

**City of Urbandale
Design Criteria
for the Iowa Storm Water Management Manual
Chapter 2: Unified Sizing Criteria
February 2021**

The City of Urbandale hereby adopts the Iowa Stormwater Management Manual (ISWMM) 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. ISWMM uses the key words “Essential”, “Target”, and “Advisory” for key elements and for manual updates.

- “Essential”: where the ISWMM states a design element or technique is “Essential”, it is required by the City of Urbandale.
- “Target”: where ISWMM states a design element or technique is “Target”, such design element or technique is desired by the City of Urbandale and every effort shall be made to accomplish.
- “Advisory”: where ISWMM states a given design element or technique is “Advisory”, this design element or technique is not required within the City of Urbandale.

In cases where ISWMM does not speak to a stormwater issue, such as sizing or installation of pipes, the City of Urbandale follows SUDAS and local addendums or streambank stabilization in the Iowa River Restoration Toolbox as applicable.

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 management has been designated for an alternative off-site location or some other exemption or allowance has been prior approved by the City Engineering Department.

Recharge Volume Standard: Recharge Volume is not required by the City of Urbandale.

Water Quality Volume Standard: To reduce potential increases in downstream water pollution, practices 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.

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, practices 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. This standard would address approximately 98% of the rainfall events that occur in Central Iowa.

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).

- 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.
- 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.

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).

- Natural conditions shall be defined as previously noted, with times of concentration and Curve Numbers calculated or selected on that basis.
- Detention of events larger than the 100-year storm event are not required.
- 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. Surface water flowage easements and overflow routes should consider the 100-year storm event as completely overland flow, with no storm sewer capacity. .

Other Standard Practices

- The detention basin berm shall be designed per SUDAS. In particular, note the requirements for freeboard and for berm width.
- Minimum Opening Elevations for structures shall be set assuming no storm sewer or detention is operational, and all flow is overland. Flow depths in the 100-year event shall be determined, and MOEs set for at least 1' of freeboard above that depth.

Refer to City Code Chapter 55 for conditions of applicability.