

MCHENRY COUNTY STORMWATER MANAGEMENT ORDINANCE
COUNTY BOARD APPROVED AMENDMENTS – EFFECTIVE SEPTEMBER 15, 2020

MINOR TEXT CHANGES

§15.60.030.B.2.a. General Permit Number 2 – Authorizing Single Family Homes, Authorization

- a. A development plan shall be submitted showing the proposed regulated development with all other relevant information, including but not limited to:
- (1) Property lines;
 - (2) Buildings and other structures;
 - (3) Easements;
 - (4) Utility lines, culverts, onsite waste disposal systems, and wells;
 - (5) Existing and proposed ground elevations sufficient to depict the proposed work and how it ties into existing ground elevations;
 - (6) Existing and proposed impervious areas;
 - (7) Areas of temporary disturbance;
 - (8) Placement of spoil materials;
 - (9) Details of construction;
 - (10) Dimensions of the proposed regulated development;
 - (11) The type and location of all soil erosion and sediment control measures;
 - (12) Specifications for seeding or other methods of stabilization;
 - (13) The McHenry County Standard Soil Erosion and Sediment Control Notes in Appendix 2;
 - (14) All components of the stormwater management system, including the overland flow path, drain tiles, storm sewers, and water quality protection measures; ~~and~~
 - (15) The McHenry County Standard Drain Tile Notes in Appendix 3;
 - (16) The location of any flood hazard area on the development site and extending 100 feet beyond the development site, based on available maps and studies; and
 - (17) The location of all WOTUS and IWMC, extending 100 feet beyond the development site, based on available maps and studies.

§15.60.060.C.16.b.(2) Non-Designated Floodways and Flood Prone Areas

- (2) Reconstruction or modification of existing bridges, culverts and approach roads
- i. The reconstruction (including approach roads) shall be no more restrictive to normal and flood flows than the existing bridge or culvert crossing; and
 - ii. Documentation must be provided that the existing crossing has not caused demonstrable flood damage. In the case of public projects, certification by a District Engineer of the Department of Transportation's Division of Highways, a County Engineer (if a ~~registered~~ licensed professional engineer), or a Municipal Engineer (if a ~~registered-licensed~~ professional engineer) that the existing crossing has not caused demonstrable flood damage will be adequate documentation.

§15.60.030.A.3.h. General Permit Number 1 – Authorizing Routine Projects, Terms and Conditions for Specified Development

- h. Other shoreline and streambank protection – To be authorized by this General Permit Number 1, construction of shoreline and streambank protection shall meet the following criteria.
- (1) Where vegetative streambank and shoreline protection is not used, only the following structural materials may be utilized: stone and concrete riprap, cellular blocks, fabric-formed concrete, gabion baskets, rock and wire mattresses, sand/cement filled bags,

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- geotechnical fabric materials, and treated timber (excluding creosote treated railroad ties, utility poles, and other timber).
- (2) The length of shoreline or streambank to be protected shall not exceed 1,000 feet. Where non-vegetative (structural) protection is utilized, the length of shoreline or streambank stabilization to be protected shall not exceed 500 feet. Vegetative and non-vegetative protection may be combined, but in no case shall non-vegetative protection exceed 500 feet in total length.
 - (3) All material utilized shall be properly sized or anchored to resist anticipated forces of current and wave action. The *Illinois Urban Manual* (www.aiswcd.org/IUM) or other references approved by the Enforcement Officer may be used for proper material sizing.
 - (4) Materials shall be placed in a way that would not cause erosion or the accumulation of debris on properties adjacent to or opposite the project.
 - (5) Materials shall be placed so that the modified cross-sectional area of a channel conforms to that of the natural channel upstream and downstream of the development site or the bank may be graded to obtain a flatter slope and to lessen the quantity of material required.
 - (6) In the case of gabion structures and similar protection measures on lakes, the structure shall be constructed at or landward of the water line as determined by the normal pool elevation.
 - (7) This General Permit Number 1 does not authorize in-stream work performed beyond the toe of the slope, with the exception of naturalized grade control that does not result in a loss of conveyance.

§15.60.060.A.1. Soil Erosion and Sediment Control

1. Basic Requirements

The following requirements apply to all regulated development, except regulated development authorized by a General Permit. Specific requirements may be waived by the Enforcement Officer for portions of the development site that do not drain offsite.

- a. Control measures shall meet the minimum standards and specifications of the *Illinois Urban Manual* (www.aiswcd.org/IUM) unless stated otherwise in this Ordinance.
- b. Soil disturbance shall be conducted in such a manner as to minimize erosion. Areas of the development site that are not to be disturbed shall be protected from construction traffic or other disturbance until final stabilization is achieved.
- c. Soil stabilization measures shall consider the time of year, development site conditions and the use of temporary or permanent measures.
- d. Stabilization by seeding shall include topsoil placement and fertilization, as necessary.
- e. Native seed mixtures shall include rapid-growing annual grasses or small grains to provide temporary soil stabilization.
- f. Offsite property shall be protected from erosion and sedimentation. Velocity dissipation devices shall be placed at concentrated discharge locations and along the length of any outfall channel, as necessary to prevent erosion.
- g. Sediment control measures shall be installed prior to the disturbance of tributary areas.
- h. Stabilization of disturbed areas shall be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the development site, or temporarily ceased on any portion of the development site and will not resume for a period exceeding 14 calendar days. Stabilization of disturbed areas shall be initiated within 1 working day of permanent or temporary cessation of earth disturbing activities and shall be completed as soon as possible, but not later than 14

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calendar days from the initiation of stabilization work in an area. Exceptions to these time frames are specified below:

- (1) Where the initiation of stabilization measures is precluded by snow cover, stabilization measures shall be initiated as soon as practicable; and
 - (2) In areas where construction activity has temporarily ceased and will resume after 14 days, a temporary stabilization method may be used.
- i. Disturbance of steep slopes shall be minimized. Areas or embankments having slopes steeper than 3:1 shall be stabilized with staked in place sod, erosion control blanket in combination with seeding, or an equivalent control measure.
 - j. The interior side slopes of all stormwater management facilities shall be stabilized with staked in place sod, erosion control blanket in combination with seeding, or an equivalent control measure. The control measure shall be installed between the design high water level and the bottom of the facility in a dry bottom stormwater management facility, or between the design high water level and the normal water level for all other stormwater management facilities.
 - k. Perimeter control measures shall be provided downslope and perpendicular to the flow of runoff from disturbed areas, where the tributary area is greater than 5,000 square feet, and where runoff will flow in a sheet flow manner. Perimeter erosion control shall also be provided at the base of soil stockpiles. Acceptable perimeter control measures include:
 - (1) Silt fences meeting the standards and specifications of the *Illinois Urban Manual* (www.aiswcd.org/IUM) or *AASHTO Standard Specification 288-00*;
 - (2) A vegetated filter strip, meeting the following standards:
 - i. A minimum width of 25 feet perpendicular to the flow of runoff; and
 - ii. Vegetation consists of native plants, turf grass, or other plants that cover 70% or more of the ground surface; or
 - (3) An equivalent control measure. The Enforcement Officer may allow agricultural crops as a perimeter control measure, if such measures are projected to control erosion as well as other typical perimeter controls. The appropriateness of agricultural crops as a perimeter control measure depends on development site specific considerations, such as the ground slope, type of crop, and the distance to the nearest channel or adjacent property.
 - l. The stormwater management system shall be protected from erosion and sedimentation downslope from disturbed areas. Inlet protection that reduces sediment loading, while allowing runoff to enter the inlet shall be required for all storm sewers. Check dams, or an equivalent control measure, shall be required for all channels. Filter fabric inlet protection and straw bale ditch checks are not acceptable control measures.
 - m. If dewatering services are used, discharges shall be routed through an effective sediment control measure (e.g., sediment trap or an equivalent control measure). The Enforcement Officer shall be notified prior to the commencement of dewatering activities.
 - n. All temporary soil erosion and sediment control measures shall be removed within 30 days after final stabilization of the development site is achieved or after the temporary measures are no longer necessary. Trapped sediment shall be removed and disturbed areas shall be permanently stabilized.
 - o. Stockpiled soil and materials shall be removed from flood hazard areas at the end of each work day. Soil and materials stockpiled in IWMC or buffer areas shall be placed on timber mats, or an equivalent control measure.
 - p. Effective control measures shall be utilized to minimize the discharge of pollutants from the development site. At a minimum, control measures shall be implemented in order to:

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- (1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash water; and
 - (2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, vehicle fluids, sanitary waste, and other materials present on the development site to precipitation and to stormwater.
- q. Adequate receptacles shall be provided for the depositing of all construction material debris generated during the development process. The applicant shall not cause or permit the dumping, depositing, dropping, throwing, discarding or leaving of construction material debris upon or into any development site, channel, or IWMC. The development site shall be maintained free of construction material debris.
 - r. Where regulated development is allowed within a buffer area, construction fencing shall be installed a minimum of 1 foot outside the WOTUS or IWMC and all other regulated development shall be limited to the non-WOTUS or non-IWMC side of the construction fence. This requirement shall not apply to regulated development involving impacts to or enhancement of WOTUS or IWMC.
 - s. The Enforcement Officer may require additional or alternate soil erosion and sediment control measures, based on development site specific considerations and the effectiveness of the installed control measures.

§15.60.060.A.2. Soil Erosion and Sediment Control

2. Requirements for Development Disturbing 1 Acre or More

In addition to the Basic Requirements, the following requirements apply to Major Development, Public Road Development and Mining Development disturbing 1 acre or more.

- a. Meet the requirements of IEPA General NPDES Permit No. ILR10, if applicable.
- b. A stabilized construction entrance shall be located at any point where traffic will be exiting a development site to a public right-of-way, street, alley or parking area. Any sediment or soil reaching an improved public right-of-way, street, alley or parking area shall be removed by scraping or street cleaning as accumulations warrant and transported to a controlled sediment disposal area.
- c. Structural control measures shall be utilized, when necessary, to treat wash water, divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the development site. Such practices may include: earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and sediment basins.
- d. Unless otherwise specified in this Ordinance or in the *Illinois Urban Manual* (www.aiswcd.org/IUM), the structural practices shall be designed for a storm event equal to or greater than a 25 year, 24 hour storm.
- e. Sediment traps and sediment basins shall be appropriately sized and designed to facilitate periodic removal of sediment, and located with regard to the size of the tributary area:
 - (1) Runoff from disturbed areas with more than 1 but fewer than 5 acres of tributary area shall be routed to a sediment trap, or an equivalent control measure;
 - (2) Runoff from disturbed areas with a tributary area of 5 acres or more shall be routed to a sediment basin with a perforated filtered riser pipe, or an equivalent control measures; and

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- (3) Sediment basins shall have both a permanent pool (dead storage) and additional volume (live storage). Each volume shall, at a minimum, be equal to the amount of runoff from a 2 year, 24 hour storm over the onsite hydrologically disturbed tributary area. The live storage volume may be determined using the Detention Volume vs. Percent Impervious Chart in Appendix 6 and the developed condition percent impervious area. The available sediment volume below the normal water level shall be in addition to the dead storage volume and shall be sized for the estimated sediment load generated from the development site over the duration of the construction period. For construction periods exceeding 1 year, the 1 year sediment load may be utilized with an annual sediment removal schedule.

§15.60.160 Standard Soil Erosion and Sediment Control Notes

1. Control measures shall meet the minimum standards and specifications of the *Illinois Urban Manual* (www.aiswcd.org/IUM) unless stated otherwise.
2. Soil disturbance shall be conducted in such a manner as to minimize erosion. Areas of the development site that are not to be disturbed shall be protected from construction traffic or other disturbance until final stabilization is achieved.
3. Soil stabilization measures shall consider the time of year, development site conditions and the use of temporary or permanent measures.
4. Stabilization by seeding shall include topsoil placement and fertilization, as necessary.
5. Native seed mixtures shall include rapid-growing annual grasses or small grains to provide initial, temporary soil stabilization.
6. Offsite property shall be protected from erosion and sedimentation. Velocity dissipation devices shall be placed at concentrated discharge locations and along the length of any outfall channel, as necessary to prevent erosion.
7. Sediment control measures shall be installed prior to the disturbance of tributary areas.
8. Stabilization of disturbed areas shall be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the development site, or temporarily ceased on any portion of the development site and will not resume for a period exceeding 14 calendar days. Stabilization of disturbed areas shall be initiated within 1 working day of permanent or temporary cessation of earth disturbing activities and shall be completed as soon as possible, but not later than 14 calendar days from the initiation of stabilization work in an area. Exceptions to these time frames are specified below:
 - a. Where the initiation of stabilization measures is precluded by snow cover, stabilization measures shall be initiated as soon as practicable; and
 - b. In areas where construction activity has temporarily ceased and will resume after 14 days, a temporary stabilization method may be used.
9. Disturbance of steep slopes shall be minimized. Areas or embankments having slopes steeper than 3:1 shall be stabilized with staked in place sod, erosion control blanket in combination with seeding, or an equivalent control measure.
10. Perimeter control measures shall be provided downslope and perpendicular to the flow of runoff from disturbed areas, where the tributary area is greater than 5,000 square feet, and where runoff will flow in a sheet flow manner. Perimeter erosion control shall also be provided at the base of soil stockpiles.
11. The stormwater management system shall be protected from erosion and sedimentation downslope from disturbed areas. Inlet protection that reduces sediment loading, while allowing

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runoff to enter the inlet shall be required for all storm sewers. Check dams, or an equivalent control measure, shall be required for all channels. Filter fabric inlet protection and straw bale ditch checks are not acceptable control measures.

12. If dewatering services are used, discharges shall be routed through an effective sediment control measure (e.g., sediment trap or an equivalent control measure). The Enforcement Officer shall be notified prior to the commencement of dewatering activities.
13. All temporary soil erosion and sediment control measures shall be removed within 30 days after final stabilization of the development site is achieved or after the temporary measures are no longer necessary. Trapped sediment shall be removed and disturbed areas shall be permanently stabilized.
14. Stockpiled soil and materials shall be removed from flood hazard areas at the end of each work day. Soil and materials stockpiled in IWMC or buffer areas shall be placed on timber mats, or an equivalent control measure.
15. Effective control measures shall be utilized to minimize the discharge of pollutants from the development site. At a minimum, control measures shall be implemented in order to:
 - a. Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash water; and
 - b. Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, vehicle fluids, sanitary waste, and other materials present on the development site to precipitation and to stormwater.
16. Adequate receptacles shall be provided for the depositing of all construction material debris generated during the development process. The applicant shall not cause or permit the dumping, depositing, dropping, throwing, discarding or leaving of construction material debris upon or into any development site, channel, or IWMC. The development site shall be maintained free of construction material debris.
17. The Enforcement Officer may require additional or alternate soil erosion and sediment control measures, based on development site specific considerations and the effectiveness of the installed control measures.

§15.60.270 Definitions

floodplain: Those lands within the jurisdiction of McHenry County and its municipalities that are subject to inundation by the base flood. The floodplains of McHenry County are identified on the **FIRMs** of McHenry County prepared by FEMA. The effective dates of the FIRMs in McHenry County are listed in Appendix 11. The effective FIRMs may be amended or revised by a LOMC. The floodplain includes areas identified on the FIRMs as Zones A, AO, AH, AE, A99, AR, AR/AE, AR/AO, AR/AH, or AR/A.

oversight committee: A decision-making authority designated by a Certified Community or McHenry County. For a Certified Community, the oversight committee may be comprised of the corporate authorities or any committee thereof, plan commission, zoning board of appeals, or other existing body, or the corporate authorities may, according to their own rules and procedures, establish a separate oversight committee. The **Natural and Environmental Resources** Committee of the McHenry County Board that the Planning and Development Department reports to shall act as the oversight committee for McHenry County.

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ADEQUATE DOWNSTREAM STORMWATER CAPACITY

§15.60.050.E.3.d. Application Requirements, Stormwater Management Facility

- d. Stormwater management facility data and calculations for the development site and tributary areas, if stormwater storage is necessary for the development site to meet the requirements of this Ordinance. The data and calculations shall include the following:
- (1) A narrative identifying the procedures, assumptions, and data used in hydrologic and hydraulic calculations to determine the post-development allowable release rate and related stormwater storage volume;
 - (2) A tabular summary of existing, allowable, and proposed release rates for design storm events;
 - (3) A tabular summary of required and proposed stormwater storage volumes for design storm events;
 - (4) Elevation versus storage area data for the stormwater management facility;
 - (5) Elevation versus discharge curve data for the control structure of the stormwater management facility;
 - (6) Elevation versus time data for the stormwater management facility;
 - (7) Calculations demonstrating that the overflow structure is sized to meet the requirements of this Ordinance;
 - (8) Assumptions or calculations utilized to determine tailwater conditions for the development site; ~~and~~
 - (9) Seeding and/or planting specifications for detention within IWMC;
 - (10) Copy of letter notifying adjoining downstream property owner(s) and return receipt of the certified mail as required in Article VI, Section B.5.d.(1)viii; and
 - (11) Copy of letter notifying any drainage district within the watershed where the development site is located and return receipt of the certified mail as required in Article VI, Section B.5.d.(1)ix;

§15.60.060.B.1. Basic Requirements

1. Basic Requirements

The following requirements apply to all regulated development, except regulated development authorized by a General Permit.

- a. All concentrated stormwater discharges from a development site shall be conveyed into an existing channel, storm sewer, or overland flow path with adequate downstream stormwater capacity and shall not result in flood damage ~~at the development site or upstream of the development site.~~
- b. The diversion of stormwater runoff shall be prohibited unless no reasonable alternative exists, as determined by the Enforcement Officer. The diversion of stormwater runoff shall not result in flood damage at the development site, upstream of the development site, or on downstream adjoining properties.
- c. Within a development site, streets, blocks, lots, deed or plat restrictions, parks and other public grounds shall be located in such a manner as to preserve natural streams and channels.
- d. Stormwater management facilities within subdivisions, Planned Unit Developments, and manufactured home parks with 5 or more parcels platted after December 1, 2014 shall be located within an outlot.

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- e. The development plans and plats for subdivisions, Planned Unit Developments, and manufactured home parks shall show the BFE, as well as the limits of flood hazard areas, public bodies of water, WOTUS, IWMC, and buffer areas.
- f. The plats for subdivisions, Planned Unit Developments, and manufactured home parks shall include a signed statement by a licensed professional engineer that accounts for changes in the drainage of surface water in accordance with the Plat Act (765 ILCS 205/2).
- g. The plats for subdivisions, Planned Unit Developments, and manufactured home parks shall specify the minimum low opening elevation for each lot adjacent to an overland flow path, the minimum lowest adjacent grade for each lot adjacent to a flood hazard area, and the maximum impervious area allowed on each lot for the provided stormwater storage volume.
- h. The stormwater management system for a regulated development shall be functional prior to the issuance of a certificate of occupancy or a certificate of completion for any building which is part of the regulated development.
- i. A community shall not approve any preliminary Planned Unit Development or Plat of Subdivision, unless the Planned Unit Development or Plat is subject to meeting the minimum standards of this Ordinance.
- j. A community shall not approve any final Planned Unit Development or Plat of Subdivision, unless the Planned Unit Development or Plat meets the minimum standards of this Ordinance.
- k. A final Planned Unit Development or Plat of Subdivision with an area greater than 5 acres platted after December 1, 2014 shall state the maximum impervious area allowed for each lot or parcel of land based on the design of the stormwater management system.
- l. Pursuant to State law, a property owner of a parcel being subdivided adjacent to a State or County right-of-way shall notify the highway authority of the proposed subdivision in writing, and request that the highway authority provide, at the cost of the highway authority or otherwise provided by law, the amount of additional capacity in any stormwater detention facility to be constructed in the subdivision for the future availability of the highway authority for meeting stormwater detention requirements of any future public construction on the highway.
- m. A maintenance plan shall be recorded for the stormwater management system. The Enforcement Officer may waive this requirement for Minor and Intermediate Development.

§15.60.060.B.5.a. Stormwater Storage Requirements

- a. Stormwater Storage Requirements
 - (1) Stormwater storage shall be required for a regulated development that creates 20,000 square feet or more new impervious area, unless the conditions of i, ii, or iii are met:
 - i. 1.0 acre or less of new impervious area is created; and
 - (a) The total impervious area including the proposed development would not exceed 10% of the contiguous property; and
 - (b) The applicant demonstrates to the satisfaction of the Enforcement Officer that there is adequate downstream stormwater capacity and the development shall will not result in flood damage-at the development site, upstream of the development site, or on downstream adjoining properties; or
 - ii. The total impervious area including the proposed development would not exceed 5% of the contiguous property; and

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- (a) An agricultural conservation easement or other conservation easement is recorded over sufficient undeveloped area that the total impervious area may not exceed 5% of the contiguous property. The easement shall be granted to McHenry County or a Certified Community. The easement may be temporary, but the term of the easement shall run until the stormwater storage waiver is no longer necessary, for reasons such as the removal of new impervious area or the installation of a stormwater management facility; and
 - (b) The applicant demonstrates to the satisfaction of the Enforcement Officer that there is adequate downstream stormwater capacity and the development shall will not result in flood damage-at the development site, upstream of the development site, or on downstream adjoining properties; or
 - iii. The regulated development is a Public Road Development and less than 1.5 acres of new impervious area is created.
- (2) Linear impervious areas, such as a widened road, driveways and public recreational trails, which are less than 12.4 feet wide (1.5 acres per lineal mile) may be excluded when calculating the new impervious area to determine whether stormwater storage is required. This exclusion shall apply only when determining whether stormwater storage is required and not to the design of a stormwater management facility in cases where stormwater storage is required.

§15.60.270 Definitions

adequate downstream stormwater capacity: A downstream channel or stormwater management system with the ability to store and convey the anticipated 100-year stormwater runoff without increasing damage to adjoining properties.

damage: A measurable rise in flood heights on property unless it is contained within the streambanks or a recorded deed or plat restricted area.

drainage district: A special district created by petition or referendum and court approval. It has the power to construct and maintain drainage improvements and to pay for the improvements with assessments on the land within the district boundaries. An assessment on the land cannot be greater in value than the benefits of the drainage improvements.

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AGRICULTURAL WETLAND AREAS

§15.60.060.D.3. Wetlands and Waters

3. Boundary Determination Requirements

The following requirements apply to all regulated development within or adjacent to IWMC, except regulated development authorized by a General Permit.

- a. A Letter of No Impact prepared by a wetland specialist may be accepted by the Enforcement Officer, in lieu of a Wetland Determination Report, when a field investigation by the wetland specialist reveals the closest wetland or waters to a regulated development is clearly beyond the limits of the required buffer. A Letter of No Impact shall include:
 - (1) The date of the field investigation;
 - (2) A written description of the development site closest to the IWMC;
 - (3) Color photographs representative of the development site closest to the IWMC;
 - (4) A grading plan showing the limits of development site and the approximate boundary of the IWMC closest to the development site; and
 - (5) An aerial photograph showing the limits of development site and the approximate boundary of the IWMC closest to the development site.
- b. The presence and boundary of waters shall be determined by a wetland specialist. Waters shall include the entire area inundated at the ordinary high water mark.
- c. The presence and boundary of farmed wetlands on agricultural land within or adjacent to a development site shall be determined by the NRCS or a wetland specialist, in accordance with the current NRCS or USACE wetland delineation methodology.
- d. The presence, boundary, and quality of non-farmed wetlands within or adjacent to a development site shall be determined by a wetland delineation conducted in accordance with the current USACE wetland delineation methodology. The findings of this determination shall be documented in a Wetland Determination Report prepared by a wetland specialist.
- e. A Wetland Determination Report shall be prepared by a wetland specialist and shall include:
 - (1) A plan showing the location and extent of all wetlands and waters within or adjacent to the development site. The boundaries of these wetlands and waters shall be flagged in the field and surveyed. The approximate location and extent of offsite wetlands and waters within 100 feet of the development site shall also be shown. The approximate offsite boundaries shall be established using the best available information, as approved by the Enforcement Officer. The best available information may include:
 - i. Aerial photography;
 - ii. A previously approved Wetland Determination Report, even if the report was prepared more than 5 years ago;
 - iii. The ADID Map or other wetland map; and
 - iv. McHenry County Soil Survey;
 - (2) An aerial photograph delineating all wetlands and waters within or adjacent to the development site, as well as the approximate location and extent of wetlands and waters within 100 feet of the development site;
 - (3) The most recent version of the following maps, delineating the limits of the development site:
 - i. USGS Quadrangle Map;
 - ii. NRCS Wetland Inventory Map;
 - iii. FEMA FIRM;

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- iv. McHenry County Soil Survey;
- v. USGS Hydrologic Investigations Atlas, and
- vi. ADID Map;
- (4) USACE data sheets with color photographs provided for representative upland and wetland data points; and
- (5) A narrative description of the wetlands, including a Floristic Quality Assessment, as determined by the methodology described in Plants of the Chicago Region (Swink, F. and G. Wilhelm, 1994, 4th Edition, Indianapolis: Indiana Academy of Science). Floristic Quality Assessments shall be conducted during the local growing season, generally between May 15 and October 1. Non-growing season assessments may require additional sampling during the growing season prior to approval.
- f. Approval of a Wetland Determination Report shall remain valid for 5 years.

§15.60.270 Definitions

agricultural land: Land predominantly used for agricultural purposes.

farmed wetland: Any wetland that has been identified as a “Farmed Wetland” in accordance with the current “National Food Security Act Manual” (NFSAM) and the current U.S. Army Corps of Engineers – Chicago District methodology.

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CERTIFIED FLOODPLAIN MANAGER

§15.60.100.D. Duties of the Enforcement Officer

D. Duties of the Enforcement Officer

The Enforcement Officer shall:

1. Attend a minimum of 4 hours of annual training for Enforcement Officers, as scheduled by the County;
2. Ensure that all applicable consultations, waivers, approvals, and permits from Federal, State, and other local authorities are received prior to issuing a stormwater management permit;
3. Utilize a form to document the following characteristics for each stormwater management permit issued:
 - a. The proposed hydrologically disturbed area;
 - b. The existing and proposed impervious area and the impervious area that existed at the development site prior to the effective date of this Ordinance;
 - c. Whether a flood hazard area exists on the development site;
 - d. Whether an IWMC exists on the development site;
 - e. The development classification;
 - f. The signature of the Certified Floodplain Manager that has reviewed and recommends approval of the stormwater management permit application, if applicable;
 - f.g. The signature of the licensed professional engineer that has reviewed and recommends approval the stormwater management permit application, if applicable;
 - g.h. The signature of the wetland specialist that has reviewed and recommends approval of the stormwater management permit application, if applicable;
 - h.i. The signature of the Enforcement Officer issuing the stormwater management permit.;
4. Approve the BFE for a regulated development, if applicable;
5. Ensure that a Certified Floodplain Manager reviews or supervises the review of a permit application within a flood hazard area;
- 5-6. Ensure that a licensed professional engineer reviews or supervises the review of any plans, calculations or analyses prepared by a licensed professional engineer as part of a stormwater management permit application. The review and design engineers shall not be the same person;
- 6-7. Ensure that a wetland specialist reviews or supervises the review of any documents prepared by a wetland specialist as part of a stormwater management permit application. The review and design wetland specialist shall not be the same person;
- 7-8. Determine whether as-built plans and/or a performance guarantee are necessary to ensure regulated development is built and maintained in accordance with the stormwater management permit. The amount of a performance bond, surety, or other such security may be up to 150 percent of the estimated cost to complete construction of the approved stormwater management system. The estimated cost to complete construction shall be prepared by a licensed professional engineer and approved by the Enforcement Officer;
- 8-9. Ensure that the required notice of a petition for a variance has been given and published as required by this Ordinance;
- 9-10. Notify the MCSC Chief Engineer of every scheduled variance hearing not less than 15 days, nor more than 30 days prior to the hearing;
- 10-11. Notify a petitioner for a variance that such variance may result in increased rates for flood insurance, if applicable;
- 11-12. Notify the MCSC Chief Engineer of an application for a CLOMR or LOMR;

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- ~~12-13.~~ Provide for inspections of regulated development as required by this Ordinance;
- ~~13-14.~~ Investigate complaints of violations of this Ordinance within his or her community;
- ~~14-15.~~ Notify violators within floodplains that failure to comply with the provisions of the NFIP could make them ineligible to receive flood insurance;
- ~~15-16.~~ Utilizes the legal or equitable actions, remedies and penalties necessary to enforce this Ordinance within his or her community;
- ~~16-17.~~ Advise, consult, and cooperate with other governmental agencies to promote the purposes of this Ordinance;
- ~~17-18.~~ Maintain copies of all the following documents for public inspection:
 - a. Stormwater management permit applications;
 - b. Applicable Federal, State, and other local permits;
 - c. Variances;
 - d. Records required for eligibility in the NFIP, including elevation certificates, floodproofing certificates, and lowest floor elevations;
 - e. Documentation and data on the cost of any repair, reconstruction, rehabilitation, or other improvement to a building in the floodplain in order to enforce the substantial improvement requirements of this Ordinance;
 - f. CLOMRs, LOMRs, LOMAs; and
 - g. Any additional documentation submitted to demonstrate compliance with the requirements of this Ordinance;
- ~~18-19.~~ Inspect damaged buildings, regardless of the source of the damage, located within the floodplain, to determine whether they have been substantially damaged;
- ~~19-20.~~ Notify the MCSC Chief Engineer, FEMA, and IDNR/OWR of any proposed amendment to this Ordinance;
- ~~20-21.~~ Notify IDNR/OWR of any dam that does not have a permit from IDNR/OWR;
- ~~21-22.~~ Notify IDNR/OWR, IEMA, and the owner of the dam, if a dam is believed to be in an unsafe condition; and
- ~~22-23.~~ Notify adjacent communities in writing 30 days prior to the issuance of a stormwater management permit involving a channel modification.

§15.60.100.F.1. and F.2. Community Certification

1. Certification Criteria
Any community of McHenry County, including multi-county municipalities, that meets the following criteria may be certified by MCSC to enforce the provisions of this Ordinance within the community's jurisdiction.
 - a. The community shall be participating in the regular phase of the NFIP and shall not be a NFIP sanctioned community;
 - b. The community shall have adopted this Ordinance or an ordinance that is at least as stringent and contains all the criteria of this Ordinance; ~~and~~
 - c. The community shall have a Certified Floodplain Manager in the employ or under contract;
and
 - ~~c.~~ d. The community shall agree to perform the duties of the Enforcement Officer within the community's jurisdiction.
2. Certification Process and Duties

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- a. A petition for certification shall be submitted to the MCSC indicating how the community meets the Certification Criteria of this Ordinance. A copy of the community's adopted ordinance shall be included with the petition.
- b. Within 90 days of receipt of the petition and in conjunction with the next regularly scheduled MCSC meeting, the MCSC Chief Engineer shall make a recommendation to the MCSC, based on his or her review of the petition recommendation shall be presented.
- c. Within 60 days of the MCSC Chief Engineer's recommendation, the MCSC may approve the petition as submitted, may approve the petition with conditions, or may deny the petition. A notice of the MCSC action shall be submitted to the petitioning community.
- d. Certified Communities shall notify the MCSC Chief Engineer within 2 weeks of any change in:
 - (1) The community's Enforcement Officer; or
 - (2) The Certified Floodplain Manager(s), licensed professional engineer(s) or wetland specialist(s) responsible for review of stormwater management permit applications for the Certified Community.
- e. Certified Communities shall submit an annual report summarizing the community's stormwater management permit activity. At a minimum, the annual report shall include:
 - (1) The name and contact information for the Enforcement Officer;
 - (2) The name and contact information for the Certified Floodplain Manager;
 - (23) The name and contact information for the licensed professional engineer responsible for reviewing or supervising the review of any plans, calculations or analyses prepared by a licensed professional engineer as part of a stormwater management permit application;
 - (34) The name and contact information for the wetland specialist responsible for reviewing or supervising the review of any documents prepared by a wetland specialist as part of a stormwater management permit application;
 - (45) Documentation of the following characteristics of each stormwater management permit issued:
 - i. The proposed hydrologically disturbed area;
 - ii. The existing and proposed impervious area and the impervious area that existed at the development site prior to the effective date of this Ordinance;
 - iii. Whether a flood hazard area exists on the development site;
 - iv. Whether an IWMC exists on the development site;
 - v. The development classification;
 - vi. The signature of the Certified Floodplain Manager that has reviewed and recommends approval of the stormwater management permit application, if applicable;
 - vii. The signature of the licensed professional engineer that has reviewed and recommends approval the stormwater management permit application, if applicable;
 - viii. The signature of the wetland specialist that has reviewed and recommends approval of the stormwater management permit application, if applicable;
 - viiiix. The signature of the Enforcement Officer issuing the stormwater management permit;
 - (56) A list of any stormwater management permits issued for regulated development that was designed and reviewed by the same firm;
 - (67) A summary of any variances granted to the provisions of this Ordinance; and
 - (78) A list of any pending violations to the provisions of this Ordinance.
- f. Certified Communities shall petition for recertification every 5 years.

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§15.60.270 Definitions

Certified Floodplain Manager (CFM): A certification by the Association of State Floodplain Managers, which is designed to establish educational, training and experience criteria related to floodplain management, hazard mitigation, National Flood Insurance Program and to certify that an individual applicant has met these criteria.

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GENERAL PERMITS

§15.60.020.D.4. Reduced Standards for Specific Types of Development

4. Portions of a development site that do not drain offsite may be exempt from the Soil Erosion and Sediment Control Performance Standards of this Ordinance.

TABLE 1 Regulation of Routine Projects			
Project Type	Exempt	General Permit	Individual Permit
Building Maintenance	Refer to Appendix 12: Maintenance of Existing Buildings	N/A	Refer to Appendix 12: Substantial Improvement
New Single Family Home	N/A	Refer to Article III, Section B: General Permit 2	All Other Development Regulated by Article II, Section B
Road Maintenance	Refer to Appendix 12: Maintenance of Roads and Trails	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Trails	Refer to Appendix 12: Maintenance of Roads and Trails	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Driveways	Refer to Appendix 12: Other Maintenance Activities	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Parking Lots	Refer to Appendix 12: Other Maintenance Activities	N/A	All Other Development Regulated by Article II, Section B
Culverts, Storm Sewers, and Drain Tiles	Refer to Appendix 12: Other Maintenance Activities	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Bridges	Refer to Appendix 12: Other Maintenance Activities	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Dredging	Refer to Appendix 12: Other Maintenance Activities	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Removal of an Obstruction	Refer to Appendix 12: Other Maintenance Activities	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Stormwater Management Facilities	Refer to Appendix 12: Other Maintenance Activities	N/A	All Other Development Regulated by Article II, Section B
Gardening and Landscaping	Refer to Article II, Section C: Exempted Development	N/A	All Other Development Regulated by Article II, Section B

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TABLE 1 Regulation of Routine Projects			
Project Type	Exempt	General Permit	Individual Permit
Tillage and Similar Agricultural Practices	Refer to Article II, Section C: Exempted Development	N/A	All Other Development Regulated by Article II, Section B
Implementing a NRCS Conservation Plan	Refer to Article II, Section C: Exempted Development	N/A	All Other Development Regulated by Article II, Section B
Demolition	Refer to Article II, Section C: Exempted Development	N/A	All Other Development Regulated by Article II, Section B
Onsite Waste Disposal Systems and Wells	Refer to Article II, Section C: Exempted Development	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Sewer and Water Service Lines	Refer to Article II, Section C: Exempted Development	N/A	All Other Development Regulated by Article II, Section B
Underground and Overhead Utilities	Refer to Appendix 12: Other Maintenance Activities	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Seawalls	N/A	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Shoreline and Streambank Stabilization	N/A	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Boat Docks	N/A	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Signposts, Poles Fencing, and Guardrails	N/A	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Decks	N/A	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Pools	N/A	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Material Storage	N/A	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B
Wetland Restoration and Enhancement	N/A	Refer to Article III, Section A: General Permit 1	All Other Development Regulated by Article II, Section B

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TABLE 1 Regulation of Routine Projects			
Project Type	Exempt	General Permit	Individual Permit
<u>Watershed Benefit Measure</u>	<u>N/A</u>	<u>Refer to Article III, Section A: General Permit 1</u>	<u>All Other Development Regulated by Article II, Section B</u>

§15.60.030 General Permits

General Permits waive certain requirements of this Ordinance in order to streamline the permit process for specific types of routine projects. The General Permits listed in this Article may be issued by MCSC or a Certified Community, provided that the regulated development meets the Applicability criteria, the Terms and Conditions for the specific type of project, and the Authorization requirements.

TABLE 2 Summary of General Permit 1			
Type of Regulated Development	Applicability	Authorization	Terms and Conditions
Underground and Overhead Utilities	A.1	A.2	A.3.a, A.3.b
Storm Sewer Outfalls, Drain Tile Outfalls, and Outlet Channels	A.1	A.2	A.3.a, A.3.c
Maintenance of Existing Roads and Bridges	A.1	A.2	A.3.a, A.3.d
Sidewalks, Trails, Driveways, and Patios	A.1	A.2	A.3.a, A.3.e
Boardwalks	A.1	A.2	A.3.a, A.3.f
Seawalls	A.1	A.2	A.3.a, A.3.g
Other Shoreline and Streambank Protection	A.1	A.2	A.3.a, A.3.h
Minor Non-Commercial Boat Docks	A.1	A.2	A.3.a, A.3.i
Signposts, Poles, Fencing, and Guardrails	A.1	A.2	A.3.a, A.3.j
Minor Modification of Culverts, Storm Sewers, and Drain Tiles	A.1	A.2	A.3.a, A.3.k
Decks	A.1	A.2	A.3.a, A.3.l
Topsoil and Sand Restoration	A.1	A.2	A.3.a, A.3.m
Pools	A.1	A.2	A.3.a, A.3.n
Replacement Onsite Waste Disposal Systems	A.1	A.2	A.3.a, A.3.o
Material Storage	A.1	A.2	A.3.a, A.3.p

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Dredging	A.1	A.2	A.3.a, A.3.q
Wetland Restoration and Enhancement	A.1	A.2	A.3.a, A.3.r
<u>Watershed Benefit Measure</u>	<u>A.1</u>	<u>A.2</u>	<u>A.3.a, A.3.s</u>

§15.60.030.A.3.s. General Permit Number 1 – Authorizing Routine Projects, Terms and Conditions for Specified Development

- s. Watershed benefit measure - To be authorized by this General Permit Number 1, watershed benefit measure shall meet the following criteria.
- (1) This General Permit Number 1 applies to construction of a watershed benefit measure.
 - (2) A narrative shall be provided describing the project, the intended watershed benefits, and how the project will not adversely affect adjacent properties.
 - (3) Watershed benefit measure projects shall not exceed 1.0 mile for linear projects or 1.0 acre for non-linear projects.
 - (4) All material utilized shall be properly sized or anchored to resist anticipated forces of current and wave action. The *Illinois Urban Manual* or other references approved by the Enforcement Officer may be used for proper material sizing.
 - (5) Materials shall be placed in a way that would not cause erosion or the accumulation of debris on properties adjacent to or opposite the project.
 - (6) Materials shall be placed so that the modified cross-sectional area of a channel conforms to that of the natural channel upstream and downstream of the development site. The bank may be graded to obtain a flatter slope and to lessen the quantity of material required.
 - (7) Spoil materials shall be spread thinly (less than 0.1 foot) and incorporated into existing cultivated areas, or shall be hauled away from the development site.
 - (8) Temporary stockpiles greater than 100 cubic yards and temporary stockpiles remaining in place for more than 7 days shall not be located in flood hazard areas and shall be non-obstructive to flood flows. Temporary stockpile areas shall not occupy more than 20,000 square feet in total.
 - (9) The installation, repair, replacement, abandonment, or removal of drain tiles shall be annotated on a drain tile survey for any restoration and enhancement activities involving drain tiles.
 - (10) This General Permit Number 1 does not authorize:
 - i. Fill within flood hazard areas, except that which would restore the development site to the natural condition;
 - ii. Projects that only qualify as dredging;
 - iii. The relocation or channelization of a linear waterway such as a river, stream, or creek; or
 - iv. In-stream work performed beyond the toe of the slope, with the exception of naturalized grade control that does not result in a loss of conveyance.

§15.60.270 Definitions

watershed benefit measure: A Natural Resources Conservation Service (NRCS) Conservation Practice, or other approved practice, used to mitigate the adverse stormwater related effects of development.

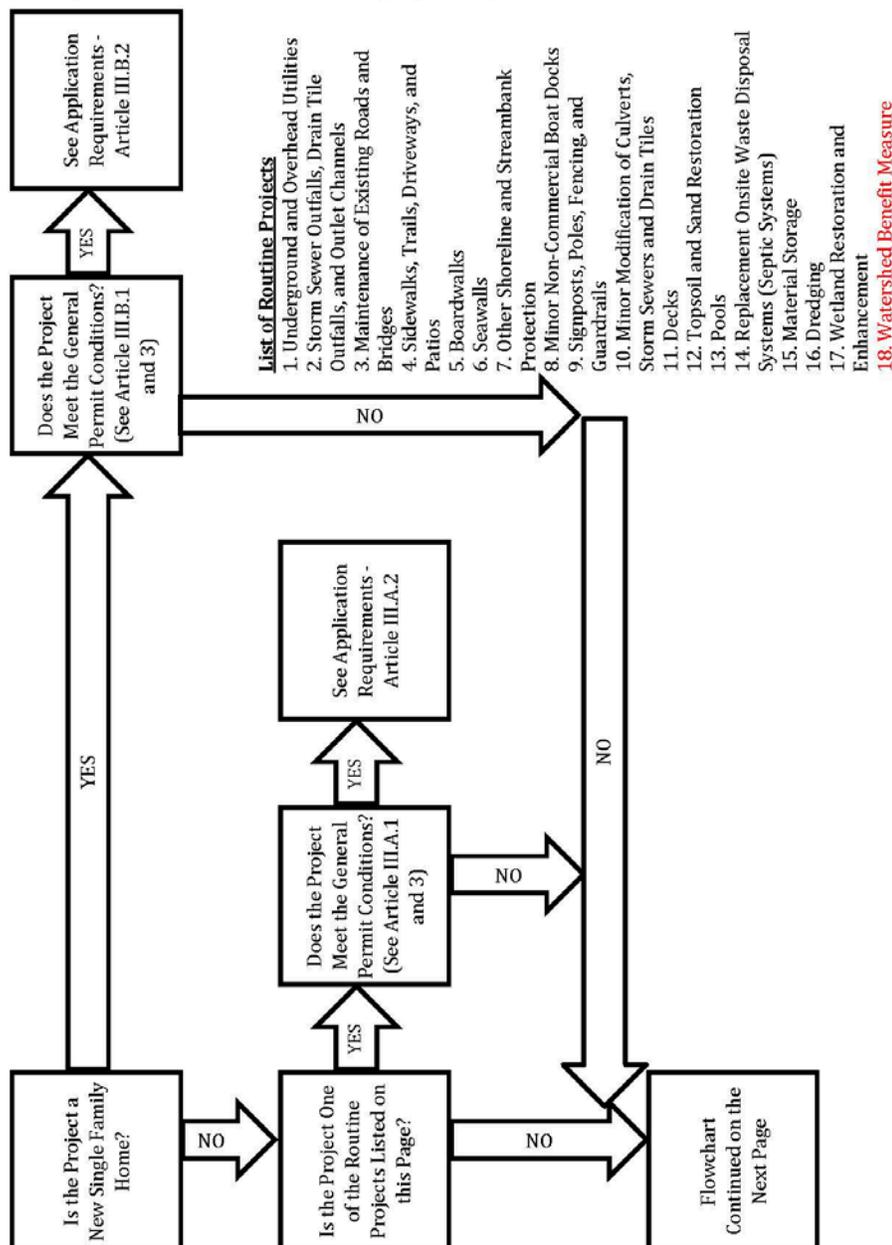
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Measures include practices that: stabilize swales, agricultural ditches and streams; reconnect channels and wetlands to the floodplain; create or enhance wetlands, buffers and riparian areas; improve and preserve natural upland areas such as prairies and forest stands; and filter or remove pollutants from impervious areas or agricultural practices. Examples of allowable NRCS Conservation Practices include: bioreactors, channel bed stabilization, constructed wetland, contour buffer strips, drainage water management plan implementation, filter strips, grassed waterway, riparian forest buffer, riparian herbaceous cover, saturated buffers, streambank and shoreline protection, stream habitat Improvement and management, wetland creation, wetland enhancement, and wetland restoration.

§15.60.150 Permitting Flowcharts

Development Classification Flowchart (Page 1 of 2)



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§15.60.030.B.2.b. General Permit Number 2 – Authorizing Single Family Homes, Authorization

- b. For regulated development disturbing 20,000 square feet or more, the development plan shall be prepared by a licensed professional engineer and include the following additional information:
- (1) A benchmark referenced to NAVD88;
 - (2) Existing contours extending 100 feet beyond the development site with a maximum contour interval of 1 foot;
 - (3) Existing spot elevations demonstrating drainage patterns;
 - (4) Top of foundation and lowest entry elevation of all existing buildings within 100 feet of the development site;
 - (5) All existing impervious areas such as roadways, structures, parking lots, driveways, sidewalks, pathways, trails;
 - (6) The existing stormwater management system including storm sewers, drain tiles, culverts, and inlets on the development site and 100 feet beyond the development site. Information regarding the invert and rim elevations, pipe sizes, pipe lengths, and material type shall be provided;
 - (7) Existing utilities including sanitary sewer, water main, onsite waste disposal system, well, or any other utilities that exist on the site and 100 feet beyond the development site. On development sites where an infiltration facility is proposed, existing water supply wells shall be shown 200 feet beyond the development site. Information regarding the invert and rim elevations, pipe sizes, pipe lengths, and material type shall be provided;
 - (8) Location and limits of all existing and proposed deed or plat restrictions;
 - (9) Existing trees and vegetation areas on the development site;
 - (10) Proposed contours throughout the development site with a maximum contour interval of 1 foot;
 - (11) Proposed spot elevations demonstrating drainage patterns;
 - (12) Top of foundation, lowest floor, low opening elevation, and floodproofing elevations of all proposed structures adjacent to or within a flood hazard area, stormwater management facility or along an overland flow path;
 - (13) All proposed impervious areas such as roadways, structures, parking lots, driveways, sidewalks, pathways, trails;
 - (14) The proposed stormwater management system including pipes, drain tiles, culverts, and inlets on the development site. Information regarding the invert and rim elevations, pipe sizes, pipe lengths, and material type shall be provided;
 - (15) Proposed utilities including sanitary, storm, water main, onsite waste disposal system, well, or any other utilities on the site. Information regarding the invert and rim elevations, pipe sizes, pipe lengths, and material type shall be provided;
 - (16) Design details for proposed stormwater management system including, but not limited to major and minor stormwater systems; and
 - (17) Cross-sections for overland flow paths, sufficient to demonstrate compliance with the freeboard requirements of this Ordinance.

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RAINFALL AMOUNTS AND DISTRIBUTIONS

§15.60.180 Rainfall Depth Duration Frequency Tables for McHenry County

~~Updated Bulletin 70 Rainfall Depths (ISWS, 1989 March 2019) & Spatio Temporal Analysis (ISWS, December 2019)~~

~~Angel, J. R., M. Markus, K. A. Wang, B. M. Kerschner, S. Singh. 2020. Precipitation Frequency Study for Illinois. Illinois State Water Survey Bulletin 75, Champaign, IL.~~

Duration	Frequency						
	1-year	2-year	5-year	10-year	25-year	50-year	100-year
5 min	0.30	0.36	0.46	0.54	0.66	0.78	0.91
10 min	0.55	0.67	0.84	0.98	1.21	1.42	1.67
15 min	0.68	0.82	1.03	1.21	1.49	1.75	2.05
30 min	0.93	1.12	1.41	1.65	2.04	2.39	2.80
1 hour	1.18	1.43	1.79	2.10	2.59	3.04	3.56
2 hour	1.48	1.79	2.24	2.64	3.25	3.82	4.47
3 hour	1.60	1.94	2.43	2.86	3.53	4.14	4.85
6 hour	1.88	2.28	2.85	3.35	4.13	4.85	5.68
12 hour	2.18	2.64	3.31	3.89	4.79	5.62	6.59
18 hour	2.30	2.79	3.50	4.11	5.06	5.95	6.97
24 hour	2.51	3.04	3.80	4.47	5.51	6.46	7.58
48 hour	2.70	3.30	4.09	4.81	5.88	6.84	8.16
72 hour	2.93	3.55	4.44	5.18	6.32	7.41	8.78
120 hour	3.25	3.93	4.91	5.70	6.93	8.04	9.96
240 hour	4.12	4.95	6.04	6.89	8.18	9.38	11.14

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<u>Storm Duration</u>	<u>Frequency</u>												
	<u>2-month</u>	<u>3-month</u>	<u>4-month</u>	<u>6-month</u>	<u>9-month</u>	<u>1-year</u>	<u>2-year</u>	<u>5-year</u>	<u>10-year</u>	<u>25-year</u>	<u>50-year</u>	<u>100-year</u>	<u>500-year</u>
<u>5 minutes</u>	<u>0.19</u>	<u>0.22</u>	<u>0.24</u>	<u>0.27</u>	<u>0.31</u>	<u>0.33</u>	<u>0.40</u>	<u>0.52</u>	<u>0.62</u>	<u>0.77</u>	<u>0.90</u>	<u>1.03</u>	<u>1.35</u>
<u>10 minutes</u>	<u>0.33</u>	<u>0.38</u>	<u>0.41</u>	<u>0.47</u>	<u>0.53</u>	<u>0.58</u>	<u>0.70</u>	<u>0.90</u>	<u>1.08</u>	<u>1.35</u>	<u>1.58</u>	<u>1.80</u>	<u>2.36</u>
<u>15 minutes</u>	<u>0.42</u>	<u>0.49</u>	<u>0.53</u>	<u>0.61</u>	<u>0.69</u>	<u>0.75</u>	<u>0.90</u>	<u>1.16</u>	<u>1.39</u>	<u>1.74</u>	<u>2.03</u>	<u>2.32</u>	<u>3.04</u>
<u>30 minutes</u>	<u>0.58</u>	<u>0.66</u>	<u>0.73</u>	<u>0.83</u>	<u>0.94</u>	<u>1.03</u>	<u>1.24</u>	<u>1.59</u>	<u>1.91</u>	<u>2.39</u>	<u>2.78</u>	<u>3.17</u>	<u>4.16</u>
<u>1 hour</u>	<u>0.74</u>	<u>0.84</u>	<u>0.93</u>	<u>1.05</u>	<u>1.20</u>	<u>1.30</u>	<u>1.57</u>	<u>2.02</u>	<u>2.42</u>	<u>3.03</u>	<u>3.53</u>	<u>4.03</u>	<u>5.28</u>
<u>2 hours</u>	<u>0.91</u>	<u>1.04</u>	<u>1.14</u>	<u>1.30</u>	<u>1.48</u>	<u>1.61</u>	<u>1.94</u>	<u>2.49</u>	<u>2.99</u>	<u>3.74</u>	<u>4.35</u>	<u>4.97</u>	<u>6.52</u>
<u>3 hours</u>	<u>1.00</u>	<u>1.15</u>	<u>1.26</u>	<u>1.44</u>	<u>1.63</u>	<u>1.77</u>	<u>2.14</u>	<u>2.75</u>	<u>3.30</u>	<u>4.13</u>	<u>4.80</u>	<u>5.49</u>	<u>7.20</u>
<u>6 hours</u>	<u>1.18</u>	<u>1.35</u>	<u>1.48</u>	<u>1.68</u>	<u>1.91</u>	<u>2.08</u>	<u>2.51</u>	<u>3.23</u>	<u>3.86</u>	<u>4.84</u>	<u>5.63</u>	<u>6.43</u>	<u>8.43</u>
<u>12 hours</u>	<u>1.37</u>	<u>1.56</u>	<u>1.71</u>	<u>1.95</u>	<u>2.21</u>	<u>2.41</u>	<u>2.91</u>	<u>3.74</u>	<u>4.48</u>	<u>5.61</u>	<u>6.53</u>	<u>7.46</u>	<u>9.78</u>
<u>18 hours</u>	<u>1.48</u>	<u>1.69</u>	<u>1.85</u>	<u>2.11</u>	<u>2.39</u>	<u>2.61</u>	<u>3.14</u>	<u>4.04</u>	<u>4.84</u>	<u>6.06</u>	<u>7.05</u>	<u>8.06</u>	<u>10.57</u>
<u>24 hours</u>	<u>1.57</u>	<u>1.80</u>	<u>1.97</u>	<u>2.24</u>	<u>2.55</u>	<u>2.77</u>	<u>3.34</u>	<u>4.30</u>	<u>5.15</u>	<u>6.45</u>	<u>7.50</u>	<u>8.57</u>	<u>11.24</u>
<u>48 hours</u>	<u>1.72</u>	<u>1.97</u>	<u>2.16</u>	<u>2.46</u>	<u>2.79</u>	<u>3.04</u>	<u>3.66</u>	<u>4.71</u>	<u>5.62</u>	<u>6.99</u>	<u>8.13</u>	<u>9.28</u>	<u>12.10</u>
<u>72 hours</u>	<u>1.87</u>	<u>2.14</u>	<u>2.34</u>	<u>2.67</u>	<u>3.03</u>	<u>3.30</u>	<u>3.97</u>	<u>5.08</u>	<u>6.05</u>	<u>7.49</u>	<u>8.64</u>	<u>9.85</u>	<u>12.81</u>
<u>120 hours</u>	<u>2.08</u>	<u>2.38</u>	<u>2.61</u>	<u>2.97</u>	<u>3.37</u>	<u>3.67</u>	<u>4.42</u>	<u>5.63</u>	<u>6.68</u>	<u>8.16</u>	<u>9.39</u>	<u>10.66</u>	<u>13.81</u>
<u>240 hours</u>	<u>2.63</u>	<u>3.01</u>	<u>3.30</u>	<u>3.76</u>	<u>4.27</u>	<u>4.65</u>	<u>5.60</u>	<u>7.09</u>	<u>8.25</u>	<u>9.90</u>	<u>11.26</u>	<u>12.65</u>	<u>16.00</u>

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Huff Quartiles for Time Distribution of Heavy Rainfall

- Duration ≤ 6 hours 1st Quartile
- 6 hours < Duration ≤ 12 hours 2nd Quartile
- 12 hours < Duration ≤ 24 hours 3rd Quartile
- Duration > 24 hours 4th Quartile

Cumulative Percent of Storm	Drainage Area Under 10 Square Miles				Drainage Area 10 to 50 Square Miles				Drainage Area 50 to 400 Square Miles			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
-												
05	16	03	03	02	12	03	02	02	08	02	02	02
10	33	08	06	05	25	06	05	04	17	04	04	03
15	43	12	09	08	38	10	08	07	34	08	07	05
20	52	16	12	10	51	14	12	09	50	12	10	07
25	60	22	15	13	62	21	14	11	63	21	12	09
30	66	29	19	16	69	30	17	13	71	31	14	10
35	71	39	23	19	74	40	20	15	76	42	16	12
40	75	51	27	22	78	52	23	18	80	53	19	14
45	79	62	32	25	81	63	27	21	83	64	22	16
50	82	70	38	28	84	72	33	24	86	73	29	19
55	84	76	45	32	86	78	42	27	88	80	39	21
60	86	81	57	35	88	83	55	30	90	86	54	25
65	88	85	70	39	90	87	69	34	82	89	68	29
70	90	88	79	45	92	90	79	40	93	92	79	35
75	92	91	85	51	94	92	86	47	95	94	87	43
80	94	93	89	59	95	94	91	57	96	96	92	54
85	96	95	92	72	96	96	94	74	97	97	95	75
90	97	97	95	84	97	97	96	88	98	98	97	92
95	98	98	97	92	98	98	98	95	99	99	99	97

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<u>Portion of the Storm</u>	<u>Drainage Area Under 10 Square Miles</u>				<u>Drainage Area 10 to 50 Square Miles</u>				<u>Drainage Area 50 to 400 Square Miles</u>			
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>
<u>0/24</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
<u>1/24</u>	<u>8.36</u>	<u>2.29</u>	<u>2.05</u>	<u>2.31</u>	<u>6.41</u>	<u>1.48</u>	<u>1.33</u>	<u>1.48</u>	<u>4.59</u>	<u>0.88</u>	<u>0.72</u>	<u>0.90</u>
<u>2/24</u>	<u>17.73</u>	<u>4.82</u>	<u>4.31</u>	<u>4.79</u>	<u>15.69</u>	<u>3.57</u>	<u>3.02</u>	<u>3.34</u>	<u>13.49</u>	<u>2.38</u>	<u>1.85</u>	<u>2.29</u>
<u>3/24</u>	<u>28.11</u>	<u>7.78</u>	<u>6.67</u>	<u>7.12</u>	<u>27.45</u>	<u>6.39</u>	<u>5.13</u>	<u>5.72</u>	<u>25.94</u>	<u>4.93</u>	<u>3.47</u>	<u>4.36</u>
<u>4/24</u>	<u>38.33</u>	<u>11.33</u>	<u>9.12</u>	<u>9.78</u>	<u>38.91</u>	<u>10.02</u>	<u>7.53</u>	<u>8.56</u>	<u>39.17</u>	<u>8.52</u>	<u>5.57</u>	<u>7.10</u>
<u>5/24</u>	<u>47.45</u>	<u>15.79</u>	<u>11.71</u>	<u>12.53</u>	<u>49.34</u>	<u>14.71</u>	<u>10.01</u>	<u>11.69</u>	<u>51.04</u>	<u>13.19</u>	<u>8.28</u>	<u>9.93</u>
<u>6/24</u>	<u>55.50</u>	<u>21.39</u>	<u>14.36</u>	<u>15.23</u>	<u>58.55</u>	<u>20.89</u>	<u>12.65</u>	<u>14.19</u>	<u>60.79</u>	<u>19.59</u>	<u>10.96</u>	<u>12.84</u>
<u>7/24</u>	<u>62.25</u>	<u>28.41</u>	<u>16.91</u>	<u>17.91</u>	<u>65.88</u>	<u>28.91</u>	<u>15.24</u>	<u>17.19</u>	<u>69.26</u>	<u>27.46</u>	<u>13.79</u>	<u>15.46</u>
<u>8/24</u>	<u>67.22</u>	<u>36.44</u>	<u>19.64</u>	<u>20.33</u>	<u>71.10</u>	<u>37.55</u>	<u>18.17</u>	<u>19.69</u>	<u>74.80</u>	<u>37.17</u>	<u>16.35</u>	<u>17.83</u>
<u>9/24</u>	<u>70.82</u>	<u>45.29</u>	<u>22.78</u>	<u>22.83</u>	<u>74.92</u>	<u>46.86</u>	<u>21.46</u>	<u>22.27</u>	<u>78.74</u>	<u>47.77</u>	<u>19.66</u>	<u>20.12</u>
<u>10/24</u>	<u>74.17</u>	<u>54.35</u>	<u>26.33</u>	<u>25.41</u>	<u>78.30</u>	<u>56.25</u>	<u>25.36</u>	<u>24.81</u>	<u>82.20</u>	<u>58.18</u>	<u>23.46</u>	<u>23.12</u>
<u>11/24</u>	<u>76.97</u>	<u>62.38</u>	<u>30.93</u>	<u>28.35</u>	<u>81.16</u>	<u>64.84</u>	<u>29.90</u>	<u>27.46</u>	<u>85.13</u>	<u>67.64</u>	<u>28.07</u>	<u>25.76</u>
<u>12/24</u>	<u>79.81</u>	<u>69.76</u>	<u>36.35</u>	<u>31.25</u>	<u>83.75</u>	<u>72.90</u>	<u>35.60</u>	<u>30.33</u>	<u>87.38</u>	<u>75.86</u>	<u>34.06</u>	<u>28.26</u>
<u>13/24</u>	<u>82.55</u>	<u>75.48</u>	<u>43.92</u>	<u>33.90</u>	<u>86.20</u>	<u>79.07</u>	<u>43.42</u>	<u>32.42</u>	<u>89.58</u>	<u>82.04</u>	<u>42.30</u>	<u>30.99</u>
<u>14/24</u>	<u>85.18</u>	<u>80.38</u>	<u>52.11</u>	<u>36.33</u>	<u>88.64</u>	<u>83.97</u>	<u>52.18</u>	<u>34.28</u>	<u>91.45</u>	<u>86.92</u>	<u>52.02</u>	<u>33.68</u>
<u>15/24</u>	<u>87.40</u>	<u>84.70</u>	<u>61.02</u>	<u>38.61</u>	<u>90.81</u>	<u>87.58</u>	<u>61.88</u>	<u>36.89</u>	<u>93.35</u>	<u>90.33</u>	<u>62.76</u>	<u>36.12</u>
<u>16/24</u>	<u>89.47</u>	<u>87.81</u>	<u>69.89</u>	<u>41.24</u>	<u>92.58</u>	<u>90.67</u>	<u>71.81</u>	<u>39.73</u>	<u>94.80</u>	<u>93.09</u>	<u>72.80</u>	<u>39.07</u>
<u>17/24</u>	<u>91.17</u>	<u>90.22</u>	<u>78.19</u>	<u>45.08</u>	<u>93.99</u>	<u>92.76</u>	<u>80.43</u>	<u>43.85</u>	<u>95.99</u>	<u>94.82</u>	<u>82.27</u>	<u>42.93</u>
<u>18/24</u>	<u>92.70</u>	<u>92.17</u>	<u>84.92</u>	<u>51.29</u>	<u>95.19</u>	<u>94.59</u>	<u>87.25</u>	<u>49.87</u>	<u>96.94</u>	<u>96.25</u>	<u>89.19</u>	<u>48.98</u>
<u>19/24</u>	<u>94.03</u>	<u>93.81</u>	<u>89.74</u>	<u>59.31</u>	<u>96.35</u>	<u>95.97</u>	<u>92.01</u>	<u>58.93</u>	<u>97.70</u>	<u>97.34</u>	<u>93.60</u>	<u>59.22</u>
<u>20/24</u>	<u>95.36</u>	<u>95.29</u>	<u>93.11</u>	<u>69.19</u>	<u>97.27</u>	<u>97.10</u>	<u>95.04</u>	<u>69.85</u>	<u>98.35</u>	<u>98.21</u>	<u>96.33</u>	<u>71.66</u>
<u>21/24</u>	<u>96.56</u>	<u>96.57</u>	<u>95.34</u>	<u>80.05</u>	<u>98.03</u>	<u>97.99</u>	<u>96.90</u>	<u>82.36</u>	<u>98.86</u>	<u>98.83</u>	<u>97.97</u>	<u>85.18</u>
<u>22/24</u>	<u>97.74</u>	<u>97.74</u>	<u>97.06</u>	<u>89.71</u>	<u>98.74</u>	<u>98.72</u>	<u>98.22</u>	<u>92.59</u>	<u>99.28</u>	<u>99.30</u>	<u>98.98</u>	<u>94.64</u>
<u>23/24</u>	<u>98.85</u>	<u>98.84</u>	<u>98.56</u>	<u>96.04</u>	<u>99.37</u>	<u>99.39</u>	<u>99.21</u>	<u>97.96</u>	<u>99.66</u>	<u>99.67</u>	<u>99.58</u>	<u>98.77</u>
<u>24/24</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>

MCHENRY COUNTY STORMWATER MANAGEMENT ORDINANCE
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REGULATED DEVELOPMENT CRITERIA

§15.60.020.B. Regulated Development

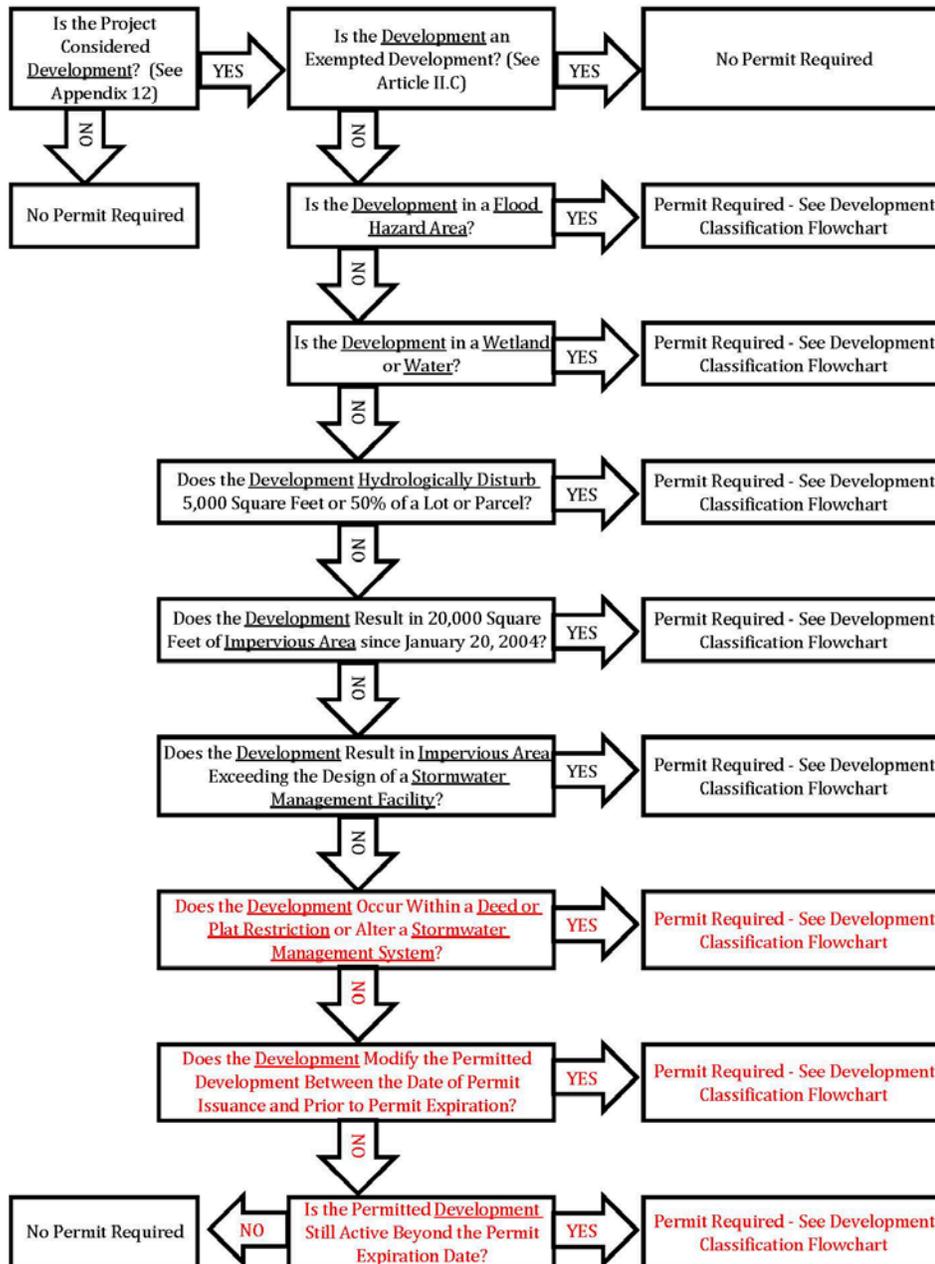
B. Regulated Development

1. Refer to the Regulated Development Flowchart in Appendix 1.
2. No person, firm, corporation or governmental agency, unless specifically exempted, shall commence any regulated development without first obtaining a stormwater management permit. Unless it is specifically exempted in Article II, Section C, any activity that meets any of the following criteria, is considered regulated development:
 - a. Any development that is located partially or completely in a flood hazard area; or
 - b. Any development located partially or completely within the boundary of a wetland or waters; or
 - c. Any development that hydrologically disturbs 5,000 square feet or more; or
 - d. Any development that hydrologically disturbs 50% or more of a parcel; or
 - e. Any development that results in an additional 20,000 square feet of impervious area since the effective date of this Ordinance; or
 - f. Any development on a lot or parcel of land platted after December 1, 2014 that results in impervious area exceeding the design parameters of an existing stormwater management facility; or
 - g. Any development that occurs within a deed or plat restriction or alters a stormwater management system from its original design or permitted condition; or
 - h. Any development that modifies the permitted development between the date of permit issuance and prior to the permit expiration date; or
 - i. Any permitted development that is not completed prior to the permit expiration date;
or
 - g.i. Any development that is part of a larger common plan of development that, as a whole, would constitute regulated development.

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§15.60.150 Permitting Flowcharts

Regulated Development Flowchart



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STORMWATER MANAGEMENT FACILITIES

§15.60.060.B.3. Drain Tiles

3. Drain Tiles

In addition to other applicable Runoff Control Performance Standards, the following requirements apply to all regulated development, except regulated development authorized by a General Permit.

- a. Drain tiles disturbed during regulated development shall be reconnected by those responsible for their disturbance, unless the development plans specify abandonment of the drain tiles.
- b. All abandoned drain tiles within disturbed areas shall be removed in their entirety.
- c. Drain tiles within the disturbed area of a development site shall be replaced, bypassed around the development site or intercepted and connected to the stormwater management system for the development site. The size of the replaced or bypassed drain tile shall be equivalent to the existing drain tile.
- d. Existing drain tiles shall be protected from an adverse tailwater condition due to a new stormwater management system.
- e. Observation wells, or similar structures for inspecting and maintaining drain tiles, shall be installed at any point where an existing drain tile flows into or out of a development site. Maintenance access shall be provided to the observation well through a deed or plat restriction for regulated development disturbing 5 acres or more.

~~f. Concentrated discharges from a development site shall be connected to an existing drain tile, where possible; however, the primary outlet from the development site shall be a surface discharge and the drain tile connection shall be designed as a secondary, low flow outlet. When no reasonable alternative exists, the Enforcement Officer may approve the connection of a concentrated discharge from a development site to an existing drain tile as the primary outlet, provided the existing drain tile is located within a deed or plat restriction to the point it discharges into a channel.~~

- ~~g.f.~~ A drain tile survey shall locate existing farm and storm drain tiles by means of slit trenching or other appropriate methods performed by an experienced subsurface drainage consultant. A drain tile survey shall include the following as applicable on a topographic map:
- (1) The location of each slit trench identified to correspond with the tile investigation report and field staked at no less than 50 foot intervals;
 - (2) The location of each drain tile with a flow direction arrow, tile size and any connection to adjoining properties;
 - (3) A summary of the tile investigation report showing trench identification number, tile size, material and quality, percentage of the tile filled with water, percentage of restrictions caused by sediment; depth of ground cover and tile system classification; and
 - (4) The name, address and phone number of the person or consultant responsible for the drain tile survey.

~~h.g.~~ The Enforcement Officer may accept a drain tile map prepared by a drainage district or other reliable source in lieu of a drain tile survey. The drain tile survey requirement shall be waived for any Minor Development and the Enforcement Officer may waive the drain tile survey requirement for an Intermediate Development, Major Development, Public Road Development or Mining Development, provided the applicant submits a narrative and

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supporting evidence indicating to the satisfaction of the Enforcement Officer that drain tiles are not likely to be present within the development site. This evidence may consist of:

- (1) Soil maps;
- (2) Historic aerial photographs;
- (3) Historic topographic maps; and
- (4) Wetland maps.

§15.60.060.B.5.d.(1) Stormwater Management Facilities, Basic Requirements

(1) Basic Requirements

The following requirements apply to the stormwater management facilities for all regulated development required to meet the Stormwater Storage Requirements of this Ordinance.

- i. Offsite runoff may be bypassed around a proposed stormwater management facility.
- ii. Stormwater management facilities shall be sized for the runoff from any public road improvements required as part of the regulated development.
- iii. Stormwater management facilities shall be designed to dewater within 72 hours following the end of the design storm.
- iv. A stable overflow shall be provided for each stormwater management facility. The overflow shall be capable of passing the unattenuated inflow from the 100 year critical duration storm from the entire tributary area without increasing flood heights on upstream adjoining properties or resulting in flood damage at the development site, based on runoff calculations meeting the Runoff Rates and Storage Volume Standards of this Ordinance. The overflow elevation shall be at or above the 100 year design high water elevation.
- v. A minimum freeboard of one 1 foot shall be provided above the design high water surface elevation of the 100 year flow through the overflow.
- vi. Stormwater management facilities serving more than one property shall be located in a deed or plat restriction with access to the stormwater management facility from the public right-of-way. The Enforcement Officer may waive the requirement for a deed or plat restriction where an increase in flood heights on upstream properties is unlikely to result from the lack of maintenance of the stormwater management facility.
- vii. The applicant shall notify adjoining downstream property owner(s) via certified mail return receipt of any proposed stormwater management facility outlet location and design. Notification shall occur prior to preliminary Planned Unit Development or Plat of Subdivision or shall be provided at the first permit application submittal, whichever is earlier.
- viii. The applicant shall notify any drainage district within the watershed where the development site is located via certified mail return receipt of any proposed stormwater management facility outlet location and design. Notification shall occur prior to preliminary Planned Unit Development or Plat of Subdivision or shall be provided at the first permit application submittal, whichever is earlier.
- ix. Concentrated discharges from a development site shall be connected to an existing drain tile, where possible; however, the primary outlet from the development site ~~should shall~~ be a surface discharge and the drain tile connection shall be designed as a secondary, low flow outlet. When no reasonable alternative exists, the Enforcement Officer may approve the connection of a concentrated discharge from a development site to an existing drain tile as the primary outlet, provided the existing drain tile has adequate hydraulic capacity and structural integrity and is located within a recorded deed or plat restriction to the point it

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- discharges into a channel. The deed or plat restriction must be approved by the Enforcement Officer prior to issuance of a stormwater management permit.
- x. Stormwater management facility discharges onto adjoining properties shall be designed to release as sheet flow using a level spreader, or other energy dissipation device, approved by the Enforcement Officer.
- xi. An off-site outfall shall be constructed to convey the release from a stormwater management facility if an analysis demonstrates that adequate downstream stormwater capacity cannot be achieved or if land damage to an agricultural swale may occur.
- (a) The off-site outfall shall be evaluated to the nearest open channel. If the outfall is located within a publicly owned storm drainage system, it shall be evaluated to the downstream location directed by the Enforcement Officer.
- (b) Stormwater management facility discharges to downstream agricultural surface drainage systems with no base flow must be conveyed 100% underground within forty-eight (48) hours after a storm event up to and including the 100 year, 24 hour storm event.
- (c) Off-site outfalls shall be located within a public right-of-way or deed or plat restricted area and marked on the as-built plans. The deed or plat restriction language shall clearly define the individual or entity responsible for perpetual maintenance.
- (d) If an off-site outfall is required to be constructed and the downstream property owner(s) refuse(s) to grant access across his or her property, and construction within a right-of-way or alternate route is not feasible or reasonable, the applicant shall provide the Enforcement Officer a two (2) year post-development security for the engineer's estimate of probable construction cost for the off-site outfall plus a ten percent (10%) contingency. If the downstream property owner has not granted access for construction of the improvements within two (2) years following completion of the development, the Enforcement Officer shall release the security.

§15.60.270 Definitions

agricultural swale: Grassed waterway or cultivated swale within a farm field under agricultural production which is ephemeral in nature and does not have a defined bed and banks.

outfall: Discharge or point of discharge of a culvert or other closed conduit from a development at which stormwater can be released from the development site without causing scour, erosion, flooding, sedimentation or produce any damage in the receiving system.

open channel: A conveyance system with a definable bed and banks carrying the discharge from field tiles and surface drainage including a ditch, culvert, stream, creek, and river. An open channel does not include grassed swales or cultivated swales within a farm field under agricultural production which are ephemeral in nature.

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WATER QUALITY TREATMENT

§15.60.060.B.7. Water Quality Protection

7. Water Quality Protection

In addition to other applicable Runoff Control Performance Standards, the following requirements apply to all regulated development, except regulated development authorized by a General Permit.

- a. Water quality treatment shall be provided for stormwater runoff from increased impervious areas.

(1) All sites shall provide water quality treatment using existing or proposed best management practices or green infrastructure methods specifically designed for water quality treatment.

~~(2)~~ On highly impervious development sites, such as multi-family residential and non-residential developments, water quality treatment devices shall be designed to remove both floatable and settleable pollutants from as much of the stormwater runoff from increased impervious areas as possible. This requirement may be met by directing as much stormwater runoff from increased impervious areas as possible through a hydrodynamic separator, or into a catch basin fitted with a hooded outlet cover. Alternate treatment methods providing a similar or higher level of water quality treatment may be approved by the Enforcement Officer.

~~(3)~~ In Public Road Developments, the stormwater management system shall be designed to direct as much stormwater runoff from increased impervious areas as possible through a vegetated swale, across a vegetated filter strip, or into a catch basin before being discharged from the development site. Alternate treatment methods providing a similar or higher level of water quality treatment may be approved by the Enforcement Officer.

- b. Appropriate pre-treatment shall be provided for stormwater runoff directed to new or existing Class V injection well.
- c. Appropriate pre-treatment shall be provided for stormwater runoff directed to infiltration based practices in areas designated as High or Moderately High Potential for Aquifer Recharge/Contamination on the McHenry County Sensitive Aquifer Recharge Areas Map.

§15.60.270 Definitions

green infrastructure: Any stormwater management technique or practice that reduces runoff volume through preserving, restoring, utilizing, or enhancing the processes of infiltration, evapotranspiration, and reuse. Approaches may include, but not be limited to, green roofs, naturalized detention facilities, trees and tree boxes, rain gardens, vegetated swales, wetlands, infiltration planters, porous and permeable pavements, porous piping systems, dry wells, vegetated median strips, reforestation/revegetation, rain barrels and cisterns, and protection and enhancement of riparian buffers and floodplains.