

Request for City Council Action

Date: February 10, 2015

| | |
|---|--------------------------------|
| Agenda Section: General Business | Originating Department: |
| No. | Planning Services/Legal |
| Item: An Ordinance Approving a Text Amendment Relative to Storm Water Detention Requirements | Approved: |
| No. 6.2 | |

Background and Summary:

At the direction of the Carbondale City Council, the Carbondale Planning Commission held a public hearing regarding a possible text amendment relative to storm water detention requirements. The Carbondale Revised Code Section 15-4.4.1 currently requires storm water detention for all developments which require the submission of a site plan. The proposed text amendment establishes thresholds which would trigger storm water detention for situations in which it is needed and practical.

The following are the cases which would trigger storm water detention requirements:

1. Any development greater than two (2) acres.
2. Any development less than two (2) acres in which there is an expected increase in storm water runoff when comparing the pre-development and post-development storm water drainage calculations. The pre-development site shall be considered those conditions which existed a maximum of 12 months prior to the site plan being submitted. Detention shall be provided to accommodate the expected increase in storm water runoff for the site.
3. On-site storm water detention shall not be required for any development within the BPR, Primary Business, district.

Attached for City Council review are the following:

1. An Ordinance approving the text amendment request.
2. A copy of the unapproved minutes of the Planning Commission for public hearing PC 15-06.
3. A copy of the staff report to the Planning Commission. (PC 15-06)

| | | | | |
|-------------------------------------|---------------------------------|-------------------------------|----------------------|-----------------------------------|
| Engineering Approval Obtained | Finance Approval Obtained | Legal Approval Obtained | Approval Obtained | Manager's Approval Obtained |
|-------------------------------------|---------------------------------|-------------------------------|----------------------|-----------------------------------|

Council Action: Motion by _____ 2nd by _____ to _____

Additional Information:

1. *Constituent/Advisory Body Impact:* The Planning Commission conducted a public hearing on January 28, 2015, and voted (6 yes-0 no) to recommend approval of the proposed text amendment to the City Council. A notice of the public hearing was published in the *Southern Illinoisan* on January 11, 2015. Two people spoke in favor and no one spoke in opposition to the proposed text amendment.
2. *Financial Impact:* None
3. *Staff Impact:* Staff will be responsible for reviewing drainage calculations and issuing all applicable zoning and building permits.

Recommended Action:

It is recommended that the City Council move “To adopt the Ordinance approving a text amendment relative to storm water detention requirements.”

CITY OF CARBONDALE, ILLINOIS

ORDINANCE NO. 2015-__

AN ORDINANCE AMENDING SECTION 15.4.4.1 OF THE REVISED CODE OF THE CITY
OF CARBONDALE, ILLINOIS RELATIVE TO STORM WATER DETENTION
REQUIREMENTS

ADOPTED BY THE CITY COUNCIL

OF THE CITY OF CARBONDALE, ILLINOIS

THE 10th DAY OF FEBRUARY, 2015

Published in pamphlet form by authority of the City Council of the City of Carbondale, Jackson
County, Illinois, this 11th day of February, 2015.

CERTIFICATE OF PUBLICATION

I, Jennifer Sorrell, the duly qualified City Clerk of the City of Carbondale, Illinois, and the
official custodian of the records of said City, do hereby certify that this Ordinance was published
in pamphlet form by authority of the City Council on the 11th day of February, 2015.

Jennifer Sorrell, City Clerk
City of Carbondale, Illinois

ORDINANCE NO. 2015-__

AN ORDINANCE AMENDING SECTION 15.4.4.1 OF THE REVISED CODE OF THE CITY OF CARBONDALE, ILLINOIS RELATIVE TO STORM WATER DETENTION REQUIREMENTS .

WHEREAS, the City of Carbondale, Illinois is a home rule unit of local government under the Illinois Constitution, 1970, Article VII, Section 6; and,

WHEREAS, pursuant to Article VII, Section 6(a), of the Illinois Constitution, 1970, the City of Carbondale may exercise any power and perform any function pertaining to its government and affairs including, but not limited to, the power to regulate for the protection of the public health, safety, morals and welfare; and,

WHEREAS, The City of Carbondale initiated a text amendment to amend Section 15.4.4.1 of the Revised Code of the City of Carbondale, Illinois, relative to storm water detention requirements; and,

WHEREAS, a notice of the hearing stating its purpose was published in the *Southern Illinoisan* on the 11th day of January, 2015, being at least (15) days prior to said hearing; and,

WHEREAS, a hearing of the Planning Commission of the City of Carbondale was called at 6:00 p.m. on the 28th day of January, 2015, in the City Council Chambers in said City to consider facts and evidence in regard to this request; and,

WHEREAS, said Planning Commission thereafter filed with the City Council a report of its hearing disclosing its findings of fact and its recommendation, said recommendation being as follows: to approve PC 15-06, text amendment to Section 15.4.4.1 of the Carbondale Revised Code; and,

WHEREAS, the City Council of the City of Carbondale has considered the findings of fact filed by the Planning Commission, the record of the Commission's public hearing, and the provisions of the zoning ordinance, and based thereon, finds that it is in the best interests of the City of Carbondale, Illinois that the zoning ordinance be amended.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF CARBONDALE, ILLINOIS, AS FOLLOWS:

Section 1. That Section 15.4.4.1 of the Revised Code of the City of Carbondale is hereby amended as provided in Exhibit "A", attached hereto and made a part hereof by reference.

Section 2. That all ordinances and parts thereof in conflict herewith are expressly repealed and are of no other force and effect.

Section 3. The repeal of any ordinance by this Ordinance shall not affect any rights accrued or liability incurred under said repealed ordinance to the effective date hereof. The provisions of this Ordinance, insofar as they are the same or substantially the same as those of any prior ordinance, shall be construed as a continuation of said prior ordinance.

Section 4. That it is the intention of the City Council of the City of Carbondale that this Ordinance and every provision thereof shall be considered separable, and the invalidity of any section, clause, or provision of this Ordinance shall not affect the validity of any other portion of this Ordinance.

Section 5. That the City Council of the City of Carbondale finds that the subject matter of this ordinance pertains to the government and affairs of the City of Carbondale and is passed pursuant to the provisions of Article VII, Section 6(a) of the 1970 Illinois Constitution.

SECTION 7. That this Ordinance shall take effect upon its passage, approval, recording, and publication in pamphlet form in accordance with law.

APPROVED: _____

Donald D. Monty,

Acting Mayor

ATTEST: _____

Jennifer R. Sorrell, City Clerk

APPROVED AS TO LEGALITY AND FORM:

Michael Kimmel, City Attorney

§4.4. DRAINAGE AND DETENTION BASINS**§4.4.1. Applicability**

~~The following standards shall apply to any development for which a site plan must be submitted.~~ New subdivisions or re-subdivisions shall provide storm water detention as detailed in §8.6.8. The standards in this section shall apply to any development for which a site plan must be submitted in the following cases:

- A. Any development greater than two (2) acres.
- B. Any development less than two (2) acres in which there is an expected increase in storm water runoff when comparing the pre-development and post-development storm water drainage calculations. The pre-development site shall be considered those conditions which existed a maximum of 12 months prior to the site plan being submitted.
- C. The standards of this section shall not apply to any development located within the BPR, Primary Business, district.

§4.4.2. General Standards

- A. All drainage designs, storm sewers, detention/retention basins, and other such storm water runoff appurtenances shall be laid out and designed by an Illinois Licensed Professional Engineer in accordance with the requirements set forth herein and standard engineering practices.
- B. Surface water runoff from parking lots, driveways, roofs and pavements shall not be allowed to cross sidewalks or be directed onto private property that is not a part of the site unless easements have been obtained to permit such off site drainage.
- C. Surface water runoff shall be directed into municipal storm water/drainage facilities, if available.
- D. Storm water runoff shall not be directed to nor connected to the sanitary sewer system. Any existing connections of storm water runoff systems (i.e. storm sewers, downspouts, roof drains, etc.) to the sanitary sewer system shall be immediately removed or the persons in control of said connections shall be subject to citation.
- E. Retaining Walls shall be constructed where necessary for land stabilization.

§4.4.3. Storm Sewers**A. Referenced Standards**

Specific technical aspects of all storm sewers shall be designed in accordance with the Carbondale Revised Code, and in accordance with, but not limited to, the latest editions of following design standards:

1. Illinois Department of Transportation (IDOT) Manual of Policies and Procedures
2. IDOT Design Manual
3. IDOT Drainage Manual
4. IDOT Standard Specifications for Road and Bridge Construction
5. Standard Specifications for Water & Sewer Main Construction in Illinois



MINUTES

Carbondale Planning Commission
Wednesday, January 14, 2015
Room 108, 6:00 p.m.
City Hall/Civic Center

Mr. Anz called the meeting to order at 6:00 p.m.

Members Present: Grant, Loos, Anz, Field, Schachel and Kang

Members Absent: Barke, Lilly, Love and Bradshaw (ex-officio)

Staff Present: Wallace, Taylor

1. Approval of Minutes:

Mr. Kang moved, seconded by Mr. Loos, to approve the minutes for January 14, 2015.

The motion to approve the minutes passed with a unanimous voice vote.

2. Report of Officers, Committees, Communications

None to Report

3. Public Hearings

PC 15-06 - The City of Carbondale has requested a text amendment relative to storm water detention requirements.

Mr. Anz declared Public Hearing PC 15-06 open and asked Mr. Wallace to read the legal notice.

Mr. Wallace read the legal notice.

Mr. Anz asked Mr. Taylor to present the staff report.

Mr. Taylor, Planner for the City of Carbondale, was sworn in and read part A of the staff report.

Mr. Anz asked if there were any questions of staff.

Mr. Grant asked if engineering was looking at the current capacities of our current drainage system.

Mr. Wallace answered that there are capacity issues. He stated that it is a small change now, but there really is a larger issue that will need to be addressed later down the road.

Mr. Loos asked what kind of cost it would take to update these types of things, where the money would come from and if it was something that could come from the TIF money.

Mr. Wallace said that he was not certain but guesses the cost would be in the millions.

Mr. Anz asked if anyone would like to speak in favor of the application.

Mr. Whiteside, Whiteside Surveying, said he supports the changes but also wanted to address that the current code does not allow storm water detention within parking lots and that he wanted this to be considered when amending the code.

Mr. Schilling, 703 S Tower, agreed with Mr. Whiteside and stated that he was also in favor of this application. He stated that there should be some restriction on the size of the parking lot that would be allowed to have storm water detention. Mr. Schilling asked if this amendment would be for all zoning districts or just certain districts.

Mr. Wallace answered that this amendment would be for all districts. He added it would be for any development which requires a full site plan. Mr. Wallace stated that there are three criteria and asked Mr. Taylor to read the three criteria.

Mr. Taylor read Exhibit A, Section 4.4.1. from the Staff Report.

There was a discussion clarifying Exhibit A, Section 4.4.1. from the Staff Report.

Mr. Anz asked if there were any questions for the people who are in favor of the application.

Mr. Loos asked both Mr. Whiteside and Mr. Schilling if it costs more to place storm water detention on a preexisting development or if it was more cost efficient to start with an untouched piece of land.

Mr. Whiteside answered that it depends on the size of the detention that you need.

Mr. Schilling added that the cost is approximately the same.

Mr. Loos asked what the definition was of a small parking lot with regards to parking lot storm water detention and what would determine a small or large lot.

Mr. Anz answered that it is not the size of the parking lot but it is the size of the detention.

Mr. Loos asked to rephrase his question to Mr. Schilling and Mr. Whiteside. Mr. Schilling and Mr. Whiteside stated earlier that they are in favor of storm water detention within small parking lots. Mr. Loos asked what they mean by small parking lots in terms of square feet.

Mr. Schilling answered that it would need to be on a case by case basis because you would not want to flood half of the parking lot.

There was a discussion about different properties and possible water detention solutions within Carbondale.

Mr. Anz asked if anyone would like to speak in opposition of the application.

No one spoke in opposition.

Mr. Anz asked Mr. Taylor to complete the staff report.

Mr. Taylor read parts C of the staff report, with a recommendation to approve PC 15-06.

Mr. Anz asked if there were any questions for staff.

Mr. Loos asked Mr. Wallace if the Commission recommends to Council the approval of this proposal, if the Commission could also recommend that a storm water study be done.

Mr. Wallace answered that having a study done would run in the upwards of around \$100,000. He added that this item is included in the CIP as an unfunded project, there is no revenue to move forward with the Study.

Mr. Grant asked Mr. Wallace if you could use TIF money to help upgrade storm water detention.

Mr. Wallace answered that the storm water detention is not a TIF reimbursable cost.

Mr. Anz asked if there were any more questions for staff.

There were none.

Mr. Anz asked if there were any questions from anyone to anyone.

Mr. Grant asked Mr. Whiteside if it is normal for a parking lot to use about 20% of the parking spaces for storm water detention.

Mr. Whiteside said that was accurate.

Mr. Anz asked if there were any more questions to anyone from anyone.

Mr. Loos asked for clarification that properties less than two acres would need to show storm water detention only if there is an increase in storm water run off as a result of the redevelopment of the property.

Mr. Wallace answered, correct.

Mr. Grant asked Mr. Wallace when we are talking about storm water detention what type of storm water detention is this allowing.

Mr. Wallace answered that with the way the code is written it would allow above ground or underground detention basins and that it does not allow you to build detention in the parking lot.

Mr. Anz asked if there were any more questions to anyone from anyone.

There were none.

Mr. Anz declared the Public Hearing closed at 7:06pm.

Mr. Kang moved, seconded by Mr. Loos, that the Commission accept as findings of fact Parts A and B of the staff report for PC 15-06, no person spoke in opposition and two persons spoke in favor.

The motion passed on a unanimous voice vote.

Mr. Kang moved, seconded by Mr. Loos, that the Planning Commission recommend to City Council that they approve PC 15-06.

Roll Call Vote:

Yes – 6 (Grant, Loos, Anz, Field, Schachel, Kang)

No – 0

Mr. Anz announced that this would go to Council on February 10, 2015.

4. Old Business

None

5. New Business

A. City Council Agenda for January 27, 2015

Mr. Wallace reviewed the City Council meeting, related to Planning.

6. Citizen Comments or Questions

None

7. Adjournment

Mr. Anz adjourned the meeting at 7:11 p.m.

UNAPPROVED

M-E-M-O-R-A-N-D-U-M

TO: City of Carbondale Planning Commission
FROM: Travis Taylor, Planner
RE: PC 15-06, Text amendment relative to storm water detention requirements
DATE: January 21, 2015

(Planning Commission Public Hearing on Wednesday, January 28, 2015 6:00 p.m.)

PART A. GENERAL INFORMATION

1. Applicant:
City of Carbondale
200 South Illinois Avenue
Carbondale Il, 62901

2. Requested Action and Background:

During the December 2, 2014, City Council Meeting, the City Council took action on an application for a variance from the City's storm water detention requirements. Currently, Title 15 of the Carbondale Revised Code requires on-site storm water detention for any development within City Limits which requires a site plan (Section 15-4-4-1). In this particular case, the applicant was proposing a re-development which decreased the impervious ground cover for a developed site which did not have on-site storm water detention. It was the applicant's position that decreasing the impervious ground cover of the site will, when compared to the current development, decrease storm water runoff. The City Council was unanimous in its decision to grant the variance for the proposed development as the impact of the new development on the storm water management system for the area would be less than that of the current development.

This case drew City Staff and the City Council's attention to a larger, policy-related question. In which situations is it necessary and reasonable to require a developer to provide for on-site storm water management? After a small discussion, the City Council posed this question to the Planning Commission in an effort to seek a revision to the City's storm water management requirements.

As any resident or patron of Carbondale has experienced, storm water management is an important issue for this area. There are several areas of Carbondale that experience flooding during prolonged rain events. In fact, the Jackson County Hazard Mitigation Plan identifies Carbondale as one of the higher risk communities in Jackson County for flash flooding, or upstream flooding¹. The Plan primarily attributes this to the fact that Carbondale is more urbanized and developed compared to surrounding areas in Jackson County. The concentrated development of Carbondale has led to an increase in impervious surfaces and therefore an increase in storm water runoff and the risk of flooding throughout the City.

This situation is not exclusive to Carbondale, however, in a publication by the Environmental Protection Agency, it is noted that all impervious areas increase storm water runoff and therefore increase the risk of flash flooding². The authors of a publication by the American Planning Association find that on-site storm water management systems, such as detention basins, have been included in development ordinances since the 1970s³. The City of Carbondale has had such a requirement in place since the adoption of the original zoning ordinance in 1974. The zoning ordinance at that time required storm water detention for a site if the municipal facilities were inadequate or unavailable. Should storm water detention be required, the development would provide for a system which limits runoff to a point where it would be comparable if the site were covered by grass.

The most recent update to the Carbondale Revised Code requires all developments which require a site plan to develop storm water runoff detention systems. Therefore, all developments will require storm water detention without regards to the size of the development, the pre-existing conditions of the site, or municipal systems near the development. The requested text amendment is being made in an attempt to reach a compromise between these two plans where storm water detention may be required for developments in situations in which it is needed and practical.

A copy of the staff recommended changes to the applicability of the storm water management requirements (Section 15-4-4) is attached as Exhibit A.

PART B. ANALYSIS

Stemming from recent conversations regarding storm water detention requirements for new developments, staff has made a recommendation for a text amendment to the Carbondale Revised Code. This text amendment seeks to identify which situations developers will be required to provide for on-site storm water management systems.

In a list of best practices outlined in Portland, Oregon's storm water management manual, a low applicant threshold, a definition of pre-development, and a detention requirement which does not impede development top the list³. Staff utilized these practices as a starting block for revising the applicability requirements for storm water management systems.

With regards to applicant thresholds, an article published by the American Planning Association classifies three thresholds which municipalities use to identify developments which must adhere to on-site storm water management requirements³. The three most common thresholds include

the size of the disturbed area, the total site area, or the impervious area created³. Staff confirmed this through a review of municipalities comparable to the City of Carbondale.

Staff found that communities such as Paducah, KY; and Champaign, IL, require storm water management systems only if the development exceeds certain size and/or impervious area thresholds. Paducah, KY, requires storm water management for all development or redevelopment which disturbs an area greater than or equal to one acre. These requirements also apply to nonresidential developments which maintain a paved and under roof area greater than 10,000 square feet. Champaign, IL, has similar regulations in that the City requires storm water detention for any nonresidential development greater than two (2) acres or if more than fifty (50) percent of the surface area is impervious. Residential developments require storm water detention if the development is greater than five (5) acres or if more than fifty (50) percent of the surface area is impervious.

The communities of Edwardsville, IL; Marion, IL; and Cape Girardeau, MO, require all commercial development to obtain approval for on-site storm water management systems prior to construction. Several of the communities provide for a method of approval wherein the requirement for a storm water management system may be waived if a system is already provided or if there is proof that the development will not adversely impact the surrounding area.

An article by Gallo, Wethington, and Overbey states that most municipalities focus on mitigating storm water conditions based on the difference between the pre-development and post-development condition of the site³. Therefore, municipalities are tasked with determining what constitutes pre-development. For the City of Carbondale, the pre-development state of the site is defined as its state prior to any development of impervious surfaces. Therefore, developers must compare the post-development drainage calculations with the site's pre-development calculations as if the site were covered by grass. The recommended text amendment modifies this to define the pre-development condition of the site as the site as it currently exists prior to the proposed development. It is staff's belief that this will embody the desires of the City Council and will not impede the re-development of sites within Carbondale.

Utilizing the practices outlined by Portland, Oregon, and the regulations of comparable municipalities, staff drafted the recommended language for the text amendment as shown in Exhibit A. The recommended text amendment addresses three situations with regards to the applicability of the storm water detention requirements. The first is that storm water detention will be required on all developments which require a site plan and exceed two (2) acres. The rationalization is that the property and development's size will not only have the potential to adversely impact the surrounding properties, but should also allow for enough area to construct a proper storm water detention system.

The second situation addresses those developments which are less than two (2) acres. Developments and re-developments on less than two (2) acres will require storm water detention only in the situation that the proposed development will increase the storm water runoff for the site when compared to the site pre-development. Pre-development shall be considered the site as it exists prior to the proposed development. Furthermore, this section clarifies that the pre-development of the site is defined as those conditions existing on the site a maximum of 12

months prior to the submission of the site plan. This section will apply to most developments within the City of Carbondale. Allowing developers to consider the current site as the benchmark for their drainage calculations will ensure that the City is preventing an increase in the amount of storm water runoff on the City's storm water systems. This code follows a similar sentiment made by City Council that it may be unreasonable to require a developer to provide for storm water detention when the development itself does not increase storm water runoff.

The final case states that all properties located within the BPR, Primary Business, district are exempt from storm water detention requirements. The BPR district is a unique area within the City of Carbondale. Properties within this area typically do not have green space and may build up to the lot lines without setback requirements. Given the small property size and large amount of impervious surface area, one of the only feasible storm water detention systems would be that of an underground system. An article published by the Environmental Protection Agency notes that underground storm water detention systems are often more expensive than above ground due to the types of materials and amount of dirt work required⁴. It is staff's opinion that while requiring storm water detention in the downtown district may benefit the City's storm water system, it does not appear that the flooding near the downtown area is caused by the BPR district alone. Flooding in this area, specifically that area near the Varsity Center, is often a result of the runoff accumulating from areas outside of the BPR district. It is staff's opinion that requiring developments in this area to provide for storm water detention may prove costly and may dissuade business from locating in the City's BPR district. Excluding the BPR district from storm water detention requirements could remove a possible barrier to downtown development.

It is clear through the 2010 Comprehensive Plan and conversations held by the Carbondale City Council that the vision is for the City to move towards sustainable storm water design standards. The standards outlined in the Comprehensive Plan include such practices as green roofs, pervious pavements, rain gardens, and rain barrels. While staff is not opposed to these standards, it is clear that a more comprehensive study and plan will be required to implement sustainable storm water standards effectively. These types of standards require a significant amount of planning. In the case of Portland, Oregon, it took more than 20 years for the community to move away from detention basins and towards a storm water management approach that focused on green, sustainable practices³. A publication by the Environmental Protection Agency, notes that not all sites and locations are suitable for these types of practices. The feasibility of the sustainable practices depends on such factors as soil permeability, depth of the water table, and slope of the site⁴.

With future studies, the City must determine how to regulate and promote these practices, as well as what practices to support. Sustainable storm water development has been implemented in many ways from municipality to municipality. These practices may be offered as a voluntary option for developers, incentivized through a local program, or mandated for all development or redevelopment. While staff is not prepared to make such comprehensive regulatory revisions at this time, it is recommended that sustainable storm water development practices be studied for future revisions. Sustainable storm water development has clear benefits and may be a proper method to sustainably manage the quantity and quality of storm water runoff.

PART C. RECOMMENDATION

Based on the analysis presented in this report, Staff recommends the Planning Commission approve PC 15-06.

¹Greater Egypt Regional Planning and Development Commission. (2009). *Hazard mitigation plan: Jackson County, Illinois*.

²United States Environmental Protection Agency. (September 2001) "Storm water technology fact sheet: On-site underground retention/detention." EPA 832-F-01-005

³Gallo, C., Wethington, B., & Overbey, E. (2013) "Policy equals practice: How Portland's policies facilitate sustainable stormwater design." *Planning Essentials*. Retrieved from: <https://www.planning.org/practicingplanner/print/2013/sum/essentials.h/>

⁴United States Environmental Protection Agency. (October 2000) "Low impact development (LID): A literature review." EPA 841-B-00-005

§4.4. DRAINAGE AND DETENTION BASINS**§4.4.1. Applicability**

~~The following standards shall apply to any development for which a site plan must be submitted.~~ New subdivisions or re-subdivisions shall provide storm water detention as detailed in §8.6.8. The standards in this section shall apply to any development for which a site plan must be submitted in the following cases:

- A. Any development greater than two (2) acres.
- B. Any development less than two (2) acres in which there is an expected increase in storm water runoff when comparing the pre-development and post-development storm water drainage calculations. The pre-development site shall be considered those conditions which existed a maximum of 12 months prior to the site plan being submitted.
- C. The standards of this section shall not apply to any development located within the BPR, Primary Business, district.

§4.4.2. General Standards

- A. All drainage designs, storm sewers, detention/retention basins, and other such storm water runoff appurtenances shall be laid out and designed by an Illinois Licensed Professional Engineer in accordance with the requirements set forth herein and standard engineering practices.
- B. Surface water runoff from parking lots, driveways, roofs and pavements shall not be allowed to cross sidewalks or be directed onto private property that is not a part of the site unless easements have been obtained to permit such off site drainage.
- C. Surface water runoff shall be directed into municipal storm water/drainage facilities, if available.
- D. Storm water runoff shall not be directed to nor connected to the sanitary sewer system. Any existing connections of storm water runoff systems (i.e. storm sewers, downspouts, roof drains, etc.) to the sanitary sewer system shall be immediately removed or the persons in control of said connections shall be subject to citation.
- E. Retaining Walls shall be constructed where necessary for land stabilization.

§4.4.3. Storm Sewers**A. Referenced Standards**

Specific technical aspects of all storm sewers shall be designed in accordance with the Carbondale Revised Code, and in accordance with, but not limited to, the latest editions of following design standards:

1. Illinois Department of Transportation (IDOT) Manual of Policies and Procedures
2. IDOT Design Manual
3. IDOT Drainage Manual
4. IDOT Standard Specifications for Road and Bridge Construction
5. Standard Specifications for Water & Sewer Main Construction in Illinois