BOARD OF COUNTY COMMISSIONERS
SARPY COUNTY, NEBRASKA

RESOLUTION RATIFYING THE SIGNING AND SUBMISSION OF THE 2013 ANNUAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REPORT

WHEREAS, pursuant to Neb. Rev. Stat. §23-104(6) (Reissue 2012), the County has the power to do all acts in relation to the concerns of the County necessary to the exercise of its corporate powers; and,

WHEREAS, pursuant to Neb. Rev. Stat. §23-103 (Reissue 2012), the powers of the County as a body are exercised by the County Board; and,

WHEREAS, the County of Sarpy has obtained an NPDES-MS4 Permit concerning storm water runoff in the Papio Creek Basin pursuant to the National Pollutant Discharge Elimination System, Phase II storm water regulations; and,

WHEREAS, the permit requires the approval and submission of an Annual Report and attachments to the Nebraska Department of Environmental Quality by April 1 of each year.

NOW, THEREFORE, BE IT RESOLVED, By the Sarpy County Board of Commissioners that the signing and submission of the 2013 Annual Report as required by the National Pollutant Discharge Elimination System, (NPDES) Phase II storm water regulations, as presented to this Board, is hereby ratified.

BE IT FURTHER RESOLVED that the County Administrator, is hereby designated the Cognizant Official for the purposes of said documents, and is hereby authorized to sign said documents on behalf of Sarpy County, Nebraska

The above Resolution was approved by a vote of the Sarpy County Board of Commissioners at a public meeting duly held in accordance with applicable law on the 8th day of April, 2014.

ATTEST:

Sarpy County Board Chairman

Sarpy County Clerk

Sarpy County Board of Commissioners

1210 GOLDEN GATE DRIVE
PAPILLION, NE 68046-2895
593-4155
www.sarpy.com
ADMINISTRATOR Mark Wayne
DEPUTY ADMINISTRATOR Scott Bovick
FISCAL ADMIN./PURCHASING AGT. Brian Hanson

MEMO

To: Sarpy County Board

From: Lisa A. Haire

Re: National Pollutant Discharge Elimination System (NPDES) Permit 2013 Annual Report

On April 8, 2014 the County Board will be asked to ratify the Annual Report for the 2013 National Pollutant Discharge Elimination System (NPDES) Phase II Permit concerning storm water runoff in the Papio Creek Basin.

On October 1, 2009 the Nebraska Department of Environmental Quality (NDEQ) issued a National Pollutant Discharge Elimination System (NPDES) permit NER210000 for Small Municipal Storm Sewer discharges to waters of the state located in Douglas, Sarpy, and Washington Counties. The NPDES permit requires that the co-permittees submit by April 1 each year an Annual Report documenting the status of all the general programs and individual tasks contained in the Storm Water Management Plan (SWMP).

The Papio-Missouri NRD in conjunction with U.N.O. assembles information and writes a majority of the report. The report is then sent to the various co-permittees in order for them to review and add local community information. This year, as in all previous years, the report was not made available to Sarpy County until March 27. Due to the short timeframe, there was not enough time to present the report to the Board prior to the submission deadline of April 1. Mark Wayne signed the report and it was mailed to the NDEQ on March 31, 2014.

Do not hesitate to contact Mark Wayne or myself with any questions.

April 4, 2014

Lisa A. Haire

Lisa A. Haire
593-1565

cc: Mark Wayne
Scott Bovick
Brian Hanson
Denny Wilson
Bruce Fountain
Deb Houghtaling

Sarpy County Board of Commissioners

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Blayne W. Renner
Stormwater Coordinator
NE Dept. of Environmental Quality
P.O. Box 98922
Lincoln, NE 68509-8922

RE: NPDES PERMIT NUMBER #NER210007

Dear Mr. Renner:

Included with Sarpy County's report for 2013, please find our proposed Stormwater Management Plan that has been drafted with other co-permittees in the Papillion Creek Watershed Partnership for the next permit cycle. The contact information for our MS4 is Sarpy County, 1210 Golden Gate Drive, Papillion, NE 68046 and the names and titles of the primary administrative and technical contacts for our permit are listed below:

Mark Wayne	Sarpy County Administrator
Scott Bovick	Sarpy County Deputy County Administrator
Brian Hanson	Sarpy County Fiscal Administrator
Denny Wilson	Sarpy County Engineer
Bruce Fountain	Sarpy County Planning and Building Department Director
Lisa Haire	Sarpy County Grant Coordinator/Administration

Please consider this information as our permit reapplication document.

Sincerely,

Mark Wayne
Sarpy County Administrator

_____ – NPDES Phase II Stormwater Management Plan

Measurable goals listed in the Stormwater Management Plan are target goals on which progress will be reported on in the annual report.

Minimum Requirement #1 – Public Education and Outreach		
The Permittee individually or as a member of the Papillion Creek Watershed Partnership (PCWP) shall implement programs to distribute educational materials and perform public outreach to inform citizens about the impacts that polluted stormwater runoff discharges have on water quality and what steps can be taken to reduce stormwater pollution. The Permittee shall document its stormwater public education and outreach program. At a minimum, the program will:		
BMP#	**SWMP Element Description**	**Target Goals & Implementation Schedule**
1.01	Define the goals, objectives, target audience and distribution process of materials for the public education and outreach program	**Year 1** – Provide a memorandum of the defined goals, objectives, etc. of the public education and outreach program.
1.02	Provide public awareness through activities that illustrate the impacts from the public on stormwater pollutant levels in local waterways.	**On-Going All Years** – Annually report on the different activities being accomplished (e.g. classes, billboards, mailings, inlet stamping, projects, etc).
1.03	Maintain a general stormwater web site of resources, educational tools and notifications of events. Develop specialty web sites to provide targeted information on specific events.	**On-Going All Years** Annually report a list of web sites that support program activities (e.g. rain barrel, water quality related events)
The Permittee may conduct other activities not specifically identified in this section which contribute to Public Education and Outreach.		

Minimum Requirement #2 – Public Participation and Involvement		
The Permittee individually or as a member of the PCWP shall provide opportunities for citizens to participate in the development and implementation of stormwater programs and projects. The Permittee shall document its stormwater public education and outreach program. At a minimum, the program will:		
BMP#	**SWMP Element Description**	**Target Goals & Implementation Schedule**
2.01	Provide for receiving citizen complaints of illegal dumping, illicit discharges, and construction site violations	**On-Going All Years** – Maintain a web based complaint form and a maintain stormwater hotline. Provide a count of complaints and resolutions in the most recent annual report.
2.02	Create opportunities for citizens to participate in the City's stormwater program.	**On-Going All Years** – Annually report on the different participation events related to stormwater. (e.g. Earth Day, tours of HHW facility, water quality related events)
2.03	Participate in community organizations, conferences, workshops, and web casts related to water quality and stormwater management.	**On-Going All Years** – Annually report on the different participation events attended (e.g. Sediment and Erosion Workshop, LID Workshop, CWP Webcasts, etc.)
The Permittee may conduct other activities not specifically identified in this section which contribute to Public Participation and Involvement.		

Minimum Requirement #3 – Illicit Discharge Detection and Elimination		
The Permittee shall implement and enforce a program, including a schedule, to detect and remove illicit discharges and improper disposal into the MS4. At a minimum, the program will include:		
BMP#	**SWMP Element Description**	**Target Goals & Implementation Schedule**
3.01	Maintain outfall map for the Papio, Missouri and Elkhorn River Watersheds.	**On-Going All Years** – Maintain a continually updated storm drain map for those watersheds in your jurisdiction per the permit requirements.
3.02	Conduct field screening activities per the permit requirements specifically geared to local TMDL pollutants of concern such as E. Coli. Other parameters will be determined based on the results of a PCE, but could include nutrients, ammonia, BOD, and TPH.	**On-Going All Years** - Annually conduct dry weather monitoring "priority" outfalls. "Priority" outfall are those that are 72" or greater and/or those with documented illicit discharges.
3.03	Implement procedures to investigate and enforce portions of the MS4 that based on the results of field screening or other information indicate a reasonable potential of containing illicit discharges.	**On-Going All Years** – Use the code enforcement procedures to eliminate unauthorized non-stormwater discharges identified during an investigation
3.05	Respond to and investigate complaints about spills, dumping, or disposal of materials other than stormwater to the MS4.	**On-Going All Years** – Annually coordinate with Sewer Maintenance to report and track the number of calls per year in regards to spill, dumping or improper disposal of material to the MS4. Coordinate with city maintenance divisions to resolve reoccurring issues related to IDDE.
3.06	Implement educational and training measures for the Illicit Discharge Detection and Elimination Program.	**Year 2 and 5** – Conduct training events for municipal field staff.
The Permittee may conduct other activities not specially identified in this section which contribute to the Illicit Discharge Detection and Elimination program.		

Minimum Requirement #4 – Construction Site Runoff Control		
The Permittee as a member of the PCWP shall maintain and enforce a program that requires implementation and maintenance of structural and non-structural best management practices to reduce pollutants in stormwater runoff from construction activity to the MS4. The program shall address construction activity that results in land disturbance of greater than or equal to one acre and construction activity disturbing less than one acre which is part of a larger common plan of development or sale. At a minimum, the program will:		
BMP#	**SWMP Element Description**	**Target Goals & Implementation Schedule**
4.01	Review grading permit applications	**On-Going All Years** – Maintain a common continually updated inventory of all private and public construction sites.
4.02	Maintain the electronic records for inspection of construction sites and enforcement of erosion and sediment control measures.	**On-Going All Years** – Inspect construction sites on a regular basis and on a complaint basis. Track the number of sites inspected annually in a database. Initiate enforcement proceedings as appropriate to address violations.
4.03	Communicate with the regulated community and other groups affected by the CSR program	**On-Going All Years** – Conduct workshops for developers, builders, site designers, contractors, and/or City staff.
4.04	Maintain an electronic submittal web application	**On-Going All Years** – Maintain information for grading permits and the associated information.
The Permittee may conduct other activities not specifically identified in this section which contribute to Construction Site Runoff Control.		

Minimum Requirement #5 – Post Construction Runoff Control		
The Permittee individually or as a member of the PCWP shall implement and enforce a program to maintain structural and non-structural best management practices, including source control measures, to reduce pollutants from areas of new development and enforce controls to reduce the discharge of pollutants from the MS4 which receive discharges from areas of new development and significant redevelopment after construction is complete. At a minimum, the program will:		
BMP#	**SWMP Element Description**	**Target Goals & Implementation Schedule**
5.01	Maintain an electronic submittal web application	**On-Going All Years** – Maintain information for post construction stormwater management plans and the associated information.
5.02	Review post construction management plan submittals	**On-Going All Years** – Maintain an electronic inventory of all private and public stormwater control measures.
5.03	Inspect annually city owned BMPs for functionality and coordinate maintenance activities if needed.	**On-Going All Years** –Track the number of sites inspected and maintenance activities annually in a database.
5.04	Coordinate with other agencies, or special interest groups to hold workshops on post construction stormwater issues	**On-Going All Years** – Conduct workshops for developers, builders, site designers, contractors, and/or City staff.
5.05	Implement demonstration projects to illustrate to the public, the engineering community, and other on the effectiveness of BMPs (structural and/or non-structural). Evaluate the functionality of the BMP and implement changes as necessary.	**On-Going All Years** – Allocate Stormwater Management Program Grant funds to projects as funds become available.
The Permittee may conduct other activities not specifically identified in this section which contribute to Post Construction Runoff Control.		

Minimum Requirement #6 – Pollution Prevention and Good Housekeeping		
The Permittee individually or as a member of the PCWP shall implement a program to reduce pollutants from municipal facilities and public streets that are discharged from the MS4. At a minimum, the program will include:		
BMP#	**SWMP Element Description**	**Target Goals & Implementation Schedule**
6.01	Municipal maintenance facilities map.	**Annually** – Maintain an inventory and map of all municipal facilities.
6.02	Implement practices for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters from the MS4.	**On-Going All Years** – Track street sweeping activities annually.
6.03	Implement practices for operating and maintaining inlets and piped storm drains and procedures for reducing the impact on receiving waters from the MS4.	**On-Going All Years** – Report annually on Sewer Maintenance activities related to maintaining the storm sewer system.
6.04	Promote public awareness by marking storm drain inlets	**On-Going All Years** – Annually apply a stormwater message on inlets and report activities annually.
6.05	Implement education and training activities for municipal staff.	**On-Going All Years** – Conduct training events for municipal staff.
6.06	Conduct inspections of municipal maintenance facilities and review annual municipal runoff control plans. Revise plans as needed if facilities expand or reduce activities.	**On-Going All Years** – Conduct inspections and review reports for municipal facilities regarding stormwater runoff.
The Permittee may conduct other activities not specifically identified in this section which contribute to Pollution Prevention and Good Housekeeping.		

Minimum Requirement #8 – Monitoring Program		
The Permittee as a member of the PCWP shall have a program to estimate pollutant loads from discharges of the MS4. At a minimum, the program will include:		
BMP#	**SWMP Element Description**	**Target Goals & Implementation Schedule**
8.01	The development and implementation of a BMP monitoring plan Monitoring will be flow based monitoring to assess the performance of different BMPs. Monitoring Plan: a. Monitoring of the BMPs is to provide more useful data than has been gathered in the past. This will provide for a more complete picture of the efficiency of various Best Management Practices in the watershed. b. Consideration will be given to the following objectives: i. Quantify the BMPs ability to reduce discharges to the storm sewer system ii. Evaluate if any improvements could be made to the BMP to increase the volume of water detained from the storm sewer system. c. A record of the following information: i. Narrative and quantitative data, as appropriate, for each event. ii. A narrative description of the data and duration of the events sampled (either simulated event or real event)	**On-Going All Years** – Implement annual monitoring plan
8.02	Partner with local organizations, such as Nebraska Watershed Network, to evaluate the results of data that they collected that could provide water quality information on stream or urban aquatic fisheries	**On-Going All Years** – Report the results in the annual report.
8.03	Use GIS to identify land use based on zoning and calculate pollutant loads from discharges of the MS4 based on literature values and precipitation data.	**On-Going All Years** – Report the estimate in the annual report based on literature values.
The Permittee may conduct other activities not specifically identified in this section which contribute to Monitoring Program.		

NPDES PERMIT (NER210000) FOR SMALL MUNICIPAL STORM SEWER DISCHARGES TO WATERS OF THE STATE LOCATED IN DOUGLAS, SARPY, AND WASHINGTON COUNTIES OF NEBRASKA

NPDES PERMIT NUMBER NER210000 for Sarpy County MS4#NER210007

2013 ANNUAL REPORT

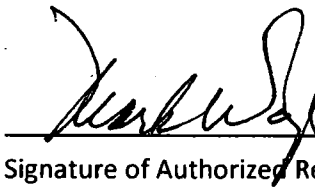
Submitted by:

Sarpy County, 1210 Golden Gate Drive, Papillion, NE 68046

March 31, 2014

Report of Certification

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations. See 18 U.S.C. 1001 and 33 U.S.C 1319, and Neb. Rev. Stat. 81-1508 thru 81-1508.02."



March 31, 2014

Signature of Authorized Representative or Cognizant Official — Date

Mark Wayne — Printed Name

Sarpy County Administrator — Title

A. BACKGROUND

On October 1, 2009 the Nebraska Department of Environmental Quality (NDEQ) issued a National Pollutant Discharge Elimination System (NPDES) permit NER210000 for Small Municipal Storm Sewer discharges to waters of the state located in Douglas, Sarpy, and Washington Counties of Nebraska. The co-permittees of the Papillion Creek Watershed Partnership (PCWP) currently authorized to discharge municipal storm water under this permit are Bellevue, Boys Town, La Vista, Papillion, Ralston and Sarpy County.

The NPDES permit requires that the co-permittees submit by April 1 each year an Annual Report documenting the status of all the general programs and individual tasks contained in the Storm Water Management Plan (SWMP). This document is being submitted by Sarpy County to meet that requirement and covers the period from January 1-December 31, 2013 of permit year four.

B. COOPERATIVE AGREEMENT

The co-permittees entered into an inter-local agreement in 2001 and continuation agreements in 2004 and 2009 that established a framework for meeting the permit requirements. The 2009 agreement was approved by the following entities Bellevue, Boys Town, La Vista, Papillion, Ralston, Sarpy County, Gretna, the Papio Missouri Natural Resources District and City of Omaha. These agreements identify the lead organization and the participating partners for each SWMP element and also establish a basis for cost-sharing to meet the Phase II permit requirements of the co-permittees. Another continuation of this agreement is proposed for 2014 to address elements of the SWMP for the next permit period.

C. PERMITTEE COORDINATION

In 2001, the PCWP began as a planning committee to assist the Phase II communities in addressing their permit application requirements. The focus of the continuation agreement reached in 2004 was on the implementation of the SWMP as incorporated in the general NPDES permit. The 2009 agreement focused on an overall watershed plan which addresses water quality and water quantity for the participating members as well as a renewal of the NPDES permit and implementation of the updated SWMP. The 2014 agreement is intended to continue implementation of the watershed plan along with a renewal of the NPDES permit and SWMP.

The PCWP has held monthly meetings since August 2001. The meetings help to coordinate activities, and identify needs consistent with the goals of the PCWP, and implement the NPDES permit's SWMP.

1. Public Education and Outreach

1.A. Distribute informational brochures on the proper disposal of household hazardous waste and the availability of the Household Hazardous Waste Facility. Year 1-5: Print and distribute brochures.

The Douglas-Sarpy County regional household hazardous waste (HHW) facility, UndertheSink opened in June 1, 2005. Brochures are available at the facility for distribution, and can be printed from the website www.underthesink.org. Brochures contain a variety of information about the site, including materials accepted and not accepted, hours of operation, and alternative use products. 16 tours were conducted of the facility in 2013.

Keep Omaha Beautiful assisted the PCWP with distribution of different types of brochures and educational information throughout 2013, on twelve (12) topics concerning household hazardous waste. They were present at community events and outreach activities where 4,120 brochures were distributed. Brochures and educational information were delivered to commercial and public locations around the area, a list of locations is provided below:

In the 2013 calendar year UnderTheSink, the household hazardous waste facility, had a total of 14,152 drop offs resulting in a total 884,084 lbs of material, an average of 4,420 lbs/day (of days accepting waste). A total weight of 202,814 lbs of HHW was shipped offsite by our disposal contractor. Those drop-offs and that total weight can be further broken down into:

Recycling Totals in 2013:

- Steel from paint and aerosol cans: 53,740 lbs
- Latex paint used with Posi-Shell at Sarpy County Landfill: 16,500 gal
- Oil-based paint and flammable liquids used as industrial fuel: 11,495 gal
- Antifreeze recycled: 1,465 gal
- Automotive batteries: 9,714 lbs
- Fluorescent bulbs: 10,233 bulbs

Oil Totals in 2013:

- Collected approximately 9,460 gal from 2,960 people
- Sold a total of 1,000 gal during the summer to Tri-State Oil Reclaimers, Inc.
- The remaining oil, was/is being burned in the waste-oil boiler

ReStore Totals in 2013:

- People who took free usable items for their own use: 9,744 persons
- Weight of non-paint items taken: 142,528 lbs
- Gallons of free paint taken: 19,206 gal

This permit requirement has been met.

1.B. Issue public service announcements related to stormwater protection on local TV, radio or print outlet. Year 1-5: A summary of the activities will be included in the Annual Report.

In addition to the distribution of educational brochures and public outreach events, Keep Omaha Beautiful, Inc. contracted with KFAB, a local radio station, to broadcast 4 public service announcements in April, June, July, and September and 8 public service announcements in August. In total the PSAs were aired 24 times.

This permit requirement has been met.

1.C. Continue existing drain marking program to improve public awareness concerning illegal dumping utilizing volunteer services (e.g. Boy Scouts) which will address TMDL pollutants of concern. Year 1-5: Mark approximately 1,000 inlets annually and include a summary in the annual report.

KOB continues to utilize a GIS tracking system to better direct the volunteers to areas that do not have storm drains marked. The City of Omaha has approximately 110,000 storm drains, using the GIS system should make tracking those inlets which have been marked or need marking easier to manage. KOB coordinated neighborhood groups and eagle scouts in 2013 to mark and clean storm sewer inlets. In total, 1,766 disks were placed.

This permit requirement has been met.

1.D. Hold a Sediment and Erosion Control Seminar for the developers, builders, engineers, vendors and graders which will address TMDL pollutants of concern. Year 1-5: Hold annual Sediment and Erosion Control Seminar. Include a summary of the approximate number of participants in the Annual Report.

The annual Sediment and Erosion Control Seminar was held on February 6, 2013 hosted by the City of Omaha, PMRNRD, Douglas-Sarpy County Extension Office, NDEQ, NRCS, PCWP, and USACE. The seminar provided engineers, developers, and construction companies information on NPDES Phase II regulations, the PCWP's grading permit program and sediment and erosion control BMPs. The seminar had 230 attendees.

This permit requirement has been met.

1.E. Work collaboratively with other community organizations to develop a campaign aimed at picking up pet waste which will address TMDL pollutants of concern. Year 1: Develop outreach material and partnerships. Year 2-5: Distribute information.

The City of Omaha hired a marketing firm, MINT Design Group, to assist in the development and implementation of pet waste campaign. Advertisements were developed and published in several area newspapers, billboard space was used, mass mailings distributed, theater advertising purchased, posters placed on litter cans, radio announcements broadcast, a television commercial produced, and other media printed. It was a very successful campaign and won the Silver Award in the Total Advertising Campaign category from the Eighth Annual

Service Industry Advertising Awards. Additionally, EQCD attended four events where flyers were handed out along with pet waste bag dispensers, as shown in the table below;

Date	Location	Dispensers	Activity
4/27/13	Hefflinger Park	600	Spring Bark in the Park
5/17/13	Elmwood Park	100	Spring into Summer
9/22/13	Aksarben	150	Aksarben Farmer's Market
9/29/13	NHS	750	NHS - Walk for the Animals

The City of Omaha has also partnered with the Omaha Dog Park Advocates by supplying an additional 12 Pet Waste Bag Stations to the existing and 25 cases of Pet Waste Bags for the two dog parks in Omaha. The Advocates keep the dispensers supplied with bags and submit a count to EQCD on a monthly basis. A total of 73,600 bags were used during this permit year.

This permit requirement has been met.

1.F. Develop materials and displays associated with BMP demonstration projects installed with Stormwater Management Program Project funds from NDEQ. Year 1-5: Provide a narrative and examples of materials developed in annual report.

Educational signage was placed at both the UnderTheSink Facility and the City of Omaha 's Orchard Park accessible by the public. The signage explains the design and function of the BMP's onsite. The green and traditional roofs at the Saddlebrook Joint Use facility, located in Omaha's jurisdiction, have two weather monitoring stations installed. The public can view the differences between the two on two separate screens; one located in the library the other located in the stairwell outside of the indoor track. There are also webcams directed toward the green roof which will also be displayed on the screens. Information on the green roof is available through the website www.omahastormwater.org which has a direct link from the PCWP website.

This permit requirement has been met.

1.G. Develop a PCWP Stormwater Program Website, including but not limited to storm water related information and provide educational information targeted for residents, children, and industries which will address TMDL pollutants of concern. Year 1-5: Develop, operate and maintain a PCWP Stormwater web site. Include narrative in the Annual Report describing the functions of the web site. Ensure that the web site is accessible from each community's web site.

The PCWP website, www.papiopartnership.org, includes but is not limited to, the contact information for PCWP representatives (including links to the respective PCWP representative's websites) and the illegal dumping/illicit discharge report form, PCWP meeting minutes, upcoming meetings and outreach opportunities, PCWP permits, past reports, and studies are also available on-line as well as general information about the PCWP and about watersheds,

best management practices, and stormwater management in general. Additional items located on the website are the current PCWP interlocal agreement, watershed management plan, implementation plan and stormwater policies. All of which were adopted by the PCWP co-permittees in 2009. These documents are included as Attachment A. A link is also included to the City of Omaha's stormwater web site, www.omahastormwater.org.

The City of Omaha has developed and deployed a website, www.omahastormwater.org dedicated to the City's Stormwater Management Program. From the website industries within the PCWP can access the necessary documents to apply for stormwater permits.

Residents can also access information from the City of Omaha's website as to how they can improve water quality through actions they take at home. Children's activities are also available on the website. There is public information available on the demonstration storm water best management practices that have been implemented in areas of the city. The public can access information related to the monitoring program. Additionally, there is an online complaint or comment form available to the public.

Sarpy County links to both the City of Omaha and Papio Partnership websites to the Sarpy County Planning Department website.

This permit requirement has been met.

2. Public Participation and Involvement

2.A. Operate a stormwater hotline and web based complaint system for Watershed (general information, complaints, reports of illegal dumping, etc.). Year 1-5: Maintain system operation and include summary of received calls/emails in the Annual Report.

The City of Omaha continues to maintain a phone line, 444-3908, for handling stormwater calls. Clerks are available during regular business hours to handle calls for the City and the PCWP. The clerks answering the hotline are required to complete a form when answering the calls so that all the required information is collected. The form is tied to a database that stores all calls received and provide a mechanism for tracking calls. A representative from the City of Omaha will use the information stored in the database to direct the call to the appropriate Partnership representative or their designee.

There were three (3) illicit discharge complaints received via the Papio Partnership website (www.papiopartnership.org) or the hotline in 2013. Public complaints can be logged into the erosion website (www.PCWPErosionControl.org).

This permit requirement has been met.

2.B. Participate in organizing and hold open houses on Papillion Creek Watershed Partnership activities. Year 1-5: A summary of activities will be included in the Annual Report.

The PCWP held monthly meetings in 2013 and the minutes for those meetings are available on the PCWP website at www.papiopartnership.org. The meeting dates are posted for the entire year on the website and the recordings of those meetings are available upon request.

This permit requirement has been met.

2.C. Continue to implement a Stream Clean Up Day. Utilize KOB to identify stream segments in need of cleanup and request volunteers from the local area, public groups, and representatives from local area business and developments. Year 1-5: Conduct one clean-up day each year. A summary of the clean-up day activities will be included in the Annual Report.

Keep Omaha Beautiful, Inc. (KOB) organized the 2013 Stream Clean ups. There were a total of 12 cleanup efforts throughout the year. The water courses that KOB targeted were; Standing Bear Lake, Lake Zorinsky, and Cunningham Lake.

This permit requirement has been met.

2.D. Provide tours of UndertheSink, household hazardous waste facility, for schools and neighborhood organizations to learn about the proper way to manage household chemicals and about stormwater treatment systems installed at the site. Year 1-5: Provide a summary of the tours conducted on an annual basis for the annual report. Document when BMPs are installed and included in the tour.

Sixteen (16) tours were conducted in 2013 at UndertheSink. Several BMPs including a series of rain gardens have been reconstructed and are included as part of the tour.

This permit requirement has been met.

2.E. Hold World O! Water festival focused on elementary school aged children to celebrate clean water and engage in water quality related activities. Year 1-5: Hold event annually. Report estimated number of participants in Annual Report.

The World O! Water Festival was held on September 7, 2013 from 12 PM until 4PM at Wehrspann Lake / Chalco Hills Recreation Area. There were over 50 organizations that participated by handing out information, conducting an activity or providing a demonstration. An estimated 1500 visitors attended the event. Information that was handed out included water stewardship, recycling, water quality, and water conservation. Activities included putting a watershed pollution demonstrative model, canoe rides, nature hikes, and science experiments. Demonstrations were provided by Wild Life Learning Encounters. This was the 9th successful year the event was held.

This permit requirement has been met.

2.F. Participate in community organizations, conferences, workshops and web casts related to water quality and stormwater management. Year 1-5: Report number of staff attending, dates, location and description of events.

A Sediment and Erosion Control seminar was held on February 6, 2013 with 230 attendees. Several special interest group meetings were conducted in 2013 on topics regarding stormwater awareness education, pollution prevention and water conservation. This effort reached a number of school students and other individuals. Webcasts are offered throughout the year to PCWP members on a variety of topics from software training on NPDES permit tracking, Center of Watershed Protection webcasts, and EPA webcasts.

This permit requirement has been met.

3. Illicit Discharge Detection and Elimination

3.A. Dry-weather inspections including Physical Characteristics Examinations of storm water outfalls 72" or greater and any outfalls with documented complaints. Year 1-5: Inspect and record observations. Include a count of outfalls inspected in the Annual Report.

Sarpy County Public Works continues to work with a consultant to develop a stream asset inventory consisting of the following information:

- Stream alignments and confluences
- Mapped channel and gradient and pattern
- Property boundaries and jurisdictions
- Watershed boundaries and land use
- Road crossings, bridges and culverts
- Potential stream access points

Along with modeling, the Public Works Departments of Bellevue and Sarpy County are currently seeking consultants to procure and roll out an asset management program to have a real time database of roadway and drainage asset conditions, inspections and maintenance work.

This permit requirement has been met.

3.B. Investigate and seek resolution concerning any dry weather discharges by notifying the source that they must discontinue discharging, and initiate enforcement action consistent with adopted ordinance which will also address any TMDL pollutants of concern. Any source that the applicant feels constitutes an immediate health or safety threat will be reported immediately to the NDEQ. Year 1-5: The following information will be included in the Annual Report; the number of process or potentially polluted wastewater sources found; the number of above resolved at local level; and the identity of any referred and/or unresolved discharge sources.

Sarpy County received one possible complaint of a dry weather discharge, however the investigation is ongoing to determine the source and stream in which the discharge occurred. The County will continue to inquire into the matter until it is concluded to be unfounded, or the violating party/issue has been found and corrective actions have been taken.

Sarpy County continues to monitor, review, and enforce storm water regulations and tracks violations as necessary.

This permit requirement has been met.

3.C. The applicant will perform dry weather inspection of storm water outfalls, including smaller outlets and those that discharge to lesser tributaries or other storm conduits, in response to suspect conditions and/or complaints. Year 1-5: Inspect and record observations. Included a count for outfalls inspected in the Annual Report.

No suspect conditions and/or complaints were documented or reported. Sarpy County has requested dry weather inspections be performed on storm water outfalls and those that discharge to lesser tributaries and storm conduits.

Sarpy County continues to work with WLA, a local consultant to continue developing a GIS stream inventory for obtaining a count on streams and tributaries. This contract has been extended to examine several stream reaches through the model developed by the consultant.

This permit requirement has been met.

3.D. Enforce existing ordinances/regulations prohibiting illicit discharge connections to storm sewers. Year 1-5: Summarize code violations and enforcement actions taken in Annual Report.

Dry weather discharges identified, as the outfalls are inspected will be investigated with respect to the source of the discharge. The Physical Characteristics Examination (PCE) will be completed as part of the inspection process and, if there is reason to believe that the discharge is allowable under the stormwater ordinance/regulation, the investigation will be terminated. If the PCE indicates that there may be an illicit connection, a more comprehensive investigation will be undertaken that may involve sampling the discharge, tracing the line upstream to identify potential sources, and questioning potential dischargers. If a potential source is identified, information will be provided regarding the impact to human health and the environment to resolve the problem.

This permit requirement has been met.

3.E. Maintain and prevent instances of sanitary sewer leakage into MS4 or waters of the state. Year 1-5: Summarize investigations of leakage and actions taken in Annual Report.

Sarpy County continues to annually inspect outfall and interceptors within County jurisdiction, however the inspections are now being conducted by County forces. A maintenance summary report is generated and items are addressed as necessary.

This permit requirement has been met.

3.F. Maintain and update a sewer map of major storm water outfalls and identify the names of respective receiving waters. Year 1-5: Map will be maintained electronically on City or County GIS.

Each community in the PCWP sends information to the Douglas or Sarpy County GIS departments where the outfall maps are maintained. The websites for Douglas and Sarpy Counties are http://www.dcgis.org/dogis/ and http://maps.sarpy.com/sims20/ respectively.

This permit requirement has been met.

3.G. Prevent, contain and respond to spills in the MS4. Review, as necessary, interdepartmental SOPs with respect to spills dumping and illegal disposal that impacts the MS4. Year 1-5: Summarize number of reports of spills and actions taken in Annual Report. Identify respective Department SOP and review date in Annual Report.

Sarpy County's policy for responding to prevent, contain and respond to spills is as follows:
Step 1: Gathering of facts. Who, What, Where, When, Why and How
Step 2: Determine party to respond. Whose line is it? If it is the County's line, do we have the resources to take care of it? If not, we should contact an engineering firm such as TD2.
Step 3: Contact the appropriate party or parties.
Step 4: Follow up to make sure the appropriate repairs are made.

This SOP is reviewed annually in January for updates and compliance.

This permit requirement has been met.

4. Construction Site Runoff Control

4.A. Maintain the PCWP construction site inspection and reporting web site and continue to make enhancements. Year 1-5: Include a narrative in the annual report about major web site upgrades and the date implemented.

The web site is being upgraded for easier use and to be able to merge information for grading and post construction permit information for the projects in the PCWP jurisdictions. The Permix website, which is the updated site to combine all City of Omaha permit processes, will

benefit the PCWP communities by providing one location for post construction stormwater permits and grading permits. The post construction stormwater permit process is currently utilizing the Permix system however, the construction site permits are still being processed under the PCWPErosionControl.org website.

This permit requirement has been met.

4.B. Maintain a construction site inspection program that includes procedures for reporting, resolving deficiencies, and taking appropriate enforcement action consistent with adopted ordinances. Years 1-5: The Annual Report will contain the following information relative to this commitment: 1) the number of inspections conducted in each of the following size categories: < 5 acres and > 5 acres; and 2) the number of sites receiving enforcement actions.

Grading permits are required for all developments in the Papillion Creek Watershed and are tracked electronically on the PCWP's web based system (www.PCWPErosionControl.org) which will eventually utilize the Permix web site. Omaha inspectors will review weekly site inspection reports from the permittees, make periodic inspections to verify the permittee reports, notify the permittees when deficiencies are noted, and notify the permitting authority when enforcement is necessary. Priority sites are determined by the construction phase, with the initial site work being the highest priority. The goal of the construction site inspection program is to achieve voluntary compliance, but referrals will be made to NDEQ for non-complying sites not responding to local enforcement actions.

Violations processed in 2013 are referenced in Attachment B as well as a breakdown of inspection reports by community. The table below summarizes PCWP construction inspections for 2013.

	City Inspection Reports	Private Inspection Reports
Phase I Sites (>5 acres)	634	5376
Phase II Sites (<5 acres)	575	3859
Total	1209	9235

This permit requirement has been met.

4.C. Maintain regulations and design specifications for controlling erosion, sediment loss, and other TMDL pollutants of concern from construction sites that disturb areas of 1 acre or more. Year 1 -5: Provide a narrative description of any changes implemented in sediment and erosion control regulations or design specifications in the annual report.

Chapters dealing with the post construction BMPs (Chapter 8) and Erosion and Sediment Control (Chapter 9) are being updated in the Omaha Regional Stormwater Manual which is adopted by all members of the PCWP. The update of these chapters provides more detailed information on selection of BMPs for both post construction and erosion and sediment control. Also additional BMPs have been added to the chapters to include newer technology and

different practices. The updates to Chapters 8 and 9 should be adopted in the 2014 calendar year.

This permit requirement has been met.

4.D. Maintain a program for performing review of Grading Permit applications to ensure compliance with applicable regulations and design specifications. Year 1 -5: Summarize the number of grading permits issued on an annual basis.

In 2013, there were 58 Phase I grading permits and 86 Phase 2 grading permits issued in the PCWP communities.

This permit requirement has been met.

5.0 Post-Construction Runoff Control

5.A. Develop a guidance document for Post-Construction Stormwater Management Plan. Year 1: Revise ordinances as necessary to institute authority to require the use of post-construction stormwater controls. Year 2: Develop guidance document for Post Construction Storm water Management Plan Year 2-5: Revise as necessary.

Omaha has developed guidance documents and inspection forms for BMPs that are available to the PCWP members and are located on the PCWP website (www.papiopartnership.org). The post construction stormwater management web site is active and makes the review process easier as well as provides a single location for plans, inspections, maintenance forms, etc. As mentioned earlier, the chapters of the Omaha Regional Stormwater Manual are currently being updated to provide a more comprehensive list of BMP details and specifications. The updates to the Omaha Regional Stormwater Manual should be complete during this year. Guidance documents and the Stormwater Manual will continue to be analyzed and updated by all members of the PCWP.

This permit requirement has been met.

5.B. Develop a database of existing structural BMPs (private and public) that reduce the impact of urbanization on storm water run-off and improve water quality and enhance other amenities and activities such as green space, parks and recreation, urban planning, aesthetics, and public safety. Year 2: Coordinate with engineering firms and the NRD to identify existing BMPs and their location. Year 3: Develop a database and GIS map of BMPs.

In 2010, the PCWP purchased CBI software to assist with the tracking of NPDES permits activities. PCWP Phase II communities continue to learn the CBI system which will assist to create a database of the existing BMPs. Additionally, the Permix software used for post construction stormwater permits also keeps a record of the proposed BMPs that are installed with development by jurisdiction.

This permit requirement is on schedule for completion.

5.C. Inspect annually and maintain (as necessary) the MS4 owned storm water BMP structures. Year 1 -5: List BMPs inspected and summarize maintenance activity in Annual Report.

Sarpy County currently has three storm water BMP structures. Two of which were recently completed. These structures are located at the Law Enforcement Center and portions of the Juvenile Justice Center and County Administration parking lots. The structures and "bio" components of the BMPs are regularly maintained per current maintenance practices.

This permit requirement is on schedule for completion.

***5.D.** Revise stormwater BMP maintenance and inspection plan as needed. Year 1-5: Review maintenance plan annually and include new structures. Make revisions as necessary. Report revisions and new structures in Annual Report.*

Stormwater BMP maintenance and inspections are underway in PCWP communities. The Permix website is in place to help the review process with post construction stormwater management in all the PCWP communities. This website provides a place to store documentation on the maintenance and inspections of the BMPs. The process continues to be monitored and any revisions will be reported.

This permit requirement is on schedule for completion.

5.E. Implement strategies, which include a combination of structural and or non-structural BMPs appropriate for the watershed, which will address potential TMDL pollutants of concern. Non-structural BMP's, including improved planning and site design, shall be a priority. Evaluate these strategies and implement changes as necessary to improve water quality and address potential TMDL pollutants of concern. Year 1 -5: Summarize strategies in the Annual Report.

The communities of the PCWP have adopted ordinances requiring the first half inch of runoff be controlled on site and that the 2 year peak flow be maintained on new development. These local ordinances are intended to address water quality in the watershed. Adopting these ordinances along with the Watershed Management Plan and Implementation Plan will address potential TMDL pollutants of concern. Stormwater policies adopted by the PCWP members also address these strategies for improving water quality. The Watershed Management Plan, Implementation Plan and Stormwater policies are included as Attachment A. The PCWP has worked with other stakeholders including Metro Area Planning Agency, University of NE-Omaha and Omaha By Design to establish a Natural Resources Inventory (NRI). The NRI is intended to be a tool to help the PCWP communities identify areas for preservation and priority areas for stream restoration. An initial phase of the NRI was completed in 2013 and the results presented to the PCWP. The PCWP continues to work with this group to keep the NRI up to date.

This permit requirement has been met.

6. Pollution Prevention/Good Housekeeping for Municipal Operations

6.A. Maintain Runoff Control Plans for all the MS4's maintenance facilities to identify BMPs implemented. Review Plan annually and update as necessary. Inspect all facilities annually. Year 1 -2: Develop Runoff Control Plan for maintenance facilities. Year 3-5: Review and Revise Runoff Control Plan. Summarize efforts in Annual Report.

Evaluation documents for Facility Runoff Control Plans (FRCP) have been developed and templates shared with the members of the PCWP. These templates include a photo checklist, site questionnaire, facility profile sheet, hot spot checklist, photo log and a facility recommended BMP checklist. FRCPs are being developed for each facility in the PCWP communities.

Sarpy County has developed Good Housekeeping Plans for all necessary municipal facilities.

This permit requirement has been met.

6.B. Inspect storm sewer conduits, channels and catch basins and remove and properly dispose of sediment and debris as needed to maintain an efficient system within permitted area. Year 1 - 5: Report maintenance activities in the Annual Report.

Type	Number Inspected (est.)	Number Cleaned (est.)
Conduits	1	1
Channels	1	1
Catch Basins	4	4
Storm drain inlets	25	4
Erosion Inspections/Maintenance	277	15
Storm Sewer System Maintenance	1	12
Flared End Sections	30	0
Outlets	2	0
Curb Inlets	373	0
Area Inlets	32	0
Manholes	98	0
Headwalls	15	0
Junction Boxes	4	0
Grate Inlets	2	0
Box Culvert	1	0
Inlets	45	0
Other –New System Construction	0	0
2013 expenditures (all types – inspections & cleaning)	$384,968	

This permit requirement has been met.

6.C. Provide training for employees to prevent pollutant runoff from municipal operations at the applicant's maintenance facilities and at field operations. Years 1 – 5: Provide training for employees and include summary in Annual Report of when training was held and number of attendees.

Training was held for employees in all jurisdictions of the PCWP in last year's reporting period, to have the community's facility managers trained on Facility Runoff Control Plans and the implementation of those plans. 19 attendees were at the training meeting in 2012.

This permit requirement has been met.

6.D. Provide for street cleaning in the following areas: Residential; Business; Major Streets; and other areas in conjunction with special projects. Year 1-5: Summarize street cleaning activities in Annual Report.

Miles of Streets Cleaned in 2013 (approximate)	2013 Expenditure	2014 Budget (proposed)
160.05	$37,375	$50,270

This permit requirement has been met.

6.E. The applicant's staff that applies pesticides will be trained in a certification program that complies with FIFRA regulations. Year 1 -5: Report total number of Staff certified each year in the Annual Report.

Sarpy County outsources lawn service to include weed control and fertilizer. The vendor is licensed, insured, and maintains current applicator certifications. Sarpy County requested a copy of the applicator certifications for reference.

This permit requirement has been met.

6.F. The applicant will continue to minimize pesticide and fertilizer use on publically maintained properties. Year 1 -5: Summarize efforts in Annual Reports.

Sarpy County outsources to a vendor pesticide and fertilizer application. The vendor uses a four-step, slow release application for fertilizer and spot sprays only as needed for weeds. All applications are restricted to inner most areas of the property.

Step 1: March
Step 2: May
Step 3: July
Step 4: October

This permit requirement has been met.

8. Storm Water Monitoring Plan

8.A. Conduct in-stream water quality monitoring of named creeks in the Papillion Creek Watershed. Collect samples from at least 4 sites located in the Papillion Creek Watershed. Samples will be collected from May through August one day a week and analyzed for the following parameters: BOD5, TSS, ammonia nitrogen, nitrate-nitrogen, total nitrogen, soluble and total phosphorus, turbidity, pH, E coli, and Physical Characteristic Examinations. The purpose of the monitoring will be to evaluate the effectiveness of storm water management practices in the Papillion Creek watershed as they relate to potential TMDL pollutants of concern.

List of potential sites:
170 and Highway 36 (Big Papio)
77th and L Street (Big Papio)
66th and L Street (Little Papio)
Ft. Crook Road – USGS station (Papillion Creek) Year 1- 5: Conduct monitoring

The following information shall be included in the Annual Activity Report:

- *The monitoring data;*
- *A summary report on the findings relative to SWMP efforts;*
- *Any modifications of monitoring locations or procedures.*
  Year 1- 5: Conduct monitoring

The City of Omaha has taken the lead role for the stormwater monitoring elements 8.A and 8.B. The City sampled four sites in the Papillion Creek Watershed in conjunction with NDEQ's Basin Rotation Monitoring Program. Samples were collected one day a week from May 1 through August 28, 2013. Samples were analyzed for the following parameters: fecal coliform, e coli, nitrate / nitrite nitrogen, Kjeldahl nitrogen, nitrite nitrogen, ammonia nitrogen, total phosphorus, dissolved phosphorus, pH, BOD, TSS, TDS, temperature, DO, specific conductivity, and turbidity. Quality control/quality assurance measures were followed as described in the Sampling and Analysis Plan (submitted to NDEQ April 1, 2005). Sample results are presented in Attachment C. Data qualifiers follow NDEQ's recommended practices.

The Partnership will continue to monitor and gather a database which could be used to help analyze the impact BMPs on water quality.

This permit requirement has been met.

8.B. Develop an assessment monitoring plan for demonstration BMPs. Evaluate the effectiveness of the selected BMPs to treat storm water for the TMDL pollutants of concern and other water quality benefits. Consider implementation of refinements to the BMPs, which would improve their effectiveness. One aspect of the monitoring plan will include the collection stream samples on the segment that runs through Orchard Park to establish baseline conditions for BMP assessment purposes.

Additionally, the plan will address how the applicant proposed to use stream samples collected in dry weather and wet weather, as described in 8.A above, to estimate the pollutant masses discharged on an event basis and an annual basis.

Year 1 – 2: Visually document and monitor the installation of the demonstration BMPs. Installation is expected to be complete by the end of Year 2. Provide a narrative to report progress in Annual Report.

Year 2: Develop the BMP assessment monitoring plan and submit to NDEQ for approval as an attachment to the Annual Report.

Years 3 - 5: Conduct monitoring.

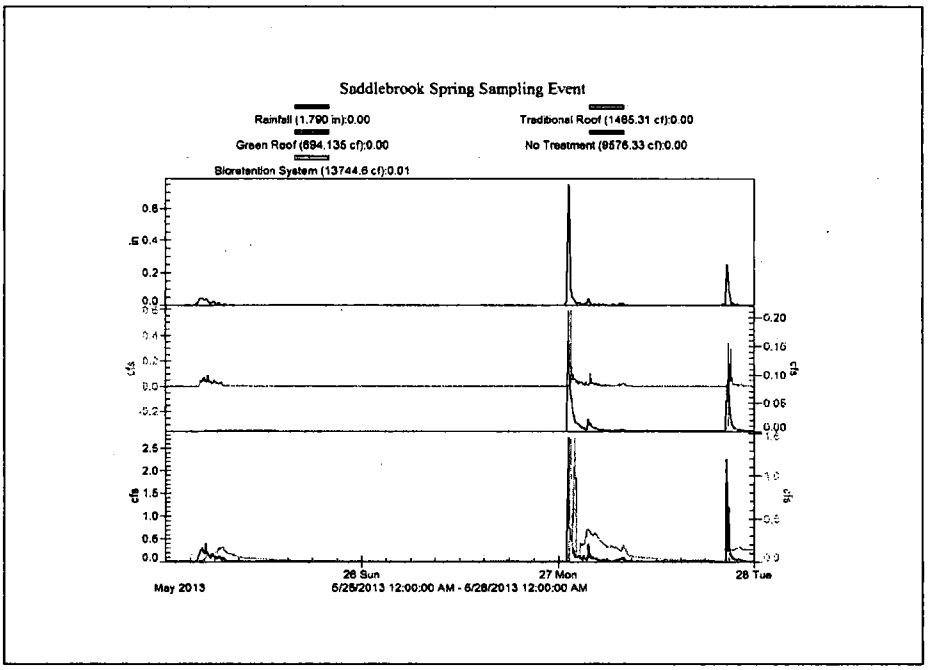
The following information shall be included in the Annual Activity Report:

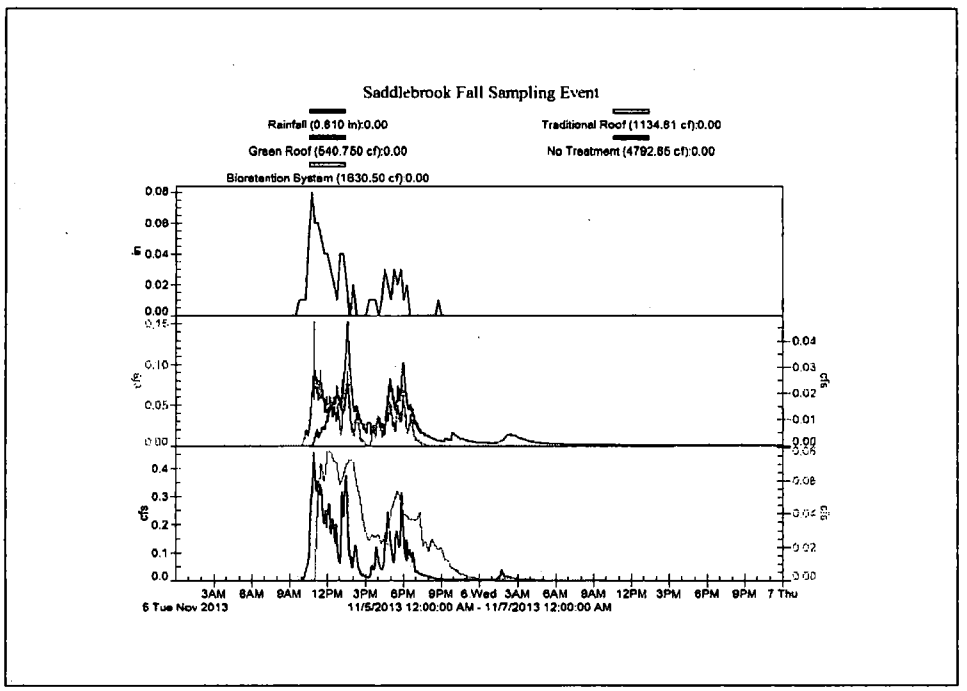
1) *the location of the monitoring site*
2) *the intensity and duration of the storm event monitored;*
3) *the timing of sampling in comparison to the occurrence of the storm event and to the discharge of peak storm water flows;*
4) *the monitoring data; and a summary report on the findings of the removal rates of the constituents monitored for the BMPs.*

The construction of a green roof and a bioretention garden was completed in 2009 at the Saddlebrook Joint Use Facility. The bioretention garden receives runoff from part of the parking area at the facility. Monitoring stations were also installed at the; green roof discharge point, traditional roof discharge point, bioretention garden discharge point and a point of discharge from a parking area without a BMP upstream.

Flow monitoring equipment has been installed at all four sampling sites as well as a rain gauge. Data gathered from each site will be used to compare the BMP installed to a traditional parking lot and roof. The effectiveness of each BMP can then be analyzed.

Samples were collected during precipitation events on May 27-28, 2013 and November 5-7, 2013. Based upon an initial assessment it can be determined that the green infrastructure at this facility delays the peak runoff from the drainage area that is being treated. It can also be inferred that a volume of the water has been detained by the BMPs based upon a predicted and observed volume measured after treatment occurs. The samples that were taken and analyzed are presented in Attachment D. Below is a graphical representation of the flow through each sampling point during the rain event.





This permit requirement on schedule to be met.

8. Fiscal Expenditures

Operation and Maintenance

O&M Expenditures

Operation and Maintenance	2013 Expenditures
Sediment/Erosion Control Program	$0
Material Disposal	$0
Creek/Open Channel Maintenance	$0
Street Sweeping	$404.25
Street /Right of Way Cleaning	$4,873.94
Unimproved Street Maintenance	$151,297.35
Public Education/Outreach	$0
MS4 Planning	$0
Bridge Maintenance and Rehab	$0
Sewer Maintenance	$0
Annual O&M Total	$156,575.54

9. Changes in MS4 Area

Several annexations were approved by Cities within Sarpy County. A current map of Sarpy County's Jurisdiction is attached.

List of Attachments

Attachment A. Watershed Management Plan, Implementation Plan and Stormwater Policies

Attachment B. Violations processed in 2013. Per SWMP item 4.C.

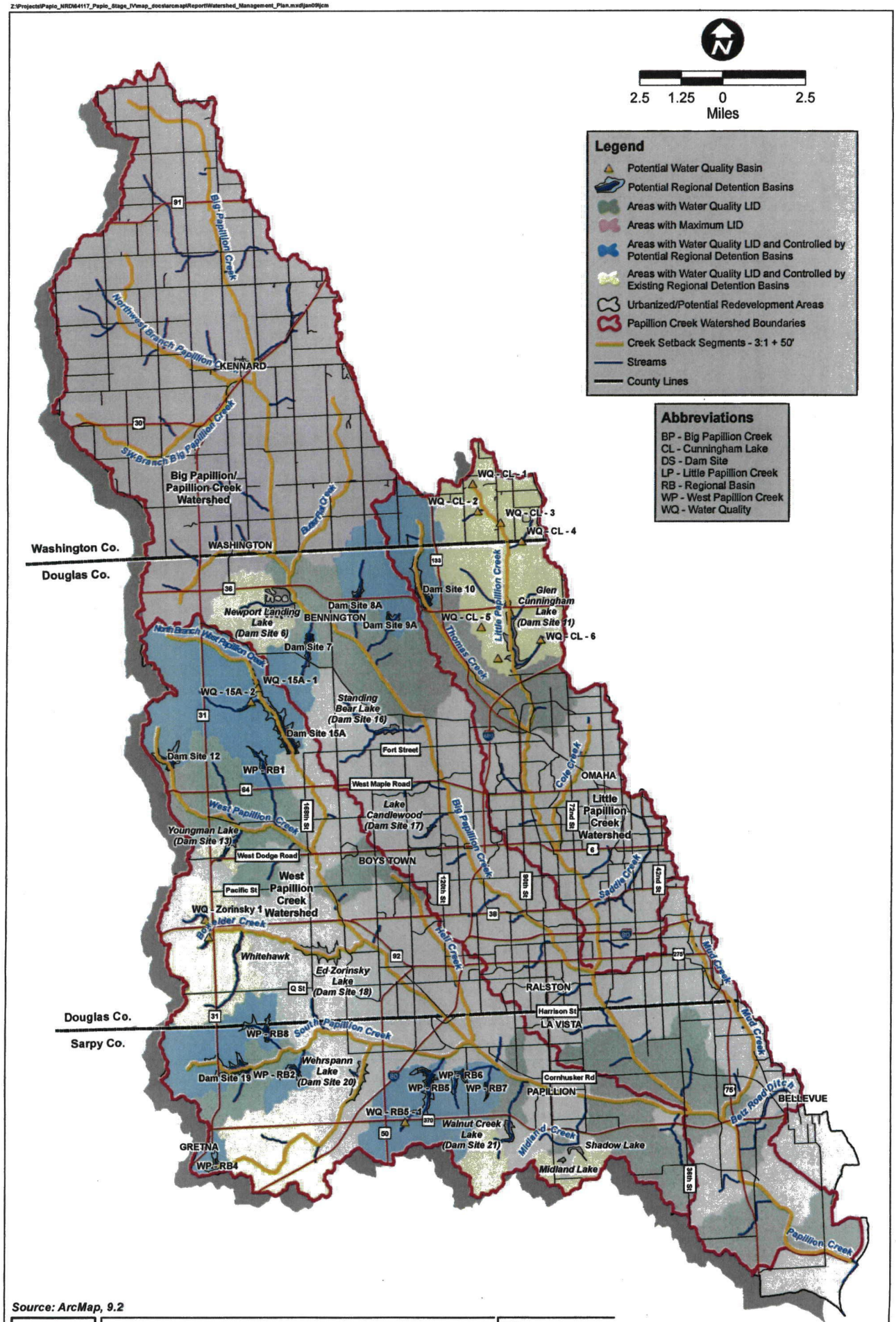
Attachment C. In-stream monitoring of named creeks. Per SWMP item 8 .A.

Attachment D. Saddlebrook BMP Monitoring Results. Per SWMP item 8.B.

Attachment E. Changes in MS4 area.

Attachment A

Z:\Projects\Papio_NRD\64117_Papio_Stage_IV\map_docs\arcmap\Report\Watershed_Management_Plan.mxd\jan09\jcm



Source: ArcMap, 9.2

HDR

Watershed Management Plan
Papillion Creek Watershed

Papillion Creek Watershed Partnership
www.papiopartnership.org

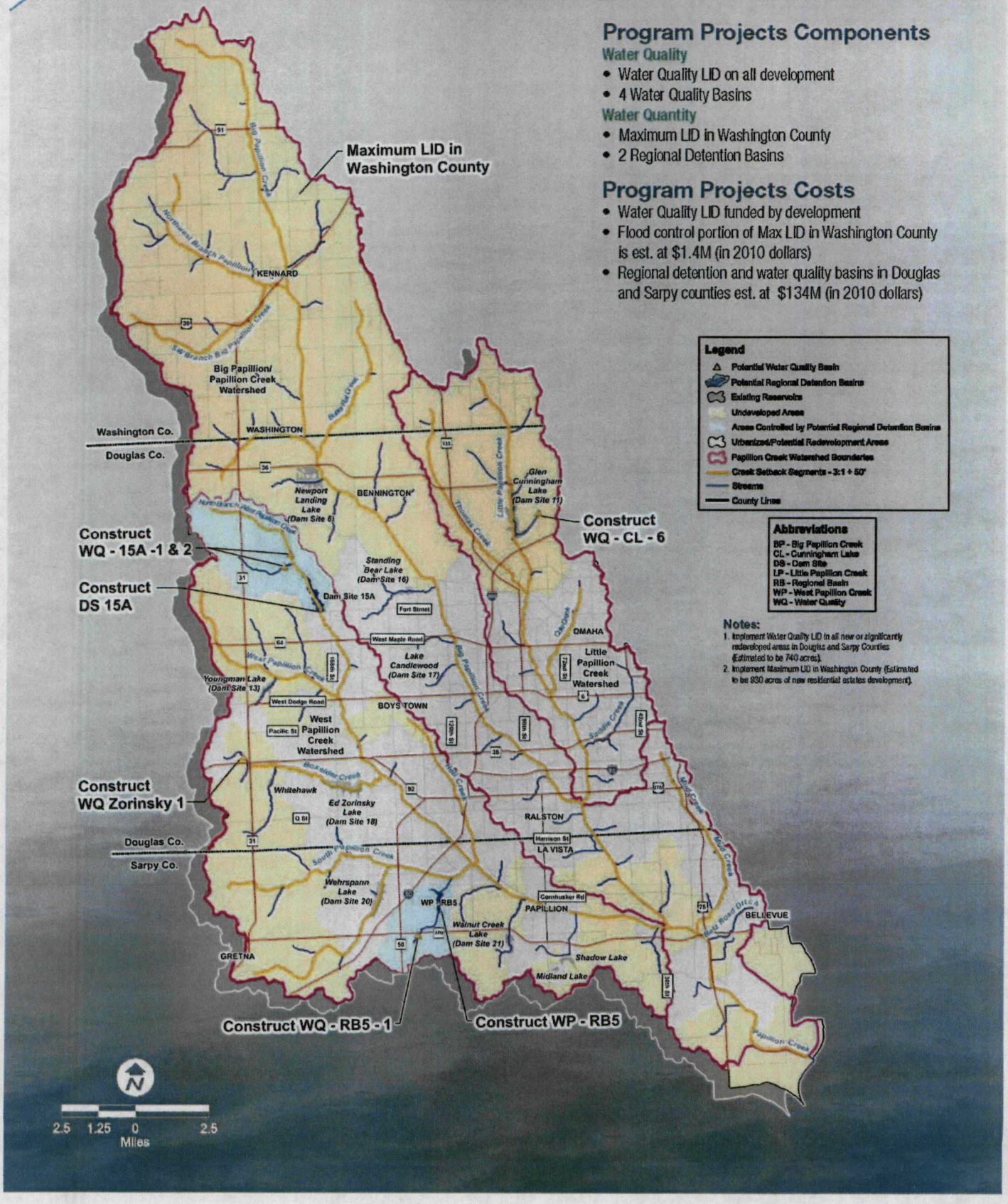
Papillion Creek Watershed Plan - Stage IV
Papillion Creek Watershed Partnership

DATE
May 2009

FIGURE
1

Papillion Creek Watershed Partnership

Papillion Creek Watershed Implementation Plan (Years 2011-2013)



Program Projects Components

Water Quality

- Water Quality LID on all development
- 4 Water Quality Basins

Water Quantity

- Maximum LID in Washington County
- 2 Regional Detention Basins

Program Projects Costs

- Water Quality LID funded by development
- Flood control portion of Max LID in Washington County is est. at $1.4M (in 2010 dollars)
- Regional detention and water quality basins in Douglas and Sarpy counties est. at $134M (in 2010 dollars)

Legend

- Potential Water Quality Basin
- Potential Regional Detention Basins
- Existing Reservoirs
- Undeveloped Areas
- Areas Controlled by Potential Regional Detention Basins
- Urbanized/Potential Redevelopment Areas
- Papillion Creek Watershed Boundaries
- Creek Setback Segments - 3:1 + 50'
- Streams
- County Lines

Abbreviations

BP - Big Papillion Creek
CL - Cunningham Lake
DS - Dam Site
LP - Little Papillion Creek
RB - Regional Basin
WP - West Papillion Creek
WQ - Water Quality

Notes:

1. Implement Water Quality LID in all new or significantly redeveloped areas in Douglas and Sarpy Counties (Estimated to be 740 acres).
2. Implement Maximum LID in Washington County (Estimated to be 930 acres of new residential estates development).

PAPILLION CREEK WATERSHED
STORMWATER MANAGEMENT POLICIES

POLICY GROUP #1: WATER QUALITY IMPROVEMENT

ISSUE: Waters of the Papillion Creek Watershed are impaired.

"ROOT" POLICY: Improve water quality from all contributing sources, including but not limited to, agricultural activities, urban stormwater, and combined sewer overflows, such that waters of the Papillion Creek Watershed and other local watersheds can meet applicable water quality standards and community-based goals, where feasible.

SUB-POLICIES:

1) Water Quality LID shall be required on all new developments and significant redevelopments.
2) Protect surface and groundwater resources from soil erosion (sheet and rill, wind erosion, gully and stream bank erosion), sedimentation, nutrient and chemical contamination. Buffer strips and riparian corridors should be established along all stream segments.
3) Preserve and protect wetland areas to the fullest extent possible to maintain natural hydrology and improve water quality by minimizing the downstream transport of sediment, nutrients, bacteria, etc. borne by surface water runoff. Reestablishment of previously existing wetlands and the creation of new wetlands should be promoted. Any impacted wetlands shall be mitigated at a 3:1 ratio.
4) Support NDEQ in an accelerated TMDL development process that addresses potential pollutant sources in a fair and reasonable manner based on sound technical data and scientific approach.
5) Implement Best Management Practices (BMPs) that reduce both urban and rural pollution sources, maintain or restore designated beneficial uses of streams and surface water impoundments, minimize soil loss, and provide sustainable production levels. Water quality basins shall be located in general conformance with an adopted Papillion Creek Watershed Management Plan.

REFERENCE INFORMATION

DEFINITIONS:

1) Low-Impact Development (LID). A land development and management approach whereby stormwater runoff is managed using design techniques that promote infiltration, filtration, storage, evaporation, and temporary detention close to its source. Management of such stormwater runoff sources may include open space, rooftops, streetscapes, parking lots, sidewalks, medians, etc.
2) Water Quality LID. A level of LID using strategies designed to provide for water quality control of the first ½ inch of stormwater runoff generated from each new development or significant redevelopment and to maintain the peak discharge rates during the 2-year storm event to baseline land use conditions, measured at every drainage (stormwater discharge) outlet from the new development or significant redevelopment.
3) Best Management Practice (BMP). "A technique, measure or structural control that is used for a given set of conditions to manage the quantity and improve the quality of

stormwater runoff in the most cost-effective manner." *[Source: U.S. Environmental Protection Agency (EPA)]*

4) Total Maximum Daily Load (TMDL). A calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Water quality standards are set by States, Territories, and Tribes. They identify the uses for each waterbody, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and non-point sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the State has designated. The calculation must also account for seasonal variation in water quality. The Clean Water Act, Section 303, establishes the water quality standards and TMDL programs, and for Nebraska such standards and programs are administered by the Nebraska Department of Environmental Quality. *[Source: EPA and Nebraska Surface Water Quality Standards, Title 117].*

PAPILLION CREEK WATERSHED
STORMWATER MANAGEMENT POLICIES

POLICY GROUP #2: PEAK FLOW REDUCTION

ISSUE
Urbanization within the Papillion Creek Watershed has and will continue to increase runoff leading to more flooding problems and diminished water quality.

ROOT POLICY
Maintain or reduce stormwater peak discharge during development and after full build-out land use conditions from that which existed under baseline land use conditions.

SUB-POLICY

1) Regional stormwater detention facilities and other structural and non-structural BMPs shall be located in general conformance with an adopted Papillion Creek Watershed Management Plan and shall be coordinated with other related master planning efforts for parks, streets, water, sewer, etc.
2) Maximum LID shall be required to reduce peak discharge rates on all new developments and significant redevelopments as identified in the Papillion Creek Watershed Management Plan.
3) All significant redevelopment shall maintain peak discharge rates during the 2, 10, and 100-year storm event under baseline land use conditions.

REFERENCE INFORMATION

DEFINITIONS

1) Low-Impact Development (LID). A land development and management approach whereby stormwater runoff is managed using design techniques that promote infiltration, filtration, storage, evaporation, and temporary detention close to its source. Management of such stormwater runoff sources may include open space, rooftops, streetscapes, parking lots, sidewalks, medians, etc.
2) Water Quality LID. A level of LID using strategies designed to provide for water quality control of the first ½ inch of stormwater runoff generated from each new development or significant redevelopment and to maintain the peak discharge rates during the 2-year storm event to baseline land use condition, measured at every drainage (stormwater discharge) outlet from the new development or significant redevelopment.
3) Maximum LID. A level of LID using strategies, including water quality LID and on-site detention, designed not to exceed peak discharge rates of more than 0.2 cfs/acre during the 2-year storm event or 0.5 cfs/acre during the 100-year storm event based on the contributing drainage from each site, measured at every drainage (stormwater discharge) outlet from the new development or significant redevelopment.
4) Peak Discharge or Peak Flow. The maximum instantaneous surface water discharge rate resulting from a design storm frequency event for a particular hydrologic and hydraulic analysis, as defined in the Omaha Regional Stormwater Design Manual. The measurement of the peak discharge shall be at the lower-most drainage outlet(s) from a new development or significant redevelopment.

5) Regional Stormwater Detention Facilities. Those facilities generally serving a drainage catchment area of 500 acres or more in size.
6) Baseline Land Use Conditions. That which existed for Year 2001 for Big and Little Papillion Creeks and its tributaries (excluding West Papillion Creek) and for Year 2004 for West Papillion Creek and its tributaries.
7) Full Build-Out Land Use Conditions. Fully platted developable land use conditions for the combined portions of the Papillion Creek Watershed that lie in Douglas and Sarpy Counties that are assumed to occur by the Year 2040, plus the projected 2040 land uses within the Watershed in Washington County; or as may be redefined through periodic updates to the respective County comprehensive plans.

PAPILLION CREEK WATERSHED
STORMWATER MANAGEMENT POLICIES

POLICY GROUP #3: LANDSCAPE PRESERVATION, RESTORATION, AND CONSERVATION

ISSUE: Natural areas are diminishing, and there is a need to be proactive and integrate efforts directed toward providing additional landscape and green space areas with enhanced stormwater management through restoration and conservation of stream corridors, wetlands, and other natural vegetation.

"ROOT" POLICY: Utilize landscape preservation, restoration, and conservation techniques to meet the multi-purpose objectives of enhanced aesthetics, quality of life, recreational and educational opportunities, pollutant reduction, and overall stormwater management.

SUB-POLICIES:

1) Incorporate stormwater management strategies as a part of landscape preservation, restoration, and conservation efforts where technically feasible.
2) Define natural resources for the purpose of preservation, restoration, mitigation, and/or enhancement.
3) For new development or significant redevelopment, provide a creek setback of 3:1 plus 50 feet along all streams as identified in the Papillion Creek Watershed Management Plan and a creek setback of 3:1 plus 20 feet for all other watercourses.
4) All landscape preservation features as required in this policy or other policies, including all stormwater and LID strategies, creek setbacks, existing or mitigated wetlands, etc., identified in new or significant redevelopment shall be placed into an out lot or within public right of way or otherwise approved easement.

REFERENCE INFORMATION

DEFINITIONS

1) Creek Setback. See Figure 1 below and related definitions in Policy Group #5. A setback area equal to three (3) times the channel depth plus fifty (50) feet (3:1 plus 50 feet) from the edge of low water on both sides of channel shall be required for any above or below ground structure exclusive of bank stabilization structures, poles or sign structures adjacent to any watercourse defined within the watershed drainage plan. Grading, stockpiling, and other construction activities are not allowed within the setback area and the setback area must be protected with adequate erosion controls or other Best Management Practices, (BMPs). The outer 30 feet adjacent to the creek setback limits may be credited toward meeting the landscaping buffer and pervious coverage requirements.

   A property can be exempt from the creek setback requirement upon a showing by a licensed professional engineer or licensed landscape architect that adequate bank stabilization structures or slope protection will be installed in the construction of said structure, having an estimated useful life equal to that of the structure, which will provide adequate erosion control conditions coupled with adequate lateral support so that no portion of said structure adjacent to the stream will be endangered by erosion

or lack of lateral support. In the event that the structure is adjacent to any stream which has been channelized or otherwise improved by any agency of government, then such certificate providing an exception to the creek setback requirement may take the form of a certification as to the adequacy and protection of the improvements installed by such governmental agency. If such exemption is granted, applicable rights-of-way must be provided and a minimum 20 foot corridor adjacent thereto.

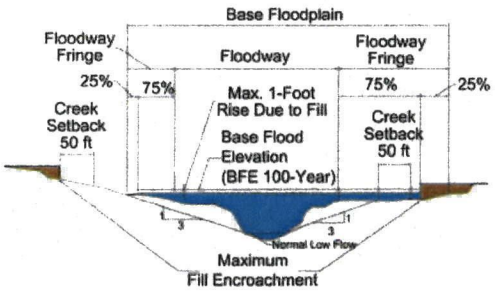


Figure 1 – Floodway Fringe Encroachment and Creek Setback Schematic

DEFINITIONS

1) Base Flood. The flood having a one percent chance of being equaled or exceeded in magnitude in any given year (commonly called a 100-year flood). *[Adapted from Chapter 31 of Nebraska Statutes]*
2) Floodway. The channel of a watercourse and the adjacent land areas that are necessary to be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. *[Adapted from Chapter 31 of Nebraska Statutes].* The Federal Emergency Management Agency (FEMA) provides further clarification that a floodway is the central portion of a riverine floodplain needed to carry the deeper, faster moving water.
3) Floodway Fringe. That portion of the floodplain of the base flood, which is outside of the floodway. *[Adapted from Chapter 31 of Nebraska Statutes]*
4) Floodplain. The area adjoining a watercourse, which has been or may be covered by flood waters. *[Adapted from Chapter 31 of Nebraska Statutes]*
5) Watercourse. Any depression two feet or more below the surrounding land which serves to give direction to a current of water at least nine months of the year and which has a bed and well-defined banks. *[Adapted from Chapter 31 of Nebraska Statutes]*
6) Low Chord Elevation. The bottom-most face elevation of horizontal support girders or similar superstructure that supports a bridge deck.
7) Updated Flood Hazard Maps. The remapping of flooding sources within the Papillion Creek Watershed where Digital Flood Insurance Rate Maps (DFIRMs) are based on 2004 or more recent conditions hydrology and full-build out conditions hydrology. West Papillion Creek and its tributaries are currently under remapping and will become regulatory in 2009. Updating flood hazard maps for Big Papillion Creek and Little Papillion Creek are planned to be completed in the future.
8) New Development. New development shall be defined as that which is undertaken to any undeveloped parcel that existed at the time of implementation of this policy.

POLICY GROUP #4: EROSION AND SEDIMENT CONTROL AND OTHER BMPs

ISSUE: Sound erosion and sediment control design and enforcement practices are needed in order to protect valuable land resources, stream and other drainage corridors, and surface water impoundments and for the parallel purpose of meeting applicable Nebraska Department of Environmental Quality regulatory requirements for construction activities that disturb greater than one acre.

"ROOT" POLICY: Promote uniform erosion and sediment control measures by implementing consistent rules for regulatory compliance pursuant to State and Federal requirements, including the adoption of the Omaha Regional Stormwater Design Manual.

SUB-POLICIES:

1) Construction site stormwater management controls shall include both erosion and sediment control measures.

2) The design and implementation of post-construction, permanent erosion and sediment controls shall be considered in conjunction with meeting the intent of other Stormwater Management Policies.

3) Sediment storage shall be incorporated with all regional detention facilities where technically feasible.

REFERENCE INFORMATION

DEFINITIONS

1) Erosion Control. Land and stormwater management practices that minimize soil loss caused by surface water movement.
2) Sediment Control. Land and stormwater management practices that minimize the transport and deposition of sediment onto adjacent properties and into receiving streams and surface water impoundments.

PAPILLION CREEK WATERSHED
STORMWATER MANAGEMENT POLICIES

POLICY GROUP #5: FLOODPLAIN MANAGEMENT

ISSUE: Continued and anticipated development within the Papillion Creek Watershed mandates that holistic floodplain management be implemented and maintained in order to protect its citizens, property, and natural resources.

"ROOT" POLICY: Participate in the FEMA National Flood Insurance Program, update FEMA floodplain mapping throughout the Papillion Creek Watershed, and enforce floodplain regulations to full build-out, base flood elevations.

SUB-POLICIES:

1) Floodplain management coordination among all jurisdictions within the Papillion Creek Watershed and the Papio-Missouri River Natural Resources District (P-MRNRD) is required.
2) Flood Insurance studies and mapping throughout the Papillion Creek Watershed shall be updated using current and full-build out conditions hydrology.
3) Encroachments for new developments or significant redevelopments within floodway fringes shall not cause any increase greater than one (1.00) foot in the height of the full build-out base flood elevation using best available data.
4) Filling of the floodway fringe associated with new development within the Papillion Creek System shall be limited to 25% of the floodway fringe in the floodplain development application project area, unless approved mitigation measures are implemented. The remaining 75% of floodway fringe within the project area shall be designated as a floodway overlay zone. For redevelopment, these provisions may be modified or waived in whole or in part by the local jurisdiction.
5) The low chord elevation for bridges crossing all watercourses within FEMA designated floodplains shall be a minimum of one (1) foot above the base flood elevation for full-build out conditions hydrology using best available data.
6) The lowest first floor elevation of buildings associated with new development or significant redevelopment that are upstream of and contiguous to regional dams within the Papillion Creek Watershed shall be a minimum of one (1) foot above the 500-year flood pool elevation.

REFERENCE INFORMATION

DEFINITIONS (See Figure 1 below and related definitions in Policy Group #3: Landscape Preservation, Restoration, and Conservation).

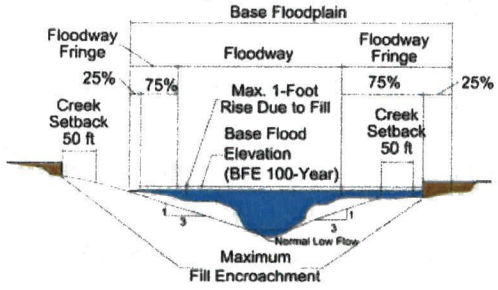


Figure 1 – Floodway Fringe Encroachment and Creek Setback Schematic

1) Base Flood. The flood having a one percent chance of being equaled or exceeded in magnitude in any given year (commonly called a 100-year flood). *[Adapted from Chapter 31 of Nebraska Statutes]*
2) Floodway. The channel of a watercourse and the adjacent land areas that are necessary to be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. *[Adapted from Chapter 31 of Nebraska Statutes].* The Federal Emergency Management Agency (FEMA) provides further clarification that a floodway is the central portion of a riverine floodplain needed to carry the deeper, faster moving water.
3) Floodway Fringe. That portion of the floodplain of the base flood, which is outside of the floodway. *[Adapted from Chapter 31 of Nebraska Statutes]*
4) Floodplain. The area adjoining a watercourse, which has been or may be covered by flood waters. *[Adapted from Chapter 31 of Nebraska Statutes]*
5) Watercourse. Any depression two feet or more below the surrounding land which serves to give direction to a current of water at least nine months of the year and which has a bed and well-defined banks. *[Adapted from Chapter 31 of Nebraska Statutes]*
6) Low Chord Elevation. The bottom-most face elevation of horizontal support girders or similar superstructure that supports a bridge deck.
7) Updated Flood Hazard Maps. The remapping of flooding sources within the Papillion Creek Watershed where Digital Flood Insurance Rate Maps (DFIRMs) are based on 2004 or more recent conditions hydrology and full-build out conditions hydrology. West Papillion Creek and its tributaries are currently under remapping and will become regulatory in 2009. Updating flood hazard maps for Big Papillion Creek and Little Papillion Creek are planned to be completed in the future.
8) New Development. New development shall be defined as that which is undertaken to any undeveloped parcel that existed at the time of implementation of this policy.

BASIC FEMA REQUIREMENTS

On March 1, 2003, FEMA became part of the U.S. Department of Homeland Security (DHS). In order for a community to participate in the FEMA National Flood Insurance Program, it must first define base flood elevations and adopt a floodway for all its major streams and tributaries. Once a community adopts its floodway, the requirements of *44 CFR 60.3(d)* must be fulfilled. The key concern is that each project in the floodway must receive an encroachment review; i.e., an analysis to determine if the project will increase flood heights or cause increased flooding downstream. Note that the FEMA regulations call for preventing any increase in flood heights. Projects, such as filling, grading or construction of a new building, must be reviewed to determine whether they will obstruct flood flows and cause an increase in flood heights upstream or adjacent to the project site. Further, projects, such as grading, large excavations, channel improvements, and bridge and culvert replacements should also be reviewed to determine whether they will remove an existing obstruction, resulting in increases in flood flows downstream. *[Adapted from Federal Emergency Management Agency guidance]*

PAPILLION CREEK WATERSHED
STORMWATER MANAGEMENT POLICIES

POLICY GROUP #6: STORMWATER MANAGEMENT FINANCING

ISSUE: Regulatory requirements for stormwater management and implementation of Stormwater Management Policies intended to accommodate new development and significant redevelopment will impose large financial demands for capital and operation and maintenance beyond existing funding resources.

"ROOT" POLICY: Dedicated, sustainable funding mechanisms shall be developed and implemented to meet capital and operation and maintenance obligations needed to implement NPDES Stormwater Management Plans, Stormwater Management Policies, and the Papillion Creek Watershed Management Plan.

SUB-POLICIES:

1) All new development and significant redevelopment will be required to fund the planning, implementation, and operation and maintenance of water quality LID.
2) A Watershed Management Fee system shall be established to equitably distribute the capital cost of implementing the Papillion Creek Watershed Management Plan among new development or significant redevelopment. Such Watershed Management Fee shall only apply to new development or significant redevelopment within the Papillion Creek Watershed and the initial framework shall consist of the following provisions:
    a. Collection of fees and public funding shall be earmarked specifically for the construction of projects called for in the Papillion Creek Watershed Management Plan, including Maximum LID costs such as on site detention, regional detention basins, and water quality basins.
    b. Multiple fee classifications shall be established which fairly and equitably distribute the cost of these projects among all undeveloped areas within the Papillion Creek Watershed.
    c. Watershed Management Fees (private) are intended to account for approximately one-third (1/3) of required capital funds and shall be paid to the applicable local zoning jurisdiction with building permit applications.
    d. Watershed Management Fee revenues shall be transferred from the applicable local zoning jurisdiction to a special P-MRNRD construction account via inter-local agreements.
    e. The P-MRNRD (public) costs are intended to account for approximately two-thirds (2/3) of required capital funds, including the cost of obtaining necessary land rights, except as further provided below; and the P-MRNRD shall be responsible for constructing regional detention structures and water quality basins using pooled accumulated funds.
    f. The P-MRNRD will seek general obligation bonding authority from the Nebraska Legislature to provide necessary construction scheduling flexibility.
    g. Financing for Papillion Creek Watershed Management Plan projects may require public-private partnership agreements between the P-MRNRD and developers/S&IDs on a case-by-case basis.
    h. On approximately three (3)-year intervals, the Papillion Creek Watershed Management Plan and Watershed Management Fee framework, rates, and construction priority schedule shall be reviewed with respect to availability of

needed funds and rate of development within the Papillion Creek Watershed by the parties involved (local zoning jurisdictions, P-MRNRD, and the development community). Subsequent changes thereto shall be formally approved by the respective local zoning jurisdictions and the P-MRNRD.

3) A Stormwater Utility Fee System shall be established to equitably distribute the costs for ongoing operation and maintenance of all stormwater BMPs and infrastructure among all existing property owners within NPDES Phase I or II municipal jurisdictions.
   a. NPDES Phase I and II cities and counties should actively seek legislation from the Nebraska Legislature to allow for the establishment of an equitable stormwater utility fee.
   b. The initial framework for the Stormwater Utility Fee System should consist of the following provisions provided Nebraska statutes allow for such a fee:
      i. A county or city shall establish by resolution user charges to be assessed against all real property within its zoning jurisdiction and may issue revenue bonds or refunding bonds payable from the proceeds of such charges, all upon terms as the county board or city council determines are reasonable.
      ii. Such charges shall be designed to be proportionate to the stormwater runoff contributed from such real property and based on sound engineering principles.
      iii. Such charges should provide credits or adjustments for stormwater quantity and quality BMPs utilized in order to encourage wise conservation and management of stormwater on each property.
      iv. Such charges shall be collected in a manner that the county or city determines as appropriate and shall not be determined to be special benefit assessments.
      v. A county or city shall establish a system for exemption from the charges for the property of the state and its governmental subdivisions to the extent that it is being used for a public purpose. The local elected body shall also provide an appeals process for aggrieved parties.
      vi. A county shall not impose these charges against real property that is being charges user charges by a city.
      vii. Any funds raised from a Stormwater Utility Fee shall be placed in a separate fund and shall not be used for any purpose other than those specified.

REFERENCE INFORMATION

DEFINITIONS

1) Stormwater Management Policies. Stormwater management policies developed by the Technical Workgroup and Policy Workgroup that were commissioned by the Papillion Creek Watershed Partnership (PCWP) subsequent to the "Green, Clean, and Safe" initiatives developed through the "Watershed by Design" public forums conducted in 2004 and 2005 and subsequently revised by the PCWP in 2009. The

following policy groups contain "root" policies and sub-policies for stormwater management that have been developed in addition to the Stormwater Management Financing Policy Group herein:

- Policy Group #1 – Water Quality Improvement
- Policy Group #2 – Peak Flow Reduction
- Policy Group #3 – Landscape Preservation, Restoration, and Conservation
- Policy Group #4 – Erosion and Sediment Control and Other BMPs
- Policy Group #5 – Floodplain Management

2) Stormwater Management Plan (SWMP). A SWMP is a required part of the NPDES Phase II Stormwater Permits issued to many of the Omaha metropolitan area Papillion Creek Watershed Partnership (PCWP) members. Development of Stormwater Management Policies is an integral part of the SWMP, and such policies are to be adopted by respective PCWP partners.
3) Comprehensive Development Plans. Existing plans developed by local jurisdictions that serve as the basis for zoning and other land use regulations and ordinances. The Stormwater Management Policies are to be incorporated into the respective Comprehensive Development Plans.
4) Policy Implementation. The implementation of the policies will be through the development of ordinances and regulations, in years 3 through 5 of the NPDES permit cycle; that is, by the year 2009. Ordinances and regulations are intended to be consistent for, and adopted by, the respective PCWP members. Such ordinances and regulations shall need to be consistent with the Comprehensive Development Plans of the respective PCWP members.
5) Low-Impact Development (LID). A land development and management approach whereby stormwater runoff is managed using design techniques that promote infiltration, filtration, storage, evaporation, and temporary detention close to its source. Management of such stormwater runoff sources may include open space, rooftops, streetscapes, parking lots, sidewalks, medians, etc.
6) Water Quality LID. A level of LID using strategies designed to provide for water quality control of the first ½ inch of stormwater runoff generated from each new development or significant redevelopment and to maintain the peak discharge rates during the 2-year storm event to baseline land use conditions, measured at every drainage (stormwater discharge) outlet from the new development or significant redevelopment.
7) Maximum LID. A level of LID using strategies, including water quality LID and on-site detention, designed not to exceed peak discharge rates of more than 0.2 cfs/acre during the 2-year storm event or 0.5 cfs/acre during the 100-year storm event based on the contributing drainage from each site, measured at every drainage (stormwater discharge) outlet from the new development or significant redevelopment.
8) Baseline Land Use Conditions. That which existed for Year 2001 for Big and Little Papillion Creeks and its tributaries (excluding West Papillion Creek) and for Year 2004 for West Papillion Creek and its tributaries. That which existed in 2007 for all areas not within the Papillion Creek Watershed.

PAPILLION CREEK WATERSHED
STORMWATER MANAGEMENT POLICIES

BASIS FOR STORMWATER MANAGEMENT FINANCING ISSUE

1) Time is of the essence for policy development and implementation:
   a) Under the existing Phase II Stormwater Permits issued by the Nebraska Department of Environmental Quality, permitees must develop strategies, which include a combination of structural and/or non-structural best management practices and incorporate them into existing Comprehensive Development Plans by the end of 2009.
   b) The S&ID platting process is typically several years ahead of full occupation of an S&ID. Therefore, careful pre-emptive planning and program implementation is necessary in order to construct regional stormwater detention and water quality basin improvements in a timely manner to meet the purposes intended and to avoid conflicts from land use encroachments from advancing development.
2) Financing to meet capital and O&M obligations for stormwater management projects requires a comprehensive, uniformly applied approach and not a project-by-project approach.

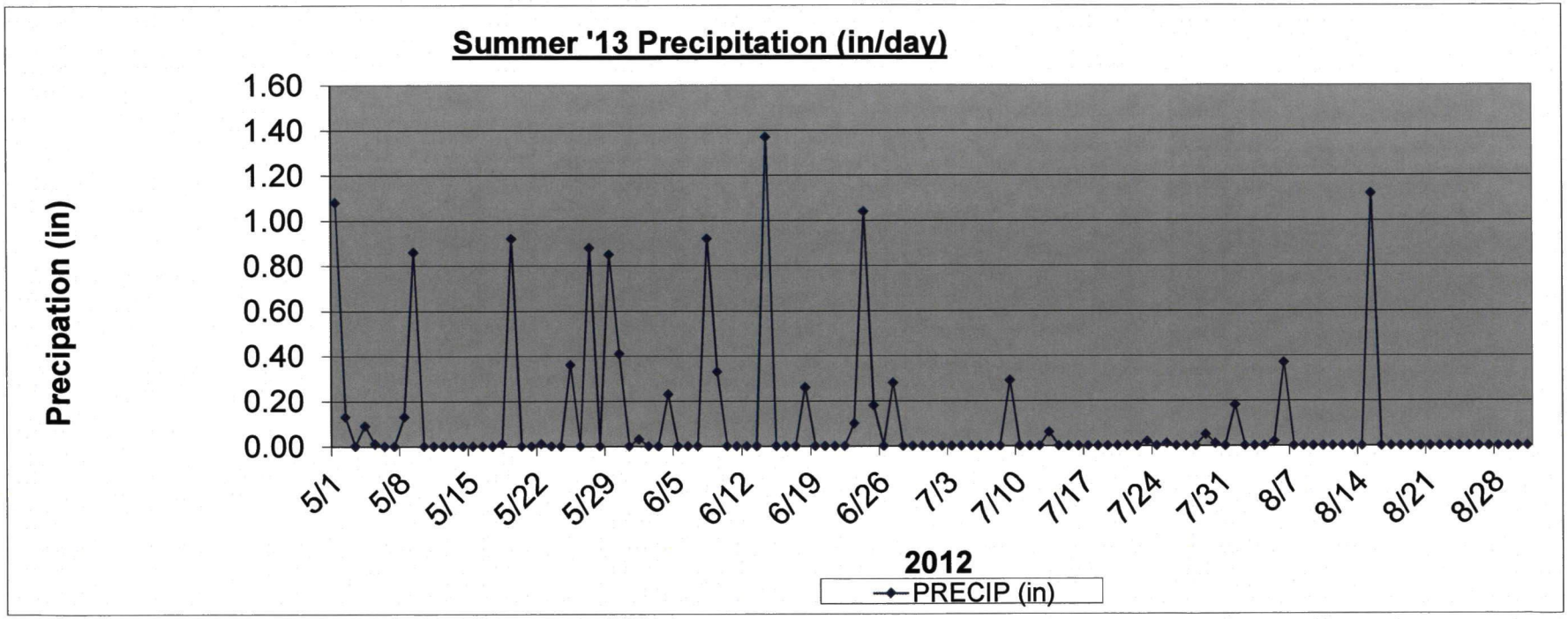
Attachment B

Project Name	Address
NW Radial/Hamilton	46th & Hamilton Omaha NE 68118
Hanover Fails	NW Corner of 156 & State Street Omaha NE 68154
Sterling Ridge	SE Corner of 132nd Street and Pacific Street Omaha NE 68154
Elkhorn Schools Site Pregrading	180th and Grand Street Omaha NE 68116
Camden Grove Townhomes LLC	174th & Blondo St Omaha NE 68116
Camden Grove Townhomes LLC	174th & Blondo St Omaha NE 68116
Hidden Creek	135th & Fort St Omaha NE 68154
84th and L St - Intersection	84th and L Street Omaha NE 68183
96th Street from Adams St. to Park Dr.	96th Street from north of Harrison St. to Park Dr. Omaha NE 68127
84th and L St - Intersection	84th and L Street Omaha NE 68183
SP2000-14A - 144th Street Phase 2	144th & Blondo Streets Omaha NE 68154
SP2000-14A - 144th Street Phase 2	144th & Blondo Streets Omaha NE 68154
Cypress Pointe, LLC	N. 60th St. and Ogden Street Omaha NE 68104

Status	Date Submitted	Action Recommended	Outcome
Complete	2/12/2013	Letter of Warning	NOV w/ Fine
Complete	2/14/2013	Letter of Warning	No Action Taken
Complete	4/1/2013	Notice of Violation	LOW Issued
Complete	4/19/2013	Letter of Warning	No Action Taken
Complete	4/24/2013	Letter of Warning	No Action Taken
Complete	4/24/2013	Letter of Warning	No Action Taken
Complete	6/14/2013	Letter of Warning	RVC
Complete	9/10/2013	Letter of Warning	RVC
Complete	9/10/2013	Letter of Warning	RVC
Complete	10/23/2013	Fines	RVC
Complete	10/30/2013	Notice of Violation	RVC
Complete	11/27/2013	Letter of Warning	RVC
Complete	12/19/2013	Letter of Warning	RVC

Attachment C

2012 Precipatation Data							
DATE	**PRECIP (in)**	**DATE**	**PRECIP (in)**	**DATE**	**PRECIP (in)**	**DATE**	**PRECIP (in)**
5/1/2013	**1.08**	6/1/2013	0.03	7/1/2013	0.00	8/1/2013	0.18
5/2/2013	0.13	6/2/2013	0.00	7/2/2013	0.00	8/2/2013	0.00
5/3/2013	0.00	6/3/2013	0.00	**7/3/2013**	**0.00**	8/3/2013	0.00
5/4/2013	0.09	6/4/2013	0.23	7/4/2013	0.00	8/4/2013	0.00
5/5/2013	0.01	**6/5/2013**	**0.00**	7/5/2013	0.00	8/5/2013	0.02
5/6/2013	0.00	6/6/2013	0.00	7/6/2013	0.00	8/6/2013	0.37
5/7/2013	0.00	6/7/2013	0.00	7/7/2013	0.00	**8/7/2013**	**0.00**
5/8/2013	**0.13**	6/8/2013	0.92	7/8/2013	0.00	8/8/2013	0.00
5/9/2013	0.86	6/9/2013	0.33	7/9/2013	0.29	8/9/2013	0.00
5/10/2013	0.00	6/10/2013	0.00	**7/10/2013**	**0.00**	8/10/2013	0.00
5/11/2013	0.00	6/11/2013	0.00	7/11/2013	0.00	8/11/2013	0.00
5/12/2013	0.00	**6/12/2013**	**0.00**	7/12/2013	0.00	8/12/2013	0.00
5/13/2013	0.00	6/13/2013	0.00	7/13/2013	0.06	8/13/2013	0.00
5/14/2013	0.00	6/14/2013	1.37	7/14/2013	0.00	**8/14/2013**	**0.00**
5/15/2013	**0.00**	6/15/2013	0.00	7/15/2013	0.00	8/15/2013	1.12
5/16/2013	0.00	6/16/2013	0.00	7/16/2013	0.00	8/16/2013	0.00
5/17/2013	0.00	6/17/2013	0.00	**7/17/2013**	**0.00**	8/17/2013	0.00
5/18/2013	0.01	6/18/2013	0.26	7/18/2013	0.00	8/18/2013	0.00
5/19/2013	0.92	**6/19/2013**	**0.00**	7/19/2013	0.00	8/19/2013	0.00
5/20/2013	0.00	6/20/2013	0.00	7/20/2013	0.00	8/20/2013	0.00
5/21/2013	0.00	6/21/2013	0.00	7/21/2013	0.00	**8/21/2013**	**0.00**
5/22/2013	**0.01**	6/22/2013	0.00	7/22/2013	0.00	8/22/2013	0.00
5/23/2013	0.00	6/23/2013	0.10	7/23/2013	0.02	8/23/2013	0.00
5/24/2013	0.00	6/24/2013	1.04	**7/24/2013**	**0.00**	8/24/2013	0.00
5/25/2013	0.36	6/25/2013	0.18	7/25/2013	0.01	8/25/2013	0.00
5/26/2013	0.00	**6/26/2013**	**0.00**	7/26/2013	0.00	8/26/2013	0.00
5/27/2013	0.88	6/27/2013	0.28	7/27/2013	0.00	8/27/2013	0.00
5/28/2013	0.00	6/28/2013	0.00	7/28/2013	0.00	**8/28/2013**	**0.00**
5/29/2013	**0.85**	6/29/2013	0.00	7/29/2013	0.05	8/29/2013	0.00
5/30/2013	0.41	6/30/2013	0.00	7/30/2013	0.01	8/30/2013	0.00
5/31/2013	0.00			**7/31/2013**	**0.00**	8/31/2013	0.00


Summer '13 Precipitation (in/day)
Precipation (in)
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
5/1
5/8
5/15
5/22
5/29
6/5
6/12
6/19
6/26
7/3
7/10
7/17
7/24
7/31
8/7
8/14
8/21
8/28
2012
PRECIP (in)

Site D Hwy 75 and Capehart

(**Bold** text indicates that the sample result was less than the detection limit, gray background indicates probe error)

	5/1	5/8	5/15	5/22	5/29	6/5	6/12	6/19	6/26	7/3	7/10	7/17	7/24	8/1	8/7	8/14	8/21	8/28	
Total Coliform	4790	7990	8150	29090	155310	>241960 L	68670	129970	68670	20390	20710	14070	72700	32550	129970	11400	12450	15180	**SM 9222 D** MDL = 1 cfu / 100 mL
e coli	602	1600	179	2403	24939	8900	1320	4380	3210	800	973	250	4380	1670	5890	325	210	80	**Colilert Method** MDL = 1 cfu / 100 mL
Nitrate / Nitrite Nitrogen (mg/L)	1.5	1.9	2.4	2.3	3	4.5	4.4	3.4	2.6	4.2	3.4	3.1	2.5	3	1.8	2.7	2.3	1.6	**EPA 353.2** MDL = 0.2 mg/L
Kjeldahl Nitrogen (mg/L)	0.61	0.96	0.5	0.69	2.7	1.14	0.93	0.88	0.8	0.63	0.76	0.58	0.97	0.8	1.04	<0.50	1.25	0.55	**EPA 351.3** MDL = 0.5 mg/L
Nitrite Nitrogen (mg/L)	0.03	0.03	0.04	0.09	0.11	0.09	0.06	0.07	0.04	0.03	0.03	0.03	0.04	0.04	0.04	0.02	<0.02	0.02	**SM 4500-NO_2^- B** MDL = 0.02 mg/L
Ammonia Nitrogen (mg/L)	0.05	0.17	0.12	0.11	0.36	0.44	0.11	0.24	0.1	0.21	0.05	0.05	0.14	0.06	0.11	0.03	0.03	0.04	**SM 4500-NH_3 D** MDL = 1 mg/L
Total Phosphorus (mg/L)	0.12	0.18	0.18	0.22	0.67	0.32	0.34	0.29	0.27	0.22	0.23	0.18	0.3	0.28	0.37	0.23	0.2	0.16	**SM 4500 P F** MDL = 0.05 mg/L
Dissolved Phosphorus (mg/L)	<0.05	0.05	<0.05	0.07	<0.05	0.12	0.08	0.11	0.10	0.12	0.08	0.07	0.15	0.15	0.09	0.09	0.11	0.07	**SM 4500 P F** MDL = 0.05 mg/L
pH (lab)	8.22	8.02	8.14	8.07	7.82	7.93	0.00	7.95	8.00	8.17	8.15	8.19	7.94	8.09	7.80	8.28	8.20	8.20	**SM 4500-H^+ B**
COD (mg/L)																			**SM 5220 D** MDL = 20 mg/L
BOD (mg/L)	3	4	(2)	2	6	6	2	3	2	0.9	3	2	3	2	3	1	0	2	**SM 5210 B** MDL = 2 mg/L
TSS (mg/L)	28	73	55	70	650	175	128	109	134	33	51	39	70	70	144	51	31	28	**SM 2540 D** MDL = 1 mg/L
TDS (mg/L)	404	445	529	460	456	431	420	417	410	469	463	501	436	520	247	473	471	488	**SM 2540 C** MDL = 1 mg/L
Temp (C)	—	16.20	18.9	15.30	20.10	17.90	—	20.81	23.39	20.11	22.01	25.52	22.98	22.04	22.65	21.08	23.97	32.41	Field Measurment
DO (mg/L)	16.0	15.31	16.81	18.01	15.79	16.92	17.53	7.40	7.16	8.70	8.90	6.66	6.08	7.28	6.99	9.41	6.93	6.10	Field Measurment
SpCond (æS/cm)	645.13	665.75	715.4	626.20	514.1	606.3	666.5	662.7	615.0	736.5	637.7	759.1	648.3	794.0	421.0	760.5	747.0	761.7	Field Measurment
Turb (NTUs)	20.0	69.50	39.4	43.85	700.0	151.3	93.1	82.5	115.5	33.2	93.1	24.1	53.0	52.1	163.1	34.4	—	17.5	Field Measurment
pH	7.66	7.98	7.99	7.72	7.48	7.59	7.86	7.66	7.79	8.09	8.22	8.00	7.23	7.46	7.71	8.10	8.13	8.08	Field Measurment

Data quality control is done "in house" for the following tests: COD, BOD, TSS, TDS.

A = Value is an average results obtained from multiple analyses

L = The actual value is greater than the value given.

U = Value below detection limit.

X = Value exceeds instrument range.

Site F 66th and L St

(**Bold** text indicates that the sample result was less than the detection limit, gray background indicates probe or analysis error)

	5/1	5/8	5/15	5/22	5/29	6/5	6/12	6/19	6/26	7/3	7/10	7/17	7/24	8/1	8/7	8/14	8/21	8/28	
Total Coliform	1500	11010	2720	21780	173290	241960	77010	77010	43520	21310	4620	16940	27480	18980	92080	6160	9300	11900	**SM 9222 D** MDL = 1 cfu / 100 mL
e coli	230	2030	140	7100	9697	9680	660	3620	2870	1210	200	1570	1200	540	5830	320	300	150	**Colilert Method** MDL = 1 cfu / 100 mL
Nitrate / Nitrite Nitrogen (mg/L)	0.5	1.1	1.1	1.2	1.7	1.9	1.8	1.9	1.8	2	1.1	0.9	0.9	1.3	1.1	0.9	1	0.5	**EPA 353.2** MDL = 0.2 mg/L
Kjeldahl Nitrogen (mg/L)	0.056	0.87	0.6	1.08	1.32	0.7	0.71	0.7	0.65	0.74	1.16	0.71	0.84	0.69	0.67	<0.50	<0.50	<0.5	**EPA 351.3** MDL = 0.5 mg/L
Nitrite Nitrogen (mg/L)	<0.02	0.05	0.03	0.07	0.1	0.09	0.05	0.09	0.07	0.05	0.08	0.04	0.06	0.06	0.05	0.02	0.02	0.02	**SM 4500-NO_2^- B** MDL = 0.02 mg/L
Ammonia Nitrogen (mg/L)	0.03	0.1	0.09	0.15	0.28	0.3	0.15	0.28	0.26	0.13	0.25	0.1	0.24	0.07	0.19	0.04	0.04	0.02	**SM 4500-NH_3 D** MDL = 1 mg/L
Total Phosphorus (mg/L)	0.06	0.07	0.08	0.11	0.27	0.14	0.16	0.14	0.16	0.19	0.2	0.13	0.21	0.14	0.18	0.09	0.08	0.06	**SM 4500 P F** MDL = 0.05 mg/L
Dissolved Phosphorus (mg/L)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	0.07	0.06	0.07	<0.05	0.09	0.06	0.07	<0.05	<0.50	<0.05	**SM 4500 P F** MDL = 0.05 mg/L
pH (lab)	8.16	7.89	8.03	7.88	7.92	7.87	0.00	7.81	7.92	7.99	7.66	7.82	7.62	7.78	7.64	7.97	8.01	7.85	**SM 4500-H^+ B**
BOD (mg/L)	3	5	(2)	2	3	2	2	2	1	1	1	2	2	1	2	1	0	2	**SM 5210 B** MDL = 2 mg/L
TSS (mg/L)	6	12	21	25	106	32	58	33	45	32	4	9	5	3	26	2	3	5	**SM 2540 D** MDL = 1 mg/L
TDS (mg/L)	414	432	511	465	446	451	380	395	411	484	452	521	397	579	280	508	579	539	**SM 2540 C** MDL = 1 mg/L
Temp (C)	---	16.00	18.3	15.20	21.00	16.40	22.30	20.35	23.04	20.10	24.79	24.57	22.13	21.90	22.52	20.52	23.48	24.49	Field Measurment
DO (mg/L)	18.42	14.68	17.55	16.83	16.29	17.25	16.94	7.08	6.93	8.34	5.09	5.80	4.94	7.34	5.37	8.12	8.55	7.60	Field Measurment
SpCond (æS/cm)	630.9	634.70	712.2	665.03	624.2	626.5	661.9	632.3	647.5	747.0	685.8	792.1	596.8	879.9	480.1	820.1	813.5	843.1	Field Measurment
Turb (NTUs)	0.0	19.08	10.2	8.53	89.2	20.7	39.5	30.4	42.2	40.7	28.7	7.1	1.8	8.5	36.2	3.2	---	0.0	Field Measurment
pH	7.15	7.68	7.74	7.53	7.64	7.52	7.82	7.70	7.84	7.98	7.59	7.70	7.04	7.25	7.57	7.90	7.79	7.83	Field Measurment
Duplicate	D	F	D																

Data quality control is done "in house" for the following tests: COD, BOD, TSS, TDS.

A = Value is an average results obtained from multiple analyses

L = The actual value is greater than the value given.

U = Value below detection limit.

X = Value exceeds instrument range.

Site S 78th and L St

(**Bold** text indicates that the sample result was less than the detection limit, gray background indicates probe error)

	5/1	5/8	5/15	5/22	5/29	6/5	6/12	6/19	6/26	7/3	7/10	7/17	7/24	8/1	8/7	8/14	8/21	8/28	
Total Coliform	8510	16000	9240	22820	>241960 L	119000	68670	86640	68670	51720	18857	15770	54750	27550	241960 L	21870	20650	14390	**SM 9222 D** MDL = 1 cfu / 100 mL
e coli	801	800	3200	2620	31300	7010	5140	5530	2250	1370	530	1840	1840	1300	13660	1020	4770	370	**Colilert Method** MDL = 1 cfu / 100 mL
Nitrate / Nitrite Nitrogen (mg/L)	3.1	3.3	3.9	3.9	6.2	6	7.1	6.7	5.5	6.6	5.9	5.5	3.9	4.9	4.7	4.1	3.7	2.7	**EPA 353.2** MDL = 0.2 mg/L
Kjeldahl Nitrogen (mg/L)	0.53	1.09	0.8	1.03	2.23	3.15	1.03	0.72	0.83	0.54	0.53	<0.5	0.9	0.56	1.27	0.54	<0.50	0.6	**EPA 351.3** MDL = 0.5 mg/L
Nitrite Nitrogen (mg/L)	0.06	0.06	0.09	0.17	0.13	0.14	0.09	0.08	0.05	0.03	0.04	0.03	0.04	0.03	0.07	0.03	0.03	0.02	**SM 4500-NO_2^- B** MDL = 0.02 mg/L
Ammonia Nitrogen (mg/L)	0.05	0.17	0.15	0.13	0.31	0.45	0.13	0.22	0.14	0.09	0.04	0.03	0.1	0.05	0.15	0.06	0.04	0.03	**SM 4500-NH_3 D** MDL = 1 mg/L
Total Phosphorus (mg/L)	0.15	0.16	0.22	0.3	0.6	0.85	0.4	0.28	0.29	0.25	0.28	0.24	0.25	0.29	0.5	0.3	0.2	0.19	**SM 4500 P F** MDL = 0.05 mg/L
Dissolved Phosphorus (mg/L)	0.09	0.06	0.09	0.08	<0.05	0.10	0.09	0.11	0.13	0.12	0.11	0.11	0.11	0.14	0.12	0.10	<0.05	0.07	**SM 4500 P F** MDL = 0.05 mg/L
pH (lab)	8.16	8.00	8.10	8.10	8.01	7.96	0.00	8.12	8.08	8.16	8.18	8.20	7.99	8.17	8.04	8.26	8.20	8.18	**SM 4500-H^+ B**
BOD (mg/L)	2	4	(2)	2	6	10	2	2	2	0.9	3	2	2	0	3	1	0	0	**SM 5210 B** MDL = 2 mg/L
TSS (mg/L)	39	45	68	116	440	852	156	122	124	62	45	150	83	77	54	67	31	41	**SM 2540 D** MDL = 1 mg/L
TDS (mg/L)	377	462	482	460	618	386	450	428	428	461	443	388	445	495	498	453	481	489	**SM 2540 C** MDL = 1 mg/L
Temp(C)	---	15.90	19.8	15.20	19.30	17.60	20.50	20.01	22.83	19.48	24.75	24.49	22.48	21.44	22.25	20.62	23.55	24.88	Field Measurment
DO (mg/L)	17.13	15.73	17.07	18.09	17.33	18.24	17.69	7.93	7.38	9.00	6.80	7.38	7.18	8.22	7.23	8.81	7.92	7.40	Field Measurment
SpCond (æS/cm)	611.3	652.05	683.4	646.85	592.6	538.3	639.3	673.9	657.8	702.3	666.0	725.0	661.3	746.5	566.8	730.9	726.3	737.9	Field Measurment
Turb (NTUs)	3.9	63.28	50.2	91.38	483.3	1033.3	121.5	91.5	96.6	56.7	31.8	125.1	84.1	59.6	229.1	1328.3	---	38.4	Field Measurment
pH	6.92	7.31	7.73	7.72	7.71	7.57	7.90	8.05	7.99	8.20	8.09	8.14	7.43	7.62	7.99	8.20	8.16	8.15	Field Measurment

Data quality control is done "in house" for the following tests: COD, BOD, TSS, TDS.

A = Value is an average results obtained from multiple analyses

L = The actual value is greater than the value given.

U = Value below detection limit.

X = Value exceeds instrument range.

Site B 168th and Hwy 36

(**Bold** text indicates that the sample result was less than the detection limit, gray background indicates probe error)

	5/1	5/8	5/15	5/22	5/29	6/5	6/12	6/19	6/26	7/3	7/10	7/17	7/24	7/31	8/7	8/14	8/21	8/28	
Total Coliform	4150	2330	6620	6900	77010	27550	21300	134000	46110	28510	57940	29090	17890	33340	241960 L	36090	20650	22428	**SM 9222 D** MDL = 1 cfu / 100 mL
e coli	194	270	420	600	9378	2110	2070	1120	2080	790	2690	2070	1730	1690	23330	1450	4770	720	**Colilert Method** MDL = 1 cfu / 100 mL
Nitrate / Nitrite Nitrogen (mg/L)	5	5.3	5.3	6.1	9.7	9.3	9.8	9.3	9.4	9.1	8.4	8.2	7.6	7.1	5.1	6.2	5.7	5	**EPA 353.2** MDL = 0.2 mg/L
Kjeldahl Nitrogen (mg/L)	0.63	0.65	0.9	1.19	1.63	1.19	0.9	0.71	0.8	0.52	0.57	0.74	0.59	<0.05	1.21	<0.50	0.51	0.68	**EPA 351.3** MDL = 0.5 mg/L
Nitrite Nitrogen (mg/L)	0.07	0.07	0.16	0.2	0.12	0.11	0.1	0.11	0.09	0.05	0.08	0.06	0.04	0.04	0.07	0.04	0.04	0.05	**SM 4500-NO_2^- B** MDL = 0.02 mg/L
Ammonia Nitrogen (mg/L)	0.07	0.07	0.45	0.22	0.32	0.24	0.22	0.22	0.08	0.07	0.03	0.1	0.03	0.04	0.09	0.04	0.03	0.26	**SM 4500-NH_3 D** MDL = 1 mg/L
Total Phosphorus (mg/L)	0.17	0.19	0.3	0.35	0.62	0.48	0.42	0.3	0.35	0.29	0.37	0.35	0.28	0.27	0.52	0.26	0.25	0.27	**SM 4500 P F** MDL = 0.05 mg/L
Dissolved Phosphorus (mg/L)	0.11	0.08	0.11	0.16	0.14	0.18	0.09	0.17	0.17	0.14	0.17	0.17	0.17	0.14	0.23	0.15	0.10	0.10	**SM 4500 P F** MDL = 0.05 mg/L
pH (lab)	8.27	8.23	8.19	8.18	8.06	8.14	0.00	8.16	8.14	8.00	8.22	8.21	8.25	8.26	8.06	8.32	8.26	8.23	**SM 4500-H^+ B**
COD (mg/L)																			**SM 5220 D** MDL = 20 mg/L
BOD (mg/L)	2	2	2	2	3	2	2	2	2	0.9	1	2	1	0	3	1	0	0	**SM 5210 B** MDL = 2 mg/L
TSS (mg/L)	38	89	121	127	398	266	168	144	146	105	109	140	79	59	56.7	48	56.7	58	**SM 2540 D** MDL = 1 mg/L
TDS (mg/L)	328	406	433	437	516	462	438	456	456	443	435	462	453	467	441.3	420	433	460	**SM 2540 C** MDL = 1 mg/L
Temp (C)	---	15.70	18.0	13.50	17.20	17.60	20.50	20.01	22.83	19.48	24.75	24.49	22.48	21.44	22.25	20.62	23.55	24.88	Field Measurment
DO (mg/L)	18.63	19.50	18.15	19.33	17.34	18.24	17.69	7.93	7.38	9.00	6.80	7.38	7.18	8.22	7.23	8.81	7.92	7.40	Field Measurment
SpCond (æS/cm)	474.6	585.83	575.3	576.60	593.5	538.3	639.3	673.9	657.8	702.3	666.0	725.0	661.3	746.5	566.8	730.9	726.3	737.9	Field Measurment
Turb (NTUs)	33.7	68.23	75.3	74.33	249.5	1033.3	121.5	91.5	96.6	56.7	31.8	125.1	84.1	59.6	229.1	1328.3	---	38.4	Field Measurment
pH	6.39	7.85	8.17	7.95	7.84	7.57	7.90	8.05	7.99	8.20	8.09	8.14	7.43	7.62	7.99	8.20	8.16	8.15	Field Measurment

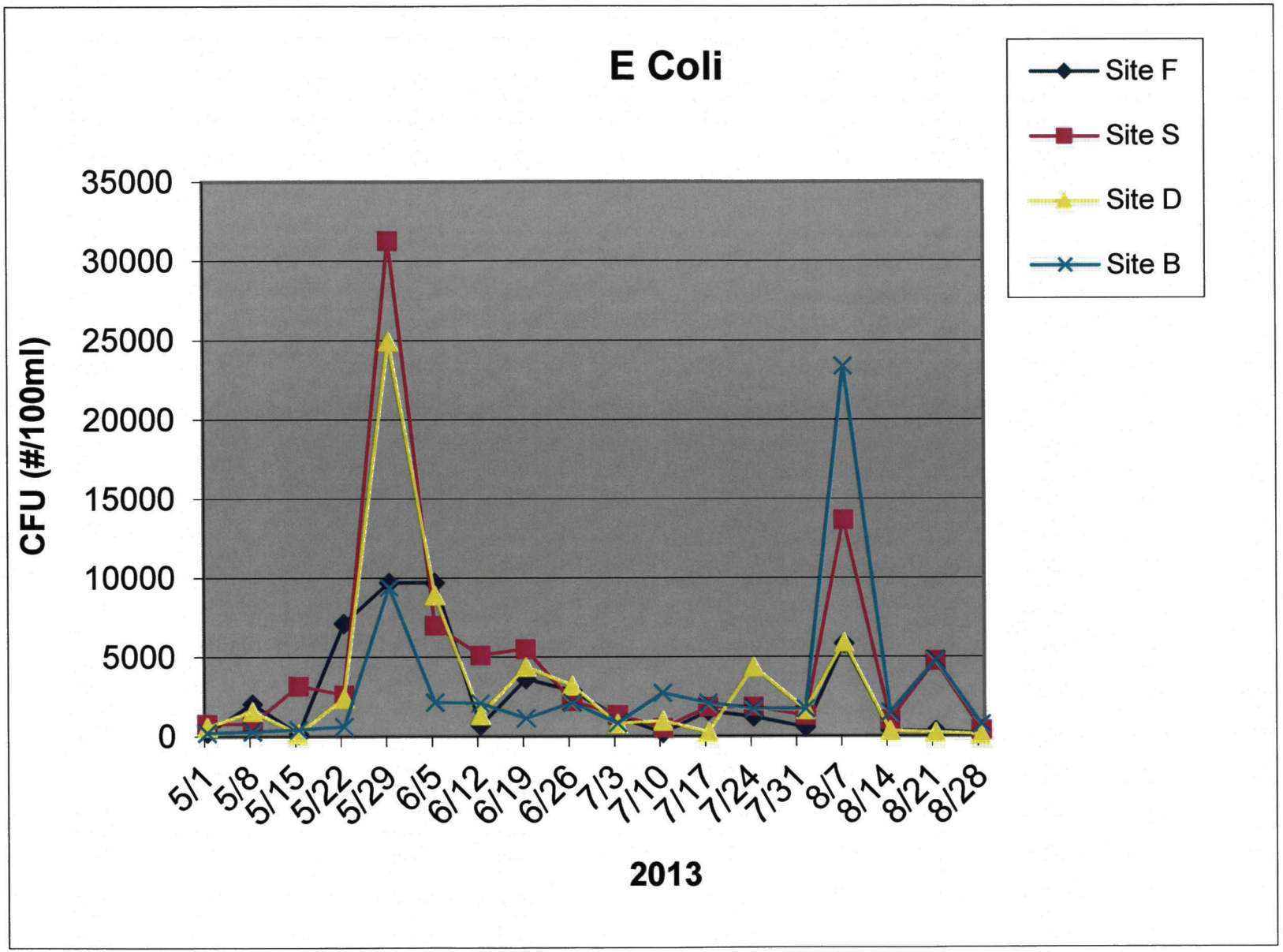
Data quality control is done "in house" for the following tests: COD, BOD, TSS, TDS.

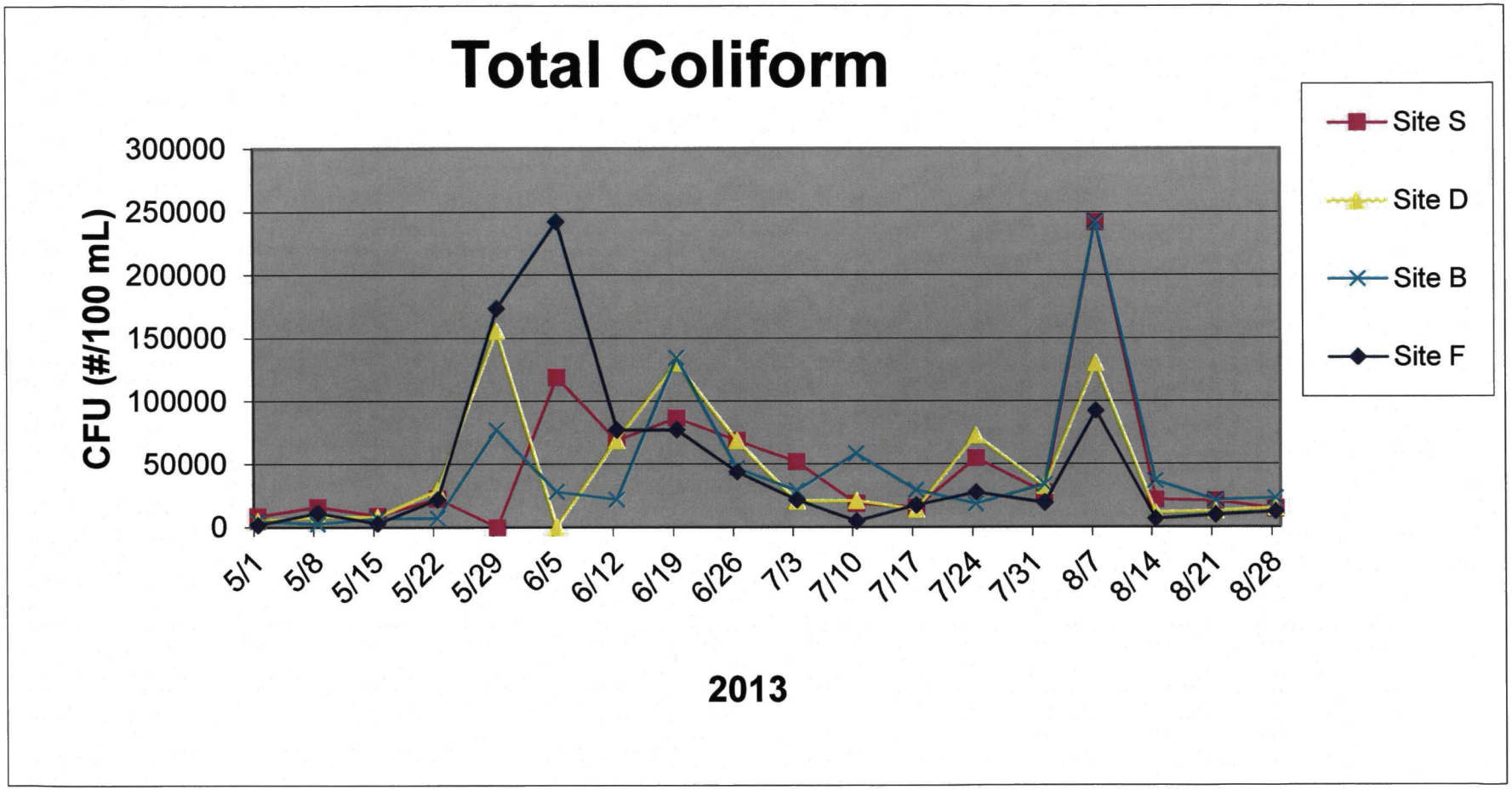
A = Value is an average results obtained from multiple analyses

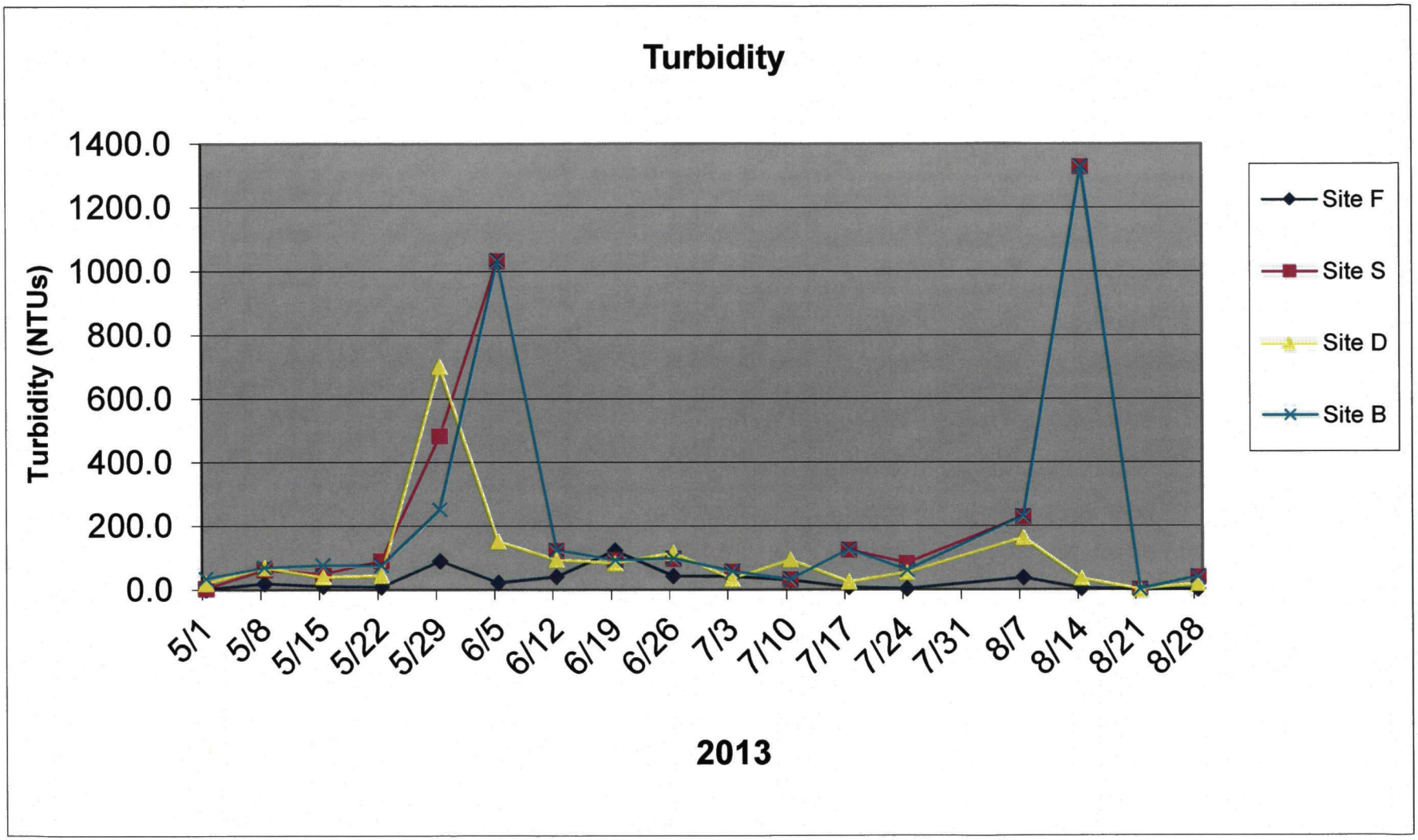
L = The actual value is greater than the value given.

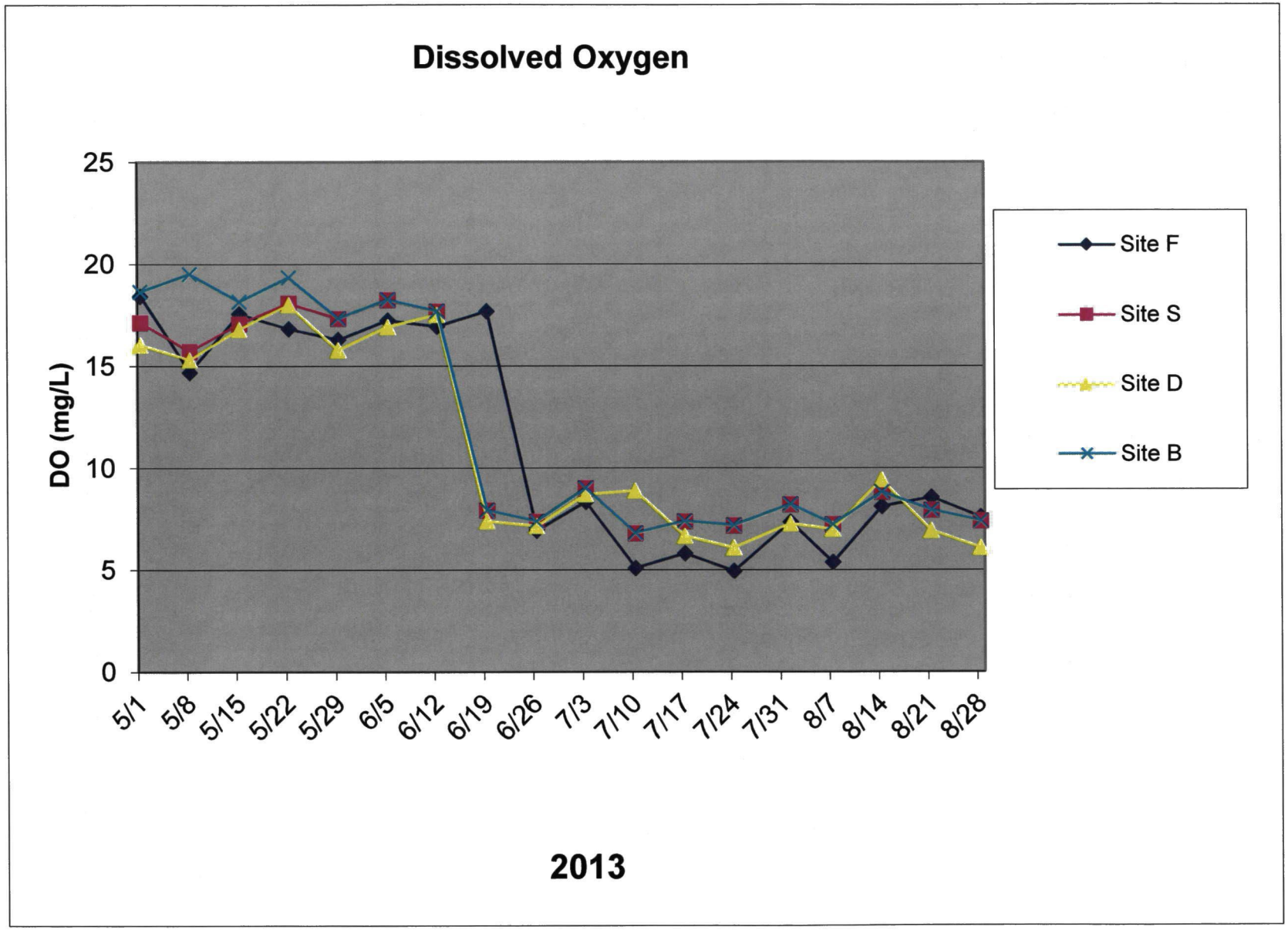
U = Value below detection limit.

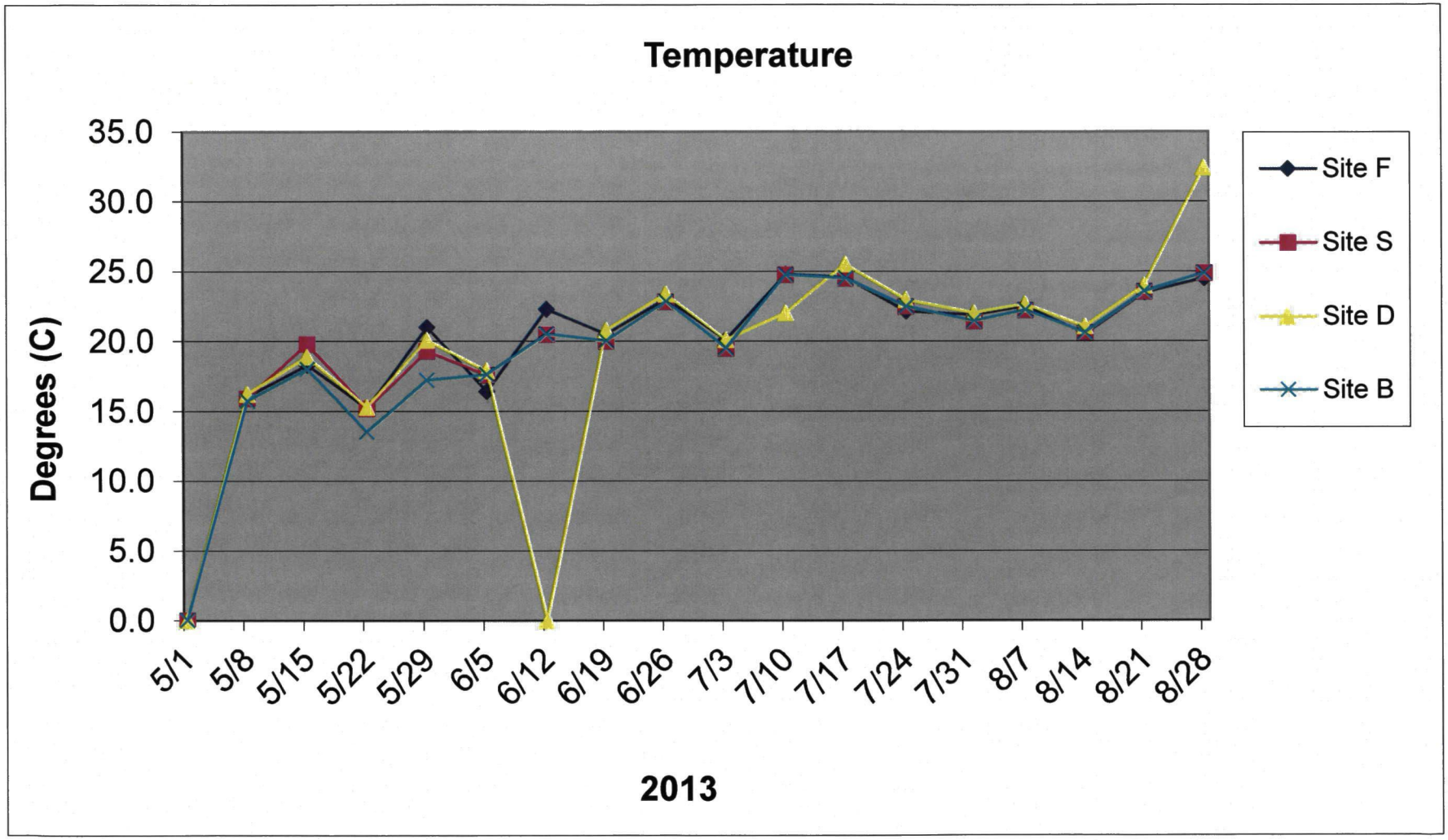
X = Value exceeds instrument range.

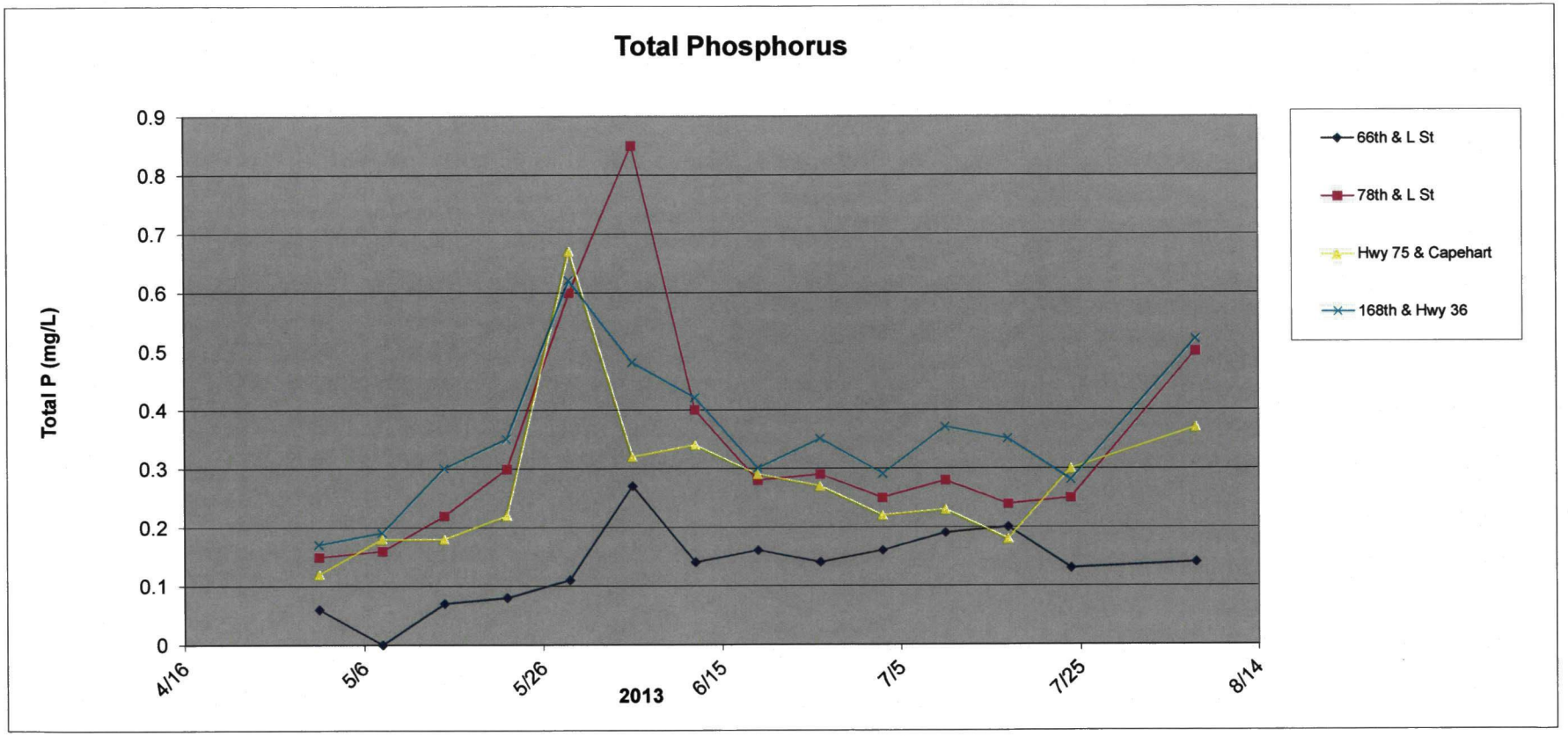

E Coli
Site F
Site S
Site D
Site B
CFU (#/100ml)
35000
30000
25000
20000
15000
10000
5000
0
5/1
5/8
5/15
5/22
5/29
6/5
6/12
6/19
6/26
7/3
7/10
7/17
7/24
7/31
8/7
8/14
8/21
8/28
2013


Total Coliform
CFU (#/100 mL)
300000
250000
200000
150000
100000
50000
0
5/1
5/8
5/15
5/22
5/29
6/5
6/12
6/19
6/26
7/3
7/10
7/17
7/24
7/31
8/7
8/14
8/21
8/28
2013
Site S
Site D
Site B
Site F


Turbidity
Turbidity (NTUs)
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.0
5/1
5/8
5/15
5/22
5/29
6/5
6/12
6/19
6/26
7/3
7/10
7/17
7/24
7/31
8/7
8/14
8/21
8/28
2013
Site F
Site S
Site D
Site B


Dissolved Oxygen
DO (mg/L)
25
20
15
10
5
0
5/1
5/8
5/15
5/22
5/29
6/5
6/12
6/19
6/26
7/3
7/10
7/17
7/24
7/31
8/7
8/14
8/21
8/28
Site F
Site S
Site D
Site B
2013


Temperature
Degrees (C)
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
5/1
5/8
5/15
5/22
5/29
6/5
6/12
6/19
6/26
7/3
7/10
7/17
7/24
7/31
8/7
8/14
8/21
8/28
2013
Site F
Site S
Site D
Site B


Total Phosphorus
Total P (mg/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
4/16
5/6
5/26
6/15
7/5
7/25
8/14
2013
66th & L St
78th & L St
Hwy 75 & Capehart
168th & Hwy 36

Attachment D

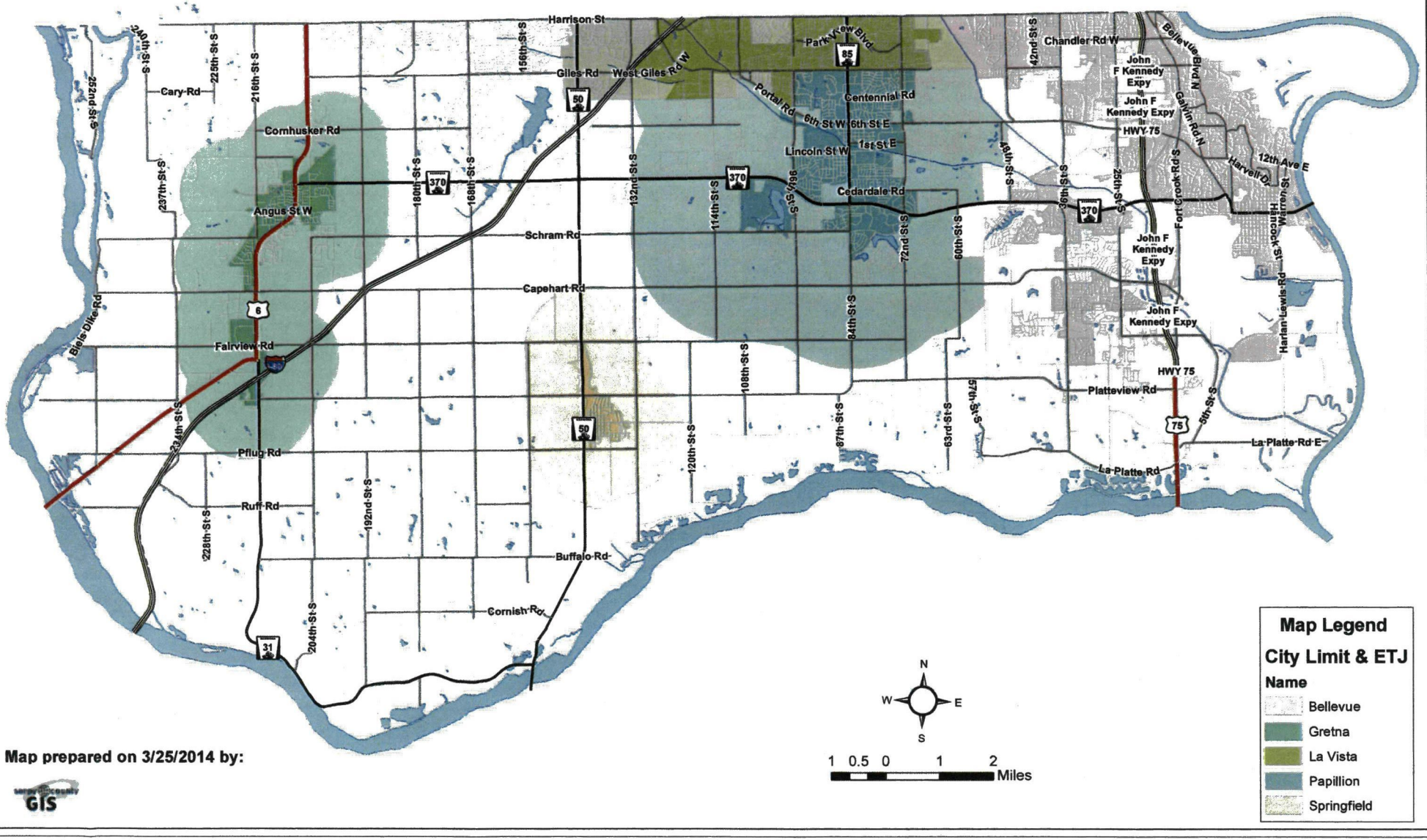
SADDLEBROOK RESULTS -- 2013

	Green Roof	Grey Roof	Rain Garden	Basin	Field Duplicate	Blank	Method Code
Date Sampled	5/27-28/2013						
Field pH	7.66	6.37	7.84	7.74			Standard Methods 4500-H^+, B
Temperature (°C)	7.8	8.8	8.8	8.8			
Conductivity (µS)	138.9	25.6	Error	98.1			
Dissolved Oxygen (mg/L)	7.15	7.79	5.48	7.29			
Dissolved Oxygen %	78	76.7	59.10	78.9			
Physical Characteristics	yellow-brown, clear, few bubbles	clear, small white solids	clear, small amt of organics	clear, small amt of organics			
Lab pH	7.87	7.18	8.14	7.85	8.14	9.58	Standard Methods 4500-H^+, B
Total Suspended Solids (mg/L)	67	11	4	91	104	0	Standard Methods 2540 D
Biochemical Oxygen Demand (mg/L)	4	4	2.00	5	6.00	0.00	Standard Methods 5210 B
Total Coliforms (cfu / 100 mL)	141360	344	64880.00	198630	155310.00	2.00	IDEXX Standard Methods 9223 B
***E. Coli* (cfu / 100 mL)**	281	<1	476.40	1,368	752.83	<1	IDEXX Standard Methods 9223 B
Ammonia (mg/L)	0.07	1.14	0.06	0.37	0.32	0.05	Standard Methods 4500-NH3
Total Kjeldahl Nitrogen (mg/L)	2.81	1.7	0.55	1.10	0.88	<0.5	PAI - DK 02
Total Phorphorus (mg/L)	1.41	<0.05	0.36	0.20	0.19	<0.05	Standard Methods 4500-P F

SADDLEBROOK RESULTS -- 2013

	Green Roof	Grey Roof	Rain Garden	Basin	Field Duplicate	Blank	Method Code
Date Sampled	11/5/2013 - 11/7/13						
Field pH	Error	7.08	Error	8.73			Standard Methods 4500-H^+, B
Temperature (°C)	12.2	7.95	Error	7.75			
Conductivity (µS)	Error	Error	Error	Error			
Dissolved Oxygen (mg/L)	Error	11.54	Error	11.56			
Dissolved Oxygen %	Error	97.3	Error	97.1			
Physical Characteristics	Mostly clear, light brown, waxy film, organics	Semi-transparent, light brown, white film, suds, organics	nearly clear	slightly turbid, waxy patches, organics			
Lab pH	7.74	3.96	7.70	7.95	7.74	9.69	Standard Methods 4500-H^+, B
Total Suspended Solids (mg/L)	3	7	2	15	2	0	Standard Methods 2540 D
Biochemical Oxygen Demand (mg/L)	3	3	3	3	2	0	Standard Methods 5210 B
Total Coliforms (cfu / 100 mL)	>241960	1994	104620	13340	3176	<1	IDEXX Standard Methods 9223 B
***E. Coli* (cfu / 100 mL)**	520	1	1,939	15	<1	<1	IDEXX Standard Methods 9223 B
Ammonia (mg/L)	0.12	0.89	0.07	0.31	0.09	<0.10	Standard Methods 4500-NH3
Total Kjeldahl Nitrogen (mg/L)	2.66	0.88	<0.50	<0.50	0.96	<0.50	PAI - DK 02
Total Phorphorus (mg/L)	1.13	<0.05	0.24	<0.05	<0.05	<0.05	Standard Methods 4500-P F

Attachment E



Map prepared on 3/25/2014 by:

GIS