

CLERMONT COUNTY

**WATER MANAGEMENT
AND
SEDIMENT CONTROL
(WMSC)**

REGULATIONS

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ARTICLE 1.0 WMSC GENERAL PROVISIONS

SECTION 100 TITLE

These regulations shall be known and may be cited as the Clermont County Water Management and Sediment Control Regulations and are hereinafter referred to as WMSC Regulations.

SECTION 110 STATUTORY AUTHORIZATION

These WMSC Regulations of Clermont County are promulgated pursuant to Section 307.79 of the Ohio Revised Code, whereby a Board of County Commissioners may adopt rules to abate soil erosion and water pollution from soil sediment.

SECTION 120 ADMINISTRATION

These WMSC Regulations of Clermont County shall be administered by the Clermont County Building Inspection Department (CCBID). The Building Official of the CCBID shall be the administrator and shall enforce these regulations and issue such notices and orders as may be necessary.

SECTION 130 MEANS OF APPEAL

Applicants for WMSC permits aggrieved by or property owners who allege damages resulting directly from any decision, interpretation or literal enforcement by the CCBID made under the provision of these regulations may appeal the matter to the Clermont County Board of Appeals, which shall be referred to as The Board for the purposes of this section.

130.1 Board of Appeals

130.1-1 Composition: The Board shall consist of five (5) members as follows:

- A. One Engineer, Registered in the State of Ohio.
- B. One Surveyor, Registered in the State of Ohio.
- C. One Developer/Real Estate Professional.
- D. Two members shall come from the professional community, preferably with knowledge in the construction field or an Attorney admitted to the Ohio Bar.

130.1-2

Terms: Members shall be appointed by the Clermont County Board of Commissioners and:

- A. Shall serve three (3) year terms.
- B. Shall hold office from the date of appointment until the end of the appointed term. However, he/she shall remain on the board until a successor takes his/her place or thirty (30) days, whichever occurs first.
- C. Any member appointed to fill a vacancy occurring before the expiration of a term shall hold office for the remainder of that term.
- D. A minimum of three (3) members must be present to constitute a legal meeting.
- E. In the event a conflict of interest arises, as determined by the Clermont County Board of Commissioners, an alternate member (as described in Section 130.1-1 A-D) with the same qualifications shall be appointed by the Clermont County Board of Commissioners.

130.1-3

Purpose

- A. The purpose of the Appeals Board is to allow an appeal by applicants for WMSC permits aggrieved by or property owners who allege damages resulting directly from a decision of the CCBID or by a requirement or regulation that cannot be met in a specific circumstance.
- B. If the decision of the Appeals Board is to rule in favor of the requested relief, the person(s) or entity shall be granted a variance. A variance from these regulations can only be granted when the application demonstrates the following:
 - (1) The variance request is consistent with the general purpose and intent of these regulations and will not cause damage to other properties or the surrounding environment or endanger the public health, safety or welfare.
 - (2) The variance request indicates special or unusual conditions that exist on the development site or project area.
 - (3) Strict application of these regulations would cause undo hardship for the applicant or deprive the applicant of reasonable use of the development site.

130.2 Hearing and Conduct, Board of Appeals

130.2-1 The Board of Appeals shall set a date for a public hearing upon receiving the appeal request form the applicant and shall arrive at a decision no more than fifteen (15) working days after the hearing. The Board of Appeals shall notify the local jurisdiction where the appeal is located.

130.2-2 The Board of Appeals shall keep a full and complete record of all proceedings, which shall be open to public inspection. The proceedings will be recorded in a form that can be transcribed and all parties testifying will be placed under oath.

130.2-3 Appeals from the decision made by the Board of Appeals may be taken, to the Clermont County Court of Common Pleas.

130.3 Application for Variance, Board of Appeals

A variance is sought when a disagreement with these regulations occurs and a person or group of people applies to the Board of Appeals to eliminate their compliance with these regulations in regard to the specific disagreement. Applications for variances shall:

130.3-1 State fully the specific variance requested, the grounds for the variance, and the facts as they are presented by the person(s) requesting the variance.

130.3-2 Be signed by the owner or his agent.

130.3-3 Complete the Application for Variance Form.

130.4 Conditions for Issuing a Variance, Board of Appeals

130.4-1 The variance does not become effective until approval has been granted and the final design plan fulfills the requirements of these regulations not affected by the variance.

130.4-2 The granting of a variance shall not relieve the applicant of the responsibility to comply with all applicable orders, rules, and conditions of a site development permit or a building permit.

SECTION 140 PURPOSE AND INTERPRETATION

The Board of Clermont County Commissioners adopts these regulations to establish management and conservation practices which will eliminate or abate soil erosion and degradation of the waters of the State from sediment caused by non-farm earth disturbing activities. These regulations further intend, but are not limited, to accomplish the following:

- 140.1** Eliminate or minimize downstream flooding, erosion, and sedimentation damages caused by development and other earth disturbing activities.
- 140.2** Eliminate or reduce damage to watercourses which may be caused by increases in the volume of the runoff entering the streams or by the sediment and pollutants contained in the storm water runoff.
- 140.3** Establish a basis for the design of storm water management systems in order to protect the current and future rights and options of both the dominant and sub-servient property owners and help assure the long-term adequacy of the storm water management systems that will be required.
- 140.4** Encourage innovative design which will enhance the control of erosion and sediment in a manner consistent with the intent of the regulations. Provide for innovative design of the controlled release of storm water from the site, in lieu of those requirements resulting from a strict interpretation of these regulations so long as the system meets the allowable discharge rates, or an equivalency is met.

SECTION 150 WMSC APPLICATIONS

These WMSC Regulations shall apply to all non-farm earth disturbing activities performed on the unincorporated lands of Clermont County, Ohio except those activities excluded in Ohio Revised Code Section 307.79.

Exceptions:

- A. Strip mining operations regulated under Section 1513.01 of the Ohio Revised Code.
- B. Surface mining operations regulated under Section 1514.01 of the Ohio Revised Code.
- C. Public highways, transportation, and drainage improvements or maintenance thereof undertaken by a public entity (i.e., state, county, township, city or village) within the public right-of-way and/or construction easement associated with the project which are required to obtain coverage under Ohio EPA’s Construction General Permit, shall provide a copy of the EPA’s acknowledgement of coverage to the CCBID before the start of construction.

SECTION 160 COORDINATION WITH LOCAL, STATE AND FEDERAL REGULATIONS AND PERMITS

Approvals issued in accordance with these WMSC Regulations do not relieve the applicant of responsibility for obtaining all other necessary permits and/or approvals from federal, state and/or local governments, and compliance with other legal requirements. If requirements vary, the most restrictive shall prevail. Other permits and requirements may include, but are not limited to, the following:

- D. The most recent Ohio EPA General Permit Authorization for Storm Water Discharges Associated with Construction Activity under the National Pollutant Discharge Elimination System (NPDES), also known as the Construction General Permit
- E. The latest applicable Ohio EPA NPDES Permit authorizing storm water discharges associated with industrial activities
- F. U.S. Army Corps of Engineers permits under Section 404 of the Clean Water Act
- G. Ohio EPA Section 401 Water Quality Certification General Isolated Wetland Permit and/or non-jurisdictional wetland/stream program approvals
- H. Ohio Dam Safety Law, Ohio Administrative Code Section 1501.21
- I. Applicable flood plain regulations; and
- J. Applicable ground water protection laws

SECTION 170 DISCLAIMER OF LIABILITY

Neither submission of a plan under the provision herein nor compliance with the provisions of these WMSC Regulations shall relieve any person(s) from responsibility for damage to any person(s) or property otherwise imposed by law; nor shall it create a duty by the Board of Clermont County Commissioners or the CCBID to those impacted by soil sediment pollution and storm water runoff.

SECTION 180 SEVERABILITY

If any clause, section, or provision of these WMSC regulations is declared invalid or unconstitutional by a court of competent jurisdiction, validity of the remainder shall not be affected thereby.

SECTION 190 EFFECTIVE DATE

190.1 The WMSC Regulations became effective on April 2, 1990.

190.2 Revised September 18, 1992

- 190.3** Revised July 30, 2007
- 190.4** Revised June 11, 2011
- 190.5** Revised December 30, 2017
- 190.6** These Revised WMSC Regulations become effective on August 7, 2022, the thirty-first (31st) day following the date of their adoption by the Board of Clermont County Commissioners.

SECTION 191 REFERENCES

- A. Ohio Environmental Protection Agency, Rainwater and Land Development – Ohio’s Standards for Storm Water Management, Land Development and Urban Stream Protection, Latest Edition.
- B. Ohio Department of Transportation, Location and Design Manual – Volume 2, Drainage Design, Latest Edition
- C. Ohio Environmental Protection Agency, Storm Water Discharges from Small and Large Construction Activities – General Permit, effective date April 23, 2018.
- D. Natural Resources Conservation Service, U.S. Dept. of Agriculture, Urban Hydrology for Small Watersheds (Technical Release No. 55), June 1986.

SECTION 192 AMENDMENTS

Whenever the public necessity, convenience, general welfare, or good water management practice requires, the Board of Clermont County Commissioners may amend, change, or supplement these regulations in the procedure as specified in Section 307.79 of the Ohio Revised Code.

ARTICLE 2.0 WMSC DEFINITIONS

SECTION 200 INTERPRETATION OF WORDS AND TERMS

For the purpose of these regulations, certain rules or word usage apply to the text as follows:

200.1 Words used in the present tense include the future tense, and the singular includes the plural, unless the context clearly indicates the contrary.

200.2 The term “shall” is always mandatory and not discretionary; the term “may” is permissive; the term “should” is permissive but indicates strong suggestion.

200.3 Any word or term not interpreted or defined by this article shall be construed according to the rules of grammar and common usage so as to give these regulations their most reasonable application.

SECTION 210 DEFINITIONS OF WORDS AND TERMS

Approved Subdivision or Development: Any development that has received design plan approval from the Clermont County Planning Commission.

Best Management Practices (BMPs): Include schedules of activities, prohibitions of practices, general good house keeping practices, pollution prevention and educational practices, maintenance procedures, structural facilities and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to receiving waters, or the Clermont County Separate Storm Sewer System. BMPs also include, but are not limited to, treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

Buffer: A vegetated area, including trees, shrubs, and herbaceous vegetation, which exists or is established to protect a watercourse and its floodway or floodplain.

Channel: A natural or man-made depression in the earth utilized or designed to convey water.

CCBID: Clermont County Building Inspection Department.

Clearing: Any activity which removes the vegetative surface cover

Clermont County Separate Storm Sewer System (CCS4): The infrastructure installed and maintained by the County of Clermont, Ohio by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

Concentrated Flow: Any storm water runoff which flows through a drainage pipe, ditch, diversion or other discrete conveyance channel.

Critical Area: An area susceptible to erosion and sediment production that requires special management to establish and maintain vegetation in order to stabilize the soil.

Cut: An excavation and/or the material removed in an excavation.

Detention Structure: A permanent structure used for the temporary storage of storm water runoff and designed so as to not create a permanent pool of water.

Develop: The act of preparing a site through clearing, grading, excavation, fill, storm and sanitary sewer installation, or other similar procedures for commercial, industrial, residential, or other non-farm purposes.

Development: The end result that occurs through clearing, grading, fill, excavation, storm sewer, sanitary sewer, and utility installation, building construction and other structures, or other similar procedures for commercial, industrial, residential, or other non-farm purposes.

Development Area: Any contiguous area owned by one person(s) or entity and defined by a metes and bounds description or operated as one development unit within that contiguous area and used or proposed to be used for commercial, industrial, residential, or other non-farm purposes upon which earth-disturbances will occur.

Denuded Areas: Those areas that are stripped or cleared of all vegetative cover thereby exposing the bare soil to erosion.

Discharge: The release, addition or deposit of any fluid, liquid, solid, flowing substance, or any other material or substance to the Clermont County Separate Storm Sewer System (CCS4).

Disturbance: Any clearing, grading, excavating, filling, or other alteration of land surface where natural or man-made cover is destroyed in a manner that exposes the underlying soils.

Ditch: An open channel that is either natural or man-made for the purpose of drainage of storm water runoff or irrigation.

Drainageway: Any natural or man-made storm water conveyance system; typically a swale, ditch or an open channel.

Earth Disturbing Activity: Any clearing, grading, excavation, fill or other alteration of the earth=s surface where natural or man-made ground cover is destroyed or altered and which may result in or contribute to erosion and sediment pollution.

Enforcing Official: The Chief Building Official of the CCBID or his designee, including all of its employees or agents designated to enforce these regulations.

Engineer (Designer): A Professional Engineer registered in the State of Ohio.

Erosion: The process by which the land surface is worn away by the action of water, wind, ice, or gravity; the detachment and movement of soil or rock fragments by wind, water, ice or gravity. Different types of erosion are defined below:

- A. *Channel:* The erosion process whereby the volume and velocity of a concentrated flow of water wears away and alters the bed and banks.
- B. *Gully:* The erosion process whereby water accumulates in narrow channels and over short periods during and immediately following rainfall or snow or ice melt, and actively removes soil from this narrow area to considerable depth such that the channels so created would not be eliminated by normal smoothing or tillage operations.
- C. *Rill:* An erosion process in which numerous small channels only several inches deep are formed as a result of concentrated flow, and which if not abated can become gullies.
- D. *Sheet:* The removal of a fairly uniform layer of soil from the land surface by the action of wind or water.

Erosion and Sediment Control: A system of structural and vegetative measures intended to minimize soil erosion and offsite sedimentation.

Excavation: A cut or any act by which earth, sand, gravel, rock or any other similar material is dug into, cut, quarried, removed, uncovered, displaced, relocated, or bulldozed and shall include the conditions, resulting there from and the material removed there from. The difference between a point on the original ground and a designated point of lower elevation on the final grade.

Facilities: Any structures, channels, ditches, or other improvements that are to be included in the storm water management system.

Fill: (1) Any act by which earth, sand, gravel, rock or any other similar materials placed, pushed, dumped, pulled, transported or removed to a new location above the natural surface of the ground or on top of the stripped surface or cut or an area of excavation and shall include the conditions resulting there from. The difference between a point on the original ground and a designated point of higher elevation on the final grade.

(2) The material used to create a fill.

Grading: Any stripping, cutting, filling, excavating, stockpiling, or any combination thereof and shall include any land in its cut or fill condition.

Grubbing: Removing, clearing or scalping material such as roots, stumps or sod.

Hazardous Materials: Any material (as defined by Ohio Revised Code 3750.02), substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Illicit Discharge: Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in Section 810.2 of these regulations.

Illegal Connection: Defined as either of the following:

- A. Any drain or conveyance, whether on the surface or subsurface, which allows an illicit discharge to enter the Clermont County Separate Storm Sewer System, including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an Enforcing Official or,
- B. Any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an Enforcing Official.

Impervious Surface: Those surfaces that do not allow the infiltration of storm water.

Improvements: Any modification to the existing storm water drainage system including, but not limited to, the installation of storm water conveyance systems such as paved or vegetation lined channels, ditches, or swales; the installation of storm water conduits; or the installation roadway culverts.

Industrial Activity: Activities subject to NPDES Industrial Permits as defined in the EPA Phase II Storm Water Regulations 40 CFR, Section 122.26 (b) (14).

Landslide: Rapid mass movement downslope of soil material under the influence of gravity.

Mulching: The application of suitable materials on the soil surface to conserve moisture, hold soil in place, and aid in establishment of vegetative cover.

National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge

Permit: A permit issued by EPA (or by a State of Ohio under authority delegated pursuant to the U.S. code 33 USC ' 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

NRCS: Natural Resources Conservation Service (formerly known as Soil Conservation Service)

Non-Storm Water Discharge: Any discharge to the storm drain system that is not composed entirely of storm water.

Permanent Vegetation: The plant materials established for the purpose of producing long term vegetative cover of the ground surface, usually after final grading is complete.

Permit: Written permission given by the CCBID to proceed with the work (earth disturbing activities) stated in the WMSC plan submittal.

Permittee: Any person to whom a WMSC Permit has been issued and who is subject to inspection under it.

Person: Any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

Pollutant: Any element or property of sewage, agricultural, industrial, or commercial waste, runoff, leachate, heated effluent, or other matter whether originating at a point or non-point source. Pollutants may include, but are not limited to:

1. paints, varnishes, and solvents
2. oil and other automotive fluids
3. non-hazardous liquid and solid wastes and yard wastes
4. refuse, rubbish, garbage, litter, or other discarded or abandoned objects, regulations, accumulations, and floatables
5. pesticides, herbicides, and fertilizers
6. hazardous materials and wastes
7. sewage, fecal coliform and pathogens
8. dissolved and particulate metals
9. animal wastes
10. wastes and residues that result from constructing a building or structure
11. noxious or offensive matter of any kind

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

Project Area: The land lying within the geographical limits of the tract(s) or parcel(s) under consideration and on which the work (earth disturbing activities) will be performed.

Qualified Inspection Personnel: A person knowledgeable in the principles and practice of erosion and sediment controls, who possesses the skills to assess all conditions at the construction site that could impact storm water quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of storm water discharges from the construction activity.

Redevelopment: The process of developing an area previously developed. Usually involves demolition of existing structure(s) and/or infrastructure.

Retention Structure: A permanent water control structure that provides for the temporary storage of storm water runoff above the normal water level of a permanent pond.

Runoff: The portion of rainfall, snow and ice melt that flows across the ground surface and is eventually returned to streams.

Sediment: Soil material, both organic and inorganic, that is in suspension, is being transported or deposited, or has been moved from its original site or origin by the action of wind, ice or gravity as a product of the erosion process.

Sedimentation: The process of action of transporting or depositing sediment.

Sediment Basin: A barrier structure built across an area of water flow to settle and retain sediment conveyed by runoff water before it can leave the project area or development site.

Sensitive Area: An area or body of water that requires special management because of its importance to the well-being of the surrounding communities, region, or the State, and includes the following:

1. Wetlands, as regulated by the Ohio EPA and/or the United States Army Corps of Engineers, discovered during on-site assessments and as noted on the National Wetlands Inventory. Note: The CCBID shall not be held responsible for determining or monitoring wetland areas.
2. Permanent and intermittent streams, ponds or lakes as determined by CCBID.
3. Aquifer Protection Zones

Settling Volume: The volume within the sediment storage zone of the settling ponds which shall either be 1000 cubic feet per disturbed acre within the watershed of the basin or shall be the volume necessary to store the sediment as calculated with Revised Universal Soil Loss Equation (RUSLE) or similar generally accepted erosion prediction model. (See section 630.4-1)

Site Development Permit: This permit is required before any earth disturbing activities can be initiated, for the purpose of developing a commercial, industrial, or subdivision development, on the development site (see development area).

Sloughing: A slip or downward movement of an extended layer of earth resulting from the undermining action of water or the earth disturbing activities that occur during construction.

Start of Construction: The first land-disturbing activity associated with a development, including land preparation such as clearing, grading and filling; installation of streets and walkways, excavation for basements, footings, piers or foundations; erection of temporary forms; and installation of accessory buildings such as garages.

Storm Water: Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

Storm Water Management System: The combination of land grading pavement slope, open channels, underground conduits (storm sewers, culverts, underdrains), catch basins, manholes, dams, detention or retention facilities, or similar type improvements, designed according to acceptable engineering practice to properly transport, detain, store, or dispose of storm water.

Storm Water Pollution Prevention Plan (SWP3): A document which describes Best Management Practices and activities to be implemented by a person to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to storm water, storm water conveyance systems, and/or receiving waters to the maximum extent practicable.

Subarea Delineation: Indication of the separate drainage areas and their approximate sizes - *both on and off site* - that contribute to the drainage of the project area or site.

Surface Waters of the State: All streams, lakes, reservoirs, ponds, marshes, wetlands or other waterways which are situated wholly or partially within the boundaries of the state, except those private waters which do not combine or effect a junction with natural surface or underground waters.

Surveyor: A Professional Surveyor registered in the State of Ohio.

Temporary Vegetation: Short term vegetative cover used to stabilize the soil surface until final grading and installation of permanent vegetative cover.

Wastewater: Any water or other liquid, other than uncontaminated storm water, discharged from a facility.

Water Quality Volume: The volume of storm water runoff which must be captured and treated prior to discharge from the developed site after construction is complete.

Watercourse: A permanent, intermittent, perennial or ephemeral stream, river, brook, or creek for conveying water whether natural or man-made.

Watershed: The total drainage area contributing storm water runoff to a single point or watercourse. Some project areas and development sites may have more than one contributing watershed.

WMSC: Water Management and Sediment Control

WMSC Plan: Indicates the specific measures and sequencing to be used controlling sediment and erosion on a development site before, during and after construction.

WMSC Facilities: Shall include components of the storm sewer conveyance and treatment system, including pipes/conduits, catch basins, storm sewer manholes, headwalls, lined channels, outlet protection, detention/retention basins, release structures, spillways, and post-construction storm water best management practices, and all similar type improvements.

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ARTICLE 3.0 WMSC REGULATIONS GENERAL REQUIREMENTS

SECTION 300 SCOPE

300.1 The purpose of these regulations is to provide for control and management of storm water drainage, storm water detention or retention, and soil erosion and sedimentation. No person shall cause or allow earth disturbing activities on a development area except in compliance with the criteria and requirements established by these regulations.

300.2 These Water Management and Sediment Control Regulations shall apply to all earth disturbing activities involving clearing, land grading, excavation, cut, fill or other alteration on land used or being developed for commercial, industrial, residential, or other non-agricultural purposes, and shall establish criteria for the determination of the acceptability of such storm water management and sediment and erosion control practices.

300.3 Clermont County recommends that the erosion, sediment and storm water management practices used to satisfy the conditions of these regulations should meet the standards and specifications in the most current edition of Ohio's *Rainwater and Land Development* manual, or other standards acceptable to Ohio EPA.

SECTION 310 GENERAL REQUIREMENTS

310.1 The Clermont County WMSC Regulations separates earth disturbing activities into four (4) types of site development.

310.1-1 **Site development for subdivisions, commercial developments, and industrial developments.** These types of developments require a WMSC permit for site development prior to the issuance of a Building Permit. Each project will require two separate permits. A WMSC Site Preparation Permit will be issued upon approval of the plans that include the construction entrance, any BMPs such as silt fence and other erosion control measures, and any sediment traps that are required during the construction of the project. These measures are to be installed prior to any clearing and grading associated with the site other than clearing and grading associated with the installation of the BMPs. Once the work associated with the site preparation permit is completed, inspected and approved by the CCBID, a WMSC Construction Permit for the balance of the construction of the site can be issued. If the initial submittal includes all the work necessary for the entire project and the entire project is found to be in compliance with the regulation, the WMSC Construction Permit for the balance of the construction will be issued without a further submittal and review being required. Phased approval may be granted, when requested, after a separate submittal meeting the requirements of

Section 410.1-1 is made and the submittal is found to be in compliance with the regulations. The sale of individual lots or sections within the development does not relieve the permit holder from the continued responsibility to maintain the site in compliance with these regulations until one or more of the following conditions are met:

- A. Final stabilization has been achieved on all portions of the site for which the permittee is responsible;
- B. Another operator has assumed control over all areas of the site that have not been finally stabilized;
- C. (For residential construction only) Temporary stabilization has been completed and the lot, which includes a home, has been transferred to the homeowner.
 - 1. Residential subdivision development shall include all proposed developments intended to divide existing tracts or parcels into a number of lots, streets, and open areas. All developments with lots greater than five (5) acres that do not need prior approval by the Planning Commission are included in this category.
 - 2. Residential subdivisions that are of sufficient size to necessitate their further being developed in blocks or sections shall require a separate WMSC plan for each of the particular blocks or sections unless prior approval from the CCBID has been given releasing the developer from this requirement.
 - 3. Multi-family and commercial/industrial developments shall include all proposed developments that are intended to divide existing tracts or parcels or to use the entire tract or parcel for apartment/condominium projects, commercial or industrial developments, and other such similar uses.

310.1-2

Site development for single commercial or industrial buildings, including additions and accessory buildings. These buildings require a WMSC plan whose complexity is dependent on the requirements and characteristics of the building site and proposed development. The WMSC plan required will be submitted along with the building plans and each set of building plans submitted will require a site plan.

310.1-3

Construction of residential homes that are located in approved subdivisions and residential homes on single lots of any size, including additions and accessory buildings. An approved subdivision is one that has received prior formal or final approval from the Clermont County Planning Commission.

310.1-4

Cut, Fill or Grading on existing parcel(s) or lot(s) includes, but is not limited to, the following factors and requirements:

- A. Includes grading for maintenance measures, landscaping purposes, improvements, etc.
- B. A Permit may be required, if the existing surface drainage is altered or if the proposed work within the project area constitutes a potential erosion hazard or acts as a source of sediment subject to any watercourse or adjacent lands.
- C. A permit shall be obtained when the cut or fill required in connection with a drainage improvement not in the public right-of-way exceeds 100 cubic yards, or when the area of land disturbed is one acre or greater.

310.2

Detention Requirements: Each development shall provide for the detention of excess storm water runoff resulting from that development. Excess storm water runoff shall include all additional runoff resulting from increases in the impervious surfaces of the site, including all additions of buildings, roads, and parking lots; modification in contours, including excavation of fill, alteration of drainage ways, and re-grading of slopes, as compared to the condition of the site prior to development.

Exception #1: Detention structures may not be required if the requirements of 310.2-1 are met in an approved innovative manner.

Exception #2: On-site detention may not be required in systems approved in accordance with Section 500.4.

Exception #3: On-site detention may not be needed if the storage and treatment required under Article 5.0 are provided by a regional storm water management facility approved by CCBID, and a legal agreement is established through which the owner of the regional facility agrees to be responsible for its long-term operation and maintenance.

Design and performance criteria for existing or proposed storm water management facilities (both subdivision and individual building sites) with construction drawings that have been approved prior to the effective date of these regulations, shall comply with the WMSC regulations in force on the date originally approved.

310.2-1

For the purposes of these regulations, storm water detention shall be required when the critical storm is equal to two (2) years or greater. If no detention is required, the offsite runoff velocities must be equal to or less than either the one (1) year pre-developed rate or rates specified in State storm water guidance manuals, whichever is more protective of the receiving stream as determined by the County.

- 310.2-2** Post-construction BMPs cannot be installed within a surface water of the State (e.g., wetland or stream) unless it is authorized by a CWA 401 water quality certification, CWA 404 permit, and/or Ohio EPA non-jurisdictional wetland/stream program approval.
- 310.2-3** Capacity of detention shall be determined by the amount of runoff draining to the detention structure, including that coming from off-site.
- The release point(s) of any detention/retention basin and/or other storm water management system shall be designed such that the post-development released storm water flow emulates the pre-developed flow volume and characteristics as it is released onto the adjacent property for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year rainfall events. If the pre-development flow characteristics cannot be emulated, the engineer must demonstrate that there is adequate capacity in the downstream storm sewer system, ditch, culvert, stream, overland flow route, etc. to accept the discharge from the above rainfall events and that the downstream topographic features will not be eroded or flooded by modifications to the storm flow characteristics. It may be necessary for the engineer to provide a detailed hydraulic analysis of the downstream storm water system or overland flow route to demonstrate that there is adequate capacity in the downstream system. “Adequate capacity” is determined by engineering analysis to confirm that downstream structures, if properly maintained, would be capable of accommodating the flow, velocities would not increase to erosive speeds, and proposed uses of off-site properties would not be impaired. If analyses indicate that the downstream system is properly maintained and would not be able to accommodate the change in flow rate or characteristics, or is not adequate to accept the proposed peak discharges, the allowable detention/retention basin discharge must be reduced or the downstream system must be modified to accommodate the changed flow characteristics by the applicant as part of the overall development. This analysis shall extend to the convergence with the first downstream perennial stream.
- 310.2-4** Storm water BMPs may only be installed in the public right of way if they conform to specifications contained in the current version of the Ohio Department of Transportation’s “Location and Design Manual, Volume Two Drainage Design.”
- 310.2-5** No retention is permitted to be located within the airport’s approach zones or within the airport’s transition zone as defined in the *Clermont County Airport Zoning Regulations* as adopted by the Clermont County Board of County Commissioners. Detention structures within these areas are to be designed to hold water no longer than 48 hours and remain dry during periods between storms. See Appendix B for a map of the affected areas of the county.

SECTION 320 WMSC PERMIT EXEMPTIONS

320.1 Any person(s) or entity(s) responsible for developing property must comply with the provisions of these regulations. Submittal of specific information shall be required to determine compliance with these regulations. However, a WMSC Permit will not be required for the following:

- A. Any emergency activity which is immediately necessary for the protection of life, property or natural resources. After the immediate conditions which created the emergency are abated, but not less than three (3) calendar days, an application submittal of specific information shall be required to determine compliance with these regulations.
- B. Excavations below finished grade for drain fields accessory to one, two or three family dwellings (including household sewage disposal systems permitted by the Clermont County Public Health), tanks, vaults, tunnels, equipment vaults, swimming pools or similar earth moving activities. The placement of the spoils from such excavation shall be subject to the regulations contained within this document.
- C. Excavation or removal of vegetation in public utility easements by a public utility for the purpose of installing underground utilities, provided the utility has obtained coverage under Ohio EPA's Construction General Permit, and where the public utility has standard sediment control practices that have been approved by Board of Clermont County Commissioners or the Chief of the Division of Soil and Water Conservation of the Ohio Department of Agriculture and provided further that such sediment control practices are no less stringent than these WMSC regulations

SECTION 330 VIOLATIONS, ORDERS, AND PERMIT REVOCATIONS

330.1 Inspections shall be conducted by the CCBID. If, at any time during the course of construction, it is evident to the CCBID that the construction or earth disturbing activity has caused the existing drainage in the general area to be impaired, created an erosion hazard, or become a source of sediment to any adjacent storm water drainage system, public watercourse or any land, CCBID shall:

330.1-1 Verbally notify the responsible person that such activities are deficient and to take measures necessary to correct the situation within a specified length of time.

- 330.1-2** If permittee continues work in violation of these regulations, action shall be taken by the CCBID in accordance with Section 307.79 Ohio Revised Code.
- 330.1-3** In addition to the other actions taken by the Clermont County Board of Commissioners when corrective measures are not completed, the Chief Building Official shall withhold the issuance of a Certificate of Occupancy for any building constructed on the project area until measures are taken to bring the activities into compliance with these regulations.
- 330.2** Permit revocation may be required if the steps taken in Section 330.1-3 are not sufficient to assure compliance of the permittee with these regulations or if the development of the site is done in such a manner as to adversely affect the health, safety, or welfare of person(s) residing or working in the vicinity of the project area, or if the development is detrimental to the public health or welfare.
- 330.3** Work stopped or abandoned by the owner in an incomplete manner for a period of one (1) year shall cause the permit to become invalid. The Chief Building Official shall require the owner to provide all necessary precautions to ensure that the incomplete work does not become a hazard or a nuisance.

SECTION 340 NUISANCES

- 340.1** No persons(s) or entity(s) shall create conditions that cause increased storm water flow onto adjacent lands, impair the existing drainage system, create an erosion hazard, or become a source of sediment to any adjacent storm water drainage system, public watercourse or any land in the unincorporated areas of Clermont County, nor shall any person(s) or entity(s) create a nuisance in regard to Water Management and Sediment Control policies in the unincorporated lands of Clermont County.
- 340.2** These regulations shall not be construed as authorizing any person(s) or entity(s) to maintain a private or public nuisance on property, and compliance with the provisions of these regulations shall not be a defense in any action to abate such a nuisance.

SECTION 350 RESPONSIBILITY

- 350.1** Failure of the CCBID to observe or recognize hazardous or unsightly conditions or to recommend corrective measures shall not relieve any person(s) or entity(s) from the responsibility for the condition or damage resulting there from, and shall not be construed to result in the Board of County Commissioners or CCBID, its officers, employees, or agents being responsible for any condition or damage resulting there from.

ARTICLE 4.0 WMSC PLAN SUBMITTAL REQUIREMENTS

SECTION 400 SCOPE

400.1 In concurrence with Section 310 of the General Requirements, the WMSC plan submittal requirements will be separated into four types of site development: **(1)** those requiring a Site Development Permit to begin earth disturbing activities prior to obtaining building permits for the individual buildings; **(2)** construction of single commercial and industrial buildings; **(3)** construction of residential housing within an approved subdivision, located on single lots of any size, or located in a subdivision development with lots that are greater than five (5) acres in size (those not requiring Planning Commission approval); and **(4)** cut, fill, or grading on existing parcel(s) or lot(s) that exceeds 100 cubic yards or disturbs one acre or more of land and relates to site development or drainage improvement, or if the existing drainage is altered or impaired and the earth disturbing activities constitute an erosion/sediment hazard.

400.2 All lots, tracts, or parcels shall be graded to provide proper drainage away from buildings and convey it to a stable receiving outlet at non-erosive velocities as defined in Section 630.2-3. Each lot shall be graded in accordance with an approved storm water management plan. All grading and drainage shall be subject to approval by the CCBID. Downspout and sump pump storm water discharge, when piped below ground, shall be dispersed onto the ground surface no closer than five (5) feet to adjoining properties. All grading and drainage shall be subject to approval by the CCBID.

400.3 All drainage improvements shall be as such designed to adequately handle storm water runoff according to the requirements of these WMSC Regulations. Concentration of surface water runoff shall only be permitted in swales or watercourses where calculations indicate (prove) there is no adverse impact on the receiving swale or watercourse or increased flooding potential downstream.

SECTION 410 WMSC PLAN REQUIREMENTS

410.1 **Requirements for Site Development Permit** (to be obtained before any earth disturbing activities can be initiated)

Preliminary (Design Plan Review) Plan Requirements

- A.** Preliminary Review Fee
- B.** Site Development Permit application form
- C.** Project Description Form or Narrative.
- D.** Vicinity Map
- E.** Total area of the site and the area of the site that is expected to be disturbed.
- F.** A measure of the impervious area and the percent imperviousness created by the construction activity (existing, new and total impervious area after construction).
- G.** Site Plan
 - (1) Two (2) foot maximum contour intervals for existing and proposed condition(s). These regulations recognize the fact that these contours are not final and are subject to change at the final design stage. Interpolation of USGS maps is acceptable. Also, five (5) foot contour intervals may be appropriate for steeply sloping areas.
 - (2) A 1" = 100' maximum scale.
 - (3) Indicate existing or man-made watercourses and wetlands.
 - (4) Show proposed locations of storm water management systems or features such as:
 - (a) Detention/retention basins
 - (b) Storm water conveyance systems
 - (c) Stream buffers
 - (d) Other storm water management practices
 - (e) Proposed easements for WMSC facilities, where applicable.
 - (5) Show approximate limits of proposed grading or stripping.
 - (6) Indicate onsite and offsite watershed routing and drainage sub areas.
 - (7) Indicate all lots or units.
 - (8) Indicate previous land use.
 - (9) Indicate the extent of and provide a description of any wetlands.
- H.** Subarea Delineation
 - (1) Required when more than one (1) drainage sub area is to be included in the storm water calculations.
- I.** Indicate areas and locations of adjacent watersheds that will be critical to the onsite storm water management design.
- J.** Data Resource Map (soils map)
 - (1) Required if more than one type of soil is present on site.

- K.** Storm water Analysis
 - (1) Indicate Design Method
 - (a) SCS-TR55 Method
 - (b) SCS-TR20 Method
 - (c) Rational Method - valid for areas of fifty (50) acres or less.
 - (d) Other methods can be submitted with previous approval before submittal.
 - (2) Calculate Critical Storm from Section 510
 - (3) Calculate estimated volume of detention when possible.
- L.** Requests for public (County) maintenance of specific WMSC facilities shall follow the requirements set forth in the current edition of the Clermont County Subdivision Regulations, and shall be submitted along with the preliminary design plan.
- M.** One (1) copy of the preliminary design plan and calculations shall be submitted to the CCBID for review.
- N.** The preliminary design plan submittal shall not be limited to the items listed in Section 410.1-1. Any additional information submitted to the CCBID for the preliminary plan will be reviewed.

410.1-2

Final Construction & Improvement Plan Requirements

- A.** Permit Fee
- B.** Site Development Permit Application
- C.** Project Description Form or Narrative
- D.** Vicinity Map showing the following:
 - (1) Drawn to a scale of not less than 1" to 2000'.
 - (2) Surface waters including ponds, lakes, streams wetlands on or within 200 feet of the site, and the first subsequent named watercourse.
 - (3) Areas that could be affected by storm water runoff from the project site or offsite areas that will affect the drainage patterns of the project site and/or the offsite areas.
 - (4) Offsite areas of the watershed that are included in the storm water calculations for backwater stream analysis. This information should be submitted as a separate map for more complicated development sites.
- E.** Site plan shall include, but not be limited to, the following items:
 - (1) Drawn to a scale of not less than 1" = 50'.
 - (2) Certified by a registered Professional Engineer or Surveyor in the State of Ohio.
 - (3) Name of proposed project, title, scale, north arrow, legend and date of all plan maps, name and address of the person(s) preparing the plan, the owner(s), and the person(s) responsible for developing the area.

- (4) Name and contact information of the construction site operator.
- (5) Delineation of tracts, parcels, or lots of land, including previous land use.
- (6) Indicate the existing topography of the development site with a maximum distance of two (2) feet between contour intervals. It may be necessary to indicate one (1) foot intervals for areas that are predominantly flat and five (5) foot contour intervals for steeply sloping (ravine or valley) locations; discretion is left to the designer and subject to approval by the CCBID.
- (7) Indicate the area and show the limits of the site to be disturbed (i.e. grubbing, clearing, excavation, filling or grading, including off-site borrow areas.
- (8) Soil types shall be depicted for all areas of the site, including locations of unstable or highly erodible soils.
- (9) Show elevations of finished grade, lowest (first) floor of buildings, and other structures. First floor elevations for individual residential homes are not required unless it is critical for proper drainage.
- (10) Show project areas profiles for, but not limited to, the following:
 - (a) Cut and fill areas (or can indicate finished slopes directly on site plan if adequate).
 - (b) Existing and proposed drainage systems.
 - (c) Existing and proposed final grades.
- (11) Show cross-sections of, but not limited to, the following:
 - (a) Emergency spillway
 - (b) Paved, sod, or rip-rap channels
- (12) Show all existing and proposed easements for sanitary/ storm water runoff piping and structures - including detention or retention facilities and 100 year storm elevation for flood determination.
- (13) Show all existing drainage areas, patterns, and facilities such as natural or man-made watercourses, retention/detention basins, or similar improvements.
- (14) Indicate the location for all proposed post-construction storm water management and pre-treatment facilities and include (at a minimum) the following, when needed:
 - (a) Inlet details; invert elevations, pipe sizes.
 - (b) Emergency overflow limits and facilities.
 - (c) Erosion protection for all outlets into basin.
 - (d) Headwall details at inlets/outlets.
 - (e) Anti-seep collar and riser details where required (typically for retention basins).

- (f) Release structure details including:
 - 1. Orifice or restrictor plate sizes and invert elevations.
 - 2. Weir shapes, sizes, and elevations.
 - 3. Window sizes and elevations.
- (15) If more than one (1) drainage area is used for the storm water runoff calculations, indicate all drainage sub areas on the site plan. This typically requires the areas to be shown on a separate copy of the site plan for plan clarity.
- (16) Indicate watershed routing through the site on the plan or in the narrative/description of project form.
- (17) Erosion and sediment control notes to be recorded on the site plan include, but are not limited to, the following:
 - (a) Construction Sequence of major construction operations (i.e., designation of preserved areas, grubbing, excavating, grading, utilities, infrastructure installation and others), and the implementation of erosion, sediment and storm water management practices or facilities to be employed during each operation of the sequence.
 - (b) Temporary, permanent, and dormant seeding specifications and mulching specifications for critical areas.
 - (c) Filter barrier, and silt fence placement notes and details where required.
 - (d) Storm drain inlet protection notes and details where required.
 - (e) Jute mat protection (or its equivalent, does not need to be biodegradable) for final slopes greater than three (3) horizontal to one (1) vertical is required.
 - (f) Erosion and Sediment Control Plan Criteria (see Section 620 of the WMSC Regulations) and general notes.
- (18) The locations of all erosion and sediment control, storm water conveyance, and structural practices are to be shown and labeled on the site plan. This includes all temporary erosion and sediment controls, such as protection and all permanent storm water best management practices to be used to control storm water runoff and pollutants after construction practices have been completed, including retention and detention ponds, stream buffers and other controls. For subdivided developments, a drawing of a typical individual lot showing standard individual lot erosion and sediment control practices

- (19) Sediment traps and basins noting their sediment storage and dewatering (detention) volume and contributing drainage area.
 - (20) The location of designated construction entrances where vehicles will access the construction site.
 - (21) The location of any areas of floodplain fill, floodplain excavation, stream restoration or stream crossings.
 - (22) The location and description of discharges associated with dedicated asphalt and/or concrete plants and the BMPs to address pollutants in these discharges.
 - (23) Areas designated for the storage or disposal of solid, sanitary and toxic wastes, including dumpster areas, areas designated for cement truck washout, and vehicle fueling. No solid or liquid waste, including building materials, shall be discharged in storm water runoff. Under no circumstances shall concrete trucks wash out directly into a drainageway, storm sewer or watercourse.
 - (24) Indicate the extent and provide a description of any wetlands. If the project disturbs any surface natural watercourses or wetlands, the permittee must contact the appropriate U.S. Army Corps of Engineers and Ohio EPA offices.
- F.** Subarea delineation map.
 - G.** Indicate offsite watershed contributions to design calculations and their locations.
 - H.** Data Resource Map required for sites with multiple soil types. Please include this information on the Project Description Form or the Narrative if a Data Resource Map is deemed unnecessary.
 - I.** Storm water analysis as described in Sections 510 and 520.
 - J.** Storm water calculations, including volumetric runoff coefficients for both pre- and post-construction site conditions and resulting water quality volume.
 - K.** Design details for post-construction storm water facilities, including contributing drainage areas, capacities, elevations, outlet details and drain times.
 - L.** An implementation schedule which describes the sequence of major construction operations (e.g., grubbing, excavating, grading, utilities and infrastructure installation and others) and the implementation of erosion, sediment and storm water practices to be employed during each operation of the sequence.
 - M.** Ohio EPA NPDES Permit Number and other applicable state and federal permit numbers or approvals, or the status of permit applications if final approvals have not been received.

- N. The applicant shall submit formal plan construction drawings and related details and storm water design calculations to the CCBID in accordance with the existing Clermont County Subdivision Regulations.
- O. The formal (final) design submittal shall not be limited to items A. through L. listed in Section 410.1-2. Additional calculations and details may be required by the review agency.

410.1-3 A WMSC permit for site development, per Section 310.1-1, shall be issued to the applicant upon approval of the final construction plans and the payment of all fees. The applicant or developer is to then notify the CCBID within seven (7) days of the first earth disturbing activities. The holder of the permit must be able to produce the permit with a set of approved plans, a written document containing the signatures of all contractors and subcontractors involved and display the permit onsite.

410.2 **Commercial and industrial buildings that occur, typically, on single lots.** The following information shall be submitted to the CCBID, with the appropriate fees, to fulfill the water management and sediment control requirements necessary for a Building Permit application. **A separate WMSC Permit will not be required.**

410.2-1 No preliminary plan submittal is required.

410.2-2 Final WMSC Design Plan requirements shall be submitted as described in the following statements:

- A. One (1) copy of the following is to be submitted along with the building plans to the CCBID:
 - 1. Project Description Form or Narrative
 - 2. All design calculations to be stamped by a Registered Professional Engineer in the State of Ohio.
 - 3. Any additional details required for the WMSC Final Plan approval.
- B. A site plan stamped by a Registered Professional Engineer or Surveyor in the State of Ohio and any construction drawings containing details essential to the water management and sediment control plan must accompany each set of building permit plans submitted to the CCBID.
- C. The final design requirements for the site plan, including WMSC details listed in Section 410.1-2, items A through O. The WMSC requirements must be satisfied before a Building Permit can be issued for the project.

410.3 Residential housing within a subdivision or an approved development, or located on single lots.

410.3-1 No preliminary plan submittal is required.

410.3-2 A site plan, indicating sediment and erosion control measures shall be submitted with each set of building plans for One, Two and Three Family Dwellings with the appropriate fees. If the development disturbs one or more acre of ground, the site plan must include details listed in Section 410.1-2, items A through O. Items associated with post-construction management practices do not be provided if such practices are not required.

410.4 Cut, Fill or Grading on existing parcel(s) or lot(s).

410.4-1 No preliminary plans are required.

410.4-2 A site plan, with the appropriate fees, indicating sediment and erosion control measures, the existing and proposed drainage systems as well as any other information required by the CCBID or the reviewing engineer to satisfy the requirements of these regulations. If the cut, fill or grading activities disturb one or more acre of ground, the site plan must include details listed in Section 410.1-2, items A through O. Items associated with post-construction management practices do not be provided if such practices are not required.

410.4-3 Storm water management calculations prepared by a Professional Engineer Registered by the State of Ohio, if necessary, to satisfy the requirements of these regulations.

410.5 It is the intention of these regulations that the submission requirements although specific, are to be considered minimum requirements. The CCBID or any agency charged with enforcement of these regulations may require more detailed design specifications or plans when a particular problem is identified or if a proposed storm water management system may jeopardize sensitive or regulated areas. Where a design may result in water management or sediment control that is not adequate to protect the health, welfare, and safety or property of an effected area, the agency enforcing the regulations may require re-submittals of revised design plans or may require submittals involving specific technical resolutions to these problems rather than to simply deny the application outright. All applicants are further on notice that the plan requirements must meet applicable regulations of the Clermont County Public Health, the Clermont County Engineer and/or the Clermont County Planning Commission in addition to these specific regulations in order to be approved for implementation.

- 410.6** For developments that will be further subdivided into sections or phases and constructed separately with a significant amount of time between the construction of each section or phase, separate WMSC formal (final) design plans may be required for individual sections or phases, or provisions shall be made to adequately handle the storm water runoff until completion of the entire development.
- 410.7** The permittee shall amend the WMSC plan whenever there is a significant change as determined by the CCBID in design, construction, operation or maintenance, or if the plan proves to be ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity. Amendments to the WMSC Plan shall be reviewed by the CCBID in the same manner as the original plan.
- 410.8** A copy of the WMSC Plan must be kept on site and made available immediately upon the request of CCBID personnel or CCBID's authorized representative during working hours.
- 410.9** The WMSC Permit is invalid if the approved work has not commenced within twelve months of the issuance of the permit. One extension shall be granted for an additional twelve-month period if requested in advance of the expiration of the Permit and upon payment of an Extension Fee. The permit remains valid provided construction activities are ongoing. The permit shall expire when construction activity is suspended for more than six months. Two extensions shall be granted for six months each if requested in advance of the expirations of the Permit and upon payment of an Extension Fee for each extension.

SECTION 420 FEES

- 420.1** The Clermont County Board of Commissioners, in conformance with Section 307.79 of the Ohio Revised Code, shall establish reasonable filing fees for plan review and site inspection. By separate resolution the Board shall revise the fees as is deemed necessary.
- 420.2** A permit to begin new construction or earth disturbing activities relating to new construction will not be issued until all fees have been paid.
- 420.3** Additional review fees will be assessed when plan or design changes by the owner, contractor, developer, or engineer require another extensive plan review.
- 420.4** All proposed developments shall be required to obtain a WMSC Permit prior to beginning any earth disturbing activities.

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ARTICLE 5.0 WMSC REGULATIONS STORM WATER DESIGN CRITERIA

SECTION 500 SCOPE

500.1 Each development, redevelopment or project site shall provide for the detention of the excess storm water runoff resulting from the proposed development. To prevent downstream damages, peak rates of runoff from an area after development or redevelopment shall be no greater than the peak rates of runoff from the area prior to the proposed development as per Table III of Section 510.3-2.

500.2 The site design shall incorporate storm water runoff volumes that are kept to a minimum. Site development practices that reduce impervious areas, utilize infiltration and preserve the existing natural conditions are encouraged.

500.3 Storm water runoff velocities shall be kept to a minimum through the use of rip-rap or other type of channel protection to minimize the erosion of the existing watercourse due to the increased velocities that occur from the addition of man-made storm water conveyance systems, such as culverts, pipes, and open channels.

500.4 It is not the intent of this section or of these regulations to restrict the freedom of the design engineer to the design methods listed in this article, but these methods are recommended for the purpose of complying with these regulations. Other methods of design may be used with prior approval from the CCBID.

SECTION 510 WMSC CRITICAL STORM CRITERIA

510.1 **Critical Storm Definition:** The Critical Storm value for a particular project or development site provides the design engineer with the following:

510.1-1 A critical storm frequency that reflects the changes in land surface that occur to a particular project area after development. **Critical storm calculations shall utilize onsite drainage areas.**

510.1-2 Offsite areas that contribute to the control basin shall be accounted for in the detention basin storage design. The offsite areas will not be used in the calculation of the Critical Storm. The offsite areas will be used in the determination of the required storage volume of the control basin.

510.1-3 Insight as to whether or not onsite storm water detention will be required, at the preliminary design stage.

510.2

Critical Storm Determination Utilizing the SCS-TR55 Method

The engineer should have access to a copy of *Urban Hydrology for Small Watersheds - 2nd Edition (Technical Release No. 55)*, United States Department of Agriculture, Natural Resources Conservation Service, Conservation Engineering Division. This manual will be known as NRCS-TR55 for the purposes of these specifications. To assist the designer, worksheets from the NRCS-TR55 manual have been included in these regulations in Appendix A - Exhibit II, Sheets D-2 through D-8. The Critical Storm value can then be calculated using the following step by step procedure:

510.2-1

Calculate the volume of runoff, V_{pre} , under pre-development conditions for a storm frequency equal one (1) year, of 24-hours duration.

A. Curve Number (CN) Determination. The Runoff curve number (CN) for the pre-developed shall not exceed those of “Open Space in Fair Condition” (i.e. A=49, B=69, C=79, D=84) as stated in Table 2-2a of the NRCS-TR55 Manual.

For areas disturbed by construction activity, post-developed runoff curve numbers shall use Hydrologic Soil Group D for all Cover Type and Hydrologic Conditions as stated in Table 2-2a of the NRCS-TR55 Manual. The runoff curve numbers found in the manual reflect the ground cover characteristics for a particular project or development site. A weighted value may be necessary because of the variety ground cover conditions that can occur on one site.

B. The soil storage capacity, S , of the soil is then calculated from the weighted curve number by using equation 2-4 from Chapter 2 of the NRCS-TR55 Manual:

$$S = (1000/CN) - 10 \qquad \text{Eqn. 510.2-1}$$

C. The quantity of runoff, Q, can then be determined from the storage capacity and the rainfall intensity of the area. The rainfall intensity values, P, for Clermont County for twenty-four (24) hour duration storms for various frequencies are listed below in Table I. Equation 2-3 from Chapter 2 of the NRCS-TR55 Manual is as follows:

$$Q = (P - 0.2S)^2 / (P + .08S) \text{ inches} \quad \text{Eqn. 510.2-2}$$

FREQUENCY (years)	INTENSITY, P (in/acre-ft)
1	2.4
2	2.9
5	3.6
10	4.1
25	4.7
50	5.1
100	5.6

TABLE I

D. Runoff volume determination

$$V_{pre} = [Q_{pre}^{(in)} / 12 \text{ in/ft}] * 43560 \text{ ft}^2/\text{acre} * A \text{ (acres)}$$

$$V_{pre} = \text{cubic feet}$$

510.2-2

Steps 1.A, 1.B, 1.C and 1.D are then repeated for the post-development site conditions (the post-development curve number will reflect the addition of impervious surfaces) to obtain the volume of runoff, V_{post} , for a one (1) frequency storm for the post-development conditions.

510.2-3

Equation 510.2-3 is then used to determine the percent change in volume of runoff due to the development of the site.

$$[(V_{post} / V_{pre}) - 1.0] * 100\% = PC \quad \text{Eqn. 510.2-3}$$

510.2-4

Use Table II, below, to determine the critical storm based on PC, the percent change.

\leq	PC	$<$	CRITICAL STORM FREQUENCY
—		10	1 year
10		20	2 year
20		50	5 year
50		100	10 year
100		250	25 year
250		500	50 year
500		B	100 year

TABLE II (from Ohio Critical Storm Method)

510.2-5

See Appendix A - Exhibit II, Sheet D-2 for the worksheet used to determine the curve numbers and runoff for pre and post development conditions.

510.3

Critical Storm Determination Utilizing the Rational Method

The information required to calculate the pre and post development flows for a particular project using the rational method are included in these regulations. The following is a step by step procedure for determining the percent change in flow for post versus pre development conditions.

510.3-1

The Rational Method design is limited to areas that are fifty (50) acres or less for purposes of these regulations

510.3-2

Find Q_{pre} for a one (1) year frequency and a given storm duration (concentration time of runoff) under pre-development conditions, through the use of Eqn. 510.3-1 shown below:

$$Q = C * I * A$$

Eqn. 510.3-1

Where:

Q = flow in cfs

C = runoff coefficient

I = rainfall intensity

A = drainage area for the project site

A. Determination of the runoff coefficient (s), C

Table III shows a list of runoff coefficients for various pre and post development conditions.

SITE CONDITION	COEFFICIENT, C	
	Less Than 2%	6% or Greater
Commercial/Industrial	0.80	0.90
Residential		
Single Family < 1 acre	0.50	0.60
1 acre	0.45	0.55
1+ acres	0.40	0.50
Multi-Family (A)	0.70	0.80
Parking Lots, Driveways, Etc.	0.95	0.95
Roofs, Imperious Surfaces	0.95	0.95
Redeveloped Existing Imperious Surfaces	0.30	0.30
Gravel	0.95	0.95
Lawns		
Up to a 2% Slope	0.20	
2% to 7% Slope	0.25	
Over 7% Slope		0.30
Farmland	0.30	0.40
Grassland	0.30	0.40
Woodland	0.25	0.35

(A) The runoff coefficient for multi-family residences may need to be found using a weighted value based on the amount of impervious surfaces and vegetated cover instead of using C = 0.70

TABLE III

(1) A weighted C value will need to be calculated when more than one (1) of the above conditions exist on a particular project or development site.

B. Determination of the Rainfall Intensity, I

Table IV indicates rainfall intensity values in relation to runoff time of concentration (storm duration), t_c , and storm frequency. For areas of 30 acres or less, t_c values typically range from five (5) minutes to thirty (30) minutes.

C. Time of Concentration, t_c :

Time of concentration, t_c , is the time it takes for runoff to travel from the hydraulically most distant point to a point of reference or interest downstream. The chart in Appendix A - Exhibit I provides a graphical method for estimating overland flow time. This chart may be used to estimate the time for runoff to travel from the furthest point to an inlet or a defined channel.

Time of Concentration, t_c , is measured in minutes for use in Table IV.

FREQUENCY (YRS)	INTENSITY, I (IN/HR) $a / (t_c + b)$
1	$80 / (t_c + 14)$
2	$106 / (t_c + 17)$
5	$131 / (t_c + 19)$
10	$170 / (t_c + 23)$
25	$230 / (t_c + 30)$
50	$250 / (t_c + 27)$
100	$290 / (t_c + 31)$

TABLE IV

D. Equation 510.3-2 can then be used to find the percent change in runoff between the pre and post development conditions.

$$[(Q_{\text{post}} / Q_{\text{pre}}) - 1.0] * 100\% = \text{PC} \quad \text{Eqn. 510.3-2}$$

E. The Critical Storm value can be determined from Table II in Section 510.

510.4 Critical Storm Controls

510.4-1 The peak rate of runoff from the Critical Storm and all more frequent storms occurring on the development or project area shall not exceed the peak rate of runoff from a one (1) frequency storm of 24 hours duration that would occur under pre-development conditions. For example, if the critical storm was calculated to be a ten (10) year frequency storm, the peak rate of storm water runoff that would occur from the two (2), five (5), and ten (10) year post-development storms could not exceed the peak rate of runoff that would occur from one (1) year frequency storm under pre-development conditions. A one (1) year critical storm value may not require detention, but the outlet velocities must be equal to or less than the one (1) year pre-development outlet velocities.

510.4-2 Storms of less frequency occurrence than the critical storm up to the one hundred (100) year storm shall have peak rates of runoff equal to or less than the peak rates of runoff for the same frequency of storms under pre-development conditions. As shown in Table II, the one (1), two (2), five (5), ten (10), twenty five (25), fifty (50), and one hundred (100) year storm frequencies are considered adequate for these regulations.

SECTION 520 WMSC DESIGN METHODS

520.1 NRCS-TR55 Method

This method can be used for all project or development sizes for the purpose of these regulations. After determining the Critical Storm frequency described in Section 510 of these regulations, the following steps are needed to determine if onsite storm water detention is needed and what volume of detention will be required.

It should be noted that the flow, Q, and volume, V, that were found during the critical storm calculation pertain to onsite drainage areas only. In designing the storm water management system for the development site, offsite drainage areas will need to be considered for the design of culverts, open channels, storm sewers, detention/retention basins, and other drainage improvements.

520.1-1**Determine T_c, Time of Concentration**

The definition given in Section 510.3-2.C for the time of concentration is valid for the NRCS-T55 Method, but does require further explanation of the components that make up the T_c for a particular development site.

$$T_c = T_{t1} + T_{t2} + \dots + T_{tm} \quad \text{Eqn. 520.1-1}$$

Where: T_t = Travel time (in hours) for a particular segment of the storm water conveyance system.
m = Number of flow segments

520.1-2**Computation of Travel Time, T_t**

Water moves through a watershed as ⁽¹⁾sheet flow, ⁽²⁾shallow concentrated flow, ⁽³⁾open channel flow, or a combination of these flows. The type of flow that occurs for a particular storm water conveyance system and development site is best determined by field inspection and engineering judgment.

A. Sheet Flow

$$T_t = [(0.007) (n * L)^{0.8}] / [(P_2)^{0.5}(s)^{0.4}] \quad \text{Eqn.520.1-2}$$

Where: T_t = travel time (in hours)
n = Manning's roughness coefficient
L = flow length, 300 ft. maximum
P₂ = 2-year, 24 hour rainfall (ins.)
s = slope of land (ft/ft)

B. Shallow Concentrated Flow

$$T_t = L / (3600 * V) \quad \text{Eqn. 520.1-3}$$

Where: T_t = travel time
L = flow length
V = average velocity

C. Channel Flow

$$T_t = L / (3600 * V_m) \quad \text{Eqn. 520.1-4}$$

Where: T_t = travel time
L = flow length
V_m = [1.49(r)^{2/3}(s)²] / n

Where: V_m = average velocity (ft/sec)
 r = hydraulic radius
 s = slope
 n = Manning's roughness coefficient

D. In watersheds with storm sewers, carefully identify the appropriate hydraulic flow path to estimate T_c . Storm sewers normally handle only a small portion of a large storm event.

E. See worksheet in Appendix A - Exhibit II, Sheet D-3 for time of concentration calculation.

520.1-3

Peak Flow Determination

A. Graphical Method

$$q_p = q_u * A_m * Q * F_p \quad \text{Eqn. 520.1-5}$$

Where: q_p = peak flow (cfs)
 q_u = unit peak flow (csm/in)
 A_m = total site area (mi²)
 Q = runoff (ins) See Eqn. 510.2-2
 F_p = pond and swamp adjustment factor

1. The worksheet in Appendix A - Exhibit II, Sheet D-4 can be used to determine the peak flow for both the pre and post development site conditions.
2. Limitations to this method are as follows:
 - a. Can only be used for developments and project areas that have only one distinct drainage area.
 - b. The drainage area can typically contain only one major stream.
 - c. Provides a determination of peak flow only.
 - d. Cannot perform reservoir routing.

B. Tabular Hydrograph Method

1. This method is applicable for estimating the effects of land use change (development) in a portion of a watershed. It is effective in determining the composite hydrograph that results from the contributions of the defined subareas that are present in the watershed, while also measuring the change in runoff volume that occurs due to development of the land.

2. The entire watershed contributions to the development site or project area must be shown on the site plan and in the design calculations to achieve a better estimation of the increased storm water flow that has occurred due to development.
3. The tabular method should be used when watershed subdivision into two (2) or more subareas is required for a particular development site or project area.
4. Follow the steps indicated in Chapter 5 of the NRCS-TR55 Manual to use the tabular hydrograph method. See Appendix A- Exhibit II, Sheets D-5 and D-6 for the worksheets used to find the peak flow for the composite hydrograph at a particular point of interest. The point of interest could be located where the storm water runoff leaves the development site or enters a culvert.
5. The following limitations apply to the tabular hydrograph method:
 - a. The accuracy of this method decreases as the complexity of the watershed increases.
 - b. If the drainage areas of individual subareas differ by a factor of 5 or more, the accuracy of the method decreases.
 - c. The travel time, T_t , for a particular sub area must be equal to or less than three (3) hours.
 - d. The time of concentration, T_c , for a particular sub area must be equal to or less than two (2) hours.

520.1-4

Volume of Detention Determination

- A.** The detention basin is the most widely used form of controlling peak storm water flow caused by the development of the site in question. The method used in Chapter 6 of the SCS-TR55 manual assists the designer in calculating a quick estimate for the amount of storage required. The estimate is valid for both single and multiple stage outflow devices. The following constraints apply when using this method for multi-stage outlets:
 1. Each stage requires a design storm and a computation of the storage required for it.
 2. The flow(s) from the upper stage(s) must include the flow(s) from the lower stage(s).
- B.** The designer should be aware that this method is not to be used for final design if an overestimation of 25% is not satisfactory.
- C.** This method has been found to be effective for final design of small detention basins.

- D. See Appendix A - Exhibit II, Sheets D-7 and D-8 for the worksheets provided to calculate the required storage volume by this method.
- E. See Section 510.4-1 and -2 for the maximum outflow rate from the detention basin. This will require the designer to calculate the pre and post development storage volumes (using the worksheets in D. above) for all storms (up to 100 year) of less frequency than the critical storm.

520.2

NRCS TR-20

Natural Resources Conservation Service Technical Release No. 20: Computer Program for Project Formulation Hydrology (NRCS TR-20) is a storm event surface water hydrologic model applied at a watershed scale. It computes direct runoff and develops hydrographs resulting from any synthetic or natural rainstorm. Multiple storms (rainfalls by frequency) can be analyzed within one model run. Developed hydrographs are routed through stream and valley reaches as well as through reservoirs to the watershed or reservoir outlet. A Windows based version of NRCS TR-20 was created in October 2004 and can be downloaded at no cost at the NRCS National Water and Climate Center web site. Support materials are also available on the web site, including the WinTR-20 user documentation and user guide, and a WinTR-20 tutorial.

520.3

The Rational Method

This method is limited to use for development sites or project areas that are fifty (50) acres or less in size under these regulations. The limitations of this method are similar to those stated in Section 520.1-3A.2(a) through 2(d) for the NRCS-T55 graphical peak flow determination. Use of this method for larger areas is acceptable upon approval by the CCBID.

520.3-1

Peak flow for the project area or development site has already been determined by the rational method in Section 510.3 in determination of the critical storm frequency. Offsite drainage areas tributary to the site shall be included in the design of storm sewers, culverts, ditches/swales, and other drainageways but are not required to be detained onsite. Theoretically, they are assumed to by-pass detention.

520.3-2

Storage Volume Design for Detention or Retention Basin
Appendix A - Exhibit III contains the worksheets required to calculate the storage volume needed when using the rational method.

A. $q_2 = A * C * i_2$

Where: q_2 = the peak flow rate due to a one (1) year frequency storm under pre development conditions.
A = the drainage area for the development
C = runoff coefficients for the predevelopment conditions
 i_2 = rainfall intensity from Section 510.3 Table IV for a two year frequency storm

B. $Q_{cr} = A * C * i_{cr}$

Where: Q_{cr} = the maximum peak flow rate due to a critical storm frequency under post development conditions
A = the drainage area for the development
C = runoff coefficients for post development conditions
 i_{cr} = the maximum rainfall intensity from Appendix A - Exhibit III for the critical storm frequency

C. The volume of storage calculated is that needed to reduce the critical storm peak flow rate under post development conditions to equal to or less than the two one (1) year pre development peak flow rate (q_2) found in step A. above.

D. The required volume of detention may also be determined from the criteria defined in Section 510.4-2.

520.4

The design methods mentioned above are recommended by the CCBID. This department also recognizes the availability of other design methods, such as the Hydrograph Method and the Storage Indication Method. In the interest of expedient processing of plans and construction, the use of the standard procedures, manuals, and computers programs is preferred.

520.4-1

Determination of Water Quality Volume to be Treated

For all construction activities that will disturb more than two acres of land or will disturb less than two acres, but is part of a larger common plan of development or sale which will disturb more than two acres of land, the post construction BMP(s) chosen must be able to manage storm water runoff for protection of stream channels, stream stability, and water quality. Structural (designed) post-construction storm water treatment practices shall be incorporated into the permanent drainage system for the site. The BMP(s) chosen must be sized to treat the water quality volume (WQ_v) and ensure compliance with Ohio's Water Quality Standards in OAC Chapter 3745-1. The WQ_v shall be equivalent to the volume of runoff from a 0.90-inch rainfall and shall be determined using one of the two following methods:

- A. Through a site hydrologic study approved by the Building Inspection Department that uses continuous hydrologic simulation and local long-term hourly precipitation records; or,
- B. Using the following equation:

$$WQ_v = R_v * P * A / 12 \quad \text{(Equation 1)}$$

where: WQ_v = water quality volume in acre-feet
 R_v = the volumetric runoff coefficient calculated using equation 2
 P = 0.90 inch precipitation depth
 A = area draining into the BMP in acres

$$R_v = 0.05 + 0.9i \quad \text{(Equation 2)}$$

Where: i = fraction of post-construction impervious surface

An additional volume equal to 20 percent of the WQ_v shall be incorporated into the BMP for sediment storage. It is recommended that BMPs be designed according to the methodology described in the most current edition of the *Rainwater and Land Development* manual.

520.4-2

Previously Developed Areas - For a previously developed area, one of the following two conditions shall be met:

- A. A 20 percent net reduction of the site’s volumetric runoff coefficient through impervious area reduction with soil restoration, or replacing impervious roof area with green roof area (for these purposes green roofs shall be considered pervious surface), or
- B. Treatment of 20 percent of the WQ_v for the previously developed area using a practice meeting Table V/VI criteria.

520.4-3

Where there is a combination of redeveloped areas and new development, a weighted approach shall be used with the following equation:

$$WQ_v = P * A * [(R_{v1} * 0.2) + (R_{v2} - R_{v1})] / 12 \quad \text{(Equation 3)}$$

Where: P = 0.90 inches
 A = total site area (acres)
 R_{v1} = volumetric runoff coefficient for existing conditions (current site impervious area)
 R_{v2} = volumetric runoff coefficient for proposed conditions (post-construction site impervious area)

520.4-4

Runoff Reduction Practices - The size of structural post-construction practices used to capture and treat the WQv can be reduced by incorporating runoff reducing practices into the design of the site's drainage system. The approach to calculate and document runoff reduction is detailed in the *Rainwater and Land Development* manual. BMP-specific runoff reduction volumes are set by specifications in the *Rainwater and Land Development* manual for the following practices:

- Impervious surface disconnection
- Rainwater harvesting
- Bioretention
- Infiltration basin
- Infiltration trench
- Permeable pavement with infiltration
- Underground storage with infiltration
- Grass swale
- Sheet flow to filter strip
- Sheet flow to conservation area

SECTION 530

WMSC DESIGN REQUIREMENTS AND SPECIFICATIONS

530.1

Approved Post –Construction Best Management Practices

530.1.1

The BMPs listed in Table V and VI below are considered standard BMPs approved for general use. Post-construction practices shall be sized to treat 100% of the WQv associated with their contributing drainage area, and shall be designed such that the drain time is long enough to provide treatment, but short enough to provide storage for successive rainfall events and avoid the creation of nuisance conditions. The outlet structure for the post-construction BMP shall not discharge more than the first half of the WQv in less than one-third of the drain time. The WQv is the volume of storm water runoff that must be detained by a post-construction practice as specified by the most recent edition of the *Rainwater and Land Development* manual.

A regional storm water BMP may be used to meet the post-construction requirements if:

- A. the BMP meets the design requirements for treating the WQv; and
- B. a legal agreement is established through which the regional BMP owner or operator agrees to maintain the BMP in the long term in accordance with an approved Inspection and Maintenance Plan.

TABLE V. Extended Detention Post-Construction Practices with Minimum Drain Times

Extended Detention Practices	Minimum Drain Time of WQ_v
Retention (Wet Extended Detention) Basin ^{1, 2}	24 hours
Constructed Extended Detention Wetland ^{1, 2}	24 hours
Dry Extended Detention Basin ^{1, 3}	48 hours
Permeable Pavement - Extended Detention ^{1, 4}	24 hours
Underground Storage – Extended Detention ^{1, 4}	24 hours
Sand & Other Media Filtration - Extended Detention ^{1, 5}	24 hours

Notes:

1. The outlet structure shall not discharge more than the first half of the WQv in less than one-third of the drain time.
2. Provide a permanent pool with a minimum volume equal to the WQv and an extended detention volume above the permanent pool equal to 1.0 x WQv.
3. Dry basins must include a forebay and a micropool each sized at a minimum of 0.1 x WQv and a protected outlet, or include acceptable pretreatment and an outlet protected from blockage by silt or debris.
4. Underground storage must have pretreatment for removal of suspended sediments included in the design and documented in the SWP3. This pretreatment shall concentrate sediment in a location where it can be readily removed. For non-infiltrating, underground extended detention systems, pretreatment BMPs certified to be 50% effective at capturing total suspended solids shall be considered suitable.
5. The WQv ponding area shall completely empty between 24 and 72 hours

TABLE VI. Infiltration Post-Construction Practices with Maximum Drain Times

Infiltration Practices	Maximum Drain Time of WQ _v
Bioretention Area/Cell ^{1, 2}	24 hours
Infiltration Basin ²	24 hours
Infiltration Trench ²	48 hours
Permeable Pavement - Infiltration ³	48 hours
Underground Storage – Infiltration ^{3, 4}	48 hours

Notes:

1. Bioretention soil media shall have a permeability of approximately 1–4 in/hr. Meeting the soil media specifications in the *Rainwater and Land Development* manual is considered compliant with this requirement. Bioretention cells must have underdrains unless in-situ conditions allow for the WQ_v (surface ponding) plus the bioretention soil (to a depth of 24 inches) to drain completely within 48 hours.
2. Infiltrating practices with the WQ_v stored aboveground (bioretention, infiltration basin) shall fully drain the WQ_v within 24 hours to minimize nuisance effects of standing water and to promote vigorous communities of appropriate vegetation.
3. Subsurface practices designed to fully infiltrate the WQ_v (infiltration trench, permeable pavement with infiltration, underground storage with infiltration) shall empty within 48 hours to recover storage for subsequent storm events.
4. Underground storage systems with infiltration must have adequate pretreatment of suspended sediments included in the design and documented in the SWP3 in order to minimize clogging of the infiltrating surface. Pretreatment shall concentrate sediment in a location where it can be readily removed. For infiltrating underground systems, pretreatment shall be certified to be 80% effective at capturing total suspended solids.

The permittee may request BID to approve use of alternative structural post-construction BMPs if the permittee can demonstrate that the alternative BMPs are equivalent in effectiveness to those listed in Tables V and VI above. The permittee must also be able to demonstrate that Ohio EPA has approved use of the alternative BMPs.

530.2

Small Construction Activities

For all construction activities which result in a disturbance less than two acres, a post-construction practice shall be used to treat storm water runoff for pollutants and to reduce adverse impacts on receiving waters. If practices listed in Tables V and VI are not to be used, the applicant must provide a justification of why these practices are not feasible. The justification must address limiting factors which would prohibit the project going forward should these practices be required.

530.3 Detention/Retention Basins

- 530.3-1** Detention/Retention basins must be designed to limit the critical storm flow out of the basin to the one (1) year pre developed rate and, also have the capacity to store all storm frequencies greater than the critical value up to the 100 year storm under post developed conditions and release the outflows at the pre developed rate for like years. It is recommended that detention/retention basins be designed according to the methodology described in the most current edition of the *Rainwater and Land Development* manual.
- 530.3-2** The bottom of the basin should be constructed with slopes equal to or greater than 0.5% to facilitate interior drainage.
- 530.3-3** Steep slopes are to be avoided and seeding and other erosion control measures are to be used to protect the slopes. Side slopes should not be steeper than 3:1 or shallower than 12:1.
- 530.3-4** Paved/concrete gutters, channels and/or swales are not permitted.
- 530.3-5** The ratio of flow length to basin width should be at least 3:1 to avoid short circuiting and to increase travel time to the outlet. To increase a pond's flow length, the inlet or outlet may be re-located, or the contours of the pond may be configured to form baffles or an extended flow path.
- 530.3-6** Anti-seep collars or reinforced concrete pads placed under the discharge pipe(s) are to be used on all pipe outlets for retention basins and detention basins with wide berms when required. Show anti-seep collar spacing and details, and concrete pad details when required.
- 530.3-7** Spillway Design and Details
- A.** The spillway area (plan view), cross section detail, and other spillway details shall be located on the site plan or accompanying construction drawings.
 - B.** All basins shall have emergency spillways that will safely pass the peak flow for a one hundred (100) year frequency storm under post development conditions at an acceptable velocity.

- C. All outlet (release) structure details must be shown on the site plan or accompanying construction drawings. Include the following, but not limited to:
 - 1. Pipe and orifice size(s)
 - 2. Invert elevations
 - 3. Provide weir length(s), type(s), and elevation(s)
 - 4. Provide window sizes, elevations, and locations.
- D. Provide spillway crest elevations and a minimum of one (1) foot freeboard.
- E. Provide all inlet (outletting into basin) / outlet capacity and velocity calculations.
- F. Since these WMSC Regulations require that the outflow rate from a detention or retention basin be held to a one (1) year pre development rate and the detention basin must also be designed to detain the expected runoff from a one hundred year post development condition, a two (2) stage orifice control may be required on most detention or retention basins.
- G. A minimum depth of four (4) feet must be maintained in all retention basins to prevent stagnation of the pond.
- H. Parking lot detention shall be kept a maximum depth of eight (8) inches and be located in primarily non-parking areas.

530.4 Underground Storm Water Management Systems

530.4-1 Underground storm water management systems that utilize extended detention to manage the WQv must be coupled with a pretreatment practice certified at a 50 percent total suspended solids (TSS) removal rate. Underground systems that utilize infiltration to manage the WQv must be coupled with a pretreatment practice certified at an 80 percent TSS removal rate.

530.4-2 Underground storm water management systems shall include a monitoring point to allow inspection without entry.

530.5

Onsite Storm Water Drainage Systems

530.5-1

Culverts

- A.** Culvert design review and field inspection under these regulations will be conducted by the Engineer's Office for those culverts located in the public right of way, and by CCBID for those located outside the public right-of-way.
- B.** Include backwater analysis, showing the flood elevation at a 100 year storm event. Drainage easements may be necessary if headwater encroaches adjoining property.
- C.** All culverts should be designed and constructed to adequately handle velocities and discharges for the following storm frequencies:
 - 1. Twenty-five (25) year frequency storm under post development conditions for tributary drainage areas less than one hundred (100) acres.
 - 2. Fifty (50) year frequency storm under post development conditions for tributary drainage areas greater than or equal to one hundred (100) acres.
- D.** Show calculations indicating if culvert flow is governed by inlet or outlet control.
- E.** Indicate volume and velocity of inflow and outflow from all culverts.
- F.** Provide rip-rap protection when required based on the chart provided in Appendix A, Exhibit III.
- G.** Provide overflow routing plan showing all areas downstream that would be affected by a blockage or storm in excess of design capacity.

530.5-2

Open Channels

- A.** Design by standard engineering practices with the storm frequencies required as shown in 530.5-1.C (1) and (2) above.
- B.** Indicate volume and velocity of outflow from the open channel. Provide for a 1.0 to 2.0 percent slope in the direction of flow, with 6.0 percent being the maximum and 0.5 percent the minimum.
 - 1. When the longitudinal slope is less than 1.0 percent, install a low flow channel, or if moisture is adequate, establish wetland species.
 - 2. If slope is greater than 2.0 percent, use check dams to reduce the effective slope to approximately 2.0 percent.
 - 3. When the land slopes more than 6.0 percent, swales can be installed to traverse the grade at a lesser slope

530.5-3

Headwalls

Standard headwalls and/or wingwalls shall be constructed for all culvert inlets and outlets in swales and at the outfall of all storm sewers.

530.5-4

Concentrated Flow to Wetlands

Concentrated flow to natural wetlands shall be converted to diffuse flow before the runoff enters the wetlands. The flow should be released such that no erosion occurs downslope. If the applicant proposes to discharge to a natural wetland, a hydrologic analysis shall be performed. The applicant shall assess whether the construction activity will adversely impact the hydrologic flora and fauna of the wetland.

ARTICLE 6.0 EROSION AND SEDIMENT CONTROL MEASURES

SECTION 600 SCOPE

600.1 Effective erosion control planning requires a working knowledge of both the application of control measures in terms of their selection and location as well as the design and construction of the control measure. The purpose of this article of these regulations is to provide the engineer with a set of guidelines or minimum requirements that are to be used during the planning and installation of erosion and sediment control practices.

600.2 Every subdivision and non-farm commercial, industrial, and residential development shall require an erosion and sediment control system which is adequate to serve the development site or project area in order to protect the waters of the State and adjacent properties from pollution by sediment and soil erosion, and which meets the requirements of these regulations.

SECTION 610 GENERAL REQUIREMENTS

610.1 The erosion and sediment control system shall be designed such that during construction and after the development is completed, the sediment in the storm water runoff shall be trapped and held within the development or project area until disturbed or denuded areas have been stabilized.

610.1-1 The start of construction shall not begin until sufficient sediment control devices have been installed in a manner that will maintain the design intent and have been stabilized. Sediment basins and perimeter sediment barriers shall be implemented prior to grading and within seven days from the start of grubbing.

610.2 The development of an erosion and sediment control system consists of providing two (2) separate and distinct systems; the erosion control system and the sediment control system.

610.2-1 The erosion control system is installed to prevent the detachment of soil particles from the soil surface and to minimize soil particle movement into the storm water runoff system leaving the development or project area for the purpose of limiting the pollution of waters of the State and adjacent property.

610.2-2 The sediment control system is installed to prevent the conveyance or movement offsite of soil materials during earth disturbing activities and after construction of the project area is completed for the purpose of minimizing the pollution of waters of the State and adjacent property. All controls must be capable of ponding runoff to be considered functional.

610.3 To control sediment pollution in waters of the State caused by sloughing, landsliding, or dumping of earth material, or placing of earth material into such proximity that it may readily slough, slide, or erode into these waters by natural forces, no person(s) or entity(s) shall, unless in conformance with these regulations:

610.3-1 Dump or place earth material into waters of the State or in such proximity thereto that it may readily slough, slide, or erode into these waters unless such dumping or placing is authorized by the approving agency for purposes such as, but not limited to, constructing bridges, culverts, erosion control structures, and other in-stream or channel bank improvement work; or

610.3-2 Grade, excavate, fill or impose a load upon any soil or slope known to be prone to slipping or landsliding thereby causing it to become unstable unless qualified engineering assistance has been employed to explore slope stability problems and make recommendations to correct, eliminate, or adequately address the problems. Grading, filling, or construction shall commence only after the approving agency has reviewed and approved the recommendations in accordance with the requirements of these regulations.

SECTION 620 EROSION AND SEDIMENT CONTROL PLAN CRITERIA

620.1 **Stabilization of Denuded Areas and Soil Stockpiles:** Stabilization of disturbed areas shall, at a minimum, be initiated in accordance with the time frames specified below

620.1-1 Permanent Stabilization

- A. Any areas that will lie dormant for one year or more must be permanently stabilized within seven days of the most recent disturbance
- B. Any areas within 50 feet of a surface water of the state and at final grade must be permanently stabilized within two days of reaching final grade
- C. Other areas at final grade must be permanently stabilized within seven days of reaching final grade in that area.
- D. Permanent vegetation shall not considered to be adequate until the ground cover established can prevent or control erosion.

620.1-2 Temporary Stabilization

- A. Any disturbed areas within 50 feet of a surface water of the state and not at final grade must be stabilized within two days of the most recent disturbance if the area will remain idle for more than 14 days.

- B. Any disturbed area that will be dormant for more than 14 days but less than one year, and not within 50 feet of a surface water of the state, must be stabilized within seven days of the most recent disturbance. For residential subdivisions, disturbed areas must be stabilized at least seven days prior to transfer of permit coverage for the individual lot.
- C. Disturbed areas that will be idle over the winter must be stabilized prior to the onset of winter weather.

620.1-3 Soil stockpiles must be stabilized and protected with sediment trapping to prevent soil loss.

620.1-4 **Watercourses during construction:**

- A. When a watercourse must be crossed regularly during construction, a temporary stream crossing shall be provided, and an approval obtained from CCBID. It is recommended that temporary stream crossings be designed according to the methodology described in the current edition of the Rainwater and Land Development manual.
- B. When constructing stream utility crossings for pipelines, power lines or roads and bridges, measures must be taken to minimize damage to the watercourse. It is recommended that the specifications for stream utility crossings in the current edition of the Rainwater and Land Development manual be followed.
- C. When in-channel work is conducted, the channel shall be stabilized before, during and after work.
- D. Stabilization adequate to prevent erosion must be provided at the outlets of all pipes and paved channels.
- E. Measures taken to stabilize channels and outfalls may include seeding, dormant seeding, mulching, erosion control matting, sodding, riprap, rock check dams or natural channel design with bioengineering techniques.

620.2 **Protection of Adjacent Properties**

620.2-1 Waters of the State and properties adjacent to the site of earth disturbing activities shall be protected from sediment deposits through the use of buffer strips, sediment barriers, filters or dikes, sediment basins, or any combination of these or similar measures.

620.2-2 If vegetative buffers are to be used as part of the sediment control plan to protect waters of the State, they should only be used on development sites or project areas where only sheet flow runoff is expected. The recommended undisturbed buffer along a surface water of the State is a minimum of 50 feet as measured from the ordinary high water mark of the surface water.

620.2-3 If vegetative buffers are to be used as part of the sediment control plan to protect properties adjacent to the site, they should only be used on development sites or project areas where only sheet flow runoff is expected. Also, the buffer strips shall be a minimum of fifteen (15) feet in width.

620.3 **Timing and Stabilization of Sediment Trapping and Erosion Control Measures**

620.3-1 Sediment and erosion control measures intended to trap and retain sediment onsite shall be constructed as a first step in earth disturbing activities. These measures shall be fully functional before any additional earth disturbances take place. These measures shall be maintained in functional condition until full stabilization of the earth disturbing activities has been completed.

620.3-2 Earthen sediment and erosion control structures must be stabilized (vegetative cover) within seven (7) days of installation.

620.4 **Cut and Fill Slopes**

Cut and fill slopes must be designed and constructed in a manner which will minimize erosion. Consideration must be given to the length and steepness of the slope, soil type, upslope drainage, subsurface conditions, and other applicable factors. Special consideration shall be given for the following conditions:

- A. If any newly constructed slope meets or exceeds a horizontal to vertical ratio of 3:1.
- B. Or, if any fill will be placed on an existing slope that meets or exceeds a horizontal to vertical ratio of 5:1.

Otherwise, adequate and appropriate slope stabilization measures shall be provided for all cut and fill areas.

620.5 **Storm Sewer Inlet Protection**

All storm sewer inlets which are made operable during construction should be protected so that sediment-laden storm water will not enter the storm water conveyance system without first being filtered to remove sediment. **Exception:** Storm water inlets that are designed as a part of the sediment control system or that outlet into a sediment control system.

620.6 Disposal of Temporary Erosion and Sediment Control Measures

620.6-1 All temporary erosion and sediment control measures shall be removed within thirty (30) days after final site stabilization is achieved as determined by the CCBID or after temporary measures are no longer required as authorized by the CCBID.

620.6-2 Trapped sediment and other disturbed soil areas resulting from disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

SECTION 630 EROSION AND SEDIMENT CONTROL DESIGN STANDARDS

630.1 Scope

The SWP3 shall contain detail drawings for all structural practices. The most recent version of Ohio's *Rainwater and Land Development* manual will be used as a reference for all design criteria, procedures, policy, statements, and sample calculations shall be the basis for design, construction, and implementation of all sediment and erosion control systems, unless otherwise given or noted in these regulations.

630.2 Soil Stabilization Measures

630.2-1 Critical Area Planting or Seeding

When planting or seeding critical areas, specifications for temporary seeding, permanent seeding and mulching as contained in the most recent version of Ohio's *Rainwater and Land Development* manual shall be used.

630.2-2 Outlet Protection

Velocity dissipation devices (e.g., rock outlet protection, rock-lined channels, level spreaders) 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 watercourse, in accordance with specifications contained in the most recent version of Ohio's *Rainwater and Land Development* manual.

630.3 Runoff Control Measures

The WMSC Plan shall incorporate measures which control the flow of runoff from disturbed areas so as to prevent erosion from occurring. Such practices may include rock check dams, pipe slope drains, diversions to direct flow away from exposed soils, and protective grading practices.

These practices shall divert runoff away from disturbed areas and steep slopes where practicable.

630.3-1 Natural or constructed onsite storm water open-channel conveyance systems shall be designed to carry the peak rate of runoff as defined in Section 530.3-2.

630.3-2 The design and necessity of other runoff control measures such as diversions and subsurface drainage, will be left to the discretion of the engineer subject to approval by the CCBID.

630.4 **Sediment Control Measures:** The WMSC Plan shall include a description of structural practices that shall store runoff allowing sediments to settle and/or divert flows away from exposed soils, or otherwise limit runoff from exposed areas. Structural practices shall be used to control erosion and trap sediment from a site remaining disturbed for more than 14 days. All sediment control practices must be capable of ponding runoff in order to be considered functional. No structural controls shall be used in a surface water of the state.

630.4-1 **Sediment settling ponds:** A sediment settling pond is required for any one of the following conditions:

- A. concentrated flow (e.g., storm sewer or ditch);
- B. runoff from drainage areas, which exceed the design capacity of silt fence or other sediment barriers; or
- C. runoff from drainage areas that exceed the design capacity of inlet protection. All inlets receiving runoff from drainage areas of one or more acres require a sediment settling pond.

The permittee may request approval from the CCBID if it can demonstrate that alternative controls are equivalent in effectiveness to a sediment settling pond.

The sediment settling pond shall provide a dewatering zone of at least 1800 ft³ per acre of drainage (67 yd³ per acre) with a minimum drain time of 48 hours. The sediment storage zone shall either be 1000 cubic feet per disturbed acre within the watershed of the basin or shall be the volume necessary to store the sediment as calculated with Revised Universal Soil Loss Equation (RUSLE) or similar generally accepted erosion prediction model. When determining the total contributing drainage area, off-site areas and areas which remain undisturbed by construction activity must be included, unless runoff from these areas is diverted away from the sediment settling pond and is not co-mingled with sediment laden runoff.

The accumulated sediment shall be removed from the sediment storage zone once it exceeds 50 percent of the minimum required sediment storage design capacity, and prior to the conversion to the post-construction practice unless suitable storage is demonstrated based on over-design. The depth of the dewatering zone shall be less than or equal to five feet.

If feasible, sediment settling ponds shall be dewatered at the pond surface using a skimmer or equivalent device.

The configuration between inlets and the outlet of the basin must provide at least two units of length for each one unit of width.

630.4-2

Silt Fences and Sediment Barriers

Silt fences are limited to sheet or overland flow. Where intended to provide sediment control, silt fence shall be placed on a level contour downslope of the disturbed area. For most applications, standard silt fence may be substituted with a 12-inch diameter sediment barrier. The relationship between the maximum drainage area to sediment barrier for a particular slope range is shown in the table below:

Maximum drainage area (in acres) to 100 linear feet of sediment barrier.	Range of slope for a particular drainage area (in percent)
0.5	< 2%
0.25	≥ 2% but < 20%
0.125	≥ 20% but < 50%

630.4-3

No solid (other than sediment) or liquid waste, including building materials, shall be discharged in storm water runoff. All necessary best management practices must be implemented to prevent the discharge of non-sediment pollutants to the drainage system of the site. Under no circumstance shall concrete trucks wash out directly into a drainage channel, storm sewer or other watercourse.

630.4-4

To meet the post-construction requirements of this permit, the WMSC plan must contain a description of the post-construction BMPs that will be installed during construction for the site and the rationale for their selection. Permittees are responsible for assuring all post-construction practices meet plan specifications and intended post-construction conditions have been met (e.g. sediment removed from and sediment storage restored to, permanent pools, sediment control outlets removed and replaced with permanent post-construction discharge structures, and all slopes and drainageways permanently stabilized), but are not responsible for maintenance after storm water discharges associated with construction activity have been eliminated from the site.

SECTION 640

EROSION AND SEDIMENT CONTROL INSPECTION REQUIREMENTS

640.1

The permittee shall assign “qualified inspection personnel” to conduct inspections to ensure that the control practices are functional and to evaluate whether current controls are adequate or whether additional control measures are required. At a minimum, procedures in a SWP3 shall provide that all controls on the site are inspected:

- A. after any storm event greater than one-half inch of rain per 24-hour period by the end of the next calendar day, excluding weekends and holidays unless work is scheduled; and
- B. once every seven calendar days.

The inspection frequency may be reduced to at least once every month for dormant sites if:

- A. the entire site is temporarily stabilized, or
- B. runoff is unlikely due to weather conditions for extended periods of time (e.g., site is covered with snow, ice, or the ground is frozen).

The beginning and ending dates of any reduced inspection frequency shall be documented in the SWP3. Once a definable area has been finally stabilized, the area may be marked on the SWP3 and no further inspection requirements shall apply to that portion of the site.

640.2

Following each inspection, a checklist must be completed and signed by the qualified inspection personnel representative. At a minimum, the inspection report shall include:

- A. the inspection date;
- B. names of personnel making the inspection
- C. weather information for the period since the last inspection (or since the commencement of construction activity if the first inspection), including a best estimate of the beginning, duration and amount of rainfall for each storm event, and whether any discharges occurred;
- D. weather information and a description of any discharges occurring at the time of the inspection;
- E. location(s) of discharges of sediment or other pollutants from the site
- F. location(s) of BMPs that need to be maintained;
- G. location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
- H. location(s) where additional BMPs are needed; and
- I. corrective action required including any changes to the WMSC Plan necessary and implementation dates.

640.3 Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of or the potential for pollutants entering the drainage system. Erosion and sediment control measures identified in the WMSC Plan shall be observed to ensure that they are operating correctly. Discharge locations shall be inspected to ascertain whether erosion and sediment control measures are effective in preventing significant impacts to the receiving waters. Locations where vehicles enter and exit the site shall be inspected for evidence of off-site vehicle tracking.

SECTION 650 EROSION AND SEDIMENT CONTROL MAINTENANCE REQUIREMENTS

650.1 **When practices require repair or maintenance:** If an inspection reveals that a control practice is in need of repair or maintenance, with the exception of a sediment settling pond, it shall be repaired or maintained within three (3) days of the inspection. Sediment settling ponds shall be repaired or maintained within ten (10) days of the inspection.

650.2 **When practices fail to provide their intended function:** If the inspection reveals that a control practice fails to perform its intended function, and that another, more appropriate control practice is required, the WMSC Plan shall be amended and the new control practice shall be installed within ten (10) days of the inspection.

650.3 **When practices depicted on the WMSC Plan are not installed:** If the inspection reveals that a control practice identified in the WMSC plan has not been implemented, the control practice shall be implemented within 10 days from the date of the inspection. If the inspection reveals that the planned control practice is not needed, the record shall contain a statement of explanation as to why it is not needed.

650.4 Maintenance and repair of all temporary and permanent erosion and sediment control practices and or facilities as needed to assure continued performance of intended function shall be the responsibility of the developer and/or owner(s) until the development or project area is approved by the CCBID and the development or project area is stabilized with all permanent cover to prevent erosion.

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ARTICLE 7.0 EASEMENTS, BONDS AND MAINTENANCE

SECTION 700 EASEMENTS

700.1 Drainage easements shall be provided for all storm water conveyance systems, detention/retention structures, and drainage swales between lots, and shown on the final construction drawings and the record plat.

700.2 Drainage Easement Requirements

700.2-1 All drainage easements shall be of sufficient area to contain the facility plus allow adequate space for maintenance and repair operations. The drainage easement boundaries shall be determined by the design engineer and accepted following approval by the Clermont County Planning Commission, Clermont County Engineer's Office and the CCBID. However, the following constraints are the acceptable minimums required:

- A. A minimum drainage easement width equal to ten (10) feet for all storm water conveyance systems.
- B. The minimum easement for all detention or retention basins shall be the area defined by the one hundred (100) year storm elevation.
- C. An easement for ingress and egress must be provided to the entity responsible for the maintenance of the facility between the public right of way and any drainage facility requiring maintenance. The easement must also include the structure or drainage feature requiring maintenance. The easement shall be of adequate width to perform any required maintenance but not less than twenty (20) feet.
- D. The maximum slope for any vehicle access way shall be 6 (H) to 1 (V), unless the long term management plan approved by CCBID demonstrates that a steeper slope is appropriate for the planned management activities

700.2-2 All drainage easements shall be located and labeled on the development (construction) drawings and the record plat(s) by a metes and bounds description

700.2-3 No structures or facilities shall be permitted within the drainage easement that obstruct the drainage system, except those pertaining to the function of the WMSC facility.

700.2-4 Planting and seeding for detention basins and other WMSC facilities shall be limited to the critical area planting defined in Sections 210 and 630.2.

SECTION 710

BASIN AS-BUILT CERTIFICATION

Detention/Retention Basin As-Built Certification, including a Survey, must be sealed, signed and dated by a Professional Engineer and a Professional Surveyor. The As-Built Certification shall certify that the facilities have been constructed in accordance with the approved plans.

The surveyor shall complete a field survey of the detention/retention facilities to verify as-built elevations and dimensions. The as-built drawing and as-built information of the detention/retention facilities shall include, but not limited to, the following:

- A. Storage capacity
- B. Basin side slopes (i.e. 4:1)
- C. Elevations and dimensions of the primary hydraulic control structure
- D. Elevations and dimensions of the emergency spillway; freeboard
- E. As-built release rates for each design storm
- F. As-built water surface elevations for each design storm.

The as-built drawing shall include both the design value (crossed-out) and the as-built value. The as-built drawing shall be signed and sealed by the engineer and surveyor. The following statement shall be placed on the as-built drawings: "I certify an as-built survey has been conducted for the subject storm water management facility. The facility is expected to perform as noted hereon." The Record Plat will not be signed nor will a Certificate of Occupancy be issued until the certification is submitted and approved by the CCBID.

SECTION 720

PERFORMANCE/MAINTENANCE SURETY OR BOND

720.1

All water management and sediment control facilities that are directly related to the drainage of or from the roads, streets, alleys, ditches, sidewalks, or other such improvements located in a private development, in an unincorporated area of Clermont County, shall be included in the Performance/Maintenance Surety (bond) as required by the Clermont County Engineer.

720.2

A Performance/Maintenance Surety Bond of 130% (amount to be approved by the CCBID) will be required for work covered by the Water Management and Sediment Control Regulations before the record plat can be recorded for any subdivision and prior to the release of any permit or partial permit by the CCBID. The bond is to remain in effect until the project is complete and the final approval is made.

- 720.3** Periodic inspections by the CCBID or authorized representative will be required throughout the project to assure the site remains in compliance with these regulations.
- 720.4** If inspections reveal the construction activities are not in compliance with these regulations, the Performance Maintenance Bond may be forfeited to achieve such compliance.
- 720.5** The bond is to remain in effect until all inspections of the site are completed and the basin verification has been submitted to and approved by the CCBID.

SECTION 730 MAINTENANCE

- 730.1** The owner or developer shall maintain all WMSC facilities constructed and/or installed under the WMSC Permit. All WMSC facilities shall be maintained in designed working condition to meet the design standards and the requirements of these regulations. Failure to maintain the improvement or facility could result in action against both the surety and the owner/developer.
- 730.2** The maintenance responsibility stated in Section 730.1 shall be recorded on the deed for the property and on the record plat. Also, reference is to be made to the entity or individual(s) to be responsible for the maintenance.
- 730.3** Upon expiration of the Performance/Maintenance Surety Bond, the maintenance responsibility for the WMSC facilities contained within designated drainage easements shall revert to the individual(s) or group(s) of property owners as identified on the record plat.
- 730.4** Post-Construction Inspection and Maintenance (I&M) Plans, including detailed drawings of the management practice, must be provided for all post-construction BMPs. A draft I&M plan shall be submitted to CCBID for review and approval with the as-built certifications described in Section 710 I&M plans must include at a minimum:
- A. the name and contact information for the entity owns each post-construction management practice, and the entity responsible for providing post-construction operation, inspection and maintenance,
 - B. routine and non-routine maintenance tasks that should be undertaken,
 - C. a schedule for inspection and maintenance,
 - D. any necessary legally binding maintenance easements and agreements
 - E. Construction drawings or excerpts showing the plan view, profile and details of the BMP
 - F. a map showing all access and maintenance easements.

- G. Relevant elevations and associated volumes that dictate when removal of accumulated sediment must occur.
- H. A prohibition on alteration of the post-construction management practice without prior written approval from the CCBID.

Once approved by CCBID, a final copy of the I&M Plan must be provided to the post-construction operator. CCBID shall maintain copies of all approved I&M Plans.

Permittees are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site and are not responsible for maintenance after storm water discharges associated with construction activity have been eliminated from the site.

730.5 Petitions for Permanent Maintenance of WMSC Facilities

730.5-1 Applicants may submit a petition for permanent maintenance of WMSC facilities under Ohio Revised Code Chapter 6131. The petition shall be submitted to the CCBID and the Clermont County Engineer’s Office at the preliminary design stage.

730.5-2 Applicants may also petition the Board of County Commissioners to establish a storm sewer district under Ohio Revised Code Chapter 6117 for the *permanent* maintenance of WMSC facilities.

730.6 Post Construction Inspections and Maintenance

730.6-1 Post construction best management practices shall be owned, controlled and maintained by a Legal Entity as follows:

- A. If the post-construction BMP serves a single property, then the property owner shall be the Legal Entity.
- B. If the post-construction BMP serves multiple lots in residential, commercial, industrial and/or condominium developments, then the BMP shall be on a separate lot or located within an easement as specified in these regulations. The Legal Entity shall be one of the following:
 - 1. a validly created owners association under Ohio law,
 - 2. a local unit of government, or
 - 3. a property owner with a valid contract with the property owners served by the post-construction BMP.

C. In the event the relationship between the Legal Entity and the property owners is dissolved, or if the Legal Entity fails to perform required maintenance, responsibility for such maintenance shall be proportionally distributed to each property owner contributing storm water to the post-construction BMP.

730.6-2 The Legal Entity defined in Section 730.6-1 shall either serve as or contract with a Maintenance Provider who shall be responsible for managing the post-construction BMPs. The Maintenance Provider shall maintain the BMPs in accordance with the I&M Plan and in good working condition so that the system of BMPs is performing its design functions

730.6.3 Any changes in the I&M Plan must be approved in advance by the CCBID and recorded in the same manner as the original I&M plan prior to becoming effective. The CCBID shall be notified in writing immediately whenever a new maintenance provider is designated.

730.6-4 An Enforcing Official bearing proper credentials and identification shall be permitted at all reasonable times to enter upon any property or to gain access to any easements as necessary to inspect, observe, maintain, and repair the system of post-construction BMPs whenever the official deems necessary. When practical, the Enforcing Official shall provide written notice to the Legal Entity, property owners and Maintenance Provider prior to entry. Any obstruction preventing safe and easy access to the system of BMPs shall be promptly removed or cleared upon request of the Enforcing Official.

730.6-5 The Enforcing Official may inspect post-construction BMPs periodically and determine if maintenance is required according to criteria in the I&M Plan or design drawings. If the Enforcing Official identifies a maintenance need, the Official will provide written notification to the Legal Entity. Upon notification, the Legal Entity shall have thirty (30) working days to make repairs or submit a plan for approval to the Enforcing Official with details regarding the necessary repairs, action items and established timelines.

730.6-6 If the Legal Entity and/or designated Maintenance Provider fails to maintain a Post-Construction BMP, the Enforcing Official may enter the property, perform the required maintenance, and bill the Legal Entity or Maintenance Provider, or, in the event there is no currently viable Legal Entity or Maintenance Provider, the property owners contributing storm water to the BMP, for such costs. Neither the CCBID or other Enforcing Official shall be under any obligation to maintain or repair the system of post-construction BMPs, and in no event shall these regulations be construed to impose any such obligations upon these entities.

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ARTICLE 8.0 RULES AND REGULATIONS REGARDING ILLICIT DISCHARGES AND ILLEGAL CONNECTIONS TO THE SEPARATE STORM SEWER SYSTEM

SECTION 800 SCOPE

The rules and regulations regarding illegal discharges and illicit connections to the Clermont County Separate Storm Sewer System (CCS4) are enacted pursuant to ORC Section 6117.01. The purpose of the regulations contained herein is to reduce to the maximum extent practicable the introduction of pollutants into to the CCS4 in order to protect the health, safety, and welfare of the citizens of Clermont County and to comply with requirements of Ohio EPA’s National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges.

800.1 Objectives

The objectives of these regulations are:

- A. To regulate the contribution of pollutants to the CCS4 by any person;
- B. To prohibit illicit discharges and illegal connections to the CCS4;
- C. To prevent non-storm water discharges, generated as a result of spills, inappropriate dumping or disposal, to the CCS4.
- D. To establish the legal authority to ensure compliance with the provisions of these regulations through the inspection, monitoring, and enforcement procedures described herein.

800.2 Applicability

These regulations shall apply to all substances entering or likely to enter the CCS4 which are generated on any premises within Clermont County unless explicitly exempted by the Enforcing Official or allowable under a NPDES Storm Water Discharge Permit.

800.3 Compatibility with Other Regulations

These regulations are not intended to modify or repeal any other regulation, rule, or other provision of law. The requirements of these regulations are in addition to the requirements of any other regulation, rule, or other provision of law, and where any provision of these regulations imposes restrictions different from those imposed by any other regulation, rule, or other provision of law, whichever provision is more restrictive or imposes higher protective standards for human health or the environment shall control.

SECTION 810 DISCHARGE PROHIBITIONS AND EXEMPTIONS

810.1 Prohibition of Illegal Discharges

810.1-1 No person shall discharge or cause to be discharged into any portion of the CCS4 any pollutants, contaminants, or waters containing any pollutants or contaminants other than storm water that cause or contribute to a violation of these regulations or the NPDES Storm Water Discharge Permit.

810.1-2 No person shall connect or cause to be connected any pipe, ditch or other outlet or accessory to any portion of the CCS4 which conveys or discharges any pollutants, contaminants or substances other than storm water into the CCS4 without written permission from the Enforcing Official. The un-permitted construction, use, maintenance or continued existence of such a connection is prohibited. This prohibition expressly includes, without limitation, connections made prior to the effective date of these Regulations and for which the Enforcing Official has not issued a valid and binding permit, regardless of whether the connection was previously permissible under the law or practices applicable or prevailing at the time of connection.

810.2 Exemptions to Illegal Discharges

810.2-1 The following non-storm water discharges are not considered illicit discharges and are exempt from discharge prohibitions established by these regulations:

- A. water line flushing or other potable water sources,
- B. landscape irrigation or lawn watering,
- C. diverted stream flows,
- D. rising ground water,
- E. ground water infiltration to storm drains,
- F. uncontaminated pumped ground water,
- G. foundation or footing drains (not including active groundwater dewatering systems),
- H. crawl space pumps,
- I. air conditioning condensation,
- J. springs,
- K. non-commercial washing of vehicles,
- L. natural riparian habitat or wetland flows,
- M. residential swimming pools with pH levels between 6.5 and 8.5,
- N. fire fighting activities,
- O. street wash water
- P. any other water source not containing pollutants

Q. Discharges specified in writing by the Enforcing Official as being necessary to protect public health and safety.

810.2-2 Dye testing is an allowable discharge, but requires a verbal notification to the Enforcing Official prior to the time of the test.

810.2-3 The prohibition shall not apply to any non-storm water discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Ohio or U.S. Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

810.3 Home Sewage Treatment Systems

Discharges from home sewage treatment systems into the CCS4 must meet the regulatory requirements under Ohio Administrative Code Section 3701-29-01 or other applicable regulatory requirements. Home sewage treatment systems which have off-lot discharges must also be designed, sited and maintained in a manner consistent with Ohio Administrative Code Section 3701-29-01 or other applicable regulatory requirements. Discharges into the CCS4 from home sewage treatment systems not maintained in accordance with these regulatory requirements are not permitted under any circumstances.

810.4 Underground Storage Tanks

In conjunction with the repair, remediation or removal of underground storage tanks, groundwater can not be discharged to the CCS4 unless pollutant concentrations meet or exceed criteria set forth by the Ohio Environmental Protection Agency. If pollutant concentrations exceed these criteria, the groundwater must either be:

- A. discharged to a sanitary sewer system with the approval of the entity that operates the system,
- B. hauled to a wastewater treatment plant for disposal, or
- C. provided pre-treatment to reduce pollutant concentrations to levels that meet Ohio Environmental Protection Agency criteria.

810.5**Salt Storage**

Designated salt storage areas at commercial, institutional and non-NPDES permitted industrial facilities shall be covered or indoors, and located on an impervious surface. These facilities must implement management practices to reduce the exposure of salt to precipitation when transferring material in designated salt storage areas (e.g., sweeping, diversions and/or containment).

810.6**Watercourse Protection**

Every person owning property through which a watercourse serving the CCS4 passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, yard waste, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

SECTION 820**MONITORING OF DISCHARGES****820.1****Access and Inspection of Properties and Facilities**

- A. The Enforcing Official shall be permitted to enter and inspect premises subject to supervision under these regulations as often as may be necessary to determine compliance with these regulations. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to representatives of the Enforcing Official.
- B. Facility operators shall allow the Enforcing Official ready access without unreasonable delays to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES storm water discharge permit, and the performance of any additional duties as defined by state and federal law.
- C. The Enforcing Official has the right to require the discharger to allow the installation of monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure storm water flow and quality shall be calibrated to ensure their accuracy. These calibration records will be kept on hand and made readily available at all times.

SECTION 830 NOTIFICATION OF ACCIDENTAL DISCHARGES AND SPILLS

830.1 As soon as any person responsible for a premises, or responsible for emergency response to a premise has knowledge or information of an un-permitted discharge from such premises into the CCS4 which does not involve hazardous materials, said person shall promptly notify the Enforcing Official and shall take all reasonable steps to ensure the expedient containment and cleanup of such discharges, protect the health and safety of the public and mitigate damage to the environment. Where an un-permitted discharge or threatened discharge involves the release of hazardous materials, said responsible person shall, in addition to the above actions, immediately notify the appropriate emergency response agencies.

830.2 In the case of an un-permitted discharge which involves the release of non-hazardous materials, "prompt notification" shall mean notification to the Enforcing Official by phone, e-mail or facsimile as expeditiously as possible, but not later than the next business day. In all cases involving un-permitted discharges, notification in person, by phone, or e-mail shall be confirmed by written notice addressed and mailed to the Enforcing Official within three (3) working days of the phone, or e-mail notice.

830.3 Where an un-permitted discharge or threatened discharge involves the release of materials from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to mitigate the effects of such release and to prevent its recurrence. Such records shall be retained for a period of not less than five years from the time of the incident.

SECTION 840 USE OF BEST MANAGEMENT PRACTICES TO ELIMINATE ILLICIT DISCHARGES

840.1 The person responsible for a premise which is, or may be, the source of an illicit discharge or illegal connection, may be required to implement, at said person's expense, additional structural and non-structural Best Management Practices (BMPs) to prevent the further discharge of pollutants to the CCS4. Compliance with all terms and conditions of a valid NPDES storm water discharge permit associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of these regulations. These BMPs shall be part of a Storm Water Pollution Prevention Plan as necessary for compliance with requirements of the NPDES permit.

SECTION 850 ENFORCEMENT

850.1 Notification of Violation

850.1-1 Whenever the Enforcing Official finds that a person has failed to meet a requirement hereof, the Enforcing Official may order compliance by written notice of violation to the responsible person. Such notice may require without limitation:

- A. The performance of monitoring, analyses, and reporting;
- B. The elimination of illicit connections or discharges;
- C. That violating discharges, practices, or operations shall cease and desist;
- D. The abatement or remediation of illicit discharge or contamination hazards and the restoration of any affected property; and
- E. The implementation of control measures required by the Enforcing Official.

850.1-2 The requirement to implement such measures may be in addition to and not in lieu of any prosecution for fines or other remedies as may be available to the Enforcing Official under applicable law.

850.1-3 If abatement of a violation or restoration of affected property is required as a result of an un-permitted discharge, the notice of violation shall set forth a deadline within which such remediation or restoration must be completed based on the scope of the problem that requires correction. The notice may further provide that, should the violator fail to remediate or restore within the established deadline, the enforcing agency may seek to recover all remediation costs from the violator in addition to any civil and/or criminal penalties as may be recoverable under applicable laws.

850.2 Appeal of Notice of Violation

Any person receiving a Notice of Violation may appeal the determination of the Enforcing Official to the Clermont County Board of Appeals. The notice of appeal must be in writing and received within ten (10) working days from the date of mailing of the Notice of Violation. The Board of Appeals shall set a date for a public hearing upon receiving the appeal request form the applicant and shall arrive at a decision no more than fifteen (15) days after the hearing. Appeals from the decision made by the Board of Appeals may be taken to the Clermont County Court of Common Pleas.

850.3**INJUNCTIVE RELIEF**

It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of these Rules and Regulations. In addition to seeking civil penalties for any such violation(s), the Enforcing Official may petition the appropriate court for injunctive relief to restrain continuing or threatened future violations and/or to compel the abatement of the activities leading to any violation or threatened violation, or the remediation of the effects of any violation.

850.4**VIOLATIONS A PUBLIC NUISANCE**

A condition caused or permitted to exist as a result of any violation of Article 330.0 of the Clermont County Water Management and Sediment Control Regulations which threatens the public health, safety, or welfare constitutes a public nuisance subject to abatement, restoration and/or civil action to abate or enjoin as may be available under applicable law.

850.5**REMEDIES NOT EXCLUSIVE**

The remedies provided in Article 330.1.2 of the Clermont County Water Management and Sediment Control Regulations shall not be exclusive of any other remedies available under any applicable federal, state or local law, and it is within the discretion of the Enforcing Official to seek cumulative remedies.