ORDINANCE NO. 59-14

AN ORDINANCE AMENDING SECTIONS 1050.111(a)(6)(A), 1050.113(d), 1050.117(b)(4), AND ADDING SECTION 1050.117(b)(10) TO THE CODIFIED ORDINANCES OF THE CITY OF AVON CONTROLLING STORM WATER DESIGN STANDARDS AND GENERAL WATER QUALITY DESIGN CRITERIA AND DECLARING AN EMERGENCY

WHEREAS, on March 26, 2012, Council passed Chapter 1050 of the Codified Ordinances for the stated purpose of establishing technically feasible and economically reasonable stormwater management standards to achieve a level of stormwater quality and quantity control that would minimize damage to persons and property and would promote and maintain the health, safety and welfare of the citizens of Avon; and

WHEREAS, the Administration and the City Engineer have continued to monitor rainfall and flooding events together with changes in both State and Federal laws and regulations to recommend additional amendments whenever necessary to make this Chapter 1050 more effective; and

WHEREAS, recent flooding events in our community and surrounding communities has resulted in a review of these provisions and a recommendation to amend §1050.111(a)(6)(A), §1050.113(d), §1050.117(b)(4), and add §1050.117(b)(10) as they relate to stormwater detention; and

WHEREAS, Council has had an opportunity to review the amendment and finds that adoption of same to be in the best interests of the health, safety and welfare of the citizens of Avon.

NOW, THEREFORE, BE IT ORDAINED BY COUNCIL OF THE CITY OF AVON, LORAIN COUNTY, OHIO:

Section 1 - That Section 1050.111(a)(6)(A) which currently reads as follows:

1050.111 STORM WATER CONVEYANCE DESIGN CRITERIA

(6) Design of storm sewers. Storm sewers shall be designed such that:

A. They do not surcharge from runoff caused by the 10-year, 24-hour storm, and that the hydraulic grade line of the storm sewer stays below the gutter flow line of the overlying roadway, or below the top of drainage structures outside the roadway during a 25-year, 24-hour storm. The system shall be designed to meet these requirements when conveying the flows from the contributory area within the proposed development and existing flows from off-site areas that are upstream from the development. These calculations will be reviewed and approved by the City Engineer prior to design acceptance. Rainfall data shall be obtained from the latest volume

of the NOAA Rainfall ATLAS 14 or per Table 1 for typical rainfall values. See Appendix B attached to Ordinance 17-12 for example spreadsheets.

Table 1 - Rainfall per Storm Frequency	
24 Hour Storm (year)	**Rainfall (in.)**
2	2.44
5	3.06
10	3.55
25	4.35
50	5.08
100	5.92

Shall be amended to read as follows: (new language in bold print)

1050.111 STORM WATER CONVEYANCE DESIGN CRITERIA

(6) Design of storm sewers. Storm sewers shall be designed such that:

A. They do not surcharge from runoff caused by the 10-year, 24-hour storm, and that the hydraulic grade line of the storm sewer stays below the gutter flow line of the overlying roadway, or below the top of drainage structures outside the roadway during a 25-year, 24-hour storm. The system shall be designed to meet these requirements when conveying the flows from the contributory area within the proposed development and existing flows from off-site areas that are upstream from the development. These calculations will be reviewed and approved by the City Engineer prior to design acceptance. Rainfall data shall be obtained from the latest volume of the NOAA Rainfall ATLAS 14 or per Table 1 for typical rainfall values. See Appendix B attached to Ordinance 17-12 for example spreadsheets.

Table 1 - Rainfall per Storm Frequency	
24 Hour Storm (year)	**Rainfall (in.)**
2 **(50% storm)**	2.44
5 **(20% storm)**	3.06
10 **(10% storm)**	3.55
25 **(4% storm)**	4.35
50 **(2% storm)**	5.08
100 **(10% storm)**	5.92

Section 2 - That Section 1050.113(d) which currently reads as follows:

1050.113 GENERAL WATER QUALITY DESIGN CRITERIA.

(d) Storm water quality management practices shall be designed such that the drain time is long enough to provide treatment and protect against downstream bank erosion, but short enough to provide storage available for successive rainfall events as defined in Table 4.

Table 4: Draw Down Times for Storm Water Management Practices	
Best Management Practice	**Drain Time of WQv**
Infiltration facilities*	24 hours
Extended conveyance facilities (vegetated swales, filter strips)	
Vegetated filter strip with berm	24 hours
Enhanced water quality swale	36 hours
Flow through design	**
Extended detention facilities	
Extended dry detention basins***	48 hours
Wet detention basins + 24 hours	36 hours
Pocket wetland^ 24 hours	36 hours
Constructed wetlands (above permanent pool) 24 hours	36 hours
Bioretention*	40 hours
Sand and other media filtration 40 hours	40 hours
*	The WQv shall completely infiltrate within 48 hours so there is no standing or residual water pool.
**	Sized to pass a hydrograph with a volume equal to the WQv, a duration of two hours, peak rainfall intensity of one inch/hour at a depth of no more than three inches and have a minimum hydraulic residence time of five minutes. The use of this criterion is limited to sites where the total area disturbed is five acres or less. Prior approval from the City Engineer is necessary to use this practice. For sites greater than five acres or less than five acres but part of a larger common plan of development or sale which will disturb five or more acres, prior written approval is required from the Ohio EPA.
***	The use of a forebay and micropool is required on all extended dry detention basins. Each is to be sized at a minimum 10% of the WQv.
+	Provide both a permanent pool and an extended detention volume above the permanent pool, each sized with at least 0.75*WQV .

^	Pocket wetland must have a wet pool equal to the WQv, with 25% of the WQv in a pool and 75% in marshes. The EDV above the permanent pool must be equal to the WQv.

(Ord. 17-12. Passed 3-26-12.)

Shall be amended to read as follows: (new language in bold print)

(d) Storm water quality management practices shall be designed such that the drain time is long enough to provide treatment and protect against downstream bank erosion, but short enough to provide storage available for successive rainfall events as defined in Table 4.

Table 4: Draw Down Times for Storm Water Management Practices	
Best Management Practice	**Drain Time of WQv**
Infiltration facilities*	24 hours
Extended conveyance facilities (vegetated swales, filter strips)	
Vegetated filter strip with berm	24 hours
Enhanced water quality swale	~~36~~ **48** hours
Flow through design	**
Extended detention facilities	
Extended dry detention basins***	48 hours
Wet detention basins + 24 hours	~~36~~ **48** hours
Pocket wetland^ 24 hours	~~36~~ **48** hours
Constructed wetlands (above permanent pool) 24 hours	~~36~~ **48** hours
Bioretention*	40 hours
Sand and other media filtration 40 hours	40 hours
*	The WQv shall completely infiltrate within 48 hours so there is no standing or residual water pool.
**	Sized to pass a hydrograph with a volume equal to the WQv, a duration of two hours, peak rainfall intensity of one inch/hour at a depth of no more than three inches and have a minimum hydraulic residence time of five minutes. The use of this criterion is limited to sites where the total area disturbed is five acres or less. Prior approval from the City Engineer is necessary to use this practice. For sites greater than five acres or less than five acres but part of a larger common plan of development or sale which will disturb five or more acres, prior written approval is required from the Ohio EPA.
***	The use of a forebay and micropool is required on all extended dry detention basins. Each is to be sized at a minimum 10% of the WQv.

+	Provide both a permanent pool and an extended detention volume above the permanent pool, each sized with at least 0.75*WQV .
^	Pocket wetland must have a wet pool equal to the WQv, with 25% of the WQv in a pool and 75% in marshes. The EDV above the permanent pool must be equal to the WQv.

(Ord. 17-12. Passed 3-26-12.)

Section 3 - That Section 1050.117(b)(4) which currently reads as follows:

1050.117 DEVELOPMENT WITHIN A FLOODPLAIN OR FLOODWAY.

(b) Subdivisions.

(4) In all areas of special flood hazard (Floodway or 100-year floodplain) where base flood elevation data are not available, the applicant shall provide a hydrologic and hydraulic engineering analysis that generates base flood elevations for all subdivision proposals and other proposed developments containing at least 50 lots or five acres, whichever is less. If a development is less than 50 lots or five acres, this hydrologic and hydraulic analysis may be required at the discretion of the City Engineer;

Shall be amended to read as follows: (new language in bold print)

1050.117 DEVELOPMENT WITHIN A FLOODPLAIN OR FLOODWAY.

(b) Subdivisions.

(4) In all areas of special flood hazard (Floodway or 100-year floodplain) where base flood elevation data are not available, the applicant shall provide a hydrologic and hydraulic engineering analysis that generates base flood elevations for all subdivision proposals and other proposed developments containing at least 50 lots or five acres, whichever is less. If a development is less than 50 lots or five acres, this hydrologic and hydraulic analysis may be required at the discretion of the City Engineer;

The hydraulic analysis shall consist of the following:

A. SWMM Model (or other as agreed upon by the City Engineer) using tail water and back flow calculations;
B. Analysis of both the effects of the proposed development on the entire watershed and the adjacent parcels;
C. The model shall be calibrated using flow monitoring data over

a 3 month period fo time in which at least one (1) 4% storm (or allowable by City Engineer) has occurred.

(i) There shall be one flow monitor downstream of the proposed development and one flow monitor within the proposed development (or as deemed necessary by the City Engineer). Exact locations must be approved by the City Engineer.

D. One Hundred Feet (100') cross-sections of the waterbody, in which the proposed subdivision will flow into, at One Hundred Feet (100') intervals will be used within the model. Cross-section width and intervals may be adjusted by the City Engineer as deemed necessary.

E. The proposed development cannot have a net fill unless authorized by the City Engineer.

F. The model shall be analyzed at Fifty Percent (50%), Twenty-Five Percent (25%), Two Percent (2%) and One Percent (1%) storms.

G. All model data and field survey will be submitted to the City for review.

Section 4 - That the following shall be added to Section 1050.117(b):

(10) All wetponds or other BMPs (as deemed necessary by the City Engineer) within a One Percent (1%) (100-year) flood plain or flood way shall have their top of banks at a minimum height of One Foot (1') above the One Percent (1%) (100-year) flood plain elevation.

Section 5 - That the codifier is hereby instructed to make the above-referenced amendments. All other sections of Chapter 1050 shall remain unchanged.

Section 6 - That it is found and determined that all formal actions of this Council concerning and relating to the passage of this Ordinance were adopted in an open meeting of this Council, and that all deliberations of this Council and of any of its committees that resulted in such formal actions were in meetings open to the public, in compliance with all legal requirements, including Section 121.22 of the Ohio Revised Code.

Section 7 - That this Ordinance is hereby declared to be an emergency measure necessary for the preservation of the public peace, health, safety and welfare of the citizens of the City of Avon, the immediate emergency being the necessity to adopt an amendment to Chapter 1050 to tighten restrictions on stormwater retention; therefore, this Ordinance shall be in full force and effect immediately upon its passage and approval by the Mayor.

PASSED: _____ DATE SIGNED: _____

By: _____
Craig L. Witherspoon, Council President

DATE APPROVED BY THE MAYOR: _____

_____
Bryan K. Jensen, Mayor

APPROVED AS TO FORM:

_____
John A. Gasior, Law Director

ATTEST:

_____
Ellen R. Young
Clerk of Council

Posted: _____
In Five Places as
Provided by Council

Prepared By:
John A. Gasior, Esq.
Law Director