Storm Water Management Master Plan

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

JANUARY, 2011

©Ruekert & Mielke, Inc. 2011

RUEKERT/MIELKE W233 N2080 Ridgeview Parkway Waukesha, Wisconsin 53188-1020





TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION	1
Impetus and Authority for Planning Effort	1
Planning Area	1
Exhibit 1 – Storm Water Management System Planning Area	2
Plan Objective	3
Planning Process	3
Development of Plan Objectives	
Inventory of the Existing Storm Water Management System	
Alternative Design and Evaluation	
Plan Selection and Adoption	5
CHAPTER 2 FRAMEWORK PLANS	6
Pertinent Framework Plans	6
Other Plans	8
CHAPTER 3 EXISTING CONDITIONS	9
Available Mapping	g
Land Use	g
Existing Storm Water Ordinance	9
Topography and Surface Drainage Patterns	9
Exhibit 2 – Year 2000 Land Use	10
Soil Conditions and Geology	11
Climate and Weather	11
Exhibit 3 – Hydrologic Soil Groups	12
Water Supply	13
Natural Resources	13
Exhibit 4 – Environmental Corridors	14
Existing Storm Water Management System and Water Quality BMPs	15
Exhibit 5 – Existing Storm Water Management System	16
Exhibit 6 – Industrial WDPES Permit Holders	18





Table 1 – Wisconsin Pollutant Discharge Elimination System (WPDES) Storm Water Permit Holders	19
CHAPTER 4 WATER QUALITY OBJECTIVES AND STANDARDS	20
Storm Water Permit Requirements	20
Water Quality Resource Objectives	21
Sussex Creek	21
Pewaukee River	22
Willow Springs Creek	22
Summary of Requirements and Objectives	22
CHAPTER 5 ALTERNATIVE PLANS	23
Urban Nonpoint Source Storm Water Pollution Control Measures	23
Alternative Storm Water Quality Management Approaches	24
Water Quality Modeling Methodology	26
Pollutant Reductions From Existing Control Measures	27
Impacts of Future Development	28
Street Sweeping Alternatives	28
Table 2 – Annual Reductions in Nonpoint Source Pollutant Loadings and Summary of Alternative BMPs	29
Exhibit 7 – Sediment Loading Concentrations Prior to Drainage Controls	31
Exhibit 8 – Sediment Loading Concentrations After Drainage Controls	32
Catch Basin Cleaning	34
Storm Water Quality Control Facility Alternatives	34
Exhibit 9 – Alternative Storm Water Quality Facilities	35
Retrofit Existing Dry Ponds	37
Retrofit Existing Wet Ponds	38
Economic Evaluation	39
CHAPTER 6 – RECOMMENDED PLAN	40
Recommended Plan Description	40
Compliance with 40 Percent Sediment Reduction Goal / Street Sweeping	40
Table 3 – Recommended Storm Water Management System	41
Exhibit 10 – Recommended Storm Water Management Plan	42
Exhibit 11 – Recommended Street Sweeping Program	43
New Storm Water Quality Control Facilities	44





	Retrofit Existing Dry Ponds	. 45
	Retrofit Existing Wet Ponds	. 46
	Spring Creek Daylighting	. 47
	Maintenance of Storm Water Quality Control Facilities	. 47
	Impaired Waters Strategy	. 47
	Public Education, Outreach and Involvement	. 48
	Illicit Discharge Detection and Elimination	. 48
	Construction Site Erosion Control and Post-Construction Site Storm Water Management	. 49
	Municipal Pollution Prevention Plans	. 49
	Catch Basin Cleaning	. 49
	Leaf, Brush and Grass Clipping Collection	. 49
	Deicing Management	. 50
	Storm Water System Map / GIS System	. 50
	Annual Report	. 51
	Intermunicipal Cooperation	. 51
	Fertilizer Management	. 51
	Phosphorus Ban	. 51
	Plan Costs	. 51
	Exhibits 12-19 – Recommended Storm Water Quality Control Facilities	. 52
CHAF	PTER 7 – IMPLEMENTION PROGRAM	. 60
	Priority of Implementation	. 60
	Storm Water Facility Maintenance Requirements	. 60
	Table 4 – Prioritization of Recommended Storm Water Management Improvements	. 61
	Exhibit 20 – Maintenance Needs of Existing Storm Water Facilities	. 63
	Table 5 – Storm Water Facility Maintenance Needs	. 64
	Table 6 – Storm Water Management Facility Summary	66





APPENDIX A - RECOMMENDED PLAN COST ESTIMATES

APPENDIX B – STORM WATER FACILITY INSPECTION REPORTS

APPENDIX C – CULVERT INSPECTION REPORTS

APPENDIX D - WATER QUALITY MODELING SUMMARY

APPENDIX E - SNOW REMOVAL SUMMARY FORM





CHAPTER 1 -- INTRODUCTION

Good storm water system planning, water quality management and flood control are among the most important and costly requirements of sound urban development. Adequate storm water management is essential to the protection of public health and safety, private property and water resources. Inadequate storm water planning, water quality management and flood control can create costly problems which may include danger to human life; loss of the functional use of water resources; an increase in soil erosion, sedimentation and pollution of surface waters leading to a decline in the health of the local ecosystem; disruption of the movement of people and goods, and the delivery of services; compromise of the structural stability of buildings, pavements and utilities; damage to personal property; and depreciation of property values and attendant loss of tax base.

Impetus and Authority for Planning Effort

Municipal officials have long recognized the hazards to public health and safety and the economic losses caused by inadequate storm water management and flood control. More recently, municipal officials have also recognized the need to protect and improve the water quality within watercourses throughout the region, including the Village of Sussex. At the same time, there has been an intense desire from Village staff and officials to link the Village's existing and planned storm water management activities to the other amenities which make the Village a desirable place to live, work and recreate.

In November of 2004, the Village of Sussex was issued their first permit as part of the Upper Fox River Watershed Group from the Wisconsin Department of Natural Resources (DNR) to discharge storm water from the Municipal Separate Storm Sewer System (MS4 permit). This permit was reissued in October of 2009. Among other things, this permit requires the Village to complete a multitude of activities aimed at improving the quality of storm water runoff entering the Village's waterways.

Consequently, in October of 2009, the Village engaged the firm of Ruekert & Mielke, Inc. to conduct a study of the Village's storm water management system. The study was to identify actual and potential storm water quality concerns within the Village and was to recommend needed corrective measures. In effect, the study was to produce a new storm water quality management master plan for the Village. Capital and operation and maintenance costs attendant to the recommended corrective measures were to be estimated, and a plan implementation program developed. This report presents the findings of the study and describes the recommended new storm water management master plan.

Fortunately, the Village's existing storm water management system performs well in severe rainfall events, meaning very few areas of the Village are subject to recurrent storm water flooding. As such, this analysis focused on the water quality aspect of the Village's storm water management system and not the flood control portion.

Planning Area

The area considered in the systems planning effort is shown on Exhibit 1. The planning area consists of all of the area within the corporate limits of the Village of Sussex, and has an area of about 7.5 square miles. As shown on Exhibit 1, the planning area is located almost completely within the Upper Fox River watershed. More specifically, the western and central parts of the





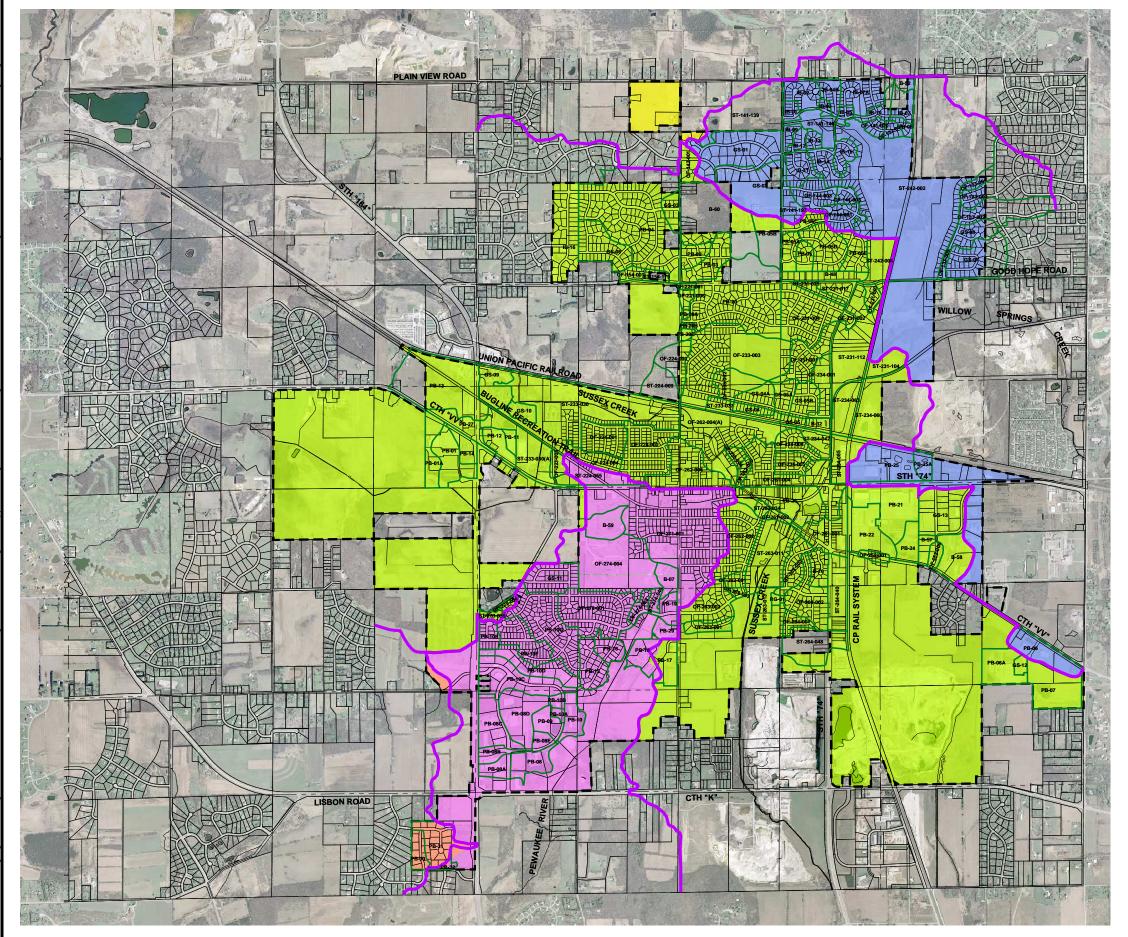


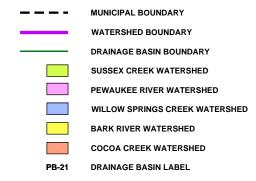


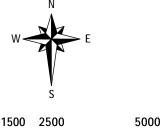
EXHIBIT 1

DRAINAGE BASINS OF THE VILLAGE OF SUSSEX STORM WATER MANAGEMENT SYSTEM PLANNING AREA

> **VILLAGE OF SUSSEX** WAUKESHA COUNTY, WISCONSIN

LEGEND





0 500 1500 2500 **SCALE IN FEET**

DATE: JANUARY, 2011

© 2011 Copyright Ruekert & Mielke, Inc.



Village drain to the Sussex (Spring) Creek subwatershed, the area along the southwest border of the Village drains to the Pewaukee River subwatershed, and the area along the eastern border drains to the Willow Springs Creek subwatershed. Small areas of the Village also drain to the Bark River and Cocoa Creek subwatersheds.

Two of these river segments have been classified as impaired waterbodies and have been placed on the Wisconsin Department of Natural Resource's 303(d) list. This classification means that the waterway does not meet the current numeric or narrative criteria in a water quality standard, or that the designated use for the waterbodies as described in the Wisconsin Administrative Code is note being achieved. In the case of Sussex (Spring) Creek, high levels of phosphorus led to the designation, while in the tributary to Sussex (Spring) Creek which flows southerly in the southeastern corner of the Village, high levels of phosphorus and sediment led to the designation. The Fox River, located downstream of the Village of Sussex is also classified as impaired, the result of high levels of PCBs, sediment, phosphorus and mercury.

Plan Objective

The proposed new storm water master plan is intended to provide the Village of Sussex with a design for a community wide storm water management system that will improve the quality of surface waters within the Village and cost effectively comply with existing water quality concerns and permit conditions within the Village. The plan is also intended to provide the roadmap for compliance with anticipated future permit requirements.

More specifically, the plan and this report:

- 1. Describe the existing storm water management system and the existing storm water and water quality concerns in the Village:
- 2. Describe existing municipal storm water permit requirements, anticipated future permit requirements and subsequent water quality control requirements;
- 3. Present alternative water quality best management practices which meet the requirements developed in items 1 and 2 above;
- 4. Provide a comparative evaluation of the technical, economic and environmental features of the alternative best management practices;
- 5. Recommend a cost-effective, comprehensive storm water management and water quality control system plan for the Village of Sussex;

The storm water management recommendations provided within this plan incorporate compatible multiple-use elements from other community needs, such as pedestrian walkability, urban land use, park and open space, transportation, sanitary sewerage and water supply development.

Planning Process

Storm water management system planning should take place within a broader, well defined, public planning process. That process should begin with the preparation of area-wide water quality and flood control management plans; proceed through the preparation of local storm water management system plans consistent with the area-wide framework plans; and culminate





in the preparation of construction plans and specifications for facility improvements identified in the system plan, and in the ultimate construction of those improvements.

The development of this storm water management master plan consists of four steps: development of plan objectives; inventory of the existing storm water management system; alternative design and evaluation; and plan selection and adoption. The process is designed to permit the principal functional relationships affecting storm water management system development to be described graphically and numerically; the performance of the storm water management system to be simulated; and the effects of different courses of action with respect to land use, water quality and resource management to be tested and evaluated.

Development of Plan Objectives

Before any planning process can be initiated, goals of the relevant stakeholders must be identified. For the Village of Sussex Storm Water Management Master Plan, planning objectives came primarily from the combination of input from Village staff and officials, and the requirements placed upon the Village by their MS4 storm water discharge permit. In particular, the Village desired to comply with the current storm water permit requirements, lay the foundation for compliance with anticipated future permit requirements and combine recommendations from this storm water management system plan with other Village goals and desires, all without significantly increasing storm water utility rates.

Inventory of the Existing Storm Water Management System

No intelligent forecasts of system performance can be made or alternative plans designed and evaluated without definitive knowledge of the state of the existing system. Sound storm water management system planning requires collection of data on climate and weather; the water quality, hydrologic and hydraulic characteristics of streams and watercourses in the planning area; groundwater conditions; soil capabilities; the kind, location and intensity of existing and planned land uses; and the location and performance of existing storm water management facilities. For the planning effort concerned, the inventory process included the collation of pertinent data from Village and Ruekert & Mielke files; the conduct of personal interviews and meetings with knowledgeable Village staff and officials; and, as necessary, the completion of original field investigations.

Alternative Design and Evaluation

The storm water management and water quality system design requires a reconciliation among hydraulic and pollutant loadings derived from rainfall events; the existing and planned land use patterns; storm water management system design standards and permit requirements; existing storm water management facility capacities; and facility capital and operating and maintenance costs. The design process is one of successively approximating the best design solutions, proposing specific solutions for specific problems in each iteration, and then testing through simulation the operation of the proposed system with the proposed improvements by application of hydraulic and pollutant loadings.

For the planning effort concerned, the plan test and evaluation process included--in addition to performance simulation under assigned hydraulic and pollutant loadings--cost effectiveness evaluations through present worth analyses; review of environmental, legal and political impacts of each alternative; the development of means of financing; and the presentation of alternative





plans to, and the review of those plans by Village staff until a cost efficient system plan has been evolved.

Plan Selection and Adoption

The approach used to select a plan from among the alternatives considered was to present the alternatives and the data on the technical, environmental, economic, financial and legal feasibility of each alternative at meetings with Village staff. Once a preliminary recommended plan was selected, an implementation plan was also developed. The final decision on plan adoption is, of course, the prerogative of the Village Board.





CHAPTER 2 -- FRAMEWORK PLANS

Good engineering practice dictates that storm water management system planning, while properly conducted at the local level, be conducted within a framework of broader and more comprehensive regional and local plans. Therefore, certain historic framework planning efforts and resulting plans have important implications for the conduct of storm water management planning for the Village of Sussex.

The broader and more comprehensive framework plans of importance to the preparation of this plan are set forth in seven key documents which reflect the findings and recommendations of regional and local planning processes. These documents serve to make water quality, flood control, and storm water management development recommendations contained in adopted county and local plans consistent with each other, and with adopted regional plans. Such consistency is important if certain proposed storm water management facility improvements are to receive necessary approvals under the State permitting process administered by the Wisconsin Department of Natural Resources.

Pertinent Framework Plans

The seven key framework planning documents concerned are listed below, together with summaries of the salient, pertinent findings and recommendations contained in the documents.

1. Chapter NR 151, Wisconsin Administrative Code, December 2010.

Chapter NR 151 of the Wisconsin Administrative Code addresses nonpoint source pollution. It includes agricultural performance standards and prohibitions, non-agricultural performance standards, transportation performance standards, implementation and enforcement provisions, and a process to develop and disseminate non-agricultural technical standards.

Requirements for non-agricultural areas include implementation of an erosion and sediment control plan for most transportation projects and all construction and post-construction sites; control of sediment and peak discharge rates, minimum infiltration requirements, protective buffer areas and fueling and maintenance area limitations for new developments; implementation of a public education and yard waste management program for developed urban areas; and a total suspended solids reduction of 20 percent by 2008 and 40 percent by 2013 for all municipalities subject to an NR 216 municipal storm water permit.

It should be noted that Chapter NR 151 was revised in December of 2010 and became effective January 1, 2011. Provisions have been included in the revised Code which allows municipalities additional time to meet the 40 percent sediment reduction goal if a long term implementation plan is completed prior to September of 2012.

2. Chapter NR 216, Wisconsin Administrative Code, August, 2004.

Chapter NR 216 of the Wisconsin Administrative Code implements Phases 1 and 2 of the Environmental Protection Agency's (EPA) National Pollutant Discharge Elimination System (NPDES) program. It is intended to reduce, to the maximum extent practicable, the discharge of storm water pollutants into waters of the state from construction sites over 1 acre, designated municipalities and certain industrial facilities.





Subchapter 1 of this code chapter provides the impetus for the NR 216 compliance portion of this storm water management plan. As a municipality within an urbanized area, the Village has been required to obtain municipal storm water permit coverage since 2004. It is the intention of this plan to provide a complete NR 216 compliance program for the Village of Sussex.

3. "The State of the Southeast Fox River Basin", Wisconsin Department of Natural Resources, February 2002.

The State of the Southeast Fox River Basin includes an evaluation of surface water resources, groundwater aquifers, aquatic habitat conditions, land use, development concerns, existing urban areas, storm water runoff and recreational uses; development of water use objectives; identification of non-point source water pollution control needs; and identification of implementation measures.

Recommended non-point source pollution reduction measures are targeted at public participation and education, watershed preservation, land use planning, agricultural pollution control, stream bank erosion, aquifer recharge, outdoor recreation, water quality monitoring and urban runoff. Recommended actions specific to the Village of Sussex include preparation of a comprehensive storm water management plan, control of exotic and non-native plant species and reduction of non-point source pollution attributed to urban storm water runoff.

The report also points out that the Southeast Fox River has been identified as an impaired water of the state and listed on the Environmental Protection Agency's 303d list. The river does not meet its functional use predominantly due to nonpoint source pollution, phosphorus, sediment, mercury and PCB's. These sources cause significant habitat degradation, sediment embeddedness, nutrient enrichment and fish migration interference. Ultimately, this section of river will have a Total Maximum Daily Load (TMDL) calculated which outlines the maximum pollutant load it can receive and still meet its water quality standards.

4. "A Storm Water Management Plan for the Village of Sussex", Southeastern Wisconsin Regional Planning Commission, October 1983 (CAPR 89).

The storm water management plan completed by the Commission in 1983 provides a detailed analysis of existing and proposed storm water and flood control facilities within the Village. Peak flow rates are calculated for various rainfall events under existing and anticipated year 2000 land use conditions. Those flow rates are hydraulically routed through the existing storm water management system and both existing and anticipated problem areas are identified. Alternatives were prepared for each area of concern and a recommended plan was developed. The plan was primarily focused on storm water flooding and can be considered a companion report to the water quality recommendations presented in this planning effort.





5. "South Branch of Sussex Creek Storm Water Management Plan", Ruekert Mielke, August 2005.

In response to historic repetitive flooding along the South Branch of Sussex Creek, Ruekert Mielke prepared this storm water management plan in 2005. The plan develops runoff calculations along this section of Sussex Creek, routes those flows through the existing infrastructure and identifies existing and potential areas of concerns. Alternatives were prepared to address the concerns and a recommended plan was developed. The recommended plan includes preservation of existing natural storage areas, encourages regional storm water and infiltration facilities in addition to site-specific ponds, recommends enlargement of the existing regional storm water storage area upstream of County Highway "VV" and encourages cooperation with neighboring municipalities.

6. "Storm Water Management Plan Report, Village of Sussex", Woodward Clyde, January 1997.

Woodward Clyde prepared a Village-wide storm water plan in 1997. This plan focuses on both water quality and flood control elements under existing and future land use conditions. Alternatives were prepared for each problem area, a recommended plan was developed and an implementation program was outlined.

7. Fox River Total Maximum Daily Load (TMDL), Upcoming

Both Sussex (Spring) Creek (phosphorus) and a tributary to Sussex (Spring) Creek (phosphorus and sediment) have been classified as impaired waterbodies and have been placed on the Wisconsin Department of Natural Resource's 303(d) list since they are not meeting their functional use. The Fox River, which receives runoff from both waterways, is also classified as impaired, the result of high levels of PCBs, sediment, phosphorus and mercury.

The United States Environmental Protection Agency (EPA) requires development of a TMDL for each impaired waterway. It is expected that the Wisconsin Department of Natural Resources and the EPA will commission such a study for the entire Fox River drainage basin in the near future. Once completed, the TMDL will set pollutant allocations for all contributing sources of runoff, including the Village of Sussex wastewater treatment plant, and storm water runoff generated within the Village of Sussex. It is expected that these pollutant allocations will likely increase the 40 percent sediment reduction requirements found within NR 151 and the Village's MS4 storm water permit, while also requiring significant phosphorus reductions within the Village's borders and throughout the Fox River watershed.

Other Plans

The Southeastern Wisconsin Regional Planning Commission has completed several flood control and/or water quality planning studies within the Village of Sussex including Planning Report 12, "A Comprehensive Plan for the Fox River Watershed", April 1969; Community Assistance Planning Report 11, "Floodland Information Report for Sussex Creek and Willow Springs Creek", March 1977; and Community Assistance Planning Report 9 Second Edition, "Floodland Information Report for Pewaukee River", March 1985. In the interest of brevity, those reports are not summarized here, but are available on SEWRPC's website.





CHAPTER 3 -- EXISTING CONDITIONS

In any storm water system planning effort, definitive knowledge is required of the existing storm water collection, conveyance and treatment system. Inventories and analyses are required of such factors as the available mapping, land use conditions topography, drainage patterns, geology, climate, and natural resource base of the Village of Sussex.

Available Mapping

Waukesha County, in cooperation with the Village of Sussex and the Southeastern Wisconsin Regional Planning Commission, in 2005 completed two foot contour interval topographic maps. These maps are compiled by U.S. Public Land Survey System quarter sections, are based upon the standard control survey networks, meet National Map Accuracy Standards, and provide data essential to the completion of this storm water management system analysis.

The topographic mapping was supplemented by cadastral and aerial orthophotography available in computer manipulatable, digital form. This orthophotography was prepared from aerial photography taken in 2007 and meets National Map Accuracy Standards. The planimetric detail from the available large scale maps were assembled into a seamless, digital base map of the entire storm water management planning area and were used throughout the planning process.

Land Use

The existing land use pattern is another important consideration in the preparation of a storm water management systems plan. The Southeastern Wisconsin Regional Planning Commission maintains an existing land use inventory by U.S. Public Land Survey system one-quarter section. The existing land use pattern in the Village of Sussex as of 2000 is shown on Exhibit 2. It should be noted that significant land uses changes have occurred within the Village since the 2000 land use mapping data, primarily the development of single family residential areas in the northern and southwestern portions of the Village, and commercial areas in the western portion of the Village. These areas are reflected on Exhibit 2 with the current cadastral data showing development in areas that were classified as open space in year 2000.

Existing Storm Water Ordinance

The further conversion of rural uses to urban uses within the Village may be expected to increase the rate and volume of attendant storm water runoff, along with the pollutant concentrations within that runoff. However, the Village's current storm water management ordinance (Chapter 14 of the Village of Sussex Municipal Code) largely follows Chapters NR 151 and NR 216 of the Wisconsin Administrative Code, necessitating significant water quality control. The ordinance also requires that the rate of runoff generated by the 2, 10 and 100 year recurrence interval rainfall events under proposed development conditions be restricted to the rate of runoff generated by the respective 2, 10 and 100 year events under existing land use conditions. To meet these requirements necessitates the provision of detention storage, infiltration or other innovative storm water management techniques.

Topography and Surface Drainage Patterns

The drainage pattern of an area is a particularly important consideration in any storm water management system planning effort. As already noted, the Village of Sussex is located almost





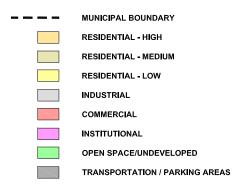


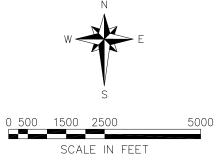
EXHIBIT 2

SEWRPC EXISTING LAND USE (2000)

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

LEGEND





DATE: JANUARY, 2011

© 2011 Copyright Ruekert & Mielke, Inc.



completely within the Upper Fox River watershed and contains approximately 25 miles of perennial and intermittent streams.

Drainage basins for the storm water management system planning effort were delineated based upon analyses of the large scale topographic maps, and upon consideration of other pertinent data such as real property boundaries, existing storm water infrastructure and public street locations and configurations. For the purposes of this study, the planning area was divided into five distinct subwatersheds which were broken down further into the drainage basins as shown on Exhibit 1.

Soil Conditions and Geology

The geologic conditions of an area, including depth to bedrock and depth to the groundwater table, are important considerations in any storm water management system planning effort. The glacial deposits in the planning area are generally relatively shallow and there are significant areas of shallow bedrock, including several guarries, in the Village.

The Village is also located in an area of generally shallow depths to the groundwater table. The groundwater reservoir provided by the underlying undifferentiated limestone bedrock formations is the source of supply for all of the municipal wells used within the Village as a source of potable water.

The Village of Sussex storm water management system planning area contains a diverse mixture of soils, generally consisting of clay loams in the Hochheim-Theresa series in the upland areas and the Pella series in the lowland areas. These soils typically fall within hydrologic soil groups "B" and "C". The Village generally has poor to moderate suitability for onsite infiltration, primarily due to high groundwater and bedrock levels. The hydrologic soil types within the Village are shown on Exhibit 3.

Climate and Weather

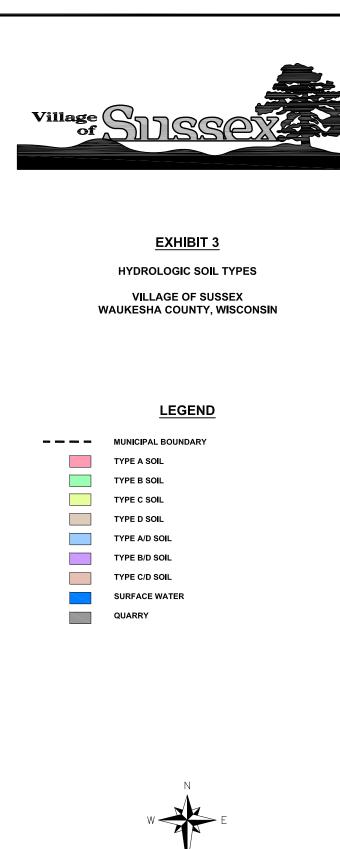
Climate and weather are particularly important considerations in storm water management system planning because they directly affect the performance, configuration, and design of storm water runoff collection, conveyance, storage and treatment facilities. Temperatures affect treatment processes and determine frost depths. Precipitation directly determines the rate and amount of storm water runoff and the selection of hydraulic design loading factors and facility sizes.

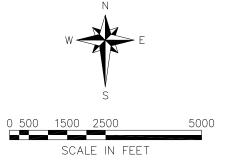
Based upon weather records in the City of Waukesha from 1896 through 2001, the total annual precipitation averages slightly more than 34 inches expressed as water equivalent. The annual precipitation has ranged from a low of about 17 inches to a high of about 45 inches. Maximum 24 hour rainfalls of over 7 inches, and maximum 24 hour snowfalls of over 15 inches have been recorded.

The Village has recently experienced severe rainfall events June of 2008, June of 2009 and June and July of 2010. Each of these events resulted in local street flooding but property damage was fairly minimal, indicating adequate performance of the Village's flood control systems. It should be noted that with the apparent increase in severe storms over recent history, Village staff may wish to monitor regional precipitation trends and adjust the Village's design guidance if appropriate.









DATE: JANUARY, 2011

© 2011 Copyright Ruekert & Mielke, Inc.



The Southeastern Wisconsin Regional Planning Commission has developed rainfall intensity-duration-frequency relationships which are fundamental to the design of storm water management systems. These relationships are based upon over 108 years of precipitation record. The rainfall intensity-duration-frequency relationships are intended primarily for use in the design of storm water management systems, but are also useful in some analyses relating to sanitary sewerage system performance and the need for sewage flow relief and bypassing.

Water Supply

Water supply within the Village of Sussex is primarily provided by municipal wells drawing from the underlying undifferentiated limestone bedrock formations. Wellhead protection areas from these wells must be observed for all existing and proposed storm water management facilities.

Natural Resources

The natural resource base of the Village of Sussex is an important consideration in this storm water management planning effort. The Village's natural resources have great recreational and aesthetic value, and is one reason which makes the area pleasant in which to live and work, and attractive as a setting for high value residential, commercial, and industrial development. In order to preserve and protect the important Village assets concerned, development--including storm water management system development--must be carefully adjusted to the ability of the natural resource base to support various types, densities and intensities of urban and rural development without deterioration or destruction of that base. Accordingly, careful consideration was given to the preservation and protection of the Village's natural resources.

The natural resource base consists of seven elements: soils, streams and watercourses, groundwater, floodlands, wetlands, woodlands and wildlife habitat. The location, extent and characteristics of these seven elements have been inventoried, mapped and intensively studied by the Southeastern Wisconsin Regional Planning Commission and the Village of Sussex. The Commission studies indicated that the best remaining elements of the natural resource base of the area - the organic soils, the streams and watercourses, the areas of groundwater recharge and discharge, the floodlands, the major wetlands, the high quality woodlands, and the best wildlife habitat areas - occur in elongated areas in the landscape that are termed environmental corridors.

The preservation of these corridors in essentially natural, open uses is considered essential to both the maintenance of the overall quality of the environment and to the avoidance of the creation of serious and costly developmental problems. The preservation of the corridors in primarily natural, open uses can assist in the attenuation of flood flows; the abatement of surface and groundwater pollution; glare reduction; favorable climate modification; reduction of air pollution and maintenance of atmospheric oxygen supplies; maintenance of biological diversity; and the maintenance of groundwater aquifers and stream flows. The intrusion of urban development into such corridors may result in the creation of costly problems, such as failing foundations for pavements and structures; wet basements; excessive operation of building foundation sump pumps; excessive clear water infiltration and inflow into sanitary sewerage systems; and poor surface drainage. To help achieve preservation of these environmental corridors, State regulations, as well as good planning and engineering practice, preclude the extension of sanitary sewer service into the environmental corridors.

The environmental corridors together with some remnant, isolated natural areas of the Village of Sussex have been delineated by the Southeastern Wisconsin Regional Planning Commission.





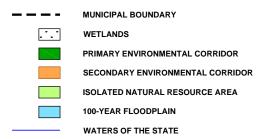


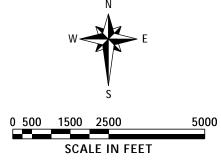
EXHIBIT 4

ENVIRONMENTALLY SENSITIVE AREAS

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

LEGEND





DATE: JANUARY, 2011

●2011 Copyright Ruekert & Mielke, Inc.



XREFS: G:\C3D

The environmental corridors and remnant isolated natural areas within the Village are shown on Exhibit 4. The need to protect and preserve these environmentally sensitive areas was carefully considered in this storm water management master plan.

Existing Storm Water Management System and Water Quality BMPs

The existing storm water management system within the Village of Sussex consists of a network of pipes, inlets, catch basins, detention ponds, culverts, drainage ditches and associated overland flow paths. The location and configuration of this system is shown on Exhibit 5. The system consists of approximately 32 miles of concrete and corrugated metal gravity flow storm sewers; 835 manholes; 1128 catch basins and inlets; 95 culverts totaling 1.4 miles in length; 34 wet detention ponds; 16 infiltration ponds; 13 dry detention ponds; and one municipal rain garden.

The Village of Sussex is acutely aware of the need to protect the valuable natural resource base located throughout the planning area while also complying with their MS4 storm water discharge permit. To reach this goal, the Village is actively involved in numerous best management practices designed at protecting water quality. The current activities include:

• Street sweeping, which is typically completed 3 times per year through the entire Village, while the arterials, the corporate center, the industrial park and other critical land use areas may get swept an additional 2 times per year. The Village also sweeps State Highway 164 one or two times per year even though it is not within the Village's jurisdiction.

The Village has their own high efficiency sweeper and is currently looking into the purchase of a new sweeper. Although the amount of sweepings collected is typically not tracked, it is estimated that the Village captured 30 to 40 tons of debris during the initial spring sweeping in 2008. Sweepings are stored at the Village recycling center on Good Hope Road prior to pick up by their waste hauler.

- The Village collects leaves curbside each fall. Initial reports for the fall of 2009 showed collection of approximately 100 hopper loads of ground-up leaves, with 24 cubic yards being collected in each hopper. Brush is picked up once per year in early fall. Leaves and brush are also temporarily stored at the recycling center prior to pick up by the Village's waste hauler.
- The Village deicing program uses salt as the primary deicing material and typically does not apply any sand to Village roads. No salt is used for snowfalls less than 3 inches unless icing conditions are present. For snowfalls greater than 3 inches, salt is applied to intersections, hills, collector streets, arterial streets and areas subject to icing. This program, which was implemented approximately two years ago, significantly reduced salt usage. The Village typically uses approximately 2,000 tons per year of salt. The Village has used beet juice as a deicing material, but has not experimented with other materials or techniques. Salt is purchased as part of Waukesha County's program and is stored at the County shed at the intersection of County Highway "K" and State Highway "74".





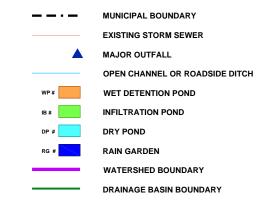


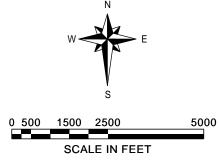
EXHIBIT 5

EXISTING STORM WATER SYSTEM

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

LEGEND





DATE: JANUARY, 2011

● 2011 Copyright Ruekert & Mielke, Inc.



XREFS: G:V

- Village staff administers an erosion control and storm water management program following Chapter 14 of their Village Code. Erosion control permits are typically issued by the inspection department for all non-residential projects requiring an inspection. Subdivisions and larger developments are reviewed by Village staff for conformance with the ordinance prior to permit issuance. For these projects, the owner typically performs the standard erosion control inspections, with Village staff completing monthly and once per winter compliance inspections. Enforcement actions typically involve letter of credit withdrawals, fines or permit revocation.
- The Village of Sussex is a member of Waukesha County's public information, education and involvement program. The Village has also worked with Sussex Outreach Services on multiple water quality initiatives on their property.
- The Village of Sussex has promoted water quality initiatives at their own facilities. These
 activities include construction of a rain garden at the Village garage, use of ultraviolet
 disinfection in place of chlorine at the wastewater treatment plant, construction of
 infiltration basins at the public safety building, and enforcement of a no-mow zone near
 Sussex Creek at Village Hall.
- The Village initiated a comprehensive illicit discharge inspection program for all major storm sewer outfalls in the fall of 2009. Storm sewer outfalls were inspected prior to 2009, although a formal program was not developed.
- The Village does not have a routine catch basin cleaning program. Instead, catch basins are cleaned on as as-needed basis.

Several industries located within the Village of Sussex also have their own industrial Wisconsin Pollutant Discharge Elimination System (WPDES) permit issued by the Wisconsin Department of Natural Resources to regulate storm water discharge on a site-by-site basis. The location of these facilities, along with the location of all Village owned property, is shown on Exhibit 6 and summarized in Table 1.







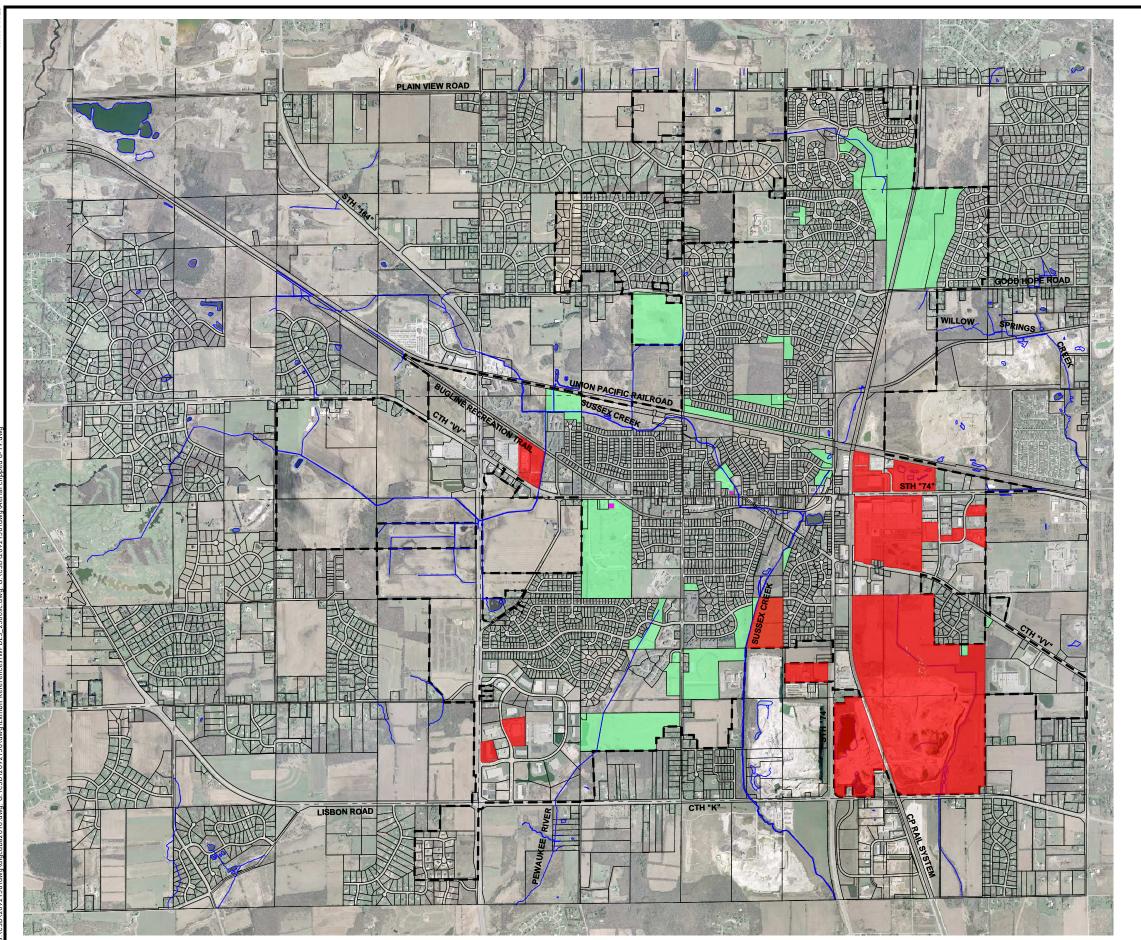




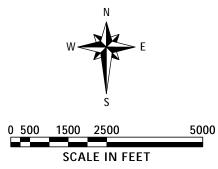
EXHIBIT 6

INDUSTRIAL WPDES PERMIT HOLDERS

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

LEGEND





DATE: JANUARY, 2011

© 2011 Copyright Ruekert & Mielke, Inc.



Table 1 – Wisconsin Pollutant Discharge Elimination System (WPDES) Storm Water Permit Holders

Permittee Name	Permit Type	Facility Address	Community	State	ZIP	Facility ID	FIN	Permit Number	Watershed
Dynamic Stampings, Inc.	Storm Water Industrial Tier 2 Permit	W225 N6328 Village Drive	Village of Sussex	WI	53089	368003570	1464	S067857	Sussex Creek / Willow Springs Creek
Heim Manufacturing Corp.	Storm Water Industrial Tier 2 Permit	N53 W24950 Corporate Circle Suite 3	Village of Sussex	WI	53089	268120820	26002	S067857	Pewaukee River
Paul J Schmit Trucking, Inc.	Storm Water Industrial Tier 2 Permit	N56 W23418 Mitchell Lane	Village of Sussex	WI	53089	998325130	1160	S067857	Sussex Creek
Perkins Engineering Co, Inc.	Storm Water Industrial Tier 2 Permit	W227 N6234 Sussex Road	Village of Sussex	WI	53089	268550700	399	S067857	Sussex Creek
Polyone Corp.	Storm Water Industrial Tier 2 Permit	W227 N6225 Sussex Road	Village of Sussex	WI	53089	268119390	16501	S067857	Sussex Creek
Quad Tech	Storm Water Industrial Tier 2 Permit	N64 W23110 Main Street	Village of Sussex	WI	53089	268259200	16351	S067857	Sussex Creek / Willow Springs Creek
Quad/Graphics, Inc.	Storm Water Industrial Tier 2 Permit	N63 W23075 Main St.	Village of Sussex	WI	53089	268183080	1425	S067857	Sussex Creek
Quikrete Wisconsin, Inc.	Storm Water Industrial Tier 2 Permit	W225 N6236 Village Drive	Village of Sussex	WI	53089	268154370	8277	S067857	Sussex Creek / Willow Springs Creek
Rexam Sussex	Storm Water Industrial Tier 2 Permit	N65 W24770 Main St	Village of Sussex	WI	53089	268039530	1778	S067857	Sussex Creek
Sharp Packaging Systems	Storm Water Industrial Tier 2 Permit	N62 W22632 Village Drive	Village of Sussex	WI	53089	268175270	328	S067857	Sussex Creek
Tools, Inc.	Storm Water Industrial Tier 2 Permit	W248 N5500 Executive Drive	Village of Sussex	WI	53089	268570170	16518	S067857	Pewaukee River
Village of Sussex	Waste Water Treatment Plant	N59 W23551 Clover Drive	Village of Sussex	WI	53089			0020559	Sussex Creek
Village of Sussex	MS4 Wisconsin Pollutant Discharge Elimination System	N64 W23760 Main Street	Village of Sussex	WI	53089			WI-S050105-2	Pewaukee River, Sussex Creek, Willow Springs
Vulcan Materials	Nonmetallic Mining Operations Permit	N52 W23096 Lisbon Rd	Village of Sussex	WI	53089	268005650	3442	0046515	Sussex Creek





CHAPTER 4 -- WATER QUALITY OBJECTIVES AND STANDARDS

Storm Water Permit Requirements

In November of 2004, the Village of Sussex was issued their first MS4 storm water discharge permit as part of the Upper Fox River Watershed Group from the Wisconsin Department of Natural Resources. This permit was reissued in October of 2009 and contains the following conditions:

- Reduce total suspended solids throughout the Village by at least 40 percent based on annual average mass loadings.
 - The assessment of compliance must be completed prior to June 30, 2011 and the 40 percent reduction must be met by March of 2013. It should be noted that the recent revisions to Chapter NR 151 have extended the 2013 compliance deadline if a long term implementation plan demonstrating compliance prior to 2023 is completed. The long term plan must be completed prior to September of 2012.
- Develop a strategy to reduce the pollutants of concern entering impaired water bodies from the municipal storm sewer system. For the Village of Sussex, Sussex (Spring) Creek (impaired for total phosphorus) and an unnamed tributary to Sussex (Spring) Creek (impaired for total phosphorus and sediment) have been classified as impaired. Although a Total Maximum Daily Load (TMDL) pollutant allocation has not yet been completed for the Fox River watershed, the allocations resulting from such a study will likely become permit requirements upon their completion.
 - Strategy is due March 31, 2011.
- Continue the existing public and Village staff education, outreach and involvement programs to increase the awareness of storm water impacts on waters of the state.
 Measureable goals must be established, tracked and evaluated and the program must comply with at least the 10 specific requirements listed in the MS4 permit.
 - o Program is ongoing with review and modifications at least once per year.
- Develop an illicit discharge detection and elimination program to locate and remove illegal connections to the Village's storm sewer system. At a minimum, this program must include on-going dry weather field screening at all priority outfalls at least once per year, dry weather field screening at all other major (non-priority) outfalls at least once every three years, subsequent follow-up investigations if discharge is present, including removal of illicit connections and enforcement of the Village's illicit discharge ordinance.
 - Compete priority outfall inspections every year; major, non-priority outfall inspections every three years.
- Enforce the Village's construction site pollutant control ordinance, including plan review, permit issuance, compliance inspections and enforcement actions.
 - Ongoing.





- Enforce the Village's post-construction storm water management ordinance, including plan review, maintenance inspections and enforcement actions.
 - Ongoing.
- Develop a pollution prevention program, including measureable goals, which includes the following:
 - Develop an inventory of each post-construction storm water management facility within the Village prior to March 31, 2011.
 - o Compete an annual inspection (including any required maintenance) of each storm water management facility within the Village.
 - Complete catch basin cleaning and street sweeping following the previouslysubmitted pollution prevention plan and including proper disposal. This plan may be modified if supported by further analysis and approved by the Department.
 - Revise the winter road deicing management plan to include contact information, truck routes, equipment descriptions, disposal locations, anti-icing and deicing strategies and actions, and monthly records of product used and weather data prior to March 31, 2011.
 - Proper collection and disposal of leaves, brush and grass clippings.
 - Develop a storm water pollution prevention plan for municipal garages, storage areas and other municipally-owned sources of storm water pollution prior to March 31, 2011. Complete annual full inspections and semi-annual visual inspections of these facilities beginning March 31, 2011.
 - Development of site-specific nutrient application schedules for fertilizer applications on any Village-controlled properties with more than 5 acres of pervious surface.
- Maintain an updated storm sewer system map.
 - o Ongoing.
- Complete an annual report evaluating the various storm water programs, documenting compliance with measureable goals and recommending program modifications.
 - Due March 31 of each year.

Water Quality Resource Objectives

Sussex Creek

Sussex Creek is the primary surface waterway within the Village of Sussex and drains the northern and central portions of the Village including the wastewater treatment plant. The





headwaters to Sussex Creek are located north and west of the Village and include several large natural wetland storage complexes. Sussex Creek discharges to the Fox River northeast of the Capitol Drive and State Highway 74 intersection (north of Capitol Airport).

As previously discussed, both Sussex (Spring) Creek and an unnamed tributary to Sussex (Spring) Creek have been classified as impaired waterways and placed on the 303(d) by the Wisconsin Department of Natural Resources.

For Sussex (Spring) Creek, the waterway's designated use has been classified as a fish and aquatic life community. High levels of total phosphorus in the waterway have led to low dissolved oxygen measurements, impairing the waterway. For the Sussex (Spring) Creek tributary, the waterway has been designated as a limited forage fishery. High levels of total phosphorus and sediment have led to degraded habitat and elevated temperatures, resulting in a limited aquatic life community and the corresponding impaired designation. It should be noted that quarry activities have a significant impact on this tributary.

Pewaukee River

The Pewaukee River headwaters are located within the Village of Sussex, draining the southwest portion of the Village, including the Corporate Center. The Pewaukee River drains southerly before reaching the confluence with the Fox River southeast of the Interstate 94 and County Highway "F" intersection. This reach of stream is currently classified by the Wisconsin Department of Natural Resources to support limited forage fish communities.

Willow Springs Creek

Willow Springs Creek flows southeasterly through the Village, draining the northeast portion of the Village before reaching the confluence with the Fox River east of County Highway "V". This reach of stream is currently classified by the Wisconsin Department of Natural Resources to support limited forage fish communities.

Summary of Requirements and Objectives

This storm water management master plan is intended to provide the Village of Sussex with a framework document, outlying the recommended activities to comply with the Village's MS4 storm water discharge permit. The sediment concerns within the Village's waterways match well with the MS4 permit requirements and the corresponding 40 percent sediment reduction standard.

It is expected that a Total Maximum Daily Load (TMDL) pollutant allocation analysis will be completed for the Fox River watershed in the near future. At that time, it is anticipated that the sediment and phosphorus allocations resulting from such a study will likely become included in subsequent MS4 storm water discharge permits. Further sediment reductions above the current 40 percent standard may be required, in addition to phosphorus limitations. The phosphorus concerns within the Village's waterways will be partially mitigated through the construction of the recommended storm water facilities and implementation of the non-structural best management practices.





CHAPTER 5 -- ALTERNATIVE PLANS

Urban Nonpoint Source Storm Water Pollution Control Measures

Non-point source water pollution control may be defined as the management of urban and rural land uses to reduce the loadings of pollutants discharged to surface waters. For the purposes of this report, such control measures will be considered only with respect to urban non-point sources of pollution. A comprehensive discussion of the types and effects of both urban and rural non-point sources of water pollution is provided in SEWRPC Technical Report No. 39, Water Quality Conditions and Sources of Pollution in the Greater Milwaukee Watersheds: 2007. and a more in-depth discussion of urban non-point sources of pollution is set forth in Evaluation of Urban Non-Point Source Pollution Management in Milwaukee County, Wisconsin, 1983, by the Wisconsin Department of Natural Resources, Southeastern Wisconsin Regional Planning Commission, and U.S. Department of the Interior, Geological Survey. Various non-point source pollution control measures are described in detail in the Wisconsin Department of Natural Resources' Wisconsin Storm Water Manual, 1994, Wisconsin Construction Site Best Management Practice Handbook, 1988 and Construction Site Erosion and Storm Water Management Plan and Model Ordinance, 1985. The Wisconsin Department of Natural Resources is currently releasing Technical Standards to replace each of the practices described in the previous documents.

There are two major categories of urban non-point sources of pollution – soil erosion from disturbed land areas and pollution from developed urban areas. The first category is the erosion of soil from disturbed land areas, especially construction sites. The primary pollutants transported in this manner are suspended sediments and sediment-attached pollutants such as phosphorus. Residential, commercial, industrial, highway, and public utility construction sites all have the potential to produce large amounts of sediment which will reach receiving streams if not controlled. Because of the transitory nature of construction projects, measures to control construction site erosion and runoff are inherently of a short-term nature. Such control measures include mulching and seeding or polymer application of disturbed areas, construction of filter fabric and straw bale fences to intercept eroding soil prior to discharge to a receiving stream, channel stabilization, construction of sediment traps, temporary diversions, stone check dams, sediment basins, stabilization of stream banks, protection of storm water inlets and proper construction phasing / scheduling to minimize areas of disturbance.

It is feasible and desirable to deal with construction site erosion and sedimentation problems on a site-by-site basis through regulations. The proper control of erosion can be readily achieved under the provision of ordinances which govern construction practices, allowable soil loss, and the application of certain erosion control measures. Construction erosion control must be achieved on a site by site basis, and cannot be addressed in the system planning phase, other than to recommend that appropriate ordinances be developed and implemented to sufficiently regulate construction activities to provide the attendant erosion control measures. It is important to note that the proper enforcement of municipal erosion control ordinances requires the provision of training for municipal staff to become knowledgeable in sediment and erosion control measures.

The second major category of urban non-point sources of pollution is storm water runoff and associated pollutants contributed from developed urban areas. As land is converted from rural to urban uses, the impervious area is increased, different types of pollutants accumulate on and are washed off of the land surface, and the overall amount of water pollutants contained in the





storm water runoff is increased. The primary pollutants transported in this manner are suspended sediments, phosphorus, petroleum, heavy metals, pesticides, bacteria and other chemicals. The control of urban non-point source pollution requires long-term solutions which effectively reduce the loadings of those pollutants that are causing water quality problems, and which are flexible enough to be adapted to planned development patterns and densities.

Alternative Storm Water Quality Management Approaches

Given the restrictions on available land and the constraints imposed by land use patterns in developed urban areas, the range of non-point source pollution control measures that are applicable in developed urban areas is more limited than in developing areas, where the necessary non-point control measures can be anticipated and planned for.

Non-point source pollution control measures appropriate for developed urban areas can be classified either as source area controls or as outfall controls. Source area controls are best management practices carried out in upland areas near the pollution source. Outfall controls are applied at or near the storm water outlet prior to discharge to the receiving stream. Source area controls may include ordinance changes (pet waste, leaf collection, etc), street cleaning, pervious pavement, biofiltration cells, vegetated filter strips, increased leaf and grass clippings collection and disposal, and reduced use of road deicing salt. Outfall controls may include centralized detention, infiltration or artificial wetland facilities, proprietary separation devices and physical or chemical treatment processes.

The following practices were considered in the development of the Village of Sussex storm water management master plan:

Infiltration and Bioretention Systems: Infiltration systems can achieve a high level of loading reduction in both dissolved and particulate pollutants from the drainage area served, with the pollutant loading reductions being proportional to the resulting reduction in storm water volume. Some systems, including infiltration basins and trenches, artificial wetlands, bioretention basins, vegetated filter strips, porous pavements, grass swales and waterways, and perforated drainage systems also filter additional pollutants from the remaining runoff. Infiltration systems are also extremely effective at recharging the groundwater aquifer and restoring portions of the natural hydrologic cycle.

While properly located and sized infiltration devices can substantially reduce the loadings of pollutants from non-point sources to receiving waters, care must be taken to avoid contamination of the groundwater. Studies have shown that particulates are effectively filtered out in the top layers of soil surrounding infiltration devices. However, dissolved pollutants may reach the groundwater when infiltration devices are improperly located in areas with unsuitable topography and soils, or with a shallow depth to bedrock or to the groundwater table. Other potential adverse impacts of infiltration devices include wet basements, sump pump overloading, groundwater mounding, building and foundation failures, and excessive infiltration of clear water into sanitary sewers. Because of these potential problems, infiltration devices should be avoided in areas with a high potential for groundwater contamination, and limited in areas of intensive urban development. These measures are best used in areas of low-density development where problems with basements, foundations, and excessive sewer infiltration can be avoided. It should also be noted that long term maintenance problems may be attendant to the use of infiltration devices. Such maintenance may be required to remove and dispose of resulting contaminated soils thereby restricting the effectiveness of the devices.





Street Sweeping: Street cleaning can be an effective method of urban non-point source pollution control under certain circumstances. Approximately 20 to 70 percent reductions in pollutant loadings from industrial, commercial, institutional, governmental and high density residential areas can be achieved if parking and storage areas are included in the cleaning operation. Street cleaning is the most effective early in spring, when the streets are laden with winter residue, and in the fall, following leaf fall. Intensive street sweeping may reduce pollutant loadings during spring by up to 50 percent. A modest increase in the sweeping of single family residential streets throughout the sweeping season produces only marginally higher pollutant reductions. Data collected during the Milwaukee Nationwide Urban Runoff Program indicated that street cleaning in residential areas typically achieved less than a 10 percent reduction in pollutant loadings

Wet Detention Basins: Along with infiltration basins which are designed to completely store all tributary runoff, the wet detention basin is highly effective in reducing pollutant loadings. In wet detention basins, pollutants are removed through both sedimentation of particulates and biological assimilation of dissolved nutrients. Wet detention basins require considerable maintenance in order to function properly as non-point source control measures. Maintenance requirements for wet basins include weed and algae control, inspection, litter removal, and periodic dredging of accumulated sediments. The cost of periodic dredging is the largest maintenance cost. That cost can be reduced by confining the accumulation of most of the inflowing sediment to a settlement forebay located at the inlet of a wet detention basin. Means of disposal of dredged sediment vary, depending on the level of contamination of the sediment. Sediments with high concentrations of toxic chemicals or metals must be disposed of in specially designed containment areas or landfills. Sediment to be dredged should be tested to determine the appropriate means of disposal.

<u>Dry Detention Basins</u>: Dry detention basins, which drain completely between flood events, are not effective in reducing non-point source pollutant loadings. While some sediment accumulation will occur, much of it will be scoured from the bottom of the basin and discharged downstream by subsequent storm events. Dry detention basins can reduce downstream bank erosion by reducing flood flows and velocities.

Artificial Wetlands: Artificial wetlands can serve to remove pollutants from storm water runoff by sedimentation, biological assimilation, and filtration. The long flow-through times and low flow velocities in wetlands allow suspended sediments and particulate pollutants to settle. Nutrients are assimilated by wetland plants, and metals and hydrocarbons are deposited in wetland sediments. While wetlands may be effective in controlling non-point source pollutant loadings to downstream waters under certain conditions, the accumulation of pollutants may be harmful to the wetland ecosystem. The effects of certain non-point pollutants on wetlands are known. An abundance of nutrients in a wetland can lead to dominance of less desirable, non-native plant species. Pesticides are taken up by certain plant species and are then released to the water column following plant decay. Due to the relatively long water retention times in wetlands, road de-icing salt concentrations may exceed acceptable levels, leading to density stratification, in the lower layers of the wetland water column. Depending on the hydrologic and hydraulic characteristics of a particular wetland, accumulated pollutants may be flushed to downstream waters during large storm events. The capacity of wetlands to remove pollutants and the longterm effects of such removal on wetlands have not been definitively established. In some cases, it may be desirable to provide facilities to reduce non-point source pollutant loadings prior to discharge to wetlands.





<u>Proprietary Devices</u>: Proprietary storm water treatment devices are designed to remove sediment and hydrocarbon loadings from runoff before they are conveyed to the storm drain network or to an infiltration device. The effectiveness of such devices in removing pollutants has not been adequately monitored in the field. Because of the relatively small storage volumes and resultant brief retention times involved, such devices are not expected to provide a high degree of pollutant removal. The devices require cleaning at least twice a year. Such devices also require careful siting and permitting to meet the attendant regulatory issues.

It should be noted that the Wisconsin Department of Natural Resources has recently developed Technical Standard 1006 to address pollutant reductions from these proprietary devices. The Environmental Protection Agency has also created the Environmental Technology Verification (ETV) program to develop standardized testing and performance verification protocols for proprietary devices. This testing is voluntary and the results are made available upon completion. The Wisconsin Department of Natural Resources will use the results of the ETV program to supplement Technical Standard 1006.

Physical/chemical outfall treatment control measures include microscreens, dissolved air flotation, swirl concentrators, high rate filtration, contact stabilization, and disinfection. Typically, a storm water treatment facility would consist of a storm water detention facility to provide a more constant flow rate followed by a physical/chemical treatment facility. The pollutant removal effectiveness of storm water treatment facilities can range from 10 percent to more than 90 percent, depending on the treatment process and the type of pollutant removed.

Water Quality Modeling Methodology

The goal of NR 151 and 216 is to reduce pollutant loads carried by storm water runoff to waters of the State. The Village of Sussex, in cooperation with several surrounding municipalities, is covered under the Upper Fox River Watershed Group MS4 storm water discharge permit. As part of that permit and as described in Chapter 4, the Village is required to develop a public education and participation program, create an illicit discharge detection and elimination program, control pollutants on construction and post-construction sites, prevent pollution from all municipal operations, maintain a storm sewer system map and complete an annual report. The Village of Sussex is also required to reduce suspended solids within developed urban areas by 40 percent prior to March of 2013.

As stated earlier, a great deal of concern has been placed on reducing the nonpoint source pollutants that are carried by storm water runoff to the waters of the State. It is important to understand that nonpoint pollution is difficult to quantify and difficult to locate as there are no well defined sources. Nonpoint pollutants may be generated in all areas of land use, and include soil erosion from open farm fields and construction sites; decomposing materials such as leaves deposited in the gutters and storm sewers, fertilizers and pesticides, heavy metals from automobiles, rooftops, and buildings; and pet litter and animal waste from farms and barnyards. These pollutants create water quality problems that not only affect the look, feel and smell of the surface waters, but also the health and safety of plants, animals and people that come in contact with the polluted waters.

In an effort to reduce nonpoint source pollutants, selected waterways within the United States were monitored and tested for certain pollutants. It was determined that the majority of polluted waters contain high levels of Total Suspended Solids, Phosphorus, Copper, Lead, Zinc and Cadmium. These were the pollutants evaluated in this study.





The Source Loading and Management Model (SLAMM, Version 9.4.0) is a widely accepted computer program for evaluating and quantifying nonpoint source pollutants. Each drainage basin within each subwatershed of the Village was evaluated using this model. SLAMM contains a rain file that uses actual Milwaukee area rainfall data from 1969, which was classified by the Department as a typical year of rainfall in the region, along with other files with historical data that determine the probable amount of pollutants generated in a typical year. The land use within each basin was input along with the types of drainage controls and outfall controls that are found in each particular basin. Only land developed and facilities constructed prior to October, 2004 were eligible for modeling, following guidance issued by the Department of Natural Resources. The Department reasoned that development after that date was required by the State Administrative Code to control the quality of storm water runoff on-site and should not be credited towards the 40 percent sediment reduction standard. Drainage controls include the amount of curb and gutter versus the amount of grass swales, catch basin cleaning schedules, and street sweeping schedules. Outfall controls were input if an existing storm water management facility was located within a basin prior to October, 2004. The model was then run and the probable pollutant loadings determined for each basin under existing land use conditions with no storm water controls and again with existing storm water controls. The difference in these two simulations yields the Village's current reduction in total suspended solids. The pollutant loadings for each basin were then analyzed to identify alternatives for reducing those loadings. The model was then run again for each alternative to determine the pollutant loadings under each abatement alternative consideration. The Department of Natural Resources has also developed Technical Standard 1006 to address proprietary non-point source pollutant reduction devices. The effectiveness of these mechanisms were calculated based on the SLAMM modeling guidelines within the Technical Standard.

The model calculates a loading for each specified pollutant. The pollutant loadings are given in pounds and are equal to the amount of that pollutant that may be expected to runoff from the basin concerned over the course of a year. Generally, pollutant loadings increase when the amount of critical land use (industrial, commercial, high density residential, governmental, institutional, and interstate highways) increases; the length of curb increases; the length of grass swales decreases; the number of times catch basins are cleaned decreases; and the number of times streets are swept decreases. With the introduction of best management practices, particulate solids loadings may be expected to decrease for the drainage areas that are tributary to the control measures.

Alternative nonpoint source pollutant abatement measures were evaluated on the basis of the ability to comply with the Village's MS4 permit requirements and the specific needs of the receiving waterways. To the extent feasible, the water quality control measures considered were combined with other Village goals such as pedestrian walkability or public education, to provide multiple benefits to a single water quality facility while also minimizing costs.

Pollutant Reductions From Existing Control Measures

As previously described, the Source Loading and Management Model (SLAMM Version 9.4.0) was used to estimate average annual loadings of total solids, total phosphorus, copper, lead, zinc and cadmium under existing land use conditions with no control measures, existing control measures and alternative control measures. Those existing control measures within the Village included street sweeping (5 times per year on arterials, industrial and critical land use areas, 3 times per year elsewhere) and maintenance of 63 storm water detention facilities. A summary of the probable annual pollutant loadings under existing land use and both no control measures and existing control measures is set forth in Table 2. In addition, the table presents estimated





reductions for certain additional alternative control measures considered. In the interest of brevity, only sediment and phosphorus loadings are presented in the table.

As noted on Table 2, the Village is currently obtaining a 39.6 percent reduction in total suspended solids and a 23.0 percent reduction in phosphorus based on the existing storm water control measures. The total suspended solids loading concentrations prior to drainage controls are shown on Exhibit 7 and after drainage controls on Exhibit 8.

Impacts of Future Development

As development within the Village of Sussex continues, the anticipated conversion of land from existing rural uses to urban uses may be expected to increase pollutant loadings. However, this sediment increase in not applied towards the MS4 permit reduction goals since it is not within the year 2004 developed area boundary. These newly developed areas will contain stringent site specific pollutant controls to comply with the development regulations within Chapters NR 151 and 216 of the Wisconsin Administrative Code and the Village's storm water ordinance.

Street Sweeping Alternatives

Under the schedule currently in effect within the Village of Sussex, all Village roadways are swept 3 times per year, while the arterials, the corporate center, the industrial park and other critical land use areas may get swept an additional 2 times per year using high efficiency vacuum sweeping equipment. This schedule provides a 2.5 percent reduction in total solids loading throughout the Village when compared to no sweeping. With a sweeping cost of \$100 per mile, the existing annual street sweeping costs, including labor, benefits, equipment, operation, maintenance and depreciation are approximately \$47,800. The resulting 50 year present worth would approximate \$753,400, or \$47 per pound of sediment removed. Six street sweeping alternatives were considered to provide additional pollutant reductions.

It should be noted that there are significant seasonal variations in street sweeping efficiencies. During the summer months, approximately 80 percent of the sediment load is found within 3 feet of the curb, where street sweepers are designed to operate. In the spring, when sediment loads are the heaviest, sediment loads are spread more evenly across the entire street cross section. Weekly street sweeping efficiency can range from a low of approximately 30 percent during the spring, to a high of approximately 80 percent during the summer as measured by mass removal from the street surface. The street sweeping calculations performed using the Source Loading and Management Model (SLAMM) include these seasonal variations.

The first alternative would consist of increasing the schedule of sweeping within all areas developed primarily in critical land uses to once every 4 weeks, while continuing to sweep the remaining areas of the Village as needed for cosmetic reasons. This alternative would provide an additional total solids loading reduction of 1.4 percent, and a reduction of 3.9 percent when compared to no sweeping.

With a sweeping cost of \$100 per mile, this alternative may be expected to increase the annual street sweeping costs, including labor, benefits, equipment, operation, maintenance and depreciation from \$47,800 to \$77,400. The resulting 50 year present worth would approximate \$1,220,000, or \$48 per pound of sediment removed.





Table 2 – Annual Reductions in Nonpoint Source Pollutant Loadings and Summary of Alternative BMPs

	Total Suspended Solids (Pounds)		Total Phosphorus (Pounds)		F 1B		Cost Per Pound of Pollutant Removal	
Control Measure	Existing Land Use	Reduction from No Controls	Existing Land Use	Reduction from No Controls	Estimated Project Cost (Structural BMP) or Annual Cost (Sweeping)	Estimated 50 Year Present Worth	Total Suspended Solids	Phosphorus
No Controls (Total Village Loading)	652,518	0.0%	2,247	0.0%	N/A	N/A	N/A	N/A
Existing Wet Ponds	213,947	32.8%	426	19.0%	N/A	N/A	N/A	N/A
Existing Infiltration Basins	11,845	1.8%	42	1.9%	N/A	N/A	N/A	N/A
Existing Dry Ponds and Grassed Swales	16,688	2.6%	53	2.4%	N/A	N/A	N/A	N/A
Existing Street Sweeping - 3x Per Year In Noncritical Land Uses / 5x Per Year In Critical Land Uses	16,157	2.5%	0	0.0%	\$47,800	\$753,400	\$46.63	N/A
Summary Of All Existing Controls	258,637	39.6%	521	23.2%	N/A	N/A	N/A	N/A
Street Sweeping Every 4 Weeks In Critical Land Uses Only	25,208	3.9%	0	0.0%	\$77,400	\$1,220,000	\$48.40	N/A
Street Sweeping Every 2 Weeks In Critical Land Uses Only	32,596	5.0%	0	0.0%	\$154,800	\$2,439,900	\$74.85	N/A
Street Sweeping Every Week In Critical Land Uses Only	41,892	6.4%	0	0.0%	\$309,600	\$4,879,900	\$116.49	N/A
Street Sweeping Every 4 Weeks Throughout Village	27,834	4.3%	0	0.0%	\$91,800	\$1,446,900	\$51.98	N/A
Street Sweeping Every 2 Weeks Throughout Village	36,068	5.5%	0	0.0%	\$183,600	\$2,893,900	\$80.23	N/A
Street Sweeping Every Week Throughout Village	46,408	7.1%	0	0.0%	\$367,200	\$5,787,800	\$124.72	N/A
Village Hall Bioretention Basin	655	0.1%	1.1	0.0%	\$112,500	\$126,100	\$192.52	\$114,636.36
Piggly Wiggly Bioretention Basin East Property Line	395	0.1%	0.6	0.0%	\$117,100	\$126,600	\$320.51	\$211,000.00
Piggly Wiggly Bioretention Basin South and East Property Lines	395	0.1%	0.6	0.0%	\$164,000	\$177,200	\$448.61	\$295,333.33





Table 2 (Cont) – Annual Reductions in Nonpoint Source Pollutant Loadings and Summary of Alternative BMPs

	Total Suspended Solids (Pounds)		Total Phosphorus (Pounds)				Cost Per Pound of Pollutant Removal	
Control Measure	Existing Land Use	Reduction from No Controls	Existing Land Use	Reduction from No Controls	Estimated Project Cost (Structural BMP) or Annual Cost (Sweeping)	Estimated 50 Year Present Worth	Total Suspended Solids	Phosphorus
Main Street Bioretention Basin	3,410	0.5%	9.6	0.4%	\$244,900	\$266,700	\$78.22	\$27,839.25
Tombstone Wet Pond	10,604	1.6%	16.9	0.8%	\$305,600	\$352,900	\$33.28	\$20,906.40
Tombstone Bioretention Basin	17,112	2.6%	37.1	1.7%	\$543,100	\$600,000	\$35.06	\$16,181.23
Maple Avenue School Eastern Wet Pond	22,782	3.5%	75.0	3.3%	\$953,800	\$1,043,600	\$45.81	\$13,916.52
Maple Avenue School Eastern Bioretention Basin (75% TSS)	21,596	3.3%	86.9	3.9%	\$1,616,300	\$1,821,200	\$84.33	\$20,969.49
Maple Avenue School Eastern Bioretention Basin (50% TSS)	14,256	2.2%	55.0	2.4%	\$816,300	\$920,300	\$64.56	\$16,729.69
Maple Avenue School Western Wet Pond OF 274-004	4,128	0.6%	10.6	0.5%	\$266,300	\$297,800	\$72.15	\$28,094.34
Maple Avenue School Western Bioretention Basin OF 274-004	4,418	0.7%	14.1	0.6%	\$323,800	\$364,100	\$82.41	\$25,786.12
Linda Drive Wet Pond	7,065	1.1%	22.4	1.0%	\$578,800	\$633,900	\$89.72	\$28,273.86
Linda Drive Bioretention Basin	6,670	1.0%	27.0	1.2%	\$503,800	\$566,800	\$84.97	\$21,000.37
Retrofit Outlet Structure For Wet Pond 10 (Corp Center)	4,528	0.7%	21.3	0.9%	\$25,000	\$25,000	\$5.52	\$1,173.71
Retrofit Northeast Majestic Heights Pond As Bioretention Basin	4,226	0.6%	22.6	1.0%	\$453,800	\$510,500	\$120.80	\$22,598.49
Retrofit Maris Drive Dry Pond As Bioretention Basin	2,469	0.4%	11.2	0.5%	\$113,800	\$127,600	\$51.68	\$11,352.31
Retrofit Outlet Structure For Wet Pond 5 (Braddock Place)	1,044	0.2%	3.3	0.1%	\$20,000	\$20,000	\$19.16	\$6,134.97
Retrofit Outlet Structure For Wet Pond 6A (WOW)	3,126	0.5%	2.0	0.1%	\$20,000	\$20,000	\$6.40	\$10,000.00
Mill Pond Wet Pond	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A





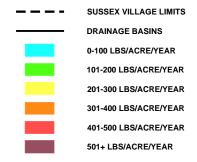


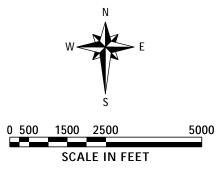
EXHIBIT 7

TOTAL SUSPENDED SOLIDS LOADING IN POUNDS PER ACRE PER YEAR PRIOR TO DRAINAGE AND OUTFALL CONTROL

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

LEGEND

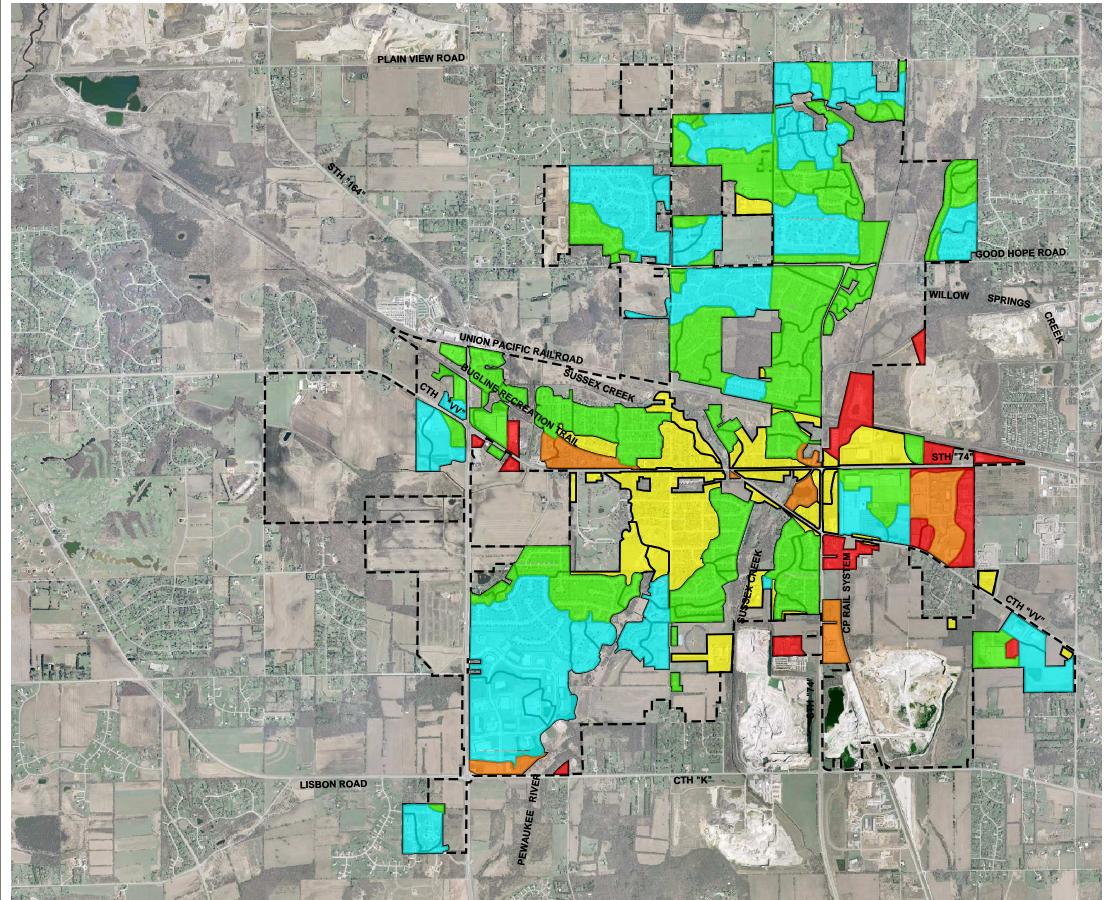




DATE: JANUARY, 2011

© 2011 Copyright Ruekert & Mielke, Inc.



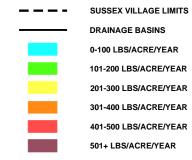


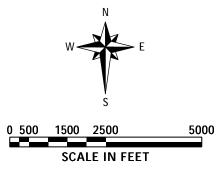


TOTAL SUSPENDED SOLIDS LOADING IN POUNDS PER ACRE PER YEAR AFTER DRAINAGE AND OUTFALL CONTROL

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

LEGEND





DATE: JANUARY, 2011

© 2011 Copyright Ruekert & Mielke, Inc.



The second alternative would consist of increasing the schedule of sweeping within all areas developed primarily in critical land uses to once every 2 weeks, while continuing to sweep the remaining areas of the Village as needed for cosmetic reasons. This alternative would provide an additional total solids loading reduction of 2.5 percent, and a reduction of 5.0 percent when compared to no sweeping.

With a sweeping cost of \$100 per mile, this alternative may be expected to increase the annual street sweeping costs, including labor, benefits, equipment, operation, maintenance and depreciation from \$47,800 to \$154,800. The resulting 50 year present worth would approximate \$2,439,900, or \$75 per pound of sediment removed.

The third alternative would consist of increasing the schedule of sweeping within all areas developed primarily in critical land uses to once every week, while continuing to sweep the remaining areas of the Village as needed for cosmetic reasons. This alternative would provide an additional total solids loading reduction of 3.9 percent, and a reduction of 6.4 percent when compared to no sweeping.

With a sweeping cost of \$100 per mile, this alternative may be expected to increase the annual street sweeping costs, including labor, benefits, equipment, operation, maintenance and depreciation from \$47,800 to \$309,600. The resulting 50 year present worth would approximate \$4,879,900, or \$116 per pound of sediment removed.

The fourth alternative would consist of increasing the schedule of sweeping throughout the entire Village to once every 4 weeks. This alternative would provide an additional total solids loading reduction of 1.8 percent, and a reduction of 4.3 percent when compared to no sweeping.

With a sweeping cost of \$100 per mile, this alternative may be expected to increase the annual street sweeping costs, including labor, benefits, equipment, operation, maintenance and depreciation from \$47,800 to \$91,800. The resulting 50 year present worth would approximate \$1,446,900, or \$52 per pound of sediment removed.

The fifth alternative would consist of increasing the schedule of sweeping throughout the entire Village to once every 2 weeks. This alternative would provide an additional total solids loading reduction of 3.0 percent, and a reduction of 5.5 percent when compared to no sweeping.

With a sweeping cost of \$100 per mile, this alternative may be expected to increase the annual street sweeping costs, including labor, benefits, equipment, operation, maintenance and depreciation from \$47,800 to \$183,600. The resulting 50 year present worth would approximate \$2,893,900, or \$80 per pound of sediment removed.

The sixth alternative would consist of increasing the schedule of sweeping throughout the entire Village to once every week. This alternative would provide an additional total solids loading reduction of 4.6 percent, and a reduction of 7.1 percent when compared to no sweeping.

With a sweeping cost of \$100 per mile, this alternative may be expected to increase the annual street sweeping costs, including labor, benefits, equipment, operation, maintenance and depreciation from \$47,800 to \$367,200. The resulting 50 year present worth would approximate \$5,787,800, or \$125 per pound of sediment removed.





The modeling has shown that more frequent street sweeping dramatically increases the cost, while only providing minimal further sediment reductions. As a result, no additional street sweeping options were pursued.

Catch Basin Cleaning

Under the schedule currently in effect within the Village of Sussex, catch basins are cleaned as needed, resulting in minimal pollutant reductions. Since the water quality modeling guidance published by the Department does not allow communities to take credit for both street sweeping and catch basin cleaning and minimal pollutant reductions, no changes to the existing cleaning schedule were analyzed. Catch basins should still be maintained, as needed, to prevent the resuspension of trapped sediment.

Storm Water Quality Control Facility Alternatives

Well-maintained storm water quality control facilities, including but not limited to wet ponds, artificial wetlands, infiltration basins, bioretention facilities and rain gardens are an effective way to reduce pollutant loadings in a watershed. Typically, the area contributing to these facilities may benefit by 80 to 100 percent reductions in the annual loadings of sediment and 40 to 100 percent reductions in phosphorus.

Regional storm water facilities are constructed and operated with significant efficiency advantages over individual onsite facilities. Based on these benefits, the Village of Sussex will pursue the implementation of regional facilities wherever practical. Construction costs for regional facilities are generally borne by the Village, although these costs may be charged back to developers and landowners that contribute or benefit from the facility.

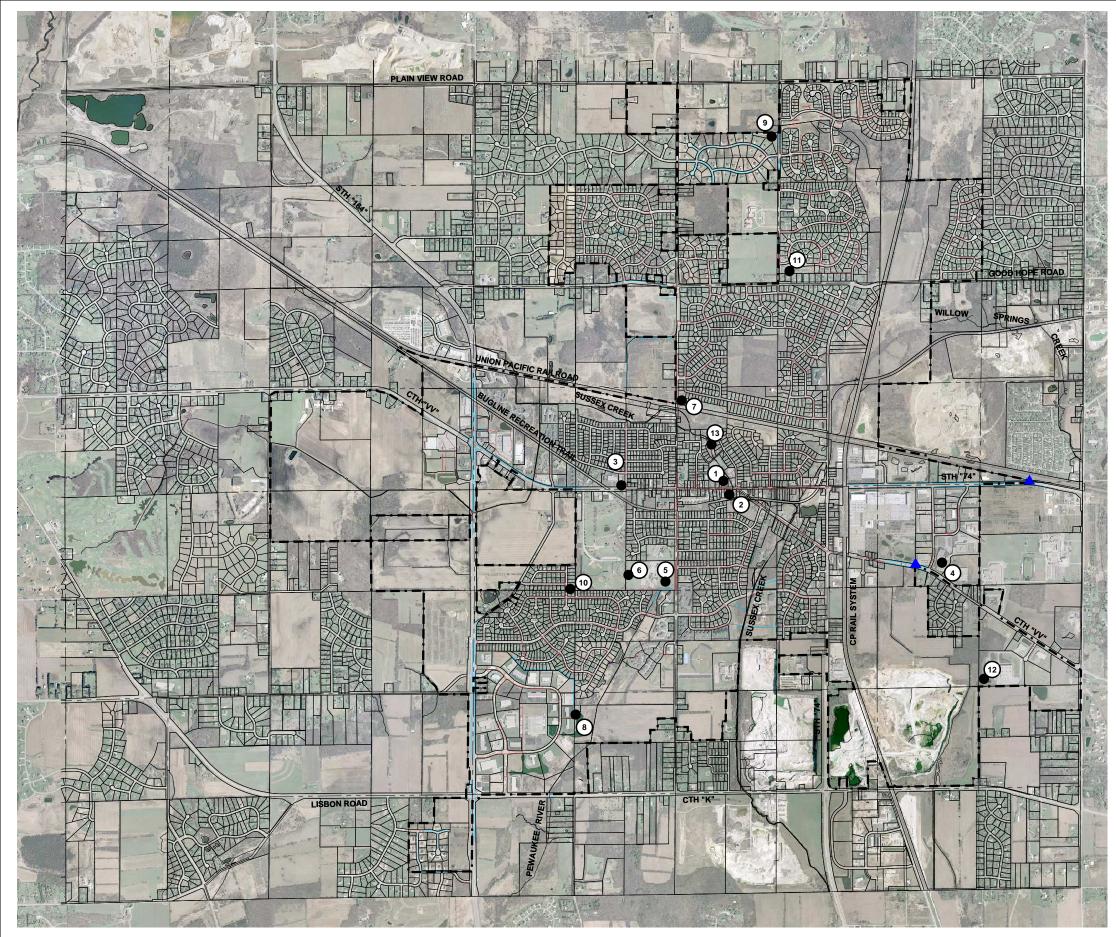
The water quality control facility alternatives consist of the construction of 12 storm water facilities at 7 different locations to control the pollutant loadings throughout the Village. These alternative facilities are shown as facilities 1, 2, 3, 5, 6, 7 and 13 on Exhibit 9.

<u>Village Hall Bioretention Basin</u>: This alternative involves construction of a bioretention basin on the Village Hall campus, identified as number 1 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 95 percent within the approximate 2 acre drainage basin or by 0.1 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$112,500, a present worth approximating \$126,100 and a present worth of \$193 per pound of sediment removed.

It is anticipated that this facility would be constructed when the Village Hall campus is redeveloped. This bioretention basin would also include several seating areas and educational signage, helping to comply with the Village's public education MS4 permit requirements.









ALTERNATIVE STORM WATER QUALITY FACILITIES

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

LEGEND

MUNICIPAL BOUNDARY **EXISTING STORM SEWER** 1 VILLAGE HALL BIORETENTION BASIN 2 PIGGLY WIGGLY BIORETENTION BASIN 3 MAIN STREET BIORETENTION BASIN 4 TOMBSTONE WET POND AND BIORETENTION BASIN MAPLE AVENUE SCHOOL EASTERN WET POND AND BIORETENTION BASIN MAPLE AVENUE SCHOOL WESTERN WET POND AND BIORETENTION BASIN 6 7 LINDA DRIVE WET POND AND BIORETENTION BASIN 8 CORPORATE CENTER WET POND RETROFIT 9 MAJESTIC HEIGHTS RETROFIT - BIORETENTION BASIN 10 MARIS DRIVE RETROFIT - BIORETENTION BASIN (1) BRADDOCK PLACE WET POND RETROFIT 12 WOW DISTRIBUTING WET POND RETROFIT 13) MILL POND - WET POND



0 500 1500 2500 SCALE IN FEET

DATE: JANUARY, 2011

5000

● 2011 Copyright Ruekert & Mielke, Inc.



<u>Piggly Wiggly Bioretention Basin</u>: This alternative involves construction of a bioretention basin at the Piggly Wiggly property along Main Street, identified as number 2 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 95 percent within the approximate 1 acre drainage basin or by 0.1 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$164,000, a present worth approximating \$177,200 and a present worth of \$449 per pound of sediment removed.

This bioretention basin would also include several seating areas and educational signage, helping to comply with the Village's public education MS4 permit requirements. It should be noted that a smaller version of this facility could also be constructed along just the east property line at a reduced cost (see table 2), but similar performance.

Main Street Bioretention Basin: This alternative involves construction of a bioretention basin at the northwest corner of the Main Street and Locust Street intersection, identified as number 3 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 54 percent within the approximate 20 acre drainage basin or by 0.5 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$244,900, a present worth approximating \$266,700 and a present worth of \$78 per pound of sediment removed.

Maple Avenue School Eastern Wet Pond: This alternative involves construction of a wet pond on the eastern portion of the Maple Avenue School property, identified as number 5 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 79 percent within the approximate 121 acre drainage basin or by 3.5 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$953,800, a present worth approximating \$1,043,600 and a present worth of \$46 per pound of sediment removed.

Maple Avenue School Large Eastern Bioretention Basin: This alternative involves construction of a bioretention basin on the eastern portion of the Maple Avenue School property, identified as number 5 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 75 percent within the approximate 121 acre drainage basin or by 3.3 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$1,616,300, a present worth approximating \$1,821,200 and a present worth of \$84 per pound of sediment removed.

Maple Avenue School Small Eastern Bioretention Basin: This alternative involves construction of a bioretention basin on the eastern portion of the Maple Avenue School property, identified as number 5 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 50 percent within the approximate 121 acre drainage basin or by 2.2 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$816,300, a present worth approximating \$920,300 and a present worth of \$65 per pound of sediment removed.

Both the large and small bioretention basins would also include a native prairie buffer, a walking trail and educational signage, helping to comply with the Village's public education MS4 permit requirements. The Village may be able to partner with the environmental education classes at the school to take over portions of the maintenance and further the public involvement portion of the Village's storm water program.





Maple Avenue School Western Wet Pond: This alternative involves construction of a wet pond on the western portion of the Maple Avenue School property, identified as number 6 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 74 percent within the approximate 22 acre drainage basin or by 0.6 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$266,300, a present worth approximating \$297,800 and a present worth of \$72 per pound of sediment removed.

Maple Avenue School Western Bioretention Basin: This alternative involves construction of a bioretention basin on the western portion of the Maple Avenue School property, identified as number 6 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 79 percent within the approximate 22 acre drainage basin or by 0.7 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$323,800, a present worth approximating \$364,100 and a present worth of \$83 per pound of sediment removed.

<u>Linda Drive Wet Pond</u>: This alternative involves construction of a wet pond east of Maple Avenue and south of Linda Drive, identified as number 7 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 77 percent within the approximate 43 acre drainage basin or by 1.1 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$578,800, a present worth approximating \$633,900 and a present worth of \$90 per pound of sediment removed.

<u>Linda Drive Bioretention Basin</u>: This alternative involves construction of a bioretention basin east of Maple Avenue and south of Linda Drive, identified as number 7 on Exhibit 9. Under this alternative, this facility would be designed to reduce the sediment loadings in the runoff by 73 percent within the approximate 43 acre drainage basin or by 1.0 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$503,800, a present worth approximating \$566,800 and a present worth of \$85 per pound of sediment removed.

This bioretention basin would also include educational signage, helping to comply with the Village's public education MS4 permit requirements.

Mill Pond Wet Pond: This alternative involves construction of a wet pond at the old Mill Pond along Sussex Creek, just north of Village Hall, identified as number 13 on Exhibit 9. This alternative was discussed with staff from the Wisconsin Department of Natural Resources who indicated that such an "online" facility would be nearly impossible to permit. For this reason, this alternative was not further pursued.

Retrofit Existing Dry Ponds

This alternative would consist of retrofitting 3 existing dry ponds to provide improved water quality benefits. The location of these ponds, numbered 4, 9 and 10, are shown on Exhibit 9.

Retrofit Tombstone Dry Pond as Wet Pond: This alternative involves the retrofit of the existing dry pond as a wet pond at the former Tombstone property at the northeast corner of the Sussex Road and Silver Spring Drive intersection, identified as number 4 on Exhibit 9. Under this alternative, this facility would be designed to increase the sediment reduction performance of the facility from 14 percent under existing conditions to 63 percent within the approximate 54





acre drainage basin, or by an additional 1.6 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$305,600, a present worth approximating \$352,900 and a present worth of \$33 per additional pound of sediment removed.

Retrofit Tombstone Dry Pond as Bioretention Basin: This alternative involves the retrofit of the existing dry pond as a bioretention basin at the former Tombstone property at the northeast corner of the Sussex Road and Silver Spring Drive intersection, identified as number 4 on Exhibit 9. Under this alternative, this facility would be designed to increase the sediment reduction performance of the facility from 14 percent under existing conditions to 93 percent within the approximate 54 acre drainage basin, or by an additional 2.6 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$543,100, a present worth approximating \$600,000 and a present worth of \$35 per additional pound of sediment removed.

Retrofit Northeast Majestic Heights Dry Pond as Bioretention Basin: This alternative involves the retrofit of the existing northeast Majestic Heights dry pond as a bioretention basin at the northwest corner of the Woodside Road and Majestic Heights Trail intersection, identified as number 9 on Exhibit 9. Under this alternative, this facility would be designed to increase the sediment reduction performance of the facility from 40 percent under existing conditions to 100 percent within the approximate 47 acre drainage basin, or by an additional 0.6 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$453,800, a present worth approximating \$510,500 and a present worth of \$121 per additional pound of sediment removed.

Retrofit Maris Drive Dry Pond as Bioretention Basin: This alternative involves the retrofit of the existing dry pond as a bioretention basin at the northeast corner of the Maris Drive and Quail Run Lane intersection, identified as number 10 on Exhibit 9. Under this alternative, this facility would be designed to increase the sediment reduction performance of the facility from 21 percent under existing conditions to 56 percent within the approximate 23 acre drainage basin or by an additional 0.4 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost approximating \$113,800, a present worth approximating \$127,600 and a present worth of \$52 per additional pound of sediment removed.

Retrofit Existing Wet Ponds

This alternative would consist of retrofitting 3 existing wet ponds to provide increased water quality benefits. The location of these ponds, numbered 8, 11 and 12, are shown on Exhibit 9.

Retrofit Eastern Corporate Center Wet Pond: This alternative involves the retrofit of the existing eastern wet pond in the corporate center, identified as number 8 on Exhibit 9. Under this alternative, this facility would be designed to increase the sediment reduction performance of the facility from 82 percent under existing conditions to 90 percent within the approximate 146 acre drainage basin or by an additional 0.7 percent throughout the entire Village when compared to no controls. As proposed, this retrofit would have a project cost and present worth approximating \$25,000, and a present worth of \$6 per additional pound of sediment removed.

Retrofit Southwest Braddock Place Wet Pond: This alternative involves the retrofit of the existing southwest wet pond in Braddock Place, southeast of the Woodside Road and Braddock Place intersection, identified as number 11 on Exhibit 9. Under this alternative, this facility would be designed to increase the sediment reduction performance of the facility from 77





percent under existing conditions to 87 percent within the approximate 63 acre drainage basin or by an additional 0.2 percent throughout the entire Village when compared to no controls. As proposed, this retrofit would have a project cost and present worth approximating \$20,000, and a present worth of \$19 per additional pound of sediment removed.

Retrofit WOW Distributing Wet Pond: This alternative involves the retrofit of the existing wet pond at WOW Distributing along Miller Way and identified as number 12 on Exhibit 9. Under this alternative, this facility would be designed to increase the sediment reduction performance of the facility from 60 percent under existing conditions to 90 percent within the approximate 24 acre drainage basin or by an additional 0.5 percent throughout the entire Village when compared to no controls. As proposed, this retrofit would have a project cost and present worth approximating \$20,000, and a present worth of \$6 per additional pound of sediment removed.

Economic Evaluation

It is customary to evaluate plans for water resource development projects on the basis of benefits and costs. This is particularly appropriate if the prospective development represents opportunities for investments to provide economic return to the public and if a comparison of alternative investments is desirable. In the case of storm water management systems, however, it is assumed that such systems must be provided to fulfill a fundamental need of the community, and consequently, they do not compete with alternatives of investment in other economic sectors. Accordingly, it is assumed that the least costly alternative system that meets the storm water management objectives set forth in this plan will be the most desirable alternative economically.

The economic evaluations conducted under this storm water management planning program include capital cost estimates and annual operation and maintenance cost estimates. Capital costs include construction contract costs plus engineering, inspection and contract administration costs, were estimated on the basis of experience within the greater Milwaukee area and are expressed in August, 2010 actual dollars.





CHAPTER 6 – RECOMMENDED PLAN

The preparation of the recommended storm water management system plan for the Village of Sussex involved a synthesis of corrective measures selected from among the alternatives considered and described in Chapter Five and based primarily upon a comparative economic analysis. In the selection, however, consideration was also given to the level of performance provided, to the anticipated ease of construction, to potential environmental impacts and to fulfillment with other Village objectives such as public education and pedestrian walkability.

Recommended Plan Description

The recommended plan encompasses the entire Village of Sussex and recommends the construction of five new water quality control storm water facilities; retrofitting of three existing dry ponds as bioretention basins to improve pollutant removal efficiencies; retrofitting of three existing wet ponds to improve pollutant removal efficiencies; modification to the existing street sweeping schedule; daylighting of Spring Creek; and compliance with the other sections of the Village's municipal MS4 storm water discharge permit. The recommended plan is presented in summary form on Table 3 based on August, 2010 actual dollars and is graphically summarized on Exhibit 10. The plan recommendations are shown in greater detail on Exhibits 12 through 19. Implementation of the recommended plan will meet the requirements of the MS4 discharge permit and contribute significantly to a reduction of non-point source storm water pollution.

Compliance with 40 Percent Sediment Reduction Goal / Street Sweeping

The Village of Sussex is currently obtaining a 39.6 percent reduction in total suspended solids loading based on the existing storm water controls currently in place. The recommended plan to meet the 40 percent sediment reduction permit requirement involves a modification to the existing street sweeping program.

Under the schedule currently in effect, all Village roadways are swept 3 times per year, while arterial roadways, the corporate center, the industrial park and other critical land use areas may get swept an additional 2 times per year using high efficiency vacuum sweeping equipment. This schedule provides a 2.5 percent reduction in total solids loading throughout the Village when compared to no sweeping at an annual cost of approximately \$47,800, including labor, benefits, equipment, operation, maintenance and depreciation.

The recommended street sweeping schedule consists of sweeping the industrial, commercial, institutional, office and high density residential areas once every 4 weeks during the sweeping season. The medium and low density residential areas would be swept only as needed for cosmetic reasons. This recommendation would result in a 60 percent increase in the number of curb miles swept per year, and also concentrates those increased sweeping efforts in the areas of highest pollutant generation. This recommendation would increase the annual street sweeping costs to \$77,400, while resulting in an additional 1.4 percent reduction in total suspended solids over the existing sweeping program, and a reduction of 3.9 percent when compared to no sweeping. The recommended street sweeping program for the Village is shown on Exhibit 11.

It is also recommended that alternative street sweeping technologies be evaluated as they are developed. These technologies will likely include more efficient street sweepers and the application of polymers to the roadways prior to sweeping.





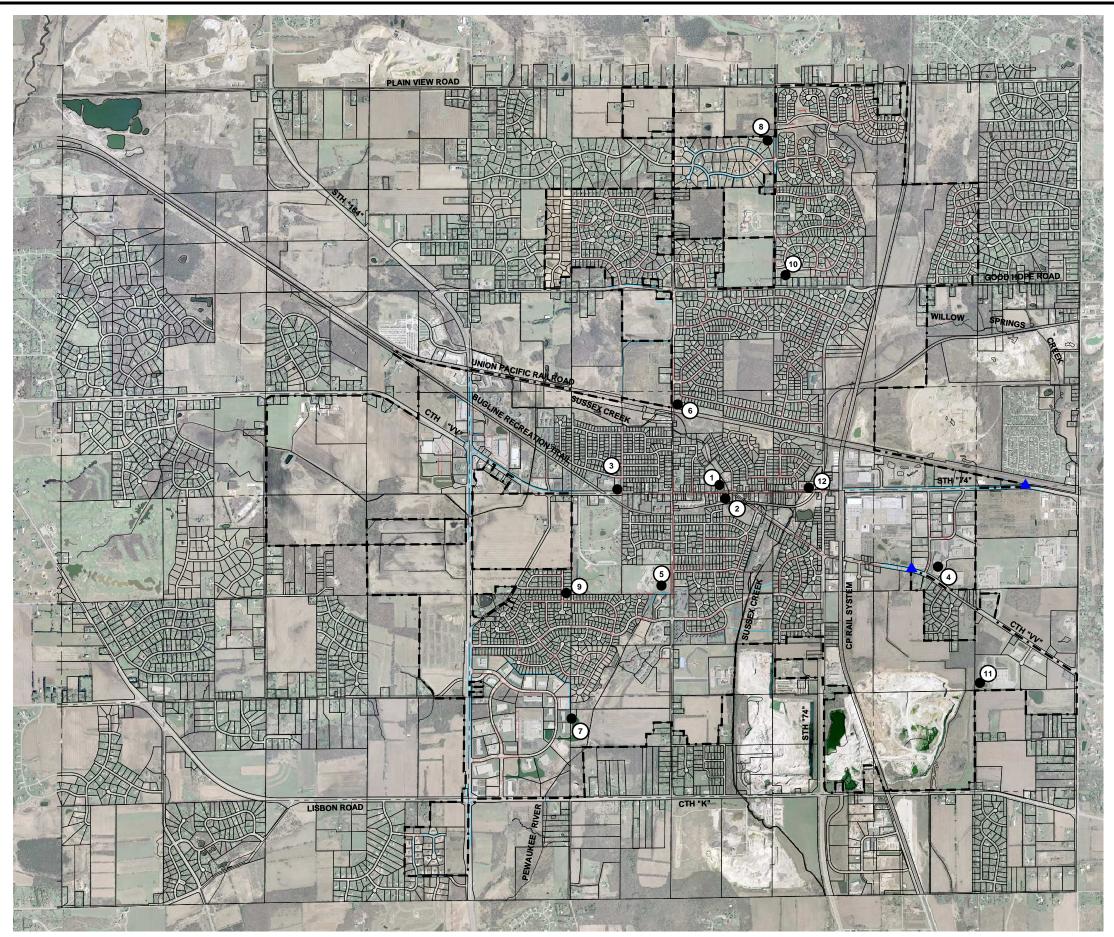
Table 3 – Recommended Storm Water Management System

Hydrologic Basin	Project and Component Description	Capital Cost of Recommended Improvement	Incremental Annual O & M Cost	Location
OF-262-004 and B-25	Village Hall Bioretention Basin	\$112,500	\$850	Village Hall Campus on Main Street
OF-271-001	Piggly Wiggly Bioretention Basin	\$164,000	\$850	Main Street Piggly Wiggly South of Village Hall
B-22	Main Street Bioretention Basin	\$244,900	\$1,400	Northwest Corner of Main Street and Locust Street Intersection
GS-13	Tombstone Bioretention Basin	\$543,100	\$3,600	Northeast Corner of Sussex Road and Silver Spring Drive Intersection
OF-271-001 and B-07	Maple Avenue School Eastern Bioretention Basin	\$816,300	\$6,600	Southeast Corner of Maple Avenue School Property
OF-233-003	Linda Drive Bioretention Basin	\$503,800	\$4,000	East of Maple Avenue, South of Linda Drive
PB-10	Corporate Center Wet Pond Retrofit	\$25,000	\$0	Eastern Pond in Corporate Center
GS-01	Majestic Heights Retrofit Bioretention Basin	\$453,800	\$3,600	Northwest Corner of Woodside Road and Majestic Heights Trail Intersection
GS-11	Maris Drive Retrofit Bioretention Basin	\$113,800	\$900	Northeast Corner of Maris Drive and Quail Run Lane Intersection
PB-05	Braddock Place Wet Pond Retrofit	\$20,000	\$0	Southeast Corner of Woodside Road and Braddock Place Intersection
PB-06A	WOW Distributing Wet Pond Retrofit	\$20,000	\$0	WOW Distributing along Miller Way
OF-261-004	Spring Creek Daylighting	Unknown	Unknown	Main Street at Spring Creek
	Update Storm Water Data in GIS System	\$50,000	\$0	Entire Village
-	Modify Existing Street Sweeping Program Every 4 Weeks in Critical Land Use Only	-	\$77,400	Entire Village
	TOTAL	\$3,067,200	\$99,200	

The above costs reflect August 2010 actual dollars and include engineering, administration and contingencies.









RECOMMENDED STORM WATER MANAGEMENT PLAN

VILLAGE OF SUSSEX
WAUKESHA COUNTY, WISCONSIN

LEGEND

MUNICIPAL BOUNDARY **EXISTING STORM SEWER** 1 VILLAGE HALL BIORETENTION BASIN 2 PIGGLY WIGGLY BIORETENTION BASIN 3 MAIN STREET BIORETENTION BASIN 4 TOMBSTONE BIORETENTION BASIN (5) MAPLE AVENUE SCHOOL EASTERN BIORETENTION BASIN 6 LINDA DRIVE BIORETENTION BASIN 7 CORPORATE CENTER WET POND RETROFIT (8) MAJESTIC HEIGHTS RETROFIT - BIORETENTION BASIN 9 MARIS DRIVE RETROFIT - BIORETENTION BASIN 10 BRADDOCK PLACE WET POND RETROFIT 11) WOW DISTRIBUTING WET POND RETROFIT 12 SPRING CREEK DAYLIGHTING



0 500 1500 2500 SCALE IN FEET

DATE: JANUARY, 2011

● 2011 Copyright Ruekert & Mielke, Inc.

5000





RECOMMENDED STREET SWEEPING PROGRAM

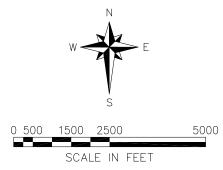
VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

LEGEND

— — MUNICIPAL BOUNDARY

SWEEP IN SPRING AND AS NEEDED FOR COSMETIC REASONS ONLY

SWEEP EVERY 4 WEEKS



DATE: JANUARY, 2011

© 2011 Copyright Ruekert & Mielke, Inc.



It is also recommended that the Village track the sweeping routes completed and the debris collected for inclusion in their annual report.

New Storm Water Quality Control Facilities

Although the Village is Sussex is well-positioned to comply with the required 40 percent sediment reduction requirement, future requirements including a Total Maximum Daily Load (TMDL) analysis are expected to increase the sediment reduction requirements and add phosphorus requirements in the near future. For those reasons, five new storm water quality facilities are recommended within the Village, although the construction of these facilities will likely be dictated by future permit requirements.

<u>Village Hall Bioretention Basin</u>: This facility, labeled number 1 on Exhibit 10 and shown in more detail on Exhibit 13, would be a bioretention facility located on the Village Hall campus. This facility would be approximately 12,000 square feet in size and would serve a contributing drainage area of 2 acres. This facility would not require any land acquisition, as it would be constructed on land currently owned by the Village of Sussex. This basin would reduce total suspended solids by 95 percent within the contributing drainage basin, or 0.1 percent throughout the entire planning area when compared to no storm water controls. A wetland delineation along the Sussex Creek corridor is recommended prior to design. In addition, the facility will likely be partially located within the Sussex Creek's 100-year floodplain, requiring an analysis of the facility's impact on the floodplain. Due to the proximity of this facility to Sussex Creek, floodplain, wetland, Chapter 30 permitting and other environmental considerations must be carefully evaluated and considered during the detailed project design. This facility would have a project cost of approximately \$112,500.

It is anticipated that this facility would be constructed when the Village Hall campus is redeveloped. This bioretention basin would also include several seating areas and educational signage, helping to comply with the Village's public education MS4 permit requirements.

Piggly Wiggly Bioretention Basin: This facility, labeled number 2 on Exhibit 10 and shown in more detail on Exhibit 19, would be a bioretention facility located at the Piggly Wiggly property along Main Street. This facility would be approximately 8,000 square feet in size and would serve a contributing drainage area of 1 acre. This facility would require land or easement acquisition, as it would be constructed on private property. This basin would reduce total suspended solids by 95 percent within the contributing drainage basin, or 0.1 percent throughout the entire planning area when compared to no storm water controls. A wetland delineation along the Sussex Creek corridor is recommended prior to design. In addition, the facility will likely be partially located within the Sussex Creek's 100-year floodplain, requiring an analysis of the facility's impact on the floodplain. Due to the proximity of this facility to Sussex Creek, floodplain, wetland, Chapter 30 permitting and other environmental considerations must be carefully evaluated and considered during the detailed project design. This facility would have a project cost of approximately \$164,000.

This bioretention basin would also include several seating areas and educational signage, helping to comply with the Village's public education MS4 permit requirements. It should be noted that a smaller version of this facility could also be constructed along just the east property line at a reduced cost but similar performance.

Main Street Bioretention Basin: This facility, labeled number 3 on Exhibit 10 and shown in more detail on Exhibit 16, would be a bioretention facility at the northwest corner of Main Street and





Locust Street. This facility would be approximately 17,000 square feet in size and would serve a contributing drainage area of 20 acres. This facility would require land or easement acquisition, as it would be constructed on private property. This basin would reduce total suspended solids by 54 percent within the contributing drainage basin, or 0.5 percent throughout the entire planning area when compared to no storm water controls. This facility would have a project cost of approximately \$244,900.

Maple Avenue School Eastern Bioretention Basin: This facility, labeled number 5 on Exhibit 10 and shown in more detail on Exhibit 12, would be a bioretention facility on the eastern portion of the Maple Avenue School property. This facility would be approximately 80,000 square feet in size and would serve a contributing drainage area of 121 acres. Although this facility would be constructed on property owned by the School District, it was assumed for cost estimating purposes that the Village and the District could create a partnership agreement resulting in no land acquisition costs for the Village. This basin would reduce total suspended solids by 50 percent within the contributing drainage basin, or 2.2 percent throughout the entire planning area when compared to no storm water controls. This facility would have a project cost of approximately \$816,300.

This basin would also include a native prairie buffer, a walking trail and educational signage, helping to comply with the Village's public education MS4 permit requirements. The Village may be able to partner with the environmental education classes at the school to take over portions of the maintenance and further the public involvement portion of the Village's storm water program.

<u>Linda Drive Bioretention Basin</u>: This facility, labeled number 6 on Exhibit 10 and shown in more detail on Exhibit 17, would be a bioretention facility east of Maple Avenue and south of Linda Drive. This facility would be approximately 50,000 square feet in size and would serve a contributing drainage area of 43 acres. This facility would not require any land acquisition, as it would be constructed on land currently owned by the Village of Sussex. This basin would reduce total suspended solids by 73 percent within the contributing drainage basin, or 1.0 percent throughout the entire planning area when compared to no storm water controls. This facility would have a project cost of approximately \$503,800.

This bioretention basin would also include several seating areas and educational signage, helping to comply with the Village's public education MS4 permit requirements.

Retrofit Existing Dry Ponds

Three retrofits of existing dry ponds are recommended, although the construction of these facilities will likely be dictated by future permit requirements. Each of the proposed dry pond retrofit recommendations would need to be reviewed for hydraulic performance prior to construction to verify no adverse impact on the neighboring properties.

Retrofit Tombstone Dry Pond as Bioretention Basin: This facility, labeled number 4 on Exhibit 10 and shown in more detail on Exhibit 14, involves the retrofit of the existing dry pond as a bioretention basin at the former Tombstone property at the northeast corner of the Sussex Road and Silver Spring Drive intersection. This facility would increase the sediment reduction performance of the facility from 14 percent under existing conditions to 93 percent within the approximate 54 acre drainage basin, or by an additional 2.6 percent throughout the entire Village when compared to no controls. As recommended, this facility would have a project cost of approximately \$543,100.





Retrofit Northeast Majestic Heights Dry Pond as Bioretention Basin: This facility, labeled number 8 on Exhibit 10 and shown in more detail on Exhibit 18, involves the retrofit of the existing northeast Majestic Heights dry pond as a bioretention basin at the northwest corner of the Woodside Road and Majestic Heights Trail intersection. This facility would increase the sediment reduction performance of the facility from 40 percent under existing conditions to 100 percent within the approximate 47 acre drainage basin, or by an additional 0.6 percent throughout the entire Village when compared to no controls. As recommended, this facility would have a project cost of approximately \$453,800.

Retrofit Maris Drive Dry Pond as Bioretention Basin: This facility, labeled number 9 on Exhibit 10 and shown in more detail on Exhibit 15, involves the retrofit of the existing dry pond as a bioretention basin at the northeast corner of the Maris Drive and Quail Run Lane intersection. This facility would increase the sediment reduction performance of the facility from 21 percent under existing conditions to 56 percent within the approximate 23 acre drainage basin or by an additional 0.4 percent throughout the entire Village when compared to no controls. As proposed, this facility would have a project cost of approximately \$113,800.

Retrofit Existing Wet Ponds

Three retrofits of existing wet ponds are recommended, although the construction of these facilities will likely be dictated by future permit requirements. Each of the proposed wet pond retrofit recommendations would need to be reviewed for hydraulic performance prior to construction to verify no adverse impact on the neighboring properties.

Retrofit Eastern Corporate Center Wet Pond: This facility, labeled number 7 on Exhibit 10, involves the replacement of the existing eastern wet pond outlet in the corporate center with a 6-inch diameter orifice. This facility would increase the sediment reduction performance of the facility from 82 percent under existing conditions to 90 percent within the approximate 146 acre drainage basin or by an additional 0.7 percent throughout the entire Village when compared to no controls. As recommended, this retrofit would have a project cost of approximately \$25,000.

Retrofit Southwest Braddock Place Wet Pond: This facility, labeled number 10 on Exhibit 10, involves the replacement of the existing wet pond outlet with dual 2-inch orifices at the southwest wet pond in Braddock Place, southeast of the Woodside Road and Braddock Place intersection. Under this alternative, this facility would be designed to increase the sediment reduction performance of the facility from 77 percent under existing conditions to 87 percent within the approximate 63 acre drainage basin or by an additional 0.2 percent throughout the entire Village when compared to no controls. As recommended, this retrofit would have a project cost of approximately \$20,000.

Retrofit WOW Distributing Wet Pond: This facility, labeled number 11 on Exhibit 10, involves the replacement of the existing wet pond outlet with a 6-inch orifice at WOW Distributing along Miller Way. Under this alternative, this facility would be designed to increase the sediment reduction performance of the facility from 60 percent under existing conditions to 90 percent within the approximate 24 acre drainage basin or by an additional 0.5 percent throughout the entire Village when compared to no controls. As recommended, this retrofit would have a project cost of approximately \$20,000.





Spring Creek Daylighting

Village staff and officials are currently working with Inter-Fluve, Inc to study the feasibility of daylighting Spring Creek at Main Street. Although this study has not yet been finalized, it is included in the recommended plan for this planning effort.

Maintenance of Storm Water Quality Control Facilities

The Village of Sussex is required to develop an inventory of each post-construction storm water management facility within the Village by March 31, 2011 and then complete annual inspections of each facility, including any required maintenance thereafter. If these inspections are not completed and the performance of the facilities verified, the Village may stand to lose the pollutant reduction credit from the corresponding facilities, necessitating the need for construction of additional facilities to meet the sediment reduction permit requirements. Ruekert & Mielke, along with Village of Sussex and Department of Natural Resources staff completed initial inspections of 45 of the Village's storm water facilities in October of 2010. The results of this initial inspection are discussed further in Chapter 7 and presented in the appendix.

Most of the Village's residential storm water facilities are located on outlots controlled by homeowner's associations and in common ownership with all subdivision property owners. The Village of Sussex will need to determine whether maintenance responsibilities will remain with the homeowners associations or if the Village will take them over. If the associations remain in control, a significant amount of staff time will be expended coordinating and enforcing maintenance activities and there will be little assurance maintenance will be done uniformly or correctly throughout the Village. In addition, the contributing homeowners will likely still be eligible for a credit through the Village's storm water utility, reducing the Village's funding for other water quality related activities. If the Village takes over maintenance responsibilities and eliminates the credit, Village staff would be able to ensure uniform maintenance throughout the Village and more easily comply with the Department's permit requirements, although further analysis would need to be completed to determine whether the additional revenue generated from the credit extinction would cover the additional Village expenditures. Most of the Village's commercial, industrial and institutional storm water facilities are located on land owned by the respective business owners and would face a similar decision.

For all storm water quality facilities, it is recommended that the Village begin determination of which facilities hold valid maintenance agreements. Once this is understood, Village staff can begin working with property owners to facilitate completion of the required maintenance activities until the above issue is resolved. It should be noted that several maintenance agreements were obtained through this planning study and added to the Village's geographic information system. In addition, Table 5 in Chapter 7 contains a pond summary table to assist in preparation of the inventory.

Impaired Waters Strategy

Two river segments within the Village of Sussex have been classified as impaired waterbodies and have been placed on the Wisconsin Department of Natural Resource's 303(d) list. This classification means that the waterway does not meet the current numeric or narrative criteria in a water quality standard, or that the designated use for the waterbodies as described in the Wisconsin Administrative Code is note being achieved. In the case of Sussex (Spring) Creek, high levels of phosphorus led to the designation, while in the tributary to Sussex (Spring) Creek which flows southerly in the southeastern corner of the Village, high levels of phosphorus and





sediment led to the designation. The Fox River, located downstream of the Village of Sussex is also classified as impaired, the result of high levels of PCBs, sediment, phosphorus and mercury.

The recommendations found within this planning effort are specifically designed to reduce sediment and phosphorus loadings within the Village. As already discussed, the Village is currently experiencing a 39.6 percent reduction in sediment and a 23.2 percent reduction in phosphorus. If all of the recommendations within this study are implemented, the Village will obtain an additional 10.3 percent reduction in sediment and an additional 8.5 percent reduction in phosphorus.

Additionally, it is recommended that the Village begin to focus their public education and involvement strategy on reducing these pollutants of concern.

Public Education, Outreach and Involvement

To increase public awareness of storm sewer impacts on surface and ground water quality, the Village of Sussex must develop a public education, outreach and involvement program. Since it is generally more cost effective to modify an existing program than to develop a new program, the Village has partnered with the existing public education and outreach program administered by Waukesha County. The topics covered by this program include general water quality education; illicit discharge detection and elimination; onsite reuse of leaves and grass clippings; pet waste collection; fertilizer and pesticide usage; disposal of waste oil and other hazardous materials; riparian landowner shoreline management; environmentally sensitive land development; and infiltration of residential storm water runoff. The program also includes storm drain stenciling; procurement of public meetings and citizen panels; citizen water quality monitoring; storm water workshops; community cleanups; citizen watch groups; or "Adopt a Stream" groups. In general, each of these activities will include citizen volunteers but requires impetus, oversight and supervision from the Village.

The program targets businesses and activities that may pose a storm water contamination concern and includes education of designers and contractors. The educational materials which supplement the program may be distributed at the Village Hall, the public library, citizen centers or through mailings with utility bills. It is expected that this program, in combination with efforts by Village staff and local environmental groups, will fulfill the Village's public education and outreach NR 216 permit requirements.

It is recommended that the Village track all public education, outreach and involvement activities for inclusion in their annual report to the Department of Natural Resources. The collected data should include the number and type of each activity completed or material distributed.

Illicit Discharge Detection and Elimination

To eliminate illicit discharges such as hazardous material spills, infiltration from cracked pipes, and wastewater cross connections to the municipal storm sewer system, the Village has developed an illicit discharge detection and elimination program. The Village completed an inspection of all major outfalls beginning in 2009 and again in 2010. The recommended plan consists of further plan development, including determination of priority outfalls to be inspected annually and major, non-priority outfalls to be inspected every three years. If illicit discharges are detected, they must be eliminated immediately.





The Village of Sussex should track all illicit discharge detection and elimination efforts for inclusion in their annual report to the Department of Natural Resources. The collected data should include the location, frequency, and results of all outfall inspections, the results of any subsequent field analysis, the number and type of all illicit discharges removed from the storm sewer system and a summary of the Village's spill response efforts.

Construction Site Erosion Control and Post-Construction Site Storm Water Management

Chapter 14 of the Village of Sussex municipal code contains the Village's erosion control and storm water management provisions which have been updated to comply with Chapters NR 151 and NR 216 of the Wisconsin Administrative Code.

Erosion control permits are typically issued by the inspection department for all non-residential projects requiring an inspection. Subdivisions and larger developments are reviewed by Village staff for conformance with the ordinance prior to permit issuance. For these projects, the owner typically performs the standard erosion control inspections, with Village staff completing monthly and once per winter compliance inspections. Enforcement actions typically involve letter of credit withdrawals, fines or permit revocation.

The Village should continue to track the number of issued permits, compliance inspections, enforcement action and post-construction activities for inclusion in their annual report.

Municipal Pollution Prevention Plans

To reduce pollution in storm water runoff from their own municipal operations, the Village of Sussex must develop a pollution prevention plan for municipal garages, storage areas and other Village-owned sources of storm water pollution prior to March 31, 2011. Following plan development, annual full inspections and semi-annual visual inspections of those facilities must occur.

The Village should continue to track the number of inspections completed and the results of those inspections for inclusion in their annual report.

Catch Basin Cleaning

Under the schedule currently in effect within the Village of Sussex, catch basins are cleaned as needed, resulting in minimal pollutant reductions. Since the water quality modeling guidance published by the Department does not allow communities to take credit for both street sweeping and catch basin cleaning and minimal pollutant reductions, no changes to the existing cleaning schedule are recommended. Catch basins should still be maintained, as needed, to prevent the resuspension of trapped sediment.

Leaf, Brush and Grass Clipping Collection

Under the schedule currently in effect within the Village, leaves are collected curbside each fall. Initial reports for the fall of 2009 showed collection of approximately 100 hopper loads of ground of leaves, with 24 cubic yards being collected in each hopper. Brush is picked up once per year in early fall.





No changes to the current program are recommended under this planning effort, although enforcement of the Village's existing ordinance prohibiting leaf storage in the roadway is recommended.

Deicing Management

The Village deicing program uses salt as the primary deicing material and typically does not apply any sand to Village roads. No salt is used for snowfalls less than 3 inches unless icing conditions are present. For snowfalls greater than 3 inches, salt is applied to intersections, hills, collector streets, arterial streets and areas subject to icing. This program, which was implemented approximately two years ago, significantly reduced salt usage. The Village typically uses approximately 2,000 tons per year of salt. The Village has used beet juice as a deicing material, but has not experimented with other materials or techniques. Salt is purchased as part of Waukesha County's program and is stored at the County shed at the intersection of County Highway "K" and State Highway "74". Since minimal sand is used, the current deicing management program does not add significant suspended solids to the runoff. However, the relatively high concentration of salt may lead to detrimental effects within the Village's surface waterways and groundwater supply.

The Village is required to revise their existing deicing management plan to include contact information, truck routes, equipment descriptions, disposal locations, deicing strategies and monthly product use data. The recommended deicing management plan includes a review of the salt loading rates currently applied throughout the Village, preparation of an updated plan, and an examination of alternative deicing techniques, including prewetting and the use of beet juice as a deicer. If possible, the application rates will be decreased, while still providing a safe roadway. This recommendation would not provide any additional total solids loading reductions, but may decrease the level of calcium chloride loadings to the Village's waterways.

A form to assist the Village in tracking deicing material application rates is included in the Appendix.

Storm Water System Map / GIS System

The Village must maintain an updated map of their storm water management system. It is recommended that the Village's geographic information system (GIS) be updated to host the data requested by the Wisconsin Department of Natural Resources and include functionality to involve the public while also easing the time commitment for Village staff. The Village's current GIS pipe and structure data is somewhat outdated and inaccurate. The recommended plan involves field locations of all storm water management facilities, inclusion of subdivision design and facility maintenance records, inclusion of active construction sites with erosion control permits, and the archive of culvert inspection and illicit discharge inspection records. This mapping work would have an approximate project cost of \$50,000.

As part of this planning effort, storm water pond locations, major and minor outfalls and drainage basins have been reviewed and updated in the existing GIS database. In addition, an interactive facility inspection form has been created which allows staff and/or homeowner's associations to directly enter facility inspection data. Culvert inspections were also completed along Main Street and Good Hope Road. The results of those inspections are included in the Appendix.





Annual Report

Throughout the Village's five year permit term, an annual report must be submitted to the Department of Natural Resources. The report must include the implementation status of the permit requirements and compliance with permit schedules; a summary of municipal pollution prevention operations; a fiscal analysis with expenditures and budget for the reporting year and the budget for the following year; a summary of enforcement actions and inspections; and identification of water quality improvements or degradation. The annual report is due March 31st of each year.

It is also important to note that as part of the Village's municipal storm water permit activities, Village staff members should review, evaluate and revise their storm water management activities on at least an annual basis. Activities that are working well should be encouraged, and activities that are not working as intended should be modified.

Intermunicipal Cooperation

The Village of Sussex is also concerned with storm water quality and flood control within the municipalities that share borders with the Village. To ensure that the region's water resources are sufficiently protected, the recommended plan includes the continued storm water discussions with the communities that neighbor the Village. Of particular concern is the Town of Lisbon, which contains the headwaters to Sussex Creek and directs a large amount of storm water runoff towards the Village.

It is anticipated that water quality requirements of future development outside the Village of Sussex's borders will be regulated by Chapters NR 151 and NR 216 of the Wisconsin Administrative Code and local storm water ordinances.

Fertilizer Management

If fertilizer is applied on any Village-controlled properties with more than 5 acres of pervious surface, it must be done in accordance with a site specific nutrient application schedule.

Phosphorus Ban

In April of 2009, the Governor of the State of Wisconsin signed a bill banning the sale of lawn fertilizer which contains phosphorus. The measure would prohibit people from applying fertilizer with phosphorus to lawn turf, although it could still be used on first year lawns and phosphorus-poor soils. Retailers would be barred from displaying fertilizer with phosphorus, although they could post a sign saying it was available off the sales floor. A similar bill banning phosphorus in dishwasher detergent was signed in November of 2009. Both bans began in 2010 and it is recommended that Village staff enforce the bans within the Village boundaries.

Plan Costs

The recommended storm water system plan for the Village of Sussex has an estimated capital cost of \$3.07 million, and an attendant annual increase in operation and maintenance costs of \$99,000. Cost estimates for each recommended improvement are provided in the Appendix.







MAPLE AVENUE SCHOOL EASTERN BIORETENTION BASIN

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

KEY:

PROPOSED 80,000 S.F. BIORETENTION BASIN RESTORED NATIVE PRAIRIE

ADA ACCESSIBLE WALKING TRAIL

EXISTING STORM SEWER

EXISTING DITCH

EDUCATIONAL SIGNAGE

BIORETENTION PROCESS AND WATER QUALITY

2 NATIVE PLANT SPECIES INFORMATION AND IDENTIFICATION

WILDLIFE HABITAT AND FOOD SOURCE INFORMATION

GRAPHIC SCALE

DATE: JANUARY, 2011

400

● 2011 Copyright Ruekert & Mielke, Inc.

Nuekert ⋅ Mielke



VILLAGE HALL BIORETENTION BASIN

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

KEY:

PROPOSED BIORETENTION BASINS (11,700 S.F. TOTAL)

APPROXIMATE CONTRIBUTING DRAINAGE AREA BOUNDARY



SEATING/ VIEWING AREA

EDUCATIONAL SIGNAGE

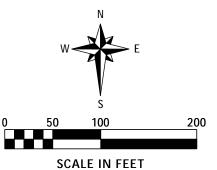
BIORETENTION PROCESS AND WATER QUALITY BENEFIT INFORMATION

2

NATIVE PLANT SPECIES INFORMATION AND IDENTIFICATION

3

WILDLIFE HABITAT AND FOOD SOURCE INFORMATION



DATE: JANUARY, 2011

● 2011 Copyright Ruekert & Mielke, Inc.

Nuekert ⋅ Mielke



TOMBSTONE BIORETENTION BASIN

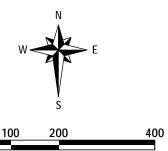
VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

KEY:

EXISTING STORM SEWER

PROPOSED 35,000 S.F. BIORETENTION BASIN

−<- EXISTING DITCH



GRAPHIC SCALE DATE: JANUARY, 2011

● 2011 Copyright Ruekert & Mielke, Inc.



SOURCE: BASEMAP SOURCE:



RETROFIT MARIS DRIVE DRY POND AS BIORETENTION BASIN

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

KEY:

PROPOSED 12,600 S.F. BIORETENTION BASIN



SEATING/ WILDLIFE VIEWING AREA

EXISTING STORM SEWER

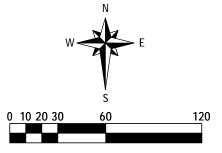
EDUCATIONAL SIGNAGE

1)

BIORETENTION PROCESS AND WATER QUALITY BENEFIT INFORMATION

NATIVE

NATIVE PLANT COMMUNITY INFORMATION



SCALE IN FEET

DATE: JANUARY, 2011

© 2011 Copyright Ruekert & Mielke, Inc.

Ruekert · Mielke engineering solutions for a working world

SOURCE: BASEMAP SOURCE:



MAIN STREET BIORETENTION BASIN

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

KEY:

PROPOSED 17,000 S.F. BIORETENTION BASIN

EXISTING STORM SEWER

EXISTING DITCH

W E S 50 100 200

SCALE IN FEET

DATE: JANUARY, 2011

• 2011 Copyright Ruekert & Mielke, Inc.

Ruekert · Mielke engineering solutions for a working world

G:\C3D\20%2 150\dwg\z-010-Mdill 3tl IMAGES: G:\C3D\2092156\dwg\819 Cr XREFS: G:\C3D\2092156\dwg\digcdba



LINDA DRIVE BIORETENTION BASIN

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

KEY:

PROPOSED 50,000 S.F. DUAL BAY BIORETENTION BASIN

EXISTING STORM SEWER

EDUCATIONAL SIGNAGE

1) BIG

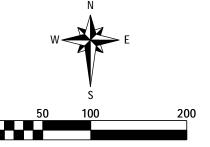
BIORETENTION PROCESS AND WATER QUALITY BENEFIT INFORMATION

2

NATIVE PLANT SPECIES INFORMATION AND IDENTIFICATION

3

WILDLIFE HABITAT AND FOOD SOURCE INFORMATION



SCALE IN FEET

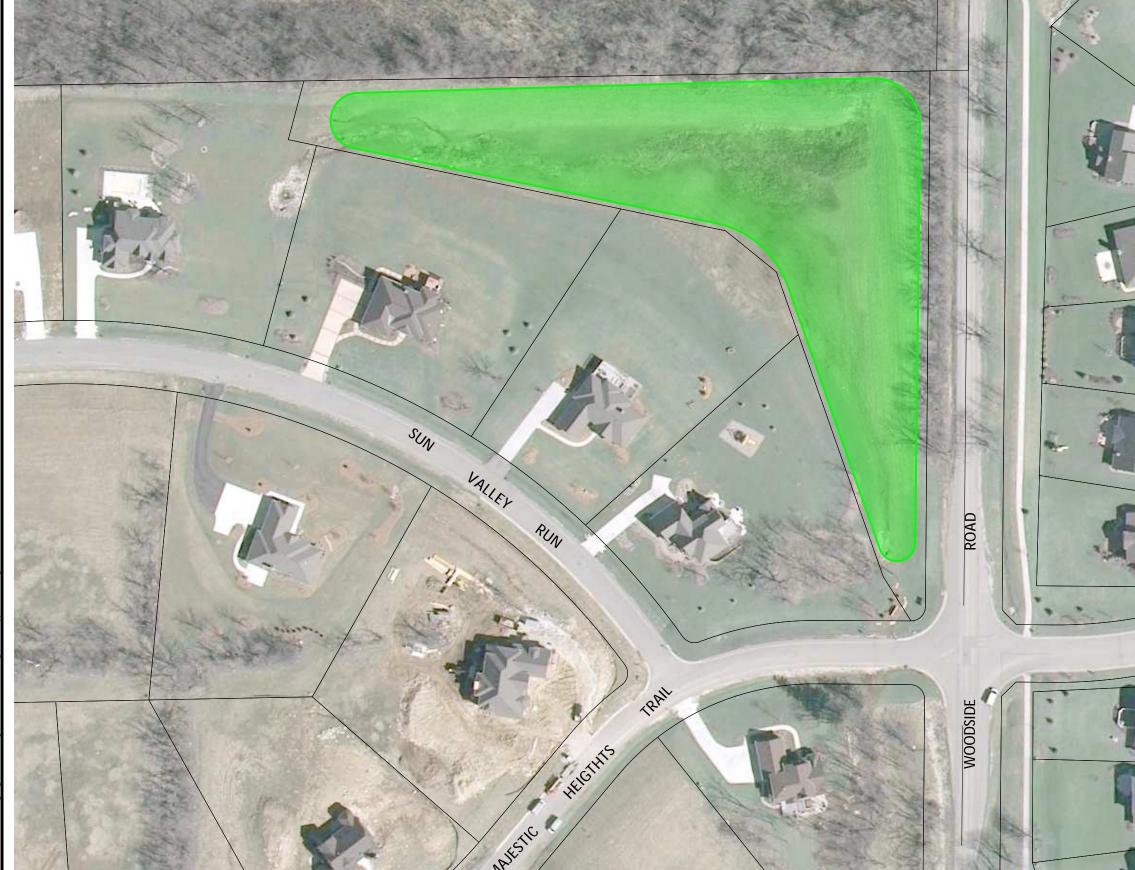
DATE: JANUARY, 2011

● 2011 Copyright Ruekert & Mielke, Inc.

Ruekert · Mielke engineering solutions for a working world

SOURCE: BASEMAP SOURCE:

SAVED BY: dklemm Basin.dwg Layout1





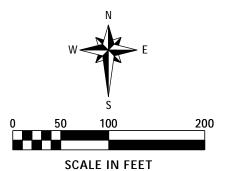
RETROFIT NORTHEAST MAJESTIC HEIGHTS POND AS BIORETENTION BASIN

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

KEY:

PR

PROPOSED 105,000 S.F. BIORETENTION BASIN



DATE: JANUARY, 2011

● 2011 Copyright Ruekert & Mielke, Inc.



SOURCE: BASEMAP SOURCE:



PIGGLY WIGGLY BIORETENTION BASIN

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

KEY:

PROPOSED MULTI-LEVEL TERRACED BIORETENTION BASIN

EXISTING STORM SEWER

"SUSTAINABLY SUSSEX" OR SIMILAR THEME KIOSK WITH INFORMATION ABOUT ENVIRONMENTALLY-FRIENDLY PROJECTS AND PRACTICES ALONG BUGLINE TRAIL IN DOWNTOWN AREA (WITH MAP SHOWING LOCATION OF NEARBY EDUCATIONAL SIGNAGE)

CONTRIBUTING DRAINAGE AREA BOUNDARY

*

SEATING/ VIEWING AREA

EDUCATIONAL SIGNAGE

BUGLINE TRAIL INFORMATION

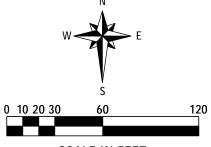
INFORMATION ON PIOPETEN

INFORMATION ON BIORETENTION PROCESS, WATER QUALITY BENEFITS AND PIGGLY WIGGLY PARKING LOT RECONSTRUCTION

3 INFORMATION ON NATIVE PLANTS AND WILDLIFE HABITAT AND FOOD SOURCES

SUSSEX CREEK ECOSYSTEM INFORMATION

INFORMATION ON ENVIRONMENTALLY-FRIENDLY SUSSEX OUTREACH SERVICES BUILDING



SCALE IN FEET

DATE: JANUARY, 2010

●2011 Copyright Ruekert & Mielke, Inc.



SOURCE: BASEMAP SOURCE:

CHAPTER 7 – IMPLEMENTION PROGRAM

The final step in the storm water management system planning process consisted of the development of a program for the implementation of the recommended plan. In this step, the recommended corrective measures within the Village were prioritized, and a capital improvement program developed on the basis of this prioritization and estimates of potentially available funding. Following formal adoption of the recommended plan by the Village of Sussex, realization of the plan will require a long-term commitment to the objectives of the plan, and a high degree of coordination and cooperation among Village officials and staff, Wisconsin Department of Natural Resources staff, developers and concerned citizens.

The systems-level storm water management plan presented in this report is intended to serve as a guide to the future design and construction of storm water management facilities. Detailed engineering design should examine in greater depth and detail potential variations in the technical, economic and environmental features of the recommended solutions identified in the system plan in order to determine the best means of carrying out the plan. The resulting facility development plans, however, should be fully consistent with the system plan recommendations presented in this report.

Priority of Implementation

Each of the projects within the recommended plan were placed in order of priority according to the cost effectiveness of each recommendation with three exceptions. The first exception is the street sweeping program, which was placed at the top of the prioritization because it allows compliance with the 40 percent sediment reduction requirement and is extremely simple to implement. The Village Hall and Maple Avenue School bioretention basins were also moved higher in the prioritization since both of those recommendations meet multiple Village goals including storm water quality, public education and pedestrian walkability. The prioritization of the recommended projects is set forth in Table 4.

Storm Water Facility Maintenance Requirements

The Village of Sussex is acutely aware that proper storm water management does not end with completion of this planning document. Instead, Village officials and staff intend to use this document as a roadmap towards compliance with their municipal MS4 storm water permit and the subsequent improvements to the Village's water resources.

The pollutant reduction calculations expressed throughout this document are based on taking credit for all existing storm water best management practices constructed within the Village prior to October, 2004. To maintain this level of pollutant control will require that the Village work cooperatively with the facility owners to ensure that the required maintenance activities are completed.

Ruekert & Mielke, along with Village of Sussex and Department of Natural Resources staff completed initial inspections of 46 of the Village's storm water facilities in October of 2010. The results of this inspection are summarized both below and in Appendix B, and indicate that maintenance was required at each of the facilities. Facilities at Coldwater Creek and The Seasons were not investigated as part of this initial inspection.





Table 4 – Prioritization of Recommended Storm Water Management Improvements

			uspended (Pounds)		osphorus unds)	T. d. a. I.		Cost Per Pound of Pollutant Removal	
Priority	Control Measure	Existing Land Use	Reduction from No Controls	Existing Land Use	Reduction from No Controls	Estimated Project Cost (Structural BMP) or Annual Cost (Sweeping)	Estimated 50 Year Present Worth	Total Suspended Solids	Phosphorus
1	Street Sweeping Every 4 Weeks In Critical Land Uses Only	25,208	3.9%	0	0.0%	\$77,400	\$1,220,000	\$48.40	N/A
2	Update Storm Water Data in GIS System	-	-	-	-	\$50,000	\$50,000	-	-
3	Spring Creek Daylighting	-	-	-	-	Unknown	Unknown	-	-
4	Retrofit Outlet Structure For Wet Pond 10 (Corp Center)	4,528	0.7%	21.3	0.9%	\$25,000	\$25,000	\$5.52	\$1,173.71
5	Retrofit Outlet Structure For Wet Pond 6A (WOW)	3,126	0.5%	2.0	0.1%	\$20,000	\$20,000	\$6.40	\$10,000.00
6	Retrofit Outlet Structure For Wet Pond 5 (Braddock Place)	1,231	0.2%	4.0	0.2%	\$20,000	\$20,000	\$16.25	\$4,987.53
7	Maple Avenue School Eastern Bioretention Basin (50% TSS)	14,256	2.2%	55.0	2.4%	\$816,300	\$920,300	\$64.56	\$16,729.69
8	Village Hall Bioretention Device	655	0.1%	1.1	0.0%	\$112,500	\$126,100	\$192.52	\$114,636.36
9	Tombstone Bioretention Basin	17,112	2.6%	37.1	1.7%	\$543,100	\$600,000	\$35.06	\$16,181.23
10	Retrofit Maris Drive Dry Pond As Bioretention Basin	2,469	0.4%	11.2	0.5%	\$113,800	\$127,600	\$51.68	\$11,352.31
11	Main Street Bioretention Basin	3,410	0.5%	9.6	0.4%	\$244,900	\$266,700	\$78.22	\$27,839.25
12	Linda Drive Bioretention Basin	6,670	1.0%	27.0	1.2%	\$503,800	\$566,800	\$84.97	\$21,000.37
13	Retrofit Northeast Majestic Heights Pond As Bioretention Basin	4,226	0.6%	22.6	1.0%	\$453,800	\$510,500	\$120.80	\$22,598.49
14	Piggly Wiggly Bioretention Device East Property Line	395	0.1%	0.6	0.0%	\$164,000	\$177,200	\$448.61	\$295,333.33





- Facilities requiring major repairs (> \$10,000): 13
- Facilities requiring moderate repairs (\$1,000 to \$10,000): 13
- Facilities requiring minor repairs (< \$1,000): 20

The required maintenance activities are summarized on Exhibit 20 and described in more detail in Table 5. Table 5 also includes a prioritization of the required maintenance activities based on the potential consequences if the maintenance work is not completed. Potential consequences considered include damage to structures or property, public safety concerns, general maintenance activities or any combination thereof.

The estimated cost of the required maintenance activities is \$580,000. Although this maintenance cost is substantial, it is significantly lower than the comparative cost to construct new facilities to achieve similar pollutant reductions. Given this scenario, the Village must determine the most cost effective way to ensure that the maintenance activities are completed. The three most likely scenarios are as follows:

- 1. The homeowners associations and other facility owners complete the required maintenance with oversight from Village staff. This option requires the least amount of staff involvement, but also is the least likely to be successful given the large number of facility owners throughout the Village. In addition, the contributing homeowners will likely still be eligible for a credit through the Village's storm water utility, reducing the Village's funding for other water quality related activities.
- 2. The Village completes all the required maintenance activities and back charges the facility owners. This option would require more staff involvement but would ensure timely completion of the activities along with uniform implementation throughout the Village. If the Village takes over maintenance responsibilities and eliminates the storm water utility credit, further analysis would be needed to determine whether the additional revenue generated from the storm water utility credit extinction would cover the additional Village expenditures.
- 3. A hybrid scenario where maintenance responsibilities begin with the property owners. As owners default on the required maintenance (or at the request of the property owners), the Village would take over the maintenance responsibilities and charge the owners to complete the required activities.

The Village of Sussex has been proactive in beginning to understand the ramifications of these maintenance responsibilities. This planning document and the subsequent maintenance requirements were discussed at the Public Works Committee meetings in August, September and November of 2010. Over the course of the next six months, the Village intends to better understand the ownership scenario of the existing storm water facilities along with who is responsible for the required maintenance activities. Over the next 18 months, the Village intends to finalize their maintenance program and begin implementation, including determination of the financial impacts on the Village's existing storm water utility. The best management practice facility ownership information assembled as part of this study is summarized in Table 6.







EXISTING STORM WATER FACILITY MAINTENANCE NEEDS

VILLAGE OF SUSSEX WAUKESHA COUNTY, WISCONSIN

LEGEND

MUNICIPAL BOUNDARY

EXISTING STORM SEWER

MINOR REPAIRS NEEDED
(LESS THAN \$1,000)

MODERATE REPAIRS NEEDED
(BETWEEN \$1,000 AND \$10,000)

MAJOR REPAIRS NEEDED
(MORE THAN \$10,000)

WATERSHED BOUNDARY

DRAINAGE BASIN BOUNDARY



0 500 1500 2500

SCALE IN FEET

DATE: JANUARY, 2011

5000

● 2011 Copyright Ruekert & Mielke, Inc.

XREFS: G:\C3D\2092156\dwg\E

SOURCE: BASEMAP SOURCE:

Table 5 – Storm Water Facility Maintenance Needs

Priority	Major Repairs Needed (Greater than \$10,000)	Work Needed
1, 2, 3	Dry Pond 10D Eagle's Ridge (Nighthawk Court)	Repair Outlet; Dredging Appears Necessary
1, 2, 3	Dry Pond 07 Woodland Creek (southeast)	Remove Structures; Sump Pump Concerns; Clean Sediment; etc
1, 2, 3	WP-09 Corporate Park East (small)	Verify Potential Contaminant
1, 2, 3	Area North of Centennial Oaks	Solve Flooding From Town of Lisbon
1, 3	Dry Pond 03 Centennial Oaks (northeast)	Inspect Pond Elevation vs. Home Grade; Remove Vegetation
1, 2, 3	IB-16 Stonewood Estates	Not Infiltrating
1, 2, 3	Woodland Creek Northeast Corner	Solve Flooding From Town of Lisbon
1, 3	Dry Pond 12 Capitol Beer Distributors (east)	Grading Concerns - Grate and Spillway Appear Too High
1, 3	WP-07 Lauterbach	Investigate Flooding Concerns Is Pond Discharging Properly; Water Elevation Appears Low; Begin Vegetation Maintenance
1, 3	WP-15 Brandon Oaks (south)	Pond Not Holding Water; Remove Vegetation
1, 3	WP-16 Brandon Oaks (north)	Dredging Appears Necessary; Remove Woody Vegetation
1, 3	WP-18 Villas at Brandon Oaks	Pond Not Holding Water; Remove Vegetation Downstream
3	WP-04 Centennial Oaks (southeast)	Dredging Appears Necessary; Remove Woody Vegetation
3	WP-06 Bevco/Babush	Pond Not Holding Water
3	WP-29 Maple Creek Apartments	Dredging Appears Necessary; Remove Woody Vegetation

Priority	Moderate Repairs Needed (Between \$1,000 and \$10,000)	Work Needed		
1, 3	Dry Pond 08 Woodland Creek (central)	Reset Riprap; Define Overland Flow Path		
1, 3	WP-13 Schreiber Specialties	Investigate Berm Leaking Into Bugline		
3	Dry Pond 01 Majestic Heights (northeast)	Remove Woody Vegetation; Repair South Inlet		
3	WP-01 Shopko (south)	Remove Woody Vegetation		
3	WP-01A Shopko (west)	Remove Woody Vegetation		
3	WP-02 Pine Ridge (north)	Water Elevation Appears Low; Repair Cracked End Section; Remove Vegetation		
3	WP-03 Pine Ridge (south)	Water Elevation Appears Low; Begin Vegetation Removal		
3	WP-08 Corporate Park (south)	Remove Woody Vegetation; Remove Sediment @ Inflows; Clear Spillway		
3	WP-10 Corporate Park (east -large)	Remove Woody Vegetation; Clear Ditch for North Inlet		
3	WP-17 Sussex Community Center	Water Elevation Appears Low; Clear Outlet Structure; Remove Vegetation		
3	WP-20 Butler Wetlands	Water Elevation Appears Low; Begin Vegetation Removal		
3	WP-25 Quad Graphics (northwest)	Remove Woody Vegetation; Repair Erosion @ SW Inlet		
3	WP-25A Quad Graphics (northeast)	Water Elevation Appears Low; Remove Vegetation; Repair End Section @ Outlet		

Priority Classifications:

- 1 = Damage to Structures or Property
- 2 = Public Safety Concerns
- 3 = General Maintenance





Table 5 (Continued) – Storm Water Facility Maintenance Needs

Priority	Minor Repairs Needed (Less than \$1,000)
3	Dry Pond 02 Majestic Heights (southeast swale)
3	Dry Pond 04 Cobblestone Estates (west)
3	Dry Pond 04A Centennial Oaks (central)
3	Dry Pond 05 Cobblestone Estates (east)
3	Dry Pond 06 Centennial Oaks (southwest)
3	Dry Pond 11 Stone Ridge Estates (Maris Drive)
3	Dry Pond 13 Tombstone/Nature's Path
3	WP-05 Braddock Place
3	WP-06A Capitol Beer Distributors
3	WP-11 Pick-N-Save
3	WP-12 Waukesha State Bank
3	WP-14 Walgreens
3	WP-19 Maple Grove Apartments
3	WP-21 Quad Graphics (central)
3	WP-22 Quad Graphics (southwest)
3	WP-24 Quad Graphics (southeast)
3	WP-27 Color Ink
3	WP-30 Seven Stones (northwest)
3	WP-31 Seven Stones (north)
3	WP-32 Seven Stones (southeast)

Priority Classifications:

1 = Damage to Structures or Property

2 = Public Safety Concerns

3 = General Maintenance





Table 6 – Storm Water Management Facility Summary

Pond Name / Subdivision	Location	SLAMM Basin Number	Type of Facility	Area Contributed (Acres)	Date of Storm Water Agreement	Date of Land Division Recorded
Coldwater Creek	South of Coldwater Drive and the intersection of Mallard Ct.	IB #1	Infiltration Basin	5.15	6/16/2000	4/4/2002
Coldwater Creek	North of Coldwater Dr., east of Mallard Ct., west of Nesting Ct.	IB #2	Infiltration Basin	14.98	6/16/2000	4/4/2002
Coldwater Creek	South of Coldwater Drive and Nesting Court Intersection	IB #3	Infiltration Basin	2.67	6/16/2000	4/4/2002
Coldwater Creek	North of Coldwater Dr., east of Nesting Ct., west of Martin Ct.	IB #4B	Infiltration Basin	9.20	6/16/2000	5/2/2003
Coldwater Creek	Southwest of Coldwater Dr. and the Intersection of Martin Court	IB #5	Infiltration Basin	3.95	6/16/2000	5/2/2003
Coldwater Creek	Northeast of Coldwater Drive Termination	IB #7	Infiltration Basin	5.70	6/16/2000	11/10/2005
Coldwater Creek	Northeast of Martin Court and Coldwater Drive Intersection	IB #7A	Infiltration Basin	19.90	6/16/2000	5/2/2003
Coldwater Creek	Southeast of Coldwater Drive Termination	IB #8	Infiltration Basin	3.60	6/16/2000	11/10/2005
Coldwater Creek	North of Cranberry Ct., east of Woodside Rd.	IB #9	Infiltration Basin	4.32	6/16/2000	11/1/2000
Coldwater Creek	Southeast of Coldwater Dr. and Martin Ct. Intersection	IB #10	Infiltration Basin	5.60	6/16/2000	5/2/2003
Coldwater Creek	South of Habitat Drive, east of Greymoss Ct., west of Berrywood Ct.	IB #11	Infiltration Basin	11.93	6/16/2000	11/1/2000
Coldwater Creek	North of Habitat Drive, east of Cranberry Ct., west of Chestnut Ct.	IB #12	Infiltration Basin	5.06	6/16/2000	11/1/2000
Coldwater Creek	North of Chestnut Court	IB #13	Infiltration Basin	4.32	6/16/2000	11/1/2000
Coldwater Creek	South of Habitat Dr., east of Berrywood Ct., west of Habitat Ct.	IB #14	Infiltration Basin	12.68	6/16/2000	4/4/2002
Coldwater Creek	Southeast of Turtle Crossing, northeast of Habitat Ct., southwest of Red Fox Cove.	IB #15	Infiltration Basin	9.21	6/16/2000	4/4/2002
Stonewood Estates	North of Good Hope Rd. at Stonefield Dr.	IB #16	Infiltration Basin	-	9/16/2006	6/19/2008
Shopko / Kohl's South	Southwest of CTH VV and STH 164 Intersection	WP #1	Wet Pond	21.17	4/2003	-
Shopko/ Kohl's West	Southwest of CTH VV and STH 164 Intersection	WP #1A	Wet Pond	13.49	4/2003	-
Pine Ridge (north)	Southeast of Craven Drive and Maple Avenue Intersection	WP #2	Wet Pond	9.12	-	9/13/2006
Pine Ridge (south)	Northeast of Good Hope Road and Maple Avenue Intersection	WP #3	Wet Pond	18.38	-	9/13/2006
Centennial Oaks (southeast)	Northwest of Good Hope Road and Maple Avenue Intersection	WP #4	Wet Pond	91.86	-	6/23/1997
Braddock Place	Southeast of Braddock Place and Woodside Rd Intersection	WP #5	Wet Pond	63.23	-	10/1/2002





Table 6 (Continued) – Storm Water Management Facility Summary

Pond Name / Subdivision	Location	SLAMM Basin Number	Type of Facility	Area Contributed (Acres)	Date of Storm Water Agreement	Date of Land Division Recorded
Bevco / Babush	West of Miller Way and Silver Spring Road Intersection	WP #6	Wet Pond	12.92	9/21/2000	-
Capitol Beer Distributors	Southwest of Miller Way	WP #6A	Wet Pond	24.25	9/21/2000	-
Lauterbach	Southeast of Miller Way	WP #7	Wet Pond	28.52	9/21/2000	-
Sussex Corporate Park (south)	Southeast of Executive Drive and Corporate Circle Intersection	WP #8	Wet Pond	83.49	-	-
Sussex Corporate Park (small)	West of Corporate Circle	WP #9	Wet Pond	10.40	-	-
Sussex Corporate Park (east-large)	East of Corporate Circle	WP #10	Wet Pond	146.41	-	-
Pick N Save	Northeast of County Hwy VV and STH 164 Intersection	WP #11	Wet Pond	15.46	4/2003	-
Waukesha State Bank	Northeast of County Hwy VV and STH 164 Intersection	WP #12	Wet Pond	9.19	4/2003	-
Schreiber Specialties	West of Bugline Trail and STH 164 Intersection	WP #13	Wet Pond	6.88	-	-
Walgreens	Southwest of County Hwy VV and STH 164 Intersection	WP #14	Wet Pond	6.66	-	-
Brandon Oaks (south)	East of Quail Run Court and Partridge Lane Intersection	WP #15	Wet Pond	17.46	2/18/2002	3/22/2004
Brandon Oaks (north)	East of Quail Run Lane and Falcon Drive Intersection	WP #16	Wet Pond	10.37	2/18/2002	4/18/2005
Sussex Community Center	South of Maple Grove Lane and West of Maple Avenue	WP #17	Wet Pond	14.62	-	-
Villas at Brandon Oaks	West of Sycamore Circle and Cedar Lane	WP #18	Wet Pond	14.31	-	-
Maple Grove Apartments	Northwest of Maple Avenue and Clover Drive Intersection	WP #19	Wet Pond	8.39	-	-
Butler Wetlands	West of Maple Avenue and Prides Road Intersection	WP #20	Wet Pond	72.97	-	4/10/1992
Quad Graphics (central)	East Side of Quad Entrance Road Off CTH VV	WP #21	Wet Pond	18.71	7/2002	-
Quad Graphics (southwest)	West Side of Quad Entrance Road Off CTH VV	WP #22	Wet Pond	16.78	7/2002	-
Quad Graphics (southeast)	East Side of Quad Entrance Road Off CTH VV	WP #24	Wet Pond	10.98	7/2002	-
Quad Graphics (northwest)	Northwest of Main Street and Sussex Road Intersection	WP #25	Wet Pond	26.27	7/2002	-
Quad Graphics (northeast)	North of Main Street and Sussex Road Intersection	WP #25A	Wet Pond	7.20	7/2002	-
Olde Templeton (Cannery)	North of Deyer Drive and West of Highway 74	WP #26	Wet Pond	9.88	-	3/15/1895





Table 6 (Continued) – Storm Water Management Facility Summary

Pond Name / Subdivision	Location	SLAMM Basin Number	Type of Facility	Area Contributed (Acres)	Date of Storm Water Agreement	Date of Land Division Recorded
Color Ink	Northwest of County Hwy VV and County Rd J Intersection	WP #27	Wet Pond	5.75	4/2003	-
Maple Creek Apartments	Southwest of Maple Avenue and Clover Drive Intersection	WP #29	Wet Pond	6.29	-	-
Seven Stones	Southwest of William Drive and Aberdeen Drive Intersection	WP #30	Wet Pond	8.75	-	4/15/2004
Seven Stones	Northeast of William Drive and Aberdeen Drive Intersection	WP #31	Wet Pond	18.16	-	8/11/2005
Seven Stones	Southeast of Belstone Court	WP #32	Wet Pond	2.42	-	8/11/2005
Village Estates	Northwest of Hillview Road and Cotey Court Intersection	WP #33	Wet Pond	-	-	2007
Majestic Heights (northeast)	Northeast of Sun Valley Run and Majestic Heights Trail Intersection	GS #1	Dry Pond	47.22	-	-
Majestic Heights (southeast swale)	Southeast of Majestic Heights Trail	GS #2	Dry Pond	39.64	-	-
Centennial Oaks (northeast)	South of Overland Road and West of Maple Avenue Intersection	GS #3	Dry Pond	6.22	-	10/28/1999
Cobblestone Estates (west)	South of Linda Drive and East of Laurie Lane	GS #4	Dry Pond	12.12	-	2/13/1998
Centennial Oaks (central)	South of Viola Court	GS #4A	Dry Pond	-	-	10/28/1999
Cobblestone Estates (east)	South of Linda Drive at Salem Drive	GS #5	Dry Pond	25.98	-	9/23/1996
Centennial Oaks (southwest)	West of Ridgewood Road and South Woodsview Drive Intersection	GS #6	Dry Pond	27.52	-	7/20/2000
Woodland Creek (southeast)	Southeast of Edgewood Lane	GS #7	Dry Pond	17.93	-	8/4/1999
Woodland Creek (central)	South of White Ash Court	GS #8	Dry Pond	10.99	-	8/12/1996
The Seasons (west)	Northeast of Hwy 164 and Stonegate Court Intersection	GS #9	Dry Pond	18.59	4/2003	-
The Seasons (east)	Stonegate Court	GS #10	Dry Pond	6.91	4/2003	-
Stone Ridge Estates	East of Maris Drive and South of Rocky Hollow Pass	GS #11	Dry Pond	22.54	-	6/17/1994
Capitol Beer Distributors (east)	South of Miller Way	GS #12	Dry Pond	3.47	9/21/2000	-
Tombstone / Nature's Path	North of Silver Spring Drive and East of Sussex Drive Intersection	GS #13	Dry Pond	53.46	-	-
DPW	South of Clover Drive and East of Pine Terrace	RG #1	Rain Garden	1.52	-	-





APPENDICES

Appendix A

Recommended Plan Cost Estimates

Economic Analysis of Alternatives for Storm Water Quality Control Street Sweeping in Critical Land Use Areas Every 4 Weeks

Description: Modify the current street sweeping program so that critical land uses are swept every 4 weeks (9 times per year) and noncritical land use areas are not swept.

i= 6.000% Item Description	Unit	Unit Price	Initial Quantity	Initial Cost	Annual Incremental O & M	Serv. Life
Sweep Critical Land Uses Every 4 Weeks (9x/year; 86 lane miles/pass)	Lane Miles	\$ 100.00	774.0	\$ -	\$ 77,400.00	50
	Р	Totals resent Worth Factor		\$ -	\$ 77,400.00 15.7619	
		Present Worths		\$ -	\$ 1,219,968.01	

Total Estimated Construction Cost Legal, Engineering, & Contingencies (25%)	\$	-	
Subtotal - Estimated Project Cost Present Worth of O&M (50 Year)	\$	- ,219,968.01	
Total Present Worth	\$ 1	,219,968.01	

Economic Analysis of Alternatives for Storm Water Quality Control Village Hall Biofiltration Facility

Description: Construct a new bioretention facility / rain garden to improve storm water quality at Village Hall.

i= 6.000% Item Description	Unit	Unit Price	Initial Quantity		Initial Cost	Annual Incremental O & M	Serv. Life
Land / Easement Acquisition (Village-Owned) Bioretention Facility Construction Outlet Piping Parking Lot Repaving to Drain to Facilities (Inc. w/ campus costs)	Acres S.F. L.F. S.Y.	\$ - \$ 8.00 \$ 30.00 \$ -	0.25 10500.0 200.0 7000.0	\$ \$ \$ \$	84,000.00 6,000.00	\$ - \$ 840.00 \$ 20.00 \$ -	50 50 50 50
	F	Totals Present Worth Factor		\$	90,000.00	\$ 860.00 15.7619	
		Present Worths		\$	90,000.00	\$ 13,555.20	

Total Present Worth	\$	126,055.20	
Subtotal - Estimated Project Cost Present Worth of O&M (50 Year)	\$	112,500.00 13,555.20	
Legal, Engineering, & Contingencies (25%)	Ψ	22,500.00	
Total Estimated Construction Cost	\$	90,000.00	

Economic Analysis of Alternatives for Storm Water Quality Control Piggly Wiggly Biofiltration Facility -- South and East Property Lines

Description: Construct a new bioretention facility / rain garden along the south and east property lines to improve storm water quality at Piggly Wiggly.

i= 6.000% Item Description	Unit	Unit Price	Initial Quantity	Initial Cost	Annual Incremental O & M	Serv. Life
i= 6.000% Item Description Land / Easement Acquisition (Based on Equalized Value) Bioretention Facility Construction Parking Lot Repaving to Drain to Facility	Unit Acres S.F. S.Y.			Cost \$ 47,180.00		
		Totals		\$ 131,180.00	\$ 840.00	
	F	Present Worth Factor			15.7619	
		Present Worths		\$ 131,180.00	\$ 13,239.96	

Total Estimated Construction Cost Legal, Engineering, & Contingencies (25%)	\$ 131,180.00 32,795.00
Subtotal - Estimated Project Cost Present Worth of O&M (50 Year)	\$ 163,975.00 13,239.96
Total Present Worth	\$ 177,214.96

Economic Analysis of Alternatives for Storm Water Quality Control Main Street Rain Garden / Biofiltration Facility

Description: Construct a new bioretention facility or rain garden north of Main Street to improve storm water quality in basin B-22.

i= 6.000% Item Description	Unit	Unit Price	Initial Quantity	Initial Cost	Annual Incremental O & M	Serv. Life
Item Description Land / Easement Acquisition (Based on Equalized Value) Bioretention Facility Construction	Unit Acres S.F.	Price \$ 125,000.00 \$ 8.00	Quantity 0.46 17300.0	Cost \$ 57,500.00 \$ 138,400.00	\$ -	50 50
	F	Totals Present Worth Factor		\$ 195,900.00 \$ 195,900.00	\$ 1,384.00 15.7619 \$ 21,814.42	
		Present Worths		\$ 195,900.00	\$ 21,814.42	

Total Present Worth	\$ 266,689.42	
Subtotal - Estimated Project Cost Present Worth of O&M (50 Year)	\$ 244,875.00 21,814.42	
Total Estimated Construction Cost Legal, Engineering, & Contingencies (25%)	\$ 195,900.00 48,975.00	

Economic Analysis of Alternatives for Storm Water Quality Control Tombstone Bioretention Facility Retrofit

Description: Retrofit the existing Tombstone dry detention basin as a bioretention facility to improve pollutant removal efficiency.

i= 6.000% Item Description	Unit	Unit Price	Initial Quantity	Initial Cost	Annual Incremental O & M	Serv. Life
i= 6.000% Item Description Land / Easement Acquisition (Based on Equalized Value) Bioretention Facility Construction Outlet Structure	Unit Acres S.F. EA.				O & M \$ - \$ 3,600.00	
	F	Totals Present Worth Factor			\$ 3,600.00 15.7619	
		Present Worths		\$ 434,506.96	\$ 56,742.70	

Total Estimated Construction Cost Legal, Engineering, & Contingencies (25%) Subtotal - Estimated Project Cost Present Worth of O&M (50 Year)	\$ 434,506.96 108,626.74 543,133.70 56,742.70	
Total Present Worth	\$ 599,876.40	

Economic Analysis of Alternatives for Storm Water Quality Control Construct Bioretention Facility at Maple Avenue School -- 55% TSS Removal

Description: Construct a new bioretention facility in the southeast corner of the school property to improve storm water quality in basins B07 and OF-271-001.

i= 6.000% Item Description	Unit	Unit Price	Initial Quantity	Initial Cost	Annual Incremental O & M	Serv. Life
	Unit Acres S.F. EA. EA.				O & M \$ - \$ 6,400.00 \$ -	
		Totals		\$ 653,000.00	\$ 6,600.00	
	Р	resent Worth Factor			15.7619	
	Present Worths \$ 653,0					

\$ 816,250.00 104,028.28
\$ 653,000.00 163,250.00
\$

Economic Analysis of Alternatives for Storm Water Quality Control Construct Bioretention Facility South of Linda Drive

Description: Construct a new bioretention facility south of Linda Drive to improve storm water quality in basin OF233-003.

i= 6.000% Item Description	Unit	Unit Price	Initial Quantity	Initial Cost	Annual Incremental O & M	Serv. Life
Land / Easement Acquisition (Village-Owned) Bioretention Facility Construction Outlet Structure	Acres S.F. EA.	\$ - \$ 8.00 \$ 3,000.00	1.20 50000.0 1.0	\$ - \$ 400,000.00 \$ 3,000.00	\$ - \$ 4,000.00 \$ -	50 50 50
	F	Totals resent Worth Factor		\$ 403,000.00	\$ 4,000.00 15.7619	
		Present Worths		\$ 403,000.00	\$ 63,047.44	

Total Estimated Construction Cost Legal, Engineering, & Contingencies (25%) Subtotal - Estimated Project Cost Present Worth of O&M (50 Year)	\$ \$	403,000.00 100,750.00 503,750.00 63,047.44	
Total Present Worth	\$	566,797.44	

Economic Analysis of Alternatives for Storm Water Quality Control Majestic Heights Bioretention Facility Retrofit

Description: Retrofit the existing northesast Majestic Heights dry detention basin as a bioretention facility to improve pollutant removal efficiency.

i= 6.000% Item Description	Unit	Unit Price	Initial Quantity	Initial Cost	Annual Incremental O & M	Serv. Life
Item Description Land / Easement Acquisition (Based on Equalized Value) Infiltration / Bioretention Facility Construction Outlet Structure	Unit Acres S.F. EA.				O & M \$ - \$ 3,600.00	
		Totals		\$ 363,000.00		
	P	Present Worth Factor Present Worths		\$ 363,000.00	15.7619 \$ 56,742.70	

Total Present Worth	\$ 510,492.70	
Subtotal - Estimated Project Cost Present Worth of O&M (50 Year)	\$ 453,750.00 56,742.70	
Total Estimated Construction Cost Legal, Engineering, & Contingencies (25%)	\$ 363,000.00 90,750.00	

Economic Analysis of Alternatives for Storm Water Quality Control Maris Drive Bioretention Facility Retrofit

Description: Retrofit the existing dry detention basin along Maris Drive as a bioretention facility to improve pollutant removal efficiency.

i= 6.000% Item Description	Unit	Unit Price	Initial Quantity	Initial Cost	Annual Incremental O & M	Serv. Life			
Land / Easement Acquisition (Village-Owned) Infiltration / Bioretention Facility Construction Outlet Structure	Acres S.F. EA.	\$ - \$ 8.00 \$ 3,000.00	0.52 11000.0 1.0	\$ - \$ 88,000.00 \$ 3,000.00	\$ - \$ 880.00 \$ -	50 50 50			
	Totals \$ 91,000.00 \$ 880.00 Present Worth Factor 15.7615								
		Present Worths		\$ 91,000.00	\$ 13,870.44				

Total Estimated Construction Cost	\$ 91,000.00
Legal, Engineering, & Contingencies (25%)	22,750.00
Subtotal - Estimated Project Cost	\$ 113,750.00
Present Worth of O&M (50 Year)	13,870.44
Total Present Worth	\$ 127,620.44

Appendix B

Storm Water Facility Inspection Reports

Facility Name: Wet Pond 01 Shopko (South)							Insped	ctor:	Steve	e Wurster	Date: 10/5/10			
Property	perty Classification: Residential Institutiona			onal	\boxtimes	Comm	nercial	☐ Industrial	☐ Other:					
Type of	Practice:	Wet Po We	ond		Dry Po	nd] Infiltration	on Basin				
☐ Other	r:	☐ Rain G	arden] Constru	ucted	Wetland	etland						
Scoring Breakdown:							N/A :	= Not A	Applicable		N/I = Not Investigated			
0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Immediate Repair Necessary														
1. Out	tfall Channel(s) from Po	ond	(N/A)	N/I	0	1	2	3						
2. Em	ergency Spillway		(N/A)	N/I	0	1	2	3						
3. Prin	ncipal Outfall Structure	and Riser	(N/A)	N/I	0	1	2	3						
4. Cor	ntrol Valve(s)		(N/A)	N/I	0	1	2	3						
5. Por	nd Drain Valve		(N/A)	N/I	0	1	2	3						
6. Per	manent Pool		N/A	N/I	(0)	1	2	3						
7. Dry	Storage		(N/A)	N/I	0	1	2	3						
8. Pre	treatment		(N/A)	N/I	0	1	2	3						
9. Inflo	ow Points		N/A	N/I	0	1	(2)	3	Remove	vegetation at in	flow points			
10. We	t Pond or Native Veget	ation	N/A	N/I	0	1	(2)	3	Remove	woody vegetation	on			
11. Por	nd Buffer		N/A	N/I	0	1	2	3						
12. Spe	ecial Structures		(N/A)	N/I)0	1	2	3						
13. Mis	cellaneous		(N/A)	N/I	0	1	2	3						
Overall C	ondition of Facility							-	-					
Total num	nber of concerns receiv	ring a: (1)	0	- Need I	Monitoring	g	(2)	2	- Routine F	Repair (3)	0 -Immediate Repair Needed			
Inspector	's Summary													
Remove	vegetation at inflow poi	nts. Remov	e woody v	vegetation	on on por	nd bar	nks. Pon	d outle	et structure	not located.				

Photos:

1.



Northeast Inflow



Pond Overview

3. 4.



North Central Inflow



Northwest Inflow/Weir

Facility Name: Wet Pond 01A Shopko (West)								Steve Wurster Date: 10/5/10				
Property Classification:	Classification: Residential Institutional					\boxtimes	☐ Commercial ☐ Industrial ☐ Other:					
Type of Practice:	Wet Po	ond		Dry Po	nd			☐ Infiltration Basin ☐ Multiple Pond System				
☐ Other:	☐ Rain G	arden		Constr	ucted	Wetland		☐ Biofiltration Device ☐ Proprietary Device				
Scoring Breakdown:						N/A =	: Not	Applicable N/I = Not Investigated				
0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Immediate Repair Necessary												
Outfall Channel(s) from Por	nd	(N/A)	N/I	0	1	2	3					
Emergency Spillway		(N/A)	N/I	0	1	2	3					
Principal Outfall Structure a	nd Riser	W/A	N/I	0	1	2	3					
4. Control Valve(s)		(N/A)	N/I	0	1	2	3					
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3					
6. Permanent Pool)/A (N/I	(0)	1	2	3					
7. Dry Storage		(N/A)	N/I	0	1	2	3					
8. Pretreatment		(N/A)	N/I	0	1	2	3					
9. Inflow Points		N/A	N/I	0	1	(2)	3	Remove vegetation at inflows				
10. Wet Pond or Native Vegeta	tion	N/A	N/I	0	1	(2)	3	Remove woody vegetation				
11. Pond Buffer		N/A	N/I	0	1	2	3					
12. Special Structures		(N/A)	N/I	0	1	2	3					
13. Miscellaneous		(N/A)	N/I	0	1	2	3					
Overall Condition of Facility												
Total number of concerns receiving	ng a: (1)	<u>0</u> -N	leed Mo	onitoring	(2)2	R	outine Repair (3) 0 -Immediate Repair Needed				
Inspector's Summary												
Remove vegetation at inflow poin	ts. Remov	e woody v	vegetati	ion on po	nd baı	nks. Pond	d out	et structure not located.				
-								<u> </u>				
												
Photos:												

1.



East Inflow



Pond Overview



North Inflow

Steve Wurster, Maureen McBroom & Eric Nitschke Inspector: Date: 10/15/10 Facility Name: Wet Pond 02 Pine Ridge ☐ Other: _____ Property Classification: □ Residential ☐ Institutional ☐ Commercial ☐ Industrial Type of Practice: Wet Pond ☐ Dry Pond ☐ Infiltration Basin ☐ Other: _____ __ Rain Garden ☐ Constructed Wetland ☐ Biofiltration Device ☐ Proprietary Device Scoring Breakdown: N/A = Not ApplicableN/I = Not Investigated 2 = Routine Maintenance Required 3 = Immediate Repair Necessary 0 = No Concerns 1 = Monitor (potential for future problem exists) 1. Outfall Channel(s) from Pond N/A N/I 2. N/A N/I 1 2 3 **Emergency Spillway** Monitor growth 3. Principal Outfall Structure and Riser N/A N/I 0 1 2) 3 Cracked end section 4. (N/A` N/I 0 1 3 Control Valve(s) 2 5. Pond Drain Valve (N/A) N/I 2 3 1 6. Permanent Pool N/I 0 1 2 3 N/A Slightly low water elevation 7. Dry Storage (N/A) N/I 0 1 2 3 0 2 8. N/A N/I 1 3 Pretreatment 1 9. Inflow Points N/A 2 3 N/I 0 Monitor erosion 2 3 10. Wet Pond or Native Vegetation N/A N/I 0 Monitor woody vegetation and begin removal 1 11. Pond Buffer N/A N/I 0 2 3 12. Special Structures N/A N/I 0 1 2 3 2 13. Miscellaneous N/A N/I 0 3 Overall Condition of Facility

(2) 2 - Routine Repair (3) 0 -Immediate Repair Needed Total number of concerns receiving a: (1) _____ - Need Monitoring Inspector's Summary Permanent pool level slightly low-monitor. Cracked end section at pond discharge. Monitor vegetation and begin removal.

Photos:

2. 1.



Pond Northeast Inflow



Pond Overview



Pond Northwest Inflow



Emergency Spillway

Steve Wurster, Maureen
Inspector: McBroom & Eric Nitschke

Date: 10/15/10

Property Classification:	⊠ Reside	ntial		Instit	utional		Comm	ercial	☐ Industri	al	Othe	r:	
Type of Practice:	⊠ Wet Po _ □ Rain G		•									Pond Systen	1
Scoring Breakdown:						N/A =	= Not A	pplicable		N/I =	Not Inves	stigated	
0 = No Concerns 1	= Monitor (pot	ential for t	future pr	oblem	exists)	2 = R	outine	Maintenan	ce Required	3 = In	nmediate	Repair Nece	ssary
Outfall Channel(s) from	Pond	N/A	N/I	(<u>0</u>)	1	2	3						
2. Emergency Spillway		N/A	N/I	(i)	1	2	3						
Principal Outfall Structu	ire and Riser	N/A	N/I	0	(1)	2	3	Monitor p	olugging of (3)) 1 to 2 i	nch outlet	t holes	
4. Control Valve(s)		(N/A)	N/I	0	1	2	3						
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3						
6. Permanent Pool		N/A	N/I	0	(1)	2	3	Slightly lo	ow (2 to 3 fee	t)-Monit	or		
7. Dry Storage		(N/A)	N/I	0	1	2	3						
8. Pretreatment		(N/A)	N/I	0	1	2	3						
9. Inflow Points		N/A	N/I	0	1 (2)	3	Remove vegetation					
10. Wet Pond or Native Ve	10. Wet Pond or Native Vegetation			0	1 (2)	2) 3 Monitor woody vegetation. Begin removal						
11. Pond Buffer		N/A	N/I	0	1 ($\overline{2}$	3						
12. Special Structures		(N/A)	N/I	0	1	2	3						
13. Miscellaneous		(N/A)	N/I	0	1	2	3						
Overall Condition of Facility Total number of concerns receiving a: (1)2 Need Monitoring (2)3 Routine Repair (3)0 Immediate Repair Needed Inspector's Summary Remove silt fence. Remove vegetation. Monitor permanent pool level, which appears 2 feet to 3 feet low.													
													_
Photos:													



Overview

Wet Pond 03 Pine Ridge

Facility Name:



Inlet



Outlet

Steve Wurster, Maureen McBroom & Eric Nitschke Inspector:__ Date: 10/15/10 Facility Name: Wet Pond 04 Centennial Oaks ☐ Other: _____ Property Classification: □ Residential ☐ Commercial ☐ Industrial Institutional Type of Practice: Wet Pond ☐ Dry Pond ☐ Infiltration Basin ☐ Other: ☐ Rain Garden ☐ Constructed Wetland ☐ Biofiltration Device ☐ Proprietary Device Scoring Breakdown: N/A = Not ApplicableN/I = Not Investigated 2 = Routine Maintenance Required 3 = Immediate Repair Necessary 0 = No Concerns 1 = Monitor (potential for future problem exists) 1. Outfall Channel(s) from Pond N/A N/I 2) Outfall plugged and algae present 2. N/A N/I 0 1 (2) 3 **Emergency Spillway** Remove debris 3. Principal Outfall Structure and Riser N/A N/I (0) 1 2 3 4. (N/A` N/I 1 2 3 Control Valve(s) 0 5. Pond Drain Valve (N/A) N/I 1 3 2 6. Permanent Pool N/I 0 1 2 3) N/A Dredging required 7. Dry Storage N/A N/I 0 1 2 3 N/I 8. N/A 0 1 2 3 Pretreatment 1 9. Inflow Points N/I 0 3 N/A Monitor growth 2 3 10. Wet Pond or Native Vegetation N/A N/I 0 Remove woody vegetation 2) 11. Pond Buffer N/A N/I 0 1 3 Remove woody vegetation 12. Special Structures N/A N/I 0 1 2 3 1 2 13. Miscellaneous N/A N/I 0 3 Overall Condition of Facility (3) 3 -Immediate Repair Needed Total number of concerns receiving a: (1) _____ - Need Monitoring (2) 4 - Routine Repair Inspector's Summary Outfall channel not draining and high amount of algae present. Dredging is required. Remove woody vegetation.

Photos:

1.



Outlet Channel



Overview



Outfall

Steve Wurster, Maureen McBroom & Eric Nitschke Inspector:

Facility Name: Wet Pond 05 Braddock Place Inspector: McBroom & Eric Nitschke Date: 10/15/10									
Property Classification:	ential Institutional	Commercial Industrial Other:							
Type of Practice:	•	☐ Infiltration Basin ☐ Multiple Pond System Wetland ☐ Biofiltration Device ☐ Proprietary Device							
Scoring Breakdown: 0 = No Concerns 1 = Monitor (po	stential for future problem exists)	N/A = Not Applicable N/I = Not Investigated 2 = Routine Maintenance Required 3 = Immediate Repair Necessary							
Outfall Channel(s) from Pond	N/A N/I 0 (1)	2 3 Monitor drainage downstream							
2. Emergency Spillway	N/A N/I 0 1	2 3							
3. Principal Outfall Structure and Riser	N/A N/I 0 (1)	2 3 Monitor debris on grate							
4. Control Valve(s)	(N/A) N/I 0 1	2 3							
5. Pond Drain Valve	(N/A) N/I 0 1	2 3							
6. Permanent Pool	N/A N/I (0) 1	2 3							
7. Dry Storage	N/A N/I 0 1	2 3 Monitor grass growth							
8. Pretreatment	N/A N/I (0) 1	2 3							
9. Inflow Points	N/A N/I 0 (1)	2 3 Monitor erosion at northwest inlet							
10. Wet Pond or Native Vegetation	N/A N/I (0) 1	2 3							
11. Pond Buffer	N/A N/I 0 1	2 3							
12. Special Structures	N/A N/I 0 1	2 3							
13. Miscellaneous	N/A N/I 0 1	2 3							
Overall Condition of Facility Total number of concerns receiving a: (1)4 Need Monitoring (2)0 Routine Repair (3) _0 Immediate Repair Needed Inspector's Summary Recently worked on (2008). 3 inlet pools of standing water; remainder dry. Monitor erosion at northwest inlet and debris on outlet structures.									
Photos:									
1.	2.								



East Inflow



Outfall Structure

3. 4.



West Inflow



West Inflow



West Inflow

Facility Name: Wet Pond 06 Bevco-Babush								Inspector: Steve Wurster Date: 10/5/10					
Property Classification:	Reside	ntial] Institut	ional] Comi	mercial		☐ Other:			
Type of Practice:	of Practice:												
☐ Other:	_ 🗌 Rain G	arden		☐ Constr	ucted \	Netlan	ıd	☐ Biofiltr	ation Device	☐ Proprietary Device			
Scoring Breakdown:	•												
0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Imn									3 = Immediate Repair Necessary				
Outfall Channel(s) from	Pond	N/A	N/I	0	1	2	3						
2. Emergency Spillway		N/A	N/I	0	1	2	3						
Principal Outfall Structu	re and Riser	N/A	N/I	9	1	2	3						
4. Control Valve(s)		(N/A)	N/I	0	1	2	3						
5. Pond Drain Valve		(N/A)	N/I	0	1	2	ω(
6. Permanent Pool	N/A	N/I	0	1	2	(3)	nent pool						
7. Dry Storage		N/A	N/I	$^{\circ}$	1	2	3						
8. Pretreatment		(N/A)	N/I	0	1	2	ς (
9. Inflow Points		N/A	N/I	0	1	2	(3)	Repair e	rosion at south a	nd west inflows			
10. Wet Pond or Native Ve	getation	N/A	N/I	\bigcirc	1	2	3						
11. Pond Buffer		N/A	N/I	0	1	2	3						
12. Special Structures		(N/A)	N/I	0	1	2	3						
13. Miscellaneous		(N/A)	N/I	0	1	2	3						
Overall Condition of Facility							<u> </u>						
Total number of concerns rec	ceiving a: (1)	<u>0</u> -N	Need Mo	onitoring	(2	2)(<u>0</u> -R	outine Rep	oair (3) <u>2</u>	-Immediate Repair Needed			
Inspector's Summary													
Repair erosion at south and v	vest inflow poir	ts. Pond	has no	permane	nt pool	. Inve	stigate	if designed	d as wet pond or	infiltration pond.			

Photos:

1.



Pond Overview



Erosion at South Inflow

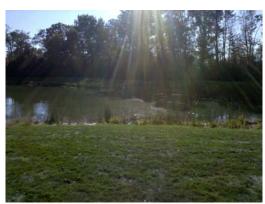


Pond Outlet

Facility Name: Wet Pond 06A Cap	itol Beer Distribu	utors	Inspe	ctor:	Steve Wurster	Date: 10/5/10				
Property Classification:	Residential	☐ Institut	ional 🔲	Comm	ercial 🛛 Industria	Other:				
Type of Practice:	Net Pond	☐ Dry Po	ond		Infiltration Basin	☐ Multiple Pond System				
☐ Other: ☐ F	Rain Garden	☐ Constr	ructed Wetland	d [Biofiltration Device	☐ Proprietary Device				
Scoring Breakdown: N/A = Not Applicable N/I = Not Investigated										
0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Immediate Repair Necessary										
Outfall Channel(s) from Pond	N/A	N/I 0	(1) 2	3	Monitor vegetation grov	vth				
Emergency Spillway	N/A	N/I 0	1 2	3						
Principal Outfall Structure and R	iser N/A	N/I (0)	1 2	3						
4. Control Valve(s)	(N/A)	N/I 0	1 2	3						
5. Pond Drain Valve	(N/A)	N/I 0	1 2	3						
6. Permanent Pool	N/A	N/I (0)	1 2	3						
7. Dry Storage	N/A	N/I 0	1) 2	3	Monitor sediment depo	sition				
8. Pretreatment	(N/A)	N/I 0	1 2	3						
9. Inflow Points	N/A	N/I 0	1 (2)	3	East inflow erosion					
10. Wet Pond or Native Vegetation	N/A	N/I (0)	1 2	3						
11. Pond Buffer	N/A	N/I 0	1 2	3						
12. Special Structures	(N/A)	N/I 0	1 2	3						
13. Miscellaneous	(N/A)	N/I 0	1 2	3						
Overall Condition of Facility	Overall Condition of Facility									
Total number of concerns receiving a: (1) Need Monitoring (2) Routine Repair (3) Immediate Repair Needed										
Inspector's Summary										
Pond in good condition. Repair erosion/undermining and remove vegetation at east inflow near loading docks. Monitor sediment deposition in dry										
storage area.										

Photos:

1.



Pond Overview



Dry Storage Area

3. 4.



Outlet Structure



East Inflow

Facility Name: Wet Pond 07 Lauterbach			Inspector:	Steve Wurster	Date: <u>10/5/10</u>				
Property Classification:	ential	☐ Institutional	☐ Comm	ercial 🛛 Industrial	☐ Other:				
Type of Practice:	ond	☐ Dry Pond		Infiltration Basin	☐ Multiple Pond System				
Other: Rain G	er: Rain Garden Constructed W			Wetland					
Scoring Breakdown:			N/A = Not A	opplicable N	/I = Not Investigated				
0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Immediate Repair Necessary									
Outfall Channel(s) from Pond	N/A N/	I 0 (1)	2 3	Monitor vegetation growth					
Emergency Spillway	N/A N/I	$\longrightarrow \!$	2 3	Monitor vegetation growth					
Principal Outfall Structure and Riser	N/A N/I	$\overline{}$	2 3	World vegetation growth					
Control Valve(s)	(N/A) N/I		2 3						
Pond Drain Valve	(N/A) N/I		2 3						
6. Permanent Pool	N/A N/		$\frac{2}{2}$ 3	Pond water elevation 2 fee	t below lowest weir elevation				
7. Dry Storage	(N/A) N/I		2 3						
8. Pretreatment	(N/A) N/I		2 3						
9. Inflow Points	N/A N/		2 3	Monitor vegetation growth					
Wet Pond or Native Vegetation	N/A N/		(2) 3	Begin vegetation maintenance					
11. Pond Buffer	N/A N/		2 3	203 1030					
12. Special Structures	(N/A) N/I	$\overline{}$	2 3						
13. Miscellaneous	(N/A) N/I	I 0 1	2 (3)	Investigate recent flooding	is pond discharge correct?				
Overall Condition of Facility									
Total number of concerns receiving a: (1) 3 - Need Monitoring (2) 2 - Routine Repair (3) 1 - Immediate Repair Needed									
Inspector's Summary									
Water elevation appears 2 feet low. Only one piped inlet located at northwest corner of pond and fairly small in diameter (8-12 inches). Parking									
area appears to be permeable asphalt. Low water elevation exposed unstabilized shoreline area. Begin maintenance of vegetation around pond.									
Investigate recent flooding – is pond discharging properly?									
Photoe:									

Photos:

2. 1.



Pond Overview Looking North



Pond Overview Looking North

3. 4.



Emergency Spillway



Overview



Northwest Inlet

Facility Name: Wet Pond 08 Corporate Park							Inspector: Steve Wurster Date: 10/5/10				
Property Classification:	Reside	ential		Institut	tional		Comm	nercial		Other:	
Type of Practice:	⊠ Wet P			Dry Po		NA /(_		tion Basin	☐ Multiple Pond System	
Other:	_	iarden		Constr	ructed	Wetland	L	_ Biofiltr	ation Device	☐ Proprietary Device	
Scoring Breakdown:N/A = Not ApplicableN/I = Not Investigated0 = No Concerns1 = Monitor (potential for future problem exists)2 = Routine Maintenance Required3 = Immediate Repair Necessary											
Outfall Channel(s) from	Pond	N/A	N/I	0	1	2	3	Remov	e brush and vegeta	ation	
2. Emergency Spillway		N/A	N/I	0	1	(2)	3	Remov	e brush and vegeta	ation	
Principal Outfall Structu	ire and Riser	N/A	N/I	0	1	2	3	Remove brush and vegetation			
4. Control Valve(s)		(N/A)	N/I	0	1	2	3				
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3				
6. Permanent Pool		N/A	N/I	(0)	1	2	3				
7. Dry Storage		(N/A)	N/I	0	1	2	3				
8. Pretreatment		(N/A)	N/I	0	1	2	3				
9. Inflow Points			N/I	0	1	(2)	3	Remov	e sediment & brush	n from west and northwest inflow	
10. Wet Pond or Native Vegetation		N/A	N/I	0	1	(2)	3	Remov	e woody growth		
11. Pond Buffer		N/A	N/I	(0)	1	2	3				
12. Special Structures		(N/A)	N/I	0	1	2	3				
13. Miscellaneous		N/A)	N/I	0	1	2	3				
Overall Condition of Facility											
Total number of concerns rec	ceiving a: (1)	0	- Need	Monitorin	ng	(2)	5	- Routine	Repair (3)	0 -Immediate Repair Needed	
Inspector's Summary											
Remove brush and vegetation from emergency spillway and outlet. Remove sediment and brush from west and northwest inflows. Remove woody											
growth around pond.											
Photos:											
1.	1. 2.										

West Inflow



Northwest Inflow

3. 4.



Pond Overview



Emergency Spillway



Pond Overview

Facility Name: Wet Pond 09 Corporate Center						Inspec	tor:	Steve V	Vurster	Date: <u>10/5/10</u>
Property Classification:	☐ Residential ☐ Institutional			☐ Commercial ☐ Industrial			Other:			
Type of Practice:	Wet Performance Wet Performance	ond		Dry Po	ond			Infiltration E	Basin	☐ Multiple Pond System
Other:	☐ Rain G	arden	☐ Constructed V			Wetland	Vetland Biofiltration Device			☐ Proprietary Device
Scoring Breakdown: N/A = Not Applicable N/I = Not Investigated										
0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Immediate Repair Necessary									_	
Outfall Channel(s) from F	Pond	(N/A)	N/I	0	1	2	3			
Emergency Spillway		(N/A)	N/I	0	1	2	3			
Principal Outfall Structure	e and Riser	N/A	N/I	0	(1)	2	3	Monitor sedi	ment depos	ition
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	(0)	1	2	3			
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	1	(2)	3	Remove wo	ody vegetati	on
10. Wet Pond or Native Vegetation		N/A	N/I	0	1	(2)	3	Remove woody growth		
11. Pond Buffer		N/A	N/I	0	1	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	(3)	Investigate p	ootential con	taminated sediment
Overall Condition of Facility										
Total number of concerns receiving a: (1) Need Monitoring (2) Routine Repair (3) Immediate Repair Needed										
Inspector's Summary										
Remove woody vegetation in front of pond inflows and around pond. Monitor sediment accumulation in outfall pipe. Investigate potential										
contaminant in pond sediment from prior industrial activity.										
Photos:										

1.







Pond Overview

Facility Name: Wet Pond 10 Corpo	ate Center		Inspector:	Steve Wurster	Date: <u>10/5/10</u>				
Property Classification:	esidential	Institutional	☐ Comm	nercial	☐ Other:				
Type of Practice:	et Pond	☐ Dry Pond		Infiltration Basin	Multiple Pond System				
☐ Other: ☐ R	ain Garden	☐ Constructed	Wetland [Biofiltration Device	Proprietary Device				
Scoring Breakdown: N/A = Not Applicable N/I = Not Investigated									
0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Immediate Repair Necessary									
Outfall Channel(s) from Pond	N/A N	V/I 0 (1)	2 3	Monitor vegetation					
2. Emergency Spillway	N/A N	VI 0 1	2 3	Remove vegetation					
Principal Outfall Structure and Ri	ser N/A N	V/I 0 1	2 3	Remove vegetation					
4. Control Valve(s)	(N/A) N	N/I 0 1	2 3						
5. Pond Drain Valve	(N/A) N	V/I 0 1	2 3						
6. Permanent Pool	N/A N	√/I (0) 1	2 3						
7. Dry Storage	(N/A) N	√/I 0 1	2 3						
8. Pretreatment	(N/A) N	V/I 0 1	2 3						
9. Inflow Points	N/A N	V/I 0 1	2 3	Monitor sediment at southwe for north inlet	est & northwest inflows. Clean ditch				
10. Wet Pond or Native Vegetation	N/A N	V/I 0 1	(2) 3	Remove woody vegetation					
11. Pond Buffer	N/A N	V/I (0) 1	2 3						
12. Special Structures	(N/A) N	√/I 0 1	2 3						
13. Miscellaneous	(N/A) N	V/I 0 1	2 3						
Overall Condition of Facility									
Total number of concerns receiving a: (1)1 - Need Monitoring (2)4 Routine Repair (3)0 -Immediate Repair Needed									
Inspector's Summary									
Remove vegetation on spillway and in front of inflow and outflow points. Remove woody vegetation on banks of pond. Clean ditch for north inlet.									
Photos:									

1. 2.



Southwest Inflow



Overview Looking East

3. 4.



Emergency Spillway Looking North



Outlet



North Inlet

Facility Name: Wet Pond)				Inspec	tor:	Steve	e Wurster	Date: 10/5/10	
Property Classification:	☐ Reside	ntial] Institu	tional	\boxtimes	Comm	nercial	☐ Industria	Other:
Type of Practice:	Wet Po	ond		Dry Po	ond] Infiltration	on Basin	☐ Multiple Pond System
Other:	Rain G	arden] Const	ructed V	Vetland		Biofiltrat	ion Device	☐ Proprietary Device
Scoring Breakdown:						N/A =	= Not A	Applicable		N/I = Not Investigated
0 = No Concerns	1 = Monitor (pot	ential for fu	uture pr	oblem e	xists)	2 = R	outine	Maintenan	ce Required	3 = Immediate Repair Necessary
Outfall Channel(s) from	n Pond	N/A	(N/I)	0	1	2	3			
2. Emergency Spillway		N/A	N/I	0	(1)	2	3	Monitor v	regetation	
Principal Outfall Struct	ure and Riser	W.	N/I	0	1	2	3			
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	(0)	1	2	3			
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	(0)	1	2	3			
10. Wet Pond or Native Ve	egetation	N/A	N/I	0	(1)	2	3	Monitor v	regetation	
11. Pond Buffer		N/A	N/I	0	1	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility								<u> </u>		
Total number of concerns re	eceiving a: (1)	2	Need N	Monitorir	ng	(2)	0	- Routine F	Repair (3) _0Immediate Repair Needed
Inspector's Summary										
Pond in good overall shape.										
Photos				•	_					

Photos:

2. 1.



Pond Overview



Emergency Spillway

Facility Name: Wet Pond 12 Waukesha State Bank								Inspector: Steve Wurster Date: 10/5/10							
Prop	Property Classification: Residential Institutional						☐ Commercial ☐ Industrial ☐ Other:								
Тур	e of Practice:	Wet Po	ond		Dry Po	ond] Infiltrati	ion Basin	☐ Multiple Pond System				
	Other:	☐ Rain G	arden] Const	ructed \	Wetland								
Sco	ring Breakdown:						N/A =	= Not A	Applicable	1	N/I = Not Investigated				
	0 = No Concerns 1 =	= Monitor (pot	ential for f	uture pr	oblem e	exists)	2 = R	outine	Maintena	nce Required 3	= Immediate Repair Necessary				
1.	Outfall Channel(s) from F	Pond	N/A	(V/I)	0	1	2	3							
2.	Emergency Spillway		N/A	(1/1)	0	1	2	3							
3.	Principal Outfall Structure	e and Riser	(NA)	N/I	0	1	2	3							
4.	Control Valve(s)		(N/A)	N/I	0	1	2	3							
5.	Pond Drain Valve		(N/A)	N/I	0	1	2	3							
6.	Permanent Pool		N/A	N/I	(0)	1	2	3							
7.	Dry Storage		(N/A)	N/I	0	1	2	3							
8.	Pretreatment		(N/A)	N/I	0	1	2	3							
9.	Inflow Points		N/A	N/I	0	1	(2)	3	Clear br	ush from south an	nd north inflows				
10.	Wet Pond or Native Vege	etation	N/A	N/I	0	(1)	2	3	Monitor	vegetation growth	1				
11.	Pond Buffer		N/A	N/I	0	1	2	3							
12.	Special Structures		(N/A)	N/I	0	1	2	3							
13.	Miscellaneous		(N/A)	N/I	0	1	2	3							
Ove	all Condition of Facility							•							
Tota	I number of concerns rece	iving a: (1)	1	Need M	lonitoring	g	(2)1	F	Routine Re	epair (3) <u>0</u>	-Immediate Repair Needed				
Insp	ector's Summary														
Clea	r brush from south and no	rth inflows. P	ond other	wise in	good sha	ape.									
Phot	os:														
1.						2.									
		44							W		the real state				







Pond Overview



South Inflow

Facility Name: Wet Pond	13 Schreiber S	pecialties				Inspec	tor:	Stev	ve Wurster	Date: 10/5/10
Property Classification:	☐ Reside	ential] Institu	tional		Comm	ercial		☐ Other:
Type of Practice:	Wet Percentage Wet	ond		Dry P	ond] Infiltrati	ion Basin	☐ Multiple Pond System
☐ Other:	_ Rain G	arden] Const	ructed	Wetland		Biofiltra	ation Device	☐ Proprietary Device
Scoring Breakdown:						N/A =	= Not A	pplicable		N/I = Not Investigated
0 = No Concerns 1	= Monitor (pot	ential for t	future p	roblem e	exists)	2 = R	outine	Maintena	nce Required	3 = Immediate Repair Necessary
Outfall Channel(s) from	Pond	N/A	N/I	0	1	(2)	3	Investiga	ate reports of be	rm leaking into Bugline
2. Emergency Spillway		N/A	N/I	0	1	2	3			
Principal Outfall Structu	re and Riser	N/A	N/I	0	1	2	3			
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	0	(1)	2	3	High alg	gae count	
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	(0)	1	2	3			
10. Wet Pond or Native Ve	getation	N/A	N/I	0	(1)	2	3	Monitor	vegetation	
11. Pond Buffer		N/A	N/I	0	\bigcirc	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility								3		
Total number of concerns rec	ceiving a: (1)	<u>3</u> -1	Need M	onitoring) ((2)1	R	outine Re	pair (3) <u>(</u>	Immediate Repair Needed
Inspector's Summary										
Monitor vegetation, otherwise	in good condi	tion. Drain	nage are	ea is prir	marily u	ınderdev	eloped	land to w	est. Investigate	reports of berm leaking into
Bulgine trail. Area north of B	ugline does no	t drain into	pond.							

Photos:

1.



Overview Looking Northwest



Overview Looking Southwest

Facility Name: Wet Pond 14 Walgreens					_	Inspector: Steve Wurster Date: 10/5/10					
Property Classification:	Reside	ential		Institu	tional	\boxtimes	Comi	mercial	☐ Industrial	Other:	
Type of Practice: Other:				Dry Po		Wetland		☐ Infiltrat	ion Basin	☐ Multiple Pond System ☐ Proprietary Device	
Scoring Breakdown:	Manitantant		.		>			Applicable		N/I = Not Investigated	
0 = No Concerns 1	= Monitor (pot	ential for	tuture p	roblem e	exists)	2 = R0	outine	<u>e Maintena</u>	nce Required 3	B = Immediate Repair Necessary	
Outfall Channel(s) from	Pond	N/A	N/I	0	1	2	3				
2. Emergency Spillway		(N/A	N/I	0	1	2	3				
Principal Outfall Structur	e and Riser	(N/A)	N/I	0	1	2	3				
4. Control Valve(s)		(N/A)	N/I	0	1	2	3				
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3				
6. Permanent Pool		N/A	N/I	0	(1)	2	3	Monitor s	ediment depth		
7. Dry Storage		(N/A)	N/I	0	1	2	3				
8. Pretreatment		N/A	N/I	0	1	(2)	3	Stabilize	area around north	nwest inflow	
9. Inflow Points		N/A	N/I	0	1	(2)	3	Remove	vegetation at sout	thwest inflow. Stabilize northwest inflow	
10. Wet Pond or Native Veg	etation	N/A	N/I	0	(1)	2	3	Monitor v	egetation		
11. Pond Buffer		N/A	N/I	0	1	2	3				
12. Special Structures		(N/A)	N/I	0	1	2	3				
13. Miscellaneous		(N/A)	N/I	0	1	2	3				
Overall Condition of Facility											
Total number of concerns rece	eiving a: (1)	<u>2</u> -l	Need M	onitoring	ı (2)2	F	Routine Rep	oair (3) <u>0</u>	-Immediate Repair Needed	
Inspector's Summary											
Stabilize area around northwe	st inflow. Rem	ove vege	tation at	t southw	est inflo	w. Moni	tor se	ediment de	pth.		

Photos:

1.



Pond Overview Looking North



Southwest Inflow



Northwest Inflow

Facility Name: Wet Pond 15 Brand	on Oaks South			Inspector:_	Steve Wurster	Date: <u>10/5/10</u>
Property Classification:	perty Classification: 🛛 Residential 🔲 Institutional				mercial Industria	Other:
Type of Practice: ⊠ V	et Pond	☐ Dry	Pond		☐ Infiltration Basin	☐ Multiple Pond System
☐ Other: ☐ R	ain Garden	☐ Cor	structed	Wetland	☐ Biofiltration Device	☐ Proprietary Device
Scoring Breakdown:				N/A = Not	Applicable	N/I = Not Investigated
0 = No Concerns 1 = Monito	r (potential for fu	uture problen	exists)		e Maintenance Required	3 = Immediate Repair Necessary
Outfall Channel(s) from Pond	N/A	N/I 0	(1)	2 3	Monitor vegetation grow	th
2. Emergency Spillway	N/A	N/I 0	(1)	2 3	Monitor vegetation grow	th
Principal Outfall Structure and Ri	ser N/A	N/I 0	1	2) 3	Remove vegetation grow	vth .
4. Control Valve(s)	(N/A)	N/I 0	1	2 3		
5. Pond Drain Valve	(N/A)	N/I 0	1	2 3		
6. Permanent Pool	N/A	N/I 0	1	2 (3	Not holding water	
7. Dry Storage	N/A	N/I 0	1	2 3	Remove vegetation	
8. Pretreatment	(N/A)	N/I 0	1	2 3		
9. Inflow Points	N/A	N/I 0	1	2 3	Remove vegetation and	monitor erosion
10. Wet Pond or Native Vegetation	N/A	N/I 0	1	2 3	Remove vegetation	
11. Pond Buffer	N/A	N/I 0	(1)	2 3		
12. Special Structures	(N/A)	N/I 0	1	2 3		
13. Miscellaneous	(N/A)	N/I 0	1	2 3		
Overall Condition of Facility					-	
Total number of concerns receiving a:	(1) <u>3</u> - Ne	eed Monitorir	ng (2) <u>4</u> -F	Routine Repair (3) <u>1</u>	-Immediate Repair Needed
Inspector's Summary						
Remove vegetation throughout but mo	st importantly at	outflow struc	cture. If fa	acility is desig	nated as wet pond, determ	nine why no permanent pool
exists. If infiltration is intended, monitor	r infiltration rates	s and impact	on neigh	boring proper	ties.	
Photos:						
1			2			

1.



Overview



Overview



Outlet Structure

Facility Name: Wet Pond 1	6 Brandon Oa	aks North				Inspec	tor:	Ste	eve Wurster	Date: 10/5/10
Property Classification:	⊠ Reside	ential] Institu	utional		Comm	ercial	☐ Industrial	Other:
Type of Practice:	Wet Percentage Wet	ond		Dry F	Pond] Infiltra	tion Basin	☐ Multiple Pond System
☐ Other:	Rain G	arden] Cons	tructed \	Wetland		Biofiltr	ration Device	☐ Proprietary Device
Scoring Breakdown:						N/A =	· Not A	pplicable	e l	N/I = Not Investigated
0 = No Concerns 1	= Monitor (pot	ential for	future pr	oblem	exists)	2 = R	outine	Maintena	ance Required 3	B = Immediate Repair Necessary
Outfall Channel(s) from	Pond	N/A	N/I	0	(1)	2	3	Monito	r vegetation growth	١
2. Emergency Spillway		N/A	N/I	0	1	2	3			
Principal Outfall Structur	e and Riser	N/A	N/I	0	1	2	3	Remov	e woody vegetatio	n
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	0	(1)	2	3	Investig	gate / monitor sedi	ment depth. Weeds visible throughout.
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	1	(2)	3	Remov	re woody growth	
10. Wet Pond or Native Veg	etation	N/A	N/I	0	1	(2)	3	Remov	e woody growth	
11. Pond Buffer		N/A	N/I	0	(1)	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility										
Total number of concerns rece	eiving a: (1)	3 -	Need M	1onitorii	ng	(2)	<u> </u>	Routine	Repair (3)	0 -Immediate Repair Needed
Inspector's Summary										
Remove woody growth throug	hout basin, in	cluding at	inflow ar	nd outfa	all points	s. Investi	gate a	ınd monit	tor sediment depth	as weeds were visible
throughout pond.										
Photos:										
1					2					

1.



Pond Overview





Outfall Channel



Outlet Structure

Facility Name: Wet Pond	mmunity C	Center		Inspec	tor:	Ste	ve Wurster	Date: <u>10/5/10</u>		
Property Classification:	Property Classification: Residential Institutiona							ercial	☐ Industria	l Other:
Type of Practice:	Wet Pe We	ond		Dry Po	nd] Infiltrat	tion Basin	☐ Multiple Pond System
Other:	_ 🔲 Rain G	arden		Constr	ucted	Wetland		Biofiltra	ation Device	☐ Proprietary Device
Scoring Breakdown:						N/A =	Not A	pplicable	,	N/I = Not Investigated
0 = No Concerns	1 = Monitor (pot	ential for	future p	roblem ex	kists)				nce Required	-
Outfall Channel(s) fron	n Pond	N/A	N/I	0	1	(2)	3	Remove	e vegetation	
Emergency Spillway		N/A	N/I	0	1	2	3		-	
Principal Outfall Struct	ure and Riser	N/A	N/I	0	1	(2)	3	Remove	e vegetation, sto	one and plywood cover
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	0	1	(2)	3	Water e	elevation is low	
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	1	(2)	3	Remove	e vegetation	
10. Wet Pond or Native Ve	egetation	N/A	N/I	0	1	(2)	3	Remove	e vegetation	
11. Pond Buffer		N/A	N/I	0	1	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility										
Total number of concerns re	ceiving a: (1)	0 -	Need M	1onitoring		(2)5		Routine F	Repair (3)	0 -Immediate Repair Needed
Inspector's Summary										
Remove riprap, plywood, and	d vegetation fro	m outlet s	<u>tructure</u>	. Investig	gate lo	w water e	levation	on. Remo	ove vegetation f	from north inflow, outfall channel
and pond bottom.										
Photos										

Photos:

1.



Outlet Structure

2.



Overview



North Inlet

Facility Name: Wet Pond 18 Villas at Brandon Oaks							Inspector: Steve Wurster Date: 10/5/1					
Property Classification:	□ Reside	ntial] Institu	ıtional] Comm	ercial	☐ Industrial	☐ Other:		
Type of Practice:				Dry P		Wetlar			tion Basin ation Device	☐ Multiple Pond System☐ Proprietary Device		
Scoring Breakdown: 0 = No Concerns 1	= Monitor (pot	ential for	future pr	oblem e	exists)			pplicable Maintena		/I = Not Investigated = Immediate Repair Necessary		
Outfall Channel(s) from	Pond	N/A	N/I	0	1	2	3	Remov	e vegetation			
2. Emergency Spillway		N/A	N/I	(0)	1	2	3					
Principal Outfall Structur	e and Riser	N/A	N/I	0	1	2	3					
4. Control Valve(s)		(N/A)	N/I	0	1	2	3					
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3					
6. Permanent Pool		N/A	N/I	0	1	2	(3)	Investig	gate lack of permand	ent pool		
7. Dry Storage		N/A	N/I	0	$\left(\begin{array}{c} 1 \end{array} \right)$	2	3	Monitor	vegetation growth			
8. Pretreatment		(N/A)	N/I	0	1	2	3					
9. Inflow Points		N/A	N/I	0	(1)	2	3	Monitor	vegetation growth			
10. Wet Pond or Native Veg	etation	N/A	N/I	0	(1)	2	3	Monitor	vegetation growth			
11. Pond Buffer		N/A	N/I	(0)	1	2	3					
12. Special Structures		(N/A)	N/I	0	1	2	3					
13. Miscellaneous		(N/A)	N/I	0	1	2	3					
Overall Condition of Facility Total number of concerns reco Inspector's Summary Determine if designed as wet vegetation growth throughout.	pond. If so, de	etermine v							, ,,	1Immediate Repair Needed		
Photos:					2.			380	S. allite			
									100			



Outfall Channel



Pond Overview



Outlet Structure



North Inflow Point

Facility Name: Wet Pond 19 Maple Grove Apartments							Inspector:		ve Wurster	Date: <u>10/5/10</u>
Property Classification:	□ Reside	ential] Institu	ıtional		Comm	ercial	☐ Industrial	☐ Other:
Type of Practice:	Wet Pe We	ond		Dry P	ond			Infiltra	tion Basin	☐ Multiple Pond System
☐ Other:	Rain G	arden] Const	tructed '	Wetland		Biofiltr	ation Device	☐ Proprietary Device
Scoring Breakdown:						N/A =	= Not A	pplicable	e N	N/I = Not Investigated
0 = No Concerns	1 = Monitor (pot	ential for	future pr	oblem e	exists)	2 = R	outine	Maintena	ance Required 3	= Immediate Repair Necessary
Outfall Channel(s) from	n Pond	N/A	(N/I)	0	1	2	3			
2. Emergency Spillway		(N/A	N/I	0	1	2	3			
Principal Outfall Struct	ture and Riser	(N/A)	N/I	0	1	2	3			
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	0	(1)	2	3	Monitor	r erosion on shoreli	ne
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	1	(2)	3	Remov	e debris and growt	h at south inflow
10. Wet Pond or Native V	egetation	N/A	N/I	0	(1)	2	3	Monitor	vegetation growth	
11. Pond Buffer		N/A	N/I	0	1	2	3			
12. Special Structures		(N/A)	N/I)	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility										.
Total number of concerns re	eceiving a: (1)	2	Need M	1onitorin	ng	(2)	<u>1_</u> -	Routine	Repair (3)	OImmediate Repair Needed
Inspector's Summary										
Remove debris at south infle	ow. Monitor veg	etation gr	owth and	d shorel	ine ero	sion. Go	ose pr	otection i	installed.	
Photos:										
1.				_	2.					



South Inflow



Overview

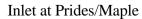


East Shore Erosion

Facility Name: Wet Pond	20 Butler Wetla	ands			Inspec	tor:	Steve Wurster	Date: 10/15/10
Property Classification:	□ Reside	ntial	□ Ir	stitutional		Comm	ercial	Other:
Type of Practice:	☐ Wet Po	ond		ry Pond			☐ Infiltration Basin ☐ M	Iultiple Pond System
☐ Other:	_ 🔲 Rain G	arden	⊠ C	onstructed	Wetland		Biofiltration Device P	roprietary Device
Scoring Breakdown:					N/A =	: Not A	applicable N/I = No	ot Investigated
0 = No Concerns	1 = Monitor (pot	ential for fu	ıture probl	em exists)			• •	nediate Repair Necessary
Outfall Channel(s) from	n Pond	N/A	N/I	0 (1)	2	3	Monitor vegetation growth	
Emergency Spillway		N/A	N/I	0 (1)	2	3	Monitor vegetation growth	
Principal Outfall Struct	ure and Riser	N/A	N/I	0 (1)	2	3	Monitor vegetation growth	
4. Control Valve(s)		(N/A)	N/I	0 1	2	3		
5. Pond Drain Valve		(N/A)	N/I	0 1	2	3		
6. Permanent Pool		N/A	N/I	0 1	(2)	3	Little to no standing water	
7. Dry Storage		(N/A)	N/I	0 1	2	3		
8. Pretreatment		(N/A)	N/I	0 1	2	3		
9. Inflow Points		N/A	N/I	0 1	(2)	3	Remove vegetation	
10. Wet Pond or Native Ve	getation	N/A	N/I	0 1	(2)	3	Compare vegetation to original p	planting diagram
11. Pond Buffer		N/A	N/I	0 (1)	2	3		
12. Special Structures		(N/A)	N/I	0 1	2	3		
13. Miscellaneous		(N/A)	N/I	0 1	2	3		
Overall Condition of Facility								
Total number of concerns re-	ceiving a: (1)	4 -	Need Mo	nitoring	(2)	3	- Routine Repair (3) 0	Immediate Repair Needed
Inspector's Summary								
Determine what is design wa	ater elevation-po	ond has little	e standing	water now.	West ou	tlet no	t inspected.	
1								
Photos:								

1. 2.



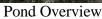




Inlet South of Maple

3. 4.







Outlet Weir

Facility Name: Wet Pond 2	ral		Inspe	ctor:	Ste	ve Wurster	Date: 10/5/10			
Property Classification:	Reside	ntial] Institut	tional		Comm	ercial		Other:
Type of Practice:	Wet Po	ond		Dry Po	ond] Infiltrat	tion Basin	☐ Multiple Pond System
Other:	Rain G	arden		Constr	ructed	Wetland		Biofiltra	ation Device	☐ Proprietary Device
Scoring Breakdown:						N/A	= Not A	pplicable)	N/I = Not Investigated
0 = No Concerns 1	= Monitor (pot	ential for	future p	roblem e	xists)					3 = Immediate Repair Necessary
Outfall Channel(s) from	Pond	N/A	N/I	(0)	1	2	3			
Emergency Spillway		N/A	N/I	(0)	1	2	3			
Principal Outfall Structur	e and Riser	(N/A)	N/I	0	1	2	3			
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	(0)	1	2	3			
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	1	(2)	3	Remove	e stones from no	rth inflow
10. Wet Pond or Native Veg	etation	N/A	N/I	0	1	2	3			
11. Pond Buffer		N/A	N/I	0	1	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility							•			
Total number of concerns rece	eiving a: (1)	0	- Need	Monitorin	ng	(2)	2 -	Routine	Repair (3)	0 -Immediate Repair Needed
Inspector's Summary										
Remove field stone that is block	cking north inle	et. Other	wise, po	nd in god	od sha	pe.				
Dhotos:										

Photos:

1. 2.



Pond Overview



North Inlet

Facility Name: Wet Pond 22 Quad Graphics Northwest							ctor:	Stev	ve Wurster	Date: <u>10/5/10</u>
Prope	rty Classification: Residential Institution		tional		Comm	nercial		Other:		
Туре	e of Practice:	Pond		Dry Po	ond] Infiltrati	ion Basin	☐ Multiple Pond System
	ther: Rair	Garden		☐ Const	ructed \	Vetland		Biofiltra	ation Device	☐ Proprietary Device
Scor	ing Breakdown:					N/A =	= Not A	Applicable		N/I = Not Investigated
	0 = No Concerns 1 = Monitor (ootential for	future p	roblem e	xists)	2 = R	outine	Maintena	nce Required	3 = Immediate Repair Necessary
1.	Outfall Channel(s) from Pond	(N/A)	N/I	0	1	2	3			
2.	Emergency Spillway	(N/A)	N/I	0	1	2	3			
3.	Principal Outfall Structure and Rise	· (N/A)	N/I	0	1	2	3			
4.	Control Valve(s)	(N/A)	N/I	0	1	2	3			
5.	Pond Drain Valve	(N/A)	N/I	0	1	2	3			
6.	Permanent Pool	N/A	N/I	(0)	1	2	3			
7.	Dry Storage	(N/A)	N/I	0	1	2	3			
8.	Pretreatment	(N/A)	N/I	0	1	2	3			
9.	Inflow Points	N/A	N/I	()	1	2	3			
10.	Wet Pond or Native Vegetation	N/A	N/I	0	(1)	2	3	Continue	e vegetation mor	nitoring
11.	Pond Buffer	N/A	N/I	0	1	2	3			
12.	Special Structures	(N/A)	N/I	0	1	2	3			
13.	Miscellaneous	(N/A)	N/I	0	1	2	3			
Overa	all Condition of Facility							<u>- </u>		
Total	number of concerns receiving a: (1)1	Need	Monitorir	ng	(2)	0 -	Routine I	Repair (3)_	0 -Immediate Repair Needed
Inspe	ctor's Summary									
Pond	in good condition.									

Photos:



Pond Overview

Facility Name: Wet Pond 2	hwest			Inspec	tor:	Ste	ve Wurster	Date: <u>10/5/10</u>		
Property Classification:	☐ Reside	ential		Institu	tional		Comm	ercial		☐ Other:
Type of Practice:	Wet P	ond		Dry Po	ond] Infiltrat	tion Basin	☐ Multiple Pond System
☐ Other:	_ Rain G	arden		Const	ructed \	Vetland		Biofiltra	ation Device	☐ Proprietary Device
Scoring Breakdown:						N/A =	= Not A	pplicable	<u> </u>	N/I = Not Investigated
0 = No Concerns 1 = Monitor (potential for future problem exists							outine	Maintena	ince Required 3	3 = Immediate Repair Necessary
Outfall Channel(s) from	Pond	N/A	N/I	(0)	1	2	3			
Emergency Spillway		(N/A)	N/I	0	1	2	3			
Principal Outfall Structur	re and Riser	(N/A)	N/I	0	1	2	3			
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	0	1 (2	3	Monitor	depth-appears sh	hallow
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	1 (2)	3	Clear ve	egetation from infl	low
10. Wet Pond or Native Veg	getation	N/A	N/I	0	$\left(\begin{array}{c} 1 \end{array} \right)$	2	3	Monitor	shoreline vegetat	tion
11. Pond Buffer		N/A	N/I	0	(1)	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility										·
Total number of concerns rece	eiving a: (1)	2	- Need N	/lonitorir	ng	(2)	<u>2</u> -I	Routine R	Repair (3) <u>0</u>	-Immediate Repair Needed
Inspector's Summary										
Pond liner exposed. Monitor s	sediment dept	h as pond	l appears	shallov	w. Clea	r vegeta	tion fo	rm north i	inflow. Monitor she	oreline vegetation.
Photos:										

2. 1.



Pond Inlet



Pond Overview

Facility Name: Wet Pond 24 Quad Grap	hics Northeast	In	spector:	Steve Wurster	Date: <u>10/5/10</u>
Property Classification:	ential \square	Institutional	☐ Comm	ercial 🛛 Industrial	☐ Other:
Type of Practice:	ond \square	Dry Pond		Infiltration Basin	
☐ Other: ☐ Rain C	Garden	Constructed Wet	land [Biofiltration Device	☐ Proprietary Device
Scoring Breakdown:			N/A = Not A	pplicable N	/I = Not Investigated
0 = No Concerns 1 = Monitor (po	tential for future pro	blem exists) 2	? = Routine I	Maintenance Required 3 =	Immediate Repair Necessary
Outfall Channel(s) from Pond	N/A N/I	0 (1) 2	2 3	Monitor vegetation	
Emergency Spillway	(N/A) N/I		2 3	-	
Principal Outfall Structure and Riser	N/A N/I	0 1 (2	2) 3	Clear vegetation	
4. Control Valve(s)	(N/A) N/I	0 1 2	2 3		
5. Pond Drain Valve	(N/A) N/I	0 1 2	2 3		
6. Permanent Pool	N/A N/I	0 1 (2	2) 3	Monitor water elevation-app	pears low.
7. Dry Storage	(N/A) N/I	0 1 2	2 3		
8. Pretreatment	(N/A) N/I	0 1 2	2 3		
9. Inflow Points	N/A N/I	0 1 (2	2) 3	Remove vegetation	
10. Wet Pond or Native Vegetation	N/A N/I	0 1 (2	2) 3	Remove vegetation	
11. Pond Buffer	N/A N/I	0 (1)	2 3		
12. Special Structures	(N/A) N/I	0 1 2	2 3		
13. Miscellaneous	(N/A) N/I	0 1 2	2 3		
Overall Condition of Facility					
Total number of concerns receiving a: (1)	Need Mo	onitoring (2)		Routine Repair (3) 0	Immediate Repair Needed
Inspector's Summary					
Vegetation has overgrown pond. Permane	nt pool is low and st	agnant, causing t	he pond to a	act more as a wetland than a	wet pond. Further
investigation recommended starting with ve	egetation cleaning a	nd sediment remo	oval.		
Photos:					

1. 2.



Pond Outlet



Pond Overview



Pond Inlet

Facility Name: Wet Pond 2	24 Quad Grapl	nics South	east			Inspe	ctor:	Ste	ve Wurster	Date: <u>10/5/10</u>
Property Classification:	Reside	ntial] Institu	tional		Comm	ercial		Other:
Type of Practice:	Wet Pe We	ond		Dry Po	ond] Infiltrat	tion Basin	☐ Multiple Pond System
Other:	Rain G	arden		☐ Const	ructed V	Vetland	d [Biofiltra	ation Device	☐ Proprietary Device
Scoring Breakdown:						N/A	= Not A	pplicable	<u> </u>	N/I = Not Investigated
0 = No Concerns 1	= Monitor (pot	ential for f	uture p	roblem e	xists)					3 = Immediate Repair Necessary
Outfall Channel(s) from	Pond	N/A	N/I	(0)	1	2	3			
Emergency Spillway		(N/A)	N/I	0	1	2	3			
Principal Outfall Structur	e and Riser	(N/A)	N/I	0	1	2	3			
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	(0)	1	2	3			
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	(1)	2	3			
10. Wet Pond or Native Veg	etation	N/A	N/I	0	(1)	2	3			
11. Pond Buffer		N/A	N/I	0	1	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility							-	•		.
Total number of concerns rece	eiving a: (1)	1	- Need	Monitorir	ng	(2)	0 -	Routine	Repair (3)	0 -Immediate Repair Needed
Inspector's Summary										
Pond in good shape. No direct	ct inlet located	on wester	n pond	I. Monito	r vegeta	ation gr	owth or	east por	nd inflow. Pond I	iner is exposed in several
locations.										
Photos:										

1.



Overview Looking North



Overview

Property Classification: Residential Institutional Commercial Industrial Other:	
Type of Practice: ☐ Wet Pond ☐ Dry Pond ☐ Infiltration Basin ☐ Multiple Pond System	
☐ Other: ☐ Rain Garden ☐ Constructed Wetland ☐ Biofiltration Device ☐ Proprietary Device	
Scoring Breakdown: N/A = Not Applicable N/I = Not Investigated	
0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Immediate Repair Necessary	
1. Outfall Channel(s) from Pond (N/A) N/I 0 1 2 3	
2. Emergency Spillway N/I 0 1 2 3	
3. Principal Outfall Structure and Riser N/A N/I 0 1 2 3	
4. Control Valve(s) (N/A) N/I 0 1 2 3	
5. Pond Drain Valve (N/A) N/I 0 1 2 3	
6. Permanent Pool N/A N/I 0 1 2 3	
7. Dry Storage (N/A) N/I 0 1 2 3	
8. Pretreatment (N/A) N/I 0 1 2 3	
9. Inflow Points N/A N/I 0 1 (2) 3 Repair erosion at southwest corner	
10. Wet Pond or Native Vegetation N/A N/I 0 1 (2) 3 Remove woody vegetation	
11. Pond Buffer N/A N/I 0 1 2 3 Monitor woody vegetation	
12. Special Structures (N/A) N/I 0 1 2 3	
13. Miscellaneous N/A N/I 0 1 2 3	
Overall Condition of Facility	
Total number of concerns receiving a: (1)1 - Need Monitoring (2)2 - Routine Repair (3) Immediate Repair Needed	
Inspector's Summary	
Remove woody vegetation from around pond. Repair erosion at southwest corner inflow from parking lot.	

Photos:

1.



Erosion at Southwest Parking Lot Inflow



Overview Looking East



Overview Looking East



Pond Outlet Under STH 74

Facility Name: Wet Pond 25A C	Quad Graphics			Inspect	or:	Stev	e Wurster	Date: <u>10/5/10</u>
Property Classification:	Residential		Institutional		Comm	nercial		☐ Other:
Type of Practice:	Wet Pond		Dry Pond] Infiltration	on Basin	☐ Multiple Pond System
Other:	Rain Garden		Constructed	Wetland		Biofiltra	tion Device	☐ Proprietary Device
Scoring Breakdown:				Ν/Δ -	Not A	Applicable		N/I = Not Investigated
	nitor (potential	for future pro	blem exists)					3 = Immediate Repair Necessary
					•			
Outfall Channel(s) from Pond		-	(1) 1	2	3			
Emergency Spillway	N/A		(0) 1	2	3			
Principal Outfall Structure and	\rightarrow		0 1	(2)	3	End sect	tion cracked	
4. Control Valve(s)	(N/A	/	0 1	2	3			
5. Pond Drain Valve	(N/A) N/I	0 1	2	3			
6. Permanent Pool	N/A	N/I	0 1	(2)	3	2 feet lov	N	
7. Dry Storage	N/A) _{N/I}	0 1	2	3			
8. Pretreatment	(N/A) N/I	0 1	2	3			
9. Inflow Points	N/A	N/I	0 1	(2)	3	Clear ve	getation	
10. Wet Pond or Native Vegetation	on N/A	N/I	0 1	(2)	3	Clear ve	getation	
11. Pond Buffer	N/A	N/I	0 (1)	2	3			
12. Special Structures	N/A) N/I	0 1	2	3			
13. Miscellaneous	N/A) N/I	0 1	2	3			
Overall Condition of Facility						-		
Total number of concerns receiving	ga: (1) <u>1</u>	Need Mo	nitoring	(2)4		Routine R	epair (3) _	0 -Immediate Repair Needed
Inspector's Summary								
Investigate water elevation, which a	appears about 2	2 feet low. Re	epair cracked	end secti	on at	pond outle	et. Clear vegetat	ion throughout pond.
 								·
		·						
Photos:								

Photos:

1. 2.







Outlet at Southeast Corner

Type of Practice:	Facility Name: Wet	Pond 27 Color Ink				_	Insped	ctor:	Stev	e Wurster	Date: 10/5/10		
Other:	Property Classification:	☐ Reside	ential		Instituti	ional		Comm	ercial		☐ Other:		
Other:													
N/A = Not Applicable N/I = Not Investigated 2 = Routine Maintenance Required 3 = Immediate Repair Necessary	Type of Practice:	Wet P	ond] Dry Po	nd] Infiltration	on Basin	☐ Multiple Pond System		
1	☐ Other:	Rain G	arden		Constr	ucted \	Vetland	Vetland ☐ Biofiltration Device ☐ Proprietary Device					
1	Scoring Breakdowr	n:					N/A - Not Applicable N/I - Not Investigated						
2. Emergency Spillway 3. Principal Outfall Structure and Riser N/A N/I 0 1 2 3 4. Control Valve(s) (N/A) N/I 0 1 2 3 5. Pond Drain Valve (N/A) N/I 0 1 2 3 6. Permanent Pool N/A N/I 0 1 2 3 7. Dry Storage (N/A) N/I 0 1 2 3 8. Pretreatment (N/A) N/I 0 1 2 3 8. Pretreatment N/A N/I 0 1 2 3 9. Inflow Points N/A N/I 0 1 2 3 10. Wet Pond or Native Vegetation N/A N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 12 3 Monitor vegetation 13. Miscellaneous (N/A) N/I 0 1 2 3 Monitor vegetation 14. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 15. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 16. Permanent Pool N/A N/I 0 1 2 3 Monitor vegetation 17. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 18. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 19. Inflow Points N/A N/I 0 1 2 3 Monitor vegetation 10. Vet Pond or Native Vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 12. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 12. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 13. Miscellaneous (N/A) N/I 0 1 2 3 Monitor vegetation											_		
2. Emergency Spillway 3. Principal Outfall Structure and Riser N/A N/I 0 1 2 3 4. Control Valve(s) (N/A) N/I 0 1 2 3 5. Pond Drain Valve (N/A) N/I 0 1 2 3 6. Permanent Pool N/A N/I 0 1 2 3 7. Dry Storage (N/A) N/I 0 1 2 3 8. Pretreatment (N/A) N/I 0 1 2 3 8. Pretreatment N/A N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 12. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 12. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 12. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 12. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 13. Miscellaneous (N/A) N/I 0 1 2 3 Monitor vegetation 14. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 15. Special Structures (N/A) N/I 0 1 2 3 Monitor vegetation 16. Permanent Pool N/A N/I 0 1 2 3 Monitor vegetation 17. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 18. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 19. Inflow Points 10. Inflow Points 10. Inflow Points 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation 11. Pond Buffer N/A N/I 0 1 2 3 Monitor vegetation	Outfall Channel(s)) from Pond	N/A)	N/I	0	1	2	3					
3. Principal Outfall Structure and Riser N/A N/I 0 1 2 3 4. Control Valve(s) N/A N/I 0 1 2 3 5. Pond Drain Valve N/A N/I 0 1 2 3 6. Permanent Pool N/A N/I 0 1 2 3 7. Dry Storage N/A N/I	` '	•	\sim										
4. Control Valve(s)		<u>, </u>	+ -	N/I	(0)	1		3					
6. Permanent Pool N/A N/I O 1 2 3 7. Dry Storage N/A N/I N/I N/I N/I N/I N/I N/I	•		_	N/I		1	2	3					
7. Dry Storage	5. Pond Drain Valve		(N/A)	N/I	0	1	2	3					
8. Pretreatment	6. Permanent Pool		N/A	N/I	(0)	1	2	3					
9. Inflow Points	7. Dry Storage		(N/A)	N/I	0	1	2	3					
10. Wet Pond or Native Vegetation N/A N/I 11. Pond Buffer N/A N/I 12. Special Structures N/A N/I N/I N/I N/I N/I N/I N/I	8. Pretreatment		(N/A)	N/I	0	1	2	3					
11. Pond Buffer N/A N/I 0 1 2 3 12. Special Structures N/A N/I 0 1 2 3 13. Miscellaneous N/A N/I 0 1 2 3 Overall Condition of Facility Total number of concerns receiving a: (1)1 Need Monitoring (2)0 Routine Repair (3) _0 Immediate Repair Needed Inspector's Summary	9. Inflow Points		N/A	N/I	(0)	1	2	3					
12. Special Structures (N/A) N/I 0 1 2 3 13. Miscellaneous (N/A) N/I 0 1 2 3 Overall Condition of Facility Total number of concerns receiving a: (1) 1 - Need Monitoring (2) 0 - Routine Repair (3) 0 - Immediate Repair Needed Inspector's Summary	10. Wet Pond or Nativ	ve Vegetation	N/A	N/I	<u> </u>	1)	2	3	Monitor v	egetation			
13. Miscellaneous	11. Pond Buffer		N/A	N/I	0	1	2	3					
Overall Condition of Facility Total number of concerns receiving a: (1)1 Need Monitoring (2)0 Routine Repair (3) _0 Immediate Repair Needed Inspector's Summary	12. Special Structures	3	(N/A)	N/I	0	1	2	3					
Total number of concerns receiving a: (1) 1 - Need Monitoring (2) 0 - Routine Repair (3) 0 - Immediate Repair Needed Inspector's Summary	13. Miscellaneous		(N/A)	N/I	0	1	2	3					
Inspector's Summary	Overall Condition of Fac	cility									·		
	Total number of concer	ns receiving a: (1)	1	Need M	onitoring	(2	2)0	R	outine Rep	oair (3) <u>0</u>	-Immediate Repair Needed		
Monitor vegetation growth. Pond in good shape.	Inspector's Summary												
	Monitor vegetation grov	vth. Pond in good s	hape.										

Photos:

1. 2.



Pond Overview/Outlet Looking South



Pond Inlet Looking Northeast

Facility Name: Wet Pond 29 M	Facility Name: Wet Pond 29 Maple Creek Apartments								ve Wurster	Date: 10/5/10
Property Classification:	□ Reside	ntial		Instit	utional		Comm	ercial	☐ Industrial	Other:
Type of Practice:	Wet Po	ond		Dry I	Pond] Infiltrat	tion Basin	☐ Multiple Pond System
Other:	☐ Rain G	arden		Cons	structed	Wetland		Biofiltra	ation Device	☐ Proprietary Device
Scoring Breakdown:						N/A =	Not A	pplicable)	N/I = Not Investigated
0 = No Concerns 1 = N	Monitor (pot	ential for f	uture pro	oblem	exists)	2 = R	outine	Maintena	ance Required	3 = Immediate Repair Necessary
Outfall Channel(s) from Por	nd	N/A	N/I	0	(1)	2	3			
2. Emergency Spillway		N/A	N/I	0	1	2	3	Remove	e vegetation	
Principal Outfall Structure a	ınd Riser	N/A	N/I	0	1	(2)	3	Remove	e vegetation and	debris from outlet structure
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	0	1	(2)	3	Investig	jate sediment dep	oth/pond depth.
7. Dry Storage		N/A	N/I	0	1	(2)	3	Remove	e vegetation	
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	(1)	2	3			
10. Wet Pond or Native Vegeta	ition	N/A	N/I	0	1	(2)	3	Remove	e vegetation	
11. Pond Buffer		N/A	N/I	0	(1)	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility								3		.
Total number of concerns receiving	ng a: (1)	3	- Need M	1onitor	ring	(2)	5	- Routine	Repair (3)	0 -Immediate Repair Needed
Inspector's Summary										
Investigate sediment depth/pond	depth as w	ater eleva	ntion app	ears lo	ow. Ren	nove veg	etatior	through	out.	
-										

Photos:

1.



Outlet Structure



Pond Overview

Facility Name: Wet F	ond 30 Seven Ston	es				Inspec	tor:	Stev	ve Wurster	Date: <u>10/5/10</u>
Property Classification:	⊠ Reside	ntial		Institut	tional		☐ Commercial ☐ Industrial			Other:
Type of Practice:	Wet Pe We	ond		Dry Po	ond			Infiltrati	ion Basin	
☐ Other:	Rain G	arden		Constr	ructed	Wetland		Biofiltra	ation Device	☐ Proprietary Device
Scoring Breakdown	<u>:</u>					N/A =	· Not A	Applicable		N/I = Not Investigated
0 = No Concerns 1 = Monitor (potential for future problem exists)							outine	Maintena	nce Required 3	3 = Immediate Repair Necessary
Outfall Channel(s)	from Pond	N/A	N/I	(0)	1	2	3			
2. Emergency Spillwa	ау	N/A	N/I	0	1	2	3			
Principal Outfall St	ructure and Riser	N/A	N/I	0	1	(2)	3	Debris s	stuck on trash rac	k in outlet pipe
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	(0)	1	2	3			
7. Dry Storage		N/A	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	(0)	1	2	3			
10. Wet Pond or Nativ	e Vegetation	N/A	N/I	0 ((1)	2	3	Monitor	vegetation growt	h.
11. Pond Buffer		N/A	N/I	(0)	1	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Fac	ility									
Total number of concern	ns receiving a: (1)	1	- Need N	/lonitorin	ng	(2)	1	- Routine	Repair (3)	0 -Immediate Repair Needed
Inspector's Summary										
Pond overall in good cor	ndition. Remove de	oris from t	rash rac	k in outle	et pipe					

Photos:

1.



Looking West at Pond



Looking Southeast at Pond Outlet

Facility Name: Wet	Pond 31 Seven Ston	es			_	Inspe	ctor:	Ste	ve Wurster	Date: <u>10/5/10</u>
Property Classification:	□ Reside	ntial] Institut	tional		Comm	ercial	☐ Industrial	☐ Other:
Type of Practice:	Wet Percentage Wet	ond		Dry Po	ond			Infiltra	tion Basin	☐ Multiple Pond System
Other:	Rain G	arden] Constr	ructed \	Wetland	1 [Biofiltr	ation Device	☐ Proprietary Device
Scoring Breakdown	<u>n:</u>					N/A	= Not A	pplicable)	N/I = Not Investigated
0 = No Concer	rns 1 = Monitor (pot	ential for fu	uture pr	oblem e	xists)	2 = R	Routine	Maintena	ance Required	3 = Immediate Repair Necessary
Outfall Channel(s) from Pond	N/A	N/I	(0)	1	2	3			
2. Emergency Spillw	vay	N/A	N/I	0	1	2	3			
Principal Outfall S	Structure and Riser	N/A	N/I	0	1	2	3			
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve	;	(N/A)	N/I	0	1	2	3			
6. Permanent Pool		N/A	N/I	(0)	1	2	3			
7. Dry Storage		(N/A)	N/I	0	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	1 (2	3	Repair	Erosion	
10. Wet Pond or Nati	ve Vegetation	N/A	N/I	0 ((1)	2	3	Monitor	Vegetation	
11. Pond Buffer		N/A	N/I	0	1	2	3			
12. Special Structures	s	(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Fa	<u>cility</u>									
Total number of concer	rns receiving a: (1)		Need N	Monitorin	ng	(2)	1	- Routine	Repair (3)	0 -Immediate Repair Needed
Inspector's Summary										
Repair erosion at south	east inlet, otherwise	pond in go	od sha	pe.						

Photos:

1.



Looking North at Pond



Looking Southeast at Inflow Erosion

Facility Name: Wet Pond 32 Seven Stor	ies		Inspector:	Steve Wurster	Date: 10/5/10
Property Classification:	ential	Institutional	☐ Comr	nercial Industrial	☐ Other:
Type of Practice:	ond	☐ Dry Pond	İ		☐ Multiple Pond System
☐ Other: ☐ Rain G	Sarden	☐ Constructed	d Wetland	Biofiltration Device	☐ Proprietary Device
Scoring Breakdown:			N/A = Not	Applicable 1	N/I = Not Investigated
0 = No Concerns 1 = Monitor (po	tential for futu	ure problem exists)	2 = Routine	Maintenance Required 3	= Immediate Repair Necessary
Outfall Channel(s) from Pond	N/A I	N/I 0 1	2 3	Mow brush	
2. Emergency Spillway	N/A N	N/I 0 1	2 3		
3. Principal Outfall Structure and Riser	N/A 1	N/I 0 1	2 3		
4. Control Valve(s)	(N/A) 1	N/I 0 1	2 3		
5. Pond Drain Valve	(N/A) 1	N/I 0 1	2 3		
6. Permanent Pool	N/A 1	N/I (0) 1	2 3		
7. Dry Storage	N/A I	N/I 0 (1)	2 3	Monitor vegetation growth	
8. Pretreatment	(N/A) 1	N/I 0 1	2 3		
9. Inflow Points	N/A I	N/I 0 1	2 3	Remove woody debris at	pond entrance
10. Wet Pond or Native Vegetation	N/A N	N/I 0 (1)	2 3	Monitor vegetation growth	. May need mowing
11. Pond Buffer	N/A N	N/I 0 (1)	2 3		
12. Special Structures	(N/A) 1	N/I 0 1	2 3		
13. Miscellaneous	(N/A) 1	N/I 0 1	2 3		
Overall Condition of Facility				-	-
Total number of concerns receiving a: (1)	<u>4</u> -N	leed Monitoring	(2)1	Routine Repair (3) _	0 -Immediate Repair Needed
Inspector's Summary					
Mow brush at outfall channel and monitor ve	egetation/woo	ody debris growth.			

Photos:

1.



Wet Pool Looking South



Dry Storage/Infiltration Looking North

Steve Wurster, Maureen

Facility Name: Infiltration			Inspector: McBroom & Eric Nitschke Date: 10/15/10									
Property Classification:	⊠ Reside	ential		Instit	utional] Comm	ercial	☐ Industrial		Other:	_
Type of Practice:	☐ Wet P	ond		Dry F	ond			Infiltra	ition Basin	☐ Multi	iple Pond System	
Other:	_ Rain G	arden		Cons	tructed V	Vetlan	id [Biofilt	ration Device	☐ Prop	orietary Device	
Scoring Breakdown: 0 = No Concerns 1 = Monitor (potential for future problem exists)								pplicable Maintena			nvestigated iate Repair Necessary	
Outfall Channel(s) from	n Pond	(N/A)	N/I	0	1	2	3					
2. Emergency Spillway		(N/A)	N/I	0	1	2	3					
Principal Outfall Struct	ure and Riser	N/A	N/I	0	1	2	3					
4. Control Valve(s)		(N/A)	N/I	0	1	2	3					
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3					
6. Permanent Pool		(N/A)	N/I	0	1	2	3					
7. Dry Storage		N/A	N/I	0	1	2	(3)	Not infi	Itrating			
8. Pretreatment		N/A	N/I	0	1	2	3					
9. Inflow Points		N/A	N/I	0	(1)	2	3					
10. Wet Pond or Native Ve	getation	N/A	N/I	0	(1)	2	3					
11. Pond Buffer		N/A	N/I	0		2	3					
12. Special Structures		(N/A)	N/I	0	1	2	3					
13. Miscellaneous		(N/A)	N/I	0	1	2	3					
Overall Condition of Facility Total number of concerns re Inspector's Summary Pond not infiltrating-review for			- Need M	lonitori	ng	(2)	0 -	Routine	Repair (3) <u>.</u>	1 -In	nmediate Repair Needed	I

Photos:

1.



Pond Overview



Pond Outlet

Steve Wurster, Maureen McBroom & Eric Nitschke Facility Name: Dry Pond 01 Majestic Heights Inspector: Date: 10/15/10 ☐ Other: _____ Property Classification: □ Residential ☐ Commercial ☐ Industrial Institutional ☐ Wet Pond Type of Practice: Dry Pond ☐ Infiltration Basin ☐ Other: _____ Rain Garden ☐ Constructed Wetland ☐ Biofiltration Device ☐ Proprietary Device Scoring Breakdown: N/A = Not ApplicableN/I = Not Investigated 2 = Routine Maintenance Required 3 = Immediate Repair Necessary 0 = No Concerns 1 = Monitor (potential for future problem exists) 1. Outfall Channel(s) from Pond N/A N/I 2) Remove vegetation and clean debris 2) 2. N/A N/I 0 1 3 **Emergency Spillway** Remove vegetation and clean debris 3. Principal Outfall Structure and Riser N/A N/I 0 1 2 3 Remove vegetation and clean debris 4. Control Valve(s) (N/A N/I 0 1 2 3 5. Pond Drain Valve (N/A) N/I 0 1 2 3 6. Permanent Pool (N/A N/I 0 1 2 3 7. 2) Dry Storage N/A N/I 0 1 3 Remove woody vegetation (N/A) N/I 1 8. 0 2 3 Pretreatment 2) 9. Inflow Points N/A N/I 1 3 0 South inlet beginning to separate and erode (N/A 1 10. N/I 3 Wet Pond or Native Vegetation 2 N/A 0 1 11. Pond Buffer N/I 2 3 12. Special Structures N/A N/I 0 1 2 3 13. Miscellaneous N/A N/I 0 1 2 3 Overall Condition of Facility (2) 5 - Routine Repair (3) 0 -Immediate Repair Needed Total number of concerns receiving a: (1) _____ - Need Monitoring Inspector's Summary: Remove woody vegetation throughout, including spillway, outfall and storage area.

Photos:

South inlet beginning to separate and erode.

1.



South Inlet

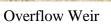
2.



Overview

3. 4.







Outlet Pipe

eights	Inspecto	or: Steve	e Wurster, Eric Nitschke Date: 10/15/10					
ential 🔲 Institut	tional 🗌 C	☐ Commercial ☐ Industrial ☐ Other:						
ond 🛛 Dry Po	ond/Swale	☐ Infilt	Itration Basin					
Garden	ructed Wetland	☐ Biofi	filtration Device Proprietary Device					
	N/A =	Not Applicat	able N/I = Not Investigated					
0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Immediate Repair Necessary								
N/A N/I 0	1 2	3						
N/A N/I 0	1 2	3						
N/A N/I (0)	1 2	3						
(N/A) N/I 0	1 2	3						
(N/A) N/I 0	1 2	3						
N/A N/I 0	1 2	3						
N/A N/I 0 (1) 2	3 Monit	itor vegetation					
N/A N/I 0	1 2	3						
N/A N/I (0)	1 2	3						
N/A N/I 0	1) 2	3 Monit	itor vegetation					
N/A N/I 0	1 2	3						
N/A N/I 0	1 2	3						
N/A N/I 0	1 2	3						
		-						
Need Monitorir	ng (2) <u>(</u>	0 Routi	tine Repair (3) 0 -Immediate Repair Needed					
egetation and begin vegeta	ation manageme	nt.						
	-							
		- 						
	Pond	Institutional	Institutional					

Photos:



Swale Overview

Facility Name: <u>Dry Pond 03 Centennial</u>	Oaks		Inspector:	Steve Wurster	Date: 10/15/10
Property Classification:	ential	☐ Institution	nal 🗌 Comm	ercial Industrial	Other:
Type of Practice:	ond	□ Dry Pond	d [Infiltration Basin	
☐ Other: ☐ Rain 0	Garden	☐ Construct	ted Wetland	Biofiltration Device	☐ Proprietary Device
Scoring Breakdown:			N/A = Not A	Applicable N/	I = Not Investigated
0 = No Concerns 1 = Monitor (po	tential for future	e problem exist		• •	Immediate Repair Necessary
Outfall Channel(s) from Pond	N/A N/	′I 0 ′	1 (2) 3	Clean debris	
2. Emergency Spillway	N/A N/	/I 0	1 2 3	Compare road spillway elevappears lower	ation to home to north-home
3. Principal Outfall Structure and Riser	N/A N/	′I 0 ′	1 2 3	Clean debris	
4. Control Valve(s)	(N/A) N/	′I 0 ′	1 2 3		
5. Pond Drain Valve	(N/A) N/	′I 0 ′	1 2 3		
6. Permanent Pool	(N/A) N/	′I 0 ′	1 2 3		
7. Dry Storage	N/A N/	′I 0 ′	1 (2) 3	Remove vegetation	
8. Pretreatment	(N/A) N/	′I 0 ′	1 2 3		
9. Inflow Points	N/A N/	/I 0 ·	1 (2) 3	Remove vegetation	
10. Wet Pond or Native Vegetation	(N/A) N/	/I 0 '	1 2 3		
11. Pond Buffer	N/A N/	/I (0)	1 2 3		
12. Special Structures	(N/A) N/	′I 0 ′	1 2 3		
13. Miscellaneous	N/A N/	′I 0 ′	1 2 3		
Overall Condition of Facility					
Total number of concerns receiving a: (1)	Ne	ed Monitoring	(2)4	- Routine Repair (3) <u>1</u>	-Immediate Repair Needed
Inspector's Summary:					
Verify elevation of overland spillway (Maple	Avenue) versu	ıs home to nort	th. It appears home	e may flood prior to road over	topping. Clean vegetation
from inlet, outlet structure, pond and downs	tream channel.				
Photos					

1.



Overview



Pond Inlet







Pond Outlet

Facility Name: Dry Pond 0-	Facility Name: <u>Dry Pond 04 Cobblestone Estates</u>							Inspector: Steve Wurster Date: 10/5/10					
Property Classification:	□ Reside	ntial] Institu	tional		Comm	ercial	☐ Industria	al Other:			
Type of Practice:	☐ Wet Po	ond		☑ Dry Po	ond			Infiltra	tion Basin	☐ Multiple Pond System			
Other:	Rain G	arden		☐ Const	ructed \	Wetland		Biofiltr	ation Device	☐ Proprietary Device			
Scoring Breakdown:				N/A :	= Not <i>F</i>	Applicable		N/I = Not Investigated					
	future p	roblem e	xists)				ance Required	<u> </u>					
Outfall Channel(s) from I	Pond	N/A	N/I	0	1	(2)	3	Clean c	debris and repair	r erosion			
Emergency Spillway		N/A	N/I	0	(1)	2	3						
Principal Outfall Structur	e and Riser	N/A	N/I	(0)	1	2	3						
4. Control Valve(s)		(N/A)	N/I	0	1	2	3						
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3						
6. Permanent Pool		WA	N/I	0	1	2	3						
7. Dry Storage		N/A	N/I	(0)	1	2	3						
8. Pretreatment		(N/A)	N/I	0	1	2	3						
9. Inflow Points		N/A	N/I	(0)	1	2	3						
10. Wet Pond or Native Veg	etation	N/A	N/I	(0)	1	2	3						
11. Pond Buffer		N/A	N/I	(0)	1	2	3						
12. Special Structures		(N/A)	N/I	0	1	2	3						
13. Miscellaneous		(N/A)	N/I	0	1	2	3						
Overall Condition of Facility													
Total number of concerns rece	eiving a: (1)	1 -	Need I	Monitorin	g	(2)	<u> 1 -</u>	Routine	Repair (3)	0 -Immediate Repair Needed			
Inspector's Summary													
Clear debris and repair erosion	n at pond outfa	all channe	el south	of path.	Remov	e rock f	rom pir	oe (upstre	eam) and vegeta	ation (downstream) at railroad			
crossing.													

Photos:

1.







Pond Outlet

3. 4.



Overview



Outfall Channel Erosion



Outfall Debris at Railroad Tracks

Facility Name: Dry Pond 04A Centennial Oaks							Inspector: Steve Wurster, Eric Nitschke Date: 10/15/10					
Property Classification:	□ Reside	ential] Institu	utional		Comm	ercial				
Type of Practice:	☐ Wet Po	ond	\boxtimes	Dry F	ond		☐ Infiltration Basin ☐ Multiple Pond System					
☐ Other:	☐ Rain G	arden] Cons	tructed \	Wetland	1 [Biofiltration Device Proprietary Device				
Scoring Breakdown:						N/A	= Not A	pplicable N/I = Not Investigated				
0 = No Concerns 1 =	= Monitor (pot	ential for	future pr	oblem	exists)	2 = R	Routine	Maintenance Required 3 = Immediate Repair Necessary				
Outfall Channel(s) from F	Pond	(N/A)	N/I	0	1	2	3					
2. Emergency Spillway		(N/A	N/I	0	1	2	3					
Principal Outfall Structure	e and Riser	N/A	N/I	0	1	2	3	Clear vegetation				
4. Control Valve(s)		(N/A)	N/I	0	1	2	3					
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3					
6. Permanent Pool		N/A)	N/I	0	1	2	3					
7. Dry Storage		N/A	N/I	0	(1)	2	3					
8. Pretreatment		(N/A)	N/I	0	1	2	3					
9. Inflow Points		N/A	N/I	0	(1)	2	3	Monitor end section				
10. Wet Pond or Native Vege	etation	N/A	N/I	0	1	(2)	3	Drainage/storage area overgrown with trees and brush				
11. Pond Buffer		N/A	N/I	0	(1)	2	3					
12. Special Structures		(N/A)	N/I	0	1	2	3					
13. Miscellaneous		(N/A)	N/I	0	1	2	3					
Overall Condition of Facility												
Total number of concerns rece	iving a: (1)	3	Need I	Monito	ring	(2)	2	- Routine Repair (3) 0 -Immediate Repair Needed				
Inspector's Summary:												
Remove/monitor vegetation the	roughout, incl	uding stru	ictures in	flow p	ath.							
Photos:												

1.



Pipe Behind NW Inlet



North Inlet

3.



Vegetation in Drainage Path Looking Upstream



Trampoline in Drainage Path Looking Downstream

Pond Outlet

Facility Name: Dry Pond 0	5 Cobblestone	Estates			_	Inspec	tor:	Ste	ve Wurster	Date: <u>10/5/10</u>
Property Classification:		ntial		Institut	ional		Comm	ercial	☐ Industrial	Other:
Type of Practice:	☐ Wet Po	ond	\boxtimes	Dry Po	nd] Infiltrat	tion Basin	☐ Multiple Pond System
Other:	☐ Rain Ga	arden		Constr	ucted V	Vetland		Biofiltra	ation Device	☐ Proprietary Device
Scoring Breakdown:						N/A =	= Not A	pplicable	<u> </u>	N/I = Not Investigated
	= Monitor (pote	ential for fu	ture pr	roblem ex	kists)					3 = Immediate Repair Necessary
Outfall Channel(s) from	Pond	N/A	N/I	(₀)	1	2	3			
Emergency Spillway		N/A	N/I	(0)	1	2	3			
Principal Outfall Structur	e and Riser	N/A	N/I	0	(1)	2	3	Monitor	vegetation grow	th
4. Control Valve(s)		(N/A)	N/I	0	1	2	3			
5. Pond Drain Valve		(N/A)	N/I	0	1	2	3			
6. Permanent Pool		WA	N/I	0	1	2	3			
7. Dry Storage		N/A	N/I	(0)	1	2	3			
8. Pretreatment		(N/A)	N/I	0	1	2	3			
9. Inflow Points		N/A	N/I	0	1 (2)	3	Remove	e stone and vege	etation
10. Wet Pond or Native Veg	etation	N/A	N/I	(0)	1	2	3			
11. Pond Buffer		N/A	N/I	(0)	1	2	3			
12. Special Structures		(N/A)	N/I	0	1	2	3			
13. Miscellaneous		(N/A)	N/I	0	1	2	3			
Overall Condition of Facility										
Total number of concerns rece	eiving a: (1) _	<u>1</u> -N	eed M	lonitoring	(2)1		Routine R	Repair (3) _	0 -Immediate Repair Needed
Inspector's Summary										
Remove stone blocking west in	nlet and clear	egetation :	at both	n inlets.						
Photos:										
1.					2.					



Pond Overview



West Inflow

3. 4.



East Inflow



Pond Outlet

Steve Wurster, Maureen McBroom & Eric Nitschke Inspector: Date: 10/15/10 Facility Name: Dry Pond 06 Centennial Oaks □ Residential ☐ Industrial ☐ Other: _____ Property Classification: ☐ Institutional ☐ Commercial Type of Practice: ☐ Wet Pond Dry Pond ☐ Infiltration Basin ☐ Other: _____ ☐ Rain Garden ☐ Constructed Wetland ☐ Biofiltration Device ☐ Proprietary Device Scoring Breakdown: N/A = Not Applicable N/I = Not Investigated 0 = No Concerns 1 = Monitor (potential for future problem exists) 2 = Routine Maintenance Required 3 = Immediate Repair Necessary 1. Outfall Channel(s) from Pond N/A N/I (0) 2 2. **Emergency Spillway** N/A N/I 0) 1 2 3 3. Principal Outfall Structure and Riser N/A N/I 0 1 2) 3 Monitor vegetation-Outlet end section separating

2

2

2

3

3

3

7.	Dry Storage	N/A	N/I	0	(1)	2	3	
8.	Pretreatment	(N/A)	N/I	0	1	2	3	
9.	Inflow Points	N/A	N/I	0	1	(2)	3	Regrade riprap at inlet. No trash rack.
10.	Wet Pond or Native Vegetation	N/A	N/I		1	2	3	
11.	Pond Buffer	N/A	N/I	0	1	2	3	
12.	Special Structures	(N/A)	N/I	0	1	2	3	
13.	Miscellaneous	(N/A)	N/I	0	1	2	3	
Ove	rall Condition of Facility							-
Ove	rail Cortaition of Facility							
Tota	al number of concerns receiving a: (1)	1	- Need	Monitor	ing	(2)	2 -	Routine Repair (3) 0 -Immediate Repair Needed

Inspector's Summary

Regrade riprap at inlet. No trash rack present at inlet. Outlet end section beginning to separate.

(N/A`

(N/A

(N/A

N/I

N/I

N/I

0

0

0

1

1

1

Photos:

4.

5.

6.

Control Valve(s)

Pond Drain Valve

Permanent Pool

1. 2.







Inlet



Outlet

Steve Wurster, Maureen

Facility Name: Dry Pond 07 Woodland 0	Creek	Inspector:	McBroom & Eric Nitschke Date: 10/15/10
Property Classification:	ential Institutional	☐ Comm	nercial
Type of Practice:	Pond 🛛 Dry Pond		☐ Infiltration Basin ☐ Multiple Pond System
Other: Rain G	Garden Constructed	Wetland	☐ Biofiltration Device ☐ Proprietary Device
Scoring Breakdown: 0 = No Concerns 1 = Monitor (po	otential for future problem exists)	N/A = Not A 2 = Routine	Applicable N/I = Not Investigated Maintenance Required 3 = Immediate Repair Necessary
Outfall Channel(s) from Pond	N/A N/I 0 1	2 3	Stone too high; Good Hope culvert too small
2. Emergency Spillway	N/A N/I 0 1	2) 3	Homeowner says pond overflows near outlet before using spillway
3. Principal Outfall Structure and Riser	N/A N/I 0 1	2 3	Debris on top; critters causing stability problems
4. Control Valve(s)	(N/A) N/I 0 1	2 3	
5. Pond Drain Valve	N/A N/I 0 1	2 3	
6. Permanent Pool	N/A N/I 0 1	2 3	
7. Dry Storage	N/A N/I 0 1	2 (3)	Standing water in east portion of basin due to sump pumps
8. Pretreatment	(N/A) N/I 0 1	2 3	
9. Inflow Points	N/A N/I 0 1	2 3	Clean north inflow-sediment. North inlet filled in by homeowner
10. Wet Pond or Native Vegetation	N/A N/I 0 (1)	2 3	Debris on mid-berm outlet. South inflow-debris
11. Pond Buffer	N/A N/I 0 1	2 (3)	Remove structures/playset
12. Special Structures	(N/A) N/I 0 1	2 3	
13. Miscellaneous	N/A N/I 0 1	2 3	
using spillway. Clean storm inlets. North = sediment; debris Remove structures from pond.	w channel and flows nonstop due s in mid berm outlet and south in	e to sump pump	Routine Repair (3)Immediate Repair Needed s. Also stated that pond overtops at outfall structure before sump pumps discharging in east portion of basin.

Photos:

1.



Pond Overview

2.



North-Main Inlet

Revised: 1/19/2011 Ruekert & Mielke, Inc.



Patio That Floods



North Inflow

5.



Outfall to South Berm/North Side



Debris in Mid-Berm Outlet-South Side

7.



Main Outfall



South Inflow

Revised: 1/19/2011 Ruekert & Mielke, Inc.

6.

9. 10.



Discharge Point of Outfall Structure



Overflow Channel Between Ponds

Revised: 1/19/2011 Ruekert & Mielke, Inc.

Steve Wurster, Maureen
McBroom & Eric Nitschke

rac	ility Name. <u>Dry Pond</u>	08 Woodiand C	теек				inspe	Clor	Wiebroom	z Eric Titts	CIIKC	_	Date: 10/13	0/10
Prop	perty Classification:	□ Reside	ntial		Institu	utional		Comm	iercial [Industrial		Othe	r:	
	oe of Practice:	☐ Wet Po			Dry F		Wetland	☐ Infiltration Basin ☐ Multiple Pond System etland ☐ Biofiltration Device ☐ Proprietary Device						m
Sco	oring Breakdown:						N/A	= Not A	Applicable		N/I = N	lot Inves	stigated	
	0 = No Concerns	1 = Monitor (pot	ential for	future pr	oblem (exists)			Maintenance	Required			Repair Nec	essary
1.	Outfall Channel(s) from	n Pond	N/A	N/I	0	1	(2)	3	Need to def	fine overflow	path			
2.	Emergency Spillway		N/A	N/I	0	1	2	(3)	Need to def	fine overflow	path			
3.	Principal Outfall Struct	ure and Riser	N/A	N/I	0	1	(2)	3	Clean out o	utlet				
4.	Control Valve(s)		(N/A)	N/I	0	1	2	3						
5.	Pond Drain Valve		(N/A)	N/I	0	1	2	3						
6.	Permanent Pool		(N/A)	N/I	0	1	2	3						
7.	Dry Storage		N/A	N/I	0	1	(2)	3	Remove tre	es				
8.	Pretreatment		(N/A)	N/I	0	1	2	3						
9.	Inflow Points		N/A	N/I	0	1	2	(3)	Remove rip	rap which is	2 feet a	bove inf	low	
10.	Wet Pond or Native Ve	egetation	(N/A)	N/I	0	1	2	3						
11.	Pond Buffer		N/A	N/I	0	(1)	2	3						
12.	Special Structures		(N/A)	N/I	0	1	2	3						
13.	Miscellaneous		(N/A)	N/I	0	1	2	3						
	erall Condition of Facility													
	al number of concerns re	ceiving a: (1)	11	Need	Monito	ring	(2)	3	Routine Re	pair (3)) _2	lmm	ediate Rep	air Needed
	ector's Summary:													
Ren	nove trees in pond. Una	ble to verify ove	rland flov	v path-mu	ust defi	ne to ve	erify no h	nomes a	are impacted.	Remove rip	rap at ir	nflow, w	hich is 2 fee	et above
inlet	. Homeowners recently	removed riprap	on sides	of inlet, r	noved	to botto	om and s	odded.						
Pho	tos:													
1.						2.								

Inlet

Outlet



Overview

Facility Name: Dry Pond 11 Stone Ridge Estates – Maris Drive						tor:	Steve Wurster	Date: 10/5/10			
Property Classification:	ntial] Institu	tional		Comm	ercial Industrial	☐ Other:			
Type of Practice:	ond	\boxtimes	Dry P	ond			Infiltration Basin	☐ Multiple Pond System			
☐ Other: ☐ Rain Garden ☐ Constructed W			/etland		Biofiltration Device	☐ Proprietary Device					
Scoring Breakdown:					Ν/Δ -	· Not A	applicable	N/I = Not Investigated			
0 = No Concerns 1 = Monitor (potential for future problem exists)						2 = Routine Maintenance Required 3 = Immediate Repair Necessary					
Outfall Channel(s) from Pond	(N/A)	N/I	0	1	2	3					
Emergency Spillway	(N/A)	N/I	0	1	2	3					
<u> </u>	N/A	N/I	0	(1)	2	3	Manitar ranginal arasis				
Principal Outfall Structure and Riser Control Valve(s)	(N/A)	N/I	0	1	2	3	Monitor repaired erosion	1			
Control valve(s) Pond Drain Valve	\rightarrow	N/I	0	1	2	3					
Fond Drain Valve Permanent Pool	(N/A)	N/I	0	1	2	3					
	\vdash	N/I	(₀)	-							
7. Dry Storage	N/A		$\overline{}$	1	2	3					
8. Pretreatment	(N/A)	N/I	0	1	2	3					
9. Inflow Points	N/A	N/I	0	<u>(1)</u>	2	3	Monitor repaired erosion	1			
10. Wet Pond or Native Vegetation	N/A	N/I	(0)	1	2	3					
11. Pond Buffer	N/A	N/I	(0)	1	2	3					
12. Special Structures	(N/A)	N/I	0	1	2	3					
13. Miscellaneous	(N/A)	N/I	0	1	2	3					
Overall Condition of Facility											
Total number of concerns receiving a: (1)	<u>2</u> -N	Need M	lonitorin	g (2	2)0		Routine Repair (3)	0 -Immediate Repair Needed			
Inspector's Summary											
Monitor areas of erosion at inlet and outlet w	hich have	previou	usly bee	n repaire	ed. Othe	erwise	, pond in good shape.				
Photos:											

1. 2.







Pond Outlet

Facility Name: Dry Pond 12 Capito	l Beer Distributors Ea	ast	Inspector:	Steve Wurster	Date: <u>10/5/10</u>			
Property Classification:	Residential	☐ Institutional	☐ Comm	ercial 🛛 Industrial	☐ Other:			
Type of Practice:	Vet Pond	☐ Dry Pond	☑ Infiltration Basin ☐ Multiple Pond System					
☐ Other: ☐ F	Rain Garden	☐ Constructed V	Wetland [Biofiltration Device	☐ Proprietary Device			
Scoring Breakdown:			N/A = Not A	opplicable N	/I = Not Investigated			
0 = No Concerns 1 = Monitor	or (potential for future	problem exists)		• •	= Immediate Repair Necessary			
4 Outfall Ohannal/a) franc Band	N/A N/A			Descriptions in				
Outfall Channel(s) from Pond	N/A N/I		2 3	Reset riprap				
Emergency Spillway	N/A N/I	0 (1)	2 3	Monitor vegetation growth				
Principal Outfall Structure and R		0 1	2 (3)	See below				
4. Control Valve(s)	(N/A) N/I	0 1	2 3					
5. Pond Drain Valve	(N/A) N/I	0 1	2 3					
6. Permanent Pool	(N/A) N/I	0 1	2 3					
7. Dry Storage	N/A N/I	0 (1)	2 3	Monitor newly planted area	as			
8. Pretreatment	(N/A) N/I	0 1	2 3					
9. Inflow Points	N/A N/I	0 1 (2) 3	See below				
10. Wet Pond or Native Vegetation	N/A N/I	0 (1)	2 3					
11. Pond Buffer	N/A N/I	0 1	2 3					
12. Special Structures	(N/A) N/I	0 1	2 3					
13. Miscellaneous	(N/A) N/I	0 1	2 3					
Overall Condition of Facility					-			
Total number of concerns receiving a:	(1) <u>3</u> -Nee	d Monitoring	(2)	Routine Repair (3) _1	-Immediate Repair Needed			
Inspector's Summary								
Outlet grate and emergency spillway a	ppear too high. Duri	ng large storms, w	ater that does	not infiltrate will back up thr	oughout the longitudinal			
basin the length of Capitol Beer and L	auterbach and may o	verflow banks befo	ore reaching s	oillway. Ditch to north does r	not drain and currently			
traps water (see photo). As-built surv	ey recommended. Po	ond is newly const	tructed so mor	itor grass growth.				

Photos:

1.



Outlet Grate Looking North



Infiltration Area

3. 4.



Outlet Channel



Inlet from North

Facility Name: <u>Dry Pond 13 Tombstor</u>	ne-Nature's Path	Inspector:_	Steve Wurster	Date: <u>10/5/10</u>
Property Classification:	sidential Institution	nal 🗌 Com	mercial 🛛 Industrial	Other:
Type of Practice:	t Pond 🛛 Dry Pond	t	☐ Infiltration Basin	
☐ Other: ☐ Rain	n Garden	ted Wetland	☐ Biofiltration Device	☐ Proprietary Device
Scoring Breakdown:		N/A = Not	Applicable	N/I = Not Investigated
0 = No Concerns 1 = Monitor (potential for future problem exis	ts) 2 = Routing	e Maintenance Required	3 = Immediate Repair Necessary
Outfall Channel(s) from Pond	N/A N/I (0)	1 2 3		
2. Emergency Spillway	(N/A) N/I 0	1 2 3		
Principal Outfall Structure and Rise	r N/A N/I 0	1 2 3		
4. Control Valve(s)	(N/A) N/I 0	1 2 3		
5. Pond Drain Valve	(N/A) N/I 0	1 2 3		
6. Permanent Pool	(N/A) N/I 0	1 2 3		
7. Dry Storage	N/A N/I 0	1 2 3		
8. Pretreatment	(N/A) N/I 0	1 2 3		
9. Inflow Points	N/A N/I (0)	1 2 3		
10. Wet Pond or Native Vegetation	N/A N/I (0)	1 2 3		
11. Pond Buffer	N/A N/I 0	1 2 3		
12. Special Structures	(N/A) N/I 0	1 2 3		
13. Miscellaneous	(N/A) N/I 0	1 2 3		
Overall Condition of Facility			<u>-</u>	-
Total number of concerns receiving a: ((1) Need Monitoring	(2)0	Routine Repair (3)	0 -Immediate Repair Needed
Inspector's Summary				
Dry pond in good shape. Pond interior no	ot investigated.			

Appendix C

Culvert Inspection Reports

MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100
LOCATION (Road/Intersection) 65' Northwest of SHAPE Round 24-inch MATERIAL Concretion INSPECTED BY: Kyle Zastrow	ete LENGTH 200' COVER (FEET) 3.5
1. Number of Cells: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ⊠ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☐ Rust
5. Headwalls : ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:





RECOMMENDED REPAIRS:	
ADDITIONAL COMMENTS:	
Good condition. Joints weren't inspected due to high water levels. (Not found on GIS system)	





MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100
LOCATION (Road/Intersection) Crosses Good Hop	pe Road 600' East of Woodland Creek
SHAPE Ellip 13"x17" MATERIAL CMP	LENGTH 27' COVER (FEET) 3'
INSPECTED BY: Mike Hallada	DATE: September 9, 2010
1. Number of Cells: □ 1 □ 2 □ 3 □ 4 □ 5 □ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: Spalling, Cracking or Chipping Corrosion Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:
RECOMMENDED REPAIRS:	
None – Good Condition	
	-
ADDITIONAL COMMENTS:	





MUNICIPALITY Village of Sussex	PROJECT NUMBER <u>2092194.100</u>
LOCATION (Road/Intersection) 700' West of W	Voodland & Good Hope (ST 133115)
SHAPE Round 48-inch MATERIAL CMP	LENGTH 45' COVER (FEET) 1.5'
INSPECTED BY: Kyle Zastrow	_DATE:7/27/10
1. Number of Cells: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ⊠ Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:
RECOMMENDED REPAIRS:	
ADDITIONAL COMMENTS:	
Good condition.	





MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100		
LOCATION (Road/Intersection) East of Michele Lane & Good Hope Road Intersection (ST 143062)			
SHAPE Round 15-inch MATERIAL Concrete LENGTH N/A COVER (FEET) 1'			
INSPECTED BY: Kyle Zastrow	DATE:7/27/10		
1. Number of Cells: □ 1 □ 2 □ 3 □ 4 □ 5 □ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE		
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☐ Rust		
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris: Solution End Section Other		



RECOMMENDED REPAIRS:		
ADDITIONAL COMMENTS:		
Debris in flow line.		





MUNICIPALITY Village of Sussex	PROJECT NUMBER <u>2092194.100</u>
LOCATION (Road/Intersection) Ridgeway Road	& Good Hope Road Intersection (ST 154168)
SHAPE Round 24-inch MATERIAL Concrete	LENGTH 125' COVER (FEET) 1.5'
INSPECTED BY: Kyle Zastrow	_DATE:7/27/10
1. Number of Cells: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: Spalling, Cracking or Chipping Corrosion Rust
5. Headwalls : ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:
RECOMMENDED REPAIRS: Remove vegetation at both ends of culvert.	
ADDITIONAL COMMENTS:	





MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100
LOCATION (Road/Intersection)Northwest of Maple	Avenue & Good Hope Road Intersection (ST 154175
SHAPE Arch 17"x28" MATERIAL Concrete	LENGTH 50' COVER (FEET) 1.5'
INSPECTED BY: Kyle Zastrow	_DATE: <u>7/27/10</u>
1. Number of Cells: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☑ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: Spalling, Cracking or Chipping Rust/Corrosion Peeling Paint No End Section	4. Joints: Spalling, Cracking or Chipping Corrosion Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:



RECOMMENDED REPAIRS:

ADDITIONAL COMMENTS:

Appears to be in good condition. Joint inspection not able to be completed because of the high water elevations.





MUNICIPALITY Village of Sussex	PROJECT NUMBER <u>2092194.100</u>
LOCATION (Road/Intersection) 500' West of Ridge	eway Rd & Good Hope Road Intersection (ST 154176)
SHAPE 21"x27" Ellip MATERIAL CMP	LENGTH 50' COVER (FEET) 3.5'
INSPECTED BY: Kyle Zastrow	DATE:7/27/10
1. Number of Cells: □ 1 □ 2 □ 3 □ 4 □ 5 □ Other	2. Alignment with road: ⊠ Perpendicular □ Angled NW □ Angled SW □ Angled NE □ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☐ Rust
5. Headwalls : ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:
RECOMMENDED REPAIRS:	
ADDITIONAL COMMENTS:	
Joints not inspected because of high water flow in the	e culvert. Monitor vegetation growth.





MUNICIPALITY Village of Sussex	PROJECT NUMBER <u>2092194.100</u>
LOCATION (Road/Intersection) West of Maple	Avenue & Good Hope Road Intersection (ST 154177)
SHAPE Arch 22"x31" MATERIAL Concrete	LENGTH 70' COVER (FEET) 2.5'
INSPECTED BY: Kyle Zastrow	DATE: 7/27/10
1. Number of Cells: □ 1 □ 2 □ 3 □ 4 □ 5 □ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: Spalling, Cracking or Chipping Corrosion Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:
RECOMMENDED REPAIRS: Remove vegetation at south end of culvert.	
ADDITIONAL COMMENTS:	
	-





MUNICIPALITY Village of Sussex	PROJECT NUMBER <u>2092194.100</u>
LOCATION (Road/Intersection) Southeast of 16- SHAPE Round 30-inch MATERIAL Concre INSPECTED BY: Kyle Zastrow	4 & Main Street Intersection (ST 223046) tteLENGTH _200'COVER (FEET) 2.5 DATE:7/27/10
1. Number of Cells: ⊠ 1 □ 2 □ 3 □ 4 □ 5 □ Other	2. Alignment with road: ⊠ Perpendicular □ Angled NW □ Angled SW □ Angled NE □ Angled SE to 164
3. End Section: ⊠ Spalling, Cracking or Chipping □ Rust/Corrosion □ Peeling Paint □ No End Section	4. Joints: ⊠ Spalling, Cracking or Chipping ☐ Corrosion ☐ Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:





RECOMMENDED REPAIRS:

Large gap in joints between end section and culvert	
ADDITIONAL COMMENTS:	
Overall, structure is in good condition.	





MUNICIPALITY Village of Sussex	PROJECT NUMBER <u>2092194.100</u>		
LOCATION (Road/Intersection) 50' Northwest of 164 & Main Street Intersection (ST 214016)			
SHAPE 30"x38" HERCP MATERIAL Concrete LENGTH 200' COVER (FEET) 3.5			
INSPECTED BY: Kyle Zastrow DATE: 7/27/10			
1. Number of Cells: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE		
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☐ Rust		
5. Headwalls : ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:		



RECOMMENDED REPAIRS:	
ADDITIONAL COMMENTS:	
Good condition. Joints weren't fully inspected due to high water levels.	





MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100
LOCATION (Road/Intersection) 400' Northwest of SHAPE Round 108-inch MATERIAL CMP	Pewaukee Road/Main Street Intersection (ST 223063 LENGTH 60'COVER (FEET) 2'
INSPECTED BY: Kyle Zastrow	DATE: 7/27/10
1. Number of Cells: □ 1 □ 2 □ 3 □ 4 □ 5 □ Other	2. Alignment with road: ⊠ Perpendicular □ Angled NW □ Angled SW □ Angled NE □ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☑ Rust
5. Headwalls : ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:





ADDITIONAL COMMENTS:	
Good condition. Rust is only small amounts.	





MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100
LOCATION (Road/Intersection) North of Pewau	skee Road & Main Street Intersection (ST 223065)
SHAPE Round 18-inch MATERIAL CMP	LENGTH 45' COVER (FEET) 7"
INSPECTED BY: Kyle Zastrow	DATE: 7/27/10
1. Number of Cells: ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ⊠ Perpendicular □ Angled NW □ Angled SW □ Angled NE □ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☒ Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:
RECOMMENDED REPAIRS: Clean area at entrance of culvert on both sides. Vege	etation is thick on south side.
ADDITIONAL COMMENTS:	



Appears to be rather rusty.



MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100
LOCATION (Road/Intersection) Locust Street &	Main Street (ST 224055)
SHAPE Round 36-inch MATERIAL Concret	e LENGTH N/A COVER (FEET) 1'
INSPECTED BY: Kyle Zastrow	DATE: 7/27/10
1. Number of Cells: ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ☑ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: Spalling, Cracking or Chipping Corrosion Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris: ☐ Flow Line ☒ End Section ☐ Other
RECOMMENDED REPAIRS: Clean outfall area of debris in flow line.	
ADDITIONAL COMMENTS:	





MUNICIPALITY Village of Sussex	PROJECT NUMBER <u>2092194.100</u>
LOCATION (Road/Intersection) 800' East of Wo	•
INSPECTED BY: Kyle Zastrow	_DATE: <u>7/27/10</u>
1. Number of Cells: ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ⊠ Perpendicular □ Angled NW □ Angled SW □ Angled NE □ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☒ Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:





RECOMMENDED REPAIRS:

ADDITIONAL COMMENTS:

Fairly good condition, although end of culvert deformed and some rust present.





MUNICIPALITY Village of Sussex	PROJECT NUMBER <u>2092194.100</u>
LOCATION (Road/Intersection)100' West of Miche	le Lane & Good Hope Road Intersection (ST 232004)
SHAPE Round 18-inch MATERIAL CMP	LENGTH 50' COVER (FEET) 1.5'
INSPECTED BY: Kyle Zastrow	DATE: 7/27/10
1. Number of Cells: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section-Only on north side of Good Hope	4. Joints: Spalling, Cracking or Chipping Corrosion Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris: ☐ Flow Line ☐ End Section ☐ Other
RECOMMENDED REPAIRS: Clear vegetation in front of south end of culvert.	
ADDITIONAL COMMENTS:	





MUNICIPALITY Village of Sussex	PROJECT NUMBER <u>2092194.100</u>	
LOCATION (Road/Intersection) East of Railroad Tracks and Good Hope Intersection (ST 242003)		
SHAPE Round 15-inch MATERIAL Concrete	LENGTH 70' COVER (FEET) 1.5'	
INSPECTED BY: Kyle Zastrow	DATE: 7/27/10	
1. Number of Cells: □ 1 □ 2 □ 3 □ 4 □ 5 □ Other	2. Alignment with road: ⊠ Perpendicular □ Angled NW □ Angled SW □ Angled NE □ Angled SE	
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☐ Rust	
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:	





ADDITIONAL COMMENTS:	
Gravel/sediment is blocking the end section.	





MUNICIPALITY Village of Sussex	PROJECT NUMBER2092194.100
LOCATION (Road/Intersection) Meadow Lane &	& Good Hope Road Intersection (ST 232002)
SHAPE 13"x17"Ellip MATERIAL CMP	LENGTH 70' COVER (FEET) 2.5'
INSPECTED BY: Kyle Zastrow	_DATE:_ 7/27/10
1. Number of Cells: ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: Spalling, Cracking or Chipping Corrosion Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:
RECOMMENDED REPAIRS:	
RECOMMENDED REPAIRS: Considerable deformation throughout culvert. Repla	cement recommended.
ADDITIONAL COMMENTS:	





MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100
LOCATION (Road/Intersection) South of Miche	le Lane & Good Hope Road Intersection (ST 232007)
SHAPE Round 18-inch MATERIAL Concrete	e LENGTH 80' COVER (FEET) 2'
INSPECTED BY: Kyle Zastrow	DATE:7/27/10
1. Number of Cells: ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☐ Perpendicular ☐ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☐ Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:
RECOMMENDED REPAIRS:	
RECOMMENDED REPAIRS: Remove vegetation at east end of culvert.	
ADDITIONAL COMMENTS:	





MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100
LOCATION (Road/Intersection) West of Railroa	ad Tracks and Good Hope Intersection (ST 242004)
SHAPE Round 15-inch MATERIAL Concrete	LENGTH 80' COVER (FEET) 2'
INSPECTED BY: Kyle Zastrow	DATE: 7/27/10
1. Number of Cells: ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ☐ Perpendicular ☑ Angled NW ☐ Angled SW ☐ Angled NE ☐ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: Spalling, Cracking or Chipping Corrosion Rust
5. Headwalls : ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris:
RECOMMENDED REPAIRS:	
ADDITIONAL COMMENTS:	
Good condition.	





MUNICIPALITY Village of Sussex	PROJECT NUMBER 2092194.100
LOCATION (Road/Intersection) South of Pewau	kee Road & Main Street Intersection (ST 272002)
SHAPE Round 30-inch MATERIAL CMP	LENGTH 40' COVER (FEET) 8"
INSPECTED BY: Kyle Zastrow	DATE:7/27/10
1. Number of Cells: ☑ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ Other	2. Alignment with road: ⊠ Perpendicular □ Angled NW □ Angled SW □ Angled NE □ Angled SE
3. End Section: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No End Section	4. Joints: ☐ Spalling, Cracking or Chipping ☐ Corrosion ☒ Rust
5. Headwalls: ☐ Spalling, Cracking or Chipping ☐ Rust/Corrosion ☐ Peeling Paint ☐ No Headwalls	6. Debris: Solution End Section Other
RECOMMENDED REPAIRS:	



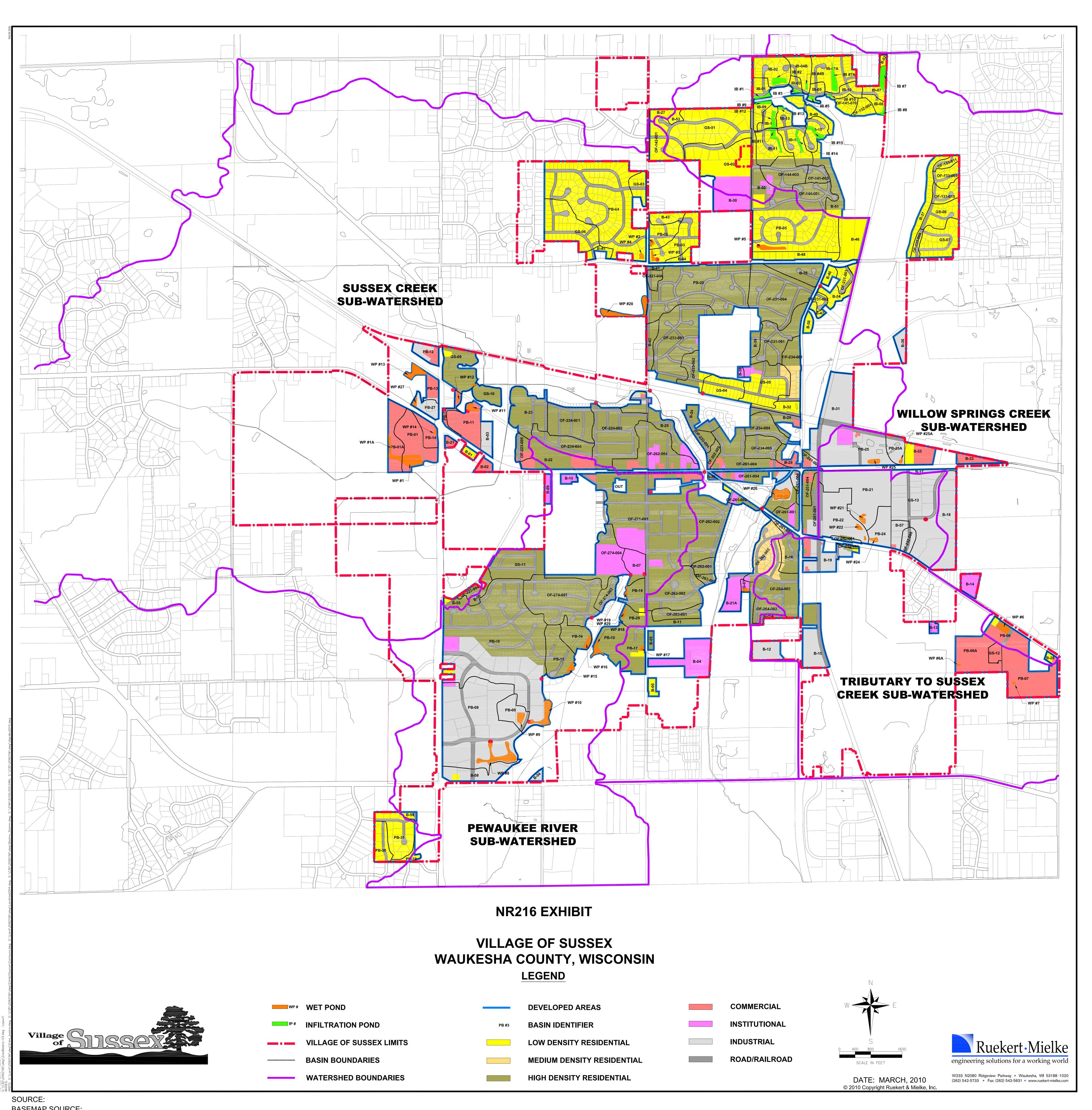
ADDITIONAL COMMENTS:

Some rust, although overall good condition.



Appendix D

Water Quality Modeling Summary



BASEMAP SOURCE:

Summary of MS4 Modeling Results

			_		ary of MS4 Mo	defing Results				
		. .		otal Suspended Soli		- 1	Total Phosphorus		Stormwater Pra	ctices Employed
Drainage	A	Primary	Discharge	Discharge	TSS	Discharge	Discharge	P	D-:	Orb
Area (label)	Area	Land Use	no controls	with controls (pounds)	Control (%)	no controls (pounds)	with controls (pounds)	Control (%)	Primary (WP, SW, etc.)	Other (WP, GS, etc.)
(label)	(acres)	(R, C, etc.)	(pounds)	(pounds)	(%)	(pourids)	(pourids)	(%0)	(WF, 5W, etc.)	(WF, G5, etc.)
Basin										
B-01	1.92	R	244.63	232.45	5.0%	1.25	1.25	0.0%	SW	
B-02	2.75	C	1424.91	1361.61	4.4%	3.27	3.27	0.0%	SW	
B-03	3.12	D	1329.08	1296.97	2.4%	3.07	3.07	0.0%	SW	
B-04	19.33	I	5373.35	5239.59	2.5%	16.69	16.69	0.0%	SW	
B-05	1.63	R	347.21	321.60	7.4%	1.45	1.45	0.0%	SW	
B-06	2.4	R	305.78	290.57	5.0%	1.56	1.56	0.0%	SW	
B-07	8.82	I	2356.28	2282.32	3.1%	7.65	7.65	0.0%	SW	
B-08	13.68	D	5584.82	5447.72	2.5%	13.19	13.19	0.0%	SW	
B-09	2.8	I	778.34	758.97	2.5%	2.42	2.42	0.0%	SW	
B-10	2.27	I	631.01	615.31	2.5%	1.96	1.96	0.0%	SW	
B-11	6.11	R D	1301.49	1205.50	7.4%	5.43	5.43	0.0%	SW	
B-12 B-13	7.69 1.48	I	3273.56	3194.73 401.17	2.4% 2.5%	7.56 1.28	7.56 1.28	0.0% 0.0%	SW SW	
B-13 B-14	5.57	I	411.41 1548.35	1509.80	2.5%	4.81	4.81	0.0%	SW	
B-14 B-15	19.08	D	6912.02	6685.38	3.3%	18.22	18.22	0.0%	SW	
B-15	10.23	R	2124.03	1971.87	7.2%	8.92	8.92	0.0%	SW	
B-17	3.38	D	1438.83	1404.19	2.4%	3.32	3.32	0.0%	SW	
B-18	22.17	D	9437.55	9210.30	2.4%	21.81	21.81	0.0%	SW	
B-19	16.53	D	7013.20	6803.43	3.0%	16.65	16.65	0.0%	SW	
B-20	1.44	R	371.03	353.89	4.6%	1.20	1.20	0.0%	SW	
B-21	1.58	C	818.68	782.31	4.4%	1.88	1.88	0.0%	SW	
B-21A	13.55	I	3465.82	3331.35	3.9%	11.81	11.81	0.0%	SW	
B-22	20.24	R	6355.76	5988.81	5.8%	20.00	20.00	0.0%	SW	
B-23	21.9	R	4664.92	4320.87	7.4%	19.45	19.45	0.0%	SW	
B-24	7.02	R	1495.33	1385.05	7.4%	6.23	6.23	0.0%	SW	
B-25	16.15	R	3951.30	3728.80	5.6%	14.41	14.41	0.0%	SW	
B-26	0.57	R	194.65	183.94	5.5%	0.58	0.58	0.0%	SW	
B-27	3.19	R	406.44	386.21	5.0%	2.07	2.07	0.0%	SW	
B-28	4.05	C	1674.36	1591.29	5.0%	4.40	4.40	0.0%	SW	
B-29	6.35	R	1746.24	1637.06	6.3%	6.03	6.03	0.0%	SW	
B-30	9.72	I	2701.97	2634.70	2.5%	8.39	8.39	0.0%	SW	
B-31	30.85	D	13058.75	12740.71	2.4%	30.31	30.31	0.0%	SW	
B-32	6.18	R	787.39	748.21	5.0%	4.02	4.02	0.0%	SW	
B-33	13.42	C	5738.37	5481.32	4.5%	14.29	14.29	0.0%	SW	
B-34	6.77	R	862.57	819.64	5.0%	4.40	4.40	0.0%	SW	
B-35	11.77	R	2507.13	2322.22	7.4%	10.45	10.45	0.0%	SW	
B-36	4.3	D	1830.47	1786.39	2.4%	4.23	4.23	0.0%	SW	
B-37	10.25	R	1305.95	1240.97	5.0%	6.66	6.66	0.0%	SW	
B-38	0.94	I	261.30	254.80	2.5%	0.81	0.81	0.0%	SW	
B-39	3.69	R	786.01	728.04	7.4%	3.28	3.28	0.0%	SW	
B-40 B-41	2.78	R	354.20 370.16	336.57	5.0% 7.4%	1.81	1.81	0.0%	SW	
B-41 B-42	1.78 6.25	R R	379.16 1331.31	351.19 1233.13	7.4% 7.4%	1.58 5.55	1.58 5.55	0.0% 0.0%	SW SW	
B-42 B-43	5.54	R R	705.85	670.73	7.4% 5.0%	3.60	3.60	0.0%	SW	
B-43 B-44	2.84	R	361.84	343.84	5.0%	1.85	1.85	0.0%	SW	
B-45	2.91	R	370.76	352.31	5.0%	1.89	1.89	0.0%	SW	
B-46	16.26	R	2071.69	1968.60	5.0%	10.57	10.57	0.0%	SW	
B-47	1.71	R	217.87	207.03	5.0%	1.11	1.11	0.0%	SW	
B-48	10.69	R	1362.01	1294.24	5.0%	6.95	6.95	0.0%	SW	
B-49	6.74	R	858.74	816.01	5.0%	4.38	4.38	0.0%	SW	
B-50	12.36	R	2459.07	2315.56	5.8%	10.08	10.08	0.0%	SW	
B-51	11.44	R	2182.60	2030.71	7.0%	9.45	9.45	0.0%	SW	
B-52	1.27	R	161.81	153.76	5.0%	0.83	0.83	0.0%	SW	
B-53	2.04	R	259.92	246.98	5.0%	1.33	1.33	0.0%	SW	
B-54	1.57	D	668.33	652.24	2.4%	1.54	1.54	0.0%	SW	
B-55	3.58	R	703.51	653.74	7.1%	3.01	3.01	0.0%	SW	
B-56	3.49	R	743.40	688.58	7.4%	3.10	3.10	0.0%	SW	
B-57	5.53	D	2386.43	2325.27	2.6%	5.51	5.51	0.0%	SW	
B-58	2.47	R	314.70	299.04	5.0%	1.61	1.61	0.0%	SW	
B-59	1.45	R	184.74	175.55	5.0%	0.94	0.94	0.0%	SW	
of 132-004	4.39	R	559.33	531.50	5.0%	2.85	2.85	0.0%	SW	

Summary of MS4 Modeling Results

Summary of MS4 Modeling Results							0			
				otal Suspended Soli			Total Phosphorus		Stormwater Pra	ctices Employed
Drainage		Primary	Discharge	Discharge	TSS	Discharge	Discharge	P	ъ.	0.1
Area	Area	Land Use	no controls	with controls	Control	no controls	with controls	Control	Primary	Other
(label) of 133-003	(acres) 6.79	(R, C, etc.) R	(pounds) 865.11	(pounds) 822.07	(%) 5.0%	(pounds) 4.41	(pounds) 4.41	(%) 0.0%	(WP, SW, etc.) SW	(WP, GS, etc.)
of 133-009	2.74	R	349.10	331.73	5.0%	1.78	1.78	0.0%	SW	
of 133-009	3.27	R	416.63	395.90	5.0%	2.13	2.13	0.0%	SW	
of 133-011	6.92	R	881.68	837.80	5.0%	4.50	4.50	0.0%	SW	
of 141-003	5.41	R	1152.38	1067.39	7.4%	4.80	4.80	0.0%	SW	
of 141-070	4.91	R	625.58	594.45	5.0%	3.19	3.19	0.0%	SW	
of 142-001	9.39	R	1196.38	1136.85	5.0%	6.10	6.10	0.0%	SW	
of 144-001	13.78	R	2913.02	2698.97	7.3%	12.17	12.17	0.0%	SW	
of 144-003	16.51	R	3516.74	3273.91	6.9%	14.45	14.45	0.0%	SW	
of 221-006	6.45	R	1373.91	1272.59	7.4%	5.73	5.73	0.0%	SW	
of 223-004	2.57	R	547.44	507.06	7.4%	2.28	2.28	0.0%	SW	
of 223-005	5.45	R	1841.37	1739.45	5.5%	5.51	5.51	0.0%	SW	
of 224-001	22.11	R	4709.65	4362.30	7.4%	19.63	19.63	0.0%	SW	
of 224-002	36.84	R	7905.27	7325.12	7.3%	32.77	32.77	0.0%	SW	
of 224-004	14.03	R	3321.13	3092.75	6.9%	12.79	12.79	0.0%	SW	
of 231-001	21.64	R	4609.54	4269.57	7.4%	19.22	19.22	0.0%	SW	
of 231-002	2.63	R	335.09	318.41	5.0%	1.71	1.71	0.0%	SW	
of 231-003	4.93	R	628.13	596.88	5.0%	3.20	3.20	0.0%	SW	
of 231-004	40	R	8520.40	7892.00	7.4%	35.52	35.52	0.0%	SW	
of 233-002	9.52	R	1869.50	1737.27	7.1%	8.01	8.01	0.0%	SW	
of 233-003	42.8	R	9142.17	8473.21	7.3%	38.00	38.00	0.0%	SW	
of 233-004	4.44	R	958.76	890.76	7.1%	3.94	3.94	0.0%	SW	
of 234-001	13.46	R	2655.03	2474.21	6.8%	11.32	11.32	0.0%	SW	
of 234-004	11.06	R	2355.89	2182.14	7.4%	9.82	9.82	0.0%	SW	
of 234-005	11.3	R	2407.01	2229.49	7.4%	10.03	10.03	0.0%	SW	
of 252-001	2.39	R	702.09	672.15	4.3%	2.16	2.16	0.0%	SW	
of 252-006	4.23	D	1800.67	1757.31	2.4%	4.16	4.16	0.0%	SW	
of 261-001	20.85	R	5261.99	4983.88	5.3%	18.57	18.57	0.0%	SW	
of 261-002	2.9	R	632.00	605.55	4.2%	2.35	2.35	0.0%	SW	
of 261-004	58.11	R	17175.74	16237.57	5.5%	55.42	55.42	0.0%	SW	
of 262-001	4.67	R	994.76	921.39	7.4%	4.15	4.15	0.0%	SW	
of 262-002	31.82	R	6785.12	6286.20	7.4%	28.25	28.25	0.0%	SW	
of 262-003	19.91	R	3759.13	3531.39	6.1%	16.10	16.10	0.0%	SW	
of 262-004	31.65	R	8214.82	7755.56	5.6%	28.93	28.93	0.0%	SW	
of 262-005	3.89	R	945.21	881.41	6.8%	3.57	3.57	0.0%	SW	
of 263-001	8.02	R	1708.34	1582.35	7.4%	7.12	7.12	0.0%	SW	
of 263-002	24.47	R	5212.35	4827.93	7.4%	21.73	21.73	0.0%	SW	
of 263-003	2.43	R	497.93	461.91	7.2%	2.10	2.10	0.0%	SW	
of 264-002	32.8	R	6851.02	6356.81	7.2%	28.72	28.72	0.0%	SW	
of 271-001 of 274-001	112.18	R	26630.72	24940.56	6.3%	101.14	101.14	0.0%	SW	
	46.74	R R	9956.09 1299.36	9221.80 1203.53	7.4%	41.51 5.42	41.51	0.0% 0.0%	SW SW	
of 274-003 of 274-004	6.1 22.02	R R	5579.27	5353.58	7.4% 4.0%	19.21	5.42 19.21	0.0%	SW	
WE Energy	3.73	I	1036.87	1011.05	2.5%	3.22	3.22	0.0%		
Totals	1209.84	1	295597.95	279440.88	5.5%	1061.82	1061.82	0.0%	SW	
Totals	1207.01		2,55,77.,55	277410.00	3.370	1001.02	1001.02	0.070		
Ponds										
PB-01	21.17	С	10307.00	1511.00	85.3%	22.83	8.60	62.3%	WD	
PB-01A	13.49	C	6691.00	1297.00	80.6%	15.46	6.67	56.8%	WD	
PB-02	9.12	R	1306.00	242.90	81.4%	25.81	4.09	84.1%	WD	
PB-03	18.38	R	2626.00	543.10	79.3%	14.14	8.41	40.5%	WD	
PB-04	91.86	R	13254.00	2151.00	83.8%	64.62	32.63	49.5%	WD	
PB-05	63.23	R	9927.00	2309.00	76.7%	50.10	26.08	47.9%	WD	
PB-06	12.92	С	6228.00	854.20	86.3%	16.93	8.06	52.4%	WD	
PB-06A	24.25	C	10615.00	4203.00	60.4%	23.88	11.99	49.8%	WD	
PB-07	28.52	C	14481.00	1072.00	92.6%	32.19	9.62	70.1%	WD	
PB-08	83.49	D	33984.00	4958.00	85.4%	82.16	38.88	52.7%	WD	
PB-09	10.40	D	4337.00	778.70	82.0%	9.59	4.73	50.8%	WD	
PB-10	146.41	R	56228.00	10398.00	81.5%	172.90	85.91	50.3%	WD	
PB-11	15.46	C	7613.00	1640.00	78.5%	17.29	7.85	54.6%	WD	
PB-12	9.19	C	4307.00	1325.00	69.2%	9.85	5.51	44.0%	WD	
PB-13	6.88	С	3474.00	978.80	71.8%	7.81	3.99	48.9%	WD	
PB-14	6.66	C	3299.00	1188.00	64.0%	7.56	4.38	42.0%	WD	

Summary of MS4 Modeling Results

					ary of MS4 Mo	deling Results				
				otal Suspended Soli			Total Phosphorus		Stormwater Pra	ctices Employed
Drainage		Primary	Discharge	Discharge	TSS	Discharge	Discharge	P		
Area	Area	Land Use	no controls	with controls	Control	no controls	with controls	Control	Primary	Other
(label)	(acres)	(R, C, etc.)	(pounds)	(pounds)	(%)	(pounds)	(pounds)	(%)	(WP, SW, etc.)	(WP, GS, etc.)
PB-15	17.46	R	4138.00	782.70	81.1%	16.69	8.56	48.7%	WD	
PB-16	10.37	R	2427.00	368.10	84.8%	11.21	6.13	45.3%	WD	
PB-17	14.62	R	3468.00	600.80	82.7%	14.60	7.61	47.9%	WD	
PB-18	14.31	R	3510.00	333.10	90.5%	14.93	7.00	53.1%	WD	
PB-19	8.39	R	1997.00	461.30	76.9%	9.19	5.56	39.5%	WD	
PB-20	72.97	R	17690.00	2557.00	85.5%	87.12	49.49	43.2%	WD	
PB-21	18.71	D	9870.00	3198.00	67.6%	22.17	13.75	38.0%	WD	
PB-22	16.78	D	8470.00	1616.00	80.9%	19.71	10.16	48.5%	WD	
PB-24	10.98	D	3754.00	1024.00	72.7%	9.64	5.40	44.0%	WD	
PB-25	26.27	D	12107.00	5971.00	50.7%	27.91	20.44	26.8%	WD	
PB-25A	7.20	D	2978.00	1313.00	55.9%	6.95	4.83	30.5%	WD	
PB-26	9.88	D	3875.00	3875.00	0.0%	10.79	10.79	0.0%	WD	
PB-27	5.75	D	2411.00	434.90	82.0%	5.62	2.83	49.6%	WD	
PB-29	6.29	R	2282.00	279.80	87.7%	7.75	2.93	62.3%	WD	
PB-30	8.75	R	1794.00	399.90	77.7%	7.36	3.89	47.2%	WD	
PB-31	18.16	R	3713.00	986.80	73.4%	15.25	8.61	43.6%	WD	
PB-32	2.42	R	491.30	54.11	89.0%	2.02	0.86	57.7%	WD	
Totals	830.74		273652.30	59705.21	78.2%	862.05	436.24	49.4%		
Infiltration Basins		_				0.40		40 =04		
IB-01	5.15	R	750.70	290.00	61.4%	3.63	2.04	43.7%	I	
IB-02	14.98	R	2167.00	501.90	76.8%	10.52	4.36	58.5%	I	
IB-03	2.67	R	383.20	116.20	69.7%	1.87	0.90	51.7%	I	
IB-04B	9.20	R	1326.00	986.90	25.6%	6.45	5.42	16.0%	I	
IB-05	3.95	R	571.90	165.50	71.1%	2.78	1.31	52.7%	I	
IB-07	5.70	R	825.40	338.80	59.0%	4.00	2.32	42.1%	I	
IB-07A	19.90	R	2882.00	811.60	71.8%	13.98	6.77	51.5%	I	
IB-08	3.60	R	517.40	389.40	24.7%	2.52	2.13	15.5%	I	
IB-09	4.32	R	624.50	26.08	95.8%	3.03	1.34	55.7%	I	
IB-10	5.60	R	807.80	87.24	89.2%	3.92	0.63	83.8%	I	
IB-11	11.93	R	2177.00	812.70	62.7%	10.13	6.01	40.7%	I	
IB-12	5.06	R	723.60	71.12	90.2%	3.53	0.76	78.4%	I	
IB-13	4.32	R	624.50	250.80	59.8%	3.03	1.74	42.7%	I	
IB-14	12.68	R	2068.00	895.80	56.7%	9.50	5.65	40.5%	I	
IB-15	9.21	R	1327.00	186.80	85.9%	6.45	1.60	75.2%	I	
Totals	118.27		17776.00	5930.84	66.6%	85.33	42.99	49.6%		
Grass swales										
GS 1	47.22	R	7033.00	4226.00	39.9%	33.61	22.59	32.8%	GS	
GS 2	39.64	R	6981.00	5032.00	27.9%	29.38	22.98	21.8%	GS	
GS 3	6.22	R	926.20	397.80	57.1%	4.43	2.21	50.0%	GS	
GS 4	12.12	R	1807.00	993.90	45.0%	8.63	5.37	37.8%	GS	
GS 5	25.98	R	4639.00	3209.00	30.8%	20.11	15.17	24.6%	GS	
GS 6	27.52	R	4103.00	3324.00	19.0%	19.60	16.91	13.7%	GS	
GS 7	17.93	R	2676.00	1482.00	44.6%	12.78	7.99	37.4%	GS	
GS 8	10.99	R	1635.00	1030.00	37.0%	7.82	5.47	30.0%	GS	
GS 9	18.59	R	4534.00	3638.00	19.8%	17.76	14.99	15.6%	GS	
GS 10	6.91	R R	1703.00	954.90	43.9%	6.63	4.12	37.9%	GS	
GS 11	22.54	R	5571.00	4420.00	20.7%	21.79	18.26	16.2%	GS	
GS 12	3.47	С	1810.00	1513.00	16.4%	4.14	3.57	13.7%	GS	
GS 13	53.46	D	21635.00	18584.00	14.1%	49.45	44.53	9.9%	GS	
RG 1	1.52	I	438.90	0.00	100.0%	1.26	0.00	100.0%	GS	
Totals	294.11		65492.10	48804.60	25.5%	237.37	184.16	22.4%		
Overall	2453		652518	393882	39.6%	2247	1725	23.2%		

Land Use Areas:

R: residential
I: institutional
C: commercial
D: industrial
O: open urban
F: freeways

Stormwater Practices:

WD: wet detention SW: street sweeping VS: vacuum streets B: biofiltration I: infiltration C: catch basin

Winslamm Procedures

Summary of MS4 Modeling Results

			Total Suspended Solids				Total Phosphorus		Stormwater Pra	ctices Employed
Drainage		Primary	Discharge	Discharge	TSS	Discharge	Discharge	P		
Area	Area	Land Use	no controls	with controls	Control	no controls	with controls	Control	Primary	Other
(label)	(acres)	(R, C, etc.)	(pounds)	(pounds)	(%)	(pounds)	(pounds)	(%)	(WP, SW, etc.)	(WP, GS, etc.)
DC: drainage control										

O: other control
GS: grass swales

Appendix E

Snow Removal Summary Form

VILLAGE OF SUSSEX SNOW REMOVAL SUMMARY

Inspector's Name:		-	
Date:		-	
Estimated Snow Depth:		-	
Temperature:		-	
Wind Speed and Direction:		-	
Freezing Rain / Icing Condition	ons (Yes/No)?:		
Estimated Total Salt Usage:			
Salt Application and Plowin Check All That Apply Salt Intersections; No Plow Salt Intersections and Mair Salt All Roads; No Plowing	ving n Roads; No Plowing		
Salt Intersections With Plo			
Salt Intersections and Mair	n Roads With Plowing		
Salt All Roads With Plowin			
☐Multiple Salt Applications a ☐Other (Describe)	and Plowing (Describe)		
Additional Information:			