



CITY OF WEST POINT

Street and Storm Water Standards And Specifications

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MINIMUM STREET REQUIREMENTS

1. Rights of Way. (See Appendix A, Street Sections)
2. Street Width. (See Appendix A, Street Sections)
3. Asphalt Surface Requirements. (See Base and Paving Design Criteria)
4. Concrete Surface Requirements. (See Base and Paving Design Criteria)
5. Dead end streets will not be approved except for the explicit purpose of connecting to future developments.
6. Cul de sacs shall not exceed 500 feet in length and shall terminate in a circle having a radius of not less than 50 feet as measured to the back of the curb.
7. Street grades shall not exceed 8 % or be less than 0.4 % unless a variation is approved by the City Engineer.
8. Street grades approaching intersections shall not be steeper than 6 % for a distance of not less than 150 feet from the center of the intersection.
9. The grades of any street should be planned along the contour that will afford the minimum grade with the maximum visibility.
10. Circular curves having centerline tangents longer than 200 feet are required at any centerline deflection in street alignment.
11. Proposed street intersections shall be designed to intersect at 90 degrees. In some instances where this is not feasible special considerations may be given, but in no instance will a street intersect another street at an angle of less than 60 degrees.
12. Offset intersections will not be approved unless such offset is greater than 200 feet and treated as separate tee ("T") intersections.
13. All driveway/street connections shall be approved by the Department of Public Works and/or The Mississippi Department Of Transportation (MDOT) as applicable. Copies of such approval shall be furnished to the Building Department prior to the issuance of any building permits.

GUIDELINES AND SPECIAL NOTES

1. Before construction begins plans shall be submitted to the City Engineer's office for all projects covered under these specifications. The plans should include at a minimum the following:

A project map clearing showing the location of work to be done within the City of West Point.

All plans, unless otherwise directed by the city engineer, should be prepared and stamped by a registered professional engineer in the state of Mississippi.

For street projects, a proposed typical section sheet containing the pavement design structure and street widths. Plan and profile sheets should also be included depicting the streets horizontal and vertical alignments, utility and storm sewer locations, and adjacent property owners.

For storm sewer projects, plan and profile sheets depicting the proposed horizontal and vertical alignments of the pipe or culverts. Pipe and culvert sizes should be clearly shown on the plans along material type and lengths. Supporting calculations should also be submitted by a registered professional engineer justifying all pipe or culvert sizes.

All easements or right-of-ways, either existing or proposed, should be clearly shown on the plans.

Plans not meeting these minimum standards may be rejected. All plans should be submitted well before construction is scheduled to begin so that the city engineer has time to review the drawings and issue the applicable permits.

2. All work that is to be dedicated to the City of West Point as public infrastructure shall be inspected by a representative from the city engineer's office to ensure compliance with the approved plans and specifications. Work that is not inspected by the city engineer's office will be rejected. Applicable permits that are obtained for work should be kept on site during construction at all times

BASE AND PAVING DESIGN CRITERIA

SUBGRADE

The subgrade shall be shaped to the lines and templates shown in Appendix A for the applicable street section. Placement and compaction of embankment/fill material shall conform to the specific requirements of Section 304 of the Mississippi Standard Specifications For Road And Bridge Construction, 1990 Edition, unless superceded by these specifications. All areas requiring embankment/fill greater than 6" shall be compacted to an average minimum of 95% of the Standard Proctor for the material being used. A field compaction report for embankment/ fill areas signed and sealed by the design engineer shall be furnished prior to placement of the base course.

BASE

The base course material shall be shaped to the lines and templates shown in Appendix A for the applicable street section. All base course material shall consist of crushed limestone and shall meet the requirements listed below:

Gradation Requirements for Crushed Limestone Base Course

Sieve Size	Percentage Passing
1"	100
3/8"	50 - 85
No. 4	35 - 65
No. 10	25 - 50
No. 40	15 - 30
No. 200	5 - 15

Other base course materials may only be used with special permission from the City Engineer. A base course whose compacted thickness is designated to be more than 8 1/2" shall be constructed in two or more layers of approximate equal thickness. The average compacted density of the base course material shall exceed or be equal to 99% of the standard proctor, with no single test below 95%. A field compaction report signed and sealed by the design engineer shall be furnished prior to placement of the pavement courses.

PAVEMENT

Pavement shall be placed to the lines and templates shown in Appendix A for the applicable street section. Design of asphalt pavements will be in accordance with the latest AASHTO (American Association of State Highway and Transportation Officials) procedures. The hot bituminous plant mix pavement (materials, placement and compaction) shall conform to the specific requirements of Sections 401 and 403 of the Mississippi Standard Specifications for Road and Bridge Construction, 1990 Edition, unless superceded by these specifications. After placement of the asphalt pavement, a field compaction report signed and sealed by the design engineer shall be furnished prior to acceptance of the street.

Any proposed concrete pavement shall be designed in accordance with the latest AASHTO procedures and approved by the City Engineer. Specifications for the materials and construction of the concrete pavement will be included in the design.

TYPICAL SECTIONS

The typical sections that follow are intended to be minimum guidelines only. Designs that do not meet these minimum criteria will not be accepted. The engineer should follow proper design procedures using the most recent accepted methodologies to determine structure thickness. Examples of lines, grade and street dimensions are included in the Appendices.

RESIDENTIAL STREETS

Typical sections for residential type streets shall conform to the appropriate drawings found in Appendix A. The minimum base course for residential type streets shall consist of 8½ inches of crushed limestone. The minimum pavement thickness for residential type streets shall consist of 2 inches of hot bituminous plant mix binder course and 1½ inches of hot bituminous plant mix surface course.

COMMERCIAL STREETS

Typical sections for commercial type streets shall conform to the appropriate drawings found in Appendix A. The minimum base course for commercial type streets shall consist of 10½ inches of crushed limestone. The minimum pavement thickness for commercial type streets shall consist of 3 inches of hot bituminous plant mix binder course and 1½ inches of hot bituminous plant mix surface course.

INDUSTRIAL STREETS

Typical sections for industrial type streets shall conform to the appropriate drawings found in Appendix A. The minimum base course for industrial type streets shall consist of 12 inches of crushed limestone. The minimum pavement thickness for commercial type streets shall consist of 4 inches of hot bituminous plant mix binder course and 1½ inches of hot bituminous plant mix surface course.

GENERAL NOTES

All materials and each part or detail of the work are subject to inspection by the City Engineer. Prior to acceptance of any portion of the work (i.e. subgrade, base, pavement), the City Engineer shall inspect the work for material quality, course thicknesses and workmanship. Any portion of the work or materials found to be unacceptable shall be removed and replaced.

CURB AND GUTTER, DRIVEWAYS AND SIDEWALKS

Concrete sidewalks, curbs and gutters and driveways shall be constructed in accordance with the Mississippi Standard Specifications for Road and Bridge Construction, 1990 Edition, and shall meet the following minimum requirements:

CONCRETE SIDEWALKS

Concrete sidewalks may be constructed by the use of forms (wood or metal) or an approved automatic extrusion type paving machine. Forms used shall be set to the line and grade shown on the plans and rigidly held in place by stakes or braces. The depth of the forms shall be equal to the depth of the sidewalk.

Excavation shall be made to the required depth of the sidewalk and wide enough to permit the placement of forms and braces. The subgrade shall be compacted and moistened prior to placement of any concrete. Any soft or spongy soil shall be removed and replaced with acceptable material. At no time will concrete be placed on top of mud.

Concrete used for construction of sidewalks shall be a minimum 2,500 psi mix design. Expansion and tooled joints will be placed in accordance with the plans. Once the concrete has been deposited and consolidated, the concrete surface shall receive a floated finish.

CURBS AND GUTTERS

Concrete curbs and curbs and gutters may be constructed with forms or a curb forming machine. Forms, except for the divider plates, may be either wood or metal. Forms used shall be set to the line and grade shown on the plans and rigidly held in place by stakes or braces. The depth of the forms shall be equal to the depth of the curb, gutter or combination curb and gutter.

Concrete used for construction of curbs, gutters or combinations curbs and gutters shall be a minimum 3,000 psi mix design. The concrete shall be placed on a moist grade and consolidated by vibration or other approved methods. Expansion and tooled joints will be placed in accordance with the plans. Once the concrete has been placed and consolidated, the concrete surface shall receive a floated finish.

DRIVEWAYS AND TURNOUTS

Driveways and turnouts not built at the time of construction of the street curbs and gutters shall be built in accordance with the following. Residential driveways and turnouts shall be a minimum of 10 feet wide and have a curb radius of not less than 5 feet as measured to the back of the curb. Commercial driveways and turnouts shall be a maximum of 30 feet wide and have a curb radius of not less than 12 feet as measured to the back of the curb. Industrial driveways and turnouts shall be a maximum of 50 feet wide and have a curb radius of not less than 25 feet as measured to the back of the curb. Driveways and turnouts shall be constructed with materials and workmanship equal to or better than the adjoining curbs and gutters. The owner of the lot at which the driveway turnout is being constructed shall be responsible for any violation of the above requirements.

No material will be placed in the street gutter that will impair the flow of storm water.

TRAFFIC CONTROL

Prior to beginning any project affecting public streets or the flow of traffic thereon, a traffic control plan will be submitted to the City Engineer for approval. No closures of public streets will be allowed without the prior approval of the City of West Point.

CULVERTS, INLETS AND STORM DRAINS

CONCRETE PIPE CULVERTS

Reinforced concrete pipe culverts, pipe arches, concrete flared end sections and bituminous plastic sealer shall conform to the following requirements:

Round reinforced concrete pipe shall be Class III or higher and with the exception of Class V pipe with diameters of 54 inches and larger shall meet the requirements of AASHTO designation: M 170. Class V pipe with diameters of 54 inches and larger shall meet the requirements of AASHTO designation: M 170 or M 242.

Reinforced concrete arch pipe shall meet the requirements of AASHTO designation: M 206.

Pipe connections may be either bell and spigot or tongue and groove. Pipe sections with visible fractures or cracks, a honey-combed or open texture surface, or damaged or cracked ends that would prevent a satisfactory joint may be rejected by the city and not allowed for placement. Care shall be taken during placement not to damage any portion of the pipe. After placement of the pipe, all joints shall be treated with an approved bituminous plastic sealer on the inside and outside of the pipe.

Mortar for connections to other drainage structures shall be composed of Portland cement and sand in a ratio of 1:2.

CORRUGATED METAL PIPE CULVERTS

Corrugated metal pipe, pipe arches and flared end sections will not be used unless permission is specifically granted by the City Engineer.

CORRUGATED HIGH-DENSITY POLYETHYLENE CULVERTS

Corrugated high-density polyethylene (HDPE) pipe, flared end sections and appurtenant accessories shall meet the requirements of AASHTO designation: M 294. The pipe and fittings shall be made of virgin polyethylene compounds which conform to the requirements of Type III, Category "4" or "5", Grade P33 or P34, Class C of ASTM designation: D 1248.

HDPE pipe shall not be used for crossdrains under public streets unless the following design criteria apply:

1. Minor collector/residential street with Design Hourly Volume (DHV) < 200
2. Pipe diameter of 36 inches or less. —
3. Minimum cover of 12 inches.

INLETS AND CATCH BASINS

The following materials may be used for the construction or placement of inlets and catch basins:

1. Reinforced Concrete (Class "B" Mix Design, Cast-in-Place or Precast) 2.
- *®Nyloplast PVC Inlets and Catch Basins, or equivalent

*®Nyloplast PVC inlets and catch basins are not to be used where traffic loads will be encountered unless special permission is granted by the City Engineer.

Inlets and catch basins shall be constructed to the lines and grades shown on the plans. Minimum requirement for grates shall be plain, round, billet steel bars conforming to the requirements of AASHTO designation: M 31, Grade 60 or better.

PIPE LAYING

All pipe construction shall conform to the applicable paragraphs in Section 603 of the MDOT Standard Specifications. Excavation for all pipes, arches and flared end sections shall be true to line and grade within 1/2 inch as measured either horizontally or vertically. Unsuitable materials excavated from the trenches shall not be used for backfill and shall be removed from the project site.

Minimum size requirements for all pipe culverts shall be 15" inside diameter.

STORM WATER MANAGEMENT

PURPOSE

Proposed construction for commercial, industrial, governmental, residential, parks or recreational type developments that will result in an increase in runoff from the pre-developed or existing conditions shall be governed as specified herein. Existing and new developments that are constructed in phases and will increase runoff amounts from the pre-developed or existing conditions shall be governed as specified herein.

The intent of this section is to serve as a reference for the City staff and practicing professionals in designing storm drainage facilities within the City of West Point. Criteria listed herein are the general policy of the City of West Point and may not be applicable in every situation. Each project will be evaluated on a case-by-case basis with regard to site-specific characteristics, existing storm drain facilities, and how future development on and around the site might be affected.

CONTROL

All preliminary site and subdivision plans submitted for Planning Committee and Council approval shall be accompanied by a narrative describing how stormwater entering, traveling within and leaving the site will be controlled and to what extent the development will impact existing conditions on-site and off-site. All final site plan and construction drawing submittals shall be accompanied by a Stormwater Report prepared by a Professional Engineer registered in the State of Mississippi. The Stormwater Report must include the following:

1. Topographic map(s) showing all on site and off site contributing drainage areas.
2. Basis for determining runoff coefficients and time of concentration.
3. Inflow hydrographs with peak flows for the 2, 10, 25 and 100-year storm frequencies.
4. Stage/storage/discharge table for all proposed detention ponds.
5. Details and calculations for all outlet control structures.
6. Hydrological routing of the 2, 10, 25 and 100 year storm through the proposed system(s).
7. Summary.

The Stormwater report must also include an analysis of the off site properties that may require anticipating future development in addition to addressing existing conditions. Where storm drainage facilities, particularly pipe culverts, serve basins that include areas likely to develop in the future, runoff calculations must assume higher values of runoff coefficients based on estimated increased impervious areas. All maps and other exhibits shall be shown at a satisfactory scale and sufficient in quantity and scope to define the boundaries of the site relative to any applicable watercourses, drainage divides, drainage structures and other pertinent features. The site plan, submitted in conjunction with the Stormwater Report, shall depict all streams, lakes, wetlands and other bodies of water as well as any boundaries of the 100-year flood plain.

The floodplain boundary information must be obtained using Federal Emergency Management Agency (FEMA) guidelines. Proposed developments located in approximate A zones that will be greater than 50 lots or 5 acres, whichever is lesser, must provide 100-yr base flood elevation data. This data should be obtained using appropriate methodologies accepted by FEMA.

Methods used for computing runoff and generating hydrographs must be by one of the following methods: 1) Rational Method for drainage areas up to 100 acres or 2) Soil Conservation Service (SCS) Method (TR55) for small and medium size water sheds containing up to 10,000 acres. Other methods may be used upon prior approval of the City Engineer.

All street and local drainage facilities shall be designed using the 25-year storm unless more stringent requirements apply. Piped Drainage Structures shall have a minimum size of 15 inches in diameter. Inlet and outlet headwalls and toewalls are required for all pipes. Velocities for all pipes shall be kept to a minimum and, if practical, should not exceed 4 feet per second when flowing full; however, if outlet velocities exceed 5 feet per second, then energy dissipation devices and/or channel protection must be provided.

Pipes and box culverts used for cross drains shall be designed to carry at a minimum the 25-year storm discharge, but should also be checked against the 100-year storm to insure that the maximum headwater depth (HW) is 6" below the centerline grade of the roadway.

Street catch basins may be designed for gutter spread using the 10-year storm provided a 4 minute time of concentration is used and the remainder of the system is designed for the 25-year storm assuming each inlet captures 100% of the flow (to provide additional capacity for future additions to the system and off site drainage). Inlet capacity at sags, where relief by curb overflow is not provided, shall allow for debris blockage by providing twice the computed opening for the 10-year storm. Curb inlets in the roadway shall be placed in such a way that the spread of water from the 10-year storm does not exceed one half of a lane width on 2 or 3 lane streets and one lane width on wider streets. When the typical section includes a full shoulder or parking lane, no encroachment onto the travel lane will be allowed.

All drainage structures that lie within streams designated as Special Flood Hazard Areas (SFHA) as defined on the National Flood Insurance Program (NFIP) maps must be designed using the 100-year (1% chance) flood event. Designs for structures lying within these streams shall be accompanied by a no-rise certification analysis by the Professional Engineer. All no-rise certifications shall be conducted in accordance with FEMA guidelines.

DETENTION/RETENTION

Whenever the Stormwater Report indicates that adverse stormwater runoff related impact is expected to result from the development of a property, that project shall be required to provide a stormwater detention facility or facilities so that peak flows from the developed site do not exceed those associated with the pre developed site. The detention facility shall be designed to accommodate a 25-year post development event with the discharge structure designed to release the 10-year pre development flow. Larger projects, in excess of 15 acres, may be designed to release the 25-year pre development flow. Detention and retention ponds shall be designed with adequate freeboard to protect against overtopping of the dam or levee from the 100-year storm. A variety of methods of achieving stormwater management goals are acceptable in providing detention facilities. The type of facility provided shall be based on the following criteria:

1. The type of development for which the detention facility is intended to protect.
2. Volume of stormwater to be stored.
3. Origin and magnitude of the flows to be managed.
4. Topographic opportunities and limitations.
5. Safety considerations.
6. Maintenance requirements.
7. Aesthetic considerations.
8. Likelihood of facility operation interfering with access to public or private facilities.
9. Proximity of facility to property lines, utilities, buffers, etc.
10. Similar site-specific constraints as necessary.

When a detention structure is over 4 feet deep and in a location that constitutes a danger to human habitation, it shall be protected by a permanent fence or barrier and warning signs. Fences shall be 5 feet high chain link or

other approved material with a 10-foot wide gate. Fences shall be located on the outside edge of the 20-foot perimeter easement.

Drainage easements suitable for the construction and maintenance of the drainage system shall be provided. A minimum of 20 feet in width will be required for any drainage easement along a drainage pipe, ditch, stream or other area that is designated for stormwater to flow. No obstruction shall be built, constructed or planted that would inhibit proper function of the drainage system. All detention facilities shall be accessible from a public street by a minimum 20-foot access easement, and there shall be an easement for the detention facility including 20 feet beyond the toe of the side slope of the containment berm of the structure. No fences or planting of shrubbery shall be allowed on access easements. Fences and/or shrubbery may be placed within a piped drainage easement, if an indemnification agreement is provided to the City of West Point.

SEDIMENT CONTROL,
STORM WATER POLLUTION PREVENTION PLAN
(SWPPP)

Before beginning projects that will encompass a disturbed area greater than **five (5)** acres the developer/builder shall submit a Storm Water Pollution Prevention Plan (SWPPP) to the Mississippi Department of Environmental Quality (MDEQ) for a Large Construction Storm Water General Permit. Projects that will have a total disturbed area of less than **five (5)** acres, but greater than **one (1)** acre shall be covered under a Small Construction Storm Water General Permit. The City of Tupelo will not allow construction to begin on a project without the proper permits on file. Permits shall remain on site at all times for inspection by city or MDEQ personnel. Projects that disturb an area of less than **one (1)** acre shall not be required to obtain storm water permits, but shall be expected to follow best management practices regarding erosion and sediment control. The SWPPP submitted for Large Construction Storm Water Permits shall include, but not be limited to, the procedures and specifications contained hereafter.

Structural practices shall be implemented to divert flows from exposed soils, temporarily store flows, or otherwise control runoff in order to prevent pollutants from leaving the project rights of way. As a minimum, the Contractor shall provide straw bales or silt fences as a temporary structural practice to minimize erosion and sediment runoff. Straw Bales and silt fences shall be properly placed to effectively retain sediment in each independent runoff area; then, as work progresses, shall be removed/replaced/relocated as needed. Bale rows used to retain sediment shall be turned uphill at each end of each row. Silt fences or rows of straw bales shall be provided as follows:

1. Along the downhill perimeter edge of areas disturbed.
2. Along the top of the slope or top bank of drainage ditches, channels, swales, etc. that traverse disturbed areas.
3. Along the toe of cut slopes and fill slopes of the construction areas.
4. Perpendicular to the flow in the bottom of existing drainage ditches, channels, swales, etc., that traverse disturbed areas or carry runoff from disturbed areas. Rows shall be spaced a maximum of 100 feet apart in such existing drains that are within the limits of the work.
5. Perpendicular to the flow in the bottom of new drainage ditches, channels, and swales. Rows shall be spaced a maximum of 200 feet apart in drains with slopes equal to 5 % or less and 100 feet apart in drains with slopes 5% or steeper.
6. At the entrance to culverts that receive runoff from disturbed areas.

SILT FENCES

The height of a silt fence shall be a minimum of 18 inches and a maximum of 34 inches above the ground surface.

Filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 degrees F to 120 degrees F. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together only at a support post with a minimum 6-inch lap and securely sealed.

Wooden posts shall have a minimum length of 5 feet and a minimum diameter of 2 inches when oak is used and 4 inches when pine is used.

Steel posts (standard "U" or "T" section) shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 5 feet.

Wire fence reinforcement for silt fences using standard strength filter fabric shall be a minimum of 14 gauge and shall have a maximum mesh spacing of 6 inches.

When wire support is used, standard strength filter fabric may be used. Posts for this type of installation shall be placed a maximum of 10 feet apart. The wire mesh shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least 1 inch long, tie wires or hog rings. The standard strength fabric shall be stapled or wired to the wire fence.

When wire support is not used, extra strength filter fabric shall be used. Posts for this type of fabric shall be placed a maximum of 6 feet apart.

A trench shall be excavated approximately 4 inches wide and 4 inches deep on the upslope side of the proposed location of the silt fence. The filter fabric shall be fastened securely to the upslope side of the posts using 1 inch long (minimum) heavy duty wire staples or tie wires. The fabric shall be extended into the trench a minimum of 8 inches; the trench backfilled and the soil compacted over the filter fabric. The fabric shall not be stapled to existing trees.

STRAW BALES

Bales shall be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. All bales shall be either wire bound or string tied. Straw bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales in order to prevent deterioration of the bindings.

The barrier shall be entrenched and backfilled. A trench shall be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. After the bales are staked and chinked (gaps filled by wedging), the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to 4 inches against the uphill side of the barrier.

Each bale shall be securely anchored by at least 2 stakes (minimum dimensions 2 inches x 2 inches x 36 inches) or standard "T" or "U" steel posts (minimum weight of 1.33 pounds per linear foot) driven through the bale. The first stake or steel post in each bale shall be driven toward the previously laid bale to force the bales together. Stakes or steel pickets shall be driven a minimum of 18 inches deep into the ground to securely anchor the bales.

The gaps between bales shall be chinked (filled by wedging) with straw to prevent water from escaping between the bales. Loose straw may be scattered over the area immediately uphill from a straw bale barrier to increase barrier efficiency.

DIVERSION DIKES

Diversion dikes shall have a maximum channel slope of 2 % and shall be adequately compacted to prevent failure. The minimum height measured from the top of the dike to the bottom of the channel shall be 18 inches.

The minimum base width shall be 6 feet and the minimum top width shall be 2 feet. Diversion dikes shall be located to minimize damages caused by construction operations and traffic.

The use of erosion control methods to contain all materials on each project site is mandatory. If a hazardous situation arises and control measures are not in place, the developer/builder will be given 24 hours to comply. If it is not of an urgent nature, the developer/builder will be allowed 7 calendar days to comply. If the clean up of material involves the City Streets and the developer/builder refuses to provide the clean up, the Public Works Department may perform the work and seek compensation from the developer/builder.

APPENDIX A

I. Drawings

