SECTION 5600 – STORM DRAINAGE SYSTEMS AND FACILITIES

CITY OF BELTON, MISSOURI

DESIGN CRITERIA

The City of Belton hereby adopts Section 5600 of the Kansas City Metropolitan Chapter of APWA Construction and Material Specifications, current edition. The following additions supersede any discrepancies with Section 5600 for use within Belton.

Stormwater Drainage Report

A storm drainage report based on APWA 5600 and City of Belton Standards shall be submitted and approved prior to completion of storm drainage plans. This report shall include a discussion of proposed and existing runoff conditions of the site, capacity of downstream sewer, proposed storm sewer improvements and detention/retention ponds. A review of drainage areas that are adjacent or that flow through the proposed site must be included.

1. Each proposed subdivision or commercial development shall have the following:
    a. Drainage map using two-foot contour intervals, showing all creeks, drainage ways, inlets, pipes, manholes, culverts, bridges, roads and buildings.
    b. Drainage map must include all adjacent watersheds that flow through or near the projects site.
    c. Hydraulic grade line must be shown for each enclosed storm drainage system or pipe.
    d. Curb inlet, field inlet, gutter spread and pipe capacity charts shall be included in the storm drainage improvement plans.
    e. For flows or runoff greater than 3.0 cfs, field inlets or area inlets shall be required in rear or side yards to reduce flooding of adjacent properties.
2. The City Engineer may require that detention/retention basins that flow into adjacent properties meet one or all the following requirement:
    a. A reduction in outfall release rate and velocity to reduce erosion.
    b. Letters of agreement signed by adjacent property owners.
    c. Indemnification agreement that indemnifies the city from damages due to runoff, erosive velocities or flood damage to property owners.

Stormwater Detention Requirements

Maximum release rates as specified in APWA Section 5608 shall be enforced. In special cases, post-construction release rates exceeding those maximums may be approved by the City Engineer (e.g. if pre-construction release rates exceed 5608 maximums). For proposed developments upstream of sensitive

areas or areas with a known history of flooding per the City's Stormwater Master Plan, maximum release rates per Section 5608 shall be strictly enforced.

Storm Sewer Minimum Standards

1. Public storm sewers shall be aluminized corrugated metal pipe (CMP), dual-wall high-density polyethylene (HDPE) pipe, reinforced concrete pipe (RCP), pre-cast concrete or cast-in-lace concrete structures; except that CMP and HDPE shall not be permitted for street crossings, under pavement, nor in other locations where access for repair and replacement is limited as determined by the city engineer. Pipe material and installation shall adhere to City's Supplemental Section 2600, APWA-KC section 2600 and other applicable APWA standards.
2. Embedment and backfill. Embedment and backfill shall comply with requirements of the City's Supplemental Section 2600 to APWA-KC Specifications. All pipes shall be embedded with one-half inch clean rock from six inches below to six inches around and above the pipe. All backfill underneath pavement including streets, driveways, and sidewalks shall be as follows:

    a. Type A flowable fill for trenches ≤ 24 inches wide.
    b. Type A flowable fill or dense, well-graded aggregate meeting the requirements for KDOT AB-3, MoDOT Type 5 or APWA 2202 in wider trenches.

    Other areas of backfill may use segregated, suitable excavated material. The material shall be free of debris, including tree roots and limbs, and free of stones larger than one inch in the first 12 inches of backfill and no stones larger than six inches in its largest axis throughout the backfill. APWA requirements for minimum and maximum covers shall govern for all installations.

END OF SECTION