BOARD OF COUNTY COMMISSIONERS
WARREN COUNTY, OHIO

Resolution

Number 10-1704 *Adopted Date* November 16, 2010

APPROVE AND AUTHORIZE COUNTY ADMINISTRATOR TO SIGN WARREN COUNTY, OHIO STORM WATER MANAGEMENT PLAN

BE IT RESOLVED, upon recommendation by the County Engineer, to approve and authorize the County Administrator to sign the Warren County Ohio, Storm Water Management Plan dated November 4, 2010; copy attached hereto and made a part hereof.

Mrs. South moved for adoption of the foregoing resolution, being seconded by Mr. Young. Upon call of the roll, the following vote resulted:

Mr. Kilburn - yea
Mr. Young - yea
Mrs. South - yea

Resolution adopted this 16th day of November 2010.

BOARD OF COUNTY COMMISSIONERS

Wenda K. Sullivan
Tina Davis, Clerk Deputy Clerk

/tad

cc: Engineer (file)

WARREN COUNTY, OHIO
STORM WATER MANAGEMENT PLAN

November 4, 2010

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Certification

"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, information submitted is, to the best of my knowledge, 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."

David Gully
Warren County Administrator

Executive Summary

Warren County, Ohio is required to submit a Storm Water Management Plan (SWMP) in accordance with 40 CFR Part 122.32 and Ohio Law. The document outlines the steps Warren County needs to take to develop, implement and enforce a storm water management program designed to reduce the discharge of pollutants to the maximum extent practicable, to protect water quality, and to satisfy the appropriate requirements of the Clean Water Act (CWA) in accordance with the Ohio EPA Phase II program. The SWMP addresses the six minimum control measures as required by state regulations. The original Notice of Intent (NOI) and SWMP were submitted March 10, 2003. The NOI for this permitting cycle was submitted May 4, 2009.

Legal Authority

Warren County, Ohio is empowered by certain sections of the Ohio Revised Code to adopt rules and regulations for erosion and sediment control and rules and regulations for the design of storm water management systems. The Villages of Maineville and South Lebanon are empowered by the Ohio Revised Code to adopt ordinances for the same purpose. Warren County has both the fiscal authority and legal resources to fully implement this Storm Water Management Plan.

Permit Coverage Area

This Storm Water Management Plan is written for the Board of Commissioners of Warren County, Ohio. Joining Warren County in this effort as joint permitees are Clearcreek Township, Franklin Township, Hamilton Township, Turtlecreek Township, Union Township and the Villages of Maineville and South Lebanon. These jurisdictions make up the municipal separate storm sewer system (MS4) permit area. A table of organization outlines how these municipalities work with Warren County's cooperating agencies under this permit (Appendix A). The SWMP covers all properties either owned by the Warren County Board of Commissioners or controlled by the Board via easements that lie within an "Urbanized Area", as defined by the U.S. Census Bureau. In general, this includes all legal road rights-of-way and all county owned facilities. Also included are all properties owned by the Boards of Trustees of the aforementioned townships that are in an "Urbanized Area" and all lands within the corporate limits of the Villages of Maineville and South Lebanon. A map of the SWMP area and a list of affected properties are included in Appendices B and C.

Reporting Requirements

Warren County submitted its required reports annually during the first term of the permit cycle and will continue to do so during this second term. The report will include the status of compliance with the permit conditions, an assessment of the appropriateness of the best management practices (BMPs) and progress toward achieving the measurable goals for each of the six minimum control measures. A summary of the activities Warren County and its joint permitees have undertaken during the reporting cycle and any changes to BMPs or measurable goals and all relevant data (monitoring) obtained during the reporting period.

Cooperating Agencies

The Warren County Soil and Water Conservation District (WCSWCD), the Warren County Combined Health District (WCCHD) and the Warren County Engineer's Office (WCEO) have reviewed this SWMP and have agreed to perform the various functions described within it. A table of organization details the relationships between these agencies (Appendix A).

Joint Permitees

The following townships and villages have elected to join Warren County, Ohio in its efforts to comply with the requirements of NPDES Phase II as joint permitees.

Townships	Villages
Clearcreek	Maineville
Franklin	South Lebanon
Hamilton	
Turtlecreek	
Union	

Copies of their current NOI co-permittee applications are included in Appendix D.

Storm Water Management Plan

The plan outlines the six minimum control measures (MCMs), which are expected to result in reductions in pollutants discharged by Warren County, Ohio and its joint permitees.

The six MCMs are:
1) Public Education/Outreach
2) Public Participation/Involvement
3) Illicit Discharge Detection/Elimination
4) Construction Site Runoff Control
5) Post Construction Runoff Control
6) Pollution Prevention/Good Housekeeping.

Each MCM is detailed in the plan to follow. The plan identifies the party responsible for each BMP and describes the implementation approach and measurable goals for each MCM.

Public Education/Outreach

Warren County reaches its MS4 population with storm water education and outreach through a variety of BMPs. Warren County's MS4 population is spread out in five townships and two villages. As a result, reaching out to the population with diverse methods is required. These methods fall into three basic categories: reaching students through classroom presentations, educating the general public through websites, public service announcements (PSAs) and brochures, and connecting with a more specific audience at special events.

Residents and students are educated about steps they can take to reduce storm water pollution with easy to follow tips and guides developed by the WCSWCD and through dynamic presentations that demonstrate the negative impacts of water pollution on wildlife and the environment. The enviroscape, stream table, and soils trailer are all particularly relevant educational activities for demonstrating to both children and adults the impacts that their actions have on the surrounding water and its quality. These demonstrations are used in both classroom settings and at local festivals and fairs. Television and radio announcements promote protecting water quality by educating audiences about potential sources of pollution and how they might be unknowingly contributing to storm water pollution. Residents are then encouraged via websites and PSAs to become involved in the storm water program by reporting pollution. The target pollution sources in Warren County's MS4 are largely residential including yard fertilizer, yard waste, pet waste, oil and other hydrocarbons, and hazardous wastes such as paint and chemicals. As a result, the target audience of the education and outreach activities is students, local residents, and homeowners.

Warren County has been successful in the past with reaching at least 50% of the MS4 population throughout the permit cycle and is confident that the same numbers, if not more, will be reached again during the current permit cycle. The WCSWCD is responsible for public education and outreach activities, largely through the district's Education Specialist. The education and outreach BMPs have been and will continue to be evaluated based on the number of residents reached and the impact of the activities on their storm water knowledge.

Public Education/Outreach Measurable Goals

BMP	Strategy	Measurable Goal	Responsible Party
Existing Programs	WCSWCD will continue with public education and outreach strategies that positively impact the public's knowledge of storm water.	<u>On-going</u> - Conduct classroom presentations that use dynamic and interactive activities to educate children about water quality. - Maintain and update two websites (one local and one regional) with pertinent storm water information and achieve 1,000 visitors to the websites yearly. - In conjunction with the Regional Storm Water Collaborative, contract with one television or radio station annually to reach 50% of the MS4 population with pollution prevention messages. - Develop brochures and fact sheets for the general public as well as for specific audiences and distribute 500 of them yearly. - Encourage residents to report pollution through websites, and respond to pollution reports called into the WCSWCD office.	Warren County Soil and Water Conservation District
Festivals	WCSWCD will participate in local festivals to reach visitors with information about local water resources.	<u>On-going</u> - Present educational materials and activities to festival visitors by using interactive displays and brochures.	Warren County Soil and Water Conservation District

Public Participation/Involvement

Warren County involves its MS4 population in water quality protection by encouraging participation in a variety of BMPs. These practices include hands-on activities as well as events and conferences.

The public has been involved in the development of the SWMP and the submittal of the NOI through meetings with local volunteers and organizations and through cooperation among the townships and villages in Warren County's MS4. The public is actively involved in the development and implementation of our program through the relationships of the WCSWCD Education Specialist with local teachers, scout troops, stream teams, and other organizations and local residents. Their input is received by the Education Specialist and then utilized to continually develop and provide effective and relevant activities. Often public participation activities are catered to a specific group or event and then continue to be used based on their success, or revised for greater success in the future.

The WCSWCD is responsible for the implementation of the public involvement program and utilizes its Education Specialist and entire staff to host activities and to be present at events that promote public involvement in water quality activities. The success of this program is evaluated based upon events or activities hosted, resident participation, and feedback from participants. The target audience of the public involvement program is residents and homeowners as well as the development community. Warren County is largely residential and quickly developing in terms of homes and residential areas. As a result, the most pressing need for public involvement and participation is in these residential areas and throughout the development process.

The activities hosted for public participation include storm drain tagging events, an annual tree sale, and stream clean-ups. The events and conferences that promote public participation include the Warren County Fair, Conservation Breakfast, Annual Meeting, Pond Clinics, and Storm Water Conferences or Field Days. These events provide opportunities for residents and the development community to become involved in water quality protection and to build relationships with the WCSWCD staff.

Public Participation/Involvement Measurable Goals

BMP	Strategy	Measurable Goal	Responsible Party
Existing Programs	WCSWCD will continue to involve the public with storm water conservation activities that have a positive impact on storm water quality. WCSWCD will provide residents with the opportunity to be educated about ponds and storm water basins.	On-going - Maintain storm drain tags and involve 200 people as participants or recipients of door hangers annually. - Reach 200 homeowners with the annual tree sale. - Reach 1000 visitors with booth, contests, and handouts at the Warren County Fair. - Develop and host special events programs that reach 150 residents annually such as the Conservation Breakfast and Annual Meeting. - Facilitate and co-host stream clean-ups as requested by residents or groups. - Host pond clinics that educate 25 homeowners about pond ownership and maintenance.	Warren County Soil and Water Conservation District
Storm Water Conference / Field Day	WCSWCD will reach the development community through workshops.	Annually - Host a workshop that educates the development community, consultants, and storm water management professionals.	Warren County Soil and Water Conservation District as a sponsor and co-host.

Illicit Discharge Detection and Elimination

The Warren County Engineer's Office and the Warren County Combined Health District cooperate to implement Warren County's IDDE program. Illicit discharges are prohibited by the Ohio Revised Code Chapter 3718, Ohio Administrative Code Chapter 3701-29, and by the "Warren County Combined Health District Sewage Treatment System Regulations" (Appendix E).

The Warren County Combined Health District is currently active in the administration of the permit approval process for home sewage treatment systems (HSTSs) throughout Warren County. An HSTS inspection program is in place to assure the proper functioning of these private facilities. A website has been developed as a public information tool. WCCHD personnel investigate all complaints relative to HSTSs. WCCHD personnel also investigate all complaints related to spills or discharges. As needed, these problems are referred to the Ohio EPA.

Warren County's plan to detect and address illicit discharges to our system begins with completing the electronic maps of the MS4 and the HSTSs. The WCEO uses construction drawings and field checks to continue to update the electronic MS4 map. Continued updates will be provided through new construction drawings received and the utilization of GPS units in the field. Following the completion of these maps and identification of outfalls into our MS4 we will conduct initial dry weather screening of all the outfalls in our MS4. In addition, any non-storm flows identified may be tested for pollutants. For employee education and involvement a memo or directive will be distributed to field crews instructing them to serve as our eyes in the field by identifying and reporting illicit discharges to the WCEO. Public employees will also be educated about illicit discharge field detection and elimination through the Good Housekeeping Program.

Following the completion of the maps, identification, and initial field screening of outfalls to our MS4, a schedule will be developed for future dry weather screening. Then, priority areas will be identified using proximity to surface waters of the state, proximity to sanitary sewers, and hot spots or trends recognized over time.

The WCCHD will be responsible for the procedures and enforcement necessary for removing illicit discharges. Ohio counties currently have no power to regulate illicit discharges other than those emanating from HSTSs. Statutory villages may have legal authority over such issues. This SWMP has been written accordingly. When appropriate changes within the ORC grant such powers to counties, Warren County will review the contents of this SWMP and determine if changes are desired. Until that time, all illicit discharges identified within the Warren County SWMP area that are not from HSTSs will be recorded and forwarded to the Ohio EPA for resolution.

The number of IDDEs identified and removed annually will be evaluated to determine the success of the IDDE program. The measurable goals for the IDDE program were selected based upon the guidelines in the permit, staff time and allocations, and technical resources available.

Illicit Discharge Elimination Measurable Goals

BMP	Strategy	Measurable Goal	Responsible Party
On-going Programs	WCCHD will continue to responsibly enforce regulations by updating regulations as needed and conducting inspections.	On-going - Continue the political effort toward putting all existing systems on operating permits. - Inspect Home Sewage Treatment Systems that are on operating permits, yearly inspections of systems with motors and tri-annual inspections of other systems.	Warren County Combined Health District
System Map	WCEO will continue the effort to create an electronic map and compile data of Warren County's MS4.	2011 - Continue adding existing data to the map and bring it to a point where only new infrastructure is being added to the map.	Warren County Engineer's Office
HSTS Map and List	WCEO will continue the effort to map Warren County's HSTSs.	Ongoing - Maintain the map so that it is representative of what is in the field.	Warren County Engineer's Office
IDDE Plan	WCEO will develop and prioritize a list of outfalls that discharge into the Warren County MS4, based on the degree of development and/or other determining factors.	2010 - Send out a memo or directive instructing field crews to report IDDEs. Ongoing - Involve road crews and township employees in the detection process by asking them to report IDDE to the WCEO - Track IDDE reports using a GIS database	Warren County Engineer's Office
Dry-Weather Screening of Outfalls	WCEO will conduct dry weather screening of all outfalls that discharge into Warren County's MS4, noting any non-storm flows. (Test non-storm flows for pollutants)	2009-2010 - Identify outfalls in the field using GPS and create a map and schedule for screening them. 2011-2014 - Conduct initial dry weather screening of all outfalls.	Warren County Engineer's Office
Policy and Enforcement	Warren County has many of the necessary regulations in place regarding storm water discharges.	On-going - Enforce regulations. 2009-2014 - Work with villages to develop, adopt, and implement ordinances that cover illicit discharges.	Warren County Combined Health District Warren County Engineer's Office

Construction Site Runoff Control

Warren County's Construction Site Runoff Control program comes directly from the "Warren County Erosion and Sediment Control Regulations" (Appendix F), adopted by the Warren County Commissioners November 16th 2006. These regulations were written to comply with the Ohio EPA General Construction Permit in effect at the time of adoption. These regulations are enforced by the equivalent of three full time staff people at the Warren County Soil and Water Conservation District under the direction of the Lead Natural Resource Conservationist.

The runoff control BMPs that are approved for use in our county come from the state's approved list and are described throughout the Construction General Permit, Ohio EPA Permit No.: OHC000003. Further specifications are included in the Ohio Department of Natural Resources *Rainwater and Land Development* manual.

Construction site plans are reviewed by the WCSWCD for all projects greater than one acre in size. The plan review process and requirements are detailed in the county's Erosion and Sediment Control Regulations along with the procedure for enforcement of compliance on construction sites. Plan review and approval, or request for revision, is completed within 10 working days of plan receipt. 26 plans were reviewed during 2009 which was 100% of projects greater than one acre in size. Enforcement procedures follow a progression beginning with a letter of violation followed by a notice of violation, then a stop work order, and finally resulting in using the security or bond to bring the site into compliance. Warren County's requirements for construction site operators to control waste are also laid out in the regulations and include storm water pollution prevention plans, erosion and sediment controls appropriate for the project and site, and control of waste.

A policy was developed in 2009 to prioritize and establish the frequency of site inspections in the future. In addition, a policy for receiving public input will be developed by 2011. Currently, information submitted by the public is informally received by the district's Education Specialist or the Lead Natural Resource Conservationist and is then used to revise and guide runoff control and inspection processes in the future. The policy will formalize this process and will potentially add other means by which the public can submit input to the district. The success of the Construction Site Runoff Control program is evaluated based on the compliance of developers with the regulations and the ability to enforce that compliance using bonds and stop work orders.

Construction Site Runoff Control Measurable Goals

BMP	Strategy	Measurable Goal	Responsible Party
On-going Programs	WCSWCD will maintain the District's program of construction site runoff control.	<u>On-going</u> - Continue to administer the regulations. - Respond to all complaints and track the number of complaints received and responded to. - Review plans for all projects greater than one acre in size. - Inspect all active sites. - Enforce compliance by using performance bonds and stop work orders.	Warren County Soil and Water Conservation District
Regulatory Mechanism	WCSWCD will review county regulations and monitor the state permit for changes.	<u>On-going</u> - If county regulations are not in compliance with Ohio State regulations then we will revise our regulations within two years of the state issuing theirs.	Warren County Soil and Water Conservation District
Policy	WCSWCD will develop and implement policies in accordance with the permit.	<u>On-going</u> - Implement district policy on frequency of inspections. <u>December 2011</u> - Develop and implement a district policy for receiving public input.	Warren County Soil and Water Conservation District

Post-Construction Storm Water Management in New Development/ Redevelopment

The WCEO currently administers Post-Construction Storm Water Management through the existing "Warren County, Ohio Rules and Regulations for the Design of Sewer and Stormwater Management Systems" (Appendix G).

Warren County's Post-Construction Storm Water Management program addresses storm water runoff in new development and redevelopment by requiring storm water retention/detention in accordance with the standards set forth by our regulations. This program is specifically tailored to our community because it addresses residential, commercial, and industrial development projects and uses local rainfall data for its calculations and standards. This program maintains pre-development runoff conditions by requiring that development projects yield the same or lower rates of surface water runoff as before the development occurred. A storm water detention waiver may be granted if it can be demonstrated that the post-development runoff rates and volumes do not exceed those experienced prior to development.

The post-construction BMPs that are approved for use in our county come from the state's approved list and are described throughout the Construction General Permit, Ohio EPA Permit No.: OHC000003. Further specifications are included in the Ohio Department of Natural Resources *Rainwater and Land Development* manual. In addition to structural BMPs the county has two types of nonstructural BMPs. First, riparian setbacks for new development and redevelopment are promoted (but not required) within Warren County's zoning regulations. The setbacks are based upon drainage area to the stream and range from 50 feet to 300 feet. Secondly, Conservation development or clustered development is in the process of being added to the zoning code. This addition will allow developers to pursue conservation development as a standard option rather than having to take the route of a Planned Unit Development which is more cumbersome and time consuming. A minimum of 30 percent open space is required to qualify as conservation development. The goal is to reduce lot size, while remaining density neutral, in order to preserve green space and reduce impervious surface and infrastructure in new developments.

Long term operation and maintenance of post-construction BMPs is being addressed during this permit cycle by requiring the submittal of operation and maintenance plans and associated agreements before a project's bond is released by the WCSWCD. These agreements or plans will be submitted to the WCEO and WCSWCD for their records. These operation and maintenance agreements are in addition to an on-going inspection program that was implemented in 2007. The WCSWCD in cooperation with the WCEO inspects all post-construction storm water BMPs on a biennial basis, or yearly if the BMP is designed to treat storm water quality. The inspection history and location of all BMPs is managed in a GIS database that includes photographs of the BMPs, as-built information, and recommended maintenance comments. Following the inspections letters are generated and sent to property owners for all BMPs that require maintenance.

The success of this program will be evaluated based on the number of properly installed post-construction BMPs, their maintenance, and long term success. In addition, success can be evaluated based on how well the program maintains pre-development surface water runoff and flooding rates after development occurs.

Post Construction Storm Water Management Measurable Goals

BMP	Strategy	Measurable Goal	Responsible Party
On-going Programs	Warren County will continue to implement existing programs that have a positive impact on post-construction water quality and quantity.	<u>On-going</u> - Continue site plan reviews for post-construction storm water runoff and record number of plans reviewed. - Continue post-construction storm water BMP maintenance inspections.	Warren County Engineer's Office and Warren County Soil and Water Conservation District
Regulatory Mechanism	Warren County will update regulations and processes to meet permit requirements.	<u>October 2010</u> - Propose revised Warren County Rules and Regulations for the Design of Storm Sewer and Storm Water Management Systems to the county prosecutor for review. <u>November 2010</u> - Present regulations to the Board of County Commissioners for adoption <u>On-going</u> - Require O&M plans and agreements for applicable sites, one per post-construction BMP.	Warren County Engineer's Office Warren County Soil and Water Conservation District

Pollution Prevention/Good Housekeeping for Municipal Operations

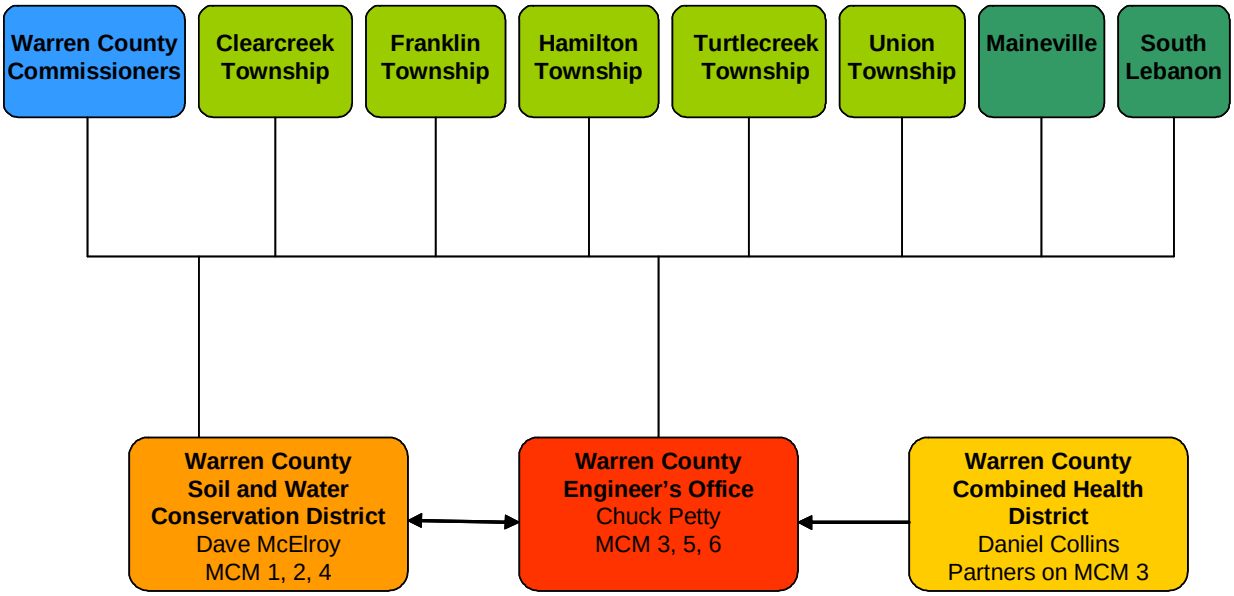
The municipal operations that are most common to Warren County are maintenance departments, garages, and parks. As a result, the training and education will focus on these types of facilities and actions their employees can take to prevent pollution. Training materials and a manual have been created to train Warren County's municipal employees. These materials will be utilized in training sessions or to "train the trainer." The WCSWCD is responsible for the training and education aspect of this program. The Warren County Engineer's Office in collaboration with the WCSWCD will establish and update annually the pollution prevention plans for applicable municipal facilities.

Proper disposal of waste removed from our MS4 has already been established. The record keeping and chemical use reduction aspects of the program are under the direction of the Warren County Engineer's Office. The recent installation of three rain gardens in Warren County at municipal facilities or county buildings exemplify efforts to assess new flood management projects. The sampling and data analysis for these rain gardens will be completed throughout this permit cycle by the WCSWCD. The Pollution Prevention and Good Housekeeping program can be evaluated by employees trained, pollution prevention plans established, BMPs recommended and maintained, and by reductions in chemical usage and application.

Pollution Prevention Measurable Goals

BMP	Strategy	Measurable Goal	Responsible Party
On-going Programs	WCEO will continue to implement Pollution Prevention/Good Housekeeping practices that positively impact municipal employees' storm water education and promote responsible practices.	On-going - Continue to recycle and track oil recycled/recovered. - Reduce road salt usage by 15% during this permit cycle. - Reduce pesticide/herbicide usage by 15% during this permit cycle. - Continue road sweeping program and assess the need to expand the program. - Annually assess facilities and update/create pollution prevention plans for each of the county's municipal facilities.	Warren County Engineer's Office
Municipal Facility Pollution Prevention Plan	WCEO will create pollution prevention plans for each of its municipal facilities.	2009 - Initiated process to conduct walk-throughs, and began pollution prevention plans for county facilities. On-going - Prepare pollution prevention plans for the Highway Department, Maintenance Garage, and the Parks Department.	Warren County Engineer's Office/ Warren County Soil and Water Conservation District
Training	WCSWCD will continue to educate employees using intranet notices, pay stub fliers, DVDs, manuals, websites, or presentations.	Annually - Educate 20% of applicable employees each year following the completion of their SWPPP.	Warren County Soil and Water Conservation District
On-going Maintenance	WCEO maintenance activities are performed on an as-needed basis.	On-going - Record maintenance activities to allow for analysis and future planning of system maintenance.	Warren County Engineer's Office
Flood Management Projects	WCSWCD will use municipal rain gardens to promote and gather information on flood management.	On-going - Gather data on water quality impacts of rain gardens.	Warren County Soil and Water Conservation District

APPENDIX A: TABLE OF ORGANIZATION



MS4 Table of Organization

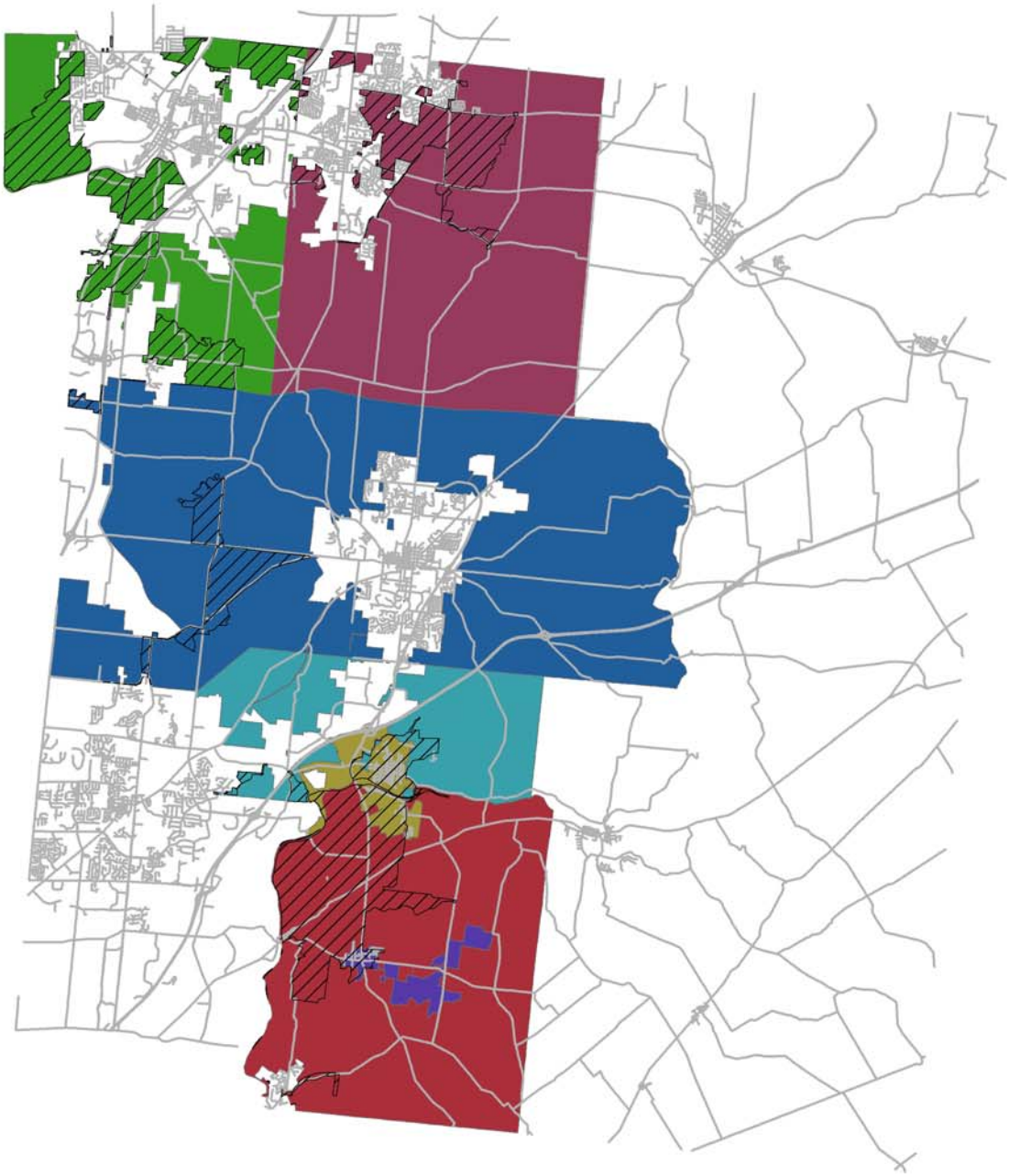
Chuck Petty
Warren County Engineer's Office
513.695.3301

Daniel Collins
Warren County Combined Health District
513.695.1271

Dave McElroy
Warren County Soil and Water Conservation District
513.695.1337

APPENDIX B: MAP OF WARREN COUNTY MS4

Warren County, Ohio MS4 Areas



N

Legend
MS4 Municipalities

- Clearcreek Township
- Franklin Township
- Hamilton Township
- Maineville
- South Lebanon
- Turtlecreek Township
- Union Township

0 1.25 2.5 5 Miles

Legend

- Urbanizing Areas
- Municipal Boundaries
- Roads

APPENDIX C: LIST OF WARREN COUNTY MS4 FACILITIES

MS4 Facilities Potentially Subject to Good Housekeeping Practices

Municipality	Facility	Contact/Agency	Address	City	State	Zip	Parcel ID
Clearcreek Township	Road Maintenance Facility	Dennis Pickett	7593 Bunnell Hill Rd.	Springboro	OH	45066	4012760310
Franklin Township	Maintenance Garage	Rob Rose	418 Fairview Dr.	Franklin	OH	45005	1284770010
Hamilton Township	Testerman Park and Maintenace Facility	Kenny Hickey	8373 Maineville Rd.	Maineville	OH	45039	16032510010
Turtlecreek Township	Fire Department and Administration Building	Chief Steve Flint	670 N. State Route 123	Lebanon	OH	45036	12122000360
Union Township	Road Department	Sharon Lawhorn	Access off Mary Lane	South Lebanon	OH	45065	13323760150
Village of South Lebanon	Maintenance Garage	Village Manager Bob Craig	342 Railroad St.	South Lebanon	OH	45065	12014280030
Village of Maineville	Maintenance and Storage Facility	Village Administrator James Marconet	8188 S. State Route 48	Maineville	OH	45039	16032270010
Warren County	*Armco Park	Larry Easterly- Park District	1223 N. St. Rt. 741	Lebanon	OH	45036	8193000090
Warren County	*Garage	Chief Mechanic Andy Russell	1433 St. Rt. 63	Lebanon	OH	45036	12112000010
Warren County	*Highway Department	Deputy of Operations Jim Apking	105 Markey Rd.	Lebanon	OH	45036	12123000050
Warren County	*Landen-Deerfield Park	Larry Easterly- Park District	2258 W US 22 & 3	Maineville	OH	45039	16152510060

*Working with facility to develop O&M procedures in 2010

APPENDIX D: COPIES OF NOTICES OF INTENT

Notice of Intent (NOI) For Coverage Under Ohio Environmental Protection Agency General Permit

(Read accompanying instructions carefully before completing this form)

Submission of this NOI constitutes notice that the party identified in Section I of this form intends to be authorized to discharge into state surface waters under Ohio EPA's NPDES general permit program. Becoming a permittee obligates a discharger to comply with the terms and conditions of the permit. Complete all required information as indicated by the instructions. Forms transmitted by fax will not be accepted. A check for the proper amount must accompany this form and be made payable to "Treasurer, State of Ohio." (See the fee table in Attachment D of the NOI instructions for the appropriate processing fee)

I. Applicant Information/Mailing Address

Company (Applicant) Name: Board of Warren County Commissioners

Mailing (Applicant) Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact Person: Charles Petty **Phone:** (513) 695-3309 **Fax:** (513) 695-3323

Contact E-Mail Address: charles.petty@co.warren.oh.us

II. Facility/Site Location Information

Facility Name: Warren County MS4

Facility Address/Location:

City: **State:** **Zip Code:**

County(ies): Warren **Township(s):** See attached list

Facility Contact Person: Charles Petty **Phone:** (513) 695-3309 **Fax:** (513) 695-3323

Facility Contact E-Mail Address: charles.petty@co.warren.oh.us

Quarter: **Section(s):** **Range:**

Receiving Stream or MS4: Little Miami River

If aware of a state nature preserve within 1,000 feet of the facility/site, check here: ☐

Enter river code here, if discharge is to a river designated scenic, wild, or recreational, or to a tributary within 1,000 feet (see instructions): S01

General Permit Number: OHQ000002 Small MS4 **Initial Coverage:** ☐ **Renewal Coverage:** ☒

Type of Activity: Small MS4 Fee = $200 ✓

SIC Code(s): - - - -

Existing NPDES Permit Number:

ODNR Coal Mining Application Number:

Outfall	Design Flow (MGD)	Latitude	Longitude
	9/10		

1 780-590-3090

For Ohio EPA Use Only

Check ID (OFA):

Person:

Place:

DOC #:

ORG #:

Rev. ID #:

Other DSW Permits Required:

Proposed Project Start Date (MO DY YR): **Estimated Completion Date: (MO DY YR):**

Total Land Disturbance (Acres): **MS4 Drainage Area (Square Miles):** 5.03

Payment Information: **Check #** **Check Amount:** $200 **Date of Check:**

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 gather and evaluate 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.

Applicant Name: DAVE GULLY **Title:** ADMINISTRATOR

Applicant Signature: **Date:** APRIL 16, 2009

EPA 4494 (Rev. 1/09)

FOR CONSTRUCTION STORM WATER, ATTACH LOCATION MAP

Click to clear all entered information CLEAR

Co-Permittee Notice of Intent for Coverage Under Ohio EPA Small MS4 General Permit

Submission of this NOI constitutes notice that the party identified in Section I of this form intends to be authorized by Ohio EPA's NPDES Small MS4 general permit. Becoming a permittee obligates a discharger to comply with the terms and conditions of the permit. NOTE: All necessary information must be provided on this form. Read the accompanying instructions carefully before completing the form. Do not use correction fluid on this form. Forms transmitted by fax will not be accepted. There is no fee associated with submitting this form.

I. Applicant Information/Mailing Address

MS4 (Applicant) Name: Clearcreek Township, Warren County, Ohio

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

General Permit Number: OHQ000002 **Initial Coverage:** ☐ **Renewal Coverage:** ☒

Existing Ohio EPA Facility Permit Number Requesting Coverage Under: 1 GQ 0 0 0 5 9 * A G

II. Initial MS4 Co-Permittee Information

Initial MS4 Co-Permittee Name: Board of Warren County Commissioners

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

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 gather and evaluate 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.

Applicant Name (typed): Dennis Pickett **Title:** Township Administrator

Signature: [signature] **Date:** 04-09-09

MS4 Co-Permittee Form (12/08)

Click to clear all entered information CLEAR

Co-Permittee Notice of Intent for Coverage Under Ohio EPA Small MS4 General Permit

Submission of this NOI constitutes notice that the party identified in Section I of this form intends to be authorized by Ohio EPA's NPDES Small MS4 general permit. Becoming a permittee obligates a discharger to comply with the terms and conditions of the permit. NOTE: All necessary information must be provided on this form. Read the accompanying instructions carefully before completing the form. Do not use correction fluid on this form. Forms transmitted by fax will not be accepted. There is no fee associated with submitting this form.

I. Applicant Information/Mailing Address

MS4 (Applicant) Name: Franklin Township, Warren County, Ohio

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

General Permit Number: OHQ000002 **Initial Coverage:** ☐ **Renewal Coverage:** ☒

Existing Ohio EPA Facility Permit Number Requesting Coverage Under: 1 GQ 0 0 0 5 9 * A G

II. Initial MS4 Co-Permittee Information

Initial MS4 Co-Permittee Name: Board of Warren County Commissioners

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

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Applicant Name (typed): Elma Rose **Title:** Trustee, Franklin Township

Signature: Elma Rose **Date:** 4-22-2009

Click to clear all entered information CLEAR

Co-Permittee Notice of Intent for Coverage Under Ohio EPA Small MS4 General Permit

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I. Applicant Information/Mailing Address

MS4 (Applicant) Name: Hamilton Township, Warren County, Ohio

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

General Permit Number: OHQ000002 **Initial Coverage:** ☐ **Renewal Coverage:** ☒

Existing Ohio EPA Facility Permit Number Requesting Coverage Under: 1 GQ 0 0 0 5 9 * A G

II. Initial MS4 Co-Permittee Information

Initial MS4 Co-Permittee Name: Board of Warren County Commissioners

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

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Applicant Name (typed): BECKY Ehling **Title:** 4-15-09

Signature: Becky Ehling - Board President **Date:** 4-15-09

Click to clear all entered information CLEAR

Co-Permittee Notice of Intent for Coverage Under Ohio EPA Small MS4 General Permit

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I. Applicant Information/Mailing Address

MS4 (Applicant) Name: Turtlecreek Township, Warren County, Ohio

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

General Permit Number: OHQ000002 **Initial Coverage:** ☐ **Renewal Coverage:** ☒

Existing Ohio EPA Facility Permit Number Requesting Coverage Under: 1 GQ 0 0 0 5 9 * A G

II. Initial MS4 Co-Permittee Information

Initial MS4 Co-Permittee Name: Board of Warren County Commissioners

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

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Applicant Name (typed): Daniel F. Jones **Title:** Board President

Signature: Daniel F. Jones **Date:** 5/11/09

MS4 Co-Permittee Form (12/08)

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Co-Permittee Notice of Intent for Coverage Under Ohio EPA Small MS4 General Permit

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I. Applicant Information/Mailing Address

MS4 (Applicant) Name: Union Township, Warren County, Ohio

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

General Permit Number: OHQ000002 **Initial Coverage:** ☐ **Renewal Coverage:** ☒

Existing Ohio EPA Facility Permit Number Requesting Coverage Under: 1 GQ 0 0 0 5 9 * A G

II. Initial MS4 Co-Permittee Information

Initial MS4 Co-Permittee Name: Board of Warren County Commissioners

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

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 gather and evaluate 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.

Applicant Name (typed): Union Township, Warren County, Ohio **Title:** President of the Board

Signature: [signature] **Date:** 4/6/09

MS4 Co-Permittee Form (12/08)

Click to clear all entered information CLEAR

Co-Permittee Notice of Intent for Coverage Under Ohio EPA Small MS4 General Permit

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I. Applicant Information/Mailing Address

MS4 (Applicant) Name: Village of Maineville, Warren County, Ohio

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

General Permit Number: OHQ000002 **Initial Coverage:** ☐ **Renewal Coverage:** ☒

Existing Ohio EPA Facility Permit Number Requesting Coverage Under: 1 GQ 0 0 0 5 9 * A G

II. Initial MS4 Co-Permittee Information

Initial MS4 Co-Permittee Name: Board of Warren County Commissioners

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

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 gather and evaluate 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.

Applicant Name (typed): JAMES MARCONET **Title:** ADMINISTRATOR

Signature: James Marconet **Date:** 4-27-2009

MS4 Co-Permittee Form (12/08)

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Co-Permittee Notice of Intent for Coverage Under Ohio EPA Small MS4 General Permit

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I. Applicant Information/Mailing Address

MS4 (Applicant) Name: Village of South Lebanon, Warren County, Ohio

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

General Permit Number: OHQ000002 **Initial Coverage:** ☐ **Renewal Coverage:** ☒

Existing Ohio EPA Facility Permit Number Requesting Coverage Under: 1 GQ 0 0 0 5 9 * A G

II. Initial MS4 Co-Permittee Information

Initial MS4 Co-Permittee Name: Board of Warren County Commissioners

MS4 Contact Person: Charles E. Petty, P.E.

Phone: (513) 695 3309 **Fax:** (513) 695 3323

Mailing Address: 406 Justice Drive

City: Lebanon **State:** Ohio **Zip Code:** 45036

Contact E-Mail Address: charles.petty@co.warren.oh.us

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 gather and evaluate 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.

Applicant Name (typed): James D. Smith **Title:** Mayor

Signature: James D Smith 5/7/09 **Date:** May 7, 2009

Click to clear all entered information CLEAR

APPENDIX E: WARREN COUNTY HEALTH DISTRICT SEWAGE TREATMENT SYSTEM REGULATIONS

WARREN COUNTY COMBINED HEALTH DISTRICT
SEWAGE TREATMENT SYSTEMS REGULATIONS

A REGULATION OF THE BOARD OF HEALTH OF THE WARREN COUNTY COMBINED HEALTH DISTRICT PROVIDING FOR THE BONDING AND REGISTERING OF SEWAGE TREATMENT SYSTEM INSTALLERS, SERVICE PROVIDERS, AND SEPTAGE HAULERS; FOR THE REGISTERING OF SOIL SCIENTISTS AND SEWAGE TREATMENT SYSTEM DESIGNERS; FOR THE ISSUANCE OF PERMITS TO INSTALL SEWAGE TREATMENT SYSTEMS; THE ESTABLISHMENT OF STANDARDS REGARDING THE SEPARATION DISTANCE FROM A WATER TABLE AND FOR SOIL ABSORPTION REQUIREMENTS; PROVIDING FOR LOT APPROVAL FOR SEWAGE TREATMENT SYSTEM DEVELOPMENT; PROVIDING FOR THE INSPECTION AND APPROVAL OF HOUSEHOLD SEWAGE TREATMENT SYSTEMS; FOR THE APPROVAL AND INSPECTION OF SMALL FLOW ON-SITE SEWAGE TREATMENT SYSTEMS; AND FOR THE INVESTIGATION AND ABATEMENT OF ANY PUBLIC HEALTH NUISANCE CREATED BY A SEWAGE TREATMENT SYSTEM. THE OPERATION AND MAINTENANCE OF EITHER HOUSEHOLD SEWAGE TREATMENT SYSTEMS OR SMALL FLOW ON-SITE SEWAGE TREATMENT SYSTEMS WILL CONTINUE TO BE ADDRESSED BY THE SEWAGE TREATMENT SYSTEMS OPERATION AND MANGEMENT REGULATION OF THE WARREN COUNTY BOARD OF HEALTH.

WHEREAS, upon notification by the State of Ohio that Chapter 3718 of the Ohio Revised code has been rescinded (excluding Sections 3718.01 and a modified version of Section 3718.03) by Am. Sub. H.B. 119 and that a slightly modified 1977 version of Chapter 3701-29 had been placed back in effect on July 2, and ;

WHEREAS, Am. Sub. H.B. 119 directs the Warren County Board of Health to adopt a local regulation specific to the depth to seasonal water and soil absorption requirements, and is authorized to adopt other more-stringent regulations than the modified version of the 1977 Household Sewage Disposal System Rules (Statewide Interim Sewage Rules) as is felt necessary by the Board to protect the health and welfare of its citizens and to maintain continuity with the Sewage Treatment System Program. It is this Boards intent to keep in mind the economic impact of those more stringent standards on property owners, the state of available technology, and the nature and economics of the available alternatives as directed by H.B. 119. In accordance with Am. Sub. H.B. 119, Chapter 3709-21 of the Ohio Revised Code and in compliance with Sections 319.281 and 3709.91 of the Ohio Revised Code,

BE IT THEREFORE RESOLVED as an emergency measure by the Warren County Board of Health of the Warren County Combined Health District as follows:

Section 1. **Chapter 3701-29 of the Ohio Administrative Code (Statewide Interim Sewage Rules)**

Provisions of the Household Sewage Disposal Rules OAC Chapter 3701-29 as adopted by the Director, Ohio Department of Health on July 2, 2007 and to be formalized by the Public Health Council on July 25, 2007 relating to definitions, sewage disposal requirements, subdivisions, installation and operation permits, registration of installers, registration of septic tank cleaners, septic tanks, installation requirements for soil absorption and percolation, leaching tile fields, curtain drains, privy, building sewer, inspections, sewage disposal system abandonment, administrative hearing, variance requirements, and small flow on-site sewage treatment systems in the Warren County Combined Health District unless otherwise revised as more stringent in this regulation.

Section 2. **Fees to be Established by Resolution**

All fees stipulated as required by this regulation shall be established by resolution by the Warren County Board of Health.

2.1 Sewage Treatment System Installation and Alteration Permits shall be considered to be valid for a period of twelve (12) months from their date of issuance. It shall be necessary for a new installation or alteration permit to be obtained to complete any work unfinished on the original installation or alteration permit.

2.2 The sewage treatment system installation or alteration permit shall be posted on the job site in a conspicuous location.

Section 3. **Definitions**

3.1 **"Alteration"** means to change by making substantive replacements of, additions to, or deletions in the design, materials, or location of an existing sewage treatment system. An alteration does not include the replacement of an existing sewage treatment system or the repair of a sewage treatment system by making minor corrections to existing components or substituting parts of a component with like parts as would occur during the servicing and maintenance of a sewage treatment system.

3.2 **"Alternative Technology Sewage Systems"** previously referred to as Experimental Sewage Systems, shall mean any sewage treatment system other than a septic tank-leaching tile field soil absorption sewage treatment system that has been approved for use by ODH and/or the Technical Advisory Committee (TAC).

3.3 **"Bedrock"** means rock that underlies the soil or is exposed at the surface that shall be considered a limiting condition of bedrock if the soil consists of rock fragments of greater than 50% by volume.

3.4 **"Bedroom"** means any room within a dwelling that might reasonably be used as a sleeping room including but not limited to rooms designated as a den, office, study, sewing room, computer room, workout room, etc.

3.5 **"Domestic Septage"** means the liquid or solid material removed from a sewage treatment system, septic tank, portable toilet, or type III marine sanitation device. Domestic septage does not include grease removed from a grease trap.

3.6 **"Gray water"** means sewage that does not include flows from toilets and urinals and in some cases also does not include flows from kitchen sinks carrying food wastes.

3.7 **"Ground water"** means all water occurring in an aquifer or as occurs in a normal water table.

3.8 **"Hardscape"** means any constructed surface area on the landscape of a site, including but not limited to driveways, parking areas, patio, building slab, or

other similar surface areas.

3.9 **"Household Sewage Treatment System (HSTS)"**, previously referred to as a Household Sewage Disposal System, means any sewage treatment system, or part of such a system, that receives sewage from a single-family, two-family, or three-family dwellings or appurtenances including but not limited to an ancillary restroom associated with a dwelling in a location such as a barn, garage, workshop, etc. provided that the restroom is only used by the same users as the dwelling.

3.10 **"Limiting Condition"** means a restrictive soil layer, bedrock, a seasonally high perched water table or a normal ground water table.

3.11 **"Restrictive Soil Layer"** means a compacted or dense soil layer such as a fragipan, a soil layer with a brittle and firm or very firm consistence, or a soil layer having a massive structure or having a platy structure inherited from bedrock.

3.12 **"Septage Hauler"**, previously referred to as a Sewage Tank Cleaner, shall mean any person who is bonded and registered to engage in the collection, transportation, disposal, and land application of domestic septage in the Warren County Combined Health District.

3.13 **"Service Provider"** means any person who is bonded and registered to service, but not install or alter, a sewage treatment system in the Warren County Combined Health District.

3.14 **"Sewage Treatment System (STS)"** means a Household Sewage Treatment System (HSTS), a Small Flow On-Site Sewage Treatment System (SFOSTS), or both, as applicable.

3.15 **"Sewage Treatment System Designer"** means any person who is registered with the Warren County Combined Health District and who has certified he is competent to design small flow on-site sewage treatment systems and alternative sewage treatment systems for use in the Warren County Combined Health District.

3.16 **"Sewage Treatment System Installer"** means any person who is bonded and registered to design septic tank/leaching field sewage systems and to install any sewage treatment system, including alternative technology sewage treatment systems, in the Warren County Combined Health District.

3.17 **"Small Flow On-Site Sewage Treatment System (SFOSTS)"** means a system, other than a household sewage treatment system, that treats not more than one-thousand (1000) gallons of sewage per day and that does not require a national pollutant discharge elimination system permit issued under section 6111.03 of the Ohio Revised code or an injection well drilling or operating permit issued under section 6111.043 of the Ohio Revised Code.

3.18 **"Soil Scientist"** means any person who is registered with the Warren County Combined Health District and who has certified he is competent to conduct Soil Surveys relative to sewage treatment system development in the Warren County Combined Health District.

Section 4. Bonds and Registrations

4.1 Any person desiring to engage in the business of installing sewage treatment systems or parts thereof within the Warren County Combined Health District shall post a surety bond with the Board of Health of the Warren County Combined Health District in the sum established by the Warren County Board of Health for the faithful performance of all work performed within said district. Such bond shall be executed on a form provided by the Health Commissioner and shall accompany each application for registration as a sewage treatment system installer. The registration fee and bond amount shall be established by the Warren County Board of Health by resolution and shall be active from January 1 to December 31 of each year.

4.2 Any person desiring to engage in the servicing and maintenance of sewage treatment systems or parts thereof within the Warren County Combined Health District shall post a surety bond with the Board of Health of the Warren County Combined Health District in the sum established by the Warren County Board of Health for the faithful performance of all work performed with said district. Such bond shall be executed on a form provided by the Health Commissioner and shall accompany each application for registration as a sewage treatment system service provider. The registration fee and bond amount shall be established by the Warren County Board of Health by resolution and shall be active from January 1 to December 31 of each year.

4.3 Any person desiring to engage in the cleaning of septic tanks and the hauling of septage within the Warren County Combined Health District shall post a surety bond with the Board of Health of the Warren County Combined Health District in the sum established by the Warren County Board of Health for the faithful performance of all work performed within said district. Such bond shall be executed on a form provided by the Health Commissioner and shall accompany each application for registration as a septage hauler. The registration fee and bond amount shall be established by the Warren County Board of Health by resolution and shall be active from January 1 to December 31 of each year.

4.4 Any person desiring to conduct soil surveys as a Soil Scientist within the Warren County Combined Health District shall submit documentation on his educational background in Pedology along with any professional accreditation or certificates he has in Pedology. Any person desiring to become registered as a Soil Scientist within the Warren County Combined Health District shall sign a registration form attesting that he is capable of conducting a soil survey in accordance with the sewage treatment system regulations within the Warren County Combined Health District. The registration fee shall be established by the Warren County Board of Health by resolution and shall be active from January 1 to December 31 of each year.

4.5 Any person desiring to design small flow on-site sewage treatment systems or alternative technology sewage treatment systems within the Warren County Combined Health District shall submit documentation on his educational background in designing sewage treatment systems along with any

professional accreditation or certificates he may have in relevant fields. Any person desiring to become registered as a Sewage Treatment System Designer within the Warren County Combined Health District shall sign a registration form attesting that he is capable of designing a small flow on-site sewage treatment system and/or an alternative technology sewage treatment system in accordance with the sewage treatment system regulation within the Warren County Combined Health District. The registration fee shall be established by the Warren County Board of Health by resolution and shall be active from January 1 to December 31 each year.

4.6 Any homeowner desiring to install their own sewage treatment system shall post a homeowner's bond with the Warren County Combined Health District in the sum established by the Warren County Board of Health. The homeowner's bond is refundable when final approval of the sewage treatment system is given by the Warren County Combined Health District and shall be valid for a period of two (2) years from the date of issuance of the permit to install the sewage treatment system. If final approval is not secured within that time period, the bond fee shall be forfeit and shall revert to the Warren County Combined Health District.

4.7 Any sewage treatment system installer, service provider, septage hauler, soil scientist, or designer who is registered with the Warren County Combined Health District, who is found to not be completing his work in accordance with the Sewage Treatment System Regulations shall be subject to having his registration suspended or revoked by the Warren County Board of Health. A written procedure shall be established and approved by the Health Commissioner for addressing any administrative appeals for any registrant who is advised of his failure to comply with said rules allowing sufficient time for the registrant to correct the problems before the matter would be brought to the Board of Health for final action. A similar written procedure shall be established and approved by the Health Commissioner for the fair investigation of any bond claims filed by property owners against any person bonded by the Warren County Combined Health District for failure to perform their work in an acceptable manner.

Section 5. Separation Distance from a Water Table

5.1 Soil absorption systems shall not be permitted where the depth to normal ground water table is less than four (4) feet below the bottom of the proposed soil absorption system.

5.2 Soil absorption systems shall not be permitted where the depth to a seasonally high perched water table is less than zero (0) inches below the bottom of the proposed soil absorption system.

Section 6. Site and Soil Evaluations

6.1 A registered soil scientist shall conduct a site and soil evaluation of any proposed lot for development with a sewage treatment system. That site and soil evaluation shall document the following:

A.) Designation of the described soil boring and/or excavation locations on a scaled site drawing that shall include the following:

(1) The dimensions and acreage of the lot or proposed lot.
(2) Any existing dwellings and/or structures and any proposed dwellings and/or structures.
(3) Any site disturbances, existing or proposed driveways and any other existing or proposed hardscape.
(4) Location of all private water systems and surface water features on the lot and within fifty (50) feet of the lot boundary, or within fifty (50) feet of any other sewage treatment system on an adjacent lot or property.
(5) A North Orientation Arrow.

B.) Record of site and soil characteristics for each soil boring and/or excavation location using USDA NRCS nomenclature on a form provided by the Warren County Combined Health District, including but not limited to the following:
(1) Site descriptions: landscape position, slope, vegetation, drainage features, rock outcrops, erosion, and any other natural features.
(2) Detailed soil profile descriptions to a depth of six (6) feet to include: color, texture, structure, consistence, the depth of each soil horizon or layer, and the characterization of all limiting conditions.
(3) Documentation of any relevant surface hydrology, geologic, and hydrogeologic risk factors for the specific site or in the surrounding area that may indicate vulnerability for surface water and ground water contamination.

C.) Drawings and dimensions on the site plan or site drawing of at least two locations on the site that have been evaluated and determined to have the capacity for the treatment and/or dispersal of sewage from the proposed dwelling, business, church, or structures including adequate length parallel to the land contour to accommodate the soil and site conditions required for a proposed sewage treatment system utilizing leaching lines using the soil absorption requirements as indicated in this regulation for household sewage treatment systems and utilizing "Tyler's Table" for all other absorption systems (See Appendix).

D.) Identification on the site plan or site drawing of the area for which each soil profile description is representative and designation of any areas with conditions that would prohibit or impact the siting of a sewage treatment system in accordance with these rules.

6.2 Upon receipt of the lot evaluation application and the site and soil evaluation conducted by a registered soil scientist, the Warren County Combined Health District shall conduct a site review of the lot or proposed lot to determine the validity and completeness of the information submitted by the registered soil scientist. The Warren County Combined Health District will then determine the feasibility of siting a sewage treatment system in compliance with these rules. The proposed area for both the required initial sewage treatment system as well as the required replacement area will be designated along with minimum sewage treatment system specifications.

Section 7. Soil Absorption Field Requirements

7.1 Soil absorption fields utilizing gravity-fed leaching lines shall be sized in accordance with Table 1 and the Soil Interpretation Guide for Leaching Systems in Warren County, Ohio, found in the appendix of this regulation. Generally speaking, the following sizing mechanism shall be used when sizing leaching fields per bedroom of the proposed one, two, or three family dwelling:

Soil Limitation	# of Bedrooms	Total Lineal Ft. of Trench (min.)
Slight	2 (min.)	200 ft. /bedroom
Moderate	2 (min.)	300 ft. /bedroom
Severe	2 (min.)	400 ft. /bedroom

7.2 All small flow on-site sewage treatment systems and all alternative technology systems shall be sized based on the linear loading rates specified by the "Tyler's Table" in the appendix of this regulation taken from the document Designing with Soil: Development and Use of Wastewater Hydraulic Linear and Infiltration Loading Rate Table. E. Jerry Tyler and Laura Kramer Kuns, 2000 Conference Proceedings, NOWRA, Grand Rapids, MI or any specific loading rates established by either ODH or the Technical Advisory Committee (TAC) in the approval of alternative technology sewage treatment systems.

Section 8. Layout Plans, Design Plans, and As-Built Records

8.1 A registered sewage treatment system installer shall submit a layout plan for any proposed septic tank/leaching lines sewage treatment system with the installation permit application. The layout plan shall include the following:

A.) A site plan drawn to scale on eight and a half by eleven inch paper showing the septic tank/leaching line system layout elevations corresponding to flagged or staked locations at the site. The system will be laid out within the specified area indicted as suitable by the soil scientist and subsequently approved by this office. The designated sewage treatment system area(s) shall be protected from disturbances. The site plan shall also indicate horizontal isolation distances and include the designated area for complete relocation and replacement of the household sewage treatment system.

B.) The layout plan shall clearly indicate the sewage treatment system configuration with absorption area dimensions and shall include information on the size and manufacturer of any proposed tank, distribution component materials, and diversion devices.

8.2 Prior to the issuance of any installation permit, the Warren County Combined Health District shall conduct an on-site layout plan evaluation to determine that the proposed septic tank/leaching line system is in the area previously approved for the installation during the soil survey process, that the proposed layout is on contour and not in violation of any horizontal isolation distances on either this lot or a neighboring lot. It shall be the joint responsibility of the owner and builder to have the property lines clearly delineated during this layout evaluation. If it is determined at a later date that there is a violation of

the separation requirements from the sewage treatment system or if any part of the system is installed on another property due to the property line not being properly identified, it shall be the joint responsibility of the owner and builder to bring the system into compliance with the code. Once the layout plan is deemed acceptable for the site, the installation permit shall be issued and it shall be valid for one year from the date of issuance.

8.3 A registered sewage treatment system designer shall submit a design plan for any small flow on-site sewage treatment system or any alternative technology sewage treatment system prior to consideration of any installation permit application for the site. The design plan shall be legible, readable, and of sufficient detail to demonstrate compliance with these rules. The design plan shall include the following:

A.) Documentation of the rationale for design decisions used to address site and soil limitations including justification for selected loading rates.

B.) Description of the dwelling, business, church, and/or structures to be served by the sewage treatment system with a designated daily design flow including any anticipated variations. The sewage treatment system shall be designed to handle peak daily design flows or the design shall include flow equalization with designated reserve and surge capacity and timed dosing.

C.) Plan notes designating that the sewage treatment system area shall be protected from disturbance, and additional plan notes as needed to explain any siting, installation, or operating and maintenance requirements or restrictions, including any preconstruction meetings at the site, conditions on the selection of any installer, sewage treatment system start-up procedures or other designer designated conditions including any requirement for a service contract for continued operation and maintenance by a service provider.

D.) A site plan, drawn to scale, sufficient to demonstrate compliance with these rules including, but not limited to, the following:

(1) North directional arrow.

(2) Identified vertical and horizontal reference point or benchmark with its location clearly marked at the site.

(3) Outline of existing and proposed structures, driveways, and other hardscapes, and other related items on the property.

(4) Location of sewage treatment system components and a replacement area.

(5) The dimensions of the property with horizontal isolation distances to the sewage treatment system and replacement area as required by these rules, including but not limited to private water systems and surface water features within fifty feet of the proposed sewage treatment system on this property and any adjacent property.

(6) Topography of the areas of the dwelling and/or structures to be served and the proposed sewage treatment system and the designated replacement area, including an indication of drainage features in these and surrounding areas.

(7) Designation of any easements, disturbed areas, or wooded areas

within fifty feet of the proposed sewage treatment system and replacement area including any other characteristics or obstructions that may effect the installation or operation of the sewage treatment system.

(8) Means of access for operating and maintenance equipment to service the sewage treatment system.

(9) Enlarged plan view drawings of the sewage treatment system components if the site plan scale does not allow for sufficient detail.

(10) Profile drawing showing elevations relative to surface grade sufficient to demonstrate compliance with this chapter including the invert elevations necessary to assess the hydraulic profile of the sewage treatment system components.

(11) Plan and section views for the sewage treatment system components and/or attachments of component and material specification information.

(12) Installation and Operating & Maintenance instructions.

(13) Plan notes requiring that the registered sewage treatment system installer consult with the designer regarding any intended changes to the plan and requiring installer/designer coordination on the provision of any accurate as-built record. The Warren County Combined Health District must approve any proposed change to the design plan before the work is completed.

8.4 Prior to the issuance of any installation permit, the Warren County Combined Health District shall conduct an on-site design plan evaluation to determine that the proposed alternative technology sewage treatment system is in the area previously approved for the installation during the soil survey process, that the proposed sewage treatment system is designed for the contour and topography of the site, and distances as specified in this rule. Once the proposed design is approved, the installation permit may be applied for and issued and it shall be valid for one (1) year from the date of issuance.

8.5 An as-built record shall be required to be completed by the registered sewage treatment system installer immediately upon completion of the sewage treatment system installation and shall be available for the inspector at the time of the requested construction inspection. The as-built record shall include the following:

A.) A legible record on an eight and a half inch by eleven inch page with copies provided to both the homeowner and to the Warren County Combined Health District for inclusion in the permit file. Use of a layout plan or design plan documents or as-built template forms may be acceptable.

B.) A designated vertical and horizontal reference point or benchmark with its location marked at the site.

C.) Plan view drawing with elevations for installed sewage treatment system components per the layout plan or design plan.

D.) Profile drawings with pipe and component elevations to confirm depths for hydraulic flow, freeze protection, and other related installation

functions.

E.) Any additional information for components and materials that may be required by the Warren County Combined Health District including but not limited to manufacturer or supplier provisions of component installation or operating and maintenance instructions and verification of compliance with any start-up procedures or aggregate specifications.

F.) The as-built record shall include a statement by the registered sewage treatment system installer, and the designer if applicable, indicating that the sewage treatment system was installed in accordance with all applicable rules and plan specifications.

8.6 A registered sewage treatment system installer shall not delay in completing the installation of the sewage treatment system nor the as-built record prior to contacting the Warren County Combined Health District for the construction inspection, such that any delay could result in damage to the sewage treatment system components that could affect the sewage treatment system operational performance.

Section 9. Septage Haulers and Septage Management

9.1 In addition to compliance with the registration and bonding requirements cited in this regulation, a septage hauler shall comply with the following requirements:

A.) Obtain a permit from the Warren County Combined Health District for each vehicle used to haul septage, report tank capacity for each vehicle, and allow each vehicle and its equipment to be inspected if required by the Warren County Combined Health District.

B.) Manage the pumping, hauling, disposal and land application of septage in compliance with all applicable rules and regulations, and provide information to the Warren County Combined Health District on the locations and methods of septage disposal and, as applicable, land application.

C.) Provide to the owner a report of the services conducted including the date of service and comply with any additional requirements established by the Warren County Combined Health District.

D.) Any vehicle and equipment used for septage hauling shall comply with the following:
   (1) The company name and phone number is legibly written on the vehicle in words and numbers no less than four (4) inches in height.
   (2) All septage hauling equipment is maintained in proper operating condition and managed in a manner that prevents leakage or spills while in operation, transit, or storage.

E.) Violation of these provisions as determined ultimately by the Warren County Board of Health may be cause for suspension or revocation of a

vehicle permit.

Section 10 Construction Standards for Leaching Tile Field Sewage Treatment Systems

10.1 The minimum width of any leaching trench shall be twelve (12) inches.

10.2 The minimum distance between any leaching line and any drain line, including curtain drains, located on the lot shall be ten (10) feet.

10.3 All other leaching tile field construction standards as cited in Section 3701-29-11 of the Ohio Administrative Code (Statewide Interim Sewage Rules) and any new standards approved by the Ohio Department of Health and/or the Technical Advisory Committee (TAC) shall apply.

10.4 The installation of 8-inch gravel-less leaching field tubing within the Warren County Combined Health District shall be completed in accordance with both these rules and the manufacturer's guidelines for the installation of their product.

10.5 Earthen dams used in leaching trenches shall consist of undisturbed or tightly compacted soil. Elevation of dams must be adequate to allow wastewater to build up to within two (2) inches but not more than four (4) inches of the top of the tile in the preceding leach line and then overflow to the next leach line. The use of earthen dams shall occur at the end of each leaching lateral before the line drops in elevation to the next lateral, so as to comply with specified minimum and maximum depth requirements. Dams installed in the length of the leaching lateral in an attempt to compensate for the line not having been installed on contour are unacceptable. The length of the dam shall not count towards the required lineal footage of leaching lines.

10.6 Leaching trenches in excess of one hundred (100) feet in length shall not exceed a maximum of six (6) inches of fall in its entire length.

10.7 Any mechanical device used in a sewage treatment system shall be equipped, at a minimum, with an alarm device with both visible and audible functions to indicate a malfunction. Alarms and control devices shall be on a separate, frequently used circuit, from the dedicated circuits for the mechanical device they are monitoring or controlling. Alarms and control panels shall be mounted in an easily accessible exterior location and shall include written instructions related to standard operation and alarm events that shall be provided to the homeowner.

10.8 Leaching trenches and any other effluent dispersal component shall be installed on contour and shall not be installed on slopes in excess of fifteen (15%) per cent unless that component has been approved to be installed on a steeper slope by either the Ohio Department of Health or the Technical Advisory Committee (TAC).

10.9 All components of a sewage treatment system shall be installed at a sufficient depth to prevent damage to components or operational failures due to freezing temperatures.

10.10 Schedule 40 PVC, 4-inch pipe shall be utilized between the dwelling, business, church, or other structure and the septic tank (building sewer) and between the septic tank and the diversion device. The minimum rate of fall in the building sewer shall be one-quarter (1/4) inch of fall per foot. There shall be measurable fall from the tank to the diversion box and from the diversion box to the leaching tile field.

10.11 The 4-inch pipe between the diversion box and each half of the soil absorption field shall be a minimum of five (5) feet in length and shall be watertight, with no gravel placement to prevent a cross-connection between the two halves of the soil absorption field. The pipe shall be sealed to the diversion box in a manner acceptable to the Warren County Combined Health District.

10.12 Cleanouts shall be required in a building sewer at any turn in the pipe greater than forty-five (45) degrees and at the point a building sewer pipe exceeds one hundred (100) feet in length and at every one hundred (100) foot interval thereafter.

10.13 Casing or some other form of protection acceptable to the Warren County Combined Health District shall be provided for any portion of a sewage treatment system that passes under a driveway or other hardscape to prevent damage to the system and to provide for maintenance.

10.14 The installation of any downspout drain, lawn irrigation system, utility line, etc. within ten (10) feet of the soil absorption system is prohibited.

Section 11. Curtain Drain Requirements

11.1 An animal guard shall be provided on the discharge outlet of all curtain drains to prevent the entrance of animals into the curtain drain. The animal guard shall be secured in a manner acceptable to the Warren County Combined Health District.

11.2 The curtain (interceptor) drain shall be installed at least ten (10) feet, but no more than fifteen (15) feet from the soil absorption field for maximum effectiveness.

Section 12. Septic Tank Requirements

12.1 All septic tanks and any other tank being utilized as a component of a sewage treatment system shall be water-tight. All tanks shall be tested for water-tightness on the job-site utilizing a procedure to be approved by the Health Commissioner unless an alternative method of certifying water-tightness is approved by the Ohio Department of Health or the Technical Advisory Committee (TAC).

Section 13. Sewage Holding Tank

13.1 The installation and use of sewage holding tanks shall not be permitted where the installation of a sewage treatment system is acceptable or where public sanitary sewer is available.

13.2 The installation of a sewage holding tank shall only be installed where public

sanitary sewer is certain to be accessible in the near future. This means having on file a letter from either the County or City Sanitary Engineer outlining the construction time-table of the proposed sewer.

13.3 Sewage holding tanks shall comply with the following design requirements:

A.) The minimum capacity of sewage holding tanks shall be two-thousand (2000) gallons. The total capacity may be divided between two tanks or compartments.

B.) Tanks shall be installed with a minimum of one secured overlapping cover extended to grade to provide access to each compartment of the tank for cleaning purposes. The cover shall have a minimum inside diameter of ten (10) inches.

C.) Tanks shall be located only where the tank and surrounding area can be maintained in a sanitary condition and so located that it is easily accessible for cleaning.

D.) Tanks shall be water-tight and installed level to insure equal distribution of the load upon the tank. The tank shall be adequately supported and bedded in sand or anchored to prevent floatation.

E.) Tanks shall be installed below the frost line, insulated, or otherwise protected in a manner acceptable to the Warren County Combined Health District.

13.4 All sewage shall be discharged into the sewage holding tank unless otherwise authorized by the Warren County Combined Health District.

13.5 A plan of maintenance shall be filed with the Warren County Combined Health District which specifies the holding tank pumping/cleaning schedule on a one (1) year minimum binding contract with a bonded and registered septage hauler.

13.6 Within ninety (90) days after a public sanitary sewer is made available to the property, connection to the public sanitary sewer must be made and the holding tank abandoned. Abandonment means pumping out the contents of the sewage holding tank, crushing the top of the tank, pulling in one wall and end or one corner of the tank, then backfilling with gravel or some other inert fill material.

13.7 In the case of an existing dwelling, when no other means of sewage disposal is available, the Health Commissioner of the Warren County Combined Health District may authorize the installation of a sewage holding tank. The installation shall meet all other applicable requirements of Section 13 of this regulation.

Section 14. General Prohibitions

14.1 Privy Vaults or "Outhouses" shall not be permitted within the Warren County Combined Health District for one, two, or three family dwellings as the use of a privy or "outhouse" for household waste disposal constitutes a violation of

the Warren County Combined Health District Housing and Premise Maintenance Regulation.

14.2 Home builders and contractors shall provide an acceptable means of sewage disposal within five-hundred (500) feet of any construction site and shall direct their employees and any subcontractors to utilize these toilet facilities. Temporary or portable toilet facilities must be acceptable to the Warren County Combined Health District and be maintained in a sanitary manner.

Section 15. Abandoned Household Sewage Disposal System

15.1 No septic tank abandonment shall occur within the Warren County Combined Health District without an abandonment permit having first been secured from this office.

15.2 Abandonment of a household sewage disposal system means to have the contents of the septic tank and any other tank, drywell, or pit utilized as a component of the system cleaned out by a bonded and registered septage hauler, to crush in the top of the tank or component, to pull in one side and one end or the corner of the tank or component, and to backfill the tank or component with sand, gravel, or other inert fill material.

15.3 All household sewage disposal system abandonments shall be inspected by this office.

Section 16. Existing Approvals and Existing Sewage Treatment Systems

16.1 All lots approved by the Warren County Combined Health District prior to January 1, 2007 and previously covered by the grace period established by the 2007 State of Ohio Sewage Treatment System Rules and authorized by this Board of Health by resolution in December 2006, shall remaine approved for development until at least July 1, 2009 when the State of Ohio Sewage Treatment System Rules are placed back into effect. These lots shall develop utilizing the rules that were in effect at the time of their approval so long as the lot can be developed in a sanitary manner acceptable to the Warren County Combined Health District.

16.2 An existing sewage disposal system shall not be operated in any manner other than the manner in which it was originally designed unless written approval for such modified use is first obtained from the Warren County Combined Health District.

16.3 Any lot owner who obtained their lot approval or sewage treatment system installation permit from the period January 1, 2007 to July 1, 2007 may request that their lot be re-evaluated for compliance with this rule. Should the lot be found acceptable for development with an alternative type of sewage treatment system, the owner may request and be granted a revision to their installation permit.

Section 17. Inspections

17.1 A reinspection fee may be assessed for any reinspection that is necessary to determine compliance with these rules.

Section 18. **Date of Effect**

All regulations and sections of this regulation shall be in full force and effect immediately upon the effective date after its adoption.

Section 19. **Effect of Partial Invalidity**

Should any part of this regulation be declared to be less stringent than Chapter 3701-29 of the Ohio Administrative Code by the Ohio Department of Health, the remainder of this regulation shall not be affected thereby. Should any part of this regulation be declared unconstitutional for any reason, the remainder of this regulation shall not be affected hereby.

Adopted by the Board of Health of the Warren County Combined Health District this 18th day of October, 2007.

Effective date: November 15, 2007

Copies of the incorporated laws and rules are on file with the Health Commissioner and in the county law library.

10-18-07
Date

Chairman, Warren County Board of Health

10-18-07
Date

Warren County Health Commissioner

Appendix

Soil Interpretation for Leaching System in Warren County

Table 1
Soil Permeability Limitation Evaluation

Tyler's Linear Loading Rate Table

SOIL INTERPRETATIONS FOR LEACHING SYSTEMS IN WARREN COUNTY

Introduction – The following soil interpretations for onsite sewage disposal were developed by using the Soil Survey of Warren County and Limitation Evaluation of Ohio Soils for Sewage Effluent Absorption published by the Ohio Department of Health. The listed soil types do not take into consideration slope – except on those soils which are only found on slopes greater than 12%. However, the Soil Survey does delineate slope. Slopes are identified by the capital letter following the soil symbol, and can be determined on an individual basis. The letters identify slopes as follows:

A – 0-2%
B – 2-6%
C – 6-12%
D – 12-18%
E – 18-25%
F – greater than 25%

I SLIGHT LIMITATIONS

Crider
Parke

II SLIGHT OR MODERATE LIMITATIONS BUT SUBJECT TO UNDERGROUND WATER CONTAMINATION

Casco	Princeton	Williamsburg – moderate
Fox	Warsaw	
Ockley	Wea	

III MODERATE LIMITATIONS DUE TO PERMEABILITY

Alford

IV SEVERE LIMITATIONS DUE TO MODERATELY SLOW PERMEABILITY

Cincinnati	Miamian
Hickory	Miamian-Russell complex
Kendallville	Russell-Miamian complex

V SEVERE LIMITATIONS – SHALLOW TO BEDROCK

Eden complex
Platville
Wynn

VI SEVERE LIMITATIONS – SUBJECT TO FLOODING

Abscota	Genesee	Shoals
Algiers	Lanier	Sloan
Eel	Ross	

VII SEVERE LIMITATIONS DUE TO SLOPE (Slopes greater than 12%)

Casco-Rodman complex	Hennepin	Miamian-Hennepin complex
Fairmont-Eden complex	Hennepin-Miamian complex	Rodman & Casco gravelly loams
Fox-Casco complex	Hickory-Fairmont complex	

VIII SEVERE – LIMITATIONS DUE TO SLOW PERMEABILITY & PERCHED, SEASONAL HIGH WATER TABLE

Avonburg	Fincastle	Patton	Rossmoyne
Birkbeck	Henshaw	Rainsboro	Uniontown
Dana	Iva	Reesville	Xenia

IX VERY SEVERE LIMITATIONS

Blanchester	Kings
Brookston	Muck
Clermont	Ragsddale

Recommendations – The following recommendations refer to the soil groups delineated above. The recommendations are general, by necessity. Soil types and units are variable to a certain extent. By grouping the soils we have eliminated much of the variability as many of the soil types would have the same limiting factors. However, we would suggest that individual onsite review continue and records be kept of the results.

Group I

Soils in this group are generally quite well suited for onsite sewage disposal. Leach lines in these soils should meet all requirements for the slight permeability limitation evaluation of the Code.

Group II

Soils in this group are underlain with gravel deposits and located along major streams. Leach lines will generally perform well in these soils; however, there exists a possibility of underground water contamination due to the permeability of the gravel depending upon its depth in the soil profile. We would recommend that the type of onsite sewage disposal system to be installed in these soil types be determined from the specific site and soil evaluation. They may need to elevate using a mound system to compensate for shallow depth to sand or gravel. Conventional soil absorption field systems would have a moderate to severe rating.

Group III

Soils in this group have moderate limitations due to slow permeability. Leaching systems should perform in this soil if all the moderate to severe permeability limitation requirements of the Code are met.

Group IV

Soils in this group have severe limitations due to moderately slow permeability. Leaching systems in these soils should meet all requirements of the Code for severe permeability limitations.

Group V

Soils in this group have severe limitations due to moderately slow permeability. Leaching systems in these soils should meet all requirements of the Code for severe permeability limitations.

Group VI

Soils in this group are located in flood plains are subject to periodic flooding. We recommend that no residential, business, or industrial development with or without onsite sewage disposal be permitted on these soils if they are in the 100 year flood plain. If the soils are out of the 100 year flood plain they will have a severe rating.

Group VII

The common limitation for these soils is slope. Soils in this group are only found on slopes in excess of 12% in Warren County. We recommend that onsite sewage disposal systems not be installed on slopes greater than 12%, even though code allows a slope of 15%. Slopes in excess of 12% pose both a safety problem for the installer as well as erosion issues resulting in soil depth problems. If the soil depth is adequate, these soils will have a severe rating.

Group VIII

Soils in this group have two common limiting factors. They have moderately slow permeability and a seasonally high perched water table located less than three feet below the ground surface. A perched water table is a severe inhibitor to good soil percolation. Leach lines installed in the seasonally high perched water table in some of these soils would be under water a portion of each year. Leaching systems on these soils should be kept shallow to avoid the seasonally high perched water table and should meet the severe permeability leach line length. Curtain drains with adequate outlets are needed.

Group IX

These soils are delineated in the ODH Limitation evaluation of Ohio Soils for Sewage Effluent Absorption as having a very severe rating due to slow permeability and seasonally high perched water tables. Presumably, limitations in these soils are too great to overcome for leaching line installations. These soils will require maximum elevation with a mound system coupled with the use of a curtain drain to have the remote chance of functioning properly. The Brookston and Blanchester soils have very good structure and potential permeability. Leach lines may function in these two particular soils if:

1. No surface water runs over the system (grading required)
2. Maximum length of leach lines are required.
3. Adequate curtain drains are installed.

TABLE I

The Average Time Required for Water to Fall One Inch as Indicated by Percolation Tests	Soil Permeability Limitation Evaluation
Minutes	
1 – 3	Very Severe (generally unsuitable)
3 – 10	Slight
11 – 30	Moderate
31 – 60	Severe
over - 60	Very Severe (not to be used)

Tyler's Linear Loading Rate Table

Table 1. Infiltration rates in gal/da/ft^2 for wastewater of >30 mg/L or wastewater of <30 mg/L and hydraulic linear loading rates in gal/da/ft for soil characteristics of texture and structure and site conditions of slope and infiltration distance. Values assume wastewater volume of >150 gal/da/bedroom. If horizon consistence is stronger than firm or any cemented class or the clay mineralogy is smectitic, the horizon is limiting regardless of other soil characteristics

Soil Characteristics			Infiltration Loading Rate, gal/da/ft^2		Hydraulic Linear Loading Rate, gal/da/ft									
					Slope									
					0-4%			5-9%			>10%			
Texture	Structure				Infiltration Distance, in.			Infiltration Distance, in.			Infiltration Distance, in.			
	Shape	Grade	>30 mg/L	<30 mg/L	8-12	12-24	24-48	8-12	12-24	24-48	8-12	12-24	24-48	Row
COS, S, LCOS, LS	--	0SG	0.8	1.6	4.0	5.0	6.0	5.0	6.0	7.0	6.0	7.0	8.0	1
FS. VFS,LFS,LVFS	--	0SG	0.4	1.0	3.5	4.5	5.5	4.0	5.0	6.0	5.0	6.0	7.0	2
COSL, SL	--	0M	0.2	0.6	3.0	3.5	4.0	3.6	4.1	4.6	5.0	6.0	7.0	3
	PL	1	0.2	0.5	3.0	3.5	4.0	3.6	4.1	4.6	4.0	5.0	6.0	4
		2, 3	0.0	0.0	-	-	-	-	-	-	-	-	-	5
	PR/BK /GR	1	0.4	0.7	3.5	4.5	5.5	4.0	5.0	6.0	5.0	6.0	7.0	6
		2,3	0.6	1.0	3.5	4.5	5.5	4.0	5.0	6.0	5.0	6.0	7.0	7
FSL, VFSL	--	0M	0.2	0.5	2.0	2.3	2.6	2.4	2.7	3.0	2.7	3.2	3.7	8
	PL	1,2,3	0.0	0.0	-	-	-	-	-	-	-	-	-	9
	PR/BK /GR	1	0.2	0.6	3.0	3.5	4.0	3.3	3.8	4.3	3.6	4.1	4.6	10
		2,3	0.4	0.8	3.3	3.8	4.3	3.6	4.1	4.6	3.9	4.4	4.9	11
L	--	0M	0.2	0.5	2.0	2.3	2.6	2.4	2.7	3.0	2.7	3.2	3.7	12
	PL	1,2, 3	0.0	0.0	-	-	-	-	-	-	-	-	-	13
	PR/BK /GR	1	0.4	0.6	3.0	3.5	4.0	3.3	3.8	4.3	3.6	4.1	4.6	14
		2, 3	0.6	0.8	3.3	3.8	4.3	3.6	4.1	4.6	3.9	4.4	4.9	15
SIL	--	0M	0.0	0.2	2.0	2.5	3.0	2.2	2.7	3.2	2.4	2.9	3.4	16
	PL	1,2,3	0.0	0.0	-	-	-	-	-	-	-	-	-	17
	PR/BK /GR	1	0.4	0.6	2.4	2.7	3.0	2.7	3.0	3.3	3.0	3.5	4.0	18
		2,3	0.6	0.8	2.7	3.0	3.3	3.0	3.5	4.0	3.3	3.8	4.3	19
SCL,CL SICL	--	0M	0.0	0.0	-	-	-	-	-	-	-	-	-	20
	PL	1,2,3	0.0	0.0	-	-	-	-	-	-	-	-	-	21
	PR/BK /GR	1	0.2	0.3	2.0	2.5	3.0	2.2	2.7	3.2	2.4	2.9	3.4	22
		2,3	0.4	0.6	2.4	2.9	3.4	2.7	3.0	3.3	3.0	3.5	4.0	23
SC, C, SIC	--	0M	0.0	0.0	-	-	-	-	-	-	-	-	-	24
	PL	1,2,3	0.0	0.0	-	-	-	-	-	-	-	-	-	25
	PR/BK /GR	1	0.0	0.0	-	-	-	-	-	-	-	-	-	26
		2,3	0.2	0.3	2.0	2.5	3.0	2.2	2.7	3.2	2.4	2.9	3.4	27
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O

APPENDIX F: WARREN COUNTY EROSION AND SEDIMENT CONTROL REGULATIONS

WARREN COUNTY EROSION AND SEDIMENT CONTROL REGULATIONS

Warren County, Ohio

October 2006

Warren County Board of Commissioners
C. Michael Kilburn
David G. Young
Pat South
406 Justice Drive, Lebanon, Ohio

BOARD OF COUNTY COMMISSIONERS
WARREN COUNTY, OHIO

Resolution *Number 90-490*

Adopted Date -May 1, *1990*

ADOPT RULES TO ABATE SOIL EROSION AND WATER POLLUTION BY SOIL SEDIMENT

WHEREAS, Section *307.79 of* the Ohio Revised Code authorizes a Board of County Commissioners to adopt rules to abate soil erosion and water pollution by soil sediment; and

WHEREAS, public hearings on said revised regulations was held by the Warren County Board of Commissioners on April *3,* April 10, April *19,* and May 1, *1990;* and

NOW THEREFORE BE IT RESOLVED, by the Warren County Board of Commissioners to adopt the revised regulations under the title:

Warren County Erosion and Sediment Control Regulations

BE IT FURTHER RESOLVED, that these regulations shall become effective on June 1, *1990,* and that all prior rules and regulations are hereby rescinded as of this date.

Mr. Kilburn moved for passage of the above resolution, seconded by Mr. Egleston. Upon call of the roll the following vote resulted:

Mr. Terwilleger - yea
Mr. Egleston - yea
Mr. Kilburn - yea

Resolution adopted this 1st day of May, *1990.*

Cindy Madison
Cindy Madison, Clerk

RD OF COUNTY
/R. Price COMMISSIONERS

cc: RAP (file)
Soil S Water Conservation (file)
RZC (file)
File

BOARD OF COUNTY COMMISIONERS
WARREN COUNTY, OHIO

Resolution

Number 05-356 *Adopted Date* March 15 2005

APPROVE FEE INCREASES WITHIN THE EROSION AND SEDIMENT CONTROL REGULATIONS

WHEREAS, this Board met this 22nd day of February 2005, and again this 15tl1 day of March 2005, in the Commissioners' Meeting Room to consider increases in fees within the Erosion and Sediment Control Regulations; and

WHEREAS, this Board has considered all testimony from those present and considered the recommendation presented by the Soil and Water Conservation District Director; and

NOW THEREFORE BE IT RESOLVED, to approve a fee increases within the Erosion and Sediment'Control Regulations as follows:

Single Family Homes:	$50/1ot (no maximum)
Multi-family, Apartments, Condos:	. $15/unit (no maximum)
Commercial/lndustria1:	$lOO/disturbed acre (maximum fee $5000)

BE IT FURTHER RESOLVED, that said fee increases shall be effective May 1, 2005.

Mr. Kilburn moved for adoption of the foregoing resolution, being seconded by Mr. Young. Upon call of the roll, the following vote resulted:

Mrs. South - yea
Mr. Young - yea
Mr. Kilburn - yea

Resolution adopted this 15ili day of March 2005.

BOARD OF COUNTY COMMISSIONERS

Tina Davis, Clerk

BOARD OF COUNTY COMMISSIONERS
BARREN COUNTY, OHIO

Resolution

Number 90-490 *Adopted Date* May 1 , *1990*

ADOPT RULES TO ABATE SOIL EROSION AND WATER POLLUTION BY SOIL SEDIMENT

WHEREAS, Section *307.79* of the Ohio Revised Code authorizes a Board of County Commissioners to adopt rules to abate soil erosion and water pollution by soil sediment; and

WHEREAS, public hearings on said revised regulations was held by the Warren County Board of Commissioners on April *3,* April 10, April *19,* and May 1, 1990; and

NOW THEREFORE BE IT RESOLVED, by the Warren County Board of Commissioners to adopt the revised regulations under the title:

Warren County Erosion and Sediment Control Regulations

BE IT FURTHER RESOLVED, that these regulations shall become effective on June 1, 1990, and that all prior rules and regulations are hereby rescinded as of this date.

Mr. Kilburn moved for passage of the above resolution, seconded by Mr. Egleston. Upon call of the roll the following vote resulted:

Mr. Terwilleger - yea
Mr. Egleston - yea
Mr. Kilburn - yea

Resolution adopted this 1st day of May, 1990.

BOARD OF COUNTY COMMISSIONERS

Cindy Madison

Cindy Madison, Clerk

/R. Price

cc: RPC (file)
Soil & Water Conservation (file)
RZC (file)
File

B0ARD OF COUNTY COMMISSIONERS
WARREN COUNTY, OHIO .

Resolution

Number 90-491 *Adopted Date* May 1. 1990

AUTHORIZE WARREN COUNTY SOIL AND WATER CONSERVATION DISTRICT TO ADMINISTER THE WARREN COUNTY EROSION AND SEDIMENT CONTROL REGULATIONS

WHEREAS, Section 307.79 of the Ohio Revised code authorizes a Board of County Commissioners to adopt rules to abate soil erosion and water pollution by soil sediment; and

WHEREAS, the Warren County Board of Commissioners has adopted such regulations under the title:

Warren County Erosion and Sediment Control Regulations

WHEREAS, Section 307.79 of the Ohio Revised Code authorizes a Board of County Commissioners to delegate the administration of said regulations to other government agencies; and

NOW THEREFORE BE IT RESOLVED, by the Warren County Board of Commissioners to appoint the Warren County Soil and Water Conservation District to administer the Warren County Erosion and Sediment Control Regulations; and

BE IT FURTHER RESOLVED, that the Warren County Soil and Water Conservation District is authorized to modify said regulations in specific cases where unusual or exceptional factors or conditions require such modification.

Mr. Kilburn moved for passage of the above resolution, seconded by Mr. Egleston. Upon call of the roll the following vote resulted:

Mr. Terwilleger - yea
Mr. Egleston - yea
Mr. Kilburn - yea

Resolution adopted this 1st day of May, 1990.

BOARD OF COUNTY COMMISSIONERS

Cindy Madison

Cindy Madison, Clerk

/R. Price

cc: RPC (file)
Soil & Water Conservation District (file)
RZC (file)
File

TABLE OF CONTENTS

WARREN COUNTY EROSION AND SEDIMENT CONTROL REGULATIONS

ARTICLE I
GENERAL PROVISIONS

SECTION 100 TITLE

These regulations shall be cited as the Warren County Erosion and Sediment Control Regulations and may hereinafter be referred to as "these regulations."

SECTION 101 STATUTORY AUTHORIZATION

These regulations, as amended, of Warren County are promulgated in accordance with and pursuant to the legal grant of authority of Ohio Revised Code Section 307.79. whereby a board of county commissioners may adopt, amend, and rescind rules establishing technically feasible and economically reasonable standards to achieve a level of management and conservation practices that will abate wind or water erosion of the soil or abate the degradation of the waters within the State by soil sediment in conjunction with land grading, excavating, filling, or other soil disturbing activities on land used or being developed for non farm commercial, industrial, residential, or other non farm purposes, and establish criteria for determination of the acceptability of those management and conservation practices.

SECTION 102 PURPOSE

The Warren County Board of Commissioners adopts and amends its Erosion and Sediment Control Regulations to establish technically feasible and economically reasonable standards to achieve a level of management and conservation practices that will abate wind or water erosion of the soil or abate the degradation of the waters within the State by soil sediment in conjunction with land grading, excavating, filling, or other soil disturbing activities on land used or being developed for non farm commercial, industrial, residential, or other non farm purposes, and establish criteria for determination of the acceptability of those management and conservation practices.

These regulations further intend but are not limited to:

A. Permit development while keeping erosion and sedimentation as close to existing levels as practical.

B. Reduce damage to receiving streams and impairment of their capacity, which may be caused by sedimentation.

C. To implement the applicable area wide waste treatment management plan prepared under section 208 of the "Federal Water Pollution Control Act," 86 Stat. 816 (1972), 33 U.S.C.A. 1228, as amended, and to implement phase II of the storm water program of the national pollutant discharge elimination system established in 40 C.F.R. Part 122.

SECTION 103 SCOPE

These regulations shall apply to all non-farm earth disturbing activities performed on unincorporated lands of Warren County, Ohio except those activities excluded in Section 307.79 of the Ohio Revised Code as follows:

A. Strip mining operations regulated under Section 1513.01 of the Ohio Revised Code;

B. Surface mining operations regulated by Section 1514.01 of the Ohio Revised Code;

C. Public highways, transportation, and drainage improvements or maintenance thereof undertaken by a government agency or political subdivision in accordance with a statement of its standard sediment control policies that has been approved by the Warren County Board of Commissioners or the Chief of the Division of Soil and Water Conservation.

SECTION 104 DISCLAIMER OF LIABILITY

Neither submission of a plan under provisions of these regulations nor compliance with provisions of these regulations shall relieve any person from responsibility for damage to any person or property otherwise imposed by law, nor impose any duty or liability upon the Warren County Board of Commissioners or their agents for damage to any person or property.

SECTION 105 SEVERABILITY

If any clause, section, or provision of these regulations is declared invalid or unconstitutional by a court of competent jurisdiction, validity of the remainder shall not be affected thereby.

SECTION 106 EFFECTIVE DATE

These regulations shall be effective on the 31st day after adoption by the Warren County Board of Commissioners.

ARTICLE II
DEFINITIONS

SECTION 200 INTERPRETATION OF TERMS AND WORDS

For the purpose of these regulations certain rules or word usage apply to the text as follows:

A. Words used in the present tense include the future tense, and the singular includes the plural, unless the context clearly indicates the contrary.

B. The term "shall" is always mandatory and not discretionary; the word "may" is permissive.

C. Words or terms not interpreted or defined by this article shall be used with a meaning of common or standard utilization, so as to give these regulations its most reasonable application.

SECTION 201 WORDS AND TERMS DEFINED

BUILDER

Following the issuance of a building permit the person responsible for the construction of a structure.

CHANNEL

A natural bed that conveys water; a ditch excavated for the flow of water.

DETENTION STRUCTURE

A permanent structure for the temporary storage of runoff, which is designed so as not to create a permanent pool of water.

DEVELOPER

Any individual, subdivider, firm, association, syndicate, partnership, corporation, trust, or any other legal entity commencing proceedings under these regulations to effect a subdivision of land hereunder for himself or for another.

DEVELOPMENT AREA

Any contiguous area owned by one person or operated as one development unit and used or being developed for non-farm commercial, industrial, residential, or other non-farm purposes upon which earth disturbing activities occur.

DITCH

An open channel either dug or natural for the purpose of drainage or irrigation with intermittent flow.

DRAINAGE IMPROVEMENT

As defined in Ohio Revised Code Section 6131.01(C), and/or conservation works of improvement, Ohio Revised Code Sections 1511 and 1515.

DRAINAGE WAY

An area of concentrated water flow other than a river, stream, ditch, or grassed waterway.

DUMPING

Grading, pushing, piling, throwing, unloading or placing.

EARTH-DISTURBING ACTIVITY

Any grading, excavating, filling or other alteration of the earth's surface where natural or man-made ground cover is destroyed and which may result in or contribute to erosion and sediment pollution.

EARTH MATERIAL

Soil, sediment, rock, sand, gravel, and organic material or residue associated with or attached to the soil.

EROSION

The process by which the land surface is worn away by the action of wind, water, ice or gravity.

A. Accelerated Erosion: A process which is much more rapid than natural or geologic erosion, and is primarily a result of the activities of man.

B. Channel Erosion: The erosion process whereby the volume and velocity of a concentrated flow wears away the bed and banks of a well-defined channel.

C. Floodplain Erosion: Abrading and wearing away of the nearly level land situated on either side of a channel due to overflow and flooding.

D. Gully Erosion: The erosion process whereby water accumulates in narrow channels during and immediately after rainfall or snow or ice melt and actively removes the soil from this narrow area to considerable depths, such that the channel would not be obliterated by normal smoothing or tillage operations.

E. Natural Erosion or Geologic Erosion: The wearing away of the earth's surface by water, wind or ice under natural environmental conditions that are undisturbed by man.

F. Rill Erosion: An erosion process in which numerous small channels only several inches deep are formed, which if not corrected can become gullies. Normal tillage operations can remove the rills.

G. Sheet Erosion: The removal of a fairly uniform layer of soil from the land surface as a result of raindrop splash and runoff.

EROSION AND SEDIMENT CONTROL

A system of structural and vegetative measures that minimize soil erosion and offsite sedimentation

EROSION AND SEDIMENT CONTROL PLAN

An erosion and sediment control strategy or plan, to minimize erosion and prevent off-site sedimentation by containing sediment off-site or by passing sediment laden runoff through a sediment control measure, prepared and approved in accordance with the specific requirements of these regulations, and designed in accordance with the handbook "Water Management and Sediment Control for Urbanizing Areas" in Section 302. The erosion and sediment control plan may be referenced to as a sediment control plan.

FARM
Land or water devoted to agriculture.

GRASSED WATERWAY
A broad or shallow natural course or constructed channel covered with erosion-resistant grasses or similar vegetative cover and used to conduct surface water.

IMPERVIOUS

Not allowing infiltration.

LANDSLIDE

Rapid movement downslope of a mass of soil.

OWNER

Any person seized of a freehold estate in land except that person holding easements are not included within such meaning.

PERSON

Any individual, corporation, partnership, joint venture, agency, unincorporated association, municipal corporation, county or state agency, the federal government, or any combination thereof.

PUBLIC WATERS

Water within rivers, streams, ditches and lakes except private ponds and lakes wholly within single properties, or waters leaving property on which surface water originates.

RETENTION STRUCTURE

A permanent structure that provides for the storage of runoff by means of a permanent pool of water.

RUNOFF

The portion of rainfall, melted snow or irrigation water that flows across the ground surface and is eventually returned to streams.

SEDIMENT

Soils or other surficial materials transported or deposited by the action of wind, water, ice, or gravity as a product of erosion.

SEDIMENTATION

The process or action of depositing sediment.

SEDIMENT BASIN

A dam or other suitable detention facility built across an area of water flow to settle and retain sediment carried by the runoff waters.

SEDIMENT POLLUTION

Failure to use management or conservation practices to abate wind or water erosion of the soil or to abate the degradation of the waters of the state by soil sediment in conjunction with land grading, excavating, filling, or other soil-disturbing activities on land used or being developed for non-farm commercial, industrial, residential or other non-farm purposes.

SLOUGHING

A slip or downward movement of an extended layer of soil resulting from the undermining action of water or the earth disturbing activity of man.

SOIL CONSERVATION

Using the soil within the limits of its physical characteristics and protecting it from unalterable limitations of climate and topography.

SOIL AND WATER CONSERVATION DISTRICT

As organized under Chapter 1515 of the Ohio Revised Code; referring either to the Soil and Water Conservation District Board, or its designated employee(s), hereinafter referred to as the Warren County Soil and Water Conservation District.

SOIL LOSS

Soil moved from a given site by the forces of erosion.

SOIL STABILIZATION

Measures, which protect soil from the erosive forces of raindrop impact and flowing water.

STOCKPILE

Any deposition of soil to be used for a future purpose.

STORM FREQUENCY

The average period of time within which a storm of a given duration and intensity can be expected to be equaled or exceeded.

STORMWATER MANAGEMENT

Runoff water safely conveyed or temporarily stored and released at an allowable rate to minimize erosion and flooding.

STORMWATER RUNOFF

That portion of the rainfall that exceeds the infiltration capacity of the soil.

STREAM

A body of water running or flowing on the earth's surface. Flow may be seasonally intermittent.

SUBSOIL

That part of the soil below the surface soil or plow layer.

TOPSOIL

The upper layer of soil, which is usually darker and richer in organic matter and nutrients than the subsoil.

WATERSHED

The total drainage area contributing runoff to a single point.

WATERCOURSE

A definite channel with bed and banks within which concentrated water flows, either continuously or intermittently.

ARTICLE III
REGULATIONS

SECTION 300 REQUIREMENTS

No person shall cause or allow earth-disturbing activities on a development area except in compliance with the standards and criteria set out in Section 302 and Sections 303 thru 311 and the applicable item A or B below.

A. When a proposed development area consists of one (1) or more acres and earth-disturbing activities are proposed, the owner of record shall develop and submit for review a sediment control plan. Such a plan shall contain sediment control and water management practices so that compliance with other provisions of these regulations will be achieved during and after development. No earth-disturbing activities shall commence prior to acceptance of the erosion and sediment control plan by the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners.

B. When a proposed development area involves less than one (1) acre, it is not necessary to submit a sediment control plan; however, the responsible person must comply with other provisions in these regulations. All earth disturbing activities shall be subject to surveillance and site investigation by the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners to determine compliance with the standards and regulations.

C. The sediment control plan shall be certified by a professional engineer registered in the State of Ohio.

D. All plans shall be submitted to the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners, with the exception of those prepared by a public agency and shall be accompanied by a filing fee as determined by the Warren County Board of Commissioners.

E. The District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners shall be notified 48 hours prior to commencement of earth disturbing activities. The District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners shall also be notified when the project is completed.

F. All improvements shall be constructed in conformity with approved plans and shall be completed within the time fixed or agreed upon by the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners.

G. In order that the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners has the assurance that the construction of improvements will be completed, the developer shall enter into one of the agreements as stated in Section 402A of these regulations.

H. These regulations are intended as guidelines and may be altered as necessary by the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners.

SECTION 301 EXCEPTIONS

Any person seeking approval to construct or improve a single-family residence shall be exempted from having to prepare an erosion and sediment control plan provided they:

A. Construct upon one lot or parcel at a time, and there is no other construction occurring, simultaneously on land or property within five hundred (500 feet) of the proposed development site; and

B. Do not disrupt, alter, or expose more than fourteen thousand (14,000) square feet of existing natural surface of the total development site at a time; and

C. Follow a standard policy for controlling run-off erosion and sediment impacts foreseeable to result during and from site development, which is acceptable to the Warren County Board of Commissioners.

Exemption under this section of any person for the preparation and submission of a sediment control plan does not, however, exempt them from complying with the other provisions of this regulations. The Warren County Board of Commissioners may require the responsible person to submit information deemed necessary to determine compliance.

SECTION 302 EROSION AND SEDIMENT CONTROL STANDARDS

The standards are contained in the most recent edition of handbook " Rainwater and Land Development" developed by the Soil Conservation Service, U.S. Department of Agriculture and the Ohio Department of Natural Resources Division of Soil and Water Conservation.

1 A copy of the "Rainwater and Land Development" handbook may be obtained from either the Warren County Regional Planning Commission or the Warren County Soil and Water Conservation District.

SECTION 303 STABILIZATION OF DENUDED AREAS AND SOIL STOCKPILES

A. Permanent soil stabilization shall be installed on denuded areas within seven (7) days after final grade is reached on any portion of the site. Stabilization shall be installed within three (3) days on areas immediately adjacent to streams. Application practices include vegetative establishment, mulching, and the early application of gravel base on areas to be paved. Soil stabilization measures should be selected to be appropriate for the time of year, site conditions and estimated time of use.

B. Temporary soil stabilization shall be required on any denuded area which will not be regraded for longer than thirty (30) days. Temporary soil stabilization shall be applied within seven (7) days after rough grading, or three (3) days on areas immediately adjacent to streams.

C. Soil stockpiles shall be stabilized or protected with sediment trapping measures to prevent soil loss.

SECTION 304 ESTABLISHMENT OF PERMANENT VEGETATION

A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized after final grading. Permanent vegetation shall not be considered established until a ground cover is achieved which is mature enough to control soil erosion and to survive severe weather conditions.

SECTION 305 PROTECTION OF ADJACENT PROPERTIES

Properties adjacent to the site of a land disturbance shall be protected from sediment deposition. This may be accomplished by preserving a well-vegetated buffer strip around the lower perimeter of the land disturbance, by installing perimeter controls such as sediment barriers, filters or dikes, or sediment basins, or by a combination of such measures.

SECTION 306 TIMING AND STABILIZATION OF SEDIMENT TRAPPING MEASURES

Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment on-site shall be constructed as a first step in grading and be made functional before upslope land disturbance takes place. Earthen structures such as dams, dikes, and diversions shall be seeded and mulched within seven (7) days of completion of installation.

SECTION 307 SEDIMENT BASINS

Where five (5) acres or more of the development area are disturbed in one watershed, stormwater runoff from that watershed shall pass through a sediment basin or other suitable sediment trapping facility with equivalent

other suitable sediment trapping facility with equivalent or greater storage capacity. The Warren County Board of Commissioners may require sediment basins or traps for smaller disturbed areas where deemed necessary. The sediment basin requirement may also be waived, by variance, if the Warren County Board of Commissioners agrees that site conditions do not warrant its construction.
Unless otherwise designed, sediment basins are temporary and shall be removed following final stabilization or other approved methods of stabilization of the contributing watershed.

SECTION 308 CUT AND FILL SLOPES

Cut and fill slopes shall be designed and constructed in a manner which will minimize erosion. Consideration should be given to the length and steepness of the slope, the soil type, upslope drainage area, groundwater conditions and other applicable factors. Slopes which are found to be eroding excessively during the first two (2) years after final grade shall be provided with additional slope stabilizing measures by the owner, developer or builder as appropriate until the problem is corrected. The following guidelines are provided to aid in developing an adequate design.

A. Roughened soil surfaces are generally preferred to smooth surfaces on slopes.
B. Diversions should be constructed at the top of long steep slopes which have significant drainage areas above the slope. Diversions or terraces may also be used to reduce slope length.
C. Concentrated stormwater should not be allowed to flow down cut of fill slopes unless contained within an adequate channel, flume or slope drain structure.
D. Wherever a slope face crosses a water seepage plane which endangers the stability of the slope, adequate drainage or other protection should be provided.

SECTION 309 STABILIZATION OF WATERWAYS AND OUTLETS

All on-site stormwater conveyance channels except roadway ditches shall be designed and constructed to withstand the expected velocity of flow without erosion. Methods adequate to prevent erosion shall also be provided at the outlets of all pipes and. paved channels. Provisions for management of stormwater shall be submitted to the Warren County Engineer for review and approval.

SECTION 310 CONTROL OF WASTE

All waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality shall be controlled.

SECTION 311 STORM SEWER INLET PROTECTION

All storm sewer inlets which are made operable during construction shall be protected so that sediment-laden water will not enter the conveyance system without first being filtered or otherwise treated to remove sediment.

SECTION 312 WORKING IN OR CROSSING WATERCOURSES

A. Construction vehicles should be kept out of watercourses to the extent possible. Where in-channel work is necessary, precautions shall be taken to stabilize the work area during construction to minimize erosion. The channel (including bed and banks) shall always be restabilized immediately after in-channel work is completed.

B. Where a live (wet) watercourse will be crossed by construction vehicles regularly during construction, a temporary stream crossing shall be provided.

SECTION 313 DISPOSITION OF TEMPORARY MEASURES

All temporary erosion and sediment control measures shall be disposed of within thirty (30) days after final site stabilization is achieved as determined by The Warren County Board of Commissioners or after the temporary measures are no longer needed, unless otherwise authorized by the Warren County Board of Commissioners. Trapped sediment and other disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

SECTION 314 MAINTENANCE OF TEMPORARY MEASURES

All temporary erosion and sediment control practices shall be maintained and repaired as needed to assure continued performance of their intended function. The OWNER will be responsible for such maintenance until the final inspection by the Warren County Board of Commissioners.

SECTION 315 STATUS OF STANDARDS

The standards are general guidelines and shall not limit the right of the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners to impose additional, requirements, nor shall the standards limit the right of the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners to waive individual requirements.

ARTICLE IV
ADMINISTRATION

SECTION 400 EROSION AND SEDIMENT CONTROL PLAN CONTENT

In compliance with Section 300A, one (1) copy of the erosion and sediment control plan shall be submitted to the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of County Commissioners and shall contain a narrative and a site plan. The narrative information may be included on the site plan. The following information is required.

A. Narrative

1. Project description - nature and purpose of land disturbing activity; acres of grading involved.

2. Approximate acreage of overall site, of each sublot and of right-of-ways.

3. Existing site conditions - topography, vegetation and drainage.

4. Adjacent areas - description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.

5. Brief description of the soils on the site giving such information as soil name, erodibility, permeability, depth, texture and structure, and limitations for the proposed use. (Refer to the Soil Survey of Warren County, Ohio, released in March, 1973).

6. Estimated impervious areas, stated in terms of square footage or acreage, whichever is appropriate.

7. Critical areas - a description of areas on the site which have potentially serious erosion problems.

8. Erosion and sediment control measures, to minimize on-site erosion and to minimize off-site sedimentation.

9. Provisions for management of stormwater, derived both on-site and from upper watershed areas shall be submitted to the Warren County , Engineer for review and approval.

10. Details of temporary and permanent stabilization measures, including method of anchoring mulches.

11. Maintenance schedule for inspection and repair of temporary erosion and sediment control structures.

12. Sequence of construction describing implementation and maintenance of controls, temporary and permanent stabilization and earth-disturbance and construction. The sequence of construction shall, as a minimum, include a projected schedule and time frame for the following activities:

    a. Clearing and grubbing for those areas necessary for installation of perimeter controls;

    b. Construction of perimeter controls;

    c. Remaining clearing and grubbing;

    d. Road grading;

    e. Grading for the remainder of the site;

    f. Utility installation;

    g. Final grading, landscaping and stabilization; and

    h. Removal of controls.

13. Design computations and applicable assumptions for all temporary structural measures for erosion and sediment pollution control.

14. Seeding mixtures and rates, lime and fertilizer application rates, and kind and quantity of mulching for both temporary and permanent vegetative control measures.

15. Estimated cost of erosion and sediment control structures and features.

16. Name, address, and telephone number of the plan designer, the owner, and the persons) responsible.

B. Site Plan

1. The site plan shall be drawn at a scale between two hundred (200) feet to the inch and fifty (50) feet to the inch. Site plans shall be on one or more sheets twenty-four (24) by thirty-six (36) inches in size and shall be clearly and legibly drawn.

2. Vicinity map at a scale of not less than two thousand (2,000) feet to the inch locating the site in relation to the surrounding area.

3. Existing topography shown in 2 foot contour intervals and showing drainage patterns and drainage areas showing direction of flow. Also show existing drainage patterns and facilities, road rights-of-way and easements. Also show topography in 5 foot contour intervals on adjacent land within 200 feet of the site unless deemed not necessary by the Warren County Board of Commissioners.

4. Existing vegetation.

5. Location of existing buildings, structures, utilities, water bodies, drainage facilities, vegetative cover, paved areas, road right-of-way and other significant natural and man-made features in the development area, and of adjacent areas which might be affected by the land disturbance.

6. Soil types and boundaries as shown on the Soil Survey of Warren County, Ohio, released in March, 1973.

7. Title, scale, direction, legend and date of all plan maps.

8. Critical erosion areas.

9. Existing and proposed drainage patterns, including the watershed lines, direction of flow, and watershed acreage.

10. Location and elevation of proposed erosion and sediment control structures.

11. Profile of road cut and fill, with original ground profile and proposed grade profile.

12. Areas of excavation, grading and filling.

13. Final contours.

14. Limits of clearing and grading.

15. Location of practices, including erosion and sediment control, construction entrances and designated area(s) for concrete wash-out to be field adjusted as necessary.

16. Bottom width, side slopes and grade of ditches.

17. Location of existing utilities.

18. Location of existing easements.

19. Detail drawings of any structural practices used th are not referenced in “Water Management and Sediment Control for Urbanizing Areas".

20. Signed and sealed by Professional Engineer, the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of County Commissioners may waive specific requirements for plan detail or may require additional information to show that work will conform to the basic requirements of these regulations.

SECTION 401 PLAN REVIEW

If the proposed development is not regulated by the Warren County Subdivision Regulations the erosion and sediment control plan shall be submitted and approved prior to the issuance of a building permit by the Warren County Building Inspection Department. If the proposed development is regulated by the Warren County Subdivision Regulations then the erosion and sediment control plan shall be submitted after the approval of the preliminary plat by the Warren County Regional Planning Commission, and no later than concurrently with the submittal of construction drawings to the Warren County Regional Planning Commission. The erosion and sediment control plan shall be approved before any earth disturbing activity is begun except for soil borings, test pits, and other analysis efforts.

The developer shall submit copies of the erosion and sediment control plan to the Warren County Regional Planning Commission for the Warren County Board of Commissioners. Plans will be distributed to appropriate review agencies by the Warren County Regional Planning Commission.

Within ten (10) working days of receipt of an erosion and sediment control plan, the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of County Commissioners shall indicate its status of compliance or non-compliance to the owner or his appointed representative. Indication of non-compliance shall include specific plan deficiencies and the procedures for filing a revised plan.

At the time of submission of the revised plan, another ten (10) working day period is begun. Approval plans shall remain valid for two (2) years from date of approval unless construction has begun and control measures have been implemented. Renewal is accomplished by the submission of another plan.

SECTION 402 PERMIT

The submission of a letter from the District Director of the Warren Co. Soil and Water Conservation District to the Warren County Regional Planning Commission stating that the Erosion and Sediment Control Plan is approved will serve as the issuance of a permit. Copies of the approval letter will be sent to the responsible parties (owner/developer and consultant). No earth disturbing activities are permitted until the approval letter has been issued.

SECTION 403 BONDING OF IMPROVEMENTS

A. In order that the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of County Commissioners has the assurance-that the construction and installation of required erosion and sediment control structures, features and measures as required by the approved erosion and sediment control plan will be completed, the developer shall enter into following prior to the issuance of the permit

1. A security agreement form promulgated by the Warren County Board of Commissioners and providing a performance bond with the Warren County Board of Commissioners equal to the cost of construction, plus thirty (30)percent of such improvements as shown on plans, and based on an estimate approved by the District Director of the Warren County Soil and Water Conservation District.

B. The security to Warren County Board of Commissioners shall continue for a period of time determined by the District Director of the Warren County Soil and Water Conservation District from date of execution, and shall provide that the subdivider, his heirs, successors and assigns, their agents or servants, will comply with all applicable terms, conditions, provisions and requirements of these regulations, and will faithfully perform and complete the work of constructing, installing and maintaining such facilities or improvements in accordance with such laws and regulations.

C. Before said security is accepted, it shall be approved by the proper administrative officials.

D. Whenever a cash deposit is made, the same shall be made to the Warren County Board of Commissioners.

E. Preceding the acceptance of the developer's security, an itemized list of materials and their cost shall be submitted to the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of Commissioners. This list includes grading and construction of storm water basins which are to be located outside the road right-of-way. Construction cost estimates shall reflect realistic and current bid prices.

F. As required improvements for erosion and sediment control are completed, approved, and accepted, the Warren County Board of Commissioners may, upon a favorable written recommendation of the District Director of the Warren County Soil and Water Conservation District, reduce the amount of the security. The District Director of the Warren County Soil and Water Conservation District shall issue a letter to the Warren County Board of Commissioners, and such letter shall be sufficient evidence for the reduction of the security by Warren County.

G. When the District Administrator of Warren County SWCD, as the designate of Warren County Board of Commissioners, following final inspection of a subdivision, certify to the Warren County Board of Commissioners, that all improvements have been constructed in accordance with County specifications, the Warren County Board of Commissioners may proceed to accept the facilities for which the security was posted.

H. Whenever public improvements have not been constructed in accordance with the agreement, and with specifications as established, the Warren County Board of Commissioners may exercise its rights to declare a default under the security agreement and pursuit of any deficiencies.

SECTION 404 INSPECTION AND COMPLIANCE

The District Administrator and other staff of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of County Commissioners may inspect development areas to determine compliance with these rules and regulations. If it appears that a violation of these regulations has occurred, the owner or his appointed representative shall be notified of the deficiencies or non-compliance by the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of County Commissioners in writing by certified mail. If within two (2) weeks after receipt of such letter, the deficiency or non-compliance has not been corrected or plans have not been approved by the District Administrator of the Warren County Soil & Water Conservation District, as the designate of the Warren County Board of County Commissioners for its correction, said deficiency or non-compliance shall be reported to the Warren County Board of Commissioners for consideration.

If the Warren County Board of Commissioners determines that a violation exists an injunction or other appropriate relief may be sought to abate excessive erosion or sedimentation and secure compliance with these regulations. In granting relief the court may order the construction of sediment control improvements or implementation of other control measures.

A final inspection will upon notification by the developer of the completion of the scope of work being performed under the sediment control plan to determine if the criteria of these regulations have been satisfied.

SECTION 405 FINES, PENALTIES AND STOP WORK ORDERS

A. If the Warren County Board of Commissioners or its duly authorized representative determines that a violation of the rules adopted under this section exists, the board or representative may issue an immediate stop work order if the violator failed to obtain any county permit necessary for sediment and erosion control, earth movement, clearing, or cut and fill activity. In addition, if the board or representative determines such a rule violation exists, regardless of whether or not the violator has obtained the proper permits, the board or representative may authorize the issuance of a notice of violation. If, after a period of not less than thirty days has elapsed following the issuance of the notice of violation, the violation continues, the board or its duly authorized representative shall issue a second notice of violation. Except as provided in division (405 D)of this section, if, after a period of not less than fifteen days has elapsed following the issuance of the second notice of violation, the violation continues, the board or

its duly authorized representative may issue a stop work order after first obtaining the written approval of the prosecuting attorney of the county if, in the opinion of the prosecuting attorney, the violation is egregious.

B. Once a stop work order is issued, the board or its duly authorized representative shall request, in writing, the prosecuting attorney to seek an injunction or other appropriate relief in the court of common pleas to abate excessive erosion or sedimentation and secure compliance with the rules adopted under this section. If the prosecuting attorney seeks an injunction or other appropriate relief, then, in granting relief, the court of common pleas may order the construction of sediment control improvements or implementation of other control measures and may assess a civil fine of not less than one hundred or more than five hundred dollars. Each day of violation of a rule or stop work order issued under this section shall be considered a separate violation subject to a civil fine.

C. The person to whom a stop work order is issued under this section may appeal the order to the court of common pleas of the county in which it was issued, seeking any equitable or other appropriate relief from that order.

D. No stop work order shall be issued under this section against any public highway, transportation, or drainage improvement or maintenance project undertaken by a government agency or political subdivision in accordance with a statement of its standard sediment control policies that is approved by the board or the chief of the division of soil and water conservation in the department of natural resources.

SECTION 406 VIOLATIONS

(i) No person shall violate any rule adopted or order issued under this section. Notwithstanding division (405 D) of this section, if Warren County Board of Commissioners determines that a violation of any rule adopted or administrative order issued under this section exists, the board may request, in writing, the prosecuting attorney to seek an injunction or other appropriate relief in the court of common pleas to abate excessive erosion or sedimentation and secure compliance with the rules or order. In granting relief, the court of common pleas may order the construction of sediment control improvements or implementation of other control measures and may assess a civil fine of not less than one hundred or more than five hundred dollars. Each day of violation of a rule adopted or administrative order issued under this section shall be considered a separate violation subject to a civil fine.

SECTION 407 VARIANCE

The Warren County Board of Commissioners shall serve as the “Board of Appeals” to hear and decide variances to these regulations in accordance with the standards of this Section. It may also hear appeals where it is alleged that the District Director of the Warren County Soil & Water Conservation District made an error in any order, requirement, decision or determination in the enforcement of these Regulations.

A variance may be granted by the Board of Appeals where:

(i) exceptional topographic or other physical conditions exist which are peculiar to the particular parcel of land.

(ii) That the peculiar condition in paragraph A did not result from previous actions by the owner.

(iii) That a literal interpretation of these regulations would deprive the owner of rights enjoyed by other property owners.

The request for a variance shall be submitted to the Warren County Board of Commissioners and shall state the specific variances sought and include sufficient data to justify the granting of a variance.

All applications for appeals or variances shall be made on a form provided and accompanied by the fee established by the Board of County Commissioners. Appeals shall be filed within thirty (30) days of the decision of the District Director of the Warren County Soil and Water Conservation District.

Appeals of decisions of the Board of Appeals shall be in accordance with Chapter 2506 of the Ohio Revised Code .

SECTION 408 APPEALS

Any person aggrieved by any order, requirement, determination, or any other action or inaction by the Warren County Board of Commissioners in relation to these regulations may appeal to the court of common pleas. Such an appeal shall be made in conformity with Chapters 2505 and 2506 of the Ohio Revised Code. Written notice of appeal shall be served on the clerk of the Warren County Board of Commissioners.

APPENDIX G: WARREN COUNTY RULES AND REGUALATIONS FOR THE DESIGN OF STORM SEWER AND STORMWATER MANAGEMENT SYSTEMS

BOARD OF COUNTY COMMISSIONERS
WARREN COUNTY, OHIO

Resolution

Number 03-1057 *Adopted Date* July 22, 2003

ADOPT RULES AND REGULATIONS FOR THE DESIGN OF STORM SEWER AND STORM WATER MANAGEMENT SYSTEMS

WHEREAS, Sections 307.37, 307.79, 711.10 and 711.01 of the Ohio Revised Code authorizes a Board of County Commissioners to adopt rules and regulations for the design of storm water management, and

WHEREAS, public hearings on said rules and regulations were held by the Warren County Board of Commissioners on July 1, 2003 and July 8, 2003; and after publication in compliance with ORC 307.37.

NOW THEREFORE BE IT RESOLVED, by the Warren County Board of Commissioners to adopt the rules and regulations under the title: "WARREN COUNTY RULES AND REGULATIONS FOR THE DESIGN OF STORM SEWER AND STORM WATER MANAGEMENT SYSTEMS"

BE IT THEREFORE RESOLVED, that these rules and regulations shall become effective on August 22, 2003, being 31 days following the date of adoption; and shall be administered by the County Engineer, as attached hereto and made a part hereof.

Mrs. South moved for adoption of the foregoing resolution, being seconded by Mr. Kilburn. Upon call of the roll, the following vote resulted:

Mr. Crisenbery – yea
Mr. Kilburn – yea
Mrs. South – yea

Resolution adopted this 22nd day of July 2003.

BOARD OF COUNTY COMMISSIONERS

Tina Davis, Clerk

/lkl

cc: Engineer (file)

WARREN COUNTY RULES AND REGULATIONS FOR THE DESIGN OF STORM SEWER AND STORMWATER MANAGEMENT SYSTEMS

TABLE OF CONTENTS

ARTICLE 600 - STORMWATER MANAGEMENT

CONTROL OF STORM SEWERS

ARTICLE 100

SECTION 101 - CONTROL

All storm sewers in the unincorporated area of Warren County shall be controlled by the Board of County Commissioners, Warren County, Ohio.

SECTION 102 - OWNERSHIP

All public or private storm sewers shall continue to be owned by the respective owners now owning same until such time as the Board of County Commissioners, by resolution agree to accept the private storm sewer system as public.

SECTION 103 - APPROVALS

No storm sewer shall be constructed within the jurisdiction of the Board of County Commissioners without the prior approval of the Warren County Engineer nor shall any final development plan be approved by the Regional Planning Commission until a preliminary drainage plan showing the method of disposition of storm water drainage be first approved by the Warren County Engineer. (See Sections 301 & 302)

SECTION 104 - CONNECTION TO STORM SEWERS

Any connection to a storm sewer within the jurisdiction of the Board of County Commissioners shall be subject to these rules and regulations.

SECTION 105 - EXTENSION / MODIFICATIONS

No extension or modification shall be made to any storm sewer under the jurisdiction of the Board of County Commissioners without the prior approval of the Warren County Engineer.

GENERAL POLICY

ARTICLE 200

SECTION 201 - EXISTING CONTOURS

No building shall be erected on any land nor shall any changes be made in the existing contours of any land, including any change in the course, width or elevation of any water course or drainage channel in any manner that will obstruct, interfere with, or change the drainage of such land, considering future development, without providing adequate drainage in connection therewith.

SECTION 202 - STORM SEWER SYSTEM

Every subdivision shall be provided with a storm water system capable of handling storm waters flowing onto the subdivision site from other areas as well as runoff from precipitation on the site itself. The drainage system shall discharge into a water course, drainage channel or other existing storm water facility without producing any adverse effect on adjacent or downstream properties.

SECTION 203 - GRADING

All parts of the subdivision shall be graded and drained to prevent the standing of storm water, except approved lakes, wetland areas or retention basins. Where necessary, drainage channels or storm sewers shall be provided to convey the water to an existing water course or outlet. The method and means of drainage, both paved and unpaved areas, shall be subject to approval by the County Engineer.

SECTION 204 - REGARD TO TOPOGRAPHY

A storm sewer shall be constructed when its necessity has been determined from topographic data, prepared and presented by the developer's engineer.. Streets and lots shall be platted with appropriate regard for topography and storm water runoff, and in a manner to preserve streams, water courses, lakes, ponds, wooded areas and other natural features, where feasible. Land located in a regulated FEMA flood plain may be platted for any use not endangering the public health, safety or welfare, provided that all requirements of the Warren County Flood Damage Prevention Regulations are met.

SECTION 205 - STORM WATER OUTLET

All storm water shall be carried to an existing stream, watercourse or as close to the property line as practical, without damage to the adjacent property.

SECTION 206 - SANITARY SEWER

The storm water drainage system shall not be combined with any part of a sanitary sewer system, nor shall sanitary sewer water be discharged thereto.

SECTION 207 - EXISTING / PLANNED SYSTEMS

The storm water drainage system shall be designed to fit into existing or planned storm water drainage systems. The design, materials and construction of all parts of the drainage system shall satisfy the specifications of the Warren County Engineer and the Ohio Department of Transportation.

SECTION 208 - FOUNDATION/YARD DRAINS

No person shall install any pump, piping, apparatus, or other such system for discharging sump pump or down spout effluent within ten (10) feet of a public right of way or sidewalk without approval of plans by the County Engineer. The County Engineer may grant approval if the requested plan substantially conforms with one of the following modes of construction:

1) direct connection to a storm sewer or;
2) direct discharge into an approved natural drainage course.

The County Engineer may require the installation of a master sump pump drainage system to ensure the efficient removal of sump pump discharge where connection to storm sewers or discharge into an approved drainage course is not possible. The discharge of sump pump or downspout effluent onto a sidewalk, road surface or gutter is specifically prohibited. For the installation of a master sump pump system the following shall be followed:

1) The main trunk line shall be located no closer than twelve (12) inches behind the back of curb and at an approximate depth of two to three feet, and tied into the nearest catch basin, storm manhole, or storm line. No storm sewer receiving master sump pump drainage shall discharge into an open drainage course within the limits of the proposed development. If a pipe system, sized to carry only the master sump pump drainage, is incorporated into a drainage course, then the drainage course is no longer considered "open".
2) PVC pipe may be used for this installation.
3) Downspouts shall not be tied into this line.

PIPE CAPACITIES:

4" LINE		6" LINE	
GRADE	CONNECTIONS	GRADE	CONNECTION
1%	2	1%	7
2%	3	2%	10
3%	4	3%	12
4%	5	4%	14
5%	5	5%	16
6%	6	6%	18

Standard Y's should be installed where future sump pumps will be connected and marked in the field. Cleanouts should be spaced approximately every two hundred (200) feet.

DRAINAGE PLAN

ARTICLE 300

SECTION 301 - PRELIMINARY DRAINAGE PLAN

A preliminary drainage plan, prepared by a Professional Engineer licensed in the State of Ohio, showing the following information shall be submitted to the County Engineer for preliminary approval.

1) Existing topography with contours shown at an interval of not greater than two (2) feet if the slope of the ground is fifteen (15) percent or less, and not Greater than five (5) feet where the slope is more than fifteen (15) percent.

2) Existing storm sewers, culverts and other physical features.

3) Location and size of all proposed storm water drainage facilities showing their connections with existing systems.

4) Show the routing of storm water through the site to the discharge point. This routing path shall be laid out in such a manner as to direct storm water into the retention or detention area prior to discharge.

SECTION 302 – DETENTION WAIVER

A stormwater detention waiver may be granted if it can be demonstrated that the post-development runoff rates and volumes do not exceed those experienced prior to development. A written request for a waiver of detailed stormwater calculations must include preliminary stormwater calculations, prepared by a Professional Engineer, licensed in the State of Ohio. Preliminary stormwater calculations shall contain:

1) **Calculations of pre-development and post development area-weighted curve numbers (CN).** (This calculation shall be supported by appropriately labeled scaled drawings and/or maps) A waiver may be possible if the area-weighted post-development curve number (CN) is less than or equal to the area-weighted pre-development curve number (CN).

2) **Calculations of pre-development and post development times-of-concentration.** (Appropriately labeled, scaled drawings or maps shall support this calculation.) A waiver may be possible if the post –development time-of-concentration is greater than or equal to the pre-development time-of-concentration.

If only one of the above conditions is true, a stormwater detention waiver may still be possible if the calculated Post-development flows can be shown to be less than the calculated Pre-development flows. NRCS methodology is the preferred approach. Calculations shall cover 1 year, 2 year, 5 year, 10 year, 25 year, 50 year and 100 year storms. Other waiver arguments will be considered, on a case-by–case basis.

SECTION 303 - FINAL DRAINAGE PLAN

After approval of the preliminary drainage plan, the applicant shall submit the final drainage plan prior to or in conjunction with the construction plans along with storm drainage design computations. The plan shall be in compliance with the criteria outlined in these regulations. The County Engineer, prior to construction, must approve any deviation from the final drainage plan.

SECTION 304 - RECORD PLAN INFORMATION REQUIREMENTS

Prior to the release of the Maintenance Obligation (Bond) for a new subdivision or the issuance of a Certificate of Occupancy for a non-residential building, an acceptable record plan shall be prepared. The following information shall be obtained and the record plan prepared accordingly.

STREETS

If applicable, roadside ditches at 100-foot stations and the invert of each driveway culvert. The County Engineer may require the curb and road centerline elevations at 100-foot stations on roads with curb.

STORMWATER INFRASTRUCTURE

Catch basins and manholes – all invert elevations, top-of-casting elevations and all opening elevations.

Detention/Retention Facilities – all orifice invert elevations, all weir crest elevations. Sufficient spot elevations within each basin in order to prepare and show on the record plan a stage-storage table that contains: elevations at 1-foot increments, area at each elevation and volume at each elevation. Sufficient spot elevations along the top of the embankment and the emergency spillway.

Major Flood Routing Paths – sufficient spot elevations along the flood route to verify compliance with the approved grading plan.
As-built plans shall contain the following statement, sealed, signed and dated by a Surveyor or Engineer registered in the State of Ohio:

"I hereby certify that this Record Plan is based on field location of visible facilities and reflects the condition of the improvements as of _____. (Date)

_____
(Surveyor/Engineer)

SUBDIVISION IMPROVEMENT PLAN

ARTICLE 400

SECTION 401 - DRAWING AND SPECIFICATIONS

Detailed drawings and specifications together with storm drainage design computations of the storm drainage system shall be submitted to the County Engineer for approval. Drawings shall be on a standard size sheet, 24" x 36". Locations and profiles of the storm sewers, drainage channels, and structures shall be shown thereon. All existing and proposed topography shall be shown as prescribed in Section 300, Article 301.1, along with existing pavements, driveways, utilities, basins and other structures. Watercourses, marshes, land subject to flooding and any other significant physical items shall be shown in adequate detail. Plans and profiles of proposed storm sewers with grades and pipe dimensions shall be shown. These shall include manholes and connections to outlets, which might be beyond the project boundary. All existing and proposed open watercourses and drainage channels shall be shown in sufficient detail.

SECTION 402 -- FLOOD PLAIN LIMITS

The upper limits of flood plains shown on the flood plain maps adopted by Warren County shall be accurately shown on the plans.

SECTION 403 - STREETS

Streets constructed on land adjoining streams and watercourses shall be constructed a minimum of one and one half (1 ½) feet above the computed one hundred (100) year storm elevations. (BFE – Base Flood Elevation)

SECTION 404 - FILL AREAS

No part of a water course and flood plain cross section may be filled in unless the conveyance of pre-empted cross section is compensated for by an equivalent amount of channel and flood plain excavation either opposite or upstream of the filled area.

SECTION 405 - EASEMENTS

Utility and drainage easements shall be provided where necessary, as determined by the Warren County Engineer. When a storm sewer or drainage structure is located outside a public right of way or public utility easement they shall follow a lot line, where practical, and in all cases be within a minimum of a twenty (20) foot wide drainage easement. No trees, shrub or structure shall be placed within such easement, and the proper authorities may have free access to, and use of, the easement at any time.

SECTION 406 - RELATION TO STREAMS AND WATER COURSES

Where it is deemed necessary, when a proposed street parallels or is located near an existing stream or water course, furnish profiles at the top bank of the stream and compute water elevations and invert elevations of the stream or water course. Show relations of proposed street grade to existing profiles of the stream or watercourse. Street construction shall not enroach on the approved limit of the stream or watercourse.

SECTION 407 - STORM SEWER PROFILES

Storm sewers, when not included in the street profile, shall be shown in profile with the following information:

.01) Profile of existing ground at storm sewer centerline.
.02) Profile of proposed finish grade.
.03) Percent of grade of proposed storm water.
.04) Dimensions of proposed pipe or structure.
.05) Show stations every one hundred (100) feet and at all structures and appurtenances.
.06) Show street inlets with type and manholes, together with proposed elevations.

SECTION 408 - DATUM FOR ELEVATIONS

Give datum reference used for elevations and correlate to U.S.G.S. datum.

SECTION 409 - GRADING PLAN

The grading plan shall show existing contour lines at two (2) foot intervals, proposed finished contour lines, spot elevations and existing and finished contours and elevations on streets to be graded.

SECTION 410 - GRADING AREAS

All graded areas are to be designed and maintained to prevent excessive erosion and runoff. Drainage swales, temporary retention dams and the like are to be installed during the grading operation. All slopes and graded areas are to be seeded in accordance with the Warren County Erosion and Sediment Control Regulations (Section 303 or most current).

SECTION 411 - MUD AND DEBRIS

Until the Board of County Commissioners accepts the subdivision, the developer shall take such measures as are necessary to prevent excessive erosion of graded surfaces, and to prevent the deposit of soil and debris from entering onto public streets, into drainage channels, sewers or onto adjoining land.

SECTION 412 – MAJOR STORM ROUTES

The proposed routing of major storms (100 year frequency and greater) shall be shown on the plan. All major storm routes shall be within an easement of appropriate width. The easement width shall be sufficient to contain the 100 year storm.

BASIC DESIGN CRITERIA

ARTICLE 500

SECTION 501 - QUANTITY OF RUNOFF

.01 Each portion of the storm water drainage system shall be capable of handling the peak flows of runoff as determined by the "Rational Method", (Q=CIA), TR-20, TR-55 or other approved methodology.

The Warren County Engineer may, from time to time, obtain hydrologic studies within the unincorporated areas of the County and developers may be required to participate financially in these hydrologic studies. The amount of financial participation shall be proportional to area of the developer's project in relation to the area of the watershed under study. The Warren County Engineer may submit the approved hydrologic study to the Board of County Commissioners for incorporation into these regulations. Once a study has been incorporated into these regulations the results and recommendations of the study may supersede the minimum requirements specified herein. A list of studies that have been incorporated into these regulations can be found in Appendix B.

SECTION 502 - RUNOFF COEFFICIENT "C"

.01 The following are acceptable coefficients for Warren County.
Slopes-Flat, less than 2% - Steep, greater than 7%

CHARACTERISTICS	**RUNOFF COEFFICIENTS**	
	< 2%	**7%**
Parks, cemeteries, golf courses, Lawns, playgrounds, unimproved land	0.35	0.50
Business	0.70	0.85
Residential (Single Family)	0.50	0.60
Residential (Multi Family)	0.70	0.85
Industrial (Light)	0.70	0.90
Industrial (Heavy)	0.80	1.00
Commercial/Office (Light)	0.70	0.90
Commercial / Office (Heavy)	0.80	1.00
Woodland	0.20	0.40
Grassland (Pasture)	0.25	0.45
Cropland (Row Crops)	0.40	0.50
Impervious Surface	0.90	0.95

The above shall be increased to allow a composite "C" value based on percentage of impervious surface.

SECTION 503 - RAINFALL DATA

Rainfall intensity, duration and frequency data shall be obtained from the " Rainfall Atlas of the Midwest, 1992" (Bulletin 71). Data considered pertinent to Warren County, Ohio is available in Appendix A.

SECTION 504 - STORM SEWERS

.01) Pipe used for storm sewers shall comply with current Ohio Department of Transportation Specifications and shall have a minimum inside diameter of twelve (12) inches.

.02) The pipe shall meet the design specifications for loading and depth of cover.

.03) Storm sewers shall be designed on a minimum of twenty-five (25) year frequency at full flow capacity.

.04) The minimum grade is determined by velocity. Minimum of 2 feet per second.

.05) Inlet spacing shall be a maximum for three hundred (300) feet. The Warren County Engineer may waive this requirement if sufficient information is presented.

SECTION 505 - ROADWAY CULVERTS/BRIDGES

.01) Culverts shall be designed to accomodate a 100 year frequency storm without encroaching onto the roadway. All culverts shall conform to the current Ohio Department of Transportation specifications.

SECTION 506 - HEADWALLS

.01) Standard headwalls or wing walls shall be constructed at the outfall of all storm sewers.

SECTION 507 - DRAINAGE EASEMENTS

.01) When a storm drainage system (pipe or ditch) is outside the road right of way or public Utility easement, a storm drainage easement shall be provided and identified as such on the record plat.

.02) The minimum width of said easement shall be twenty (20) feet.
.03 Easement widths for ditches and natural drainage courses shall be determined by use of the following formula:

Ew = 120DA^0.43 where:

Ew = Easement Width, feet

DA = Drainage Area, square miles

SECTION 508 - OPEN DITCHES / CHANNELS

The Manning Formula (V =(1.486/n) (R^0.667) (S^0.5) in conjunction with Q = AV) may be used to determine flow in open ditches and channels.

.01) The following are acceptable coefficients for "n"

LINING	"n"	LINING	"n
Bare Earth	.02	Concrete	.015
Seeded	.03	bituminous	.018
Sod	.04	Grouted Rip Rap	.02
Jute Mat.	.04	Rock Channel Protection	
Excelsior Mat.	.04	for ditches	.06
		For large channels	.04

.02) Side slopes shall be 2:1 or flatter.

.03) The minimum grade shall be one percent. Where flatter grades are necessary, sewers or paved flow lines may be required.

.04) Ditches along roadway where velocities are five (5) feet per second or less shall be sodded. Ditches with a velocity of over five (5) feet per second shall be lined.

.05) Ditches not along a roadway with a velocity of two (2) feet per second may be seeded.

.06) Natural stream and watercourses throughout the development shall not be disturbed unless permission granted by the County Engineer.

.07) Any channel running through the proposed development shall have the rate of runoff determined on a one hundred (100) year frequency. All proposed buildings affected by the channel flood plain shall be checked such that the minimum building opening elevation is above the one hundred (100) year flood elevation.

SECTION 509 - ROCK CHANNEL PROTECTION

Rock channel protection is used to control erosion at the outlet of culverts and storm sewers, or for lining ditches on steep grades. There are four types of rock channel protection that are used in various situations. The use of the proper type at culvert and storm sewer outlets can be determined from Figure 1107-1. (See Appendix A) Type A is generally used beyond the outlet of the larger conduits having outlet velocities in excess of twelve (12) feet per second and Type B or C for conduits having lesser velocities. Type C and D may be used to line roadside ditches, as required.

STORMWATER RUNOFF CONTROL
IN THE UNINCORPORATED PORTIONS OF
WARREN COUNTY, OHIO

ARTICLE 600

SECTION 601 - FINDINGS AND PURPOSE

.01 The Board of Commissioners of Warren County finds that the stream channels and waters of Warren County are limited resources to be protected and that their natural quality is of primary significance in promoting and maintaining the health, safety and general well-being of all life and inhabitants within its jurisdictional boundaries.

.02 It further finds that such channels and waters may become despoiled due to increased sediment depositions caused by accelerated storm water runoff resulting from the disruption and alteration of the natural surface character of the land site development activities.

.03 Therefore, the purpose of this Resolution is to establish standards, principles and procedures by which Warren County can regulate site development activities which cause or may cause off-site impact potentials at lower elevations and the flooding of watercourses.

.04 Standards in this Resolution are thus intended to protect persons and property from adverse storm water runoff erosion impacts which may result from site development.

SECTION 602 - DEFINITIONS

.01 Approving Agent(s): Warren County Engineer, or other entity or agency so designated.

.02 Channel: a natural stream that conveys water; a ditch or channel excavated for the flow of water.

.03 Construction: the erection, alteration, repair, renovation, demolition or removal of any building or structure; and the clearing, stripping, excavation, filling, grading and regulation of sites in connection therewith.

.04 Developer: Any individual, subdivider, firm, association, syndicate, partnership, corporation, trust or any other legal entity commencing proceedings under this resolution to effect the development of land for himself or for another.

.05 Development: the division of land into two or more parcels, then carrying out of any building, or the making of material change in the use or appearance of any structure above or below ground surface land through activities of construction, erection or alteration.

.06 Development Area: any contiguous area owned by one person or operated as one development unit included within the scope of these regulations, upon which earth-disturbing activities are planned or underway.

.07 Ditch: an open channel either dug or natural, for the purpose of drainage or irrigation with intermittent flow. (See stream, drainage, and grassed waterway.)

.08 Drainageway : an area of concentrated water flow other than a river, stream, ditch or grassed waterway.

.09 Earth-Material : soil, sediment, rock, sand, gravel and organic material or residue associated with or attached to the soil.

.10 Erosion: (1) the wearing away of the land surface by running water, wind, ice or other geological agents, including such processes as gravitational creep; (2) detachment and movement of soil or rock fragments by wind, water, ice or gravity.

.11 Fill: any act by which earth, sand, gravel, rock or any other material is placed, pushed, dumped, pulled, transported or moved to a new location above the natural surface of the ground or on top of the stripped surface and shall include the conditions resulting therefrom. The difference in elevation between a point on the original ground and a designated point of higher elevation on the final grade. The material used to make a fill.

.12 Finished Grade: the final grade or elevation of the ground surface conforming to the approved grading plan.

.13 Floodplain Scour: the abrading and wearing away of the nearly level land situated on either side of a channel due to overflow flooding.

.14 Grading: the stripping, cutting, filling, stockpiling or any combination thereof of earth disturbing activity inclusive of land in its cut or filled conditions.

.15 Hazard : any danger to public health, welfare or safety including exposure to risk or damage to property or liability for personal injury; or risk of harm to land, air or water resulting in environmental degradation. Hazards can include flooding and ponding compaction and settling, landslides, earthquakes, toxic chemicals, radiation, fire and disease.

.16 Mulching : the application of suitable materials on the soil surface to conserve moisture, hold soil in place and aid in establishing plant cover.

.17 Nuisance : a public nuisance as know by common law or in equity jurisprudence.

.18 Permanent Vegetation : producing long term vegetative cover, e.g., bluegrass, tall fescue, crown vetch, etc.

.19 Permittee : any person to whom approval of a site plan according and pursuant to this Resolution is granted, or who is subject to inspection under it.

.20 Person : any individual, corporation, partnership, joint venture, agency, unincorporated association, municipal corporation, county or state agency within Ohio, the federal government or any combination thereof.

.21 Plan: as used this Resolution shall mean the Stormwater Management Plan.

.22 Plans: profiles, typical cross sections, working drawings and supplemental drawings of site, grading, drainage and runoff and sedimentation control plans, vicinity map, soil map, and other plans as approved or exact reproductions thereof, which show the location, character, dimensions and details of the work.

.23 Public Waters: those waters within lakes (except private ponds and lakes on single properties), rivers, streams, ditches, and / or waters leaving that respective property.

.24 Runoff : the portion of rainfall, melted snow or irrigation water that flows across the ground surface and eventually is returned to streams.

a. Accelerated Runoff - increased rate and volume of runoff due to less permeable surface primarily caused by urbanization.
b. Peak Rate of Runoff - the maximum rate of runoff for any 24 Hour storm of a given frequency.

.25 Sediment : solid 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 either above or below water.

.26 Site : any lot or parcel of land or a series of lots or parcels of land adjoining or contiguous or joined together under one ownership where clearing, stripping, grading or excavating is performed.

.27 Slope: the face of an embankment or cut section; any ground whose surface makes an angle with the plane of the horizon. Slopes are usually expressed in a percentage based upon vertical differences in feet per 100 feet of horizontal distance.

.28 Storm Frequency : the average period of time in years within which a storm of a given duration and intensity can be expected to be equaled or exceeded.

.29 Stream : a body of water running or flowing on the earth's surface or channel in which such flow occurs. Flow is continuous or seasonally intermittent.

.30 Subdivision : the division of any parcel of land shown as a unit or as contiguous units on the last preceding tax roll, into tow or more parcels, sites, or lots, any one of which is less than five acres for the purpose, whether immediate or future of transfer of ownership; provided, however, that the division or partition of land into parcels of more than five acres not involving any new streets or easement of access, and the sale or exchange of parcels between adjoining lot owners, where such sale or exchange does not create additional building sites, shall be exempted; or the improvement of one or more parcels of land for residential, commercial or industrial structures or groups of structures involving the division or allocation of land for the opening, widening or extension of any street or streets, except private streets serving industrial structures; the division or allocation of land as open spaces for common use by owners, occupants or lease holders or as easements for the extension and maintenance of public sewer, water, storm drainage or other public facilities.

.31 Subsoil : that part of the soil below the surface soil or plow layer.

.32 Surface soil: the uppermost part (5 to 8 inches) of the soil commonly stirred by tillage implements or its equivalent in uncultivated soils.

.33 Swale: a low lying stretch of vegetated land which gathers and carries surface water runoff at a reduced rate of flow and conveys it downstream at less erosive velocities.

.34 Temporary Vegetation : short-term vegetative cover used to stabilize the soil surface until final grading and installation of permanent vegetation i.e., oats rye or wheat.

.35 Topsoil: surface and upper surface soils which presumably are darker colored, fertile soil materials, ordinarily rich in organic matter or humus debris.

.36 Urban Land Use: existing or proposed developments listed within the intent and scope chapter (Article 603) of this resolution.

.37 Watercourse: any natural or artificial waterway (including, but not limited to, streams, rivers, creeks, ditches, channels, canals, conduits, culverts, drains, drainageways, waterways, gullies, ravines or washes) in which waters flow in a definite direction or course either continuously or intermittently and including any area adjacent thereto which is subject to inundation by reason of overflow of flood water.

SECTION 603 SCOPE AND INTENT

.1 This Resolution shall apply to both the development and redevelopment of land proposed for the following types of public and private urban land use : which are,

.01 land used or being developed for residential, commercial office or industrial purposes, including subdivision and land development proposals for non-farm uses in rural areas.

.02 land used or being developed for recreation, wildlife, or natural purposes, including agricultural areas proposed for conversion to such uses.

.2 Any person or persons proposing to develop or redeveloped land within Warren County for any of the uses listed in Section 603.1 shall design and implement a Stormwater Management Plan which:

.01 will yield quantities of surface water runoff from the development site at rates which are the same or less than before development occurred as specified by Section 604 of this Resolution.

.02 will not result in increasing current potentials for flooding of watercourses that are at lower elevations off-site.

.03 has been approved and permitted under Section 605 of this resolution.

.3 No changes subject to regulation under this Resolution shall be made in the existing natural surface composition or subsurface configuration of any land proposed for development or redevelopment within Warren County for land use developments specified under Section 603.1 and approved of a Stormwater Management Plan required according to Section 605 enabling final approval of a proposed development and / or subdivision development shall not be given unless:

.01 a determination is made according to Section 605.3 of this Resolution by the Regional Planning Commission of Warren County and appropriately authorized approving agents that implementation of the stormwater management would not cause runoff and erosion impact that would be harmful or damaging to the existing quality of lands and waters at lower elevations off-site.

.4 Within watersheds regulated under NPDES Phase 2 permits by the Ohio Environmental Protection Agency (OEPA), the Warren County Engineer may require that the stormwater management plan prepared for a subject project include a design that meets any stormwater quality guidelines that may be established by the OEPA.

SECTION 604 STORMWATER RUNOFF CONTROL PLANNING STANDARDS.

.1 To control pollution of public waters by soil sediment from accelerated stream channel erosion and to control flood plain erosion caused by accelerated stormwater runoff from development areas, the increased peak rates and volume of runoff shall be controlled such that:

.01 the peak rate of runoff from the critical storm and all more frequent storms occurring on the development area does not exceed the peak rate of runoff from a one year frequency storm (of 24 hour duration) occurring on the same area under pre-development conditions.

.02 storms of less frequent occurrence than the critical storm, up to the one hundred-year storm, have peak runoff rates no greater than the peak runoff rates from equivalent size storms under pre-development conditions.

.03 the critical storms for a specific development area is determined as follows:

a. Determined by appropriate hydrologic methods the total volumes of runoff from a one-year frequency, 24-hour storm occurring on the development area before and after development.

b. From the volume determined in (a), determine the percentage increase in volume of runoff due to development, and using this percentage, select the 24-hour critical storm from this table.

If the percentage of increase in volume of runoff is:

Equal to or Greater than	and less than	The critical storm for peak rate Control will be
_	10	1 year
10	20	2 year
20	50	5 year
50	100	10 year
100	250	25 year
250	500	50 year
500	-	100 year

c. In general, it shall be assumed that the runoff curve numbers (CN) for the predevelopment condition do not exceed those of "Open Space in fair condition". (i. e. A=49, B=69, C=79, D=84) Post development runoff curve numbers (CN) shall be taken from hydrologic soil group D for all subdivisions with lot sizes of ½ acre and less. For lots greater than ½ acre and less than 3 acres allow ¼ acre of Type D soils per lot when calculating the weighted CN for post development. This allowance is to address soil disturbances and compaction during construction.

.04 A recommended method which may be used to determine changes in rates and volumes of runoff is presented in the United States Department of Agriculture, Natural Resources Conservation Service, Engineering Division,, Urban Hydrology for Small Watersheds, Technical Release No. 55 (TR-55)June, 1986. WinTR-55 (July 1, 2002) is also available.

SECTION 605 - STORMWATER MANAGEMENT PLANNING PROCEDURES

.1 REQUIRED INFORMATION

.01 any person seeking approval of subdivision or land development proposals for land use types listed in Section 603 shall

a. provide mapped information about the location and vicinity of the area proposed for development.
b. furnish three types of information and maps about the proposed land development and site location.

(1) A predevelopment conditions assessment.
(2) A post development conditions assessment; and
(3) A stormwater management plan.

c. shall have the right to request the Regional Planning commission of Warren County and the Warren County Engineer to hold pre-submission conferences and site inspections, as necessary, for assistance in submitting the required site planning information.

.2 PREDEVELOPMENT CONDITIONS ASSESSMENT

.01 The assessment requires quantification in tabular or other approved form of inventory map information by site drainage area and subdrainage areas in order to determine and display the current volume and rate of runoff from the proposed development area, and shall be prepared according to methods prescribed in the SCS text cited in Section 604.1 (04) of this Resolution or others which yield equivalent information about rates and volumes of surface runoff. Information from the assessment is used to evaluate impacts expected to result during and from development of a proposed plan.

.02 the assessment shall:

a. Delineate drainage units, which comprise the area proposed for development.

b. Indicate the hydraulic length of slope per individual drainage unit and the soil type(s) present.

c. Indicate within the legend the average percent slope and runoff curve number (CN) per individual subdrainage unit for a 24 hour storm of a 1,2,5,10,25,50 and 100 year frequency.

.3 DEVELOPMENT PLAN EVALUATION

.01 The evaluation of the proposed site development plan is to provide mapped and tabularized information about the changes in rates and volumes of runoff and erosion, which are expected to result from its implementation and shall be prepared according to methods prescribed in the SCS texts cited in Section 604 and Sections 604.1 (.02) 604.1 (.03) of this Resolution. The Regional Planning Commission of Warren County and agent(s) shall use this evaluation information to determine whether an additional Runoff Control and Sediment Abatement Plan is needed.

.02 The development plan evaluation map shall:

a. depict all permanently proposed structural improvements and installations to be made on the development site, inclusive of buildings, retaining walls, sidewalks, streets, parking lots, driveways and storm drainage impoundment’s, channels and outlets.

b. graphically differentiate the area to be developed from the area to be left undisturbed.

c. Depict all grade changes and areas to be excavated or used for stockpiling on-site during development and provide the timing for their occurrence within an attached schedule of overall construction activities.Be accompanied by a hydrograph for 24 hour storm of the critical frequency to be controlled as determined according to Section 604.1 (.03) and all calculations made pertinent to evaluating the effects of the proposed development plan upon current runoff and erosion conditions of the site.

.4 STORMWATER MANAGEMENT PLAN CONTENT REQUIREMENTS

.01 A stormwater management plan shall identify how increases in surface water runoff induced by development is to be controlled to within the standards of Section 604.1 of this Resolution.

.02 All proposed controls are to be designed in accordance with methods and techniques set forth in the SCS texts cited in Section 604 of this Resolution or others approved by the Planning Commission and appropriately authorized approving agent (s).

.03 A stormwater management plan shall be comprised of, but not limited to, the following information:

a. A map rendered on the appropriate scale which indicates the number, types, dimensions and locations of all stormwater runoff control structures or devices to be utilized either temporarily or permanently on a development site.

b. All pertinent computations made to arrive at the final dimensions of each control device shall be presented along with plan and section view drawings of the same rendered at an appropriate design scale to be agreed upon between the applicant and the approving agent (s).

c. Schedules detailing the timing and cost for the installation and maintenance of each structure or device.

.5 STORMWATER MANAGEMENT PLAN SUBMISSION, REVIEW AND APPROVAL

.01 Submission of a stormwater management plan to the Regional Planning Commission of Warren County and the appropriately authorized approving agent(s) completes ALL site development planning information and impact control planning responsibilities required of an applicant under provisions of this Resolution and initiates final site development plan approval proceedings which are necessary to enable approval of the proposed subdivisions and/or development.

.02 Review of the stormwater management plan required of the applicant shall:

a. be made by the Regional Planning Commission or Warren County and the appropriately authorized approving agent(s) including Warren County Engineer and a representative of the local Soil and Water Conservation District, provided the applicant has prepared and submitted all necessary information according to Section 605.4 of this Resolution.

b. be completed within a period of three (3) weeks before the plan is approved or disapproved by the Regional Planning Commission of Warren County at a regularly scheduled meeting.

.03 The Regional Planning Commission of Warren County and the appropriately authorized approving agent(s) shall upon completing its review of the stormwater management plan either:

a. approve the plan as submitted by the applicant provided it is in compliance with provisions of this Resolution and initial site plan review recommendations, or

b. disapprove the plan until the applicant makes revisions which comply with provisions of this Resolution.

.04 Revisions to a disapproved stormwater management plan shall be prepared and submitted by an applicant to the Regional Planning Commission of Warren county the appropriately authorized approving agent(s) for review and approval according to the same procedures specified by provisions within the above paragraphs of this Section.

.05 Action by the Regional Planning Commission of Warren County and appropriately authorized approving agent(s) approving or disapproving a stormwater management plan is a final order for purpose of judicial review.

.06 Notwithstanding anything to the contrary in this Section 5, any applicant for a site development permit for a subdivision (1) shall submit its initial application (605.3) together with the preliminary plat submissions required by Section 301 of the Subdivision Regulations for Warren County, Ohio and (2) shall submit its stormwater management plan (605.5) together with either the preliminary or final plat submissions required by Section 301 of the Subdivision Regulations for Warren County, Ohio, and all such submissions shall be reviewed pursuant to the subdivision regulations.

.6 OFF SITE STORMWATER MANAGEMENT

.01 Exceptions to requiring permanent control of increased runoff on the development site in all cases shall be considered by the Regional Planning Commission of Warren County and the appropriately authorized approving agent(s) provided the applicant can prove that:

a. Performance objectives and standards of this Resolution for runoff control can be best achieved by installations of off-site abatement control facilities.

Runoff from the development site can be conveyed to off-site control facilities in a manner and by means, which satisfies or surpasses performance objectives of this Resolution.

SECTION 606 COMPLIANCE RESPONSIBILITY

.1 PERFORMANCE LIABILITY

No provisions of this Resolution shall limit, increase or otherwise affect the liabilities of the developer nor impose any liability upon this jurisdiction not otherwise imposed by law.

.2 OPERATIONS AND MANAGEMENT

.01 During site development, a developer is responsible for:

a. carrying out all provisions as approved in plan and required by this Resolution.

.3 ENFORCEMENT

ENFORCEMENT

.01 The Warren County Engineer may, upon identification to the owner or person in charge, enter any land upon obtaining agreement with the owner, tenant or manager of the land in order to determine whether there is compliance with this resolution. If the Warren County Engineer is unable to obtain such an agreement, he may apply for and a judge of the court of common pleas for the County where the land is located may issue an appropriate inspection warrant as necessary to achieve the purposes of this resolution.

.02 If the Warren County Engineer determines that a violation of the rules adopted under this section exists he may issue an immediate stop work order if the violator failed to obtain any federal, state or local permit necessary for sediment and erosion control, earth movement, clearing or cut and fill activity.

.03 In addition, if the Warren County Engineer determines a rule violation exists, regardless of whether or not the violator has obtained the proper permits, he may authorize the issuance of a notice of violation. If, after a period of not less than thirty days has elapsed following the issuance of the notice of violation, the violation continues, he shall issue a second notice of violation.

.04 If after a period of not less than fifteen days has elapsed following the issuance of the second notice of violation, the violation continues, the Warren County Engineer may issue a stop work order after first obtaining the written approval of the prosecuting attorney of the county if, in the opinion of the prosecuting attorney, the violation is egregious.

.05 Once a stop work order is issued, the Warren County Engineer shall request, in writing, the prosecuting attorney of the county to seek ann injunction or other appropriate relief in the court of common pleas to abate excessive ersosion or sedimentation and secure compliance with the rules adopted under this resolution. If the prosecuting attorney seeks an injunction or other appropriate relief, then, in granting relief, the ocurt of common pleas may order the construction of sediment control improvements or implementation of other control measures and may assess a civil fine of not less than one hundred or more than five hundred dollars. Each day of violation of a rule or stop work order issued under this section shall be considered a separate violation subject to a civil fine.

.06 The person to whom a stop work order is issued under this section may appeal the order to the court of common pleas of the ocunty in which it was issued, seeking any equitable or other appropriate relief from that order.

.07 No stop order shall be issued under this section against any public highway, transportation, or drainage improvement or maintenance project undertaken by a government agency or political subdivision in accordance with a statement of its standard sediment control policies that is approved by the board or the chief of the division of soil and water conservation in the department of natural resources.

SECTION 607 OWNERSHIP AND MAINTENANCE

.01 The Regional Planning Commission of Warren County may require the owner and/or the developer to ??????????outlined in Ohio Revised Code, Chapter 6117 of the Ohio Revised Code. The Planning Commission may require of the owner and/or developer any one or all of the following prerequisites:

a. benefit two or more property owners.

b. are designed for cost-effective maintenance.

c. Are determined by the Regional Planning Commission of Warren County or appropriately authorized approving agent(s) to be appropriate additions to this jurisdiction's existing storm drainage systems.

d. Are not better suited for private maintenance by an individual or group of property owner(s), with ultimate responsibility for maintenance in the event of default on the part of the owner(s) remaining jurisdiction.

.02 Permanent runoff control installations which are to be privately owned and maintained by an individual or group of property owner(s) shall be:

a. designed and constructed by the developer with easements sufficient to allow adequate access for inspections and corrective actions, if necessary, by the Warren County Engineer's Office.

b. regularly inspected by the Warren County Engineer's Office to ensure privately owned installations are being properly maintained and, if not, shall be repaired by them at the expense of the responsible owner(s).

c. maintained as installed by the developer according to the approved design and not be altered unless approved by the Warren County Engineer. This covenant shall be enforceable by injunction procedures by the grantors, their heirs, assignees and Warren County.

APPENDIX A

Rainfall Intensity (Inches/Hour)

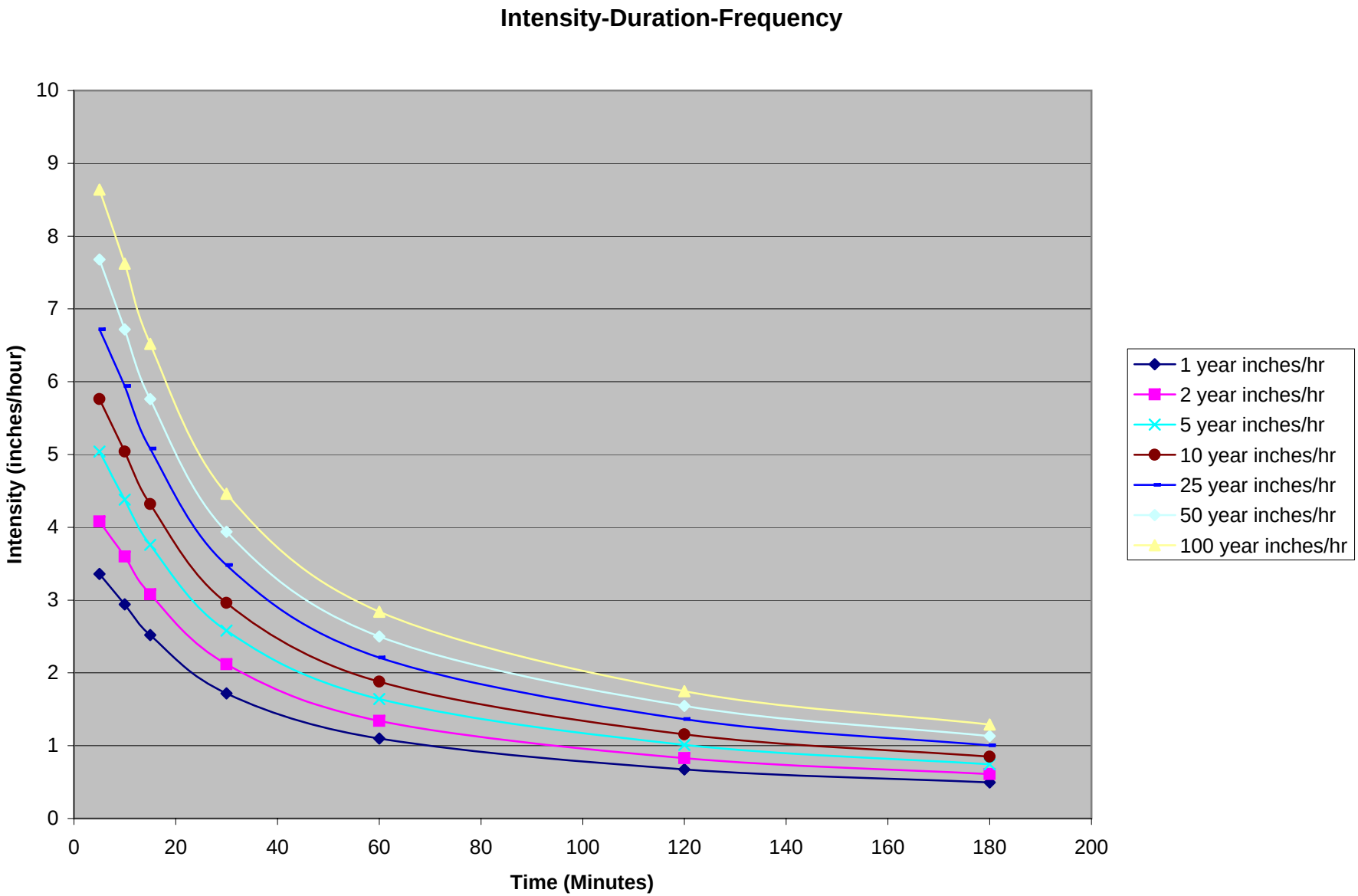
Time (Minutes)	Hours	1-Year Inches/Hour	2-Year Inches/Hour	5-Year Inches/Hour	10-Year Inches/Hour	25-Year Inches/Hour	50-year Inches/Hour	100-Year Inches/Hour
5		3.36	4.08	5.04	5.76	6.72	7.68	8.84
10		2.94	3.60	4.38	5.04	5.94	6.72	7.62
15		2.52	3.08	3.76	4.32	5.08	5.76	6.52
30		1.72	2.12	2.58	2.96	3.48	3.94	4.46
60	1	1.10	1.34	1.64	1.88	2.21	2.50	2.84
120	2	0.68	0.83	1.01	1.16	1.37	1.55	1.75
180	3	0.50	0.61	0.74	0.85	1.00	1.13	1.29
360	6	0.29	0.36	0.44	0.50	0.59	0.67	0.76
720	12	0.17	0.21	0.25	0.29	0.34	0.39	0.44
1080	18	0.12	0.15	0.18	0.21	0.25	0.28	0.32
1440	24	0.10	0.12	0.15	0.17	0.20	0.22	0.25

Data Taken From: "Rainfall Frequency Atlas of the Midwest" "Bulletin 71)

Total Rainfall (Inches)

Time (Minutes)	Hours	1-year Total Inches	2-Year Total Inches	5-Year Total Inches	10-Year Total Inches	25-Year Total Inches	50-Year Total Inches	100-Year Total Inches
5		0.28	0.34	0.42	0.48	0.56	0.64	0.72
10		0.49	0.60	0.73	0.84	0.99	1.12	1.27
15		0.63	0.77	0.94	1.08	1.27	1.44	1.63
30		0.86	1.06	1.29	1.48	1.74	1.97	2.23
60	1	1.10	1.34	1.64	1.88	2.21	2.50	2.84
120	2	1.35	1.66	2.02	2.31	2.73	3.09	3.50
180	3	1.49	1.83	2.23	2.55	3.01	3.40	3.87
360	6	1.75	2.14	2.62	2.99	3.52	3.99	4.53
720	12	2.03	2.49	3.04	3.47	4.09	4.63	5.25
1080	18	2.19	2.69	3.28	3.75	4.42	5.00	5.68
1440	24	2.33	2.86	3.49	3.99	4.70	5.32	6.04

Data Taken From: "Rainfall Frequency Atlas of the Midwest" "Bulletin 71)


Intensity-Duration-Frequency
Intensity (inches/hour)
Time (Minutes)
0
1
2
3
4
5
6
7
8
9
10
0
20
40
60
80
100
120
140
160
180
200
1 year inches/hr
2 year inches/hr
5 year inches/hr
10 year inches/hr
25 year inches/hr
50 year inches/hr
100 year inches/hr

ROCK CHANNEL PROTECTION AT CULVERT AND STORM SEWER OUTLETS

1107-1
METRIC UNITS
REFERENCE SECTION
1107.2

NOTES

Rock size (150,300, 500 mm) indicates the square opening on which 85% of the material, by weight, will be retained.

The width of protection shall be the width of the headwall, with 1.2 m being the minimum.

(Where a stream bed will withstand the calculated velocity without erosion, no rock channel protection will be required.)

LEGEND		ROCK TYPE
①	1.25 m of 500 mm rock	A
②	1.0 m of 500 mm rock	A
③	0.75 m of 300 mm rock	B
④	0.50 m of 150 mm rock	C

APPENDIX B

HYDROLOGIC STUDIES INCORPORATED INTO THESE REGULATIONS:

1) "Bear Run Watershed Hydrologic Study" by Fuller, Mossbarger, Scott & May Engineers, Inc., January, 2002