

Storm Sewer Specifications Section 500

510 Design Criteria

511 General Information

All storm drainage facilities including detention/retention ponds shall be designed and in conformance with the City of Burnet Drainage Criteria Manual. Access to storm drainage pipe via junction boxes and manholes shall be as directed by the City Engineer (manholes or junction boxes with manholes every 150 feet and at all bends). These design criteria are minimum requirements to be used in the design of storm sewer systems within the jurisdiction of the City of Burnet. The jurisdiction of the City of Burnet is defined as the area bound by the ETJ of the City of Burnet. This item shall govern the furnishing and placing of reinforced concrete pipe, corrugated metal pipe, and smooth lined helically corrugated metal storm sewer pipe. The pipe shall be installed in accordance with the requirements of these specifications, to the line and grades shown on the construction plans, and shall be of the sizes, types, design and dimensions shown thereon. The installation of pipe shall include all joints or connections to new or existing pipes, manholes, headwalls, inlets, or other appurtenances as may be required by the work. All testing shall be in accordance with Section 800 of the City of Burnet Standard Specifications.

512 Materials

512.01 General: The smallest diameter pipe allowed is a twenty-four (24) inch storm pipe. Any engineer requesting to use a pipe smaller than a twenty-four (24) inch storm pipe must request approval in writing and submit supporting documentation to the City Engineer. Generally, storm drain pipe smaller than 24" diameter are rejected because they clog with debris so easily making the long term maintenance an issue.

512.02 Reinforced Concrete Pipe: Storm drainage pipe located in public street ROW shall be RCP Type III, however, culverts for driveways may use corrugated metal pipe. Reinforced concrete pipe shall conform to all requirements of ASTM C-76 or C-655 for circular pipe. All pipes shall be machine made or cast by a process which will provide uniform placement of zero slump concrete in the form and compaction by mechanical devices which will assure a dense concrete. Each pipe shall be marked with the pipe class, the date of manufacture, the manufacturer's name, and diameter of pipe. Unless otherwise shown on the plans, not more than two holes may be placed in the top section of the precast pipe for lifting and placing. After the pipe is in place, lift holes shall be filled with concrete, mortar or precast plugs coated with cold-applied butyl mastic. All pipe joints shall be coated with cold-applied butyl mastic, the use of Ram-Nek is not acceptable. The Consulting Engineer shall submit the proper documentation to the City to justify the selection of the Class, D-load equivalent, of the selected storm sewer pipe. Without such documentation, all reinforced concrete pipes shall be Class III.

512.03 Corrugated Steel Pipe: Storm drainage pipe for driveway culverts or located outside of public street ROW may be corrugated metal pipe. Corrugated metal culvert pipe shall comply with the requirements of AASHTO, Designation M-36, Type I or Type II, or ASTM A-760 for galvanized pipe; or shall comply to the requirements of AASHTO Designation M-245 or ASTM A-762 for polymeric pre-coated pipe. Pipe shall be fabricated from the sheets conforming to AASHTO Designation M-218. Thickness and corrugations, Trade Mark or manufacturer, and specification compliance must be clearly marked on each section of pipe.

512.04 Smooth Lined Helically Corrugated Pipe: The pipe shall be fabricated from flat coils with spelter coating in accordance with AASHTO Designation M-274. The base metal and fabrication

shall meet the applicable requirements of AASHTO M-36. Each pipe shall have two welded corrugations rolled in each end. The pipe shall have two lifting lugs on the outside of the pipe. Each pipe shall be marked with the pipe class, the date of manufacture, the manufacturer's name, and diameter of pipe.

512.05 Plastic Pipe Prohibited: The use of any type of plastic pipe for storm drainage purposes is strictly prohibited because it offers no resistance to fire.

512.06 Joints:

- A. Reinforced Concrete Pipe: The Contractor shall seal RCP joints with a cold applied butyl mastic. Pipe to be placed along curves shall consist of whatever pipe joint lengths or beveled end joints of pipe, or combination thereof that are required to place the pipe on the designated centerline curve with no more than one-half of the tongue length of the pipe exposed from its normal fully closed joint position. Where pipe joints are not fully closed, special care shall be taken to fill completely, on both inside and outside, the entire annular space at the joint with cement mortar firmly caulked or pressed and compacted to form a dense, tight joint. All mortar shall be composed of one part Portland Cement and not more than two parts sand.
- B. Corrugated Steel Pipe: Coupling bands shall conform to the requirements of AASHTO M-36. Field joints for each type of corrugated metal pipe shall maintain pipe alignment during construction and prevent infiltration of side material during the life of the installation. Coupling bands shall be of the same base metal and coating as the pipe. Coupling bands shall lap equally on each side of the pipes being connected to form a tightly closed joint after installation. Coupling bands shall be placed at every joint when pipe is laid on a curve. Unless otherwise indicated, all bolts for coupling bands shall be 1/2 inch diameter.
- C. Smooth Lined Helically Corrugated Pipe: Coupling bands shall be installed as described under Corrugated Steel Pipe.

513 **Measurement**

513.01 Storm sewer pipe shall be measured by the linear foot of pipe of the various sizes, regardless of strengths involved. Such measurement shall be made between the ends of the barrel along its flowline.

→ **Standard Product List**

570 **Ring & Covers**

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Ring and Covers		
TYPE	Manufacturer	Size
Ductile Iron Ring and Cover	Saint Gobain RE60R8FD or approved equivalent must be ductile iron with latching mechanism for tamper prevention. Lid must be printed "Dump No Waste, Drains to River" with an imprint of a fish or other type of aquatic animal on it.	32"
H-20 Rating Minimum		

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Catch Basin Curb Inlet

Catch Basin Curb Inlet		
<u>TYPE</u>	Manufacturer	Size
7030 Catch Basin Curb Inlet	East Jordan Iron Works or approved equivalent must be cast iron Heavy Duty with Type M3 Grate and T1, T2, T4 or T6 Back and must be printed "Dump No Waste, Drains to River" with an imprint of a fish or other type of aquatic animal on it.	N/A
H-20 Rating Minimum		