Storm Water Management Program

FOR

City of Ward, Arkansas

SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4) Permit #ARR040056

August 2024

CITY OF WARD, ARKANSAS

STORMWATER MANAGEMENT PROGRAM
(MS 4)

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November, 2020

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Section 1 Background & Purpose

The City of Ward, in conjunction with state and local agencies, has developed this Stormwater Management Plan to provide policy and management guidance for activities that affect stormwater throughout the City. The intent of this plan is to assist the City and its residents in meeting local, state, and federal requirements as pertaining to water quality managements. Furthermore, implementation of the policies and Best Management Practices (BMP's) should help prevent the discharge of stormwater that is harmful to the local waterways.

The purpose of the Stormwater Plan is to define the nature and features of the City's stormwater drainage system. This Plan shall include all components, including but not limited to culverts, open channels, and inlets. This definition is necessary to address regulatory requirements and provide baseline information needed to develop stormwater management strategies. This Plan shall establish goals, policies, and implementation directives that will help the City with their long term goals. This Plan should be easy to understand by the public, and usable by the City. This Plan shall establish a means for measuring, reporting, and managing regulatory requirements. This Plan shall include ordinances, regulations, procedures, and guides as required by the MS4 General Permit.

This Plan, and all included information, may be revised as deemed necessary by the City. The reader is encouraged to contact the City prior to construction to insure they have the most recent version.

2 Permit Coverage Area

At the time of the 2010 census, the population of Ward was 4,067. Over the past ten years, the City has experienced robust growth. It is estimated that the City has increased its population at a rate of approximately 150 new residents per year since the latest census. Using this growth, the City's present population is approximately 5,570. Of course, the actual population will be determined in the upcoming 2020 census. Upon completion of this census, Ward is posed to become the second most populated City in Lonoke County, behind the City of Cabot.

At present, the Incorporated limits of the City encompass approximately 4.32 miles, or 2,764.8 acres. Using the estimated population of 5,570, the density of the City is computed at 1,289.4 people per square mile, or 2.01 residents per acre.

As with all MS4 municipalities, the City has authority and responsibility for regulating, maintaining, operating, building, and planning the stormwater drainage systems within their incorporated limits. The major watersheds in the City include Fourmile Creek to the South and West, Mill Creek to the South and East, and Cypress Bayou to the North. Both Fourmile Creek and Mill Creek converge into Cypress Bayou east of the City. The City's stormwater management practices will include cost-effective and efficient methods that will reduce or eliminate stormwater pollution and protect the watershed areas of these open waterways.

3 Overview of City's Stormwater System

As previously stated, the City of Ward has three main watershed areas within its Corporate Limits. Fourmile Creek to the South and West, Mill Creek to the South and East, and Cypress Bayou to the North. As previously stated, the overall density of the City is 2.01 residents per acre, which is best described as low density. These rural areas are predominantly drained by grass swales located along City streets. However, there are a number of higher density developments (on the order of 3 lots per acre) that contain curb and gutter streets, as well as drainage culverts placed in conjunction with the curb. Eventually, all stormwater will flow to Fourmile Creek and Mill Creek, both tributaries of Cypress Bayou. With the incorporated limits of Ward, the City is responsible for the maintenance of the stormwater system, including the periodic removal of debris within both the culvert and open channel components.

4 Scope & Areas of Focus

This Stormwater Plan shall address stormwater quality management policies and management practices that will be implemented in the City. Whereas the scope of the Stormwater Plan is primarily for the Federal MS4 permit requirements, it should be used to address local water resources issues as. These areas of focus in the Stormwater Plan are:

- **Pollution incidents and unlawful discharges to the City's stormwater drainage system.** These discharges can be recurring or occasional, and include pollutant runoff from parking lots, discharges from industrial outfalls, accidental spills, poor construction site management, and other ways that individuals may dump pollutants into the City's drainage infrastructure.
- **On-site management of stormwater in efforts to reduce the quantity of stormwater/pollution entering the City's infrastructure system.** As with illicit discharges, flood events and surcharging of the existing infrastructure system, or pollutant loading that may occur downstream from the corporate limits of the City and originate from a variety of causes. These include inadequately sized infrastructure components, inadequate operation and maintenance, poor erosion control measures, and potential increases in impervious area without provision for an increase in runoff. The City shall regulate these issues through implementation of its Code, within the City Limits, and

possibly through the subdivision codes in its extraterritorial jurisdiction, where and if applicable.

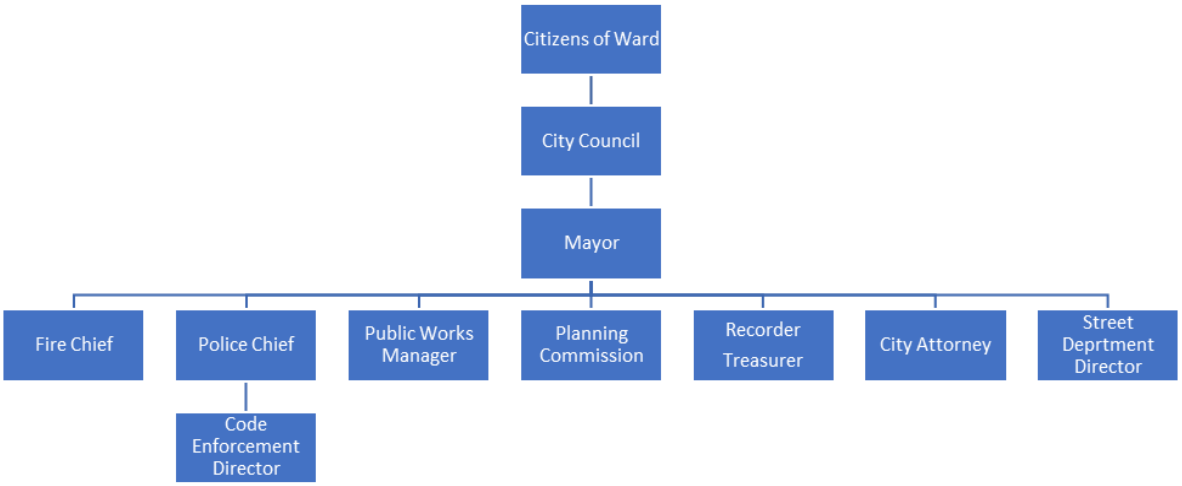
- **Reduction and prevention of pollution at City facilities resulting from City activities and related business practices**. Periodically the City, through the services they provide, may create erosion, sedimentation, and subsequent water pollution. This is common with the maintenance of ditches and swales, and excavation of soil as related to construction practices. However, other activities, such as washing of equipment, vehicles, etc., may also contribute to possible water pollution. As per Federal NPDES Stormwater Program requirements, the City shall implement pollution prevention practices that eliminate, or at a minimum reduce stormwater pollution from said activities. The City in encouraged to set an example for its residents as related to the proper implementation of measures to control the runoff of contaminants into the City's drainage infrastructure.
- **Education toward community stewardship of water resources.** As with the Federal NPDES Stormwater Program, emphasis shall be placed on public education as part of the long-term solution to stormwater pollution. Education shall be a required element of the Stormwater Plan. The City shall take the lead in continuing to educate the public as pertaining to the proper measures needed to reduce pollutant discharges into the existing drainage infrastructure.

The Stormwater Plan will result in an organized educational and outreach efforts that are targeted throughout the area.

- **Public awareness and involvement in the City's Stormwater management program**. Broad awareness and participation in the development and implementation of the Stormwater Plan by residents and local area businesses is a key component to ensure effectiveness of the Stormwater Plan, The Stormwater Plan includes a public involvement component in its development that meets the Federal NPDES program.
- **Targeted capital improvements and maintenance programs to improve water quality and restore high priority areas.** This shall be accomplished, in part, through various grant programs as made available to the City, on a per needed basis.
- **ADEQ-required Municipal Separate Storm Sewer System (MS4) Plan elements.** The NPDES Stormwater Program requires that the City submit a MS4 plan in order to acquire a MS4 permit to legally discharge stormwater to the waters of the U.S.

Storm Water Management Team

City of Ward



Public Works Manager:	Bruce Jones (501) 743-2712
Code Enforcement:	Michael Archdeacon (501) 286-3614
Public Works Foreman:	Don Fitzgerald (501) 743-1047
Public Works Address:	405 Hickory Street Ward, Arkansas 72176

Section 5 – Implementation of Minimum Control Measures

The implementation of the Minimum Control Measures shall be as follows:

1) Public Education Program

Permit Requirements: Regulation 40 CFR 122.34(bX1): "The permittee must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff."

Applicable BMP's:

A) **Distribution of Stormwater Information to the public**: The City will make available fact sheets and/or brochures from ADEQ or EPA to developers, builders, and other residents, at Ward City Hall. Said information shall also be made available to the local schools as needed.

B) **Storm drain precast manway covers**: City will develop a stencil to be placed on all storm drain manway lids within the City.

Time to implementation: 6 months to 1 year

The education/outreach strategy for this BMP will be to distribute printed brochures to homeowners, builders, developers, and other residents of the City for education of the Stormwater Plan. Early education shall also play a role by providing said information to the local school. Manway covers to be placed on all inlets as funding allows.

The target audience shall be all residents of the City, with an emphasis on those involved in the construction industry, and the schools.

Rational – Decision Process: Whereas a vast majority of pollutants to the City's stormwater system is found in the construction sector, the educational materials (brochures and facts sheets provided by ADEQ and/or EPA) available at City Hall will be available to all residents of the City. The placement of stenciled manway lids shall serve as a reminder to the public as to the necessity and importance of the Stormwater Plan.

Performance Standards: The stormwater program shall include multiple mechanisms and targets/messages over the permit term (5 years). The public education and outreach program shall reach at half of the population over the permit term.

2) Public Involvement & Participation

Permit Requirement: The permittee must, at a minimum, comply with State and local public notice requirements when implementing a public involvement/participation program.

Applicable BMP's:

A) **Public Input**: Provide an opportunity for the residents to voice their concerns with issues related to Stormwater Management. Also, the City will hold a public forum to discuss the adoption, implementation, and revision of the Stormwater Pollution Prevention Plan, and related measures such as Erosion Control Standards. Residents are invited to City Council meetings, and are given an opportunity to speak at said meetings. The same applies to City Planning Commission meetings.

B) **Stormwater Hotline**: Provide residents with a point of contact to report stormwater pollution and to submit complaints. At present, the City has this BMP in place. The Public Works contact number is posted at City Hall, and on the City's web page. Complaints can also be submitted online.

C) **Presentations at Local Organizations**: The City of Ward will perform presentations at local civic organization meetings if invited.

D) **Citywide Cleanup Day**: Each year, the City of Ward conducts a "Citywide Cleanup Day". During this event, fliers, pamphlets, and fact sheets detailing

storm water pollution prevention measures and responsibilities, are provided to the Public.

The education/outreach strategy for this BMP will be the same as listed in item one above. Brochures will be distributed to schools, and civic organizations as allowed. The education program will address ways in which the public can prevent hazardous materials from entering local streams through stormwater run-off. Proper disposal of materials such as paints, fertilizers, used motor oil, cleaning solutions, car wash fluids and pool water will be addressed. Additionally, proper containment of silt and landscape debris generated by small construction projects will be provided. These residential BMPs will be developed and distributed in fliers and brochures.

The target audience shall be all residents of the City, with an emphasis on local civic organizations, schools, etc. Residents are encouraged to take advantage of the Stormwater Hotline and on-line services.

Rational – Decision Process: Being a "bedroom" community, residential pollutants are the most likely contaminants to the storm sewer system. Educating the public on these threats to the environment will be most easily accomplished through mail-out campaigns. The purpose of this BMP is to provide (a) an opportunity, by the public, for the reporting of stormwater pollution; and (b) continued education through civil organizations. Public meetings will also allow residents to share their concerns.

Performance Standards: The stormwater program shall include at least five (5) public involvement activities over the permit term.

3) Illicit Discharge Detection & Elimination

Permit Requirements:

1. Develop, implement and enforce a program to detect and eliminate illicit discharges [as defined in 40 CFR 5722.26(b)(2)l into the permittee's small M54;

2. Develop a stormwater system map, showing the location of all outfalls and the names and location of all waters that receive discharges from those outfalls;

3. To the extent allowable under State or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into the permittee's stormwater system and implement appropriate enforcement procedures and actions. Possible sanctions include non-monetary penalties (such as stop work orders), fines, bonding requirements, and/or permit denials for non-compliance; City of Ward

Storm Water Management Program

4. Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to the permittee's system;

5. lnform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste; and

6. Address the following categories of non-storm water discharges or flows (illicit discharges) if the permittee identifies them as significant contributors of pollutants to the permittee's small M54: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 535.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing

drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, de-chlorinated swimming pool discharges, and street wash water. Discharges or flows from fire-fighting activities are excluded from the effective prohibition.

7. Address the following categories of non-storm water discharges or flows (illicit discharges) if the permittee identifies them as significant contributors of pollutants to the permittee's small M54: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR S35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, de-chlorinated swimming pool discharges, and street wash water. Discharges or flows from fire-fighting activities are excluded from the effective prohibition.

8. The permittee must develop a process to respond to and document complaints relating to illicit discharges.

Applicable BMP's:

A) **<u>Ordinance</u>** – the City of Ward has adopted an ordinance that establishes their Stormwater Prevention Plan and Erosion Control Standards. City Council will periodically review the existing storm water ordinance and update as recommended by city officials, public input and determinations from the previous year's annual MS4 report. The ordinance will ensure proper permitting for construction activities, restate authority

and goals of agencies governing storm water pollution prevention and provide for enforcement.

B) **System Map** – the City of Ward has developed and is maintaining the required map showing outfalls and the waterways impacted as such. A copy is included in the attachments portion of this report.

C) **Assess Illicit Discharge Priorities** – The City will collect and review data concerning enforcement activity to determine the types of complaints. The City shall also evaluate the effort to enforce versus probable water quality benefits and assess the relative benefit of each type of enforcement activity to create a list of enforcement priorities.

D) **Perform Field Reviews & Site Inspections** – The City of Ward has been and will continue to include Erosion Control Elements in the building permit procedures. Also, design plans for developments shall require a Pollution Prevention Plan and Erosion Control Measures.

E) **Illicit Discharges** – At present, none of the supplemental described illicit discharges (items 6 through 8) are considered a measurable contributor to stormwater pollution within the City of Ward. This will continue to be monitored in the event that such discharge becomes a larger contributor. *Time to Implementation: Not presently applicable.*

The target audience shall be all residents of the City, with an emphasis on those who may be considered an illicit contributor.

Rational – Decision Process: It is necessary to establish the city as the first line of defense against storm water pollution. This ordinance grants the City with certain responsibility as detailed in throughout the storm water management program. The purpose of this BMP is to provide (by ordinance) the ability for the City to monitor and enforce measures to help protect the City's Stormwater Infrastructure. A storm sewer map provides a visual aid to address storm sewer maintenance and establish routine inspection schedules.
Effectiveness of the map for City employees to navigate and evaluate the storm sewer system will provide level of success for this BMP.

Performance Standards: Illicit discharges into the stormwater system shall include dry-weather screening of all outfalls and the updating of the storm drainage system map as needed.

4) Construction Site Stormwater Runoff Control

Permit Requirements: The permittee must develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to the permittee's small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in the permittee's program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. For stormwater discharges associated with

small construction activity in accordance with 40 CFR 5122.26(bx1sxi), the permittee will develop, implement, and enforce a program to reduce pollutant discharges from such sites. The permittee's program must include the development and implementation of, at a minimum:

1. *An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State or local law;*
2. *Requirements for construction site operators to implement appropriate erosion and sediment control Best Management Practices;*
3. *Requirements for construction site operators to prevent or control waste that may cause adverse impacts to water quality such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site;*
4. *Procedures for site plan review and land division that incorporate measures to prevent or control potential water quality impacts; City of*

Ward

5. *Procedures for receipt and consideration of information submitted by the public; and*
6. *Procedures for site inspection and enforcement of control measures.*

Applicable BMP's:

A) **<u>Erosion Control Ordinance</u>** – the City of Ward has adopted an ordinance that establishes their Stormwater Pollution Prevention Plan, and Erosion Control Standards.

B) **<u>Flood Damage Prevention & Storm Drainage Ordinance</u>** – the City of Ward has established an ordinance establishing a Flood Prevention Code. A copy is included in the attachments section of this report.

C) **<u>Staff Training</u>** – the City continues to offer a minimum of one annual training session for City employees to educate them on their role in the program.

D) **<u>Field Inspection</u>** – Periodic field inspections are performed to ensure compliance with the City's ordinance(s) and related regulations.

E) **<u>Provide Sample Site BMP's</u>** – Sample BMP details, specifications, and inspection reports are available to developers, builders, contractors, and other interested parties. Samples of these documents are included in the Attachments section of this report.

The target audience shall be all individuals and companies involved in the construction industry, including but not limited to developers, builders, contractors, etc.

Rational – Decision Process: Ultimately, the goal for these BMP's are to help ensure that erosion control measures are provided on each construction site in accordance with the attached details. These measures should provide adequate protection from contaminates leaving construction sites. Improve on the provided details to include more detailed specifications. Work to establish detailed information packet to be provided to contractors upon application for permits as discussed in public outreach. Construction plans, submitted to the City of approval, are required to include an Erosion Control Plan. Plans shall be reviewed by the City, or their authorized representative, to ensure compliance with the City ordinances and codes. Plans are required to have BMP's that will help eliminate sediment erosion in stormwater runoff.

Individual developments are still subject to ADEQ construction permitting. A unified program to reduce runoff pollution in the City is a necessity in order to perform inspections and enforcement of the codes and ordinances that will be established.

Performance Standards: All sites over 1 acre shall include a preconstruction site plan review to ensure compliance. The City shall review all submitted plans for development and ensure compliance with local, state and federal requirements for storm water run off. Specific items to be address are storm sewer design, storm water detention if deemed appropriate, contaminate filtration is necessary and existence of an adequate erosion control plan.

The City will keep record of erosion control problems, warnings given and complaints logged regarding construction sites. An annual roll-up of these

activities will indicate whether offenses are increasing or decreasing which will evaluate the effectiveness of this BMP.

5) Post Construction Stormwater Management in New Developments and Redevelopments

Permit Requirements:

1. Develop, implement, and enforce a program to ensure reduction of pollutants in storm water runoff to the maximum extent practicable (MEP) from new development and redevelopment projects that disturb one acre or more, or less than one acre if they are part of a larger common plan of development or sale, and discharge into the permittee's small MS4. The permittee's program must ensure that controls are in place that would prevent or minimize water quality impacts.

2. Develop and implement strategies that include a combination of structural or nonstructural BMPs appropriate for the permittee's community.

3. Use an ordinance or other regulatory mechanism to address postconstruction runoff from new development and redevelopment projects to the extent allowable under State or local law.

4. Ensure adequate long-term operation and maintenance of BMPs; and ensure adequate enforcement of ordinance or alternative regulatory program.

Applicable BMP's:

A) **Development Review Process** – the review process shall be continually monitored and revised (as needed) to provide an efficient work environment, while providing the residents of the City with a better end result as to the implementation of all rules and regulations.

B) **Field Evaluations** – each project site, above one acre in size, shall go through a post construction review with the City to ensure that all BMP's are in place. City reserves the right to hold occupancy permits until such time that the post construction BMP's are substantially in place.

C) **Warranty Period** – Establish a "warranty period" within the storm water ordinance that will require the owner or contractor to complete a one year walk through with City officials to determine continued adequacy of permanent erosion control measures. Document deficiencies and require written plan for corrective action.

The target audience shall be all individuals and companies involved in the construction industry, including but not limited to developers, builders, etc.

Rational – Decision Process: Whereas individual sites, greater than one acre in size, are subject to ADEQ Construction Permitting, the City has the right to be involved considering that discharge of sediment and related pollutants could occur in the City's drainage infrastructure. The City is hereby allowed to perform inspections on said sites and enforce codes as allowed by ordinance. As essentially all construction taking place in the City of Ward is residential, there is minimal enforcement of postconstruction storm water management necessary provided the construction site has been established in accordance with proper permanent erosion control measures such as seeding or sod of all disturbed areas.

Operation and maintenance will be generally limited to storm sewer maintenance procedures previously indicated and maintenance of any constructed basins.

Performance Standards: All sites over 1 acre shall include a postconstruction site plan review to ensure compliance. This BPM will help ensure that completed construction sites meet the requirements as provided by the engineered plans. All disturbed areas have been vegetated or received other appropriate erosion control appurtenances. Ensure compliant installation of all storm sewers and storm water detention basins.

6) Pollution Prevention – Good Housekeeping for Municipal Operations

Permit Requirements: 1. Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations; and
2. Using training materials that are available from the ADEQ, EPA, or other organizations, the permittee's program must include employee training to prevent and reduce stormwater pollution from activities including, but not limited to, park and open space maintenance, fleet and building maintenance, new municipal facility construction and related land disturbances, design and construction of street and storm drain systems, and stormwater system maintenance.

Applicable BMP's:

A) **<u>Development of City of Ward Stormwater Pollution</u>**

<u>Prevention Policy Guide</u> – this manual, and related BMP's (as applicable) shall be used by all City Municipal Operations.

B) **<u>Annual Training</u>** – As previously stated, the City of Ward shall provide at least one annual training session for employees to assist in their understanding and role in implementing said program.

C) **<u>Perform Ditch/Stream Channel Maintenance & Cleaning</u>** – The City shall perform maintenance on specific ditches as needed, and as budget allows.

The target audience shall be Municipal employees, and their assigned representatives.

Rational – Decision Process: The City will need to evaluate the operation and maintenance of all the departments that participate in ground disturbance activities. Regular education and training sessions on different requirements and proper techniques on the protection of the waterways and stormwater system in the City are necessary. The City of Ward has also received funding for a Comprehensive Drainage Study to examine the City's infrastructure in the Northwest Quadrant of the City. This Study should be complete in 2021.

Performance Standards: All employees whose day-to-day work activities have the potential to impact stormwater quality shall receive annual training. All municipal owned facilities shall have annual inspections.

Section 6 – Stormwater Design & Construction Standards

In this Section, we will introduce the reader to the minimum standards as related to design and construction materials for stormwater systems in the City of Ward.

A. Design of Storm Sewers

1. Design Professional

All developments, whether commercial, residential, or municipal, within the City of Ward, shall implement the stormwater management plan included wherein. Stormwater design shall be under the supervision of a Registered Professional Engineer, licensed by and in the State of Arkansas.

2. Design Requirements

Storm drainage for new developments or re-developments shall be designed using sound engineering practices. Run off computations shall be developed during the design and shall utilize accepted methods such as Rationale, or TR-55. Storm drains shall be properly sized to accept flow as determined by these calculations.

Where the post-development stormwater discharge notably exceeds pre-development, it shall be the responsibility of the design professional, working with the City, to determine the need of stormwater detention or retention. This shall be reviewed on a per case basis with the City. In the event that detention/retention is required, the use of a basin, or underground storage

facility, is allowed and must be designed under the supervision of the Registered Professional Engineer. A minimum storm frequency of 25 years shall be used for detention/retention design.

Stormwater drainage design shall be submitted to the City for review as part of the normal Planning Commission review process.

B. Construction Standards

All construction standards shall meet the following minimum standards. The City reserves the right to approve waivers to these standards if deemed necessary by the City.

1. Drainage Culvert (Pipes)

a. **Minimum Size.** The minimum size culvert shall be 12" diameter, either round or arch, unless approved by the City. Culverts shall be placed on grades as outlined by design professional (where applicable).

b. **Minimum Cover.** In areas where cover between a driving surface and the top of pipe is less than 12", Class III Reinforced Concrete Pipe (round or arched) shall be used. Said Reinforced Concrete Pipe shall be as the specifications listed in this section.

c. **Backfill of Trench.** In areas where the culvert is grade specific, Class VII (or approved equal) shall be placed in the bottom of trench to ensure compliance with said grades. The Class VII material shall be placed at a minimum depth of 6" in all excavated trenches. On street crossings, all culvert trenches shall be

backfilled in their entirety (under the street) will Class VII, or approved equal. Said Class VII backfill under streets shall be compacted to 95% standard proctor.

d. **Culvert Materials.** The following materials shall be used for storm drainage (installation shall be in conformance with applicable ASTM and AASHTO standards):

- Reinforced Concrete Pipe shall conform to ASTM C-76 or ASTM C-506 and AASHTO M-170
- Zinc Coated (Galvanized) Corrugated Steel Pipe shall be manufactured per AASHTO M36 and M218
- Aluminum Coated Corrugated Steel Pipe shall be manufactured per AASHTO M36 and M274
- Aluminum-Zinc Alloy Coated Corrugated Steel Pipe shall be manufactured as per AASHTO M36 and AASHTO M289
- Corrugated Aluminum Pipe shall be manufactured per AASHTO
- Asphalt Coated Corrugated Metal Pipe shall be manufactured per AASHTO M190, Type A
- Polymer Precoated Metallic Coated Corrugated Steel Pipe shall be manufactured per AASHTO M245. The metallic coating shall comply with the applicable requirements of AASHTO M36 and AASHTO M218, M274, or M289 for zinc, aluminum or aluminum-zinc alloy coating. The sheets shall have a polymeric coating of 0.010" minimum thickness on each side after corrugation.
- Polymer Pre-Coated Spiral Rib Metal Pipe Type 1R shall be manufactured per ASTM A760. This type of culvert is normally used for increased hydraulic performance. All spiral rib culverts must have a manning's n value of 0.012. The spiral rib shall be

polymer coated inside and out with a protective polymer coating conforming to AASHTO M246 or ASTM A742. The polymer coating shall be a minimum of 10 mils in thickness. The polymer shall be composed of polyethylene and acrylic acid copolymer, labeled TRENCHCOAT protective film, or approved equal. Paved inverts are required in closed systems if the slope exceeds 2.0 percent and in open systems if the slope exceeds 1.5 percent or if severe abrasion is anticipated. • Polyethylene Pipe manufactured in accordance with AASHTO M-294 and ASTM D-2321 with couplings supplied or recommended by the pipe manufacturer. All polyethylene pipe shall have a corrugated outer shell with an essentially small wall waterway.

2. Inlets & Junction Boxes

Storm drain inlets shall be constructed of reinforced concrete either cast in place or precast. Inlets shall be sealed as to prevent infiltration of ground water into the storm drain system, except in situations where best engineering practices require ground relief via a French drain connection into an inlet. Grout shall be installed in the bottom on said inlet or junction box to assist in transitioning of flow through said structure.

3. Installation of Drainage as related to Stormwater Management

During construction, contractors shall utilize BMP's as discussed in more detail throughout the City's Stormwater Management Plan. All regulations

of the Arkansas Department of Environmental Quality (ADEQ) and the Environmental Protection Agency (EPA) shall be followed. Proper erosion control measures shall be implemented during all construction activities. Contractors shall be responsible for installing all storm drainage components in accordance with approved plans by a registered professional engineer.

Upon completion of construction, it is the responsibility of the contractor to provide the City of Ward with detailed “As Built” information on all storm drainage installed under their charge. The minimum requirements for said “As Builts” shall be a drawing showing the location, size, type, and grade of all storm drains. Said “As Builts” shall be provided to the City of Ward, Public Works Director.

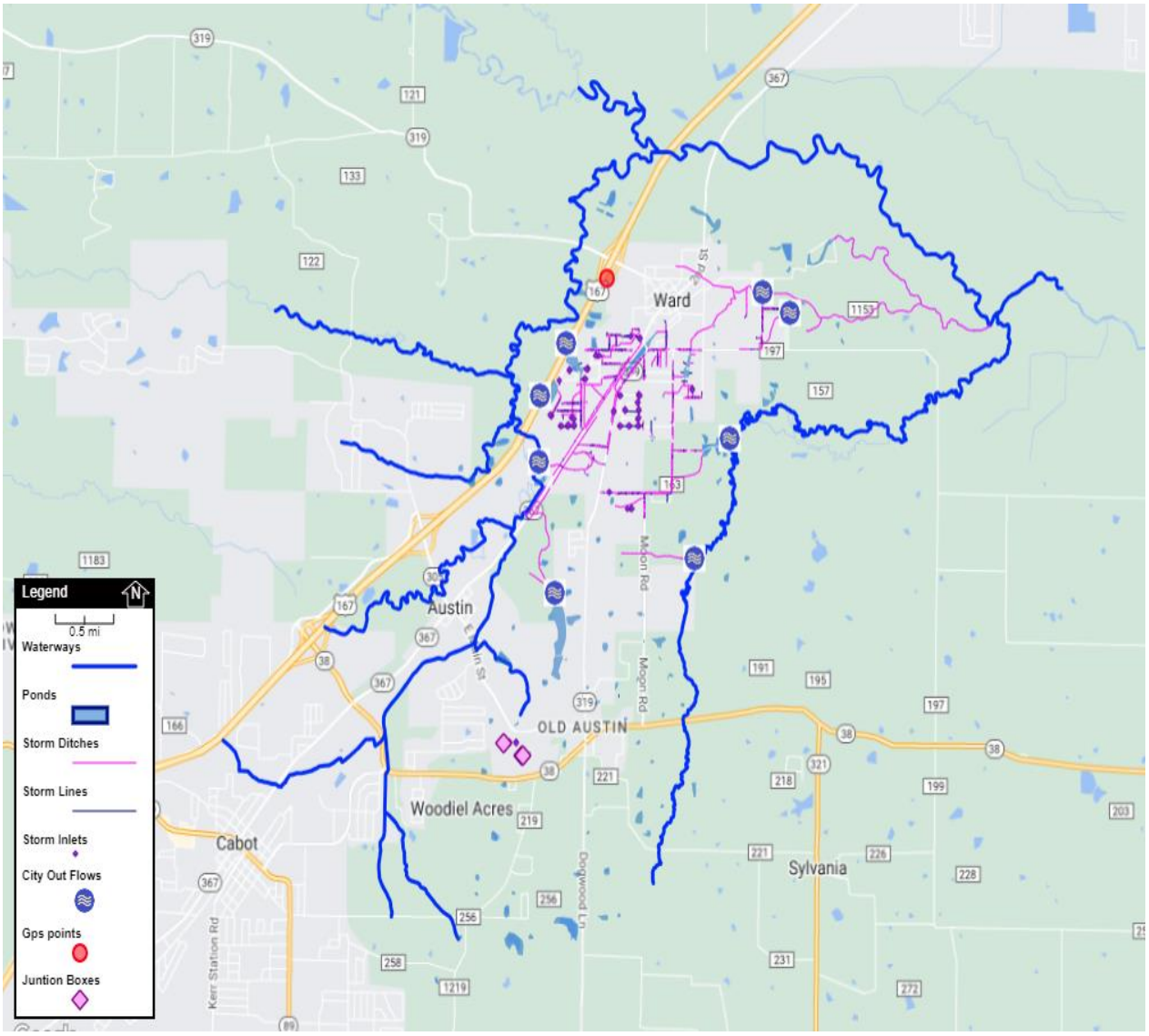
4. Standard Details for Stormwater Management

Attention is called to the following pages for details to be employed on projects within the City of Ward (as applicable).

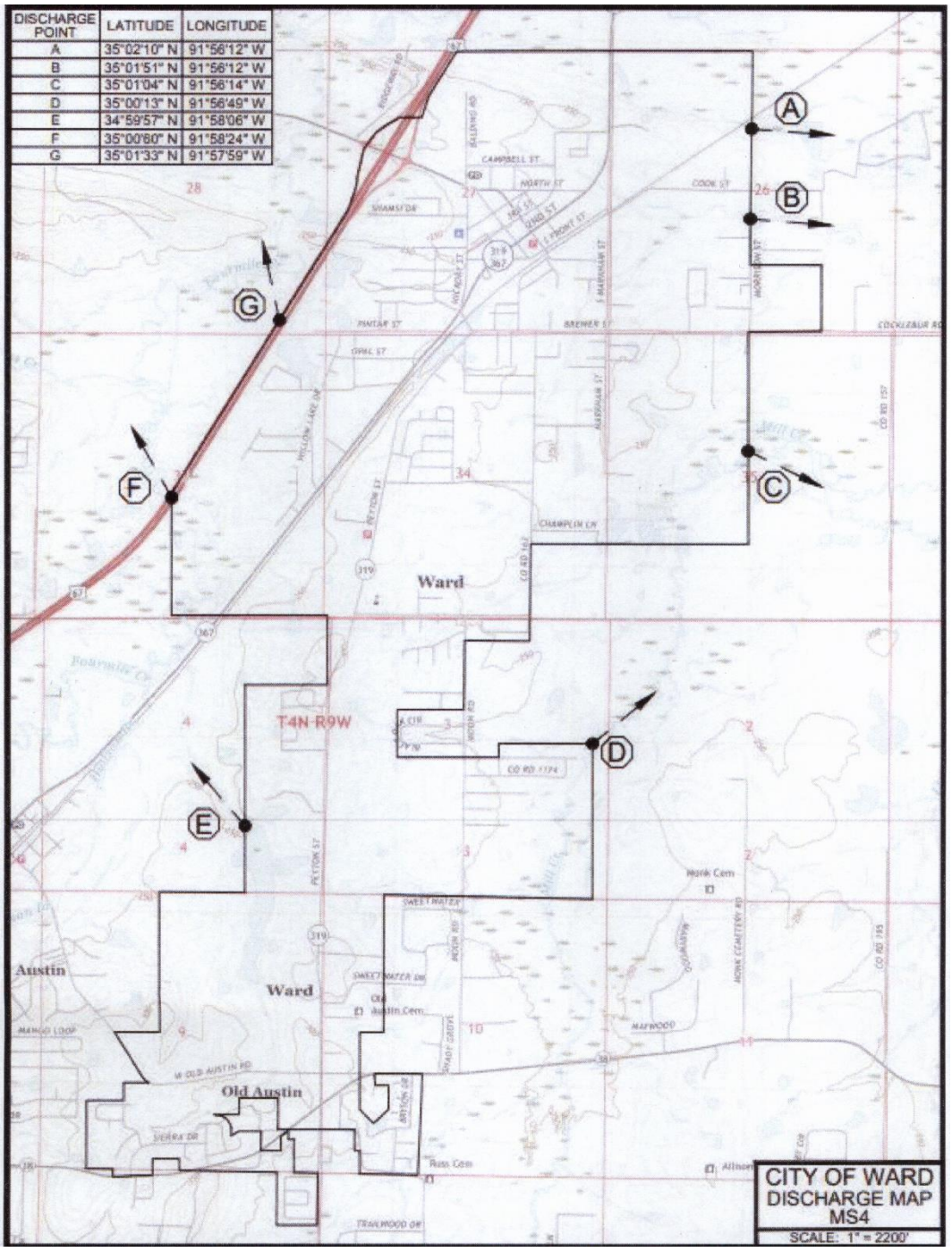
Section 7 – Exhibits

- Stormwater Map
- Watershed Map of the City
- Aerial Map of the City
- Flood Hazard Map of the City
- Storm Water Ordinance
- Construction Details
- Periodic Reports

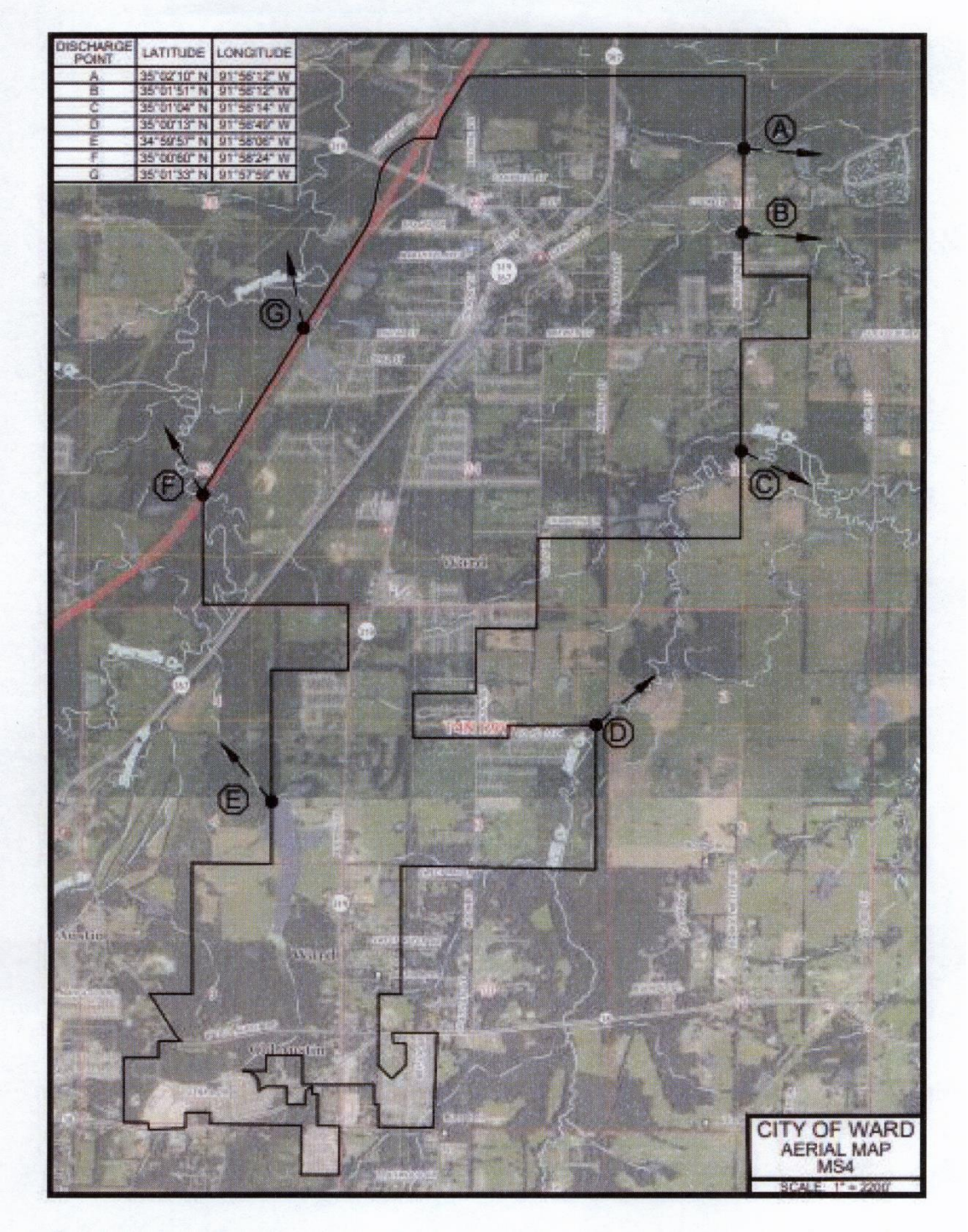
Stormwater Map



Watershed Map of the City

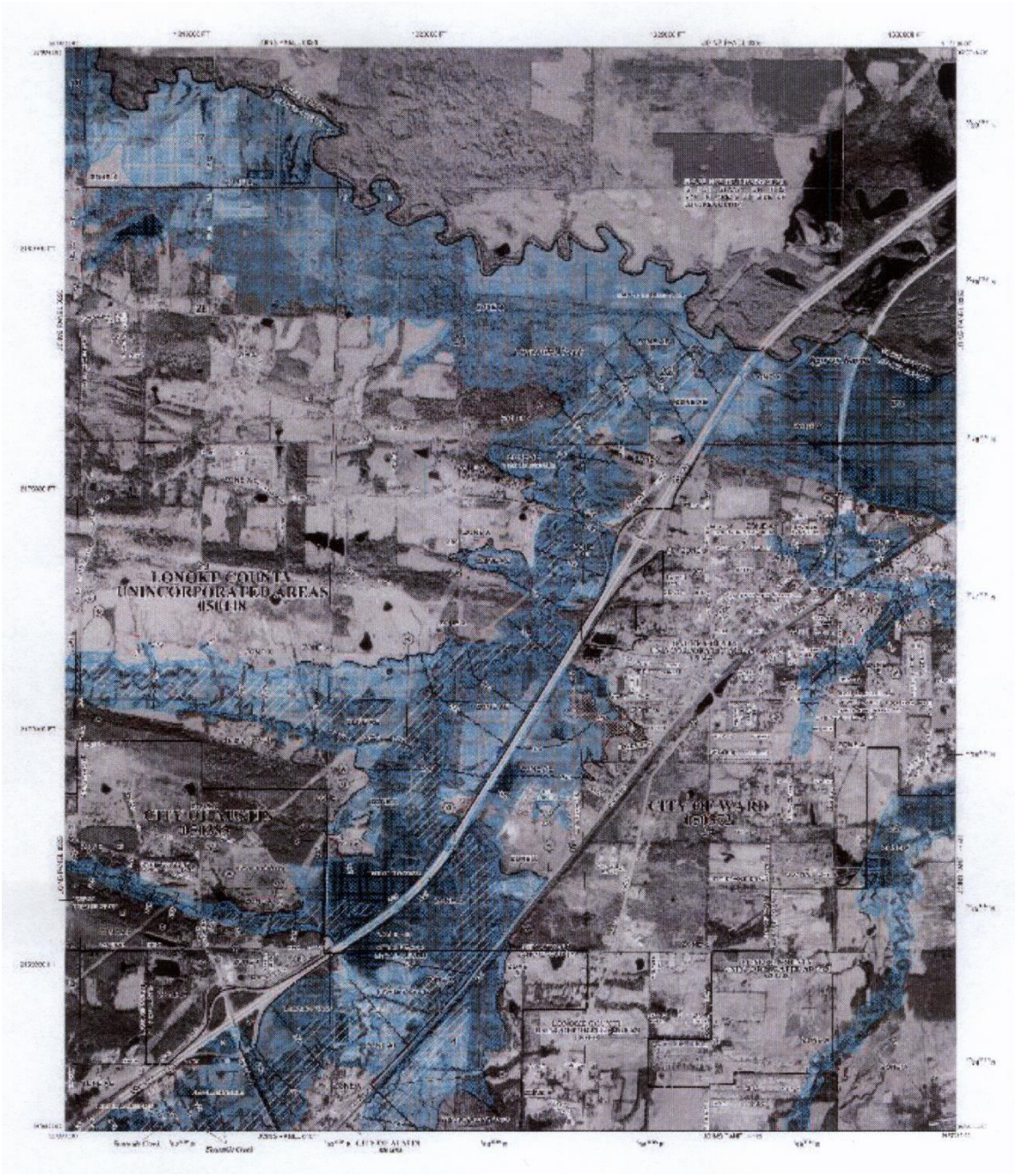


Aerial Map of The City



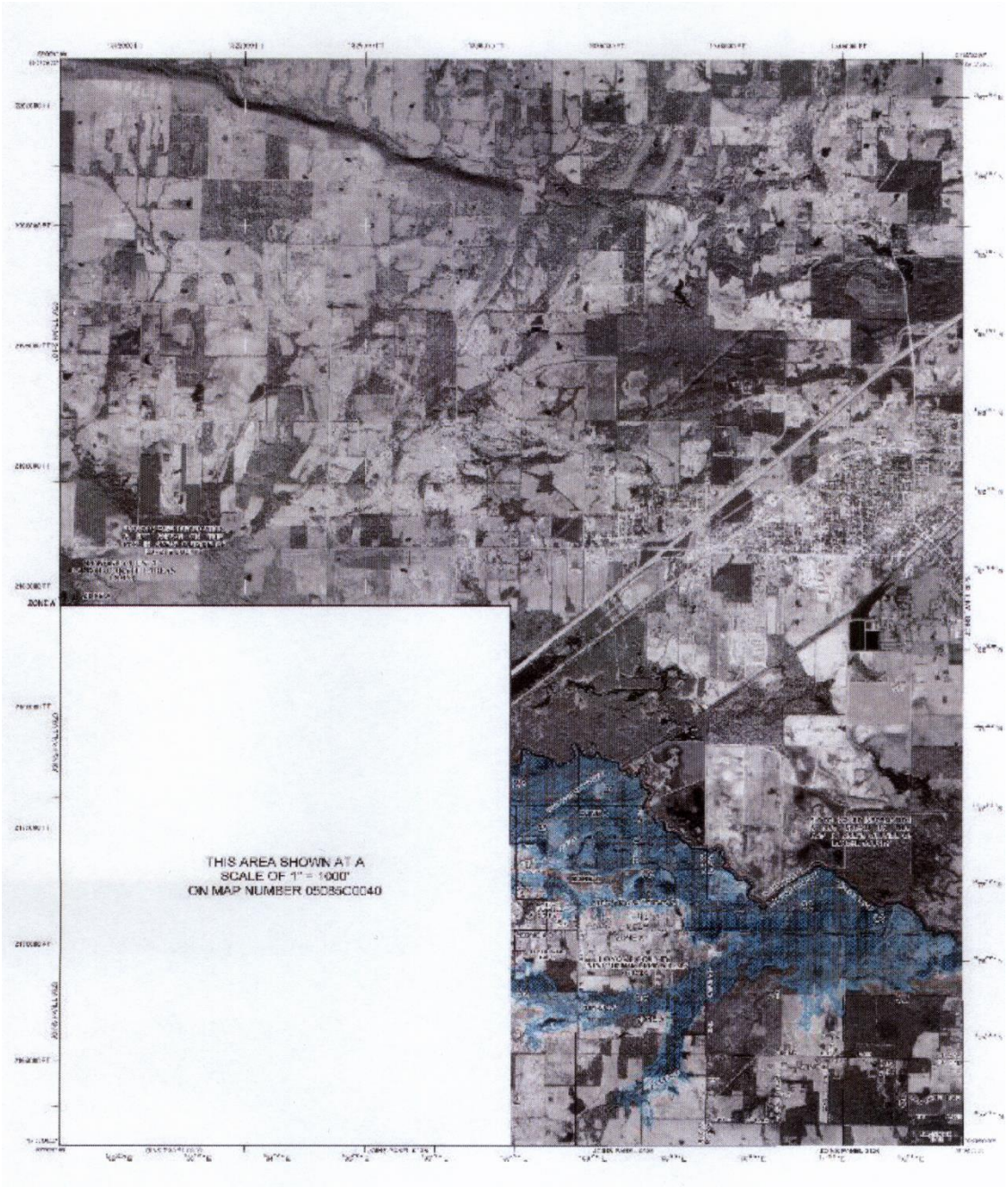
Flood Hazard Map of The City

Map #05085C0040E, Revised 2/20/2008



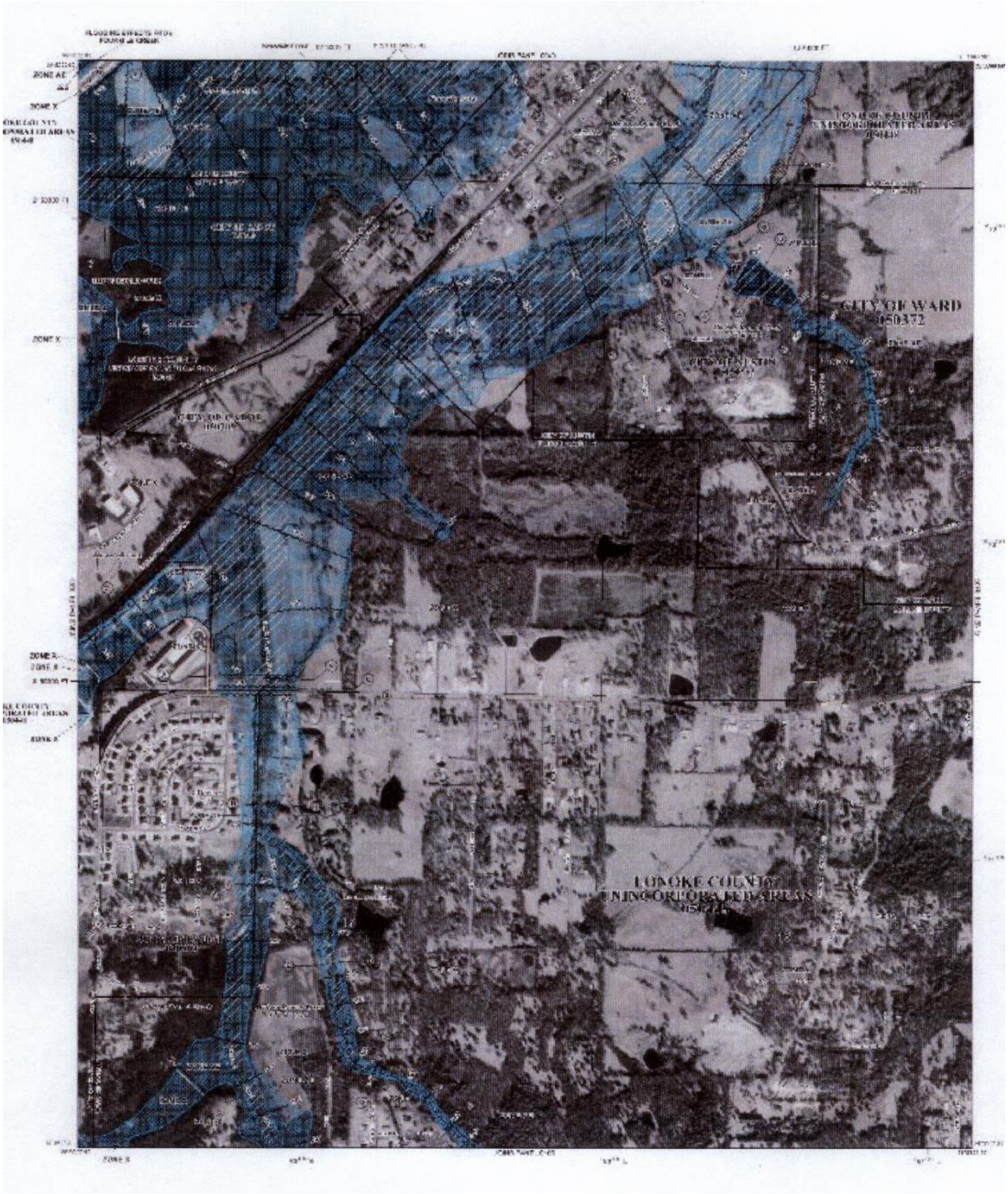
Flood Hazard Map of The City

Map #05085C0050E, Revised 2/20/2008



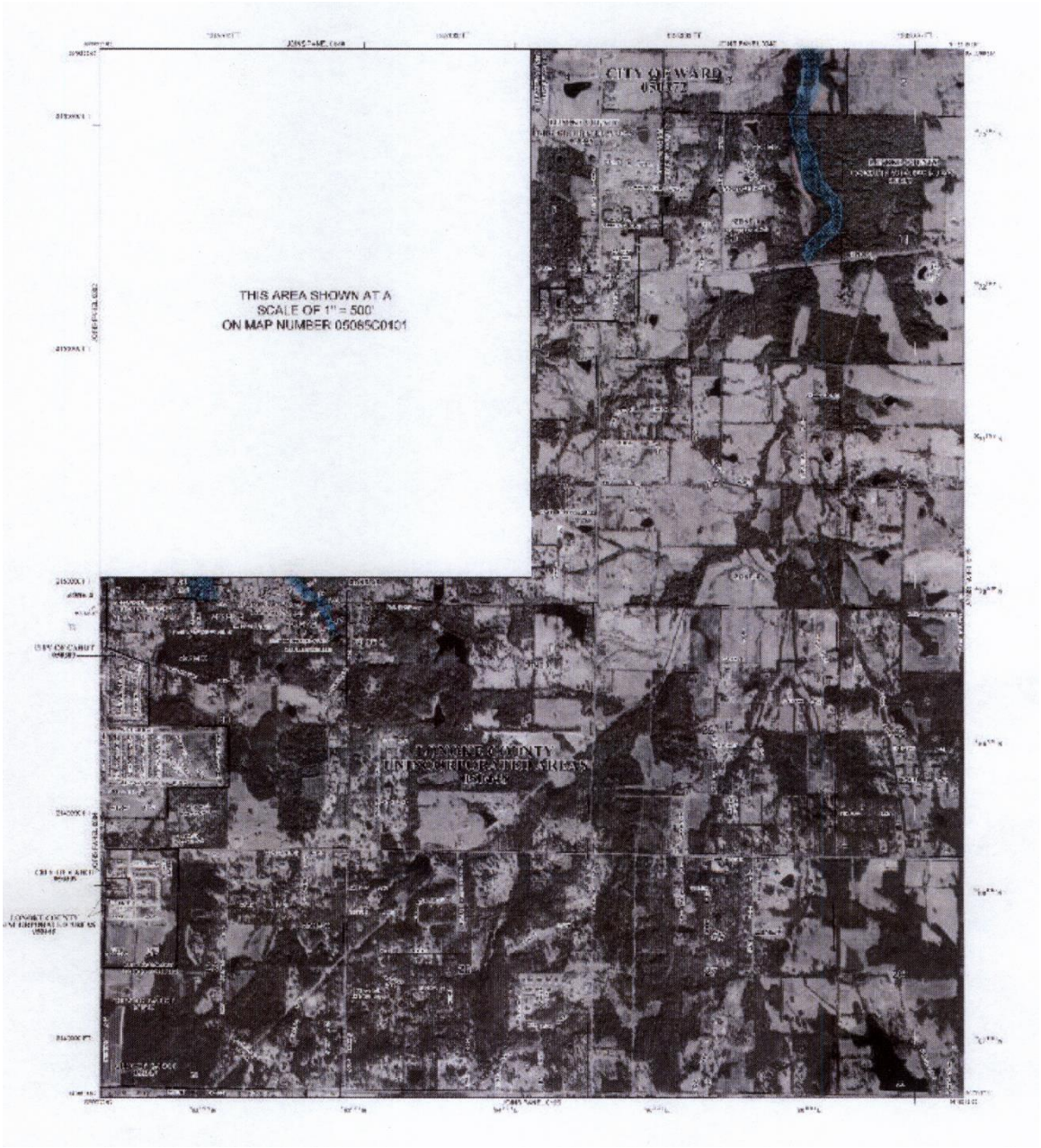
Flood Hazard Map of The City

Map #05085C0050E, Revised 2/20/2008



Flood Hazard Map of The City

Map #05085C01050E, Revised 2/20/2008



ORDINANCE NO. O-2020-13

City of Ward
Construction Site Storm Water
Runoff Control Ordinance

PREAMBLE

This Ordinance, adopted by resolution of the City of Ward, sets forth the administrative procedures, standards, and enforcement remedies which shall be used by the City of Ward's Storm Water Program Manager in meeting the requirements of the EPA's Phase II requirements.

I. Purpose and Objectives

A. Purpose

The purpose of this Ordinance is to minimize the pollution, impairment, or destruction of natural resources that could be caused by storm water runoff.

B. Objectives

Specific objectives include the following:

1. Minimize storm water runoff pollution.
2. Require Construction site owner/operators to obtain the proper permit coverage.
3. Require construction site owner/operators to develop a Storm Water Pollution Prevention Plan.
4. To restrict storm water runoff entering and leaving development sites to non-erosive velocities by requiring temporary and permanent soil erosion control measures.
5. To prevent unnecessary stripping of vegetation and loss of soils, especially adjacent to lakes, streams, watercourses, and wetlands.
6. To reduce long-term expenses and remedial projects which are caused by uncontrolled storm water runoff and soil erosion.
7. To encourage the design and construction of storm water control systems which serve multiple purposes, including but not limited to flood prevention, water

quality protection, wildlife habitat preservation, education, recreation, and wetlands protection.

8. To reduce the detrimental impacts of storm water flows on downstream communities.

9. To provide for enforcement of this ordinance and penalties for violations.

II. Definitions

The following terms and phrases shall have the meaning given herein, unless the context otherwise requires:

1. **Best management practices (BMP)** – Structural device, measure, facility, or activity which helps to achieve soil erosion and storm water management control objectives at a designated site.

2. **Disturbed area** – An area of land subjected to erosion due to the removal of vegetative cover and/or earthmoving activities, including filling.

3. **Enforcing agency** – City of Ward and Arkansas Department of Environmental Quality.

4. **Large Construction Site** – Construction activity including clearing, grading and excavation, except operations that result in the disturbance of less than five acres of total land area. Construction activity also includes the disturbance of less than five 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 acres.

5. **Outfall** – The point where water flows out from a conduit, drain, or stream.

6. **Receiving body of water** – Any lake, pond, stream, wetland, or groundwater into which storm water runoff is directed.

7. **Sediment** – Mineral or organic solid particulate matter that has been removed from its site of origin by (a) soil erosion; (b) suspension in water; and/or (c) wind or water transport.

8. **Small Construction Site** – Construction activities including clearing, grading, and excavation that result in land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes that disturbance of less than one 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 acres. Small construction activity does not include routine maintenance.

9. **Soil erosion** – The wearing away of land by the action of wind, water, gravity or a combination thereof.

10. **Soil erosion control facilities and measures** – Any structure, facility, barrier, berm, vegetative cover, basin, or other measure which serves to control soil erosions in accordance with the purposes and standards of this Ordinance.

Temporary measures – Installations designed to control soil erosions during construction or until soils in the contributing drainage area are stabilized.

Permanent measures – Installations designed to control soil erosions after a project is completed.

11. **Storm drain** – A conduit, pipe, natural channel or human-made structure which serves to transport storm water runoff.

12. **Storm water runoff** – Waters from rains falling within a tributary drainage basin, flowing over the surface of the ground or collected in channels, watercourses, or conduits, measured in depth of inches.

13. **Storm Water Pollution Prevention Plan** – A document that indicates how erosion and sediment will be controlled whether by silt fence, hay bales, or other Best Management Practices.

III. Permit Requirements

A. Jurisdiction for Permit Administration

1. All construction sites within the City of Ward are required to meet the following requirements.

B. Permit Requirements

1. The Owner shall apply for permit coverage.

2. All Constructions sites that disturb an area of one acre or more are required to develop and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP is required to be maintained an updated at the site.

3. Small Construction Sites (Sites disturbing 1 to 5 acres) are required to post their site using ADEQ's Small Construction Site Notice.

4. Large Construction Sites (Sites disturbing greater than 5 acres) are required to submit a Notice of Intent, permit fee and SWPPP to ADEQ for review.

C. Storm Water Pollution Prevention Plan

A SWPPP shall be developed for all sites in accordance with the provisions set forth in ADEQ's General Construction Storm Water Runoff Permit.

IV. Maintenance

1. All BMP's identified in the SWPPP must be maintained in order to ensure that the controls are functioning properly.

V. Inspections

1. A site inspector will be designated by the Storm Water Management Program Manager. If the program manager sees necessary he/she many decline to appoint an inspector.

2. Site inspections will be made on a weekly basis.

3. Inspections will be conducted to ensure the proper permit coverage has been obtained and that the permit provisions are being complied with.

4. All complaints about storm water runoff pollution will be inspected in due time.

VI. Enforcement Action

A. General Provision

1. All Construction sites within the jurisdiction of Ward are subject to the provisions and penalties of this ordinance.

2. Each act of violation, and every day upon which any violation shall occur or continues to occur, shall constitute a separate offense.

3. A person who has not complied with this Ordinance and who, after notice, refuses to implement and maintain soil erosion and storm water runoff control measures and facilities in conformance with these regulations shall be subject to a fine of but not more than $500.00 per each day that the violation was committed or ninety (90) days in jail, or both, plus the cost of prosecution.

XVI. Severability

If any section, clause, provision or portion of this Ordinance is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of the Ordinance shall not be affected.

Effective Date

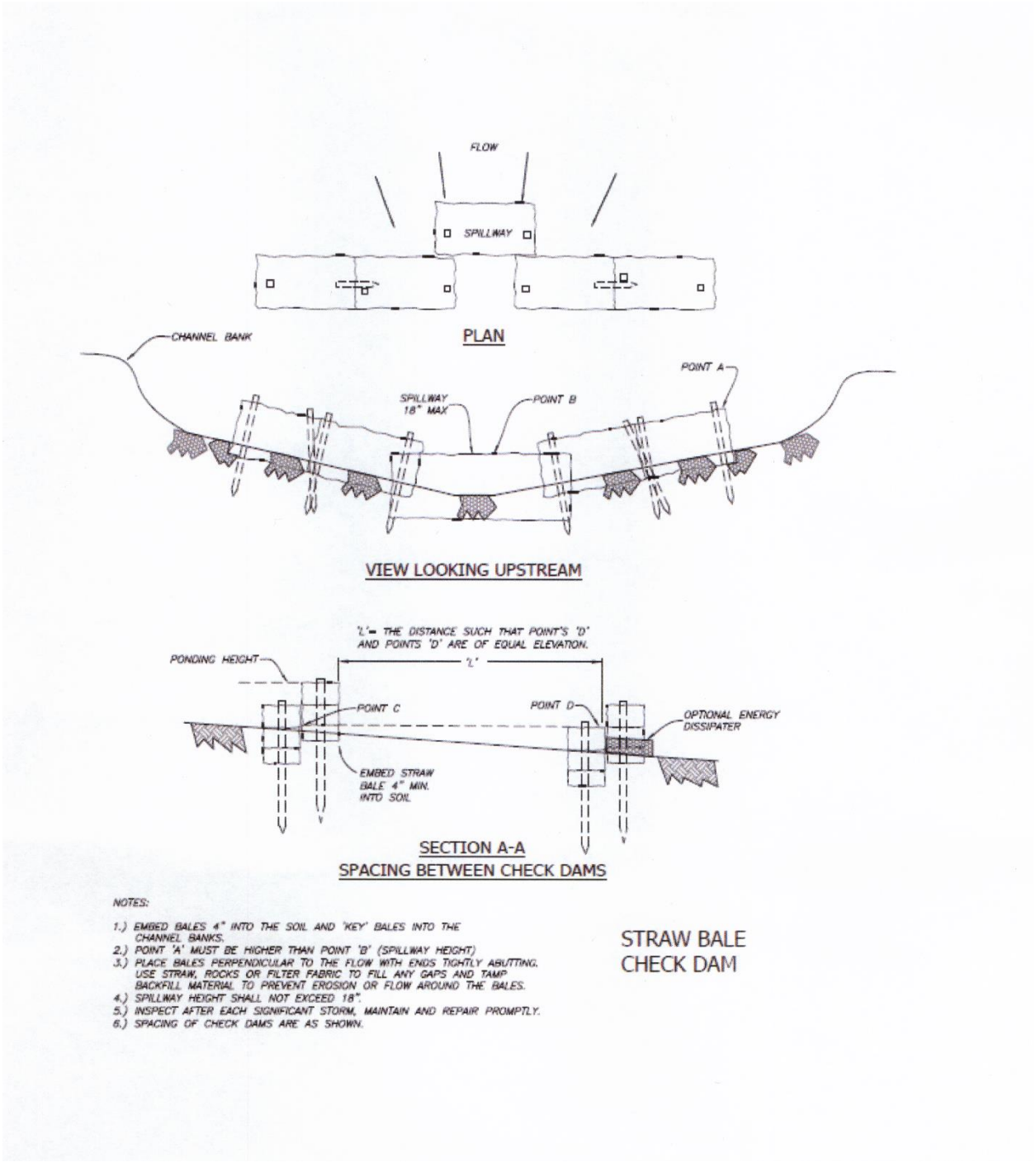
The Ordinance shall take effect on December 21st, 2020 after publication according to statute.

Approved _____
Mayor

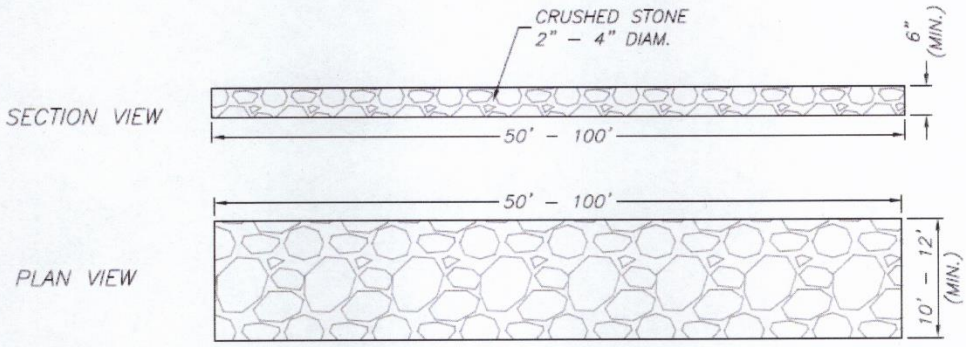
Attest Courtney Hubble
City Clerk

City Seal

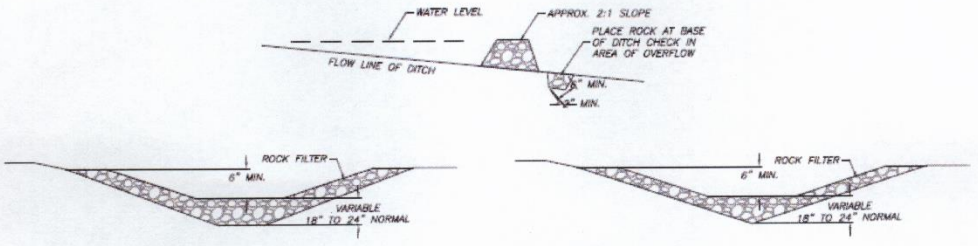
Construction Details



Construction Details

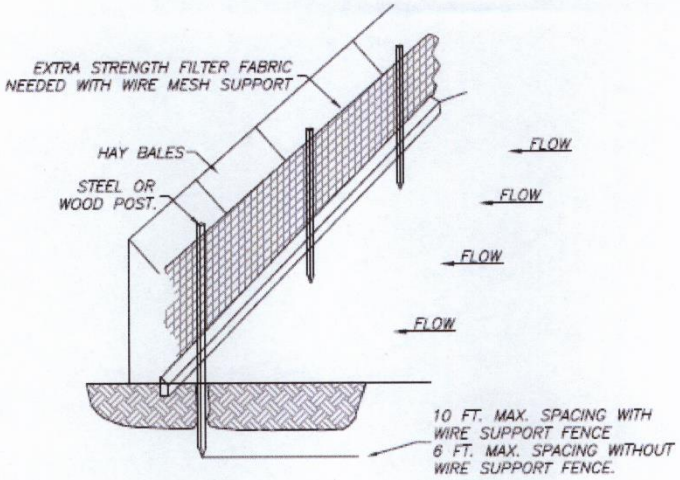


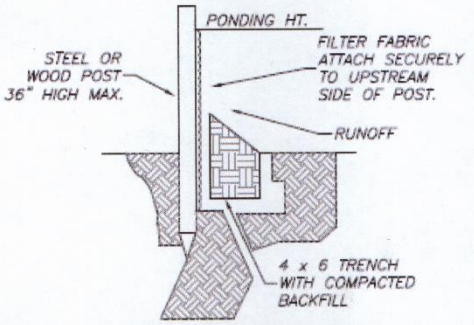
STABILIZED CONSTRUCTION ENTRANCE
NTS



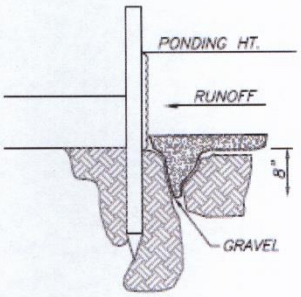
ROCK CHECK DAM
NTS

Construction Details





STANDARD DETAIL
TRENCH WITH NATIVE GRAVEL



ALTERNATE DETAIL
TRENCH WITH GRAVEL

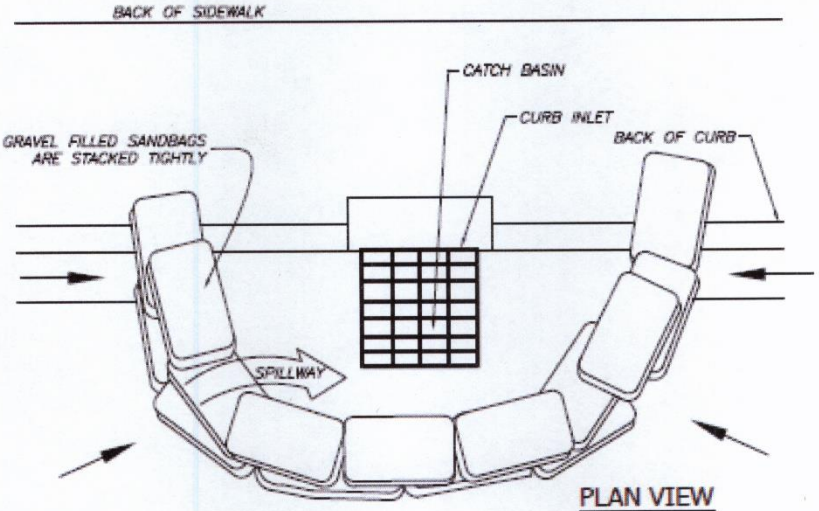
NOTE:
1.) INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.

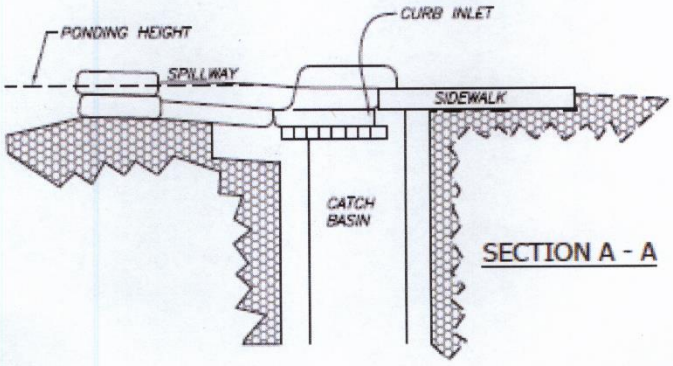
2.) REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

3.) SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

SILT FENCE
NTS

Construction Details





NOTES:
1.) PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREET SEGMENTS WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.

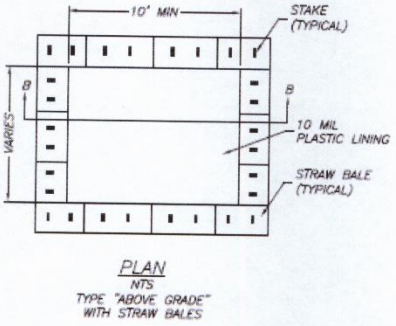
2.) SANDBAGS OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC ARE FILLED WITH GRAVEL, LAYERED, AND PACKED TIGHTLY.

3.) LEAVE ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW.

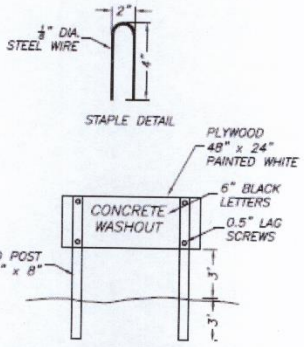
4.) INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET
SEDIMENT BARRIER
NTS

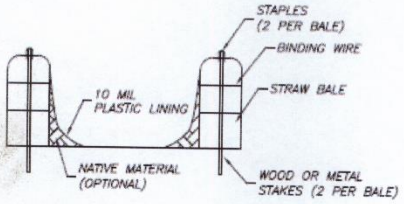
Construction Details



PLAN
NTS
TYPE "ABOVE GRADE" WITH STRAW BALES



CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)



SECTION B–B
NTS

NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE LOCATED A MINIMUM OF 50 FT FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, AND WATERCOURSES. EACH FACILITY SHOULD BE LOCATED AWAY FROM CONSTRUCTION TRAFFIC OF ACCESS AREAS TO PREVENT DISTURBANCE OR TRACKING.
4. A SIGN SHOULD BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE PROPER FACILITIES.
5. TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE CONSTRUCTED ABOVE GRADE. FACILITY SHOULD BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUIDS GENERATED DURING WASHOUT PROCEDURES.
6. TEMPORARY WASHOUT FACILITIES SHOULD HAVE A TEMPORARY PIT OR BERMED AREAS OF SUFFICIENT VOLUME TO COMPLETELY CONTAIN ALL LIQUID AND WASTE CONCRETE MATERIALS GENERATED DURING WASHOUT PROCEDURES.
7. WASHOUT OF CONCRETE TRUCKS SHOULD BE PERFORMED IN DESIGNATED AREAS ONLY.
8. ONLY CONCRETE FROM MIXER TRUCK CHUTES SHOULD BE WASHED INTO CONCRETE WASHOUT.
9. CONCRETE WASHOUT FROM CONCRETE PUMPER BINS CAN BE WASHED INTO CONCRETE PUMPER TRUCKS AND DISCHARGED INTO DESIGNED WASHOUT AREA TO PROPERLY DISPOSED OF OFFSITE.
10. ONCE CONCRETE WASTES ARE WASHED INTO THE DESIGNATED AREAS AND SLOWED TO HARDEN, THE CONCRETE SHOULD BE BROKEN UP, REMOVED AND DISPOSED OF. DISPOSED OF HARDENED CONCRETE ON A REGULAR BASIS.
11. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED ACCORDING TO THE DETAIL, WITH A RECOMMENDED MINIMUM LENGTH AND MINIMUM WIDTH OF 10 FT, BUT WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATORS.
12. PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

CONCRETE WASHOUT AREA
NTS

Stormwater Construction Site Inspection Report

General Information			
Project Name			
NPDES Tracking No.		**Location**	
Date of Inspection		**Start/End Time**	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Inspector's Qualifications	Insert qualifications or add reference to the SWPPP. (See Section 5 of the SWPPP Template)		
Describe present phase of construction			

Type of Inspection:
❑ Regular ❑ Pre-storm event ❑ During storm event ❑ Post-storm event

Weather Information

Has there been a storm event since the last inspection? ❑Yes ❑ No
If yes, provide:
Storm Start Date & Time: Storm Duration (hrs): Approximate Amount of Precipitation (in):

Weather at time of this inspection?
❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds
❑ Other: Temperature:

Have any discharges occurred since the last inspection? ❑Yes ❑ No
If yes, describe:

Are there any discharges at the time of inspection? ❑Yes ❑No
If yes, describe:Silt is discharging onto the neighboring property due to the lack of a silt fence.

Site-specific BMPs

- *Number the structural and non-structural BMPs identified in your SWPPP on your site map and list them below (add as many BMPs as necessary). Carry a copy of the numbered site map with you during your inspections. This list will ensure that you are inspecting all required BMPs at your site.*
- *Describe corrective actions initiated, date completed, and note the person that completed the work in the Corrective Action Log.*

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
1	Silt fence 1	❑Yes ❑No	❑Yes ❑No	
2	Silt fence 2	❑Yes ❑No	❑Yes ❑No	
3	Detention Basin 1	❑Yes ❑No	❑Yes ❑No	
4	Detention Basin 2	❑Yes ❑No	❑Yes ❑No	
5	Rock dam 1	❑Yes ❑No	❑Yes ❑No	
6	Rock dam 2	❑Yes ❑No	❑Yes ❑No	
7		❑Yes ❑No	❑Yes ❑No	
8		❑Yes ❑No	❑Yes ❑No	
9		❑Yes ❑No	❑Yes ❑No	

	BMP	BMP Installed?	BMP Maintenance Required?	Corrective Action Needed and Notes
10		❑Yes ❑No	❑Yes ❑No	
11		❑Yes ❑No	❑Yes ❑No	
12		❑Yes ❑No	❑Yes ❑No	
13		❑Yes ❑No	❑Yes ❑No	
14		❑Yes ❑No	❑Yes ❑No	
15		❑Yes ❑No	❑Yes ❑No	
16		❑Yes ❑No	❑Yes ❑No	
17		❑Yes ❑No	❑Yes ❑No	
18		❑Yes ❑No	❑Yes ❑No	
19		❑Yes ❑No	❑Yes ❑No	
20		❑Yes ❑No	❑Yes ❑No	

Overall Site Issues

Below are some general site issues that should be assessed during inspections. Customize this list as needed for conditions at your site.

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	❑Yes ❑No	❑Yes ❑No	
2	Are natural resource areas (e.g., streams, wetlands, mature trees, etc.) protected with barriers or similar BMPs?	❑Yes ❑No	❑Yes ❑No	
3	Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained?	❑Yes ❑No	❑Yes ❑No	
4	Are discharge points and receiving waters free of any sediment deposits?	❑Yes ❑No	❑Yes ❑No	
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	
6	Is the construction exit preventing sediment from being tracked into the street?	❑Yes ❑No	❑Yes ❑No	
7	Is trash/litter from work areas collected and placed in covered dumpsters?	❑Yes ❑No	❑Yes ❑No	

	BMP/activity	Implemented?	Maintenance Required?	Corrective Action Needed and Notes
8	Are washout facilities (e.g., paint, stucco, concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No	
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	❑Yes ❑No	❑Yes ❑No	
10	Are materials that are potential stormwater contaminants stored inside or under cover?	❑Yes ❑No	❑Yes ❑No	
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No	
12	(Other)	❑Yes ❑No	❑Yes ❑No	

Non-Compliance

Describe any incidents of non-compliance not described above:

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name and title: _____Bruce Jones/Public Works Director

Signature:_____ Date:_____