an existing storm water management practice, or if the storm water management requirements for

the site are provided by practices defined in a regional or local storm water management plan approved by the City Engineer.

- (7) Maintenance: All storm water management practices shall be maintained in accordance with Inspection and Maintenance Agreements approved by the City Engineer as detailed in Section 1352.08.
 - (8) Ownership: Unless otherwise required by the City of Willoughby, storm water management practices serving multiple lots in subdivisions shall be on a separate lot held and maintained by an entity of common ownership or, if compensated by the property owners, by the City of Willoughby. Storm water management practices serving single lots shall be placed on these lots, protected within an easement, and maintained by the property owner.
 - (9) Preservation of Existing Natural Drainage. Practices that preserve and/or improve the existing natural drainage shall be used to the maximum extent practicable. Such practices may include minimizing site grading and compaction; protecting and/or restoring water resources, riparian areas, and existing vegetation; and maintaining unconcentrated storm water runoff to and through these areas, in accordance with the Ordinances of the City of Willoughby.
 - (10) Downspouts shall be outletted on splashblocks unless approved otherwise.
 - (11) Sump pumps are required for all foundation drains that are not at least 18 inches above the street centerline pavement elevation.
 - (12) All storm water runoff calculations shall use the National Weather Service – HDSC Precipitation Frequent Data Server (<http://hdsc.nws.noaa.gov/hdsc/pfds/index.html>) for the City of Willoughby, Ohio, 44094.
- (b) Storm Water Conveyance Design Criteria: All storm water management practices shall be designed to convey storm water to allow for the maximum removal of pollutants and reduction in flow velocities. This shall include but not be limited to:
- (1) Stream relocation or enclosure: The City Engineer may allow the enclosure or relocation of water resources only if the applicant obtains all appropriate permits from the Ohio EPA, the U.S. Army Corps, and other applicable federal, state, and local agencies and the activity is in compliance with Section 1351, all as determined by the City Engineer. At a minimum, stream relocation designs must show how the project will minimize changes to the vertical stability, floodplain form, channel form, and habitat of upstream and downstream channels on and off the

property. Stream relocation or enclosure may be required by the City to protect downstream properties.

- (2) Off-site storm water discharges: Off-site storm water runoff that discharges to or across the applicant's development site shall be conveyed through the storm water conveyance system planned for the development site at its existing peak flow rates during each design storm. Off-site flows shall be diverted around storm water quality control facilities or, if this is not possible, the storm water quality control facility shall be sized to treat the off-site flow. Storm Water Management Plans will not be approved until it is demonstrated to the satisfaction of the City Engineer that off-site runoff will be adequately conveyed through the development site in a manner that does not exacerbate upstream or downstream flooding and erosion.
- (3) Sheet flow. Disturbed areas on the site shall be graded in a manner that maintains sheet flow over as large an area as possible. The maximum flow path length and area of sheet flow shall be determined based on the slope, the uniformity of site grading, and the use of easements or other legally-binding mechanisms that prohibit re-grading and/or the placement of structures within sheet flow areas. In no case shall the overland flow path in a sheet flow area be longer than 300 feet, nor shall a sheet flow area exceed 1.5 acres. Flow shall be directed into an open channel, storm sewer, or other storm water management practice from areas too long and/or too large to maintain sheet flow, all as determined by the City Engineer.
- (4) Open channels: Where allowed by the City Engineer, drainage tributary to storm water management practices shall be provided by an open channel with landscaped banks and designed to carry the 10-year storm water runoff from upstream contributory areas.
- (5) Storm sewer systems: Storm sewer systems shall be used on all new development sites to convey storm water. Open drainage systems may be allowed to better utilize the natural features of a development, all as determined by the City Engineer. The following criteria shall be used to design storm sewer systems when necessary:
 - A. Storm sewers shall be designed such that they do not surcharge from runoff caused by the 10-year storm and that the hydraulic grade line of the storm sewer stays below the gutter flow line of the overlying roadway, or below the top of drainage structures outside the roadway during a 25-year storm. The system shall be designed to meet these requirements when conveying the flows from the

contributory area within the proposed development and existing flows from offsite areas that are upstream from the development.

- B. The minimum inside diameter of pipe to be used in public storm sewer systems is 12 inches. Smaller pipe sizes may be used in private systems, subject to the approval of the City Engineer.
 - C. All storm sewer systems shall be designed taking into consideration the tailwater of the receiving facility or water resource. The tailwater elevation used shall be based on the design storm frequency. The hydraulic grade line for the storm sewer system shall be computed with consideration for the energy losses associated with entrance into and exit from the system, friction through the system, and turbulence in the individual manholes, catch basins, and junctions within the system.
 - D. The inverts of all curb inlets, manholes, yard inlets, and other structures shall be formed and channelized to minimize the incidence of quiescent standing water where mosquitoes may breed.
 - E. Headwalls shall be required at all storm sewer inlets or outlets to and from open channels or lakes.
- (6) Water Resource Crossings. The following criteria shall be used to design structures that cross a water resource within the City of Willoughby:
- A. Water resource crossings other than bridges shall be designed to convey the stream's flow for the minimum 25-year storm.
 - B. Bridges, open bottom arch or spans are the preferred crossing technique and shall be considered in the planning phase of the development. Bridges and open spans should be considered for all State Scenic Rivers, coldwater habitat, exceptional warm water habitat, seasonal salmonid habitat streams, and Class III headwater streams.
 - C. If a culvert or other closed bottom crossing is used, twenty-five (25) percent of the cross-sectional area or a minimum of 1 foot of box culverts and pipe arches must be embedded below the channel bed.
 - D. The minimum inside diameter of pipes to be used for crossings shall be 12 inches.

- E. The maximum slope allowable shall be a slope that produces a 10-fps velocity within the culvert barrel under design flow conditions. Erosion protection and/or energy dissipaters shall be required to properly control entrance and outlet velocities.
 - F. All culvert installations shall be designed with consideration for the tailwater of the receiving facility or water resource. The tailwater elevation used shall be based on the design storm frequency.
 - G. Headwalls shall be required at all culvert inlets or outlets to and from open channels or lakes.
 - H. Streams with a drainage area of 5 square miles or larger should incorporate floodplain culverts at the banks full elevation to restrict head loss differences across the crossing to no more than 1 foot during the 100-year storm.
 - I. Bridges shall be designed such that the hydraulic profile through a bridge shall be below the bottom chord of the bridge for either the 100-year storm, or the 100-year flood elevation as determined by FEMA, whichever is more restrictive.
- (7) Overland flooding: Overland flood routing paths shall be used to convey storm water runoff from the 100-year storm event to an adequate receiving water resource or storm water management practice such that the runoff is contained within the drainage easement for the flood routing path and does not cause flooding of buildings or related structures. The peak 100-year water surface elevation along flood routing paths shall be at least one foot below the finished grade elevation at the structure. When designing the flood routing paths, the conveyance capacity of the site's storm sewers shall be taken into consideration.
- (8) Velocity dissipation: Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel to provide non-erosive flow velocity from the structure to a water resource so that the natural physical and biological characteristics and functions of the water resource are maintained and protected.
- (c) Storm Water Quality Control:
- (1) Direct runoff to a BMP: The site shall be designed to direct runoff from areas disturbed during construction to one or more of the following storm water management practices. These practices are listed in Table 2 of this regulation:

- A. Extended conveyance facilities that slow the rate of storm water runoff; filter and biodegrade pollutants in storm water; promote infiltration and evapotranspiration of storm water; and discharge the controlled runoff to a water resource.
 - B. Extended detention facilities that detain storm water; settle or filter particulate pollutants; and release the controlled storm water to a water resource.
 - C. Infiltration facilities that retain storm water; promote settling, filtering, and biodegradation of pollutants; and infiltrate all captured storm water into the ground based on the findings of the soil engineering report prepared for the site.
 - D. Other BMPs may be approved by the City Engineer if the applicant demonstrates that they satisfactorily meet the objectives of this regulation according to criteria in Section 1352.09.(c)6.
- (2) Criteria applying to all storm water management practices. Practices chosen must be sized to treat the water quality volume (WQv) and to ensure compliance with Ohio Water Quality Standards (OAC Chapter 3745-1).
- A. The WQv shall be equal to the volume of runoff from a 0.75 inch rainfall event and shall be determined according to one of the following methods:
 - 1. Through a site hydrologic study approved by the City Engineer that uses continuous hydrologic simulation; site-specific hydrologic parameters, including impervious area, soil infiltration characteristics, slope and surface routing characteristics; proposed best management practices controlling the amount and/or timing of runoff from the site; and local long-term hourly records, or
 - 2. Using the following equation:

$$WQ_V = C * P * A / 12$$
 where terms have the following meanings:
 WQ_V = water quality volume in acre-feet
 C = runoff coefficient appropriate for storms less than 1 in.
 P = 0.75 inch precipitation depth
 A = area draining into the storm water practice, in acres.

Runoff coefficients required by the Ohio Environmental Protection Agency (Ohio EPA) for use in determining the water quality volume are listed in Table 1.

Table 1: Runoff Coefficients Based on the Type of Land Use

Land Use	Runoff Coefficient
Industrial & Commercial	0.8
High Density Residential (>8 dwellings/acre)	0.5
Medium Density Residential (4 to 8 dwellings/acre)	0.4
Low Density Residential (<4 dwellings/acre)	0.3
Open Space and Recreational Areas	0.2
Where land use will be mixed, the runoff coefficient should be calculated using a weighted average. For example, if 60% of the contributing drainage area to the storm water treatment structure is Low Density Residential, 30% is High Density Residential, and 10% is Open Space, the runoff coefficient is calculated as follows $(0.6)(0.3)+(0.3)(0.5)+(0.1)(0.2) = (0.35)$	

- B. An additional volume equal to 20% of the WQv shall be incorporated into the storm water practice for sediment storage.
- C. Storm water quality management practices shall be designed such that the drain time is long enough to provide treatment and protect against downstream bank erosion, but short enough to provide storage available for successive rainfall events as defined in Table 2.

Table 2: Draw Down Times for Storm Water Management Practices

Best Management Practice	Drain Time of WQv
Infiltration	24 - 48 hours
Extended Conveyance (Vegetated Swales, Filter Strips)	*
Extended Detention <ul style="list-style-type: none"> ▪ Extended Dry Detention Basins ▪ Wet Detention Basins ** ▪ Constructed Wetlands (above permanent pool) ▪ Media Filtration, Bioretention 	48 hours 24 hours 24 hours 40 hours
* Size to pass a hydrograph with a volume equal to the WQv, a duration of 2 hours, and peak rainfall intensity of 1 inch/hour at a depth of no more than 3 inches.	
**Provide both a permanent pool and an extended detention volume above the permanent pool, each sized with at least 0.75*WQv	

- D. Each practice shall be designed to facilitate sediment removal, vegetation management, debris control, and other maintenance

activities defined in the Inspection and Maintenance Agreement for the site.

(3) Additional Criteria for Extended Detention Facilities:

- A. The outlet shall be designed to release the bottom 50 percent of the water quality volume in no less than $2/3^{\text{rd}}$ of the drain time. A valve shall be provided to drain any permanent pool volume for removal of accumulated sediments. The outlet shall be designed to minimize clogging, vandalism, and maintenance.
- B. The basin design shall incorporate the following features to maximize multiple uses, aesthetics, safety, and maintainability:
 - 1. Basin side slopes above the permanent pool shall have a run to rise ratio of 4:1 or flatter.
 - 2. The perimeter of all permanent pool areas deeper than 4 feet shall be surrounded by an aquatic bench that extends at least 8 feet and no more than 15 feet outward from the normal water edge. The 8 feet wide portion of the aquatic bench closest to the shoreline shall have an average depth of 6 inches below the permanent pool to promote the growth of aquatic vegetation. The remainder of the aquatic bench shall be no more than 15 inches below the permanent pool to minimize drowning risk to individuals who accidentally or intentionally enter the basin, and to limit growth of dense vegetation in a manner that allows waves and mosquito predators to pass through the vegetation. The maximum slope of the aquatic bench shall be 10 (H) to 1 (V). The aquatic bench shall be planted with hearty native plants comparable to wetland vegetation that are able to withstand prolonged inundation.
 - 3. A forebay designed to allow larger sediment particles to settle shall be placed at basin inlets. The forebay volume shall be equal to at least 10% of the water quality volume (WQv).

(4) Additional criteria applying to extended conveyance facilities.

- A. Swales and filter strips shall be lined with fine, turf-forming, water-resistant grasses to slow and filter flows. Maximum depth of flow shall be no greater than three inches.

B. Concentrated runoff shall be converted to sheet flow before entering an extended conveyance facility.

(5) Additional criteria applying to infiltration facilities.

A. Infiltration facilities shall only be allowed if the soils of the facility fall within hydrologic soil groups A or B, and if the seasonal high water table and any underlying bedrock are at least six feet below the final grade elevation.

B. All runoff directed into an infiltration basin must first flow through an extended conveyance facility to remove coarser sediments that could cause a loss of infiltration capacity.

C. During construction, all runoff from disturbed areas of the site shall be diverted away from the proposed infiltration basin site. No construction equipment shall be allowed within the infiltration basin site to avoid soil compaction.

(6) Alternative post-construction BMPs: The applicant may request approval from the City Engineer for the use of alternative structural post-construction BMPs if the applicant shows, to the satisfaction of the City Engineer and with prior written approval from Ohio EPA, that these BMPs are equivalent in pollutant removal and runoff flow/volume reduction effectiveness to those, listed in Table 2.

(d) Storm Water Quantity Control: The Storm Water Management Plan shall describe how the proposed storm water management practices are designed to meet the following requirements for storm water quantity control for each watershed in the development:

(1) The peak discharge rate of runoff from the Critical Storm and all more frequent storms occurring under post-development conditions shall not exceed the peak discharge rate of runoff from a 1-year, 24-hour storm occurring on the same development drainage area under pre-development conditions.

(2) Storms of less frequent occurrence (longer return periods) than the Critical Storm, up to the 100-year, 24-hour storm shall have peak runoff discharge rates no greater than the peak runoff rates from equivalent size storms under pre-development conditions. The 1, 2, 5, 10, 25, 50, and 100-year storms shall be considered in designing a facility to meet this requirement.

- (3) The Critical Storm for each specific development drainage area shall be determined as follows:
- A. Determine, using a curve number-based hydrologic method that generates hydrographs, or other hydrologic method approved by the City Engineer, the total volume (acre-feet) of runoff from a 1-year, 24-hour storm occurring on the development drainage area before and after development. These calculations shall meet the following standards:
 - 1. Calculations shall include the lot coverage assumptions used for full build out as proposed.
 - 2. Calculations shall be based on the entire contributing watershed to the development area.
 - 3. Curve numbers for the pre-development condition must reflect the average type of land use over the past 10 years and not only the current land use.
 - 4. To account for future post-construction improvements to the site, calculations shall assume an impervious surface such as asphalt or concrete for all parking areas and driveways, regardless of the surface proposed in the site description.
 - B. From the volume determined in Section 1352.09(d)(3)(A), determine the percent increase in volume of runoff due to development. Using the percentage, select the 24-hour Critical Storm from Table 3:

Table 3: 24-Hour Critical Storm

If the Percentage of Increase in Volume of Runoff is:		The Critical Storm will be:
Equal to or Greater Than:	and Less Than:	
----	10	1 year
10	20	2 year
20	50	5 year
50	100	10 year
100	250	25 year
250	500	50 year

500	---	100 year
<p>For example, if the percent increase between the pre- and post-development runoff volume for a 1-year storm is 35%, the Critical Storm is a 5-year storm. The peak discharge rate of runoff for all storms up to this frequency shall be controlled so as not to exceed the peak discharge rate from the 1-year frequency storm under pre-development conditions in the development drainage area. The post-development runoff from all less frequent storms need only be controlled to meet pre-development peak discharge rates for each of those same storms.</p>		

1352.10 ALTERNATIVE ACTIONS

- (a) When the City of Willoughby determines that site constraints compromise the intent of this regulation, off-site alternatives may be used that result in an improvement of water quality and a reduction of storm water quantity. Such alternatives shall meet the following standards:
 - (1) Shall achieve the same level of storm water quantity and quality control that would be achieved by the on-site controls required under this regulation.
 - (2) Implemented in the drainage area of the proposed development project to the maximum extent practicable.

- (b) Alternative actions may include, but are not limited to the following. All alternative actions shall be approved by the City Engineer:
 - (1) Fees, in an amount specified by the City of Willoughby to be applied to community-wide storm water management practices.
 - (2) Implementation of off-site storm water management practices and/or the retrofit of an existing practice to increase quality and quantity control.
 - (3) Stream, floodplain, or wetland restoration.
 - (4) Acquisition or conservation easements on protected open space significantly contributing to storm water control such as wetland complexes.

1352.11 EASEMENTS

Access to storm water management practices as required by the City Engineer for inspections and maintenance shall be secured by easements. The following conditions shall apply to all easements:

- (a) Easements shall be included in the Inspection and Maintenance Agreement submitted with the Storm Water Management Plan.

- (b) Easements shall be approved by the City of Willoughby prior to approval of a final plat and shall be recorded with the Lake Auditor and on all property deeds.
- (c) Unless otherwise required by the City Engineer, access easements between a public right-of-way and all storm water management practices shall be no less than 25-feet wide. The easement shall also incorporate the entire practice plus an additional 25-foot wide band around the perimeter of the storm water management practice.
- (d) The easement shall be graded and/or stabilized as necessary to allow maintenance equipment to access and manipulate around and within each facility, as defined in the Inspection and Maintenance Agreement for the site.
- (e) Easements to structural storm water management practices shall be restricted against the construction therein of buildings, fences, walls, and other structures that may obstruct the free flow of storm water and the passage of inspectors and maintenance equipment; and against the changing of final grade from that described by the final grading plan approved by the City of Willoughby. Any regrading and/or obstruction placed within a maintenance easement may be removed by the City of Willoughby at the property owners' expense.
- (f) Easements governing storm drainage facility improvements shall be determined as follows:
 - (1) All storm drainage structures shall be placed in drainage easements with area-wide facilities placed on City owned easements and all other facilities placed on owner, homeowner, or association owned easements.
 - (2) Area-wide facilities are those that meet one or more of the following criteria:
 - A. Dedicated public street drainage is dependent upon the storm sewer or ditch.
 - B. Storm sewer or ditch receiving flow from a defined upstream drainage channel that is an area-wide facility.
 - C. Storm sewer or ditch serves more than twelve (12) lots and contains a drainage facility that is more elaborate than a rear yard swale.
 - D. Lake, pond or basin is designed to detain or retain storm water for control from beyond the development in which the facility is contained if off-site runoff generated more than fifty percent (50%) of the required storage volume.

- E. An addition to or an improvement of an existing area-wide facility.
- (3) Local service facilities shall include all other facilities not meeting the above criteria. Area-wide facilities do not include existing lakes, rivers, streams, creeks, brooks and ponds.
- (4) Facilities existing at the time of the adoption of this ordinance that are not owned and maintained by the City but meet the area-wide criteria, may be submitted to the City for acceptance provided the facilities are cleaned, repaired, upgraded to current standards, and easements are provided all at no cost to the City and subjected to the approval of the City Council.
- (5) Each subplot created by subdivision of property shall have a rear yard drain connected to the subdivision drainage system. This requirement can be waived by the City Engineer if the rear yard is traversed by a natural waterway and where the property is at a slope greater than 2% toward the waterway.

1352.12 MAINTENANCE AND FINAL INSPECTION APPROVAL

To receive final inspection and acceptance of any project, or portion thereof, the following must be completed and provided to the City Engineer:

- (a) Final stabilization must be achieved and all permanent storm water management practices must be installed and made functional, as determined by the City Engineer and per the approved Storm Water Management Plan.
- (b) An As-Built Certification, including a Survey and Inspection, must be (sealed, signed and dated) by a Professional Engineer and a Professional Surveyor with a statement certifying that the storm water management practices, as designed and installed, meet the requirements of the Storm Water Management Plan approved by the City Engineer. In evaluating this certification, the City Engineer may require the submission of a new set of storm water practice calculations if he/she determines that the design was altered significantly from the approved Storm Water Management Plan. The As-Built Survey must provide the location, dimensions, and bearing of such practices and include the entity responsible for long-term maintenance as detailed in the Inspection and Maintenance Agreement.
- (c) A copy of the complete and recorded Inspection and Maintenance Agreement as specified in Section 1352.08 must be provided to the City Engineer.

1352.13 ON-GOING INSPECTIONS

The City of Willoughby shall inspect storm water management practices periodically. Upon finding a malfunction or other need for maintenance, the City of Willoughby shall provide written

notification to the responsible party, as detailed in the Inspection and Maintenance Agreement, of the need for maintenance. Upon notification, the responsible party shall have **five (5) working days**, or other mutually agreed upon time, to make repairs or submit a plan with detailed action items and established timelines. Should repairs not be made within this time, or a plan approved by the City Engineer for these repairs not be in place, the City of Willoughby may undertake the necessary repairs and assess the responsible party.

1352.14 FEES

The Storm Water Management Plan review, filing, and inspection fee is part of a complete submittal and is required to be submitted to the City of Willoughby before the review process begins. The Chief Building and Zoning Inspector shall establish a fee schedule based upon the actual estimated cost for providing these services.

1352.15 BOND

- (a) If a Storm Water Management Plan is required by this regulation, soil-disturbing activities shall not be permitted until a cash bond of **\$2,500**, has been deposited with the City of Willoughby Finance Department. This bond shall be posted for the City of Willoughby to perform the obligations otherwise to be performed by the owner of the development area as stated in this regulation and to allow all work to be performed as needed in the event that the applicant fails to comply with the provisions of this regulation. The storm water bond will be returned, less City of Willoughby administrative fees as detailed in Chapter 1352 of the Codified Ordinances of the City of Willoughby, when the following three criteria are met:
- (1) After 80% of a subdivision has been completed or 100% of the disturbed area is permanently stabilized if the disturbed area is in a multi-lot development or subdivision.
 - (2) An As-Built Inspection of all water quality practices is conducted by the City Engineer.
 - (3) An Inspection and Maintenance Agreement signed by the developer, the contractor, the City of Willoughby, and the private owner or homeowners association who will take long term responsibility for these BMPs, is accepted by the City Engineer.
- (b) Once these criteria are met, the applicant shall be reimbursed all bond monies that were not used for any part of the project. If all of these criteria are not met after three years of permanent stabilization of the site, the City of Willoughby may use the bond monies to fix any outstanding issues with all water quality structures on the site and the remainder of the bond shall be given to the private lot owner/homeowners association for the purpose of long term maintenance of the project.

1352.16 INSTALLATION OF WATER QUALITY BEST MANAGEMENT PRACTICES

The applicant may not direct runoff through any water quality structures, or portions thereof, that would be degraded by construction site sediment until the entire area tributary to the structure has reached final stabilization as determined by the City Engineer. This occurs after the completion of the final grade at the site, after all of the utilities are installed, and the site is subsequently stabilized with vegetation or other appropriate methods. The developer must provide documentation acceptable to the City Engineer to demonstrate that the site is completely stabilized. Upon this proof of compliance, the water quality structure(s) may be completed and placed into service. Upon completion of installation of these practices, all disturbed areas and/or exposed soils caused by the installation of these practices must be stabilized with in 2 days.

1352.17 VIOLATIONS

No person shall violate or cause or knowingly permit to be violated any of the provisions of this regulation, or fail to comply with any of such provisions or with any lawful requirements of any public authority made pursuant to this regulation, or knowingly use or cause or permit the use of any lands in violation of this regulation or in violation of any permit granted under this regulation.

1352.18 APPEALS

Any person aggrieved by any order, requirement, determination, or any other action or inaction by the City of Willoughby in relation to this regulation may appeal to the court of common pleas. Such an appeal shall be made in conformity with Ohio Revised Code Section 2506. Written notice of appeal shall be served on the City of Willoughby.

1352.99 PENALTY

- (a) Any person, firm, entity or corporation; including but not limited to, the owner of the property, his agents and assigns, occupant, property manager, and any contractor or subcontractor who violates or fails to comply with any provision of this regulation is guilty of a misdemeanor of the third degree and shall be fined no more than five hundred dollars (\$500.00) or imprisoned for no more than sixty (60) days, or both, for each offense. A separate offense shall be deemed committed each day during or on which a violation or noncompliance occurs or continues.
- (b) The imposition of any other penalties provided herein shall not preclude the City of Willoughby instituting an appropriate action or proceeding in a Court of proper jurisdiction to prevent an unlawful development, or to restrain, correct, or abate a violation, or to require compliance with the provisions of this regulation or other applicable laws, ordinances, rules, or regulations, or the orders of the City of Willoughby.

SECTION 2. It is found and determined that all formal actions of this Council concerning and relating to the passage of this Ordinance were conducted in an open meeting of this Council, and that all deliberations of this Council and any of its committees that resulted in such actions were conducted in meetings open to the public in compliance with all legal requirements including Chapter 107 of the Codified Ordinances of the City of Willoughby.

SECTION 3. That this Ordinance shall be in full force and take effect immediately upon its passage by Council and its approval by the Mayor, or at the earliest period allowed by law.

Passed: _____
President of Council

Attest: _____
Clerk of Council

Date: _____ Approved: _____
Mayor

Submitted to the Mayor for his approval on this _____ day of _____, 2007.

Clerk of Council