City of Phoenix

Office of City Engineer

To: Jason Blakley
Planning & Development Deputy Director

Date: May 14, 2021

From: Eric Froberg, P.E.
City Engineer

Subject: REVISION TO STORM WATER POLICIES AND STANDARDS

The purpose of this memorandum is to establish minor revisions to 3rd edition of the City of Phoenix Storm Water Policies and Standards (published December 2013). The following changes provide clarity to the first flush treatment discharge design flow rate.

6.8.3 First Flush

In the special case when a detention facility is allowed, the requirement to retain the 100-year, 2-hour runoff volume may be waived. Post-development peak discharges shall not exceed pre-development peak discharges for the 2-, 10-, and 100-year storm events.

The City has established a minimum level of control for new development at which storm water pollution prevention practices must be put in place. This minimum standard is "First Flush" and consists of retaining or treating the first 0.5 inch of direct runoff from a storm event. Normally, this minimum level of control is met by following the City retention requirement to capture the 100-year, 2-hour storm. In the event that normal city retention standards are waived (100-year, 2-hour storm), or a surface-based bleed off for the retention basin is proposed, the first flush provisions shall apply. This first flush policy is the result of Phoenix City Code, Chapter 32C Storm Water Quality Protection where the City may regulate the use of the public storm drain system through administrative rules, permits, and other written forms of approval for activities that could release pollutants or storm water to a public storm drain system.

Discharges into a structure owned or operated by the City must comply with the First Flush Policy providing storm water runoff control. The First Flush requirement can be addressed by retaining the required minimum First Flush volume, treating the first flush discharge, or utilizing a combination of both approaches. The minimum First Flush volume is calculated as follows:

$$V_{FF} = C \frac{P}{12} A$$

where:

V_{FF} = minimum First Flush volume in ac-ft,
P = first 0.5 inch of direct runoff[34]
C = runoff coefficient (set at 1.00)
A = area of project site, in acres

The minimum First Flush treatment discharge design flow rate is calculated as follows:

$$Q_{FF} = CIA$$

where:

Q_{FF} = minimum First Flush discharge in cfs
A = area of project site, in acres
C = runoff coefficient (set at 1.00)
I = 0.25 inches/hour*

[34] *First flush precipitation depth in feet, set at 0.5 inch ÷ 12 = 0.04 feet*

* First flush Intensity, I, is derived from LA County Hydrology Manual Chapter 9 (SUSMP), January 2006.