



**Roll Call Number**

**Agenda Item Number**

54

**Date** January 27, 2025

An Ordinance entitled, "AN ORDINANCE to amend the Municipal Code of the City of Des Moines, Iowa, 2000, adopted by Ordinance No. 13,827, passed June 5, 2000, as heretofore amended, by amending Chapter 42, Article XI, Sections 42-558, 42-559, 42-560, 42-561, and 42-562, relating to stormwater management standards for development and redevelopment for grading permits, site plans and plat approvals",

presented.

**(Council Communication No. 25023)**

Moved by \_\_\_\_\_ that this ordinance be considered and given first vote for passage. Second by \_\_\_\_\_.

FORM APPROVED:

(First of three required readings)

/s/ Glenna K. Frank  
Glenna K. Frank  
Assistant City Attorney

COUNCIL ACTION	YEAS	NAYS	PASS	ABSENT
BOESEN				
COLEMAN				
GATTO				
MANDELBAUM				
SIMONSON				
VOSS				
WESTERGAARD				
TOTAL				
MOTION CARRIED			APPROVED	

**CERTIFICATE**

I, LAURA BAUMGARTNER, City Clerk of said City hereby certify that at a meeting of the City Council of said City of Des Moines, held on the above date, among other proceedings the above was adopted.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal the day and year first above written.

\_\_\_\_\_  
Mayor

\_\_\_\_\_  
City Clerk

ORDINANCE NO. \_\_\_\_\_

AN ORDINANCE to amend the Municipal Code of the City of Des Moines, Iowa, 2000, adopted by Ordinance No. 13,827, passed June 5, 2000, as heretofore amended, by amending Chapter 42, Article XI, Sections 42-558, 42-559, 42-560, 42-561, and 42-562, relating to stormwater management standards for development and redevelopment for grading permits, site plans and plat approvals.

Be It Ordained by the City Council of the City of Des Moines, Iowa:

Section 1. That the Municipal Code of the City of Des Moines, Iowa, 2000, adopted by Ordinance No. 13,827, passed June 5, 2000, as heretofore amended, is hereby amended, by amending Chapter 42, Article XI, Sections 42-558, 42-559, 42-560, 42-561, and 42-562, relating to stormwater management standards for development and redevelopment for grading permits, site plans and plat approvals, as follows:

**Sec. 42-558. Adoption of Iowa Stormwater Management Manual.**

The City of Des Moines hereby adopts the Iowa Stormwater Management Manual (ISWMM), as such may be amended from time to time, for management of stormwater. The ISWMM is written as a guideline recommending certain techniques and advising against others in order to accomplish goals related to managing water volume and quality. Therefore, where the ISWMM states a design element or technique is "Essential" it is required by the City of Des Moines unless otherwise not required by State law. Where ISWMM states a design element or technique is "Target" such design element or technique is desired by the City of Des Moines and every effort shall be made to accomplish. ~~Where ISWMM states a given design element or technique is "Advisory" this design element or technique shall not be used within the City of Des Moines.~~

In cases where ISWMM does not speak to a stormwater issue, such as sizing or installation of pipes, the City of Des Moines follows the Iowa State-wide Urban Design and Specifications (SUDAS) as modified by City of Des Moines General Supplemental Specifications to SUDAS or streambank stabilization in the Iowa River Restoration Toolbox as applicable.

It is intended that this article be construed to be consistent with Chapter 42, Article II, Grading, Soil Erosion and Construction Site Runoff Control, Chapter 50 Floodplains, Chapter 106 Subdivisions, Chapter 135 Planning and Design, as well as any other applicable local, state or federal regulation.

The requirements of this article should be considered minimum requirements, and where any provision of this article imposes restrictions different from those imposed by any other section of this Code, or any other governmental rule or regulation, or other provision of law, whichever provisions are more restrictive shall take precedence.

## Sec. 42-559. Definitions.

Definitions in this section, other than those defined below, shall have the meaning as set out in the Iowa Stormwater Management Manual. The definitions found in this article shall apply to the provisions of this article, provided, however that the following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

*Applicant* means a property owner or his or her representative who has filed an application for development or redevelopment pursuant to chapters 42, 106 and 135 of this Code.

*Benefitted Property* means the property identified in the Stormwater Management Plan and in the Stormwater Facility Maintenance Agreement as being served by Best Management Practices.

*Best Management Practices or BMP* means physical stormwater practices or structures determined to be practices used to reduce pollutant loads, discharge volumes, peak flow discharge rates, and detrimental changes in stream temperature that affect water quality and habitat. BMPs can be structural or non-structural. Non-structural BMPs focus on preserving open space, protecting natural systems, and incorporating existing landscape features such as wetlands and stream corridors into a site plan to manage stormwater at its source. Structural BMPs include constructed ponds, pavement systems, oil/grease separators, planted vegetative areas such as grassed swales, bioretention and other infiltration based practices, outlet structures and other constructed facilities intended to manage stormwater.

*Buffer* means a vegetative area, including trees, shrubs, and herbaceous vegetation, that exists or is established to protect a stream system, lake, or reservoir area.

*Building* means the same definition as in Section 106-2 of this Code, with the addition that structures not intended for shelter such as a pergola, trellis, gazebo and any other constructed obstacle shall also be considered to be buildings and shall be reviewed for impact on Stormwater Management.

*City engineer* means the city engineer or his or her duly authorized designee.

*City stormwater requirements* means the standards, sizing criteria, BMPs and other requirements established in this section.

*Construction site means a site or common plan of development or sale on which construction activity, including clearing, grading and excavating, results in soil disturbance. A construction site is considered one site if all areas of the site are contiguous with one another and one entity owns all areas of the site.*

*Dedication* means the deliberate appropriation of property by its owner for general public use.

*Developer* means a person, persons, or entity who undertakes land disturbance activities.

*Development* means any manmade change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations whether as a single site or part of a larger common plan of development. *Development may include, but is not limited to, construction site.*

*Director* means the director of the city public works department or his or her duly authorized representative.

*Drainage easement* means a legal right granted by a landowner to a grantee allowing the

use of private land for Stormwater Management purposes.

*Iowa Stormwater Management Manual or ISWMM* means the Iowa Stormwater Management Manual publication, by whatever name, as amended from time to time by Iowa Department of Natural Resources in collaboration with Iowa Stormwater Education Program.

*Land disturbance activity* means any activity which changes the volume or peak flow discharge rate of rainfall runoff from the land surface. This may include the grading, digging, cutting, scraping, or excavating of soil, placement of fill materials, paving, construction, substantial removal of vegetation, tree clearing, or any activity which bares soil or rock or involves the diversion or piping of any natural or man-made watercourse.

*Landowner* means the legal or beneficial owner of land, including those holding the right to purchase or lease the land, or any other person holding proprietary rights in the land.

*Native vegetation* means vegetation originating naturally in the central Iowa region of the state. Native vegetation is not to be confused with all existing vegetation. Area preserved in native vegetation shall not contain noxious or invasive weeds as identified by the Iowa Code Chapter 317.1A.

*Redevelopment* means any manmade change to a previously developed site, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations whether as a single site or part of a larger common plan of development.

*Redevelopment may include, but is not limited to, construction site.*

*Responsible Party* means the person or entity responsible for the maintenance of the Stormwater Management facilities pursuant to the SFMA.

*Stormwater Facility Maintenance Agreement or SFMA* means that covenant and easement agreement as described in section 42-564 that has been approved in writing by the city engineer which is binding on all subsequent owners of land and Benefitted Property served by the BMPs and is recorded in the applicable county recorder's office, including those SFMAs and Development Agreements in existence on February 1, 2022.

*Stormwater Management* means the use of BMPs to reduce stormwater runoff pollutant loads, discharge volumes, peak flow discharge rates, and improve stream quality.

*Stormwater Management Plan" or SWMP* means the plan demonstrating how Stormwater Management will be accomplished as described in section 42-562.

*Stormwater Pollution Prevention Plan or SWPPP* means a plan that is designed to minimize the accelerated erosion, sediment, and other pollutant runoff at a site before, during and after construction activities.

*Surface Water Flowage Easement or Overland Flowage Easement* means an easement granted to the city which includes a legally described flow path where stormwater from large storm events can be transported across property not owned by the city. No Buildings or obstructions, including without limitation, fences, trees, bushes, or vegetation may be constructed or placed within the easement that block the flow of water without the prior written approval of the city engineer.

## **Sec. 42-560. Applicability.**

Stormwater Management will be deemed necessary in the following circumstances:

- (a) **New Development:** Any new development of land adding more than 10,000 square feet of new impervious surface-area shall provide Stormwater Management as described in this

article. This threshold is a cumulative amount of new square footage and may be reached over time in increments. At such time that a development site exceeds 10,000 cumulative square feet of new impervious ~~surface-area~~ the site will be required to come into compliance with this article.

- (b) ~~Redevelopment:~~ Any redevelopment adding more than 10,000 square feet of new impervious ~~surface-area~~ but disturbing less than 50% of the site shall provide Stormwater Management at the Water Quality Volume standard and ~~shall be asked to also meet the Channel Protection standard or demonstrate why doing so is infeasible.~~ This threshold is a cumulative amount of new square footage and may be reached over time in increments.
- (c) Any redevelopment disturbing 50% or more of a site shall be required to meet the same Stormwater Management standards as a new development. This threshold is a cumulative amount of ~~new~~ square footage ~~disturbed by redevelopment~~ and may be reached over time in increments.
- (d) For purposes of this section, impervious areas and surfaces shall be determined using all building permits issued by the city's permit and development center, county assessor's records, and other applicable city records. Impervious area added prior to September 6, 1977 will not be counted towards the 10,000 square feet and 50% redevelopment requirements.
- (e) Exemptions: The following activities shall be exempted from meeting the Stormwater Management standards of this ordinance:
  - ~~(1) New development adding less than 10,000 square feet of new impervious surface.~~
  - ~~(2) Redevelopment adding less than 10,000 square feet of new impervious surface and less than 50% site disturbance and if in compliance with a previously approved SWMP.~~
  - (31) Removal and replacement of impervious ~~surface-area~~ exactly matching location and area.
  - (42) Logging or agricultural activity that is consistent with an approved soil conservation plan or timber management plan prepared or approved by the appropriate agency, as applicable.
  - ~~(53)~~ Additions or modifications to single family structures.
  - ~~(64)~~ Repairs to any Stormwater Management BMP deemed necessary by the city.

## **Sec. 42-561. Stormwater Standards.**

When applicable as described below, all development and redevelopment sites shall meet the requirements of the Unified Sizing Criteria, as described within the Iowa Stormwater Management Manual (ISWMM) and as noted below, unless Stormwater Management has been designated for an alternative off-site location or some other exemption or allowance has been prior approved by the City Engineer.

### (a) Small Storm Criteria

- (1) Recharge Volume Standard: ~~To effectively mitigate the effects of urban land use changes, post-development increases in stormwater runoff need to be minimized.~~ Structural or non-structural practices or techniques shall be employed to minimize the amount of stormwater runoff by capture, infiltration, evapotranspiration or reuse the runoff expected to the greatest extent possible. The

target goal of this criteria is to eliminate runoff created by the 1-inch rainfall event,<sup>5</sup> However, the developer may demonstrate, to the satisfaction of city staff, that this standard is not achievable or feasible at a site due to variables such as incompatible soils for infiltration, contaminated sites, high groundwater table, and/or ultra-urban environments that may not be achievable at all sites. Site improvements where the requirements of this ordinance would apply should identify the practices and techniques to be used and quantify how far they would go toward achieving that target goal.

- (2) Water Quality Volume Standard: To reduce potential increases in downstream water pollution, pPractices or techniques shall be employed that capture and treat runoff from a 1.25" rainfall event, as further defined within the ISWMM. This standard would address approximately 90% of the rainfall events that occur in Central Iowa.
- (3) Channel Protection Standard: As urban developments occur, some of the largest increases in runoff rate and volume (by percentage increase) occur during the smaller, more frequently occurring storm events. For this reason, pPractices or techniques shall be employed that provide extended detention of the 1-year, 24-hour storm event – with release rates established as per methods defined within the ISWMM manual to provide a minimum drawdown period of 24 hours. If the calculations result in a computed orifice diameter of less than 3 inches, the final design may instead use a 3-inch orifice as the control for the Channel Protection (CPv) event. In this case, the final routing modeling of the practice may end up showing that the allowable CPv release rate is exceeded. This standard would address approximately 98% of the rainfall events that occur in Central Iowa.

(b) Large Storm Criteria

- (4)(1) Practices and techniques shall be employed that limit allowable peak release rates that are anticipated to occur post-development during the 5-year through 100-year, 24-hour storm events to levels no greater than the peak rate expected to be caused by the 5-year storm event under existing site conditions. Existing conditions are defined as those that are present at the time that the construction commences. However, any sites that have impervious areas that were constructed without proper permit and/or planning approval from the city will not be allowed to count those areas as impervious area and must instead use natural conditions for those areas to determine the allowable release rate. For purposes of this section, any impervious areas added to a site prior to September 6, 1977 will be deemed as legal regardless of whether proper permits were obtained or not. Overbank Protection Standard: To minimize surcharge of downstream storm sewer systems and reduce the frequency of flash flooding along urban streams and tributaries, practices and techniques shall be employed that limit allowable peak release rates that are anticipated to occur post-development during the 2-, 5- and 10-year, 24-hour storm events to levels no greater than those expected to occur from natural conditions a given site from a similar storm event (e.g. the post-development release rate from a 5-year storm event will be no greater than the natural release rate from a 5-year storm event).

- ~~(5)~~(2) Natural conditions are defined as meadow in good condition, with times of concentrations calculated and Curve Numbers selected based on those natural surface conditions and drainage patterns. Curve Numbers shall be selected based on the Hydrologic Soil Group for site soils, but the weighted Curve Number used to determine allowable release rates for the site to be served by the detention practice shall not exceed a Curve Number of 58 unless demonstrated by a geotechnical report that a higher curve number is warranted, however, in no case shall the curve number exceed 71.
- ~~(6)~~(3) Soil Group information shall be determined from current County Soil maps as available through the NRCS. If a Soil Group type has not been identified for a given location, the natural condition shall be assumed to be Hydrologic Soil Group B and the post-developed condition shall be assumed to be Hydrologic Soil Group C, unless geotechnical studies are provided for City review that provide evidence for use of another Soil Group for analysis.
- ~~(7)~~(4) Redevelopment sites that have existing stormwater management facilities in place and/or are required to do so as part of an existing approved site plan, subdivision plat, or grading plan, as of January 1, 2025 are required to maintain those practices unless the storage volume and/or treatment practices are incorporated into a new stormwater management facility or facilities.~~Extreme Protection Standard: To reduce the frequency and impacts caused by larger flood events, practices and techniques shall be employed that limit allowable peak release rates that are anticipated to occur post-development during the 25-, 50- and 100-year, 24-hour storm events to levels no greater than those expected to occur from natural conditions on a given site from a similar storm event (e.g. the post-development release rate from a 100-year storm event will be no greater than the natural release rate from a 100-year storm event).~~
- ~~(8)~~ Natural conditions shall be defined as previously noted, with times of concentration and Curve Numbers calculated or selected on that basis.
- ~~(9)~~ The post-development peak release rate from these events shall also not exceed the peak rate expected to be caused by the 5-year storm event under existing site conditions. Existing conditions are defined as those that are present at the time that the site improvements are proposed.
- ~~(10)~~(5) Detention of events larger than the 100-year storm event are not required, however, the design of auxiliary spillways should safely convey flows from the 500-year, 24-hour storm event or per DNR Dam Codes and requirements.
- ~~(11)~~(6) Surface water flowage easements shall be provided as needed to reserve a safe and clear path for the width of expected concentrated flows for this type of event. Detention events larger than the 100-year can occur and surface water conveyance for those events should be considered.

**Sec. 42-562. Stormwater Management Plan (SWMP) Requirements.**

- (a) The purpose of a SWMP is to identify in detail how stormwater runoff will be managed from a site including specifications on what Stormwater Management techniques and facilities will be used and where they will be located. It is the policy of the City of Des Moines that Stormwater Management is planned and designed early in the development process so that developments are built in harmony with nature versus forcing Stormwater Management to fit a development site design.
- (b) A SWMP, prepared and certified by a professional engineer, architect, or landscape architect licensed in the state and familiar with Stormwater Management methods and techniques, must be submitted by the Applicant for approval by the City Engineer.
- (c) The following items must be submitted with grading plan, site plan, or plat applications:
  - (1) Report and Narrative Information.
    - a. Cover sheet including project name, location, engineer and developer contact information.
    - b. Table of contents indicating sections and page numbers
    - c. Professional certification from Iowa Licensed Engineer
    - d. Summary of any previous studies or master plans
    - e. Natural Conditions and runoff analysis summary
    - f. Description and explanation of storm water analysis (i.e. computer generated hydrographs.
    - g. Summary of SWMP detailing compliance with design standards
    - h. Natural Resources Inventory
      - i. Soil conditions (karst, hydric, etc.)
      - ii. Forest cover
      - iii. Topography
      - iv. Wetlands/Prairie Potholes
      - v. Streams and floodplains
      - vi. Review of FEMA FIRM maps
      - vii. Other Native Vegetative Areas
      - viii. Environmentally Sensitive Areas
        - 1. Archeological and/or cultural resources
        - 2. Wildlife areas
      - ix. Wellhead protection and drinking water supply management areas
      - x. Areas of existing stormwater storage.

(2) Soil Management Plan.

~~A The intent of a Soil Management Plan is required to evaluate topsoil quantities before and after construction and ensure compliance with NPDES general permit no. 2 to demonstrate what is to be done with soil on site, such as, determining where soil will be stockpiled and eventually spread and used on site.~~ Depending on intended use of soil to meet stormwater requirements, the following ~~items~~ may be applicable:

- a. Review NRCS or USGS soils maps or geotechnical reports if applicable.
- ~~b. Avoid disturbance of higher quality soils to maximum extent possible.~~
- ~~c. Avoid disturbance activities under the drip line of any trees intended to be preserved.~~
- ~~d.~~ b. Identify where topsoil is to be stripped, stockpiled and replaced.



~~e.c.~~ Identify locations where Soil Quality Restoration techniques are proposed to be used to manage water quality treatment requirements.

~~f.d.~~ Geotechnical reports, if applicable.

~~g.e.~~ US Army Corps of Engineers Section 404 Permit, if applicable.

~~h.f.~~ Local or DNR Floodplain Development Permit, if applicable.

(3) Dams.

Where dams are proposed in any subdivision, they shall be designed by a registered professional engineer. A preliminary engineering report including soil investigations and design procedures shall be submitted to the city engineer for review. When such dam is constructed, the subdivider's engineer shall certify to the city engineer that the dam is constructed in accordance with the approved plans and specifications.

(4) Calculations.

Provide exhibits demonstrating how calculated and assumptions made, including:

a. Runoff coefficient and/or curve number calculations (allowable release rates)

b. Time of concentration calculations

c. Water volume infiltrated

~~d.~~ ~~Water Quality Volume calculations required and proposed~~

~~e.d.~~ ~~Channel Protection Volume~~ Small Storm Criteria calculations required and proposed

~~f.e.~~ Large Storm Criteria(100-year) calculations ~~detention volume~~ required and proposed

~~g.f.~~ Storm system capacity calculations (outlet control, pipe capacity, swale/ditch capacity, erosion control and emergency dissipation measures, downstream capacity calculations)

~~h.g.~~ Runoff and routing hydrographs

~~i.h.~~ Floodplain modeling if applicable and base flood elevations.

(5) Project Summary.

a. Identify method(s) and location of proposed post-construction Stormwater Management BMPs

i. Map indicating drainage area of each post-construction BMP

b. Discuss how proposed management methods comply with requirements

c. Post-construction BMP maintenance plan

i. Operation and maintenance of post-construction BMPs

d. Identify post development stormwater impacts to adjacent properties and mitigation measures for any potential impacts.

e. Offsite / downstream conditions and runoff analysis if applicable.

(6) Maps.

a. Existing drainage contour map illustrating and labeling pre-development drainage patterns, basins, swales/ditches, creeks, river, streams, etc. and any other relevant on-site or off-site information.

b. Proposed drainage contour map illustrating and labeling post development drainage patterns, areas for which Stormwater Management will be provided, conveyance methods (pipes, swales, etc.) and any other relevant on-site or off-site information.

i. Location of existing and proposed buildings, roads, parking areas, utilities and

ii. Stormwater Management facilities and erosion/sediment control, easements, ROWs

- iii. Preliminary stormwater storage estimation
  - iv. Proposed land use
    - v. Existing and proposed drainage patterns
    - vi. Limits of clearing and grading.
  - c. Map(s) identifying where stormwater runoff enters and leaves the project limits.
  - d. Watershed area delineations
  - e. Floodplain delineations
  - f. Natural Resources Inventory Map.
- (7) BMP operation and maintenance plan.
- a. The Applicant shall provide to the City an operation and maintenance plan detailing the operation and maintenance and repair procedures for all stormwater BMPs. These plans will identify the parts of components of a stormwater BMP that will need maintained. The operation and maintenance plan will also identify the Responsible Party.
  - b. The ongoing operation and maintenance procedures must be documented in the SFMA.

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Section 2. This ordinance shall be in full force and effect from and after its passage and publication as provided by law.

FORM APPROVED:

/s/ Glenna K. Frank  
Glenna K. Frank  
Assistant City Attorney