WATER RESOURCES
ENGINEERING DIVISION

**POLICY CLARIFICATION**

**SUBJECT:** CRITERIA FOR UNDERGROUND BMPS
**DATE:** APRIL 12, 2017

## OVERVIEW:

This policy clarification is intended to replace the previously produced policy clarification titled *Water Quality Capture Volume Attenuation, July 18, 2016.*

The Colorado Springs Drainage Criteria Manual (DCM) Vol. 1 & 2 leaves some ambiguity in regards to the allowance of pre-manufactured underground Water Quality devises and related appurtenances. Specifically, the DCM consistently describes the slow release of WQCV as necessary to achieve sedimentation and promote medium contact time and/or to promote stability of downstream drainageways. In general, pre-manufactured underground BMP devises do not attenuate storm flows. The question thus becomes, "Why is there a section in the criteria that allows underground devises on a case-by-case basis and what is the process for evaluation and implementation of an underground BMP?"

## DETAILS:

The DCM provides the following guidance related to the issue:

*Step 2 of the 4 step process* requires that the engineer "Implement BMPs That Provide a Water Quality Capture Volume with Slow Release." (Volume 2, Chapter 1 & Volume 1, Chapter 6).

*Volume 2, Chapter 3 Section 2.3* states, "When pollutant removal is achieved primarily through filtration, such as in a sand filter or rain garden BMP, an extended drain time is required to promote stability of downstream drainageways. In addition to counteracting hydromodification, attenuation in filtering BMPs can also improve pollutant removal by increasing contact time, which can aid adsorption/absorption processes depending on the media. The minimum required drain time for a post construction BMP is 12 hours for BMPs that do not rely fully or partially on sedimentation for pollutant removal."

*Volume 2, Chapter 4 Section 4* describes in case by case potential use of Underground BMPs, "As part of the required implementation of the Four Step Process, the use of underground, vault type BMPs is generally prohibited; however, they may be allowed on a case by case basis using the variance procedures described in Chapter 1, Volume 1 of this Manual."

*Volume 1, Chapter 1, section 10*, discusses the variance process, "**Variances cannot be granted in a manner that effectively negates the minimum requirement of the Four Step Process as previously described in this chapter. The variance process cannot be implemented in a manner**

**that would create a condition of non-compliance with the City's MS4 permit."** (quoted text is bold in original).

**POLICY:**
This clarification is based on the understanding that Volume 2, Chapter 4 Section 4, "Underground BMPs" specifically discusses the potential allowance of underground BMPs and even goes as far as pointing the design engineer/reviewer to the variance process in Volume 1, Chapter 1, Section 10. Additionally, according to Volume 2, Chapter 3, Section 2.3, the purpose of WQCV attenuation is to allow sedimentation to occur, promote medium contact time when necessary, and protect downstream drainageways.

It is the opinion of the City of Colorado Springs that a variance allowing for the use of an underground BMP may only be granted if:

- The design engineer can effectively defend the need for non-traditional BMPs.

AND

- The underground BMP is designed to provide full release of the WQCV in no less than 12 hours, if utilizing a filtration based process. The underground BMP is designed to provide full release of the WQCV in no less than 40 hours (72 hours for full-spectrum detention), if utilizing a sedimentation based process.

AND

- For filtration based facilities, the underground BMP has the demonstrated ability to produce effluent with a median concentration of 30 mg/L TSS or less (this may consist of proprietary BMP facility / structure information).

AND

- Adequate and sound engineering analysis showing that downstream conveyance systems are adequately sized to handle the receiving flows has been provided.

AND

- Adequate and sound engineering analysis has been provided showing that the policies regarding requirements for detention, as described in Chapter 3, Section 6.0 of the DCM are fulfilled.