



# Memorandum

**To:** Developers  
**From:** Doug Hinken, City Engineer  
**Date:** 10/31/2005  
**Re:** Greenville General Design Standards.

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The following general standards will be considerations for site plan reviews done by this Department.

## SANITARY SEWERS:

- ❑ Manhole structures shall be located at all turns and intersections. Maximum distance between structures is 400 feet.
- ❑ Where possible, depth should be a minimum of 8 feet. Basements, both existing and future, should be a consideration.
- ❑ The required slope shall be calculated based on flow velocity of 2.5 ft/sec at a minimum and should be increased where practicable to give a factor of safety for inconsistent construction practices.
- ❑ The standard location for sanitary sewer within roadways is directly on the centerline.
- ❑ All sanitary sewers outside of public right of ways, except service laterals, shall become a part of the public sanitary sewer system. An easement shall be drafted and signed by the developer to the City of Greenville.
- ❑ The developer shall prepare an application for a Part 41 permit through the MDEQ. The application should include the basis of design and be submitted for the City's signature. Three, sealed copies of the plans shall be submitted with the application.

STORM SEWERS:

- ❑ All developments shall be designed using the Montcalm County Minimum Design Standards that were developed by the Montcalm County Drain Commissioner. Copies of the standards are available through the Drain Commissioner's office or at <http://www.montcalm.org/draincommiss.asp>.
- ❑ Developments larger than 8 acres or within an established drain district will be subject to Drain Commission reviews and fees. Other developments may be reviewed by the City of Greenville.
- ❑ The standard location of storm sewer within road right-of-ways is 12 feet south or east of the road centerline.

WATER MAINS:

- ❑ Water mains shall be looped wherever possible.
- ❑ Valves shall be located at all intersecting pipes at a maximum distance of 350 feet. The water superintendent shall approve the layout. Valves for 12-inch and larger pipes shall be butterfly valves.
- ❑ Fire hydrants shall be located so that the entire developed area is within 300 feet of a fire hydrant.
- ❑ The standard water main location within road right-of-ways is 12 feet north or west of the road centerline.
- ❑ The minimum depth of water main is 5.5 feet.
- ❑ All water mains outside of public right-of-ways, except service laterals, shall become a part of the public water main system. An easement shall be drafted and signed by the developer to the City of Greenville.
- ❑ The developer shall prepare an application for an Act 399 permit through the MDEQ. The application should include the basis of design and be submitted for the City's signature. Three, sealed copies of the plans shall be submitted with the application.

ROADS:

- ❑ Roads shall be constructed in conformance to City street standards.

- All roads shall include concrete curb and gutter conforming to MDOT designation F4. A concrete rolled curb and gutter may be constructed with the approval of the City Council.
- Minimum street standards per use are as follows:
  1. Arterial – 36 feet b/c (back of curb) to b/c within an 86-foot right of way.
  2. Collector – 30 feet b/c to b/c with a 66-foot right of way.
  3. Local – 24 feet b/c to b/c with a 60-foot right of way.
  4. Cul-de-sac road (residential) – Local with 35-foot radius to b/c and 53-foot radius to r/w (right of way).
  5. Cul-de-sac road (commercial/industrial) – Collector with 60-foot radius to b/c and 78-foot radius to r/w.
  6. Boulevard – 30 feet b/c to b/c in each direction within a 120-foot right of way.
- A 10-foot wide utility easement shall be included outside the road right of way on either side for all right of ways less than 86 feet.
- The minimum centerline grade shall be 0.60%, but 0.75% is preferred.
- The maximum centerline grade shall be 6.0%.
- The minimum crown grade shall be 2%.
- The developer's engineer shall determine the appropriate pavement cross-section based on expected traffic within a 20-year design life. The minimum pavement section shall be as follows:
  1. Arterial – 4-inches of HMA over 8-inches of aggregate base.
  2. Collector – 3-inches of HMA over 8-inches of aggregate base.
  3. Local – 2½-inches of HMA over 8-inches of aggregate base.