Sponsors:
Honorables Phil Stowers
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ORDINANCE NO: 07-OR-71
Item No. 07-I-128

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Pat Higgins Circuit Clerk

STORMWATER MANAGEMENT ORDINANCE

AN ORDINANCE ADOPTING REGULATIONS DESIGNED TO LESSEN OR DETER HAZARDS TO PERSONS, PROPERTY AND THE ENVIRONMENT CAUSED BY INCREASED RUNOFF, OBSTRUCTIONS TO DRAINAGE AND INTRODUCTION OF EXCESSIVE SILTS, DEBRIS AND POLLUTANTS INTO THE DRAINAGE SYSTEM, LAKES PONDS, STREAMS, RIVERS AND OTHER WATER BODIES IN PULASKI COUNTY, AND TO OTHERWISE PROMOTE THE PUBLIC HEALTH, SAFETY AND WELFARE OF THE PUBLIC.

WHEREAS THE ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY, UNDER REGULATIONS ADMINISTERED BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY DOES REQUIRE THE COUNTY TO MEET CERTAIN REQUIREMENTS AS ESTABLISHED IN THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PHASE II FOR SMALL MS4'S. IT IS THE INTENT OF THIS ORDINANCE TO CREATE AND ADOPT REGULATIONS AS PROVIDED IN THIS ORDINANCE TO ASSURE COMPLIANCE.

PULASKI COUNTY WILL REGULATE IN THE PORTION OF THE COUNTY THAT IS WITHIN AN URBANIZED AREA AS DETERMINED BY THE 2000 DECENNIAL CENSUS. URBANIZED AREA MEANS THE AREAS OF URBAN POPULATION DENSITY DELINEATED BY THE BUREAU OF THE CENSUS FOR THE STATISTICAL PURPOSES AND GENERALLY CONSISTING OF THE LAND AREA COMPRISING ONE OR MORE CENTRAL PLACE(S) AND THE ADJACENT DENSELY SETTLED SURROUNDING AREA THAT TOGETHER HAVE A RESIDENTIAL POPULATION OF AT LEAST 50,000 AND AN OVERALL POPULATION DENSITY OF AT LEAST 1,000 PEOPLE PER SQUARE MILE AS DETERMINED BY THE LATEST DECENNIAL CENSUS BY THE BUREAU OF CENSUS, AND MORE PARTICULARLY AS INDICATED BY THE SHADED AREAS DEPICTED IN APPENDIX B.

ARTICLE I. GENERAL PROVISIONS

SECTION A. Introduction

1. The Quorum Court finds that uncontrolled stormwater runoff from developed land adversely affects the public health, safety and welfare because:

   a) Impervious surfaces increase the quantity and velocity of surface runoff, which reduces percolation of water through soil and increases erosion and flooding;
   b) Improper stormwater collection and conveyance adversely affects property and increases the incidence and severity of flooding, which can endanger property and human life;

SECTION B. Purpose

The purpose of this ordinance is to set forth the minimum requirements for construction site erosion control and stormwater management associated with both future land development and existing developed land within the County. These requirements will diminish threats to public health, safety, public and private property and natural resources of Pulaski County by establishing performance standards that:

a) Protect life and property from dangers associated with flooding;
b) Protect public and private property from damage resulting from runoff or erosion;
c) Ensure the annual runoff rates and volumes from post development site conditions mimic the annual runoff rates and volumes from predevelopment site conditions;
d) Ensure the site design minimizes the generation of stormwater and maximizes pervious areas for stormwater treatment;
e) Promote regional stormwater management by watershed;
f) Provide a single, consistent set of performance standards that apply to all developments;
g) Protect water quality from nutrients, pathogens, toxic matters, debris and other contaminants;
h) Promote infiltration and groundwater recharge;
i) Provide a vegetated corridor (buffer) to protect water resources from development;
j) Protect functional values of natural water courses and wetlands;
k) Provide plant and animal habitat and support riparian ecosystems;
l) Achieve a reduction in sediment load rates to Pulaski County waters compared to no controls for all new development, a reduction in sediment load rates compared to no controls for all redevelopment and street reconstruction, and a reduction in sediment load rates compared to no controls for existing developments;
m) Minimize sedimentation to the water resources of Pulaski County ;
n) Protect functional values of natural water courses and wetlands;
o) Protect public and private property from damage resulting from runoff or erosion;
p) Control soil erosion and sedimentation to minimize soil deposition in streams and other receiving water bodies and storm drainage systems;
q) Require implementation of Best Management Practices to minimize the discharge of chemicals and other illicit discharges and pollutants, either directly or indirectly into the streams, rivers, lakes and other bodies of water; and into the County 's drainage infrastructure; and
r) Assuring Pulaski County is and will remain in compliance with federal and state law.

2. The application of this Ordinance and the provisions expressed herein shall be the minimum stormwater management requirements and shall not be deemed a limitation or repeal of any other powers granted by state statute. In addition, if site characteristics indicate that complying with these minimum requirements will not provide adequate designs or protection for local property or residents, it is the designer's responsibility to exceed the minimum requirements as necessary. The County Engineer or designee shall be responsible for the coordination and enforcement of the provisions of this ordinance.

SECTION C. Definitions

1. **Abrasion** – Wear or scour by hydraulic traffic.

2. **Absorption** – The assimilation or taking up of water by soil.

3. **Aggradation** - General and progressive raising of the stream bed by deposition of sediment.

4. **Aluminum** - Aluminum is a lightweight, silver-white, metallic element that makes up approximately 7 percent of the Earth's crust. Aluminum is mined in the form of bauxite ore where it exists primarily in combination with oxygen as aluminum. Aluminum is used in a variety of ways, but perhaps most familiarly in the manufacture of soft drink cans.

5. **Alluvial** - Referring to deposits of silts, sands, gravels and similar detrital material, which have been transported by running water.

6. **Antecedent Moisture** - The degree of wetness of the soil at the beginning of a runoff period; frequently expressed as an index determined by summation of weighted daily rainfalls for a period preceding the runoff in question.

7. **Aquatic Life** – any indigenous species of plants or animals living in water.

8. **Aquifer** - an underground geological formation or group of formations containing usable amounts of groundwater that can supply wells and springs; an underground bed or stratum of sand, gravel, or rock that stores or conveys water below the surface of the soil.

9. **As-Built Plan** - A set of engineering or site drawings that delineate the specific permitted stormwater management facility as actually constructed.

10. **As-Built Survey** - A certified improvements location survey prepared by the registered professional engineer of record and surveyor certifying the elevations and positions of the drainage improvements required by this ordinance.

11. **Area of shallow flooding** - means a designated AO, AH, ARlAO, ARiAH or VO zone on a community's Flood Insurance Rate Map (FIRM) with a one percent or greater annual chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable, and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

12. **Area of Special Flood Hazard** - The land in the flood plain within a community subject to a one (1) percent or greater chance of flooding in any given year. The area may be designated as Zone A on the FHBM.

13. **ASWCC** - Arkansas Soil & Water Conservation Commission; State Coordinating Agency for the NFIP.

14. **Backwater** - The rise in water surface measured at a specified location upstream from the constriction causing the increased height.

15. **Bacteria** - single-celled microorganisms that lack chlorophyll. Some bacteria are capable of causing human, animal or plant diseases; others are essential in pollution control because they break down organic matter in the air and in the water.

16. **Base Flood** - The flood or tide having a I-percent chance of being exceeded in any given year (commonly known as a 100-year flood).

17. **Base Floodplain** – The area subject to flooding by the base flood.

18. **Bed Load** - Sediment that moves by rolling, sliding, or skipping along the bed and is essentially in contact with the stream bed.

19. **Best Management Practices (BMPs)** - Erosion and sediment control and water quality management practices that are the most 'effective and practicable means of controlling, preventing, and minimizing degradation of surface water, including avoidance of impacts, construction-phasing, minimizing the length of time soil areas are exposed, prohibitions, engineered systems, programs and other management practices published by state or designated area-wide planning agencies.

20. **BFE** – base flood elevation; refer to the term "base flood" above.

21. **Bond** - Any form of security for the completion or performance of the stormwater management and drainage plan or the maintenance of drainage improvements, including surety bond, collateral, property or instrument of credit, or escrow deposit in an amount and form satisfactory to the County Engineer.

22. **Braided Stream** - A stream in which flow is divided at normal stage by small islands. This type of stream has the aspect of a single large channel within which there are subordinate channels.

23. **Buffer Zone** - An area of natural vegetation like grass, bushes and shrubbery or hardened material like rip rap, gabion mattresses and man-made channels that protects natural waterways, creeks, streams, lakes and rivers from the direct impact of pollutants entering through stormwater from drainage pipes or impermeable areas.

24. **Building** - Any structure built for the support, shelter or enclosures of persons, animals, chattels, or movable property of any kind.

25. **Buoyancy** - The power of supporting a floating body, including the tendency to float an empty pipe (by exterior hydraulic pressure).

26. **Capillary Rise** - The height above a free water elevation to which water will rise by capillary action.

27. **Capillary Suction** - Capillary force that pulls or draws water against the force of gravity in dry soils.

28. **Caisson** - Watertight box or cylinder used in excavating for foundations or tunnel pits - to hold out water so concreting or other construction can be carried on .

29. **Channel** - Course of perceptible extent which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water, and which has a definite bed and banks.

30. **Clean Water Act (CWA)** - federal Water Pollution Control Act enacted in 1972 and amended by the Water Quality Act of 1987. The Clean Water Act prohibits the discharge of pollutants to waters of the United States unless the discharge is in accordance with an NPDES permit. The 1987 amendment requires that municipalities regulate industrial and construction stormwater discharges and those stemming from development.

31. **Close the Loop** - A term used to describe the last, and most important, step in the recycling process. It refers to the point when a consumer buys a recycled product after it has been put into a recycling program and reprocessed into a new item.

32. **Cofferdam** - A barrier built in the water so as to form an enclosure from which the water is pumped to permit free access to the areas within.

33. **Collector and Arterial Streets and Highways** - These are certain streets as depicted on the latest Pulaski County Master Street Plan Map, for a particular design capacity and purpose.

34. **Coliforms** - any of a number of organisms common to the intestinal tract of animals:the presence in water of which is an indicator of pollution and of potentially dangerous bacterial contamination.

35. **Commercial Development** - means any development that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, multi-apartment buildings, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

36. **Common Plan of Development** - A contiguous area where multiple separate and distinct land disturbing activities may be taking place at different times, on different schedules, but under one proposed plan. One plan is broadly defined to include design, permit application, advertisement or physical demarcation indicating that land-disturbing activities may occur.

37. **Compost** - Composting is Nature's way of recycling. Compo sting refers to a solid waste management technique that uses natural processes to convert organic materials to humus through the action of microorganisms. Compost is a mixture that consists largely of decayed organic matter and is used for fertilizing and conditioning land.

38. **Composite Hydrograph** - A plot of mean daily discharges for a number of years of record on a single year time base for the purpose of showing the occurrence of high and low flows.

39. **Conduit** - A pipe of other opening, buried or above ground for conveying hydraulic traffic, pipelines, cables or other utilities.

40. **Conduit** – Any open or closed device for conveying flowing water.

41. **Confluence** – Conservation is the wise use of natural resources (nutrients, minerals, water, plants, animals, etc.). Planned action or non-action to preserve or protect living and non-living resources.

42. **Conservation** - Conservation is the wise use of natural resources (nutrients, minerals, water, plants, animals, etc.). Planned action or non-action to preserve or protect living and non-living resources.

43. **Constructed Wetlands** – an artificial wetland system designed to mitigate the impacts of urban runoff.

44. **Construction Activity** - For this permit, construction activity includes construction activity as defined in 40 C.F.R. part 122.26(b)(14)(x) and small construction activity as defined in 40 C.F.R. part 122.26(b)(15). This includes a disturbance to the land that results in a change in the topography, existing soil cover (both vegetative and non-vegetative), or the existing soil topography that may result in accelerated storm water runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity includes the disturbance of less than one acre of total land area that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb one (1) acre or more.

45. **Construction Site Erosion Control** - Preventing or reducing soil erosion and sedimentation from land disturbing activity.

46. **Contractor Certification Program** - a voluntary program in which the county will provide periodic seminars and training to educate contractors and other professionals on the proper procedures for installation and maintenance of erosion and sediment control measures and related matters. Refer to Pulaski County Best Management Practices manual for additional information.

47. **Contraction** – The reduction in cross sectional area of flow.

48. **Control**- A section or reach of an open conduit or stream channel, which maintains a stable relationship between stage and discharge.

49. **Control** - To minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

50. **Control** - The hydraulic characteristic which determines the state-discharge relationship in a conduit. The control is usually critical depth, tailwater depth, or uniform depth.

51. **Conveyance** – A measure of the water carrying capacity of a stream or channel.

52. **Critical Flow**- That flow in open channels at which the energy content of the fluid is at a minimum. Also, that flow which has a Froude number of one.

53. **Cross-drain Culvert** – A culvert located under a roadway.

54. **Culvert** – A conduit for conveying water through an embankment.

55. **Current Meter** – An instrument for measuring the velocity of a current. It is usually operated by a wheel equipped with vanes or cups which is rotated by the action of the impinging current. An indicating or recording device is provided to indicate the speed of rotation which is correlated with the velocity of the current.

56. **Debris** - Any material including floating woody materials and other trash, suspended sediment, or bed load, moved by a flowing stream.

57. **Deflection** - Change in shape or decrease in diameter of a conduit, produced without fracture of the material.

58. **Degradation** - General and progressive lowering of the longitudinal profile of a channel by erosion.

59. **Design Flood** - The peak discharge, volume if appropriate, stage or wave crest elevation of the flood associated with the probability of exceedance selected for the-design of a highway encroachment. By definition, the highway will not be inundated from the stage of the design flood.

60. **Designated Uses** - Those water uses identified in state water quality standards that must be achieved and maintained as required under the Clean Water Act. Uses can include cold water fisheries, public water supply, agriculture, etc.

61. **Detention** - The temporary detaining or storage of floodwater in reservoirs, on parking lots, on rooftops and other areas under predetermined and controlled conditions and accompanied by controlled release of the stored water.

62. **Detention Basin** - An open excavation or depression in the ground surface used for temporary storage of storm water prior to release downstream.

63. **Detention Pond** - A stormwater detention facility which maintains a fixed minimum water elevation between runoff events except for the lowering resulting from losses of water due to infiltration or evaporation.

64. **Detention Chamber** - A chamber or tank used to temporarily store storm water underground. Inlet and outlet flow controls are usually provided and tank can sometimes be perforated to exfiltrate water into soil during the detention time.

65. **Detention Structure** - A permanent stormwater management structure whose primary purpose is to temporarily store stormwater runoff and release the stored runoff at controlled rates.

66. **Develop land** - To change the runoff characteristics of a parcel of land in conjunction with residential, commercial, industrial, or institutional construction or alteration.

67. **Developer** – Any person or entity proposing building or land improvements.

68. **Development** - Any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity. Or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

69. **Development** - Should generally mean any of the following actions undertaken by a public or private individual or entity:

a. The division of a lot, tract or parcel of land into two (2) or more lots, plots, sites, tracts, parcels or other divisions by plat or deed, or

b. Any land change, including, without limitation, clearing, tree removal, grubbing, stripping, dredging, grading, excavating, transporting and filling of land.

70. **Dewatering** - The removal of water for construction activity. It can be a discharge of appropriated surface or groundwater to dry and/or solidify a construction site.

71. **Diaphragm** - A metal collar at right angles to drain pipe for the purpose of retarding seepage or the burrowing of rodents.

72. **Differential Runoff** - The volume and rate of flow of stormwater runoff discharged from a parcel of land or drainage area which is or will be greater than the volume and rate which pertained prior to proposed development or redevelopment.

73. **Dike** - An embankment to confine or control water, especially one built along the banks of a river to prevent overflow of low lands or to deflect water away from a bank. Also called Levee.

74. **Dike, Finger** - Relatively short embankments constructed normal to a larger embankment, such as an approach fill to a bridge. Their purpose is to impede flow and direct it away from the major embankment.

75. **Dike, Spur** - Relatively short embankments constructed at the upstream side of a bridge end for the purpose of aligning flow with the waterway opening and to move scour away from the bridge abutment.

76. **Dike, Toe** - Embankments constructed to prevent lateral flow from scouring the comer of the downstream side of an abutment embankment. Sometimes referred to as training dikes.

77. **Dike, Training** - Embankments constructed to provide a transition from the natural stream channel or floodplain, both to and from a constricting bridge crossing.

78. **Discharge** - the volume of water that passes through a given cross section of a channel or sewage outfall during a unit of time.

79. **Discharging Directly** - means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

80. **Dissolved Oxygen (DO)** - the amount of free (not chemically combined) oxygen in water; the concentration of oxygen held in solution in water, which is vital to fish and other aquatic organisms and for the prevention of odors. It us usually measured in mg/L or expressed as a percentage of the saturation value for a given water temperature and atmospheric pressure. In general, oxygen levels decline as pollution increases.

81. **Dissolved Solids** - the total amount of dissolved material, organic and inorganic, contained in water or wastes; excessive dissolved solids make water unpalatable for drinking and unsuitable for industrial uses.

82. **Disturbed Area** - means an area that is altered as a result of clearing, grading, and/or excavation.

83. **Drainage Area** – All land area that contributes runoff to the same discharge point.

84. **Drainage Basin** - All land area contributing to a given discharge point in terms of drainage.

85. **Drainage Easement** - Authorization by a property owner for use by another party or parties for all or any portion of his/her land for a drainage and adjoining utility purposes. Easements shall be dedicated to the County when required or approved by the County Engineer.

86. **Drainage Pipe** - Drainage conduit, which carries storm water flows in either a closed storm water sewer system or culverts. RCP, CMP & HDPE are some common drainage pipes used throughout the state.

87. **Drawdown** - The difference in elevation between the water surface elevation at a constriction in a stream or conduit and the elevation that would exist if the constriction were absent. Drawdown also occurs at changes from mild to steep channel slopes and at weirs or vertical spillways.

88. **Duplex**- Two housing units that share a common wall.

89. **Dynamic Equilibrium** - That delicate balance of the many factors which must occur in a stream reach so that the channel is neither aggrading or degrading.

90. **Easement** - Shall mean a grant or reservation by the owner of land for the use of such land by others for a specific purpose or purposes, and which must be included in the conveyance of land affected by such easement.

91. **Effluent** - a discharge of pollutants (usually in liquid form) into the environment, partially or completely treated or in its natural state; generally used in regard to discharges into waters; liquid flowing out of a system, such as discharge of stormwater from an urban outfall, liquid waste from a factory, or water leaving a sewage treatment plant.

92. **Elevation or Elevations** - All required elevations shall be based on mean sea level datum.

93. **Emergency Flood Insurance Program or emergency program** - Means the program as implemented on an emergency basis in accordance with the NFIP. It is intended as a program to provide a first layer amount of insurance on all insurable structures before the effective date of the initial FIRM.

94. **Encroachment** - Extending beyond the original, or customary limits, such as by occupancy of the river andlor floodplain by earth fill embankment. An action within the limits of the base floodplain.

95. **Energy Dissipation** - Methods employed at pipe outlets to prevent erosion. Examples include, but are not limited to: concrete aprons, riprap, splash pads, and gabions that are designed to prevent erosion.

96. **Energy Grade Line (or Hydraulic Grade Line)** - The line, which represents the total energy gradient along the channel. It is established by adding together the potential energy expressed as the water surface elevation referenced to a datum and the kinetic energy (usually expressed as velocity head) at points along the flowing water.

97. **Energy Head** - The elevation of the hydraulic gradient at any section, plus the velocity head.

98. **Engineer** - A person who IS a registered professional engmeer m the State of Arkansas.

99. **Engineer of Record** - A registered professional engineer in Arkansas. This engineer shall supervise the design and construction of the development project and shall be acceptable to the County Engineer.

100. **Equal Degree of Encroachment** - Established by considering the effect of encroachments on the hydraulic efficiency of the floodplain along a significant rea<;h of the stream, on both sides.

101. **Equalizer** - A culvert placed where there is no channel but where it is desirable to have standing water at equal elevations on both sides of a fill.

102. **Erosion**- the wearing away of land surfaces by the action of wind or water.

103. **Erosion Prevention** - Measures employed to prevent erosion including but not limited to: soil stabilization practices, limited grading, mulch, temporary or permanent cover, and construction phasing.

104. **Excavation** - Any act by which organic matter, earth, sand, gravel, rock or any other similar material is cut into, dug, quarried, uncovered, removed, displaced, relocated or bulldozed and shall include the resulting conditions.

105. **Existing Development** - Buildings and other structures and impervious areas existing prior to ordinance adoption.

106. **Existing Structure** - Means for the purposes of determining rates, structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date.

107. **FBFM**-Flood boundary and floodway map; referred to as the "floodway" map.

108. **FEMA** – Federal Emergency Management Agency

109. **Fill** - Any act by which earth, sand, gravel, rock or any other material is deposited, placed, replaced, pushed, dumped, pulled, transported, or moved to a new location and shall include the resulting conditions.

110. **FIS** - Flood Insurance Study accompanying the production of the FIRM; study booklet accompanying a Flood Insurance Study.

111. **Filtration** - in stormwater treatment, a common process that removes particulate matter by separating water from solid material, usually by passing it through sand.

112. **Final Stabilization** – means that either:

a. All soil disturbing activities at the site have been completed and a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed;

b. For individual lots in residential construction by either: (a) The homebuilder completing **final stabilization** as specified above, or (b) the homebuilder establishing temporary stabilization including perimeter controls for an individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need for, and benefits of, **final stabilization**. (Homeowners typically have an incentive to put in the landscaping functionally equivalent to **final stabilization** as quick as possible to keep mud out of their homes and off sidewalks and driveways.); or

c. For construction projects on land used for agricultural purposes (e.g., pipelines across crop or range land) **final stabilization** may be accomplished by returning the disturbed land to its preconstruction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to **surface waters** and drainage systems, and areas which are not being returned to their preconstruction agricultural use must meet the **final stabilization** criteria in (a) or (b) above.

113. **Flood Frequency** - Also referred to as exceedance interval, recurrence interval or return period; the average time interval between actual occurrences of a hydrological event of a given or greater magnitude; the percent chance of occurrence is the reciprocal of flood frequency, e.g., a 2 percent chance flood is the reciprocal statement of a 50-year flood.

114. **Flood Hazard Boundary Map (FHBM)** - means an official map of a community, issued by the Administrator, where the boundaries of the flood, mudslide related erosion areas having special hazards have been designated as Zones A, M and/or E.

115. **Flood Insurance Rate Map (FIRM)** - means an official map of a community, on which the Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community

116. **Flooding** - A general and temporary condition of partial or complete inundation of normally dry land areas from the unusual and rapid accumulation of runoff or surface waters from any source.

117. **Floodplain** - Normally dry land areas subject to periodic temporary inundation by stream flow or tidal overflow. Land formed by deposition of sediment by water; alluvial land.

118. **Floodplain Administrator** - The Public Works Director or the designee who is certified and assigned the responsibility to coordinate and manage the floodplains and floodways in the county.

119. **Flood Profile** - A graph or a longitudinal profile showing the relationship of the water surface elevation of a flood event to existing ground surface along a waterway.

120. **Floodproof** - To design and construct individual buildings, facilities, and their sites to protect against structural failure, to keep water our or to reduce the effects of water entry.

121. **Flood Protection Elevation** - An elevation two feet above the elevation or flood profile of the One Hundred Year Flood under fully developed channel and flood plain conditions.

122. **Flood Regulatory District - FEMA** - The area adjacent to a watercourse, which is subject to flooding as the result of the occurrence of the One Hundred Year Flood. Thus, the area is so adverse to past, current, or foreseeable construction or land use as to constitute a significant hazard to public health and safety or to property. The FEMA Flood Regulatory District is composed of the F100dway District and the 100 Year Flood Plain District as depicted in the related FEMA Flood Insurance Study.

123. **Floodway** - The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without an increase of the water surface elevation more than a predetermined amount along the waterway as determined by the U.S. Army Corps of Engineers.

124. **Flow, Critical**- That flow in open channels at which the energy content of the fluid is at a minimum. Also, that flow which has a Froude number of one.

125. **Flow, Subcritical**- In this state, gravity forces are dominant, so that the flow has a low velocity and is often described as tranquil and streaming. Also, that flow which has a Froude number less than one.

126. **Flow, Supercritical** - In this state, inertia forces are dominant, so that flow has a high velocity and is usually described as rapid, shooting and torrential. Also, that flow which has a Froude number greater than one.

127. **Flow Regime** - The system or order characteristic of stream flow with respect to velocity, depth and specific energy.

128. **Flume** - An open channel or conduit of metal, concrete or wood, on a prepared grade, trestle or bridge.

129. **Ford**- A shallow place where a stream may be crossed by traffic.

130. **Fossil Fuels** - Fossil fuels are the remains of plant and animal life that are used to provide energy by combustion; coal, oil, natural gas.

131. **Freeboard** - The vertical clearance of the lowest structural member of the bridge superstructure above the water surface elevation of the overtopping flood; the vertical distance between the level of the water surface usually corresponding to the design flow and a point of interest such as levee top or specific location on the roadway grade.

132. **Free Outlet** - (as pertaining to critical flow) - Exists when the backwater does not diminish the discharge of a conduit.

133. **French Drain** - An underground passageway for water through interstices among stones placed loosely in a trench.

134. **Frequency** – The reciprocal of the exceedance probability.

135. **Froude Number** - A dimensionless expression of the ratio of inertia forces to gravity forces, used as an index to characterize the type of flow in a hydraulic structure in which gravity is the force producing motion and inertia is the resisting force. It is equal to a characteristic flow velocity (mean, surface, or maximum) of the system divided by the square root of the product of a characteristic dimension (as diameter or depth) and the gravity constant (acceleration due to gravity) all expressed in consistent units. $F r = V / (gy)^{0.5}$

136. **Gaging Station** - A location on a stream where measurements of stage or discharge are customarily made. The location includes a reach of channel through which the flow is uniform, a control downstream from this reach and usually a small building to house the recording instruments.

137. **General Contractor** - The party who signs the construction contract with the owner to construct the project described in the final plans and specifications. Where the construction project involves more than one contractor, the general contractor will be the party responsible for managing the project on behalf of the owner. In some cases, the owner may be the general contractor. In these

cases, the owner may __ contract an individual as the operator who would become the Co-Permittee.

138. **Glass** - Glass is a hard, brittle, generally transparent or translucent material typically formed from the rapid cooling of liquefied minerals. Most commercial glass is made from a molten mixture of soda ash, sand, and lime.

139. Good **Housekeeping Practice** - a common practice related to the storage, use, or cleanup of materials performed in a manner that minimizes the discharge of pollutants. Examples include cleaning up spills and leaks and storing materials in a manner that will contain any leaks and spills.

140. **Grading** - Shall mean excavating, filling (including hydraulic fill), or stockpiling of earth material, or any combination thereof, including the land in its excavated or filled condition.

141. **Gradually Varied Flow** - In this type of flow, changes in depth and velocity take place slowly over large distances, resistance to flow dominates and acceleration forces are neglected.

142. **Groundwater** - Subsurface water occupying the saturation zone, from which wells and springs are fed. In a strict sense the term applies only to water below the water table. Also called phreatic water, plerotic water.

143. **Groundwater Recharge** - Water descending to the zone of saturation from the atmosphere which gravitates to the zone of saturation under natural conditions or which is added to the zone of saturation by infiltration of storm water using subsurface disposal systems as defined herein.

144. **Groundwater Table** - (or level) - Upper surface of the zone of saturation in permeable rock or soil. (When the upper surface is confined by impermeable rock, the water table is absent.)

145. **Gully Erosion** - A severe loss of soil caused by or resulting in concentrated flow of sufficient velocity to create a defined flow channel.

146. **HDPE** - High density polyethylene. A type of plastic that is commonly used to produce a black plastic drainage pipe product.

147. **Habitable** Dwelling **Unit** - A dwelling unit intended and suitable for human habitation.

148. **Hazardous Material**- a material that is easily ignitable under ordinary temperature and pressure; readily supplies oxygen or reactive gas to a fire; is corrosive (highly acidic or caustic); is explosive or generates toxic gas; is acutely toxic to animals if it comes into contact with skin or is inhaled, eaten or drunk; or contains toxic chemicals that can be dissolved in an acidic environment, such as a landfill.

149. **Head** - The energy, either kinetic or potential, possessed by each unit weight of a liquid expressed as the vertical height through which a unit weight would have to fall to release the average energy possessed.

150. **Heavily Disturbed Site** - A site where an area of land is subjected to significant compaction due to the removal of vegetative cover or earthmoving activities, including fill.

151. **Heavy Metals** - metals with high molecular weights that are of concern because they are generally toxic to animal life and health if naturally occurring concentrations are exceeded. Examples include arsenic, chromium, lead, and mercury.

152. **Hillside** - means property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is twentyfive percent or greater and where grading contemplates cut or fill slopes.

153. **Household Hazardous Waste** - A product that is discarded from a home or a similar source that is either ignitable, corrosive, reactive, or toxic (e.g. used motor oil, oil-based paint, auto batteries, gasoline, pesticides, etc.).

154. **Hydraulic Radius** - The cross-sectional area of a stream of water divided by the length of that part of its periphery in contact with its containing conduits; the ratio of area to wetted perimeter.

155. **Hydrograph** – A graph of stage or discharge versus time.

156. **Hydrological Soil Group (HSG)** - Has the meaning used in the runoff calculation methodology promulgated by the United States Natural Resources Conservation Service Engineering Field Manual for Conservation Practices.

157. **Illegal Discharge** - Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in this Ordinance.

158. **Illegal/Illicit Connections** - An illicit connection IS defined as either of the following:

    a. Any drain or conveyance, whether on the surface of subsurface, which allows illegal discharge to enter the storm drain system including, but not limited to, any conveyances which allow any non-storm water discharge including, sewage, process wastewater, and wash water to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or,

b. Any drain or conveyance connected from and commercial or industrial land use to the storm drain system. which has not been documented in plans, maps or equivalent records and approved by an authorized enforcement agency.

159. **Impervious** - a hard surface (such as a parking lot), which prevents or retards the entry of water into the soil, thus causing water to run off the surface in greater quantities and at an increased flow rate. Examples include rooftops, sidewalks, patios, driveways, parking lots, storage areas, and concrete, asphalt, or gravel roads.

160. **Industrial/Commercial Facility** - a facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services.

161. **Infiltration** - means the downward entry of water into the surface of the soil or the flow of a fluid through pores or small openings, commonly used in hydrology to denote the flow of water into soil material.

162. **Inlet Time** - The time required for storm runoff to flow from the most remote point of a drainage area to the point where it enters a drain or culvert.

163. **Intermittent Stream** - When dry weather reduces groundwater discharge, a stream that runs a good part of the year may dry up-an intermittent stream. When it rains, overland runoff may concentrate in a channel and produce a stream where one would not otherwise exist-an ephemeral stream.

164. **Inundate**- To cover or fill as with a flood.

165. **Invert** - That part of a pipe or sewer below the springing line - generally the lowest point of the internal cross section.

166. **Lake** – A large inland body of fresh water.

167. **Land** disturbing **activity** - Shall mean any sue of the land by any person that results in a change in the natural cover or topography that may cause erosion and contribute to sediment and later the quantity of stormwater runoff.

168. **Legal Authority** - defined as the ability to impose and enforce statues, ordinances, and regulations to require control of pollutant sources and regulate the discharge of pollutants to the storm drain system, and to enter into interagency agreements, contracts, and memorandums of understanding.

169. **Litter** - Waste that is improperly disposed of on the street, sidewalk, lakes and other bodies of water, and in the general environment.

170. **Maintenance** - Shall mean any action necessary to preserve stormwater management facilities in proper working condition, in order to serve the intended purpose set forth in Article I of this Ordinance and to prevent structural failure of such facilities. Maintenance shall not include actions taken solely for the purpose of enhancing the aesthetics associated with stormwater management facilities.

171. **Major Storm** - The design storm having a recurrence interval of 100 years which may cause major damage to public property and possible loss of life.

172. **Major Storm Easements** - Privately maintained areas designed to carry the 100year storm with no obstructions allowed such as fill or fences that would impede floodwater flow. Properly designed landscaping that does not impede floodwater or endanger adjacent property may be allowed.

173. Major **Storm Easements** - Public maintained areas designed to carry the 10-year (or 50-year for CBD area) storm; provide access for maintenance; and prevent channel obstructions.

174. **Maximum Extent Practicable (MEP)** - standard for implementation of stormwater management programs to reduce pollutants in stormwater. MEP refers to storm water management programs taken as a whole. It is the maximum extent possible taking to account equitable consideration and competing facts, including but not limited to: the gravity of the problem, public health risk, societal concern, environmental benefits, pollutant removal effectiveness, regulatory compliance, public acceptance, implementability, cost and technical feasibility. Section 402(P)(3)(B)(iii) of the Clean Water Act requires that municipal permits shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and systems, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.

175. **Mean Sea Level** - For purposed of the National Flood Insurance program, the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on the community's Maps are referenced.

176. **Meander** - In connection with streams, a winding channel usually in an erodible, alluvial valley. A reverse of S-shaped curve or series of curves formed by erosion of the concave bank, especially at the downstream end, characterized by curved flow and alternating shoals and bank erosion. Meandering is a stage in the migratory movement of the channel as a whole down the valley.

177. **Minor Storm Easements** - Public maintained areas designed to carry the 10-year (or 50-year for CBD area) storm, provide access for maintenance and prevent channel obstructions.

178. **Municipal Separate Storm Sewer System (MS4)** - conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a state, county, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts ~ under state law such as a sewer district, flood control or drainage district, similar entity, and Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of the Clean Water Act that discharges to water of the United States.

179. **Municipal Solid Waste** - Garbage or refuse that is generated by households, commercial establishments, industrial offices or lunchrooms and sludges not regulated as a residual or hazardous waste. This does not include source-separated recyclables.

180. **Natural and Beneficial Floodplain Values** - Include, but are not limited to; fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

181. **Natural Waterways** - Shall mean waterways that are part of the natural topography. They usually maintain a continuous or seasonal flow during the year and are characterized as being irregular in cross-section with a meandering course. Construction channels such as drainage ditches shall not be considered natural waterways.

182. **New Development** - means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

183. **New Structure** - Structures for which the start of construction commences on or after the effective date of these regulations.

184. **Non-Erodible** - Shall mean a material, e.g., natural rock, riprap, concrete, plastic, etc., that will not experience surface wear due to natural forces of wind, water, ice, gravity, or a combination of those forces.

185. **Non-Erosive Velocity** - A rate of flow of stormwater runoff, usually measured in feet per second that does not erode soils. Non-erosive velocities vary for individual sites, taking into account topography, soil type, and runoff rates.

186. **Non-Point Source Pollution** - water pollution caused by rainfall moving over and through ground which carries pollutants.

187. **Non-Renewable Resource** - A resource that is NOT capable of being naturally restored or replenished; a resource that is exhausted because it has not been replaced (e.g. copper) or because it is used faster than it can be replaced (e.g. oil, coal [what we call fossil fuels]). Their use as material and energy sources leads to depletion of the Earth's reserves and are characterized as such as they do not renew in human relevant periods (They are not being replenished or formed at any significant rate on a human time scale).

188. **Non-Storm Water Discharge** - Any discharge to the storm drain system that is nor composed entirely of storm water.

189. **Non-structural BMP** - a best management practice that does not require construction of a facility to control urban runoff.

190. **Non-Uniform Flow** - A flow in which the velocities vary from point to point along the stream or conduit, due to variations in cross section, slope, etc.

191. **Normal Water Surface (Natural Water Surface)** - The free surface associated with flow in natural streams.

192. **Normal Wetted Perimeter** - The area of a conveyance, such as a ditch, channel, or pipe that is in contact with water during flow events that are expected to occur once every year.

193. **Notice of Intent (NOI)** - Application form for obtaining coverage under a General Storm Water Permit for construction activities that disturbs one or more acres or for industrial activities.

194. **Notice of Termination** - A notice to terminate coverage under this permit after construction is complete, the site has undergone final stabilization, and maintenance agreements for all permanent facilities have been established, in accordance with all applicable conditions of this permit.

195. **NPDES** - National Pollutant Discharge Elimination System initiated in 1972 by the amendments to the Federal Water Pollution Control Act (the Clean Water Act or CWA) to address the discharge of pollutants to navigable waters from point sources unless the discharge is authorized by an NPDES permit. The Water Quality Act of 1987 added section 402(p) to the CWA establishing phased and tiered requirements for stormwater discharge under the NPDES program.

196. **Off-Stream Detention** - Temporary storage accomplished off-line, Le., not within a principal drainage system.

197. **On-Site** Detention - Temporary storage of runoff on the same land development site where the runoff is generated.

198. **On-Site Stormwater Management** - Shall mean the design and construction of a facility necessary to control stormwater runoff within and for a single development.

199. **On-Stream Detention** - Temporary storage of runoff within a principal drainage system, i.e., in the receiving streams or conduits.

200. **One Hundred (100) Year Flood** - One that has statistical frequency of occurring once in one hundred (100) years. This is determined from an analysis of floods on a particular water course and the watercourses in the same general region. It has about one percent chance of occurring in any given year.

201. **One Hundred (100) Year Peak Flow** - The peak rate of flow of water at a given point in a channel, watercourse or conduit resulting from the base flood.

202. **One Hundred (100) Year Storm** - Rainstorms of a specified duration having a 1 percent chance of occurrence in a give year.

203. **One Percent (1 %) Chance Storm** - Shall mean a storm that is capable of producing rainfall expected to have a 1 % chance of being equaled or exceeded in any given year.

204. **Operator (Public Entity)**- a state, county, town or other public entity that discharges to the waters of the United States. Pulaski County is the operator of the small MS4 per NPDES phase II regulations, as permitted by the Arkansas Department of Environmental Quality, and is the entity for responsible for implementation and enforcement of its Stormwater Management Program.

205. **Operator** - The person (usually the general contractor), designated by the owner, who has day to day operational control and/or the ability to modify project plans and specifications related to the SWPPP. The person must be knowledgeable in those areas of the permit for which the operator is responsible and must perform those responsibilities in a workmanlike manner.

206. **Operator** - The owner, party, person, general contractor, sub-contractor, corporation, or other entity that has operations control over the construction project. The operator is responsible for ensuring compliance with all conditions for the elimination of dust and storm water pollution.

207. **Organic** - A term that refers to molecules made up of two or more atoms of carbon, generally pertains to compounds formed by living organisms.

208. **Organism** - any living plant or animal; a living body made up of cells, tissues and organs.

209. **Open Channel** – Any conveyance in which water flows with a free surface.

210. **Outfall (or outlet)** – In hydraulics, the discharge end of drains and sewers.

211. **Overtopping Flood** - The flood described by the probability of exceedance and water surface elevation at which flow occurs over the highway, over the watershed divide, or through structure(s) provided for emergency relief.

212. **Owner** - The person or party possessing the title of the land on which the construction activities will occur; or if the construction activity is for a lease holder, the party or individual identified as the lease holder; or the contracting government agency responsible for the construction activity.

213. **Packaging** - The wrapping material around a consumer item that serves to contain, identify, describe, protect, display, promote, and otherwise make the product marketable and keep it clean.

214. **Paper** - A thin material made of pulp from wood, rags, or other fibrous materials and used for writing, printing, or wrapping.

215. **Pathogen** – disease-causing organisms.

216. **Peak Flow** - The maximum rate of flow of water at a given point in a channel, watercourse, or conduit resulting from the predetermined storm or flood.

217. **Periphery** - Circumference or perimeter of a circle, ellipse, pipe arch, or other closed curvilinear figure.

218. **Permanent Cover** - Means final stabilization. Examples include grass, gravel, asphalt, and concrete.

219. **Permeability** - The property of a material that permits appreciable movement of water through it when it is saturated and movement is actuated by hydrostatic pressure of the magnitude normally encountered in natural subsurface water.

220. **Permittee** – A person, partnership or corporation to whom a permit is granted.

221. **Permittee** - A person or persons, firm, or governmental agency or other institution that signs the application submitted to AEDQ and is responsible for compliance with the terms and conditions of this permit.

222. **Person** - Any individual, association, organization, partnership, firm, corporation or other entity acting as either the owner or as the owner's agent.

223. **Person Responsible for the Land Distributing Activity** - The person who has or represents having financial or operation control over the land disturbing activity; and/or the landowner or person in possession or control of the land who directly or indirectly allowed the land disturbing activity or has benefited from it or who has failed to comply with any provision of this ordinance.

224. **Pervious Soil** - Soil containing voids through which water will move under ordinary hydrostatic pressure.

225. **Pet Waste** - Use designated dog runs for pets. Use disposable bags for clean up after pets.

226. **Plans** - a set of drawings that depicts improvements, which require permitting and/or county approval at the planning and/or public works department prior to construction.

227. **Plat** - A legally recorded plat of a parcel of land subdivided into lots with streets, alleys, easements, and other land lines drawn to scale.

228. **Point Source** - pollution arising from a well-defined origin, such as a discharge from an industrial plant.

229. **Pollutant** - any introduced gas, liquid, or solid that makes a resource unfit for a specific purpose. A substance that pollutes air, water or land. They are defined in Section (502) of the federal Clean Water Act (33 U.S.c. ' 1362(6)). Specifically, pollutants that are carried by runoff from rainstorms or other watering activities. Examples of pollutants include but are not limited to the following:

a. Commercial and industrial waste (such as fuels, solvents, detergents, plastic pellets, hazardous substances, fertilizers, pesticides, slag, ash, and sludge);

b. Metals such as cadmium, lead, zinc, copper, silver, nickel, and chromium; and non-metals such as phosphorus and arsenic;

c. Petroleum hydrocarbons (such as fuels, lubricants, surfactants, waste oils, solvents, coolants, and grease);

d. Excessive eroded soils, sediment, and particulate materials in amounts which may adversely affect the beneficial use ofthe receiving waters, flora, or fauna;

e. Animal wastes (such as discharge from confinement facilities, kennels, pens, recreational facilities, stables, and show facilities);

f. Substances having characteristics such as pH less than 6 or greater than 9, unusual coloration or turbidity, excessive levels of fecal coliform, fecal streptococcus, or enterococcus.

230. **Pollutant Loading** - the quantity of a pollutant found in stormwater and/or urban runoff expressed in mass per unit of time. Pollutant loadings are commonly expressed in units of tons/year or pounds/year.

231. **Pollution Prevention** - eliminating or reducing at the source the use, generation, or release of toxic pollutants, hazardous substances, and hazardous wastes.

232. **Polyethylene terepthalate** - A type of plastic used to make soft drink bottles and other kinds of food containers. PET is also used to make fabric.

233. **Ponding** - Refers to water backed up in a channel or ditch as the result of a culvert of inadequate capacity or design to permit the water to flow umestricted.

234. **Post-Development Conditions** - The conditions which exist following the completion of the land disturbing activity in terms of topography, vegetation, or land use and rate, volume, or direction of stormwater runoff.

235. **Post-Development** - Refers to the extent and distribution of land cover types anticipated to occur under conditions of full development of the submitted plan. This term is used to match pre- and post-development stormwater peak flows as required by the ordinance.

236. **Practicable** - Capable of being done within reasonable natural, social, or economic constraints.

237. **Pre-Developed Conditions** – Those land use conditions that existed prior to the initiation of the land disturbing activity in terms of topography, vegetation, or land use and rate, volume, or direction of stormwater runoff.

238. **Pre-Development** - Refers to the extent and distribution of land cover types present before the initiation of land development activity, assuming that all land uses prior to land disturbing activity and in "good" condition as described in the Natural Resources Conservation Service Technical Release 55, Urban Hydrology for Small Watersheds" (commonly known as TR-55). This term is used to match pre- and post-development storm water peak flows as required by the ordinance. In a situation where cumulative impervious surface created after the adoption of this ordinance exceeds the 20,000 sq. ft. threshold, the pre-development conditions shall be those prior to any land disturbance.

239. **Preliminary Plat** - The preliminary plat of a residential subdivision submitted pursuant to the County's Subdivision Regulations.

240. **Premises** - Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

241. **Preserve** - To avoid modification to the functions of the natural floodplain environment or to maintain it as closely as practicable in its natural state.

242. **Program Administrator** - The office, or individual responsible for enforcing the requirements of this Ordinance - Authorized Enforcement Agency.

243. **Project**- That land area controlled by or under the ownership of the developer.

244. **Project** - Any development involving the construction, reconstruction or improvement of structures andlor grounds.

245. **Project Plan** - The project plan to be prepared by and sealed by a Registered Professional Engineer shall include the scaled project plan, The drainage area plan, the drainage report with complete hydraulic date, and the construction drawing with all supporting calculations, minimum slab elevation, and other information required to complete the plan, unless otherwise specifically provided herein.

246. **Rainfall Intensity** - Amount of rainfall occurring in a unit of time, converted to its equivalent in inches per hour at the same rate.

247. **Rapidly Varied Flow** - In this type of flow, changes in depth and velocity take place over short distances, acceleration forces dominate, and energy loss due to friction is minor.

248. **Rational Method** - An empirical formula for calculating peak rates of runoff resulting from rainfall.

249. **Reach**- A length of stream channel.

250. **Receiving Water** –rivers, lakes, oceans, or other bodies that receive runoff.

251. **Recharge** - Addition of water to the zone of saturation from precipitation or infiltration.

252. **Recharge Basin** - A basin excavated in the earth to receive the discharge from streams or storm drains for the purpose of replenishing groundwater supply.

253. **Record Survey** - A final field survey which locates the visible surface features of a constructed stormwater facility on the ground, but without locating non-visible or subsurface features such as the actual route and elevation of buried pipe.

254. **Redevelopment** - land-disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Where redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, the entire project must be mitigated. Where Redevelopment results in an alteration to less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, only the alteration must be mitigated, and not the entire development. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Existing single family structures are exempt from the redevelopment requirements.

255. **Redevelopment** - Any construction, alteration or improvement exceeding four thousand square feet of land disturbance performed on sites where the entire existing site is predominantly developed to commercial, industrial, institutional or multifamily residential uses.

256. **Regime** - The system or order characteristic of a stream; its behavior with respect to velocity and volume, form of and changes in channel, capacity of transport sediment, amount of material supplied for transportation, etc.

257. **Regional Stormwater Management** - The design and construction of a facility necessary to control stormwater runoff within or outside a development and for one or more developments.

258. **Registered Landscape Architect** - A landscape architect properly registered and licensed to conduct work within the State of Arkansas.

259. **Registered Land Surveyor** - A land surveyor properly registered and licensed to conduct work within the State of Arkansas.

260. **Registered Professional Engineer** - Shall mean a professional engineer properly registered and licensed to conduct work within the State of Arkansas.

261. **Regulatory Floodway** - The floodplain area that is reserved in an open manner by Federal, State of local requirements, i.e., unconfined or unobstructed either horizontally or vertically, to provide for the discharge of the base flood so that the cumulative increase in water surface elevation is no more than a designated amount (not to exceed 1 foot as established by the Federal Emergency Management Agency (FEMA) for administering the National Flood Insurance Program).

262. **Responsible Personnel** - Any foreman, superintendent, or similar individual who is the on-site person in charge of land disturbing activities.

263. **Restore** - To reestablish a setting or environment in which the functions of the natural and beneficial floodplain values adversely impacted by the highway agency action can again operate.

264. **Retention Structure** - A permanent structure whose primary purpose is to permanently store a give volume of stormwater runoff. Release of the given volume is by infiltration and/or evaporation.

265. **Risk** - The consequences associated with the probability of flooding attributable to an encroachment. It shall include the potential for property loss and hazard to life during the service life of the highway.

266. **Risk Analysis** - An economic comparison of design alternatives using expected total costs (construction costs plus risk costs) to determine the alternative with the least total expected cost to the public. It shall include probable flood-related costs during the service life of the facility for highway operation, maintenance,

and repair, for highway-aggravated flood damage to other property, and for additional or interrupted highway travel.

267. **Riverine** - means relating to, formed by, or resembling a flver (including tributaries), stream, book, etc.

268. **Roughness Coefficient** - A factor in the Kutter, Manning and other flow formulas representing the effect of channel (or conduit) roughness upon energy losses in the flowing water.

269. **Runoff** - the portion of rainfall or irrigation water and other watering activities also known as dry-weather flows that flow across the ground surface and eventually to receiving waters. Runoff can pick up pollutants from the air or the land and carry them to receiving waters.

270. **Runoff Curve Number (RCN)** - Has the meaning used in the runoff calculation methodology promulgated by the United States Natural Resources Conservation Service Engineering Field Manual for Conservation Practices.

271. **Saturated Soil** - The highest seasonal elevation in the soil that is in a reduced chemical state because of soil voids being filled with water. Saturated soil is evidenced by the presence of redoximorphic features or other information.

272. **Scour** - The result of erosive action of running water, primarily In streams, excavating and carrying away material from the bed and banks.

273. **Scour, General** - The removal of material from the bed and banks across all or most of the width of a channel, as a result of a flow contraction, which causes increased velocities and bed shear stress. Also known as CONTRACTION SCOUR.

274. **Scour, Local** - Removal of material from the channel bed or banks, which is restricted to a minor part of the width of a channel. This scour occurs around piers and embankments and is caused by the actions of vortex systems induced by the obstructions to the flow.

275. **Scour, Natural**- Removal of material from the channel bed or banks, which occurs in streams with the migration of bed forms, shifting of the thalweg and at bends and natural contractions.

276. **Sediment** - Fragmentary material that originates from weathering of rocks and is transported by, suspended in, or deposited by water.

277. **Sediment** - Solid earth material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity or ice, and has come to rest on the earth's surface at a different site.

278. **Sedimentation** - The desposition of eroded soils at a site different from the one where the erosion occurred.

279. **Sedimentation** - in stormwater treatment, the settling out of solids by gravity; the addition of soils to lakes, a part of the natural aging process, making lakes shallower. The process can be greatly accelerated by human activities.

280. **Sedimentation Basin** - A basin or tank in which storm water containing settleable solids is retained to remove by gravity a part of the suspended matter.

281. **Sediment Control** - Methods employed to prevent sediment from leaving the site. Sediment control practices include silt fences, sediment traps, earth dikes, drainage swales, check dams, subsurface drains, pipe slope drains, storm drain inlet protection, and temporary or permanent sedimentation basins.

282. **Sheet** and **Rill Erosion** - A loss of soil caused by sheet flow or shallow concentrated flow, and characterized by an absence of channeling or a relatively uniform loss across the exposed upper layer of the soil or shallow irregular scouring of the soil surface.

283. **Significant Contributor** - includes not only pollutant loading but also a discharge that destabilizes the physical structure of a water body such that the discharge that may exert detrimental effects on the quality and uses of that water body.

284. **Significant Encroachment** - A highway encroachment and any direct support of likely base floodplain development that would involve one or more of the following construction - or flood-related impacts:

    a. A significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation rout,

    b. A significant risk, or

    c. A significant adverse impact on natural and beneficial floodplain values.

285. **Significant Reach** - A reach extending to the point upstream, downstream, and both sides of the channel where no change in elevation of the One Hundred Year flood water surface elevation occurs, as caused by the FEMA Flood Regulatory District.

286. **Siphon** - (inverted) - A conduit or culvert with a U or V shaped grade line to permit it to pass under an intersecting roadway, stream or other obstruction.

287. **Site** - The bounded area described in an erosion control plan or stormwater management plan.

288. **Slope** - The net vertical rise over horizontal run, expressed as a percentage, which represents a relatively homogeneous surface incline or decline over the area disturbed.

289. **Small Construction Activity** - Small construction activity as defined in 40 C.F.R. part 122.26(b)(15). Small construction activities include clearing, grading and excavating that result in land disturbance of equal to or greater than one acre and less than five acres. Small construction activity includes the disturbance of less than one (1) acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five (5) acres.

290. **Soil Loss Rate** - The rate, usually measured in tons per acre per year, at which soil is transported beyond the perimeter of a given control site and which occurs as a result of sheet and rill erosion. This term does not apply to soil movement resulting from concentrated flow such as gully or bank erosion.

291. **Source Control BMP** - means any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution.

292. **Special Construction Site** - A land disturbing activity on less than 1 acre and equal to or greater than 4,000 square feet.

293. **Specific Energy** - The energy contained in a stream of water, expressed in terms of head, referred to the bed of a stream. It is equal to the mean depth of water plus the velocity head of the mean velocity.

294. **Spillway** - A low-level passage serving a dam or reservoir through which surplus water may be discharged; usually an open ditch around the end of a dam, or a gateway or a pipe in a dam. - An outlet pipe, flume or channel serving to discharge water from a ditch, ditch check, gutter or embankment protector.

295. **Spring Box** - An enclosure constructed to protect a flow of water emerging from the ground.

296. **Stabilization** - The installation of vegetative of structural measures to establish a soil cover to reduce soil erosion by stormwater runoff, wind, ice and gravity.

297. **Stabilized** - The exposed ground surface has been covered by appropriate materials such as mulch, staked sod, riprap, wood fiber blanket, or other material that prevents erosion from occurring. Grass seeding is not stabilization.

298. **Stage** – The elevation of a water surface above a datum of reference.

299. **Stage Work or Stage Construction** - A plan for the staged construction of stormwater facilities where portions of the facilities will be constructed as different stages of the proposed development are started or completed.

300. **Start of Construction** - The date the building permit was issued for any improvement, provided that the actual start of construction, repair, reconstruction, placement or other improvement was within 180 days of the permit date. The actual start means the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on an foundation. Permanent construction does not include land preparation, such as clearing, grading and filling, nor does it include the installation on the property of accessory building, such as garages or sheds not occupied as dwelling units or not part of the main structure.

301. **Steady flow** - A flow in which the flow rate or quantity of fluid passing a given point per unit of time remains constant.

302. **Storage Basin** - A basin excavated in the earth for detention or retention of water for future flow.

303. **Storage Capacity of a Flood Plain** - The volume of space between a given flood stage and existing ground surface occupied by flood water of a given stage at a given time, regardless of whether or not the water is moving.

304. **Storm Drain System** - Any pipe or conduit used to collect and carry away stormwater runoff from the generating source to receiving streams. A sewer that conveys household and commercial sewage is called a sanitary sewer. A storm drain transports runoff from rain or snow.

305. **Storm Drain System** - Publicly or privately owned facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems.

306. **Storm Event** - Means a rainfall event that produces more than 0.1 inch of precipitation and that, which is separated from the previous storm event by at least 72 hours of dry weather.

307. **Storm Events** - The precipitation amounts that occur over a 24-hour period that have a specified recurrence interval for Garland County, Arkansas. For example, one-year, two-year, la-year and lOa-year storm events mean the precipitation amounts that have a recurrence interval of one, two, 10 and 100 years, respectively.

308. **Stormwater** - Water which originates from atmospheric moisture (rainfall or snowmelt) and falls onto land, water, or other surfaces.

309. **Stormwater** - The flow of water which results from, and which occurs during and immediately following, a rainfall, snow- or ice-melt event.

310. **Stormwater Concept Plan** - The overall proposal for a storm drainage system, including stormwater management structures, and supporting documentation as specified in the Stormwater Management Design Manual, for each proposed private or public development to the extent permitted by law. Also included are the supporting engineering calculations and results of any computer analysis, if necessary.

311. **Stormwater Management** - Any measures taken to permanently reduce or minimize the negative impacts of strom water runoff quantity and quality after land development activities.

312. **Stormwater Management Facilities** - Those structures and facilities that are designed for the collection, conveyance, storage, and disposal of stormwater runoff into and through the drainage system.

313. **Stormwater Management Plan** - The set of drawings and other documents that comprise all of the information and specifications for the drainage systems, structures, concepts and techniques that will be used to control stormwater as required by this Ordinance and the Stormwater Management Design Manual. Also included are the supporting engineering calculations and results of any computer analysis.

314. **Stormwater Management Program (SWMP)** - County of Hot Spring's all encompassing program to meet the requirements of NPDES Phase II Final Rule.

315. **Stormwater Management and Drainage Manual** - The set of drainage policies, analysis methods, design charts, stormwater runoff methods, and design standards used by the County as the official design guidelines for drainage improvements consistent with this Ordinance. Any modifications will be made by the County Engineer consistent with the stated policies and intent of the Ordinance.

316. **Stormwater Management Qualitative Control** - A system of vegetative, structural, or other measures that reduce or eliminate pollutants that might otherwise be carried by stormwater runoff.

317. **Stormwater Pollution Prevention Plan (SWPPP)** - A plan designed to eliminate or reduce at the source the use, generation, or release of silts, toxic pollutants, hazardous substances, and hazardous wastes from entering storm waters.

318. **Stormwater Pollution Prevention Plan** - A plan for storm water discharge that includes erosion prevention measures and sediment controls that, when implemented, will decrease soil erosion on a parcel of land and decrease off-site. nonpoint pollution.

319. **Stormwater Runoff** - Water that results from precipitation which is not absorbed by the soil, evaporated into the atmosphere or entrapped by ground surface depressions and vegetation, which flows over the ground surface.

320. **Stormwater Runoff** - The waters derived from rains falling or snowmelt or icemelt occurring within a drainage area, flowing over the surface of the ground and collected in channels, watercourses or conduits.

321. **Stream** – A body of running water.

322. **Streambed** – The channel through which a natural stream of water runs or once ran.

323. **Street Reconstruction** - Removal and replacement of the road subgrade, where existing stormwaterconveyance systems are modified.

324. **Structural BMP** - a best management practice that involves design and construction of a facility to mitigate the adverse impact of urban runoff. The structures often require maintenance.

325. **Structure** - Anything constructed or erected, the use of which requires a more or less permanent location on or in the ground. Included but is not limited to objects such as buildings, factories, sheds, cabins, manufactured housing and fences. This term does not include sign, utility, or light poles, as applicable to this manual.

326. **Structure** -. Any human-made object with form, shape and utility, either permanently or temporarily attached to, placed upon, or set into the ground, stream bed or lake bed.

327. **Structure, Permanent** - A structure which is built of such materials and in such a way that it would commonly be expected to last remain useful for a substantial period of time.

328. **Structure, Temporary** - A structure which is built of such material and in such a way that it would commonly be expected to have a relatively short useful life, or is built for a purpose that would commonly be expected to be relatively short-term.

329. **Subcritical Flow** - Flow with a Froude number less than one. In this state; the role played by gravity forces is more pronounced, so the flow has a low velocounty and is often described as tranquil and streaming.

330. **Subdivision** - (1) The creation of one or more new streets, alleys or other public ways; or, the changing of any rights-of-way of any existing streets, alleys or other public ways. (2) Any division or redivision of lot, tract, or parcel or land, regardless of its prospective use. Such subdivision may be accomplished by platting or by description of metes and bounds or otherwise into two (2) or more lots or other divisions for sale or improvement. The following are not defined as subdivisions:

a. The combination or recombination of portions of previously platted lots where the total number or lots is not increased and the resultant lots are in accordance with the rules and regulations contained in the County's Subdivision Regulations and with the County's Zoning Ordinance.

b. Division or sale of land by judicial decree which shall not be deemed a division for the purpose of this ordinance.

c. The acquisition of land for the purpose of widening or opening of streets when the acquisition and work is done by the County, State, or other governmental agency.

d. The division of land into parcels greater than five (5) acres where no street rightof-way dedication is involved.

331. **Supercritical Flow** - Flow with a Froude number greater than one. In this state, the inertia forces become dominant, so the flow has a high velocity and is usually' described as rapid, shooting and torrential.

332. **Support Base Floodplain Development** - To encourage, allow, serve, or otherwise facilitate additional base floodplain development. Direct support results from an encroachment, while indirect support results from an action out of the base floodplain.

333. **Surface Storage** – Storm water that is contained in surface depressions or basins.

334. **Surface Water** - Water appearing on the surface in a diffused state, with no permanent source of supply or regular course for a considerable time; as distinguished from water appearing in water courses, lakes, or ponds.

335. **Surface Water** - water on the earth's surface exposed to the atmosphere such as oceans, streams, lakes, ponds, marshes, wetlands, reservoirs, springs, rivers, drainage systems, waterways, watercourses, and irrigation systems whether natural or artificial, public or private.

336. **Suspended Solids** - small particles that hang suspended in the water column and create turbid, or cloudy, conditions.

337. **Swale**- A slight depression in the ground surface where water collects.

338. **Swale** - A structural measure with a lining of grass, riprap, or other materials which can function as a detention structure and convey stormwater runoff without causing erosion. A shallow waterway.

339. **Synthetic Hydrograph** - A graph developed for an ungaged drainage area, based on known physical characteristics of the watershed basin.

340. **Tailwater** – The water surface just downstream from a structure.

341. **Temporary Erosion Protection** - Methods employed to prevent erosion. Examples of temporary cover include; straw, wood fiber blanket, wood chips, and erosion netting.

342. **Time of Concentration** - Time required for storm water runoff to arrive at the point of concentration (usually the inlet to the storm drain) from the most remote point of the drainage area.

343. **Toxicity** - the quality or degree of being poisonous or harmful to plant or animal life.

344. **Treatment** - means the application of engineered systems that use physical, chemical, or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media adsorption, biodegradation, biological uptake, chemical oxidation and UV radiation.

345. **Treatment Control BMP** - means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media adsorption or any other physical, biological, or chemical process.

346. **Tributary Area** – All of the area that contributes stormwater runoff to a given point.

347. **Underground Waters** - Water contained below the surface of the earth in the saturated zone including, without limitation, all waters whether under confined, unconfined, or perched conditions, in near surface unconsolidated sediment or regolith, or in rock formations deeper underground. The term ground water shall be synonymous with underground water.

348. **Uniform Channel** – A channel with a constant cross section and roughness.

349. **Uniform Flow** - Flow in which the velocities are the same in both magnitude and direction from point to point along the stream or conduit, all stream lines being parallel.

350. **Unnecessary Hardship** - That circumstance where special conditions, which were not self-created, affect a particular property and make strict conformity with regulations unnecessarily burdensome or unreasonable in light of the purposes of this ordinance.

351. **Unsteady Flow** - A flow in which the velocity changes with respect to both space and time.

352. **Unit Hydrograph** - A hydro graph of a direct runoff resulting from I-inch of effective rainfall generated uniformly over the watershed area during a specified period of time or duration.

353. **Urban Runoff** - stormwater from county streets and gutters that usually contains a great deal of litter and orgamc and bacterial wastes.

354. **USEPA** - United States Environmental Protection Agency, the federal agency that enforces federal regulations and administers federal programs such as the NPDES program. These regulations require the discharges from defined municipal separate storm drain systems, industrial facilities, and construction activities to comply with the NPDES permit conditions intended to reduce or eliminate the discharge of pollutants from stormwater drainage systems.

355. **Variance** - The modification of the minimum stormwater management requirements for specific circumstances where strict adherence of the requirements would result in unnecessary hardship and not fulfill the intent of this ordinance.

356. **Violation** - The failure of a structure or other development to be fully compliant with Pulaski County Regulations.

357. **Waiver** - The relinquishment from stormwater management requirements by the County Engineer for a specific land disturbing activity on a case-by-case review basis.

358. **Wastewater** - Any water or other liquid, other than uncontaminated storm water, discharged from a facility.

359. **Water Course** - A natural or artificial channel in which a flow of water occurs, either continuously or intermittently. Natural watercourses may be either on the surface or underground.

360. **Water Pollution** - the addition of sewage, industrial wastes, or other harmful or objectionable material to water in sufficient quantities or concentrations to result in measurable degradation of water quality.

361. **Water Quality** - Those characteristics of stormwater runoff from a land disturbing activity that relate to the physical, chemical, biological, or radiological integrity of water.

362. **Water Quality Criteria** - the levels of pollutants that affect the suitability of water for a given use. Generally, water use classifications include public water supply, recreation, propagation of fish and other aquatic life, agricultural use, and industrial use.

363. **Water Quality Standard** - acceptable limits on water quality parameters that when enforced they will meet the goals of the Clean Water Act.

364. **Water Quantity** - Those characteristics of stormwater runoff that relate to the rate and volume of the stormwater runoff to downstream areas resulting from land disturbing activities.

365. **Watershed** - area drained by a given stream; an area bounded peripherally by a water divide and draining to a particular water course or body of water. Topography is the primary determinant of watershed boundaries.

366. **Water Surface Elevation** - The height above mean sea level according to the National Geodetic Vertical Datum (NGVD) of 1929, of floods of various magnitudes and frequencies in the Flood Regulatory District.

367. **Waters of the State** - All streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

368. **Wet Bottom Basin** – A detention basin intended to have a permanent pool.

369. **Wetland** - swamps or marshes, especially areas preserved for wildlife. Wetlands are crucial wildlife habitats and are important for flood control and maintaining the health of surrounding ecosystems.

370. **Wet Pond** - pond for urban runoff management that is designed to detain urban runoff and always contain water.

371. **Wetted Perimeter** - The area of a conveyance, such as a ditch, channel, or pipe that is in contact with water during flow events.

372. **Zero Increase in Discharge** - A storm sewer management concept that suggests no increase in runoff as a result of new development. Any increased flow generated by the development would be taken care of by subsurface disposal (infiltration).

ARTICLE II. STORMWATER CONCEPT AND PLAN

SECTION A. Stormwater Management Program

1. The Storm Water Phase II Final Rule was signed by EPA Administrator Carol Browner on October 29, 1999 and it was published in the Federal Register on December 8, 1999.

2. Polluted storm water runoff is often transported to Municipal Separate Storm Sewer Systems (MS4s) and ultimately discharged into local rivers and streams without treatment. EPA's Storm Water Phase II Rule establishes an MS4 storm water management program that is intended to improve the Nation's waterways by reducing the quantity of pollutancts that storm water picks up and carries into storm sewer systems during storm events. Common pollutants include oil and greases from roadways, pesticides from lawns, sediment from construction sites, and carelessly discarded trash, such as cigarette butts, paper wrappers, and plastic bottles. When deposited into nearby discouraging recreational use of the resource, contaminating drinking water supplies, and interfacing with the habitat for fish, other aquatic organisms, and wildlife.

3. Operators of regulated small MS4s are required to:

   a) Apply for National Pollutant Discharge Elimination System (NPDES) permit coverage. Pulaski County applied for its permit and ADEQ issued Pulaski County a regulated small MS4 general permit – ARR040015 effective May 28, 2004.
   b) Develop a storm water management program, which includes the six minimum control measures. Pulaski County developed a stormwater management program and submitted it to ADEQ in April 2004.
   c) Implement the storm water management program using appropriate storm water management controls, or "best management practices" (BMPs)
   d) Develop measurable goals for the program
   e) Periodically evaluate effectiveness of the program

4. Permit Area. This general permit includes all areas within the State of Arkansas.

   a) Eligibility. Except for storm water discharge identified under paragraph b (limitations of this permit) below, this permit shall authorize all discharges of stormwater from construction sites as authorize all discharge of stormwater from construction sites as described in Article II, Section B Construction Permits (henceforth referred to as stormwater discharges from construction activities) occurring after the effective date of this permit (including discharges occurring after the effective date where the construction activity commenced before the effective date):
   b) Limitations of Coverage. This permit does not authorize:

i) Discharges mixed with sources of non-stormwater unless the nonstormwater discharges are determined not to be a significant contributor of pollutants.

ii) Stormwater discharges associated with industrial activity as defined in 40 CFR 122.26(b)(14)(I)-(ix) and (xi), except as allowed under Part I.B.2.b;

iii) Stormwater discharges associated with construction activity as defined in 40 CFR 122.26(b)(14)(x) or 40 CFR 122.26(b)(15), except as allowed under Part I.B.2.a;

iv) Stormwater discharges currently covered under an individual or other general NPDES permit;

v) Stormwater discharges whose direct, indirect, interrelated, interconnected, or interdependent impacts would jeopardize a listed endangered or threatened species or adversely modify designated critical habitat as defined by the U.S. Fish & Wildlife Services (USF&WS). http://endangered.fws.gov/

vi) Stormwater discharges or implementation of the stormwater management plan, which adversely affect properties listed or eligible for listing in the National Register of Historic Places, unless you are in compliance with requirements of the National Historic Preservation Act and have coordinated any necessary activities to avoid or minimize impacts with the appropriate State Historic Preservation Officer;

vii) Stormwater discharges that will cause or contribute to non-attainment of water quality standards, including failure to protect and maintain existing designated uses of receiving waters. ADEQ may require an application for an individual NPDES permit to authorize discharges of stormwater from any activity that ADEQ determines to cause or makes a contribution to exceed a water quality standard or that ADEQ determines to cause or contribute to the loss of a designated use of receiving waters;

viii) Discharges to waters for which there is an approved Total Maximum Daily Load and/or implementation plan (TMDL/IP) addressing discharges of stormwater associated with MS4s, unless the MS4 operator develops and certifies a SWMP that is consistent with the assumptions and allocations in the approved TMDL/IP. To be eligible for coverage under this general permit, operators must incorporate into their SWMP any conditions applicable to their discharges necessary for consistency with the assumptions and allocations of the TMDL/IP within any time frames established in the TMDL/IP. If a specific numeric waste load allocation has been established that would apply to the project=s discharges, the operator must incorporate that allocation into its SWMP and implement necessary steps to meet that allocation. Information regarding existing and proposed TMDLs can be obtained from the Water Quality Section of the ADEQ Water Division at (501) 682-0660 or from the ADEQ website at the following address: http://www.adeq.state.ar.us/water/branch_planning/

ix) Stormwater discharges which are prohibited for permitting in 40 CFR 122.4 of the federal regulation.

SECTION B. Stormwater Submittal Requirements.

Large, Medium, and Small Construction Sites as described below are required to submit the following documents prior to any earth moving activities:

a) Stormwater Management Plan
b) Stormwater Pollution Prevention Plan (SWPPP)
c) Stormwater Detention Plan
d) Stormwater Quality Plan

2. Special Construction Sites as described below are required to submit the following documents prior to any earth moving activities:

a) Post on-site (ADEQ) Stormwater Construction Notice
b) Develop Stormwater Pollution Prevention Plan (SWPPP)
c) Submit copy of SWPPP to CHS prior to construction for review.
d) Use Best Management Practices (BMPs) to reduce runoff.
e) Maintain SWPPP on-site and inspect stormwater controls weekly.
f) Remove all unnecessary BMPs after final stabilization.
g) Maintain a solid waste dumpster located at the site to properly dispose of building materials and solid waste.

Construction Sites.

1. **Large Construction Sites:** any construction activity that meets the following definition:

a) Construction sites that will result in the disturbance (e.g., clearing, grading, excavating, etc.) of ten (10) or more acres of total land area or less than ten (10) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb ten (10) acres or more.

2. **Medium Construction Sites:** any construction activity that meets the following definition:

a) Construction sites that will result in the disturbance (e.g., clearing, grading, excavating, etc.) of greater than five (5) acres and less than ten (10) acres of total land area or less than five (5) acres of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb five (5) acres or more, but less than ten (10) acres.

3. **Small Construction Sites:** any construction activity that meets the following definition:

a) Construction sites that will result in the disturbance (e.g., clearing, grading, excavating, etc.) of greater than or equal to one (1) acre and less than five (5) acres of total land area or less than one (1) acre of total land area that is part of a

larger common plan of development or sale if the larger common plan will ultimately disturb one (1) acre or more, but less than five (5) acres.

Special Construction Sites: any construction activity that meets the following definition:

a) Any construction activity (e.g., clearing, grading, excavating, etc.) greater than 4,000 square feet and less than 1 acre of land, which is adjacent to any lake, stream, tributary, creek or other flowing body of water.
b) Road, pipeline, and utility maintenance activities are not regulated under this permit unless one or more acres of underlying and/or surrounding soil are cleared, graded or excavated as part of the operation.
c) Road, pipeline and utility maintenance activities are regulated when bordering lakes or streams under either the small, medium or large construction site category.
d) This permit also authorizes stormwater discharge from support activities (e.g., concrete or asphalt batch plants, equipment staging yards, materials storage areas, excavated material disposal areas, borrow areas) provided these activates result in disturbance (e.g., clearing, grading, excavating, etc.) of one acre or greater of total land area.

5. The ultimate objective of this program is to protect water quality. Pulaski County recognizes the need and responsibility to implement a program that achieves the requirements mandated by NPDES Phase II Final Rule.

6. Specific compliance dates will be set by each NPDES permitting authority as it changes appropriate regulations and issues general permits.

7. By the end of their first permit terms (typically 5 years), operators of regulated small MS4s would have to fully implement their storm water management programs.

8. The Phase II Rule outlines a small MS4 storm water management program comprising six required program elements that, when implemented in concert, are expected to result in significant reductions of pollutants discharged into receiving water bodies. These six elements, termed "minimum control measures," are:

a) Public Education and Outreach
b) Public Participation/Involvement
c) Illicit Discharge Detection and Elimination
d) Construction Site Runoff Control
e) Post-Construction Runoff Control
f) Pollution Prevention/Good Housekeeping

9. Best Management Practice (BMPs) are schedules of activities, prohibitions of practices, maintenance procedures, and other management practices designed to prevent or reduce the pollution of waters of the United States. BMPs also include

treatment requirements, operating procedures, and practices to control plate site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw sewage. BMPs may include structural devices or nonstructural practices.

SECTION C. Stormwater and Urban Runoff Pollution Control

1. Illegal dumping/disposal. No person shall throw, deposit, place, leave, maintain, or keep or permit to be thrown, placed, left, maintained or kept, any refuse, rubbish, garbage, or any other discarded or abandoned objects, articles, or accumulations, in or upon any street, alley, sidewalk, storm drain, inlet, catch basin, conduit or drainage structure, business place, or upon any public or private plot of land in the county, so that the same might be or become a pollutant, except in containers, recycling bags, or other lawfully established waste disposal facility.

   a) No person shall intentionally dispose of grass, leaves, dirt, or other landscape debris into a water resource buffer, street, road, alley, catch basin, culvert, curb, gutter, inlet, ditch, natural watercourse, flood control channel, canal, storm drain or any fabricated natural conveyance.

2. Illicit discharges and connections. No person shall cause any illicit discharge to enter the municipal stormwater system unless such discharge: (1) consists of non-stormwater that is authorized by an NPDES point source permit; or (2) is associated with fire fighting activities.

3. Storage of materials, machinery and equipment. Objects, such as motor vehicles including parts, containing grease, oil or other hazardous substances, and unsealed receptacles containing hazardous materials, shall not be stored in areas susceptible to runoff as is prohibited in areas identified by FEMA as designated floodplain areas identified as shown on current FEMA FIRM maps.

   a) Any machinery or equipment that is to be repaired or maintained in areas susceptible to runoff shall be placed in a confined area to contain leaks, spills or discharges.

4. Removal of debris and residue. Debris and residue shall be removed, as noted below:

   a) All motor vehicle parking lots shall be swept, at a minimum of twice a year to remove debris. Such debris shall be collected and properly disposed. However, parking lots are not required to be swept for one month following a day on which precipitation of one-half inch or more occurs.
   b) Fuel and chemical residue or other types of potentially harmful material, such as animal waste, garbage or batteries, which is located in an area susceptible to runoff, shall be removed as soon as possible and disposed of properly. Household hazardous waste may be disposed of through County collection programs or at any other appropriate disposal site and shall not be placed in a trash container.

Non-stormwater discharges. All discharges covered by this permit shall be composed entirely of stormwater except the following non-stormwater discharges that are combined with stormwater may be authorized by this permit:

a) Discharges from fire fighting activities; fire hydrant flushings; water used to wash vehicles (where detergents are not used) or control dust; potable water sources including uncontaminated waterline flushings; irrigation drainage; routine external building wash down which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled materials have been removed) and where detergents are not used; uncontaminated air conditioning or compressor condensate; uncontaminated springs; uncontaminated ground water; foundation or footing drains where flows are not contaminated with process materials such as solvents; and uncontaminated excavations dewatering.

b) Except as described in (f)(1) above, discharges of material other than stormwater must be in compliance with an individual NPDES permit issued for the discharge.

6. Good housekeeping provisions. Any owner or occupant of property within the County shall comply with the following good housekeeping requirements:

a) Discharges. No person shall leave, deposit, discharge, dump, or otherwise expose any chemical or septic waste in an area where discharge to streets or storm drain system may occur. This section shall apply to both actual and potential discharges.

b) For pools, water should be allowed to sit seven days to allow for chlorine to evaporate before discharge. If fungicides have been used, water must be tested and approved for discharge to the wastewater treatment plant.

c) All large, medium, small and special construction sites must have solid waste dumpsters located at the site to properly dispose of building materials and solid waste.

7. Construction site stormwater runoff control. Any owner, developer or occupant of property within the County shall install and maintain erosion and sediment controls during land disturbing activities (Article II, Section 4) in order to reduce pollutants from stormwater from entering waterways.

8. Post-construction stormwater runoff control. Any owner, developer or occupant of property within the County shall install and maintain erosion and sediment controls during land disturbing activities (Article II, Section 4) from new development and redevelopment projects in order to reduce pollutants from stormwater from entering waterways.

9. Runoff. Runoff of water from residential property shall be minimized to the maximum extent practicable. Runoff of water from the washing down of paved areas in commercial or industrial property is prohibited unless necessary for health or safety purposes and not in violation of any other provisions in community codes.

SECTION D. Stormwater Management Design Manual

1. Stormwater Management Manual. To assist in the design and evaluation of stormwater management facilities in Pulaski County, a Stormwater Management Design Manual has been developed. Recommended design procedures and criteria are presented for conducting hydraulic evaluations. Although the intention of the manual is to establish uniform design practices, it neither replaces the need for engineering judgment nor precludes the use of information not presented. Otherwise accepted engineering procedures may be used to conduct hydraulic and hydraulic studies if approved by the County Engineer.

2. Policy on Stormwater Runoff Rates. Site plans for new development of any kind will be assessed for stormwater quantity control and stormwater quality management. The general policy on stormwater runoff rates is to reduce the impacts of development by maintaining pre-development hydrological conditions. New or renewed development sometimes causes negative alterations to the hydrologic regime. The purposes of a stormwater management plan is to minimize the impact of the following:

   a) Increased runoff volume
   b) Increased imperviousness
   c) Increased flow frequency, duration, and peak runoff
   d) Reduce infiltration (groundwater recharge)
   e) Modification of the flow pattern
   f) Faster time to peak, due to shorter time of concentration through storm sewers.
   g) Accelerated channel erosion

SECTION E. Stormwater Management Plan Requirements

1. Stormwater Management Plan. Every applicant that involves land disturbing activities that are large, medium or small construction site per Article II, Section B must submit a stormwater management plan and SWPPP to the county Engineer. Special construction sites must meet the submittal requirements spelled out per Article II, Section B. No subdivision approval or permit to allow land disturbing activities shall be issued until approval of this plan. All plans shall be consistent with National Pollution Discharge Elimination Permit (NPDES) requirements, and the filing or approval requirements of the Arkansas Department of Environmental Quality, U.S. Army Corps of Engineers, Federal Emergency Management Agency, and relevant Watershed Districts, Watershed Management Organizations, ditch Authorities, Soil and Water Conservation Districts, or other regulatory bodies. All stormwater mitigation and management technologies shall be consistent with Pulaski County Stormwater Management Design Manual (Design Manual). The Design Manual is the compilation of design, performance, and review criteria approved by the County Engineer and adopted by the Quorum Court for stormwater management practices.

a) The stormwater management plan for small, medium and large construction sites shall be prepared by the engineer of record, who is a licensed professional engineer in the State of Arkansas.
b) The SWPPP and Stormwater Construction Notice for special construction sites are not required to be prepared by an engineer.
c) If needed, a review meeting should be scheduled with the County Engineer and include a representative of the developer and the design engineer, to review the overall concepts included in a preliminary stormwater management, drainage, and erosion control plan. The purpose of the this review would be to jointly agree upon an overall stormwater management concept for the proposed development and to review criteria and design parameters that will apply to final design of the project.

2. General Policy on Erosion Control. Erosion control plans will be included in the Stormwater Management Plan. The Erosion Control Plan shall be required for small, medium, large and special projects as described in Article II, Section B and shall meet the following criteria:

a) Minimize, in area and duration, exposed soil and unstable soil conditions.
b) Minimize disturbance of natural soil cover and vegetation.
c) Protect receiving water bodies, wetlands and storm sewer inlets.
d) Protect adjacent properties from sediment deposition.
e) Minimize off-site sediment transport on trucks and equipment.
f) Minimize work in and adjacent to water bodies and wetlands.
g) Maintain stable slopes.
h) Avoid steep slopes and the need for high cuts and fills
i) Minimize disturbance to the surrounding soils, root systems and trunks of trees adjacent to site activity that are intended to be left standing.
j) Minimize the compaction of site soils.

3. The minimum requirements of the Stormwater Management Plan shall be consistent with the most recent version of the Arkansas Department of Environmental Quality's NPDES Construction Permit Requirements. A checklist similar to the ADEQ checklist is appended to this ordinance.

a) Identifications and description

i) Project name;
ii) Project type (residential, commercial, industrial, road construction, or other);
iii) Project location;
iv) Legal description;
v) Names and addresses of the record owner, developer, land surveyor, engineer, designer of the plat, and any agents, contractors, and subcontractors who will be responsible for project implementation;

vi) Identification of the entity responsible for long term maintenance of the project. This includes a maintenance plan and schedule for all temporary and permanent stormwater practices;
vii) Identification of the nature of the construction activity and the potential for sediment and other pollutant discharge from the site;
viii) Phasing of construction with estimated start date, time frames and schedules for each construction phase, and completion date;
ix) Copies of permits or permit applications required by any other governmental entity or agencies including mitigation measures required as a result of any review for the project (e.g. wetland mitigation, EAW, EIS, archaeology survey, etc.)

4. Existing Conditions- A complete site plan and specifications, signed by the person who designed the plan shall be drawn to an easily legible scale, shall be clearly labeled with a north arrow and a date of preparation, and shall include, at a minimum, the following information:

a) Project map – An 8.5 by 11 inch United States Geological Survey (USGS) 7.5 minute quad or equivalent map indicating site boundaries and existing elevation.
b) Property lines and lot dimensions.
c) Existing zoning classifications for land within and abutting the development, including shoreland, floodway, flood fringe, or general floodplain, and other natural resource overlay districts.
d) All buildings and outdoor uses including all dimensions and setbacks.
e) All public and private roads, interior roads, driveways and parking lots.
f) Identify all natural and artificial water features (including drainage culverts) on site and within ½ mile of project boundary, including, but not limited to lakes, ponds, streams (including intermittent streams), and ditches. Show ordinary high water marks of all navigable waters, 100-year flood elevations and delineated wetlands boundaries, if any. If not available, appropriate flood zone determination or wetland delineations, or both, may be required at the applicant's expense.
g) Map of watershed drainage areas, soil types, infiltration rates, depth to bedrock, and depth to seasonal high water table. The Pulaski County Soil Survey Manual or a geotechnical investigation of the project site shall be used to determine existing soil types.
h) Existing grades showing drainage on and adjacent to the site.
i) Existing impervious surfaces.
j) Steep slopes where areas of 12% or more exists over a distance of 50 feet or more.
k) Locations of all areas not to be disturbed during construction including trees, vegetation, and appropriated areas for infiltrations.

l) Bluff areas where the slope rises at least 25 feet above the toe of t he bluff and the grade of the slope from the toe of the bluff to a point of 25 feet or more above the toe of the bluff averages 30% or greater.

m) Wooded area and tree survey.
n) Agricultural Land preservations area(s) or other officially designated natural resources.
o) Hydrologic calculations for volume runoff, velocities, and peak flow rates by watershed, for the 2.0 yr, 10-yr, and 100-yr 24-hour storm events. These shall include:
   i) Pre-existing peak flow rates.
   ii) Assumed runoff curve numbers.
   iii) Time of concentration used in calculations.
   iv) The 100-year flood elevations with and without the floodway.

5. Proposed Conditions- A complete site plan and specifications prepared and signed by a Professional Engineer licensed in the State of Arkansas. The plan shall be drawn to an easily legible scale, shall be clearly labeled with a north arrow and a date of preparations, and shall meet the following conditions and included, at a minimum, the following information:

   a) Project map- An 8.5 by 11 inch United States Geological Survey (USGS) 7.5 minute quad or equivalent map indicating site boundaries, proposed elevations, and area not to be disturbed;
   b) Property lines and lot dimensions of plat.
   c) The dimensions and setbacks of all building and easements.
   d) The locations and area of all proposed impervious surfaces including public and private roads, interior roads, driveways, parking lots, pedestrian ways, and rooftops. Show all traffic patterns and type of paving and surfacing materials.
   e) Location, size and approximate grade of proposed public sewer and water mains.
   f) Monitor and reduce total off-site permissible annual aggregate soil loss for exposed areas resulting from sheet and rill erosion monitoring will utilize a commonly accepted soil erosion methodology approved by the County Engineer that considers the season of year, site characteristics, soil erodibility and length and steepness of slopes.
   g) Elevations, sections, profiles, and details as needed to describe all natural and artificial features of the project.
   h) Identify all natural and artificial water features on site and within ½ mile of project boundary, including, but not limited to lakes, ponds, streams (including intermittent streams), and ditches. Slow ordinary high water marks of all navigable waters, 100-year flood elevations and delineated wetland boundaries, if any. If not available, appropriate flood zone determination or wetland delineation, or both, may be required at the applicant's expense.
   i) Hydrologic calculations for volume runoff, velocities, and peak flow rates by watershed, for the 2.0-yr, 10-yr, and 100-yr 24-hour storm events. These shall include:
      i) Post construction peak flow rates with no detention.
      ii) Post construction peak flow rates with detention.
      iii) Assumed runoff curve numbers.
      iv) Time of concentration used in calculations.

v) The 100-year flood elevation with and without the floodway.

j) Locations of all stormwater management practices, infiltration areas, and areas not to be disturbed during construction.

k) Proposed grading of other land-disturbing activity including areas of grubbing, clearing, tree removal. Grading excavation, fill and other disturbance; areas of soil or earth material storage; quantities of soil or earth material to be removed, placed stored or otherwise moved on or off the site, and delineated limits of disturbance.

l) Locations of proposed runoff control, erosion prevention, sediment control, and temporary and permanent soil stabilization measures.

m) Structural Practices. A description of structural practices to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable. Structural practices should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the Clean Water Act. Such practices may include:

i) Silt fences (installed and maintained)
ii) Earth dikes
iii) Drainage swales
iv) Check dams
v) Subsurface drains
vi) Pipe slope drains
vii) Level spreaders
viii) Storm drain inlet protection
ix) Rock outlet protection
x) Sediment traps
xi) Reinforced soil retaining systems
xii) Gabions
xiii) Temporary or permanent sediment basins

n) Proposed grades showing drainage on and adjacent to the site.

o) Proposed impervious surfaces.

p) Provide that all silt fences and other practices used for erosion and sedimentation control shall not be removed until Pulaski County has determined that the site has been permanently stabilized and shall be removed within 30 days thereafter.

q) Steep slopes where areas of 12% or more exists over a distance of 50 feet or more.

r) Design and construction methods to stabilize steep slopes

s) Stabilization of all waterways and outlets, and velocity dissipaters.

t) Protection of storm sewer infrastructure from sediment loading/plugging.

u) Location of temporary sedimentation basins – If more than 10 acres are disturbed and drained to a single point of discharge temporary sediment basins must be installed, however, if the site has sensitive features as determined by the community or the potential of off site impacts, then temporary sediments basin must be installed to protect the resource. This is determined on a site by site basis. When site restrictions do not allow for temporary sediment basin, equivalent

measures such as smaller basins, check dams, and vegetated buffer strips can be included.

v) Location and engineered designs for structural stormwater management pratices including stormwater treatment devices that remove oil and floatable material. (e.g., basin outlets with submerged entrances.)

w) Stabilization of disturbed areas, including utility construction areas, as soon as possible.

x) Protection of outlying roads and drainage systems from sediment and mud from construction site activities.

y) Normal water level, high water level, and emergency overflow elevations for the site.

z) For discharges to cold water fisheries, a description and plans to control temperature from stormwater runoff.

aa) Floodway and flood fringe boundary, if available.

bb) Disposal of collected sediment and floating debris.

cc) Any addition measures to comply with surface and groundwater standards in sensitive areas.

6. All proposed stormwater practices hydrologic models, and design methodologies shall be reviewed by the County Engineer and certified for compliance in accordance with the Stormwater Management Design Manual.

7. Review and approval of final stormwater management plan. Final stormwater management plan shall be reviewed by the County Engineer. If it is determined according to present engineering practice that the proposed development will provide control of erosion and stormwater runoff inaccordance with the purposes, design criteria, and performance standards of these regulations and will not be detrimental to the public health, safety, and general welfare, the County Engineer shall approve the plan or conditionally approve the plan, setting forth the conditions thereof.

8. If is determined that the proposed development will not control stormwater runoff, erosion and sedimentation in accordance with there regulations, the County Engineer shall disapprove the final stormwater management and drainage plan.

SECTION F. Stormwater Pollution Prevention Plan

1. Under the NPDES General Permits for Stormwater Discharge from Construction Site, EPA requires the development and implementation of a stormwater pollution prevention plan (SWPPP). A SWPPP for construction is designed to reduce pollution at the construction site, before it can cause environmental problems. Many of the practices and measures required for the SWPPP represent standard operating procedures at many construction sites. Stormwater management controls, erosion and sediment controls, inspection and maintenance have all been used at a number of construction sites.

2. A requirement of the construction stormwater permit is to develop a SWPPP before construction activities begin. The following paragraphs will step through each item to be addressed in the SWPPP. You will be able to develop a SWPPP that normally fulfill the requirements of the Arkansas Department of Environmental Quality by following this guide.

3. A step-by-step process for ensuring that pollutants are not making their way into the stormwater discharge from a project consists of six major phases. The six major phases of the process are (1) site evaluation and design development, (2) assessment, (3) control selection and plan design, (4) certification and notification, (5) construction/implementation, and (6) final stabilization/termination.

4. Site Evaluation and Design Development Phase. The first phase in preparing a SWPPP for a construction project is to define the characteristics of the site and the type of construction that will be occurring. This phase is broken down into four requirements: (a) collect site information, (b) develop site design, (c) describe construction activity, and (d) prepare pollution prevention site map.

5. Assessment Phase. Once the characteristics of the site and the construction have been defined, the next phase in developing the SWPPP is to measure the size of the land disturbance and estimate the impact the project will have on stormwater runoff from the site based on information collected in the Site Evaluation and Design Development Phase. Three things should be done to assess the project: (a) measure the site area, (b) measure the drainage areas, and (c) calculate the runoff coefficient.

6. Control Selection/Plan Design Phase. After you have collected the information and made measurements, the next phase is to design a plan to prevent and control pollution of stormwater runoff from your construction site. To complete the SWPPP, (a) review and incorporate State and local requirements, (b) select erosion and sediment controls, (c) select other controls, (d) select stormwater management controls, (e) indicate the location of controls in the site map, (f) prepare an inspection and maintenance plan, (g) prepare a description of controls, and (h) prepare a sequence of major activities.

7. Certification and Notification Phase. Once the site description and controls portion of the SWPPP have been prepared, you now must (a) certify the pollution prevention plan and (b) submit a Notice of Intent to ADEQ. A checklist is provided at the end of this document at Appendix A to assist evaluating whether all the required items are included in your SWPPP prior to certifying the plan or submitting a Notice of Intent.

8. Construction/Implementation Phase. Once you have prepared a SWPPP and filed a Notice of Intent, you may start construction of the project upon approval by ADEQ. However, the items identified in the SWPPP must now take place: (a) implement the controls, (b) inspect and maintain the controls, (c) maintain records of construction activities, (d) update/change the plan to keep it current, (e) take proper action when there is a reportable quantity spill and (f) have plans accessible.

9. Final Stabilization/Termination Phase. Operators of a construction site must continue to comply with permit conditions until: (1) they no longer meet the definition of an operator of a construction site; or (2) the construction activity is complete, all disturbed soils have been finally stabilized, and temporary erosion and sediment controls have been or will be removed. A permittee is required to submit a Notice of Termination (NOT) to inform ADEQ that they are no longer an operator of a construction activity.

SECTION G. Detention Plan Requirements

1. Pulaski County requires the development and implementation of an on-site stormwater detention plan. An on-site detention plan for stormwater is designed to store the excess stormwater runoff associated with increased watershed imperviousness and discharge this excess at a rate similar to the runoff rate from the watershed with pre-developed conditions. Stormwater management controls such as on-site detention are the preferred method of storage of detention runoff in excess of amounts to be expected from existing conditions is on-site detention.

2. The ability of on-site or regional detention to reduce flood peaks in the local drainage ways has been recognized by Pulaski County, and detention is therefore required in the watershed, unless the proposed system will connect to an existing system with a 100-year flood capacity.

3. On-Site and Regional Detention. Depending upon ownership of the site and the area tributary to a detention site, two types of detention are defined: (1) on-site, and (2) off-site or regional. Onsite detention is defined as the privately owned and generally privately maintained facility which serves the developing area in question. Regional detention, also generally referred to as off-site detention, is publicly owned and maintained and generally is part of a planned space park system or greenbelt area serving a larger portion of the basin. The importance of regional detention is that ability to assure that the facility will be maintained and will function as designed.

4. Where on-site detention is deemed inappropriate due to local topographical or other physical conditions, alternate methods for accommodating increases in stormwater runoff may be permitted. Any alternate method shall be approved in writing by the Pulaski County Public Works Department under the direction of the County Engineer prior to its consideration. The methods may include.

   a) Off-site or Regional Detention
   b) In-lieu monetary contributions for drainage system improvements by the County. Channel improvements shall only be used if they are an integral part of a detailed watershed management plan. No in-lieu contributions are allowed when:

      i) Existing flooding occurs downstream from the development, or
      ii) If the proposed development will cause downstream flooding.

5. Potential advantages and disadvantages of on-site detention basins should be considered by the designer in the early stages of development. Discharge rates and outflow velocities are regulated to conform to the capacities and physical characteristics of downstream drainage systems. Energy dissipation and flow attenuation resulting from on-site storage can reduce soil erosion and pollutant loading. By controlling release flows, the impacts of the pollutant loading of stored runoff on receiving water quality can be minimized.

6. Design. Pulaski County will allow the use of the following software or an acceptable equal approved by the County Engineer for the analysis of stormwater detention facilities.

   a) Pond-2. Pond-2 is a program for detention pond design. Pond-2 is included in PondPack, a package developed by Haestad Methods, where it is integrated with Quick TR-55. It estimates detention storage requirements, computes a volume rating table for any pond configuration, routes hydrographs for different return frequencies through alternative ponds, and plots the resulting inflow and outflow hydrographs. Pond-2 automatically computes outflow rating for single or multi-stage outlet structures, and computes the controlling flow rate for outlets operating in series. Pond-2 handles orifices, weirs, box culverts, circular culverts, and more.
   b) HEC-1. HEC-1 generates hydrographs from rainfall or snow melts, adds or diverts them, then routes them through reaches and reservoirs. HEC-1 models multiple stream and reservoir networks, and has dam failure simulation capabilities. It handles level pool routing for reservoirs and detention ponds, and routes through stream reaches using Kinematic Wave, Muskingum, Muskinum-Cunge, Modified Puls, and other methods. HEC-1 supports five methods for computing infiltration and abstraction losses, and computes unit hydrographs using the Clark methods, Snyder method, and SCS dimensionless hydrographs.
   c) HEC-HMS. The Hydrologic Modeling System is designed to simulate the precipitation-runoff processes of dendritic watershed systems. It is designed to be applicable in a wide range of geographic areas for solving the widest possible

range of problems. This includes large river basin water supply and flood hydrology, and small urban or natural watershed runoff. Hydrographs produced by the program are used directly or in conjunction with other software for studies of water availability, urban drainage, flow forecasting, future urbanization impact, reservoir spillway design, flood damage reduction, floodplain regulation, and systems operation. The program features a completely integrated work environment including a database, data entry utilities, computation engine, and results reporting tools. A graphical user interface allows the user seamless movement between the different parts of the program. Program functionality and appearance are the same across all supported platforms.

7. Hydraulic Design Data. Stormwater detention pond outlets shall be designed to limit the peak stormwater discharge rate of the 2-, 10-, 25-, 50-, and 100 year storm frequencies after development to pre-development rates. The principal outlet will be designed to safely convey the runoff resulting from a 25 year event chance storm. A second outlet, the emergency outlet, will be designed to safely convey the runoff resulting from a 100 year event storm.

SECTION H. Stormwater Quality Plan Requirements

1. Stormwater Quality Plan Requirements. A developer may be required to prepare, submit and implement a Stormwater Quality Plan for all County permits that involves land disturbing activities that are large, medium or small construction site per Article II, Section B per the County Engineer's review. The County Engineer upon review of the site conditions may determine that in order to protect the waterways of Pulaski County that stormwater quality measures be implemented. This might occur on sites that discharge directly into the lakes, creeks and streams of Pulaski County and whose stormwater would have the potential of transferring pollutants into the waterways of Pulaski County. The following water quality measures will be used when the County Engineer determines it is necessary:

   a) A non-mechanical screening process is an appropriate option to improve water quality from stormwater prior to entering the waterways of Pulaski County.
   b) Buffer Zone. All land disturbing activities that are large, medium, small or special construction sites are required to establish a buffer zone when they adjoin creeks, streams, lakes or rivers. A buffer zone is an area of natural vegetation like grass, bushes and shrubbery. It may also be of a man-made nature such as rip rap, gabion mattresses and sediment-catching channels. A buffer zone protects natural waterways, creeks, streams, lakes and rivers from the direct impact of pollutants entering through stormwater from drainage pipes or impermeable areas by directly filtering pollutants from stormwater and through sediment catching detention measures.

SECTION I. Permits and Fees Required

A Stormwater Management Permit will be required for construction site activities and those activities associated with excavation, filling, grading and removal of trees or surface vegetation unless otherwise exempt by this ordinance. The permit application and required submittal documents, when applicable, shall include a copy of the Notice of Intent (NOI) that is (or will be) filed with the Arkansas Department of Environmental Quality (ADEQ). Approvals shall be secured per size of development from Pulaski County and ADEQ, as applicable prior to starting any clearing or earth work. It is the developer's responsibility to determine if other permits are required and to secure them.

2. Permit Requirements. The following permit requirements must be met:

   a) No final plat shall be signed without the following:

      i) Recorded easements for stormwater management facilities.
      ii) Receipt of an as-built plan which includes a certification of the storm drainage system.

   b) No preliminary plat shall be signed or modified without the following:

      i) Right of entry for emergency maintenance, if necessary.
      ii) Right of entry for inspections.
      iii) Any off-site easements needed.
      iv) An approved stormwater management plan.

3. The approved stormwater management plan shall contain certification by the applicant that all land clearing, construction, development and drainage will be done according to the stormwater management plan or previously approved revisions. Any and all permits may be revoked at any time if the construction of stormwater management facilities is not in strict accordance with approved plans.

4. In addition to the plans and permits required from the County, applicants shall obtain all state and federal permits for the proposed development. The applicant shall also be responsible for determining the existence and limits of any wetlands and/or floodways as may be applicable, and be responsible for securing permits and approvals from the U.S. Army Corps of Engineers and Federal Emergency Management Agency as required.

5. Permit fees. The permit and rates associated with the implementation of this ordinance will be based on the disturbance for more than 4,000 square feet of land as stated in this ordinance.

   a) Single Family Dwelling $25.00
   b) Multiple Family Dwellings four (4) units or less $100.00

c)	Multiple Family Dwellings five (5) units or more	$250.00
d)	Commercial and Industrial Buildings 10,000 sq. ft. or larger	$250.00
e)	Commercial and Industrial Buildings 5,000 sq. ft. to 9,999 sq. ft.	$100.00
f)	Commercial and Industrial Building Additions between 4,000 to 9,999 sq. ft.	$50.00
g)	Commercial and Industrial Buildings Additions 10,000 sq. ft. or larger	$100.00
h)	Parking Lots 10,000 sq. ft. or more	$100.00
i)	Parking Lots 4,000 sq. ft. to 9,999 sq. ft.	$75.00
j)	Parking Lots less than 4,000 sq. ft.	$50.00
k)	Subdivisions up to five (5) lots	$100.00
l)	Subdivisions from 6 lots to 12 lots	$200.00
m)	Subdivisions with 13 lots or more	$400.00
n)	Other Activities that disturb between 4,000 sq. ft. and three (3) acres	$100.00
o)	Other Activities that disturb more than three (3) acres	$200.00

SECTION J. Exemptions

1. Any land disturbing activity greater than 4,000 square feet and less than 1 acre within 100 feet of a stream or a lake is not exempt from this ordinance.

2. The following activities are exempt from requirements of this ordinance:

   a) Land use for agricultural purpose.
   b) Land where timber extraction takes place, provided that it is to be reseeded as timber land.
   c) Earthwork on an area less than 4,000 square feet.
   d) Single-Family / Duplex. One single family residence or duplex not boundaried by lake or stream.
   e) Commercial / Industrial. One commercial or industrial project built on an individual lot that is part of a larger subdivision that has been issued an approved drainage control permit when the proposed project is demonstrated to be in compliance with the overall subdivision drainage permit.
   f) Existing Commercial / Industries. Existing commercial and industrial structures where additional structural improvements are less than 500 square feet.
   g) Maintenance. Maintenance or clearing activity that does not change or affect the quality, rate, volume, or location of stormwater flows on the site, or runoff from the site.
   h) Agricultural. Any activity directly related to the planting, growing and harvesting of agricultural crops.
   i) Emergency. Action taken under emergency conditions, either to prevent imminent harm or danger to persons, or to protect property from imminent danger of fire, violent storms or other hazards.

d) Duration

i) Unless revoked or otherwise modified, the duration of a stormwater management permit issued pursuant to this chapter shall be one year.
ii) If the permitted project discharge structure is not completed prior to expiration, the stormwater management permit duration can be extended to cover the project duration subject to approval of the County Engineer.
iii) Maintenance. Maintenance activities, as specified in the approved maintenance plan, shall be executed routinely, with scheduled reporting documents kept current, stored on the project site, and available for review and inspection upon request.
iv) Modifications. If the activity authorized by the permit is not completed according to the approved schedule and permit conditions, the County Engineer shall be notified. For revisions resulting in a schedule extension of more than thirty (30) days, or if deviations from the permit conditions are expected to occur, approval of a permit modification is required by the County Engineer.
v) Transfer. No transfer, assignment or sale of the rights granted by virtue of an approved permit shall be made without prior written approval from the County Engineer.
vi) Special. Any additional special conditions, as deemed appropriate by the County Engineer, shall be established to address specific project needs or circumstances.

2. Permit application. A storm water permit application shall be submitted to the County Engineer using appropriate forms as provided by the County. A permit application shall contain sufficient information and plans to allow the County Engineer to determine whether the project complies with the requirements of this ordinance. The specific items to be submitted for a permit application shall be in the form and follow the procedures as described in the Stormwater Management Design Manual and this Ordinance. Submittal information and plans shall include, but not be limited to the following:

a) Applicant Identification. Applicant information, including the name, address, and telephone number of the owner, developer and contractor, and proof of ownership of the property to be permitted. The application must be signed by the landowner or include a notarized statement signed by the landowner authorizing the applicant to act as the landowner's agent and bind the landowner to the terms of this ordinance. If a landowner appoints an agent to submit an application, the landowner shall be bound by all of the requirements of this ordinance and the terms of any permit issued to the agent. In addition, the legal description of the property shall be provided, and its location with reference to such landmarks as major streams and other water bodies.
b) Plan. Stormwater management plan, shall include, but not limited to the following:

SECTION K. Permit Conditions, Application and Processing

1. Permit conditions - Each permit issued shall be subject to the following conditions:

a) Area. The development, including associated construction, shall be conducted only within the area specified in the approved permit.

b) Execution. Activities requiring a stormwater management permit shall not commence until the permit is in the possession of the permittee. The approved permit shall be on file with the County and a copy on file with the contractor at the project site, and available for review and inspection upon request.

i) The plan shall be implemented prior to the start of any land disturbing activity and shall be maintained over the duration of the project. Stormwater components of the plan shall be maintained in perpetuity.

ii) The permittee is responsible for successful completion of the erosion control plan and the stormwater management plan. The permittee shall be liable for all costs incurred, including environmental restoration costs, resulting from noncompliance with an approved plan.

iii) Application for a permit shall constitute express permission by the permittee and landowner for the local approval authority to enter the property for purposes of inspection or curative action. The application form shall contain a prominent provision advising the applicant and landowner of this requirement.

iv) All incidental mud-tracking off-site onto adjacent thoroughfares shall be cleaned up and removed by the end of each working day using proper disposal methods.

c) Inspections. A schedule of inspections to be carried out during the construction phase of permitting shall be established by the County a condition to the permit.

i) Application for a permit under this ordinance shall constitute permission by the applicant and landowner for the local approval authority to enter upon the property and inspect during the construction phase prior to the inspections pursuant to paragraphs (4) and (5), as necessary to confirm compliance with the requirements of this ordinance.

ii) Applicant and landowner for the local approval authority to enter upon the property and inspect during the construction phase prior to the inspections as necessary to confirm compliance with the requirement of this ordinance.

iii) As part of the plan approval process, the County shall determine the minimum number of inspections required to assure compliance. The site of any regulated land disturbing activity shall be inspected once every 30 days, or more frequently as determined by the County during the construction phase.

iv) Within 10 days after installation of all practices in an approved erosion control plan and achievement of soil stabilization, the permittee shall notify the County.

v) The County shall inspect the property to verify compliance with the erosion control plan within 10 days of notification of soil stabilization.

i) Aerial Photograph. Aerial photograph, if available, of the project vicinity, covering the project area and the total lands that contribute runoff.

ii) Topographic Map. Topographic map of the project area showing the location and elevation of benchmarks, including at least one benchmark for each control structure.

iii) Land Use Map. Land use map showing both current and proposed conditions for the drainage area that contributes runoff.

iv) Soils and Vegetation Map. Soils and vegetation map displaying the most recent U.S. Soil Conservation Service information and encompassing both the project area and the drainage area that contributes runoff.

v) Grading, Drainage and Paving Drawings. Proposed grading, drainage and paving detail drawings.

vi) Erosion and Sediment Drawings. Erosion and sediment control drawing(s) and specifications identifying the type, location, and schedule for implementing erosion and sediment control measures, including appropriate provisions for maintenance and disposition of temporary measures. Copies of permits or permit applications or approvals required by any other government entity.

vii) Technical Report. Technical report, prepared by a registered professional engineer, describing the assumptions, calculations and procedures used for determining compliance with the performance criteria established by the ordinance may be required at the County Engineer's discretion.

viii) Maintenance Report. Maintenance report (text or drawings), prepared by a registered professional engineer, describing the activities and schedule required to operate and maintain the permitted facilities until accepted by the County, may be required at the County Engineer's discretion.

3. Approval process

a) Pulaski County shall verify that the permit application is complete and in accordance with this ordinance.

b) Within the time frame set by the County, plan review staff shall either approve the submitted plan or notify the applicant of any deficiencies.

c) The County shall notify the applicant in writing of any deficiency in the proposed plan and the applicant shall be given an opportunity to correct any deficiency.

d) Upon approval of the County, the stormwater management permit shall be issued by the County after the applicant has met all other requirements of this ordinance.

SECTION L. Performance Standards and Design Criteria

1. Pulaski County Stormwater Management Design Manual shall be the source for design criteria and performance standards with respect to stormwater management.

2. Professional Registration Requirements. Stormwater concept and stormwater management plans and design reports that are incidental to the overall or ongoing site design shall be prepared, certified, and stamped/sealed by a Professional Engineer licensed in the State of Arkansas. In addition, the engineer must verify that the plans

have been designed in accordance with this ordinance and the standards and criteria stated or referred to in this ordinance.

Engineer of Record. Should the original Engineer of Record be prevented from completing the project, the permittee shall employ another qualified engineer and notify the County Engineer immediately.

ARTICLE III. MAINTENANCE, CONSTRUCTION AND INSPECTION

SECTION A. Maintenance Responsibility

Public and private maintenance responsibilities under the stormwater management system.

Contractor/Owner Inspections and Maintenance. The owner shall be responsible for inspections and maintenance on the site.

a) Inspections and maintenance must be documented and readily available for review. Inspections are required as follows:

i) Once every 7 days on exposed soil areas.
ii) Within 24 hours after a one-half inch rain event over 24 hours.
iii) Once every 30 days on stabilized areas.
iv) As soon as runoff occurs or prior to resuming construction on frozen ground.

b) Maintenance is required as follows:

i) When sediment reaches 1/3 the height of the BMP on perimeter control devices, sediment must be removed within 24 hours.
ii) If the perimeter control device is not functional it must be repaired or replaced within 24 hours.
iii) Temporary sediment basins shall be maintained when sediment reaches ½ the outlet height or ½ the basin storage volume. Basin must be drained or sediment removed within 72 hours.
iv) Construction site vehicle entrance and exit locations sediment must be removed from paved surfaces within 24 hours of discovery.

3. Public responsibilities:

a) Administration - Administration of these regulations shall of the Pulaski County Publix Works Department under the direction of the County Engineer, who shall review to determine approval, disapproval or modification of stormwater management plans as provided herein.
b) All areas and/or structures to be dedicated to the County must be dedicated by plat or separate instrument and accepted by a formal letter from the County Engineer.
c) Operation and Maintenance of Publicly-Owned Facilities – The Pulaski County Road & Bridge shall be responsible after written approval and acceptance for the operation and maintenance of all drainage structures and improved courses which are part of the drainage structures and improved courses which are part of the stormwater runoff management system under public ownership and which are not constructed and maintained by or under the jurisdiction of any state or federal agency.

4. Private responsibilities:

   a) Each developer of land within the County has a responsibility to provide on the developer's property all approved stormwater runoff management facilities to ensure the adequate drainage and control of stormwater on the developer's property both during and after construction of such facilities.
   b) Each developer, owner or property owners association has a responsibility and duty before and after construction to properly operate and maintain any on-site stormwater runoff control facility which has not been accepted for maintenance by the public. Such responsibility is to be transmitted to subsequent owners through appropriate covenants.
   c) All private systems not dedicated to the County shall have adequate easement to permit the County to inspect and, if necessary, to take corrective action should the responsible entity fail to properly maintain the system.
   d) All private stormwater facilities shall be maintained in proper condition consistent with the performance standards for which they were originally designed.

5. Maintenance Agreement (privately-owned facilities only):

   a) A proposed inspection and maintenance agreement shall be submitted to the County Engineer for all private on-site stormwater discharge control facilities prior to the approval of the stormwater management plan. Such agreement shall be in a form and content acceptable to the County Engineer and shall be the responsibility of the private owner. Such agreement shall provide for access to the facility by virtue of a non-exclusive perpetual easement in favor of the County at reasonable times for regular inspection by the County Engineer. This agreement will identify who will have the maintenance responsibility. Possible arrangements for this maintenance responsibility might include the following:

      i) Use of homeowner associations;
      ii) Arrangements to pay the County for maintenance;
      iii) Private maintenance by development owner(s), or contracts with private maintenance companies.

   b) All maintenance agreements shall contain or uphold, without limitation, the following provisions:

      i) A description of the property on which the stormwater management facility is located and all easements from the site to the facility;
      ii) Size and configuration of the facility;
      iii) A statement that properties which will be served by the facility are granted rights to construct, use, reconstruct, repair and maintain access to the facility;
      iv) A statement that each lot served by the facility is responsible for repairs and maintenance of the facility and any unpaid ad valorem taxes, public assessments for improvements, and unsafe building and public nuisance abatement liens charged against the facility, including all interest charges

together with attorney fees, costs and expenses of collection. If an association is delegated these responsibilities, then membership into the association shall be mandatory for each parcel served by the facility and any successive buyer. The association shall have the power to levy assessments for these obligations, and that all unpaid assessments levied by the association shall become a lien on the individual parcel;

v) All stormwater facilities must be designed to minimize the need for maintenance, to provide easy vehicle and personnel access for maintenance purposes, and be structurally sound. It shall be the responsibility of the applicant to obtain any necessary easements or other property interests to allow access to the facilities for inspection or maintenance;

vi) Removal of Settled Materials. All settled materials from ponds, sumps, grit chambers and other devices, including settled solids, shall be removed and properly disposed of as needed to insure the proper functioning of the stormwater facility as per its design capacity.

SECTION B. Inspection authority

1. Inspections will be performed by the County Engineer or the County Inspector on a regular basis during construction to ensure that the stormwater management plan measures are properly installed and maintained. The County Engineer or County Inspector shall inspect all stormwater facilities during the first year of operation, and at least once every five years thereafter. In all cases the inspectors will attempt to work with the applicant or developer to maintain proper stormwater management.

SECTION C. Bonds, maintenance assurances and final approval

1. Maintenance Agreement. A maintenance agreement approved by the County Engineer assuring perpetual maintenance of stormwater management improvements shall be agreed upon by the County and the applicant.

2. Maintenance of detention ponds (wet type) shall be the responsibility of the owner of record and/or the property owners' association.

3. Maintenance of detention basins (dry type) shall be the responsibility of the owner of record and/or property owners' association. The owner of record and/or property owners' association shall be responsible for all other maintenance, plantings, reseeding, or resodding. The owner shall also be responsible for removing and replacing any landscaping, playground equipment or other facilities within the basin.

4. Maintenance Bond. A one year maintenance bond against defects in workmanship shall be required by the County Engineer for any portion of the stormwater management improvements dedicated to the public, said maintenance bond to be provided by cashiers check, irrevocable letter of credit or acceptable surety authorized to do business in the State of Arkansas. All forms of maintenance bonds shall be subject to approval by the County Engineer and the County Attorney. The value of

bond shall be an amount equal to 100% of the value of the stormwater system improvements.

ARTICLE IV. MISCELLANEOUS PROVISIONS

SECTION A. Variances and appeals

1. Variances from requirements.

   a) The County Engineer may grant on a case-by-case basis a variance from the requirements of this Ordinance if there are exceptional circumstances applicable to the site such that strict adherence to the provisions of the ordinance will result in unnecessary hardship and not fulfill the intent of the ordinance.
   b) An applicant may include in the application a request for a variance. No variance shall be granted unless applicant demonstrates and the County Engineer finds that all of the following conditions are present:

      i) Enforcement of the standards set forth in this ordinance will result in unnecessary hardship to the landowner.
      ii) The hardship is due to exceptional physical conditions unique to the property.
      iii) Granting the variance will not adversely affect the public health, safety or welfare, nor be contrary to the spirit, purpose and intent of this ordinance.
      iv) The project will have no adverse impact upon any of the stated purposes of this ordinance.
      v) The applicant has proposed an alternative to the requirement from which the variance is sought that will provide equivalent protection of the public health, safety and welfare, the environment and public and private property.
      vi) The net cumulative effect of the variance will not impact downstream conditions.
      vii) Existing regional facilities are shown to meet the performance standards of this ordinance.

   c) If all of the conditions of paragraph (2) are met, a variance may only be granted to the minimum extent necessary to afford relief from the unnecessary hardship with primary consideration given to water quality.
   d) The content of a variance shall be specific and shall not affect other approved provisions of a SWPPP.
   e) Economic hardship is not sufficient reason for granting a variance.
   f) A written request for a variance shall be required and shall state the specific variance sought and the reasons, with supporting data, for their granting. The request shall include descriptions, drawings, calculations and any other information that is necessary to evaluate the proposed variance.
   g) Any substantial variance from the stormwater management plan shall be referred to all agencies which reviewed the original plan.

2. Appeals.

a) Any person aggrieved by a decision of the County Engineer (including any decision with reference to the granting or denial of a variance from the terms of this ordinance) may appeal same by filing a written notice of appeal with the County Engineer within thirty (30) calendar days of the issuance of said decision or send this notice to the Planning Commission with comments. A notice of appeal shall state the specific reasons why the decision of the County Engineer should be reconsidered and the County Engineer shall prepare and send to the Planning Commission and Appellant, with fifteen (15) days of receipt of the notice of appeal, a written response to said notice of appeal.

b) All such appeals shall be heard by the Planning Commission which is hereby granted specific authority to hear and determine such appeals in a quasi-judicial capacity. Said appeal shall be heard by the Planning Commission at its next regularly scheduled meeting date, not to exceed thirty (30) days after receipt of the notice of appeal, or at such other time as may be mutually agreed upon on writing by the Appellant and the Chairperson of the Planning Commission. The Planning Commission will then render a decision within fifteen (15) days after the appeal has been heard.

c) The Planning Commission may, in conformity with the provisions of this ordinance, reverse of affirm, wholly or partly, or modify the order, requirement, decision or determination appealed from and may make such order, requirement, decision or determination as ought to be made, and shall have all the powers of the officer from whom the appeal is taken.

d) The concurring vote of a majority of the Planning Commission shall be necessary to reverse the decision of the County Engineer.

e) Each party to the appeal shall be entitled to a hearing before the Planning Commission under judicial forms of procedures, at which hearing each party shall have the right to present evidence and sworn testimony of witnesses, to cross-examine witnesses, and to cause a transcription of the proceeding to be prepared.

f) Should either party be dissatisfied with the decision of the Planning Commission, any appeal of said decision may be appealed to a court of competent jurisdiction in accordance with the laws of Pulaski County and the state of Arkansas.

SECTION B. Alternative Methods

1. Alternatives to On-Site Detention. Where on-site detention is deemed inappropriate due to local topographical or other physical conditions, alternate methods for accommodating increases in stormwater runoff may at the County Engineer's discretion be considered. The methods may include

a) Off-site detention or comparable drainage improvements.

b) In-lieu monetary contributions to be specifically used for channel or drainage system improvements, or off-site detention improvements by the County within the same watershed. Channel improvements shall only be used if they are an integral part of a detailed watershed study.

3. In-lieu Contributions to Regional or Sub-Regional Detention. An owner or developer may contribute to the construction of a regional or sub-regional detention site constructed or to be constructed in lieu of constructing on-site detention. However, no in-lieu contributions are allowed when existing flooding occurs downstream from the development, or if the development will cause downstream flooding.

4. In-Lieu Fees. The in-lieu fee contribution shall be based upon an amount of $10,000 per-acre-foot of stormwater storage.

5. Watershed Facility Improvement Funds. In-lieu contributions paid to the County shall be budgeted by contributing to a "Watershed Facility Improvement Fund." Said funds shall be appropriated only for planning, design and construction for correction of existent drainage problems within the watershed from which the contribution is generated.

6. Regional or Sub-Regional Detention Sites. The acquisition of regional or sub-regional detention sites and construction of facilities thereon will be financed by the County. Monies contributed by the owners as above provided shall be used for regional and sub-regional detention site studies, land acquisition and facility construction thereof in the watershed in which the development is located.

7. Watershed Boundaries. The boundaries of watersheds and priority in construction of detention facilities and drainage improvement construction shall be as established by the County Engineer and approved by the Quorum Court .

SECTION C. Violations

1. Violations and penalties. Any permit may be suspended or revoked if one or more of the following violations have been committed:

   a) Violation(s) of the conditions of the stormwater management plan approval.
   b) Construction not in accordance with the intent of the approved plans.
   c) Non-compliance with correction notice(s) or stop work order(s).
   d) The existence of an immediate danger in a downstream area in the judgment of the County Engineer.

2. If one or more of these conditions is found, a written notice of violation(s) shall be served upon the owner or authorized representative and an immediate stop-work order may be issued. The notice shall set forth the measures necessary to achieve compliance with the plan. Correction of these violations must be started immediately and completed within seven (7) working days of original notification or the owner shall be deemed in violation of this ordinance.

3. Any permittee (person, firm or corporation) who fails to comply with or violates any of these regulations shall be guilty of an misdemeanor and upon conviction shall be find not less than $250 per day and not more then $5,000 per day, plus costs and

expenses incurred by the County or imprisoned not more than thirty (30) days for each offense.

Each separate interval of 24 hours, or every day, such violations shall be continued, committed or existing, shall constitute a new and separate offense and be punished, as aforesaid, for each separate period of violation.

The County Attorney may institute injunctive, mandamus, or other action or proceedings at law or equity for the enforcement of this ordinance or to correct violations of this ordinance, and any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

6. It shall be the duty of the County Engineer to bring to the attention of the County Attorney any violation or failure to fully comply with the terms of these regulations that results in the issuance of a stop work order.

7. Enforcement/Stop Work Order. Whenever the County finds any noncompliance with the provisions of this ordinance, the County shall attempt to communicate with the owner or person performing the work to obtain immediate and voluntary compliance if such person is readily available. If the owner or person performing the work is not readily available or if that person refuses to voluntarily comply immediately or the noncompliance presents an imminent danger or will cause or threatens to cause bodily injury or damage to off-site property including, but not limited to, off-site run-off, the County shall post in a conspicuous place on the premises, a stop work order which shall cause all activity not necessary to correct the noncompliance to cease until noncompliance is corrected.

8. The stop work order shall provide the following information: Date of issuance, project name and permit number and reason for issuance and the signature of the inspector that issues the order.

9. It shall be a violation of the ordinance for the unauthorized removal of the stop work order from the premises when posted on the project site.

10. In addition to posting a stop work order, the local approval authority shall provide notification to the owner or contractor by personal service, written notice by certified mail, or facsimile transmission. The permittee, landowner and contractor shall have 72 hours from the time and date of notification by the County to correct any noncompliance with the plan.

11. Inspection. The Pulaski County Public Works Department under the direction of the County Engineer shall be responsible for determining whether the stormwater management plan is in conformance with the requirements specified by the County's Stormwater Management Design Manual. Also, the Pulaski County Public Works Department under the direction of the County Engineer shall be responsible for

determining whether the development site is proceeding in accordance with the approved drainage plan. Periodic inspection of the development site shall be made by the Pulaski County Public Works Department under the direction of the County Engineer. Through such periodic inspections, the County Engineer shall ensure that the stormwater management plan is properly implemented and that the improvements are maintained. The County Engineer may appoint county engineering inspectors to assist in the performance of these duties.

12. Remedial work. If it is determined through inspection that the development is not preceding in accordance with the approved stormwater management plan and drainage and/or County approved permits, the County Engineer shall immediately issue written notice to the permittee concerning the alleged noncompliance, accompanied by documentary evidence demonstrating noncompliance and specifying what remedial work is necessary to bring the project into compliance. The permittee, upon notification, shall immediately, unless weather conditions or other factors beyond the control of the permittee prevent immediate remedial action, commence the recommended remedial action and shall complete the remedial work within 72 hours or within a reasonable time as determined in advance by the County Engineer. Upon satisfactory completion of remedial work, the County Engineer shall issue a notice of compliance and the development may proceed.

13. Enforcement fee. Where code enforcement action is needed to bring a site into compliance with the Clean Water Act, the following fees will be charged to the permit holder and or the property owner:

a) Program Administrator or his designated agent hourly	$50 per minimum
b) Street Sweeper	$100 per minimum
c) Other equipment or action as needed	$100 per minimum

SECTION D. Grandfather Clause

1. Any applicant or owner of a parcel of land within the jurisdiction of Pulaski County who has constructed a required stormwater management facility or who is in the application process shall be held to the requirements in effect at the time.

SECTION E. Conflict resolution and interpretation

1. Interpretation. In their interpretation and application, the provisions of these regulations shall be held to be the minimum requirements for the promotion of the public health, safety and general welfare.

2. Conflict with other laws. Whenever the provisions of this ordinance impose more restrictive standards than are required in or under any other ordinance, the regulations herein contained shall prevail. Whenever the provisions of any other ordinance require more restrictive standards than are required herein, the requirements of such shall prevail.

SECTION F. Disclaimer of Liability

The performance standards and design criteria set forth herein and in the Stormwater Management Design Manual establish minimum requirements which must be implemented with good engineering practice and workmanship. Use of the requirements contained herein shall not constitute a representation, guarantee or warranty of any kind by the County or its officers and employees of the adequacy or safety of any stormwater management structure or use of the land. Nor shall the approval of the stormwater management plan imply that the land uses that are permitted will be free from damages caused by stormwater runoff. The degree of protection required by these regulations is considered reasonable for regulatory purposes and is based on historical records, engineering and scientific methods of study. Larger storms may occur or stormwater runoff heights may be increased by man-made or natural causes. These regulations, therefore, shall not create liability on the part of the County or any officer or employee with respect to any legislative or administrative decision lawfully made hereunder.

2. Neither approval of a plan under the provisions of this ordinance nor the compliance with the provisions of this ordinance shall relieve any person from the responsibility for damage to any person or property otherwise imposed by law.

SECTION G. Severability Clause

1. The provisions of this ordinance are severable. If any term, requirement or provision of this ordinance or the application thereof to any person or circumstance shall, to any extent, be found invalid or unenforceable, the remainder of this ordinance or the application of such terms, requirements and provisions to persons or circumstances other than those to which it is held unenforceable, shall not be affected thereby and each term, requirement or provision of this ordinance shall be valid and be enforced to the fullest extent permitted by law. The County hereby declares that it would have enacted the remainder of these regulations even without any such part, provision or application found to be unlawful or invalid.

SECTION H. Amendments

1. For the purpose of providing for the public health, safety and general welfare, the County may, from time to time, amend the provisions of these regulations. This ordinance may be amended in the manner as prescribed by law for its original adoption. Before the County amends this ordinance, it must seek the advice of the County Engineer who will make a recommendation for each amendment within thirty (30) days of this request. The County Engineer has the responsibility for recommending updates and changes in the Stormwater Management Design Manual to the Quorum Court.

SECTION I. Effective date and authority

1. Effective Date. The ordinance shall become effective within thirty (30) days after adoption of this ordinance by the County and by its reference to the Stormwater Management Design Manual.

2. Authority. These regulations are adopted pursuant to the power and authority vested in Pulaski County through the applicable laws and statutes of the state of Arkansas.

SECTION J. Administrative Duties

1. The County Engineer shall administer this ordinance and be responsible to address other related stormwater issues as they relate to the County's compliance with its Small MS4 Stormwater Permit as issued by ADEQ to Pulaski County. The County Engineer may appoint county engineering inspectors to assist in the performance of these duties.

APPENDIX A

EPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS PRECONSTRUCTION CHECKLIST

Storm Water Pollution Prevention Plans

1. A site description, including:
   - ~ The nature of the activity
   - ~ Intended sequence of major construction activities
   - ~ The total area of the site
   - ~ The area of the site that is expected to undergo excavation
   - ~ The runoff coefficient of the site after construction is complete
   - ~ Existing soil or storm water data
   - ~ A site map with:
     - ~ Drainage patterns
     - ~ Approximate slopes after major grading
     - ~ Area of soil disturbance
     - ~ Outline of areas which will not be disturbed
     - ~ Locations of major structural and non-structural controls
     - ~ Areas where stabilization practices are expected to occur
     - ~ Surface waters
     - ~ Storm water discharge locations
   - ~ The name of the receiving water(s)
2. A description of controls:
   - 2.1 Erosion and sediment controls, including:
     - ~ Stabilization practices for all areas disturbed by construction
     - ~ Structural practices for all drainage/discharge locations
   - 2.2 Storm water management controls, including:
     - ~ Measures used to control pollutants occurring in storm water discharges after construction activities are complete
     - ~ Velocity dissipation devices to provide nonerosive flow conditions from the discharge point along the length of any outfall channel
   - 2.3 Other controls including:
     - ~ Waste disposal practices which prevent discharge of solid materials to waters of the U.S.
     - ~ Measures to minimize offsite tracking of sediments by construction vehicles
     - ~ Measures to ensure compliance with State or local waste disposal, sanitary sewer, or septic system regulations
   - 2.4 ~ Description of the timing during the construction when measures will be implemented
3. ~ State or local requirements incorporated into the plans
4. ~ Inspection and maintenance procedures for control measures identified in the plan
5. ~ Identification of allowable non-storm water discharges and pollution prevention measures
6. ~ Contractor certification
7. ~ Plan certification

EPA CONSTRUCTION GENERAL PERMIT REQUIREMENTS

Storm Water Pollution Prevention Plan
Construction/Implementation Checklist

1. Maintain Records of Construction Activities, including:
   - ~ Dates when major grading activities occur
   - ~ Dates when construction activities temporarily cease on a portion of the site
   - ~ Dates when construction activities permanently cease on a portion of the site
   - ~ Dates when stabilization measures are initiated on the site
2. Prepare Inspection Reports summarizing:
   - ~ Name of inspector
   - ~ Qualifications of inspector
   - ~ Measures/areas inspected
   - ~ Observed conditions
   - ~ Changes necessary to the SWPPP
3. Report Releases of Reportable Quantities of Oil or Hazardous Materials (if they occur):
   - ~ Notify National Response Center 800/424-8802 immediately
   - ~ Notify permitting authority in writing within 14 days
   - ~ Modify the pollution prevention plan to include:
     - the date of release
     - circumstances leading to the release
     - steps taken to prevent reoccurrence of the release
4. Modify Pollution Prevention Plan as necessary to:
   - ~ Comply with minimum permit requirements when notified by EPA that the plan does not comply
   - ~ Address a change in design, construction operation or maintenance which has an affect on the potential for discharge of pollutants
   - ~ Prevent reoccurrence of reportable quantity releases of a hazardous material or oil

EPA CONSTRUCTION GENERAL PERMIT CHECKLIST

Storm Water Pollution Prevention Plan
Final Stabilization/Termination Checklist

1.	~	All soil disturbing activities are complete
2.	~	Temporary erosion and sediment control measures have been removed or will be removed at an appropriate time
	~	All areas of the construction site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 70% or equivalent measures have been employed

POLLUTION PREVENTION PLAN FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES
EROSION AND SEDIMENT CONTROL SELECTION CHECKLIST

INSTRUCTIONS: THIS CHECKLIST LISTS THE MINIMUM SEDIMENT EROSION CONTROL REQUIREMENTS UNDER THE GENERAL PERMIT. CHECK ( ) EACH ITEM AND FILL IN THE BLANKS BELOW TO EVALUATE COMPLIANCE FOR EACH DRAINAGE AREA AND LOCATION.

Stabilization Practices

☐ Stabilization will be initiated on all disturbed areas where construction activity will not occur for a period of more than 21 calendar days by he 14th day after construction activity has permanently or temporarily ceased.

Stabilization measures to be used include:

- ☐ Temporary Seeding
- ☐ Permanent Seeding
- ☐ Mulching
- ☐ Sod Stabilization
- ☐ Geotextiles
- ☐ Other_____

Structural Practices

☐ Flows from upstream areas will be diverted from exposed soils to the degree attainable. Measures to be used include:

- ☐ Earth Dike
- ☐ Drainage Swale
- ☐ Interceptor Dike and Swale
- ☐ Pipe Slope Drain
- ☐ Other_____

Drainage locations serving less than 10 disturbed acres	Drainage locations serving 10 or more disturbed acres
☐ Sediment controls will be installed ☐ Sediment controls include: ☐ Sediment Basin ☐ Sediment Trap ☐ Silt Fence or equivalent controls along all sideslope and downslope boundaries	☐ A Sediment Basin will be installed ☐ A Sediment Basin is not attainable on the site; therefore, the following sediment controls will be installed: ☐ Sediment Trap ☐ Silt Fence or equivalent controls along all sideslope and downslope boundaries

Sediment Basin Runoff Storage Calculation

_____ acres area draining to the sediment basin

x

3.600

=

_____ cubic feet of storage required for the basin

Permit No. ARR1500(

SMALL (LESS THAN 5 ACRES) CONSTRUCTION SITE NOTICE

FOR THE

Arkansas Department of Environmental Quality (ADEQ)

Storm Water Program

NPDES GENERAL PERMIT NO. ARR150000

The following information is posted in compliance with **Part I.B.7.a.iv** of the ADEQ General Permit Number **ARR150000** for discharges of storm water runoff from small construction sites. Additional information regarding the ADEQ storm water program may be found on the internet at:

www.adeq.state.ar.us/water/branch_npdes/stormwater

Permit Number	ARR150000
Contact Name: Phone Number:	_____ _____
Project Description (Name, Location, etc.): Start Date: nd Date: Total Acres:	_____ _____ _____ _____
Location of Storm Water Pollution Prevention Plan:	_____

For Construction Sites Authorized under **Part I.B.6.c** (Small Construction Sites Authorization) the following certification must be completed:

I _____ (Typed or Printed Name of Person Completing this Certification) certify under penalty of law that I have read and understand the eligibility requirements for claiming an authorization under Part I.B.2.a.iii of the ADEQ General Permit Number ARR150000. A storm water pollution prevention plan has been developed and implemented according to the requirements contained in Part I.B.7.a.iv of the permit. A copy of this signed notice is supplied to the operator of the MS4 if discharges enter a regulated small, medium, or large MS4 system as defined in Part II.C of the ADEQ General Permit Number ARR150000. I am aware there are significant penalties for providing false information or for conducted unauthorized discharges, including the possibility of fine and imprisonment for knowing violations.

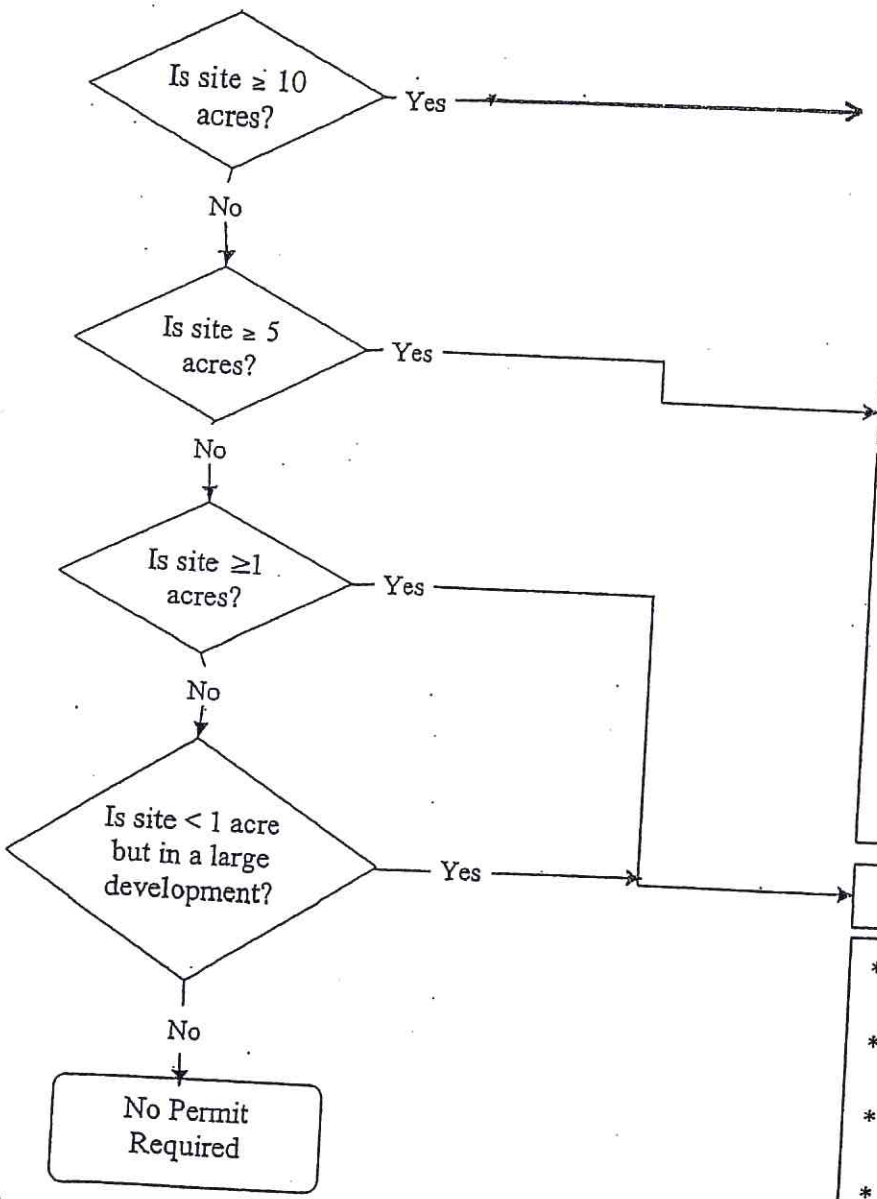
_____ _____

nature and Title Date

Arkansas Requirements

Storm Water Construction Permits

The size and location of the construction site determine which requirements apply. Use the flowchart and map below to determine your permitting requirements.



LARGE CONSTRUCTION SITE

* Send Notice of Intent (NOI) to ADEQ.
* Pay Permit Fee to ADEQ.
* Develop Storm Water Pollution Prevention Plan (SWPPP).
* Send Copy of SWPPP to ADEQ for review before construction.
* Post Permit Certificate received from ADEQ at construction site.
* Use Best Management Practices (BMPs) to reduce runoff.
* Inspect SW Controls Weekly.

MEDIUM CONSTRUCTION SITE

* Send Notice of Intent (NOI) to ADEQ.
* Pay Permit Fee to ADEQ.
* Develop Storm Water Pollution Prevention Plan (SWPPP).
* Post Permit Certificate received from ADEQ at construction site.
* Use Best Management Practices (BMPs) to reduce runoff.
* Inspect SW Controls Weekly.

SMALL CONSTRUCTION SITE

* Post On-site Storm Water Construction Notice.
* Develop Storm Water Pollution Prevention Plan (SWPPP).
* Use Best Management Practices (BMPs) to reduce runoff.
* Inspect SW Controls Weekly.

APPENDIX B

Population for Storm Water Entities as Defined by the 2000 Census

Arkansas

This document contains calculations for populations within an Urbanized Areas (UA) as designated by the US Census Bureau for the state of Arkansas. Population is calculated for each portion of either an incorporated place or a county within an UA and is based on the population values provided by the 2000 US Census Tiger data. In addition, a table is included that provides a list of places that have a population greater than 10,000 people and a population density of 1,000 people per square mile that are not located in an UA. This data was obtained from the US Census website.

Urbanized Area Populations

The table below provides a guide for the UA table headings.

Heading	Meaning
UA Name	Name of the UA
County	County in which the UA is located
FIPSSTCO	State and County FIPS Code
Place Name	Name of the Incorporated Place
Population 2000	Population of selected area based on the 2000 US Census

UA Name	County	FIPSSTCO	Place Name	Population 2000**
Fayetteville--Springdale, AR	05007	Benton	Bentonville	18,578
Fayetteville--Springdale, AR	05007	Benton	Bethel Heights	646
Fayetteville--Springdale, AR	05143	Washington	Elkins	756
Fayetteville--Springdale, AR	05143	Washington	Elm Springs	68
Fayetteville--Springdale, AR	05143	Washington	Farmington	3,271
Fayetteville--Springdale, AR	05143	Washington	Fayetteville	56,095
Fayetteville--Springdale, AR	05143	Washington	Greenland	552
Fayetteville--Springdale, AR	05143	Washington	Johnson	2,250
Fayetteville--Springdale, AR	05007	Benton	Little Flock	1,514
Fayetteville--Springdale, AR	05007	Benton	Lowell	4,881
Fayetteville--Springdale, AR	05007	Benton	Prairie Creek	438
Fayetteville--Springdale, AR	05007	Benton	Rogers	36,234
Fayetteville--Springdale, AR	05007	Benton	Springdale	1,712
Fayetteville--Springdale, AR	05143	Washington	Springdale	42,663
Fayetteville--Springdale, AR	05007	Benton	*	1,391
Fayetteville--Springdale, AR	05143	Washington	*	1,536
Fort Smith, AR--OK	05131	Sebastian	Barling	4,146
Fort Smith, AR--OK	05131	Sebastian	Fort Smith	79,669
Fort Smith, AR--OK	05033	Crawford	Van Buren	18,705
Fort Smith, AR--OK	05033	Crawford	*	1,495
Fort Smith, AR--OK	05131	Sebastian	*	183
Hot Springs, AR	05051	Garland	Hot Springs	35,365
Hot Springs, AR	05051	Garland	Lake Hamilton	1,609
Hot Springs, AR	05051	Garland	Piney	3,304
Hot Springs, AR	05051	Garland	Rockwell	3,024
Hot Springs, AR	05051	Garland	*	8,439
Hot Springs, AR	05059	Hot Spring	*	22
Jonesboro, AR	05031	Craighead	Brookland	1,248
Jonesboro, AR	05031	Craighead	Jonesboro	50,342
Jonesboro, AR	05031	Craighead	*	214
Little Rock, AR	05125	Saline	Alexander	412
Little Rock, AR	05125	Saline	Bauxite	335
Little Rock, AR	05125	Saline	Benton	21,262
Little Rock, AR	05125	Saline	Bryant	9,143
Little Rock, AR	05085	Lonoke	Cabot	13,540
Little Rock, AR	05119	Pulaski	Cammack Village	831
Little Rock, AR	05119	Pulaski	College Station	734
Little Rock, AR	05119	Pulaski	Gibson	2,263
Little Rock, AR	05119	Pulaski	Gravel Ridge	3,232
Little Rock, AR	05119	Pulaski	Jacksonville	28,511
Little Rock, AR	05119	Pulaski	Little Rock	178,277
Little Rock, AR	05119	Pulaski	McAlmont	1,905
Little Rock, AR	05119	Pulaski	North Little Rock	59,992
Little Rock, AR	05119	Pulaski	Parkers-Iron Springs	1,334
Little Rock, AR	05125	Saline	Salem	2,702
Little Rock, AR	05125	Saline	Shannon Hills	1,997

UA Name	County	FIPSSTCO	Place Name	Population 2000**
Little Rock, AR	05119	Pulaski	Sherwood	21,036
Little Rock, AR	05119	Pulaski	Sweet Home	708
Little Rock, AR	05119	Pulaski	Wrightsville	643
Little Rock, AR	05085	Lonoke	*	851
Little Rock, AR	05119	Pulaski	*	5,624
Little Rock, AR	05125	Saline	*	4,999
Memphis, TN--MS--AR	05035	Crittenden	Marion	8,271
Memphis, TN--MS--AR	05035	Crittenden	Sunset	348
Memphis, TN--MS--AR	05035	Crittenden	West Memphis	27,479
Memphis, TN--MS--AR	05035	Crittenden	*	1,863
Pine Bluff, AR	05069	Jefferson	Pine Bluff	53,255
Pine Bluff, AR	05069	Jefferson	White Hall	4,105
Pine Bluff, AR	05069	Jefferson	*	1,224
Texarkana, TX--Texarkana, AR	05091	Miller	Texarkana	23,308
Texarkana, TX--Texarkana, AR	05091	Miller	*	213

* The population calculation for this area provides the population within the UA that is not located within an incorporated place. An incorporated place is created to provide governmental functions for a concentration of people. For example, a city or municipality is an example of an incorporated place.

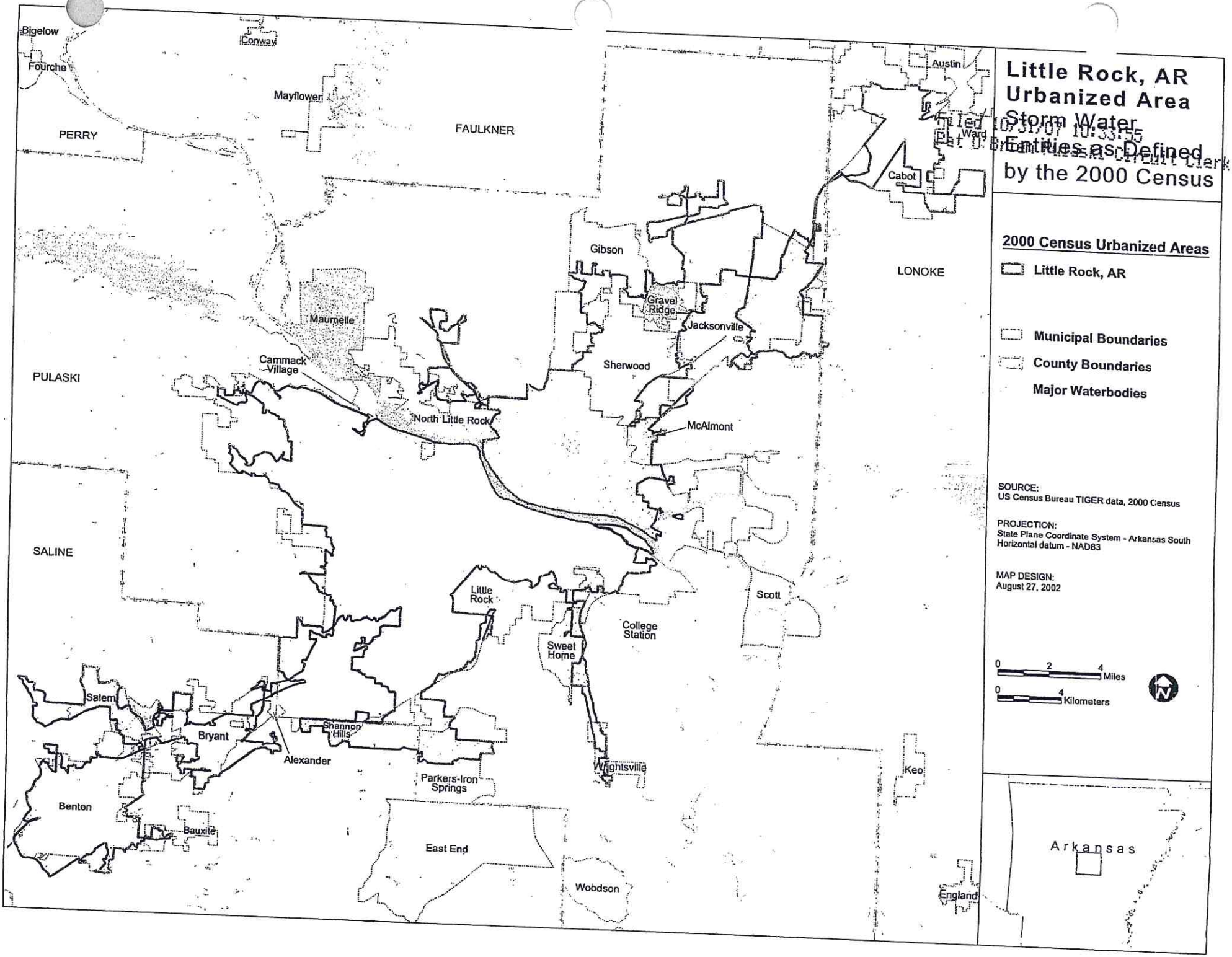
** Some incorporated places appear twice since they are located within multiple counties. To calculate the total population within the incorporated place add all values associated with it together. For example, the population of Springdale is 1,712 + 42,663 = 43,375.

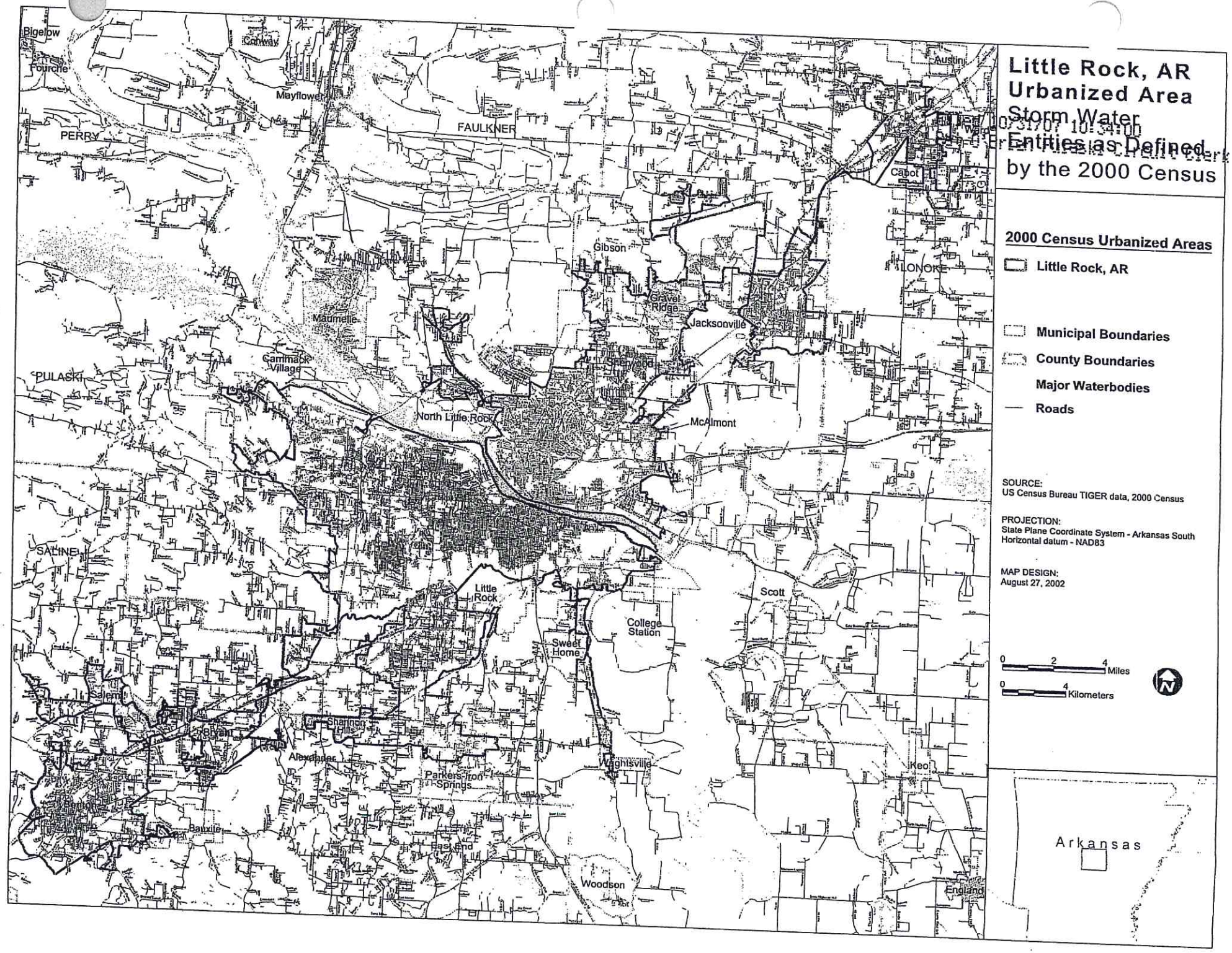
Outside Urbanized Area Populations

As mentioned above, the places in the following table all have a population greater than 10,000 people and a population density of 1,000 people per square mile.

Place and County	Population 2000	Population Density (per sq. mile)
Arkadelphia city, Clark County	10,912	1,486.20
Conway city, Faulkner County	43,167	1,231.70
El Dorado city, Union County	21,530	1,323.30
Harrison city, Boone County	12,152	1,187.50
Hope city, Hempstead County	10,616	1,061.90
Magnolia city, Columbia County	10,858	1,165.30
Maumelle city, Pulaski County	10,557	1,199.30
Mountain Home city, Baxter County	11,012	1,035.70
Searcy city, White County	18,928	1,287.40
Siloam Springs city, Benton County	10,843	1,027.20

Population density and 2000 information was obtained from the U.S. Census website (http://www.census.gov/main/www/cen2000.html).


Bigelow
Conway
Fourche
Mayflower
PERRY
FAULKNER
Austin
Ward
Cabot
Gibson
LONOKE
Gravel Ridge
Jacksonville
Maumelle
Cammack Village
Sherwood
PULASKI
North Little Rock
McAlmont
SALINE
Little Rock
Scott
College Station
Sweet Home
Salem
Bryant
Shannon Hills
Alexander
Wrightsville
Keo
Parkers-Iron Springs
Benton
Bauxite
East End
Woodson
England
Little Rock, AR
Urbanized Area
Storm Water
Entities as Defined
by the 2000 Census
Filed 10/31/07 10:33:55
Part 0 Bruce Ward Circuit Clerk
2000 Census Urbanized Areas
Little Rock, AR
Municipal Boundaries
County Boundaries
Major Waterbodies
SOURCE:
US Census Bureau TIGER data, 2000 Census
PROJECTION:
State Plane Coordinate System - Arkansas South
Horizontal datum - NAD83
MAP DESIGN:
August 27, 2002
0 2 4 Miles
0 4 Kilometers
N
Arkansas


Bigelow
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Benton
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East End
Woodson
England
Little Rock, AR
Urbanized Area
Storm Water
Entities as Defined
by the 2000 Census
2000 Census Urbanized Areas
Little Rock, AR
Municipal Boundaries
County Boundaries
Major Waterbodies
Roads
SOURCE:
US Census Bureau TIGER data, 2000 Census
PROJECTION:
State Plane Coordinate System - Arkansas South
Horizontal datum - NAD83
MAP DESIGN:
August 27, 2002
0 2 4 Miles
0 4 Kilometers
N
Arkansas

Filed 10/31/07 10:34:05
Pat O'Brien Pulaski Circuit Clerk

ATTEST: _____ APPROVED: Floyd G. Williams IV

DATE: 10/22/07 DATE: 10/29/07