CITY OF OMAHA
NPDES PERMIT FOR THE MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)
NE0133698
2020 ANNUAL REPORT

Submitted by:
Environmental Quality Control Division
5600 S. 10 St.
Omaha, NE 68107

3/31/2021

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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."

James Kee

Signature of Authorized Representative or Cognizant Official

3/31/2021

Date

James Kee

Printed Name

EQCD Manager

Title

Introduction

The third Omaha Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit (NE0133698/PCS 999428) was issued by the Nebraska Department of Environment and Energy (NDEE) and became effective on April 1, 2018. The MS4 permit authorizes the City of Omaha to discharge stormwater from all existing City of Omaha owned or operated MS4 outfalls to the Elkhorn River, the Papillion Creek, the Missouri River, and their tributaries subject to the identified limitations and the Storm Water Management Plan (SWMP) as modified. The City's Environmental Quality Control Division (EQCD) oversees the administration of the permit and ensures that the City is in compliance with the permit requirements.

The MS4 permit was issued for a five-year period and expires on March 31, 2023. The MS4 permit identifies the current City of Omaha SWMP. The SWMP requires the City to submit an annual report. In addition, reports will be made available to the public on the Omaha Stormwater Program (www.omahastormwater.org) and Papillion Creek Watershed Partnership web sites (www.papiopartnership.org).

The City of Omaha Departments that participates in meeting the MS4 permit requirements include:

- Public Works Department
  - Environmental Quality Control Division
  - Street Maintenance Division
  - Sewer Maintenance Division
  - Construction Division
  - Design Division
- Parks, Recreation and Public Property Department
  - Park Maintenance
  - Golf Operations
- Fire Department
- Law Department
- Planning Department

The City is committed to partnering with several organizations to meet the MS4 requirements in the most efficient manner possible. The major partners are listed below. The City intends to continue developing additional partnerships throughout the permit cycle to meet the permit requirements.

- Keep Omaha Beautiful (KOB)
- Papillion Creek Watershed Partnership (PCWP)
- Douglas-Sarpy County Extension Office
- Papio-Missouri River Natural Resource District (P-MRNRD)
- University of Nebraska at Omaha

This report satisfies the annual reporting requirement and covers the calendar year from January 1, 2020 through December 31, 2020. The report is laid out as follows: the program minimum control measures (MCMs) are shaded, the permit requirements are underlined, and the City's description of permit compliance is in plain text.

A. Public Education & Outreach

1. BMPs 1, 3, and 4: Develop a plan for outreach that defines the goals, objectives, target audience and distribution process of materials for the public education and outreach program.

Target Goals & Implementation Schedule: *Year 1 – Develop a 5-year education and outreach plan. Years 2-5 – Review and update the plan each permit year and include the revised plan in the Annual Report.*

The City of Omaha developed in 2019 a 5-year education and outreach plan. The plan outlines the program goals, target audiences, distribution methods and strategies, tracking, and assessment. The plan was submitted with the 2019 MS4 Annual Report and is available upon request. There were no updates to the plan in 2020. Education and outreach efforts have continued throughout 2020. Below is a summary of those efforts.

Outreach Events and Material Distribution

In 2020, The City of Omaha Stormwater Program conducted 25 outreach events with the public, schools, commercial companies, and community organizations with 3,274 attendees. In addition, there were 10 distributions of outreach materials to various construction sites and the general public. Total physical outreach materials distributed by the Omaha Stormwater Program in 2020 was 696. These outreach materials are also available on OmahaStormwater.org and in 2020 they were downloaded a total of 1,408 times. The City continued to contract with Keep Omaha Beautiful, Inc. (KOB) in 2020 for stormwater education and outreach and to distribute educational information. KOB conducted 74 outreach events with 5,423 attendees. Total materials distributed at KOB events was 1,595, for an overall total of 3,699. Outreach materials distributed covered topics concerning stormwater pollution, litter reduction, household hazardous waste, and more. An inventory of all outreach materials is provided in Attachment F.

KOB events also included training and certification for teachers on environmental education, including stormwater runoff. Teachers who attended these events provided the number of students they would apply their training to, helping to better understand the full impact this training can have in the community. The total students reached from these teachers is 7,374. The table below summarizes these totals, except for student reach since that would represent potential attendees and not actual ones.

Outreach Events & Materials			
	Events	Attendees	Materials
Omaha Stormwater	25	3,274	696
OmahaStormwater.org downloads			1,408
KOB	74	5,423	1,595
Total	**99**	**8,697**	**3,699**

Covid-19 had a significant impact on education and outreach in 2020 with virtually all in-person events from March through the end of the year cancelled. In addition, staff quarantines, limited in-person interactions, and overall lack of opportunities negatively impacted education and outreach efforts. Adapting to online and virtual outreach efforts took some time but collaborating with other community organizations for virtual workshops and using the Omaha Stormwater Program websites has helped make sure public education efforts continued through 2020.

Topics at these events ranged from general stormwater education to rain barrel workshops to information on green infrastructure. A summary table of these education and outreach events can be found in Attachment E. Two of these events, the Sediment and Erosion Control Seminar and World O! Water, and other Education and Outreach efforts are described in further detail below.

The City of Omaha Stormwater Program worked with the Papillion Creek Watershed Partnership (PCWP), Papio-Missouri River Natural Resource District (PMRNRD), Douglas County Environmental Services, and the Nebraska Department of Environment and Energy (NDEE) to present the annual Sediment and Erosion Control Seminar on February 6th, 2020. There were 310 people that attended the seminar. Presentations at the event included:

- Stormwater 101 - Discussing common grading permit myths, green infrastructure, and other highlights from the past year – Andy Szatko, City of Omaha
- Sediment & Erosion Control Projects - Brian Williams, ASP Enterprises
- Linear Projects & Sediment & Erosion Control - J.B. Dixon, Felsburg Holt & Ullevig
- What Happens When Floods Collide? An Update on Missouri River Levees - Paul Woodward, Papio-Missouri River NRD
- City of Omaha's Stormwater and Levee Capital Programs - Adam Wilmes, Noma Bordé, & George Parizek, City of Omaha
- EPA Region 7 & Construction Stormwater - Angela Acord, EPA Region 7

The World O! Water Festival in-person event was cancelled in 2020 due to Covid-19, but a live, virtual version of the festival was held on September 9th, 2020. The virtual event included activities such as downloadable coloring pages, online videos, interactive games and quizzes, and online training information. There were approximately 58 organizations that participated and contributed to the event. The activities will remain on the WorldOWater.org website for future access by the public. It is unclear the total reach of the event on September 9th, but the website had 976 users, 1,100 sessions, and 3,793 page views from September 9th through the end of the year. Topics included water stewardship, recycling, water quality, and water conservation. This was the 16th successful year the event was held.

In addition to the distribution of educational brochures and public outreach events, Keep Omaha Beautiful, Inc. coordinated several public service announcements (PSAs) and other information regarding stormwater pollution through radio, television, social media, and other means such as e-newsletters in 2020. In total there were 244 PSA's with the breakdown by type provided in the table below. Topics and events addressed by these spots included stormwater pollution prevention, proper firework disposal, World O! Water, and storm drain marking.

PSA's	
Radio spots	2
Print ads	0
Television spots	14
Social media	216
E-News	12
Total	**244**

Website

The City of Omaha Stormwater Program website is OmahaStormwater.org. The website provides many resources for stormwater management and is organized generally by target audience: residential, commercial,

construction, and industrial. From the website homeowners can learn of what they can do at their home to manage stormwater runoff. Industrial facilities can learn how to apply for a permit as well as resources to help them maintain compliance. Developers and engineers can access the necessary documents to apply for Grading Permits and Post-Construction Stormwater Management Plans (PCSMP). The Program has two additional websites, OmahaPlants.org and WorldOWater.org. OmahaPlants.org provides plant information for use in green infrastructure practices. WorldOWater.org focuses on the annual World O! Water family event and provides additional resources to support it.

Residents can also access information as to how they can improve water quality by actions they take at home. The Green Infrastructure Education Network was added to the residential section in 2018 and provides information and resources to schools and teachers to incorporate stormwater into the classroom. On the website, the public can also access the City's current MS4 permit, past and current annual reports, and submit complaints or comments through an online form. The Stormwater Program also maintains a Facebook Page and provides additional communication with the public. Regular status updates sharing facts on stormwater, demonstration projects, and other related information were posted and helped to connect the public to the Omaha Stormwater website.

In 2020, OmahaStormwater.org had technical issues that prevented accurate tracking of usage primarily during the months of August through November, as a result no data for those months are included in this annual report. For the remainder of 2020, the website had 2,814 visitors with 3,794 total page views. The Omaha Stormwater Program Facebook page had a total reach of 10,395. Tables compiling the monthly breakdown for OmahaStormwater.org and the Omaha Stormwater Program Facebook Page can be found in Attachment E. Below is a summary of website traffic for 2020.

2020 Website Summary

	Users	Page Views	Sessions
OmahaStormwater.org	2,814	3,794	7,169
WorldOWater.org	1,959	9,119	2,256
OmahaPlants.org	1,220	2,278	1,301
Total	5,993	15,191	10,726

Signage

On-site, educational signage has been placed at many of the City's demonstration projects over the past 13 years, including at the UnderTheSink Facility, Orchard Park, Saddlebrook Joint Use Facility, Metropolitan Community College (MCC) Fort Omaha Campus, Creighton Prep, the University of Nebraska Omaha Welcome Center, Benson East Entrance at 58th & Maple, and Dundee Elementary School. No new signs were installed in 2020. Smaller, non-site-specific signs for rain gardens and permeable pavement have been developed and can be placed at other City green infrastructure (GI) project sites.

In addition to signage at demonstration projects, fact sheets for City of Omaha GI projects have been developed to share basic information on each project with the community. There are 26 project fact sheets, and these are shared with participants on tours and other outreach events. These GI fact sheets have also been uploaded to the Omaha Stormwater Program's website, OmahaStormwater.org, for public access and linked to their respective projects. Information provided includes photos, background information, and other project details.

Pet Waste Campaign

The City of Omaha Stormwater Program developed and implemented a pet waste campaign in 2009. Advertisements were developed and published in several publications and locations across the city. We continue to use these materials today as part of our education and outreach program. 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. In 2020, due to Covid-19, no pet waste materials were physically distributed. The outreach events that are typically attended were cancelled and handing out materials during 2020 was decided to not be in the best interest of public health. Pet waste bags were provided by the City distributed by the Omaha Dog Park Advocates to dog parks in 2020, with 76,800 bags distributed.

This permit requirement continues to be met.

2. BMP 2: Maintain and update appropriate messages for targeted residential, construction, and commercial issues.

Target Goals & Implementation Schedule: *Year 1 – Inventory current outreach materials in each of these targeted areas and develop new materials as needed. Years 2-5 – Provide copies of new outreach materials in the annual report.*

The City of Omaha Environmental Quality Control Division has developed many outreach materials over the years. As reported in the 2019 Annual report these materials have been inventoried and categorized into the following target areas: residential, construction, commercial, and industrial. In 2020, there were no new outreach materials created, but project fact sheets were added to the inventory listing. These fact sheets have existed previously but were inadvertently left off. All materials are available online at OmahaStormwater.org

This permit requirement continues to be met.

B. Public Participation & Involvement

1. BMP 1: Provide opportunities for citizens to comment on new rules, ordinances, and regulations regarding the MS4

Target Goals & Implementation Schedule: *On-Going All Years – Post on the City Stormwater Website proposed changes to rules, ordinances, and regulations. Provide information in the annual report on approved changes and input received from the public.*

There were no changes to rules, ordinances, or regulations in 2020.

This permit requirement continues to be met.

2. BMP 2: Create opportunities for citizens to participate in the implementation of stormwater controls.

Target Goals & Implementation Schedule: *On-Going All Years – Post on the City Stormwater Website opportunities for public involvement in stormwater control related activities.*

The City of Omaha Stormwater Program's website is regularly updated throughout the year with information on opportunities for citizens to participate. Events and information include the Sediment & Erosion Control conference, World O! Water festival, proper handling of fireworks debris, and various outreach events. Social media, including the Omaha Stormwater Facebook Page, the City of Omaha's Public Works Twitter account, and Keep Omaha Beautiful's Facebook Page and Twitter account is used to further educate and engage with the public on stormwater-related topics.

The public is also encouraged to attend the Papillion Creek Watershed Partnership's meetings held regularly throughout the year, to discuss watershed and water quality policies. There were six meetings held in the 2020 calendar year. The following table summarizes the times and attendance for the meetings.

Date	Count	Target Market	Comments
January 23, 2020	15	Partnership Members	Partnership Meeting
February 27, 2020	27	Partnership Members	Partnership Meeting
March 26, 2020	24	Partnership Members	Partnership Meeting
September 24, 2020	26	Partnership Members	Partnership Meeting
October 22, 2020	26	Partnership Members	Partnership Meeting
December 3, 2020	28	Partnership Members	Partnership Meeting

Storm Drain Marking

KOB coordinated neighborhood groups and scout troops in 2020 to mark and clean storm sewer inlets. In total, 4,017 inlets were marked with disks. Inlets were also cleaned during these events, 55 bags of trash and 3 bags of recyclables were collected. There were 136 inlets cleaned that were already marked. Through KOB's coordination, 138 youth and adult volunteers participated in inlet marking, totaling 1,220.5 hours of community service hours. Bilingual "Only Rain Down the Storm Drain" educational door hangers (which highlights HHW and Under the Sink) were are typically distributed to individuals living near storm drains

that were marked but due to Covid-19, no door hangers were distributed. KOB also provides inlet marking discs to contractors installing storm sewers in the Omaha area. In 2020, 135 discs were sold to contractors.

Dog Parks

The City of Omaha has partnered with the Omaha Dog Park Advocates by supplying Pet Waste Bag Stations and Pet Waste Bags for the two dog parks in Omaha. The Advocates keep the dispensers supplied with bags and submit a count to EQCD. A total of 76,800 bags were used during 2020.

This permit requirement continues to be met.

3. BMP 3: Provide access to information about the City's SWMP

Target Goals & Implementation Schedule: *On-going All Years – Maintain current City SWMP and MS4 annual reports on the Omaha Stormwater website.*

The Omaha Stormwater website is current with the 2019 Annual Report and current version of the SWMP. The website will be updated with the 2020 Annual Report upon its completion.

This permit requirement continues to be met.

C. Illicit Discharge Detection & Elimination

1. BMP 1a: Maintain a compliance plan or mechanism to follow up on illicit discharges.

Target Goals & Implementation Schedule: *On-going All Years – Maintain the compliance procedures per the permit requirements.*

The City of Omaha's compliance plan is titled the Omaha Environmental Enforcement Manual and was submitted with the 2019 MS4 Annual Report and is available upon request. This manual describes the City's enforcement goals, process and mechanisms, program priorities, and civil penalty policy. No updates were made in 2020.

This permit requirement continues to be met.

2. BMP 1b: Maintain a map showing all known MS4 outfalls and the location of all state-designated waters receiving direct discharges from MS4 outfalls.

Target Goals & Implementation Schedule: *On-Going All Years – Maintain a continually updated storm sewer system map per the permit requirements.*

The City of Omaha's Sewer Maintenance Division is responsible for maintaining and updating the separate storm sewer system map, in addition to sanitary and combination sewers. EQCD utilizes this information to catalogue outfalls and support outfall screening efforts. The mapping of State-designated waters is maintained by the City's GIS department. They utilize USGS data and LiDAR flown periodically for the City to identify waterbodies and maintain the map layer. GIS map layers of impaired waters are obtained from the Nebraska Department of Environment & Energy (NDEE), http://deq.ne.gov/Publica.nsf/Pages/WAT251. These layers are reviewed and updated as needed.

In 2020, an EPA audit of the City of Omaha's MS4 Permit took place and one of the initial findings from that audit indicated that the Stormwater Management Plan (SWMP) did not have a "strategy on how the City will update the storm sewer map (Part III.C.1.b)." The strategy was described by the Sewer Maintenance Division during the audit but it was not in a written document. The strategy for maintaining the storm sewer map was drafted after the audit and is provided in Attachment J.

This permit requirement continues to be met.

3. BMP 1c: Conduct field screening activities per the permit requirements (set forth in 40 CFR Part 122.26(d)(1)(iv)(D)) specifically geared to local TMDL pollutants of concern such as *E. coli* and to eliminate illicit discharges.

Target Goals & Implementation Schedule: *Year 1 – Develop dry-weather screening, sampling, and quality control plan to address pollutants of concern. Conduct screening under current plan during Year 1. On-Going All Years – Annually conduct dry-weather monitoring according to screening and sampling plan.*

There were 268 potential outfalls identified by EQCD using GIS information collected by Sewer Maintenance in 2009. In 2019, the GIS information was reviewed to ensure all applicable outfalls are being screened.

When potential outfalls are identified, they are classified as new to the outfall inventory for screening. Once screened, the outfalls are then classified as priority outfalls if they are 72" or greater or had a documented illicit discharge, regardless of size. Priority outfalls are screened annually. Outfalls that are documented with an illicit discharge are updated to priority status and screened annually for the next three years. If no illicit discharge is observed in those three years and it is less than 72", its status is updated to non-priority. Annexations of Sanitary & Improvement Districts (S&IDs) can occur periodically. When this occurs, all annexed outfalls are added as new to the outfall inventory for screening. Based on the screening, they are then classified as being a priority outfall or not. CityWorks asset management software is used to document outfall screening efforts.

All outfall inspections are conducted after 48 hours of dry weather. An outfall reconnaissance inspection form is completed and a Physical Characteristics Examination is completed, if flow is present. If an illicit discharge is encountered EQCD Inspectors are to call supervisory staff immediately. The supervisor reviews the findings with the inspectors, allocates additional resources needed to assist, and an investigation begins to determine the source of the illicit discharge. If an illicit discharge or connection is determined to be the source, the responsible party, if known, is contacted immediately, a request made to cease the discharge immediately, address other associated issues as needed, familiarize them of the alleged violation, and inform them of the penalties that may be assessed. Photographs are taken of outfalls to be kept as a record of outfall conditions during the inspection.

Field screening in 2020 has been consistent with previous years. City of Omaha EQCD staff screened all 80 outfalls identified the previous year as priority outfalls. There were 93 outfall screenings of new outfalls from the 2019 GIS information review and 3 from 2019 annexation areas (Stone Creek and The Willows). No illicit discharges were found in 2020 that would require an outfall to be moved to priority status. Reviewing GIS information for outfalls not previously screened will continue annually going forward. There are 18 new outfalls from 8 S&ID annexations in 2020, these were not screened in 2020 due to timing of annexations and screening of other outfalls from the GIS information review. There are 48 new outfalls from the 2019 sewer node review remaining to be screened. Any outfall with an obvious or suspicious discharge was to be reported immediately to EQCD.

In total, there were 180 outfall screenings. There was one screening that was characterized as suspect because of indications of sewage had been present. That was found to be related to a nearby sanitary sewer overflow (SSO) that was addressed the previous weekend by the Sewer Maintenance Division. The cause was settling of the sanitary pipe that resulted in a blockage. They reviewed the creek, cleaned as needed, and made repairs to the line. There was 1 outfall that was characterized as potential (two physical characteristics observed) but had low severity index numbers and it was determined to not be associated with an illicit discharge. Outfall inspections were entered into the City of Omaha's CityWorks asset management system. The inspections were reviewed, and the outfall priority list was updated. 5 New outfalls that were screened in 2020 will be updated to Priority based on outfall size.

This permit requirement is being met.

4. BMP 1d: Implement procedures to investigate and trace sources of identified illicit discharges to the MS4.

Target Goals & Implementation Schedule: *On-Going All Years – Document investigations and include date observed, result of investigation(s), and date closed.*

The Omaha Stormwater Program operates a hotline, 402-444-3908, and a reporting form at OmahaStormwater.org to receive complaints from the public regarding stormwater issues, including illicit discharges. An Illicit Discharge Detection and Elimination (IDDE) Standard Operating Procedure (SOP) has been developed and is used to investigate and eliminate sources of illicit discharges. Inspections and supporting information for each complaint is tracked in CityWorks. A total of 247 complaints were received in 2020 with 113 resulting in being inspected, and 26 having an illicit discharge associated with it. A summary of 2020 complaint investigations that involved illicit discharges is provided in the table below.

Date Initiated	Actual Finish	Address	Material Discharged	Resolution
2/12/2020	3/23/2020	2734 S 90th St	Car wash water	RVC - Verbal
3/19/2020	3/27/2020	11911 I St	Sediment/sand	RVC - Verbal
3/31/2020	3/23/2020	6601 S 108th Ct	Sanitary sewage	RVC - Written
4/28/2020	4/28/2020	S 44th St & R St	Sediment-laden water	NOV
5/8/2020	5/8/2020	8391 Arbor St	Sediment	RVC - Verbal
5/20/2020	5/22/2020	Raven Oaks Dr & Willit St	Concrete washout	No Action Taken
5/28/2020	7/28/2020	4628 Capitol Ave	Boring Material	RVC - Verbal
5/28/2020	10/16/2020	808 N 108th Ave	Sediment	RVC - Verbal
6/8/2020	6/22/2020	1469 Fowler Ave	Concrete washout	RVC - Verbal
6/25/2020	11/16/2020	4816 L St	Sediment	RVC - Written
7/15/2020		4765 S 135th St	Concrete washout/wastewater	RVC - Verbal
7/23/2020	7/24/2020	Elmwood Park at outfall MH0687020F	Hydraulic fluid	RVC - Verbal
7/23/2020	8/6/2020	6219 N 155th St	Dirt and sediment	RVC - Written
7/23/2020	7/23/2020	19908 Madison St	Concrete washout	RVC - Verbal
7/27/2020	10/26/2020	8520 Blondo St	Sediment	LOW
7/28/2020	8/31/2020	15064 Lake St	Concrete residue and slurry	RVC - Written
8/12/2020	8/12/2020	8401 Park Dr	Concrete washout	RVC - Verbal
8/18/2020	8/24/2020	72nd & Pacific	Concrete residue	RVC - Verbal
8/26/2020	9/23/2020	1735 N 42nd St	Sand	RVC - Verbal
8/26/2020	9/9/2020	5555 N 90th St	Sewage	No Action Taken
8/27/2020	9/14/2020	7167 N 122nd Ave	Concrete residue and slurry	RVC - Verbal
8/31/2020	8/31/2020	13424 Chandler Road	Gasoline	Forwarded to La Vista
9/18/2020	10/20/2020	1268 Peterson Dr	Concrete washout	RVC - Verbal

Date Initiated	Actual Finish	Address	Material Discharged	Resolution
9/24/2020	9/28/2020	S 102nd St & Adams St	Colored concrete washout	RVC - Verbal
8/21/2020	9/30/2020	7804 N 154 Ave	Concrete Cutting Slurry	No Action Taken
10/21/2020	10/21/2020	9856 Devonshire Dr	Pool water	RVC - Verbal
11/4/2020	1/14/2021	3321 S 72nd St	Combination of groundwater, potable water, & pool backwash	RVC - Verbal

This permit requirement is being met.

5. BMP 1e: Implement procedures to remove illicit discharges to the MS4. Document all interactions with potentially responsible parties.

Target Goals & Implementation Schedule: *On-Going All Years – Use the code enforcement procedures to eliminate unauthorized non-stormwater discharges identified during an investigation.*

Chapter 32 of the Omaha Municipal Code is the Stormwater Management Ordinance for the City of Omaha. Article II specifically addresses illicit discharges. Additionally EQCD works with the Planning Department's Plumbing Division to remove illicit connections when encountered. The Omaha Environmental Enforcement Manual, included in Attachment B, describes the City's process and mechanisms to obtaining compliance. A summary of all complaints is included in Attachment C. A summary of all complaint enforcement actions in 2020 is provided in the table below.

Complaint Enforcement Summary	
No Action Taken	36
RVC - Verbal	64
RVC - Written	6
LOW	2
NOV	1
Forwarded to Adjacent MS4	3
Forwarded to Other	2

This permit requirement is being met.

6. BMP 1f: Identify and address allowable non-stormwater discharges determined to be significant contributors to pollutants. Identify any additional non-stormwater discharges that will not be addressed as illicit discharges.

Target Goals & Implementation Schedule: *On-Going All Years – Report on any local controls or conditions placed upon exempt non-stormwater discharges and additional identified exempted non-stormwater discharges.*

No local controls or conditions have been placed on allowable non-stormwater discharges in 2020. There were no additional allowable non-stormwater discharges identified as non-illicit discharges in 2020.

This permit requirement is being met.

7. BMPs 2 & 3: Coordinate with adjacent permitted MS4s to report illicit discharges to the appropriate authority having jurisdiction and respond to reports from other MS4s.

Target Goals & Implementation Schedule: *Year 1 – Develop procedures for coordination with adjacent permitted MS4s. On-Going All Years – Include in the annual report any known illicit discharge reports to and from adjacent MS4s.*

The Omaha Stormwater Program operates a hotline, 402-444-3908, and a reporting form at OmahaStormwater.org to receive complaints from the public regarding stormwater issues. These options for reporting complaints and illicit discharges are promoted through the Papillion Creek Watershed Partnership (PCWP). Complaints received by the Omaha Stormwater Program located in adjacent MS4s are forwarded immediately to the Authority Having Jurisdiction (AHJ) for investigating. Complaints received by adjacent MS4s that are in the City of Omaha limits or it's Extra Territorial Jurisdiction (ETJ), are immediately forwarded over to EQCD. The City of Omaha has a Memorandum of Understanding with Douglas County's Department of Environmental Quality and the Nebraska Department of Transportation (NDOT) to coordinate and cooperate on illicit discharge investigations and other stormwater permit-related activities. Through the inter-local agreement with the PCWP, IDDE is identified as a program area of cooperation between members.

A summary of complaints forwarded to adjacent MS4s is included in the table below.

Date	Address	Complaint Type	Adjacent MS4
5/22/2020	19870 Chicago St	Stormwater Runoff	NDOT
8/31/2020	13424 Chandler Road	Possible Illicit Discharge	City of La Vista
10/6/2020	1129 Locust St	Illegal Dumping	NDEE

This permit requirement is being met.

8. BMP 4: Maintain written procedures for the IDDE component of the MS4 permit.

Target Goals & Implementation Schedule: *On-Going All Years – Make available upon request the standard operating procedures developed under this program component.*

The City is maintaining written procedures for the IDDE component of the MS4 permit and will provide a copy of the standard operating procedures developed under this program element upon request.

In 2020, an EPA audit of the City of Omaha's MS4 Permit took place and one of the initial findings from that audit indicated that the IDDE procedures lacked detail on "how to respond, enforce and eliminate, non-stormwater discharges". The City of Omaha is currently reviewing its IDDE strategies and standard operation procedures to update and provide additional details. Updates made will be provided in the 2021 City of Omaha MS4 Permit Annual Report.

This permit requirement is being met.

9. BMP 5: Receive reports and complaints, internally and from the public, of illicit discharges and illegal dumping into the MS4. Respond to and investigate complaints about spills, dumping, or disposal of materials other than stormwater to the MS4.

Target Goals & Implementation Schedule: *On-Going All Years – Coordinate with others in the City to resolve complaints. Develop a system to generate reports and track the number of calls per year in regard to spills, dumping or improper disposal of materials to the MS4. Include a count of complaints received and investigations completed in the annual report.*

The Omaha Stormwater Program operates a hotline, 402-444-3908, and an online reporting form at OmahaStormwater.org to receive complaints from the public regarding stormwater issues, including illicit discharges. In addition to these options, the City of Omaha also operates the Mayor's Hotline, 402-444-5555 and the OmahaHotline.com website for citizen reporting of issues. CityWorks is an asset management system that the Omaha Stormwater Program and other City departments utilized to track complaints received. Notification of complaints relating to stormwater runoff are sent by service requests (SR). Once received, they are reviewed to ensure they are applicable to the Stormwater Program. Complaints not applicable are forwarded to the appropriate City department or outside agency. If applicable, a work order (WO) is created and assigned to an Environmental Inspector who will visit the site, identify the issue(s), work to correct the issue(s) as needed, determine responsible party, and resolve the identified issues.

A total of 247 complaints were received in 2020 with 113 resulting in an inspection by the Omaha Stormwater Program. A summary of the complaints inspected is included in Attachment C.

This permit requirement is being met.

10. BMP 6: Develop, implement, and maintain a training program for municipal field staff with respect to the IDDE.

Target Goals & Implementation Schedule: *Year 1 – Develop a strategy which identifies field staff and appropriate levels of training. Years 2-5 – Provide a count of employees which have received training in the annual report.*

The City of Omaha Stormwater Program has developed an IDDE Training Strategy and is available for review. In 2020, there were 18 training events that discussed IDDE conducted by the Omaha Stormwater Program with a total attendance of 282 municipal field staff. Besides general stormwater pollution prevention awareness topics, IDDE has been included in the training provided as part of the FRCP program. At training events, resources about IDDE are made available to staff to learn more and to use at their work locations.

A summary table of these events is included below.

Date	Topic	Attendance #
2/6/2020	2020 Annual Sediment & Erosion Control Seminar	61
8/25/2020	EI Training & Safety Toolbox, IDDE – EQC Staff	11
8/28/2020	FRCP Training - Sewer Maintenance, Construction Section	20
8/31/2020	FRCP Training - Parks Central Maintenance/Code Enforcement	22
9/1/2020	FRCP Training - Traffic Maintenance	41
9/3/2020	FRCP Training - Streets D1, including Crack & Seal	37
9/10/2020	FRCP Training - Construction Division	15

Date	Topic	Attendance #
9/10/2020	FRCP Training - Construction Division, Sidewalks Section	2
9/20/2020	FRCP Training - Streets D3	6
9/27/2020	IDDE Training Video – EQC Staff	1
9/28/2020	IDDE Training Video – EQC Staff	1
9/29/2020	FRCP Training - UTS	5
9/29/2020	FRCP Training - Streets D2	29
9/29/2020	FRCP Training - Streets D4, including Broom Crew	30
9/30/2020	FRCP Training - Streets D5	15
9/30/2020	FRCP Training - Oma-gro Compost	3
10/20/2020	Outfall screening training	3
10/23/2020	FRCP Training - Vehicle Impound Lot	9

This permit requirement is being met.

D. Construction Site Program

1. BMP 1: Maintain the established program requiring operators of public or private construction activities to comply with local erosion and sediment control requirements.

Target Goals & Implementation Schedule: *On-Going All Years – Include any updates to City Code or Permit requirements in the annual report.*

The City of Omaha's Environmental Quality Control Division continued to implement the Grading Permit Program in 2020. There were no changes to them in 2020. The Grading Permit Terms and Conditions were updated early 2018 and were rolled out February 1st, 2018 as part of the annual 2018 Sediment & Erosion Control conference sponsored by the City of Omaha. The updates were made to stay consistent with the NDEE's Construction Stormwater Permit NER160000 that was issued November 1, 2016. The Grading Permit Terms and Conditions are available at OmahaPermix.com and OmahaStormwater.org.

This permit requirement is being met.

2. BMP 2: Maintain a compliance plan or mechanism to follow up on construction site non-compliance.

Target Goals & Implementation Schedule: *On-Going All Years – Maintain the compliance procedures per the permit requirements.*

The City of Omaha's compliance plan is titled the Omaha Environmental Enforcement Manual and is included in Attachment B. This manual describes the City's enforcement goals, process, program priorities, enforcement and civil penalty policy. There were no updates to the manual in 2020.

This permit requirement is being met.

3. BMP 3: Review grading permit applications and maintain a continually updated inventory of all private and public construction sites.

Target Goals & Implementation Schedule: *On-Going All Years – Include in the annual report the number and type of grading permits reviewed.*

The Public Works Department, Environmental Quality Control Division, reviews the grading permit applications and the associated Storm Water Pollution Prevention Plans (SWPPP). The SWPPP must meet the requirements specified in the Omaha Regional Storm Water Design Manual for a grading permit to be issued. Sites with 5 acres or greater of land disturbance are given priority over sites less that have 1 to 5 acres of land disturbing activity.

The City of Omaha issued a total of 84 permits in 2020 with 32 permits for sites greater than or equal to 5 acres and 52 permits issued for sites greater than or equal to 1 acre but less than 5 acres in size. During 2020, there were a total of 510 active permits. The Omaha Municipal Code Section 32-101 (Grading Permit Required) requires a project to obtain a grading permit on sites sufficiently large enough to require a general NPDES construction stormwater discharge permit.

This permit requirement is being met.

4. BMP 4: Maintain the electronic records for inspection of construction sites and enforcement of erosion and sediment control measures.

Target Goals & Implementation Schedule: *Year 1 – Develop a strategy for site inspections by municipal staff and include in the annual report. 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. Include a summary of inspections completed and enforcement actions taken in the annual report.*

The City of Omaha Stormwater Program updated their strategy for site inspections by municipal staff in 2019 and was included in the 2019 City of Omaha MS4 Permit Annual Report. EQCD administers the inspection program for Erosion Control, both within the City of Omaha's jurisdiction as well as the Papillion Creek Watershed Partnership's (PCWP) individual members' jurisdiction. The City's Grading Permit Program requires that the owners of active sites assign a Project Inspector to do inspections weekly and after 0.5 inches of rain. In the 2020 calendar year, reports were submitted to an online permitting and reporting website, Permix, by City Inspectors and Project Inspectors for construction. The table below accounts for the reports submitted for sites within the City of Omaha's jurisdiction.

	City Inspection Reports	**Private Inspection Reports**
Phase I Sites (>5 acres)	715	6,596
Phase II Sites (<5 acres)	462	4,120
Total	1,177	10,716

The first step, as outlined in the City of Omaha's Enforcement Manual,is a Request for Voluntary Compliance (RVC). If the permit holder does not bring the site into compliance, a Letter of Warning is sent, regarding the issue(s) and establishes a timeline for compliance. If the permit holder fails to bring the site into compliance by the established timeline, a Notice of Violation is issued and may include a penalty. In 2020, there were 203 Requests for Voluntary Compliance (RVC) during City inspections. When EQCD receives a complaint regarding a permitted grading site, the City Inspector visits the site and files a complaint inspection. There were 54 complaint inspections conducted on 40 permitted grading sites, with 20 of those inspections including an RVC. A summary table of Letters of Warning and Notices of Violation, is summarized in the table below.

Permit Number	**Status**	**Date Submitted**	**Action Taken**
OMA-20170523-4034-GP2	Resolved	9/3/2020	NOV w/penalty collected
OMA-20171207-4313-GP2	Resolved	9/30/2020	NOV w/penalty collected
OMA-20200825-5583-GP1	Resolved	10/6/2020	NOV w/penalty collected
OMA-20161110-3861-GP1	In Progress	11/18/2020	LOW
OMA-20161209-3863-GP1	In Progress	11/3/2020	LOW
OMA-20170208-3962-GP1	Resolved	1/29/2020	LOW
OMA-20170208-3962-GP1	In Progress	9/25/2020	LOW
OMA-20180724-4648-GP1	Resolved	7/28/2020	LOW

Permit Number	Status	Date Submitted	Action Taken
OMA-20151119-3347-GP1	Resolved	9/25/2020	LOW

This permit requirement is being met.

5. BMP 5: Provide training for municipal staff with respect to their assigned duties as it relates to sediment and erosion control from construction activity. One formal training course for inspection staff during their employment with the City and internal training on an as-needed basis to maintain consistent reporting among all inspectors.

Target Goals & Implementation Schedule: *On-Going All Years – Include in the annual report the number of staff and their sediment and erosion control training.*

City of Omaha's Environmental Quality Control Division of the Public Works Department's, Environmental Inspectors who conduct inspections for sediment and erosion control must enroll and pass the Nebraska Local Technical Assistance Program's (LTAP) Erosion and Sediment Control for Inspectors. The training is a full-day course and includes a test at the end that if passed, the inspector becomes certified. This certification is valid for 5 years. When the certification expires, inspectors enroll for an online course to renew their certification. LTAP removed their existing online recertification in 2020 in order to establish a new course that was rolled out in late 2020. Enrolling in this new recertification course did not occur in 2020 due to scheduling conflicts for the two certified inspectors with late 2020 recertification dates. They will take the course in 2021. There are 14 certified inspectors in the City of Omaha's Environmental Quality Control Division (EQCD).

In 2020, EQCD continued to incorporate sediment and erosion control training into the regular monthly safety toolbox meetings. Topics that are covered include review of inspection processes, enforcements, and open discussion to discuss current issues among staff. A summary of 2020 sediment and erosion control training is provided in the table below.

Date	Title	Attendees
1/28/2020	Inspector Training & Safety Toolbox	12
2/25/2020	Inspector Training & Safety Toolbox	12
3/24/2020	Inspector Training & Safety Toolbox	14
4/28/2020	Inspector Training & Safety Toolbox	12
6/2/2020	Inspector Training & Safety Toolbox	5
6/23/2020	Inspector Training & Safety Toolbox	6
7/28/2020	Inspector Training & Safety Toolbox	9
8/25/2020	Inspector Training & Safety Toolbox	11
9/22/2020	Inspector Training & Safety Toolbox	9
10/27/2020	Inspector Training & Safety Toolbox	5
11/24/2020	Inspector Training & Safety Toolbox	9
12/22/2020	Inspector Training & Safety Toolbox	5

This permit requirement is being met.

6. BMP 6: Communicate with the regulated community and other groups affected by the Construction Site Runoff program and provide a mechanism to receive complaints from the public.

Target Goals & Implementation Schedule: *On-Going All Years – Conduct workshops for developers, builders, site designers, contractors, and/or City staff as determined necessary (i.e., a rule or regulation is changed). Track reports from the public regarding construction sites. Include the number of reports received in the annual report and the permittees response.*

Communication

The City of Omaha held multiple outreach events with the regulated community, including the events listed in the table below. Outreach materials are handed out at these events and participants are encouraged to visit OmahaStormwater.org for additional information and resources. Phone calls, emails, and many other types of communications happen as part of regular job duties where City staff provide information and resources to support sediment and erosion control efforts in the community.

Date	Event Name	# of Attendees/ Reach	Location	Details/Comments
1/9/2020	EGA Grading Permit & PCSMP Training	12	EGA Offices, 3552 Farnam St	Provide training & Q&A for grading permits & post-construction
1/14/2020	Olsson SEC presentation	10	Marriott Courtyard, La Vista	Present on Omaha specific SEC topics & info during Olsson day-long internal meeting
1/14/2020	TD2 designers Grading Permit & PCSMP Training	30	TD2 offices, 10836 Old Mill Road	Provide training & Q&A for grading permits & post-construction
1/16/2020	TD2 inspectors Grading Permit & PCSMP Training	12	TD2 offices, 10836 Old Mill Road	Provide training & Q&A for grading permits & post-construction
2/6/2020	Sediment and Erosion Control Seminar	310	DC Centre	Annual seminar to construction industry
2/6/2020	2020 Omaha Home & Garden Expo	1,000	CHI Health Center	Share outreach materials with attendees & vendors
2/27/2020	SEC Flipbook Distribution	2	Various construction sites	Distribution to grading permit sites
3/11/2020	Julie Godberson - Offutt AFB	20	Offutt AFB	Provided multiple, hard-copy of outreach materials to share
4/13/2020	SEC Flipbook Distribution	8	Various construction sites	Distribution to grading permit sites
5/11/2020	SEC Flipbook Distribution	1	Kensington Park	Distribution to Valley Corp Foreman
6/17/2020	SEC Flipbook Distribution	10	Various construction sites	Distribution to grading permit sites
8/18/2020	SEC Flipbook Distribution	10	Various construction sites	Distribution to grading permit sites
9/9/2020	Permix Website Training	3	Virtual	OmahaPermix.com training for Sarpy County

Date	Event Name	# of Attendees/ Reach	Location	Details/Comments
9/28/2020	Water pollution brochure	10	Various construction sites	Distribution to grading permit sites
10/8/2020	SEC Flipbook Distribution	10	Various construction sites	Distribution to grading permit sites
11/20/2020	SEC Flipbook Distribution	10	Various construction sites	Distribution to grading permit sites

Complaints/Reports

When EQCD receives a complaint regarding a permitted grading site, the City Inspector assigned to the site is notified, then visits the site, and files a complaint inspection to document findings. There were 54 complaint inspections conducted on 40 grading permit sites, with 20 of those inspections including an RVC. See BMP 4 in this section for information regarding construction site complaints in 2020.

This permit requirement is being met.

E. Post Construction Runoff Control

1. BMP 1: Continue to implement the Post Construction program as stipulated in the Omaha Municipal Code (OMC). Periodically update guidance material and develop divergent standards for difficult sites such as linear projects. Update as need the Omaha Regional Stormwater Design Manual (ORSDM)

Target Goals & Implementation Schedule: *Year 1 – Develop divergent standards for guidance document and update guidance as needed. Submit standards with the annual report. On-Going All Years – Revise as necessary. Include a summary of revisions in the annual report.*

The City of Omaha's guidance document for post-construction is titled *City of Omaha Post Construction Stormwater Management Planning Guidance* and was developed in July 2009, updated in August 2015, and updated again after soliciting feedback from the design community and the Papillion Creek Watershed Partners reviewers in June 2019.

The document is available on the City's website OmahaStormwater.org and OmahaPermix.com. There were no divergent standards developed for difficult sites in 2020.

This permit requirement is being met.

2. BMP 2: Review and update, if needed, the standards outlined in the OMC and ORSDM for consistency with required performance standards as they relate to post-construction management plans.

Target Goals & Implementation Schedule: *On-Going All Years – Report on any updates to the OMC or ORSDM.*

The City of Omaha periodically reviews the ORSDM and guidance based upon feedback from the regulated community. There were no updates made to the OMC or the ORSDM in 2020.

This permit requirement is being met.

3. BMP 3: Maintain an online submittal and review process for site plans, easement and maintenance agreements, as-built drawings, deed recordings, and drainage studies.

Target Goals & Implementation Schedule: *On-Going All Years – Report number of PCSMP projects and the status of their progress in the annual report.*

The City of Omaha reviews proposed post-construction stormwater management plants (PCSMP) for code compliance, functionality, and manageability. The City's online permitting and reporting website, Permix, is used for PCSMP review and approval. Documents that are included in the PCSMP include a drainage study, proposed plan sheets, applicant certification, maintenance agreement, as-built drawings, BMP certification statement, certification cover sheet, and a certificate of occupancy letter (as-needed). Upon physical completion of the post-construction BMP(s), the PCSMP is recorded with the property deed to ensure long term compliance.

The table provided below summarizes PCSMP projects from 2020. Active projects refer to those projects that are in the document review process or waiting for the construction documents to be submitted.

2020 Omaha PCSMP Projects	
Applications	**2**
Active Projects	**473**
Document Review	327
Construction Document	146
Projects Certified	**117**

This permit requirement is being met.

4. BMP 4: Develop SOP's for responding to complaints regarding Post Construction BMPs and a strategy for verifying BMPs are being installed and maintained in perpetuity.

Target Goals & Implementation Schedule: *Year 1 – Submit SOPs with the annual report. On-Going All Years – Report on any complaints and/or BMPs which have been certified as complete.*

The City of Omaha Stormwater Program has developed a strategy for responding to complaints regarding post-construction BMPs, this was included in the 2019 City of Omaha MS4 Permit Annual Report. In 2020, there were no complaints received regarding certified post-construction BMPs.

The strategy for verifying BMPs are being installed and maintained properly is as follows, excerpted from the *City of Omaha Post Construction Stormwater Management Planning Guidance* document.

Installed
Upon construction completion, all stormwater BMPs that are part of the Final Post-Construction Stormwater Management Plan shall be certified by a licensed professional civil engineer registered in the State of Nebraska or other professional approved by the City of Omaha Public Works Department, the Designer. For BMP Certification, the Designer shall submit the following elements to the City of Omaha Public Works Department.

- Record Drawings of the Final Post-Construction Stormwater Management Plan Sheets
- BMP Certification Document

Maintained
Section 32-124 of the City of Omaha Municipal Code states, "the applicant or owner is required to execute an inspection and maintenance agreement, to be filed on record, binding on all subsequent owners of land served by a private stormwater management facility. Such agreements shall provide for access to the facility, at reasonable times, for inspections by the City or its authorized representative to ensure that the facility is maintained in proper working condition to meet design standards."

Such agreements shall document the responsibilities of the owner, the Home Owner's Association or other responsible party (for Sanitary and Improvement Districts), and the City of Omaha. The maintenance agreement shall be approved by the Public Works Department as part of the Final PCSMP and recorded with the Register of Deeds. A sample copy of the Maintenance Agreement can be downloaded at OmahaStormwater.org.

Maintenance Agreement exhibits shall include the following as exhibits in their PCSMP:

- Real Property Depiction – Provide lot certificate or platted subdivision with legal description, or PCSMP plan sheet if that information is contained on the sheet already (11"x17")

- BMP Maintenance Requirements

This permit requirement is being met.

5. BMP 5: Maintain a database that stores information on approved PCSMPs.

Target Goals & Implementation Schedule: *On-Going All Years – Provide an inventory of certified stormwater control measures installed as part of the PCSMP requirements. Include a count of BMP types as well as any known changes to BMPs in the annual report.*

In 2020, there were 117 projects with a total of 163 individual BMPs certified in Omaha. These BMPs are summarized by BMP type in the table below. At the end of 2020, there were a total of 1,195 certified BMPs in Omaha's jurisdiction. No known changes to BMPs occurred beyond minor edits to the latitude and longitude as the result of those values being mistyped by the project representatives submitting PCSMP documentation.

2020 Certified BMP by Type	Count
Bioretention System	40
Constructed Wetland	0
Disconnected Impervious Cover	2
Extended Dry Detention Basin	12
Filter Strip	1
Grassed Swale	4
Green Roof	3
Infiltration Trench	0
Level Spreader	0
Manufactured System	29
Other (flow-based)	12
Other (volume-based)	4
Permeable Pavement	3
Permeable Pavers	0
Rain Barrel/Cistern	1
Rain Garden	6
Retention Wet Ponds	4
Roof Drain Filters	6
Sand Filter	0
Soil Conditioning	11
Subsurface Storage	25
Vegetated Bioswale	0
Total	163

This permit requirement is being met.

6. BMP 6: Inspect sites that are certified by the engineer of record and all sites identified as deficient on a complaint basis. Develop a protocol to bring sites into compliance.

Target Goals & Implementation Schedule: *Year 1 – Develop protocol for compliance assistance and inspection strategy. On-Going All Years – Document and maintain inspection records of the certified PCSMP projects as identified in the strategy developed. Document any enforcement actions taken. Summarize activities in the annual report.*

The City of Omaha Stormwater Program has developed a strategy for compliance assistance and inspection of post-construction BMPs, this was included in the 2019 annual report.

There were no complaints or enforcement actions against a project's PCSMP BMPs in 2020.

In 2020, an EPA audit of the City of Omaha's MS4 Permit took place and one of the initial findings from that audit indicated that inspecting private BMPs on a complaint basis is not adequate and "must develop procedures, such as inspecting all BMPs at least once during the Permit term or requiring the submission of maintenance documentation by the BMP owner to ensure that private BMPs are functional and that maintenance is being conducted when necessary." An updated procedure will be drafted to address this EPA MS4 Permit audit finding. Updates made will be provided in the 2021 City of Omaha MS4 Permit Annual Report.

This permit requirement is being met.

F. Pollution Prevention/Good Housekeeping

1. BMP 1: Maintain an inventory and map of municipal facilities. Review annually and update if needed.

Target Goals & Implementation Schedule: *On-Going All Years – Maintain an inventory and map of all municipal facilities.*

The City of Omaha Facilities Management Division maintains an inventory of municipal facilities. The Sewer Maintenance Division maintains an inventory of municipal stormwater controls associated with the storm sewer system. The Omaha Stormwater Program maintains an inventory of municipal storm controls associated with stormwater basins and green infrastructure practices. These facilities have been included in the City's GIS system and are readily available for viewing.

This permit requirement is being met.

2. BMP 2: Conduct assessments of municipal maintenance facilities and review their municipal runoff control plans as applicable. Revise plans as needed if facilities expand or reduce activities and implement recommendations based on annual inspections.

Target Goals & Implementation Schedule: *Year 1 – Develop a strategy to assess municipal facilities and prioritize them based upon a defined set of criteria. Include strategy in the annual report. Years 2-5 – Track the number of assessments for municipal facilities based upon the strategy developed in year 1. Include the number of assessments completed, a description of the assessment procedure and any changes in facilities ranking in the annual report.*

The strategy for assessing municipal facilities this was included in the 2019 annual report as Attachment M. The City of Omaha employed the services of Felsburg Holt & Ullevig (FHU) in 2009 to develop the current program to assess facilities and assign a score according to the types of daily activities associated with each facility that have potential for stormwater exposure. The score is based on a 30-point scale with a score greater than 20 indicating a "Hot Spot", greater than 10 indicating a "Potential Hot Spot", and less than 10 "Not a Hot Spot". Facilities with municipal activities that present little to no exposure of pollutants to stormwater, such as office buildings and libraries, were removed from the list of sites requiring further evaluation. From the initial evaluation and an ongoing basis, high priority facilities have been prioritized as "Hot Spots", and are audited annually. Facilities classified as "Potential Hot Spots" are audited every two years, and remaining facilities are audited every three years.

Facilities qualifying as "Hot Spots" have a Facility Runoff Control Plan (FRCP) implemented. FRCPs include provisions for general good housekeeping practices, storage of de-icing materials, fueling operations, vehicle maintenance, and equipment and vehicle washing. The Municipal Hot Spot Evaluation Form was included in the 2019 annual report.

The City of Omaha conducted compliance inspections at City Maintenance Facilities where FRCP's had been implemented. The inspections are given an overall score of Outstanding, Satisfactory, or Needs Improvement. The scores were based upon a records and site review. The inspector not only looked to see that facility inspections were being conducted but that any corrective actions that were noted had been addressed in a timely manner. In 2020, the City of Omaha coordinated a total of 31 municipal facility

compliance inspections, 15 inspections were at 11 "Hot Spot" facilities with associated Facility Runoff Control Plans. The other 16 inspections were at facilities with hot spot scores less than 20, primarily public parks/golf courses. In 2020, 4 facilities received a Needs Improvement, 22 facilities received a Satisfactory, and 5 received an Outstanding rating. Copies of EQCD findings were forwarded to the facility and department supervisors.

This permit requirement is being met.

3. BMP 3: Continue to implement Omaha's Good Housekeeping Program for municipal facilities that addresses "high-priority" facilities (hot spot score of 20-30 out of 30) and site specific SOPs.

Target Goals & Implementation Schedule: *On-Going All Years – Annually report new, removed, or significantly-updated municipal facilities.*

In 2020, Knolls Golf Course was added to the list of municipal facilities with a score of 16, and will be inspected every 2 years going forward. As part of the City of Omaha's Riverfront Revitalization Project, three unstaffed storage facilities were demolished; they were located at Gene Leahy Mall, Heartland of America Park, and Lewis & Clark Landing. These facilities no longer exist and will be removed from the list.

This permit requirement is being met.

4. BMP 4: Implement practices for maintaining the storm sewer system that includes catch basin maintenance, open channels and other drainage structures, street sweeping, and structural stormwater controls. All maintenance procedures are to be performed such that waste water and waste materials do not enter the MS4.

Target Goals & Implementation Schedule: *Year 1 – Provide a description of the maintenance programs in the annual report. On-Going All Years – Annually report on Sewer maintenance activities related to maintaining the storm sewer system and changes to any of the maintenance practices.*

Descriptions for City maintenance programs have been compiled and was included in the 2019 City of Omaha MS4 Permit Annual Report. The document is laid out by maintenance activity type with a description of who is involved, the maintenance activity, monitoring, waste disposal, documentation, and training. No updates were made in 2020.

In 2020, an EPA audit of the City of Omaha's MS4 Permit took place and one of the initial findings from that audit indicated that the "City does not have an appropriate strategy to inspect and clean stormwater inlets". The City is currently working to update the maintenance activity description to include a preventative maintenance strategy to inspect and clean inlets, catch basins, and storm sewer lines rather than on a complaint basis. At the time of this annual report, the updated strategy has not been completed but it will address this EPA MS4 Permit audit finding. Updates made will be provided in the 2021 City of Omaha MS4 Permit Annual Report.

Storm Sewer System Maintenance

The Sewer Maintenance Division is responsible for the inspecting, cleaning, repairing and maintaining of the storm sewer system. The Street Maintenance Division is responsible for certain types of creek

maintenance cleaning or clearing. They use the same work order tracking system to account for their activities. The table below represents both Divisions' storm sewer system activity for the permit year of 2020.

Work Order Type (Description of Work)	Storm
Clean Inlet	492
Clean MH	2
Clean Storm Struct	1
Dye Test	174
I-Abandon	1
I-Clean	5
I-New	3
Inlet Blown Off	1
Inlet Broken	5
Inlet Stolen	2
Insp Structure	12,622
I-Repair	209
I-Replace	15
L/S Locate	44
MH Blown Off	12
MH Broken	1
MH Locate	6
MH Stolen	2
MH-R/C	1
MH-Repair	3
O-Ditchwork	1
P-Abandon	2
Private	9
P-Storm Repair	20
P-Storm Replace	2
TV Assessment	34
TV Inspection	8
Unscheduled Jet	10
Unscheduled Jet Vac	95
Unscheduled Saw	3
ROW Cleanup/Signs	255
ROW Drainage Mtce	57
ROW Vegetation Repair	55
ROW Erosion Repair	90
Total	28,031

Street Sweeping

There are approximately 4,877 lane miles within the City of Omaha. In 2020, the City mechanically swept a total of 8,454 curb miles. The table below gives a more detailed accounting of the City's street sweeping activities.

Area of City	Curb Miles Swept	Tons of Debris Removed
Business District & Major Streets	2,209	2,037
Residential Areas	6,245	4,432
Totals	8,454	6,469

Additionally the City of Omaha's Public Works Department's Parking Divisions mechanically sweeps municipally owned parking structures and lots twice a year, in the Spring and Fall. Municipally owned parking structures are also washed twice per year in conjunction with sweeping, practices are used to capture the solids from the wash down which are then disposed of at the landfill.

Inlet Marking

The City of Omaha's standard plate for storm inlets includes a stamp to indicate it drains to the creek. To mark inlets without that stamp and increase stormwater awareness, the City of Omaha coordinated with Keep Omaha Beautiful to continue to organize groups to mark and clean storm sewer inlets in 2020. In total, an additional 4,017 inlets were labeled with disks, and an additional 135 discs were distributed to contractors to install them as part of storm sewer infrastructure projects. In total, 138 youth and adult volunteers participated, totaling 1,220.5 hours of community service hours. There were 55 bags of trash and 3 bag of recyclables collected as part of this effort. Due to COVID considerations this year, the Bilingual "Only Rain Down the Storm Drain" educational door hanger (which highlights HHW and Under the Sink) was not distributed to individuals living near storm drains that were marked. Inlet markings are summarized below, the full spreadsheet of inlet marking activities is included in Attachment D.

Month of Service	Location Description [Starting Address/Area]	# of Drains Marked	# of Drains Cleaned (already marked)	# of Trash Bags Collected	# of Recycling Bags Collected
April-May	Near 108th & Q	187	0	2	0
May-June	72nd - 98th, I-80 to Center	150	0	4	0
June-August	156th - 168th from Blondo to Maple	404	0	0	0
July	190th & Maple (Indian Creek Neighborhood)	169	0	0	0
July	76th & Maple, 96th & Meadow Drive, 90th & Boyd (Keystone Neighborhood)	173	8	7	2
July-August	168th & Center	268	0	2	0
July-August	192nd from Center to F	193	0	3	0

Month of Service	Location Description [Starting Address/Area]	# of Drains Marked	# of Drains Cleaned (already marked)	# of Trash Bags Collected	# of Recycling Bags Collected
July-August	Near 166th & Pacific	41	7	1	0
July - September	Area around 165th & Pine	173	0	0	0
August	Leavenworth from 10th - 16th	17	0	1	1
August	49th & Maple	47	0	1	0
August	96th & Center	21	0	2	0
August	180th from Blondo to Maple	208	34	5	0
August	82nd & Grover to 75th & Hascall	34	24	6	0
August	Area northwest of 90th & Maple	10	0	1	0
August	192nd & Harrison	150	6	3	0
August	180th & Fort	69	0	1	0
August	50th from Pinkney to Maple	23	0	2	0
August-October	192nd from Pacific to Dodge and 45th & Center	350	12	5	0
September	Around 180th from Pacific to Center	19	0	1	0
September	Area around 50th & Ames	1238	0	0	0
September	South of 96th & Center (Paddock Road area)	38	45	7	0
October	168th and Harrison	14	0	0	0
October	Around 114th from Military to Ida	21	0	1	0
	TOTALS	**4017**	**136**	**55**	**3**

Stormwater Structure Maintenance

EQCD inspects City-owned stormwater basins at least once a year with most being inspected twice for any major maintenance issues in early spring and in early winter. Lake James Park was not inspected during the spring of 2020 due to active construction, as part of the Lake James to Fontenelle Park CSO project. A physical characteristics examination form is completed during the inspection for structures that had flow or were wet. Wintry conditions and significant snow accumulation at the time of the second inspection for many of the basins limited accessibility and visibility, inspections for basins are noted in the table below. A more extensive review will be conducted at the time of the next Spring inspection.

Maintenance is performed by various City Departments based upon the type of activity required. Most of the City Departments are using CityWorks to track their maintenance activities. Additionally, EQCD employed staff members, one full-time and one part-time employee, who are dedicated to maintaining a number of City owned stormwater BMP structures throughout the year. The table below indicates when the inspection occurred as well as any maintenance issues noted at that time.

Site	Inspection Dates	Sediment Removal	Trash Removal	Tree Removal & Chipping	Mowing	Erosion Repairs
Storz Expressway (E)	3/30/2020	No	Yes	No	No	No
Storz Expressway (W)	3/4/2020	Yes	Yes	No	No	No
	11/19/2020	Yes	Yes	No	No	No
Adams Park	4/20/2020	Yes	Yes	No	No	Yes
Lake James Park	Park under construction early in 2020, part of the Lake James to Fontenelle Park CSO Project					
Fontenelle Park Lagoon	3/24/2020	Yes	Yes	No	No	No
John J Pershing Drive 1.5	3/4/2020	Yes	Yes	Yes	No	No
Miller Park	3/30/2020	No	Yes	No	No	Yes
10th & Nicholas	3/10/2020	No	No	No	No	No
13th & Carter Blvd	3/30/2020	No	Yes	Yes	No	No
13 & Fowler	3/30/2020	No	Yes	No	No	No
Carter Lake	4/1/2020	Yes	Yes	No	No	No
19 & Carter Blvd	3/30/2020	Yes	Yes	Yes	No	No
18th Street E & Ave H	3/24/2020	No	Yes	Yes	No	Yes
14th & Ida St	3/4/2020	No	No	No	No	No
John J. Pershing No. 1	3/4/2020	No	Yes	No	No	No
John J. Pershing No. 2	3/4/2020	Yes	Yes	Yes	No	No
Gifford Dr. No 1	3/10/2020	No	No	No	No	No
9th & Storz	3/30/2020	No	Yes	No	No	No
Westlawn Cemetery	4/20/2020	Yes	Yes	Yes	No	No
64th Street Channel	4/7/2020	No	No	Yes	No	No
Elmwood Park	3/24/2020	Yes	No	No	No	Yes
Spring Lake Park	4/14/2020	Yes	Yes	No	No	No

Site	Inspection Dates	Sediment Removal	Trash Removal	Tree Removal & Chipping	Mowing	Erosion Repairs
Vinton Street subsurface storage	4/22/2020	No	No	No	No	No
Gilmore - Sarpy Ave basin	3/24/2020	No	Yes	No	No	No
Gilmore - Albright Park	5/19/2020	No	No	No	No	No
Hitchcock Park	7/28/2020	No	No	No	No	No

EQCD also inspects City-owned green infrastructure (GI) practices throughout the city. The GI practices were reviewed to ensure they are functioning property and identify maintenance needs. The table below indicates when the inspection occurred as well as an overall condition assessment for the site.

GI Site	Inspection Date	Notes
Country Club	3/23/2020	Light Maintenance Required
Leavenworth LS	3/23/2020	Light Maintenance Required
Orchard Park	3/23/2020	Light Maintenance Required
Prairie Lane Park	3/13/2020	No Maintenance Required
Sewer Maintenance	3/23/2020	Light Maintenance Required
SOIA LS	3/23/2020	Light Maintenance Required
The Colonies	3/13/2020	Light Maintenance Required
50th & Pine	3/19/2020	No Maintenance Required
SE Police Precinct	3/30/2020	Maintenance Required
UnderTheSink (UTS)	3/23/2020	Light Maintenance Required
Vehicle Impound Lot	3/31/2020	Maintenance Required
Zorinsky Water Park	3/23/2020	Maintenance Required
24th St Bioretention	3/19/2020	Light Maintenance Required
Douglas Streetscape	3/25/2020	Maintenance Required
Florence Streetscape	3/24/2020	Light Maintenance Required
Saddle Hills	3/25/2020	Light Maintenance Required
58th & Maple	3/25/2020	No Maintenance Required
Fire & Police Training	4/27/2020	Maintenance Required
St Phillip Neri	4/27/2020	Maintenance Required
144th St Bioretention	4/7/2020	Light Maintenance Required

This permit requirement is being met.

5. <u>BMP 5: Provide training for municipal employees in pollution prevention and good housekeeping.</u>

Target Goals & Implementation Schedule: *Year 1 – Develop a strategy for municipal employee training in pollution prevention and good housekeeping. Include strategy in annual report. On-Going All Years – Conduct training events for municipal staff. Include number of employees trained, based on strategy developed in Year 1, in annual report.*

The City of Omaha Stormwater Program has developed a training strategy for municipal employees involved in implementing pollution prevention and good housekeeping practices, this was included in the City of Omaha's 2019 MS4 Permit Annual Report.

In 2020, training was provided to municipal employees in various departments and divisions including Sewer Maintenance, Street Maintenance, Fleet Maintenance, and Parks. Due to COVID precautions, staff were provided training through virtual means instead of in-person training. EQCD staff, including Environmental Inspectors, receive additional training throughout the year on various SWMP-related topics. In 2020, staff attended or participated in 32 workshops or in-house training sessions. In addition to these events, staff are encouraged to seek out webinars, conferences, and other training opportunity of interest that is stormwater and MS4 related. These opportunities continue to further our municipal employee knowledge and experience on water quality and stormwater management. The following table is a summary of 2020 workshops and in-house trainings for City staff.

Date	Title	Associated Program	Attendees
1/21/2020	HAZWOPER 40 Hour Refresher Course	Good Housekeeping	18
1/28/2020	EI Training & Safety Toolbox - GP Inspections & Workflows	Good Housekeeping, Construction	12
2/6/2020	2020 Annual Sediment & Erosion Control Seminar	Construction, Post-Construction	61
2/10/2020	City Construction & CSO Inspections	Good Housekeeping, Construction	3
2/25/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	12
3/24/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	14
4/28/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	12
6/2/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	5
6/23/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	6
7/28/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	9
8/24/2020	Confined Space Training – Sewer Maintenance	Good Housekeeping, IDDE	10
8/25/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction, IDDE	11
8/28/2020	FRCP Training - Sewer Maintenance, Construction Section	Good Housekeeping, IDDE	20
8/31/2020	FRCP Training - Parks Central Maintenance/Code Enforcement	Good Housekeeping, IDDE	22
9/1/2020	FRCP Training - Traffic Maintenance	Good Housekeeping, IDDE	41
9/3/2020	FRCP Training - Streets D1, including Crack & Seal	Good Housekeeping, IDDE	37

Date	Title	Associated Program	Attendees
9/10/2020	FRCP Training - Construction Division	Good Housekeeping, IDDE	15
9/10/2020	FRCP Training - Construction Division, Sidewalks Section	Good Housekeeping, IDDE	2
9/20/2020	FRCP Training - Streets D3	Good Housekeeping, IDDE	6
9/22/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	9
9/27/2020	Training Video	IDDE	1
9/28/2020	Training Video	IDDE	1
9/29/2020	FRCP Training - UTS	Good Housekeeping, IDDE	5
9/29/2020	FRCP Training - Streets D2	Good Housekeeping, IDDE	29
9/29/2020	FRCP Training - Streets D4, including Broom Crew	Good Housekeeping, IDDE	30
9/30/2020	FRCP Training - Streets D5	Good Housekeeping, IDDE	15
9/30/2020	FRCP Training - Oma-gro Compst	Good Housekeeping, IDDE	3
10/20/2020	Outfall screening training	IDDE	3
10/23/2020	FRCP Training - Vehicle Impound Lot	Good Housekeeping, IDDE	9
10/27/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	5
11/24/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	9
12/22/2020	EI Training & Safety Toolbox	Good Housekeeping, Construction	5

The City's Environmental Quality Control Division and the Parks and Recreation Department have applicators who are required to be FIFRA certified. There are currently 57 certified applicators. All certifications are up to date and are obtained from the Douglas–Sarpy County Extension Office.

This permit requirement is being met.

6. BMP 6: Provide educational material to contractors hired to perform maintenance activities on the MS4.

Target Goals & Implementation Schedule: *Year 1 – Develop materials to provide to contractors and include in the annual report. Years 2-5 – Include in the annual report any new materials or updates to existing materials.*

In 2020, there were no new outreach materials or updates to existing materials. City of Omaha personnel conduct most of the maintenance activities on the MS4. If an outside party is hired to complete maintenance activities, educational materials are available to share with the contractors to educate them on stormwater controls, good housekeeping practices, and maintaining compliance with applicable permits.

This permit requirement is being met.

G. Industrial Facilities

A. BMP 1: Maintain a program that identifies industries within the MS4 area that fall into sectors identified in the ISW- NPDES permit.

Target Goals & Implementation Schedule: *Year 1 – Develop a strategy that will identify industries and their compliance with NPDES permits. On-Going All Years – Review and update strategy developed in Year 1 and report on any changes in the annual report.*

The City of Omaha Stormwater Program has developed a strategy to identify industries and their compliance with NPDES permits, this was included in the City of Omaha's 2019 MS4 Permit Annual Report. There were no updated to the strategy in 2020.

This permit requirement continues to be met.

2. BMP 2: Request a list of permitted facilities and the NOI from NDEQ in January of each permit year.

Target Goals & Implementation Schedule: *On-Going All Years – Maintain a database to track NPDES permitted facilities.*

In January 2020, Omaha requested and received from the NDEE a list of industries in Omaha permitted under the NER910000 ISW-GP. One hundred forty-four facilities were included on this list, 11 of the sites were no longer active, 9 of them submitting their NOT, 1 was a duplicate due to a facility name change, and 1 was a duplicate due to name change and change of permit type from NEC to a full ISW Permit. Total active ISW permitted facilities is 133. The GIS database was updated with this list of facilities.

This permit requirement is being met.

3. BMP 3: Inform industries about the NPDES ISW permit and notify the state when industries are not in compliance with the state regulations.

Target Goals & Implementation Schedule: *On-Going All Years – Develop industry-specific publications regarding NPDES regulations and distribute to inspected facilities.*

The City of Omaha Stormwater Program has 22 sector-specific information sheets, brochures, and additional information regarding industrial stormwater on the Industry pages of OmahaStormwater.org. The website also has the ISW-GP NER910000 permit and FAQs to help industries with maintaining compliance.

Outreach to Omaha industries has continued in 2020 to update industries that the City of Omaha's Industrial Stormwater Program is focused on ensuring compliance with the NDEE's ISW-GP. Industries that call or email the Omaha Stormwater Program are informed about the NDEE's ISW-GP and how to stay in compliance.

Five industries in 2020 were referred to the state for not maintaining compliance with state regulations or in need of a permit.

This permit requirement is being met.

4. BMP 4: Inspect NPDES permitted industries from a list provided by NDEE in January of each year. Maintain a tracking system for inspections and SWPPP reviews. Review SWPPP or NEC prior to completing an inspection.

Target Goals & Implementation Schedule: *On-Going All Years – Inspect 20% of the facilities on the list provided by NDEE each year so that all industries are inspected once in the permit cycle.*

In January 2020, Omaha requested and received from the NDEE a list of industries in Omaha permitted under the NER910000 ISW-GP. There were 144 facilities included on this list with 133 of them active. E&A Consulting Group (E&A) and SCS Engineers (SCS) were contracted to assist the City with inspecting industrial facilities in 2020. Inspectors from these firms have extensive experience with industrial stormwater regulations and performing inspections. The inspection form they used as part of their inspections was provided to them by the Omaha Stormwater Program and was updated in early 2020 to capture all permit requirements and streamline the inspection process. A total of 28 facilities were inspected for compliance with the NDEE ISW-GP NER910000. The 28 inspected facilities represent 21% of the 133 active NDEQ ISW-GP permitted facilities in Omaha.

This permit requirement is being met.

5. BMP 5: Ensure inspectors completing industrial stormwater inspections are competent.

Target Goals & Implementation Schedule: *On-Going All Years – Report inspection activities in the annual report.*

The City of Omaha Stormwater Program contracted with E&A Consulting Group (E&A) and SCS Engineers (SCS) to perform inspections of industrial sites. Inspectors from these firms have extensive experience with industrial stormwater regulations and performing inspections. Firms contracted to perform industrial stormwater inspections on behalf of the City of Omaha must have demonstrated knowledge, skills, and experience. Omaha Stormwater Program Environmental Inspectors review and edit as needed the reports by the firms prior to sending to the industry. Each Environmental Inspector is adequately trained on the industrial stormwater program prior to reviewing inspection reports or conducting an inspection. See table below for a summary of inspection activities in 2020.

Program ID	Facility Name	Permit Type	Address	Inspection Date	Report Sent
NER910001	Bender Ornamental, Inc.	No Exposure	14955 Grover St.	6/18/2020	7/28/2020
NER910025	Crown Cork & Seal	No Exposure	4133 S. 72nd Street	7/28/2020	8/18/2020
NER910059	Omaha Wilbert Vaults, Inc.	No Exposure	2660 Edward Babe Gomez Avenue	6/17/2020	7/28/2020
NER910072	Conductix-Wampfler	Industrial Stormwater	4202 South 102nd St.	6/16/2020	7/14/2020
NER910082	ABF Freight System, Inc.	Industrial Stormwater	8105 J Street	8/12/2020	8/18/2020
NER910160	Greater Omaha Packing Co., Inc.	Industrial Stormwater	3001 L Street	6/22/2020	7/14/2020
NER910161	Quality Pork International, Inc.	Industrial Stormwater	10404 F Plaza	7/9/2020	8/17/2020

Program ID	Facility Name	Permit Type	Address	Inspection Date	Report Sent
NER910196	Airlite Plastics Company	Industrial Stormwater	6110 Abbott Drive	6/17/2020	7/28/2020
NER910217	Dimatic Die & Tool Co.	No Exposure	9520 N. 48th Street	7/8/2020	7/28/2020
NER910256	Lakeside Auto Recyclers	Industrial Stormwater	2405 North 14th Plaza	6/3/2020	7/6/2020
NER910297	Radio Engineering Industries, Inc.	Industrial Stormwater	6534 L Street	7/21/2020	9/9/2020
NER910364	Sadoff & Rudoy Industries of Nebraska dba Sadoff Iron and Metal Co.	No Exposure	4918 F Street	7/29/2020	8/18/2020
NER910393	Woerner Wire Works, Inc.	Industrial Stormwater	3008 Evans Street	5/27/2020	6/9/2020
NER910411	Renze Display Company	No Exposure	6847 North 16th Street	5/29/2020	6/12/2020
NER910430	Alter Metal Recycling	Industrial Stormwater	2828 North 11th Street	8/13/2020	9/24/2020
NER910432	International - Omaha Recycling	Industrial Stormwater	1111 Fort Street	6/10/2020	7/28/2020
NER910451	Brand Hydraulics Co.	No Exposure	2332 South 25th Street	7/10/2020	7/14/2020
NER910509	UPS-Omaha Hub	Industrial Stormwater	2535 Edward Babe Gomez Avenue	7/16/2020	8/18/2020
NER910510	UPS Freight-Omaha	Industrial Stormwater	10330 F Street	8/6/2020	8/18/2020
NER910539	Distefano Technology & Manufacturing	Industrial Stormwater	3838 South 108th Street	6/30/2020	8/1/2020
NER910557	Arctic Glacier	No Exposure	8211 F Street	7/7/2020	7/17/2020
NER910570	Brown Transfer Co.	Industrial Stormwater	4511 South 79th Street	6/8/2020	6/22/2020
NER910613	Henningsen Foods Omaha Warehouse	No Exposure	10025 I Street	7/14/2020	7/21/2020
NER910622	Pharmgate	Industrial Stormwater	14040 Industrial Road	6/22/2020	7/20/2020
NER910663	Phibro Animal Health Corporation	No Exposure	4805 G Street	6/29/2020	7/6/2020
NER910766	Plant [Plastilite Corporation]	Industrial Stormwater	9409 N. 45th St.	8/4/2020	9/24/2020
NER910777	Millard Airport	Industrial Stormwater	12916 Millard Airport Plaza	7/22/2020	8/4/2020
NER910793	LifeSpan International Inc.	No Exposure	3612 D St.	8/18/2020	9/9/2020

This permit requirement is being met.

H. Stormwater Monitoring

1. BMP 1: Dry Weather Screening.

Target Goals & Implementation Schedule: *On-Going All Years – Implement a dry-weather screening of priority outfalls for IDDE following screening and sampling plan. Keep a record of outfalls observed and a record of the field screen results. Follow strategy in SWMP program Component C- IDDE for outfalls showing presence of an illicit discharge. Update priority list based on observations.*

There were 268 potential outfalls identified by EQCD using GIS information collected by Sewer Maintenance in 2009. In 2019, the GIS information was reviewed to ensure all applicable outfalls are being screened.

When potential outfalls are identified, they are classified as new to the outfall inventory for screening. Once screened, the outfalls are then classified as priority outfalls if they are 72" or greater or had a documented illicit discharge, regardless of size. Priority outfalls are screened annually. Outfalls that are documented with an illicit discharge are updated to priority status and screened annually for the next three years. If no illicit discharge is observed in those three years and it is less than 72", its status is updated to non-priority. Annexations of Sanitary & Improvement Districts (S&IDs) can occur periodically. When this occurs, qualifying annexed outfalls are added as new to the outfall inventory for screening. Based on the screening, they are then classified as being a priority outfall or not. CityWorks asset management software is used to document outfall screening efforts.

All outfall inspections are conducted after 48 hours of dry weather. An outfall reconnaissance inspection form is completed and a Physical Characteristics Examination is completed for the outfall, if flow was present. If an illicit discharge is encountered EQCD Inspectors are to call supervisory staff immediately. The supervisor reviews the findings with the inspectors, allocates additional resources, needed to assist, and an investigation begins to determine the source of the illicit discharge. If an illicit discharge or connection is determined to be the source, the responsible party, if known, is contacted immediately, a request made to cease the discharge immediately, address other associated issues as needed, familiarize them of the alleged violation, and inform them of the penalties that may be assessed. Photographs are taken of outfalls to be kept as a record of outfall conditions during the inspection.

Field screening in 2020 has been consistent with previous years. City of Omaha EQCD staff screened all 80 outfalls identified the previous year as priority outfalls. No new outfalls were screened based on the previous year's inspection noting an illicit discharge. There were 93 outfall screenings of new outfalls from the 2019 GIS information review and 3 from 2019 annexation areas (Stone Creek and The Willows). Reviewing GIS information for outfalls not previously screened will continue annually going forward. There are 18 new outfalls from 8 S&ID annexations in 2020, these were not screened in 2020 due to timing of annexations and screening of other outfalls from the GIS information review. There are 48 new outfalls from the 2019 sewer node review remaining to be screened. They will be screened in 2020. No illicit discharges were found in 2020 that would require an outfall to be moved to priority status. Any outfall with an obvious or suspicious discharge was to be reported immediately to EQCD.

In total, there were 180 outfall screenings. There was one screening that was characterized as suspect because of indications of sewage had been present. That was found to be related to a nearby sanitary sewer

overflow (SSO) that was addressed the previous weekend by the Sewer Maintenance Division. The cause was settling of the sanitary pipe that resulted in a blockage. They reviewed the creek, cleaned as needed, & made repairs to the line. There was 1 outfall that was characterized as potential (two physical characteristics observed) but had low severity index numbers and concluded not to be associated with an illicit discharge. Outfall inspections were entered into the City of Omaha's CityWorks asset management system. The inspections were reviewed, and the outfall priority list was updated.

This permit requirement is being met.

2. BMP 2: Develop a wet weather BMP assessment monitoring plan for demonstration BMPs to facilitate future SWMP planning. Evaluate the effectiveness of the selected BMPs. BMP assessment may include flow-based monitoring or water quality sampling. Biological systems may include plant assessments and visual observations. Construct structural BMPs and implement non-structural BMPs to evaluate the effectiveness of their ability to address pollutants of concern. Include in the BMP assessment program in applicable

Target Goals & Implementation Schedule: *Year 1 – Revise the BMP assessment monitoring plan and submit to NDEQ for approval. Amend as necessary when new demonstration projects have been constructed. On-Going All Years – Implement monitoring plan in demonstration projects. Report the following in the annual report: (1) The location of the monitoring site, (2) the intensity and duration of the storm event monitored, (3) the time of sampling in comparison to the occurrence of the storm event and to the discharge of peak stormwater flows, and (4) the monitoring data and a summary of the findings.*

The City of Omaha Stormwater Program updated their BMP Assessment Monitoring Plan in 2019 and was included in the 2019 City of Omaha MS4 Permit Annual Report. There were no updates to the plan in 2020.

The City of Omaha continued to implement the BMP Monitoring Plan in 2020 to assess the performance of existing green infrastructure demonstration projects' benefits on water quantity and quality. The monitoring for 2020 is summarized by site later in this section with the full site summaries provided in Attachment H.

Due to the COVID-19 pandemic resulting in limited staffing, prioritizing other program tasks, and connectivity with the data logger continuing to be poor, data was not downloaded and analyzed for the University of Nebraska at Omaha (UNO) Hayden House (formerly named the Welcome Center) site for this annual report. In 2021, the site will be reviewed and if possible, templates will be created to efficiently download and analyze data going forward. An update on this site's monitoring status will be reported in the next annual report.

Additional monitoring occurred during 2020 to assess the performance of BMPs at City demonstration project sites. The Program again worked with USGS to assess the peak flow and water volume benefits of the Sewer Maintenance bioretention system. Also, infiltration testing of existing bioretention and rain gardens resumed in 2020. The USGS provided the monitoring summary and infiltration monitoring which are included in Attachment H.

Saddlebrook

The Saddlebrook green roof and bioretention system continues to perform very well in reducing the volume and peak flows of runoff from the site. Peak flow rate and total flow reduction from the green roof has improved steadily since 2017 indicating the green roof is maintaining, if not increasing, efficiency in

controlling stormwater. The City will continue to assess the performance of the green roof and bioretention system in 2021 with no change in what data is being collected.

Orchard Park
Orchard Park continues to function very well in a variety of storm events. Bioretention valves were properly set during deployment of monitoring equipment so the benefits were fully realized. The system effectively managed runoff and decreased discharge to the creek. Monitoring will continue for Orchard Park in 2021.

Creighton Prep
Creighton Prep's bioretention system continues to function very well in reducing peak flows. Although the slide gate valve is fully open on the underdrain system, leading to drawdown within a couple of hours, the system successfully delays peak discharge flows. Monitoring of Creighton Prep will continue in 2021.

Sewer Maintenance
The Sewer Maintenance bioretention system continues to function very well, and is showing ongoing effectiveness in treating runoff pollutants, particularly solids. Efforts included amending the sampling manhole to minimize water infiltration to provide more confidence in flow monitoring data.
Water quality samples taken indicate an increase in concentration of nutrients for the outflow when compared to the inflow from the parking lot, but a significant decrease in solids.

Adams Park
The Adams Park wetlands continues to perform as designed and is providing a wonderful amenity for the community and local environment. Monitoring of water levels have continued in 2020. Maintenance of the site in 2020 continued to be contracted out and was effective at keeping weeds and volunteer weeds down as well as capturing trash that was able to make it past the screening structure. Vegetation has become well-established across the site, however cattails are becoming prevalent at the water's edge, efforts will be made to keep them minimized to ensure proper flow through the site.

Albright Park
The Albright Park bioretention system is performing very well overall. The gap in the stop logs that was identified in 2019 was addressed prior to monitoring equipment deployment in 2020, allowing the full water quantity benefit of the system to be realized. Monitoring of the water level will continue in 2021.

This permit requirement is being met.

3. BMP 3: Utilize data collected by others to help assess the effectiveness of BMPs.

Target Goals & Implementation Schedule: *On-Going All Years – Gather data from others and include in the annual report with a summary of the findings.*

The collaboration with the University of Nebraska at Omaha (UNO) and Omaha Public School's Northwest High School was completed after 2019 as the OPS funding for it ended and Steve Rodie retired from UNO. David Manning is an Assistant Professor of Water Quality at UNO and has taken a number of the roles Steve held there. In March of 2020, stream data from previous Program monitoring efforts were shared with David to compliment his work on characterizing the Papillion Creek system. He has indicated working with Master's students on this work as well. With this exchange happening at the start of the Covid-19

pandemic, nothing further has been done with David on this. It is anticipated that coordination with him will continue in 2021, pending how the Covid-19 pandemic impacts efforts. No other data was collected from others in 2020.

This permit requirement is being met.

I. Additional Permit Reporting Requirements

1. Status of MCMs and Associated BMPs

This report satisfies the annual reporting requirement and covers the calendar year from January 1, 2020 through December 31, 2020. The permit was issued April 1st, 2018.

The City of Omaha continues to implement each of the eight minimum control measures (MCM), maintain associated BMPs of the SWMP, and maintain compliance with the MS4 Permit. Significant efforts were made in 2019 by the City of Omaha Stormwater Program to create and update strategies required in the MS4 permit. These efforts have had a positive effect on reducing stormwater pollution by ensuring consistent education and outreach with multiple target audiences, improving internal workflows, and adaptively managing stormwater controls.

In 2020, an EPA audit of the City of Omaha's MS4 Permit took place and six initial findings were made with that audit. These findings have been noted in applicable sections of this annual report. The City is actively updating and enhancing strategies to address these findings and continue to improve the program and maintain compliance. See the Evaluation Assessment below for more detailed information on each of the eight MCMs.

2. Proposed SWMP Changes and Revisions

The third Omaha Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit (NE0133698/PCS 999428) was issued by the Nebraska Department of Environmental Quality (NDEQ) and became effective on April 1, 2018. There are no SWMP changes in 2020.

The City annexed the following unincorporated areas in 2020 and would now be considered part of the MS4 Permit coverage area.

Area Name	SID #	Description	Pop.	Sq Mile	Acres	Annexation Date
Hillsborough Estates	421	SW 132nd & Larimore	171	0.06	37.18	7/29/2020
Grayhawk Two	468	NW of 144th and Corby	373	0.08	51.62	7/29/2020
West Hampton Park ("Lynbrook")	489	NW 192nd & Old Lincoln Hwy.	772	0.20	128.08	7/29/2020
Elkhorn Highland Ridge	502	186th-192nd, North of Blondo	165	0.11	70.45	7/29/2020
Pacific Street West ("Tuscan Ridge")	539	South H.W.S.Cleveland Bld-204th & Pacific	18	0.14	91.84	7/29/2020
Manchester Ridge & small portion of Andresen Meadows SID 555	495	N 176th & Blondo St.	121	0.11	70.03	7/29/2020
West Dodge Pointe and Adjacent	538	SE Quarter of 16-15-11	0	0.07	45.47	7/29/2020
West Dodge Hills	451	SW 180th and W Dodge Rd	538	0.16	104.08	7/29/2020

3. Additional Monitoring Data and Land Use

A land use map was created defining land use based on zoning for the City of Omaha; this has been included in Attachment I. Land use patterns were based on current zoning procedures/practices and used to map areas within the City Limits and within the Extra Territorial Jurisdiction (ETJ). Areas that are not defined with a zoning code, i.e. public roads, are not included in the values provided. Four classifications were used to document current land use patterns including Agricultural, Commercial (including Mixed-Use), Industrial, and Residential areas. There is approximately 85.34 mi^2 within the MS4 and 176.48 mi^2 within Omaha's ETJ covered by the four different classifications, as shown in the table below.

Land Use by Square Mile – MS4 Limits & ETJ

Land Use	Omaha MS4	MS4 % Cover	Omaha ETJ	ETJ % Cover	Total	MS4 % Cover to Total
Agricultural	5.05	5.92%	54.23	33.59%	59.28	9%
Commercial	27.02	31.66%	21.85	27.69%	48.87	55%
Industrial	7.17	8.40%	1.09	4.68%	8.25	87%
Residential	46.11	54.03%	13.98	34.04%	60.08	77%
Total	85.34		91.15		176.48	48%

This permit requirement is being met.

Zoning by Square Mile – MS4 Limits & ETJ

Omaha Only		ETJ		Omaha and ETJ	
Zone	**Sq Mi**	**Zone**	**Sq Mi**	**Zone**	**Sq Mi**
AG	5.05	AG	54.23	AG	59.28
AV	4.11	AV	0.06	AV	4.17
CC	4.57	CC	0.25	CC	4.82
CH	0.02	CH	0	CH	0.02
DR	11.63	DR	20.03	DR	31.66
DS	0.02	DS	0.00	DS	0.02
GC	0.53	GC	0.03	GC	0.56
GI	6.42	GI	1.02	GI	7.44
GO	1.02	GO	0.02	GO	1.04
HI	0.40	HI	0.01	HI	0.40
LC	0.18	LC	0.01	LC	0.19
LI	0.35	LI	0.06	LI	0.41
LO	0.27	LO	0.00	LO	0.27
MH	0.19	MH	0.21	MH	0.40
MU	3.80	MU	1.21	MU	5.02
NBD	0.06	NBD	0	NBD	0.06
R1	2.68	R1	1.05	R1	3.73
R2	8.85	R2	0.99	R2	9.85
R3	9.51	R3	0.72	R3	10.24
R4	17.28	R4	9.40	R4	26.68
R5	2.87	R5	0.93	R5	3.80
R6	2.93	R6	0.52	R6	3.45
R7	1.37	R7	0.15	R7	1.52
R8	0.42	R8	0	R8	0.42
RR	0.81	RR	0.23	RR	1.04
Total	85.34		91.15		176.48

A literature review of pollutant loads by land use type was conducted in 2017. There were a wide range of values found for several stormwater pollutants including total nitrogen, total phosphorus, total suspended solids, and E. coli. Pollutant load values were reported as either pollutant export coefficients or event mean concentrations. Pollutant export coefficients represent the average total amount of a pollutant loaded into a system annually from a defined area (kg/ha/yr), whereas event mean concentrations estimate the mass of pollutant per unit of volume (mg/L) based on data generated from local stormwater monitoring. In order to calculate total pollutant loads from event mean concentrations knowledge of surface imperviousness for a given land use type and precipitation data for the area must be used. These literature values, while not specific to Omaha, provide a basic assessment of the range of pollutant loading concentrations within the Omaha area based on current land use patterns.

Pollutant Export Coefficients for total nitrogen and total phosphorus and total nitrogen and phosphorus load based on land use type area. The highest and lowest estimates are shown.

		Total Nitrogen *(kg/ha/yr)*		**Total Phosphorus *(kg/ha/yr)***		**Total Nitrogen Load *(kg/yr)***		**Total Phosphorus *Load (kg/yr)***	
	Area *(ha)*	Low	High	Low	High	Low	High	Low	High
Agricultural	1,307.64	2.10	79.60	0.26	18.60	2,746.03	104,087.80	339.99	24,322.02
Commercial	6,997.80	1.90	13.80	0.10	7.60	13,295.83	96,569.70	13,295.83	53,183.31
Industrial	1,856.02	1.90	14.00	0.40	4.10	3,526.44	25,984.33	3,526.44	7,609.70
Residential	11,941.29	5.00	7.50	0.77	2.20	59,706.45	89,559.67	59,706.45	26,270.84

Event Mean Concentrations for total nitrogen, total phosphorus, and total suspended solids with the highest and lowest estimates shown.

	Total Nitrogen *(mg/L)*		**Total Phosphorus (*mg/L)***		**Total Suspended Solids (*mg/L)***	
	Low	**High**	**Low**	**High**	**Low**	**High**
Agricultural	0.23	41.49	0.08	2.29	19	582
Commercial	0.96	1.8	0.18	0.28	49.6	284
Industrial	0.86	2.9	0.27	0.36	92.2	231
Residential	1.5	5.92	0.38	75	73	299

4. Evaluation Assessment

Environmental Indicators
The City of Omaha continues its efforts to promote and implement green infrastructure practices as an effective means to manage stormwater runoff. BMP assessment monitoring remains a cornerstone of our stormwater program. We continue to update BMP assessment monitoring to better understand how BMPs can be used to improve water quality in Omaha. Monitoring in 2020 again indicated that green infrastructure effectively reduces peak flows and total volume of stormwater and improves water quality, particularly for the reduction of solids. See Attachment H for the summary of 2020 monitoring efforts.

Administrative Indicators – by MCM
Public Education & Outreach:
BMPs in this MCM continue to be effective in increasing the public awareness of stormwater issues and what can be done to address them in 2020. Due to the Covid-19 pandemic in 2020, in-person education and outreach events essentially stopped in March and efforts shifted to focusing on virtual means to continue implementing the education and outreach program. The Program began working with Conservation Nebraska on stormwater awareness and green infrastructure practices and put on two virtual workshops in 2020. Physical distribution of education materials also essentially stopped, but the OmahaStormwater.org website provided the means to continue to distribute materials across various audiences. Collaboration with Keep Omaha Beautiful (KOB) continued in 2020 with their efforts also significantly affected by Covid-19. KOB adapted very well to the pandemic and was able to continue their strong outreach programs. Together with KOB we reached 5,000 people in 2020, a decrease from 23,000 in 2019. KOB, as part of their environmental education training workshops, trained teachers on stormwater topics to take forward to teach in their classrooms. Based on surveys from those teachers, they will incorporate what they learned into their classrooms and reach over 7,000 students. In 2020, the Program increased social media presence over 2019 total reach by almost 2,000. The annual, in-person World O! Water family event was switched to a virtual format with videos and resources shared by numerous organizations and companies. These resources remain on the World O! Water website. KOB also improved their social media outreach in 2020 with just over 2 million impressions on social media, doubling the 1 million impressions in 2019. In 2021, virtual events and outreach efforts will be the primary means of education and outreach until the Covid-19 pandemic subsides and in-person events can safely start taking place. Efforts will also continue to improve the Omaha Stormwater Facebook page, OmahaStormwater.org, OmahaPlants.org, WorldOWater.com, and to coordinate with KOB.

Public Participation and Involvement:
BMPs in this MCM have been effective in engaging the public in the implementation of stormwater controls and providing access to information about the City's SWMP and annual reports in 2020. Due to the Covid-19 pandemic in 2020, virtually all in-person opportunities stopped and the Program continued to share participation opportunities on the Program's website and Facebook page. Collaboration with KOB continued to be excellent in 2020 as their prominent online resources proved valuable with virtually engaging with the public. The inlet marking program saw a decline in total adult and youth participants and total volunteer hours, but the number of inlets marked was significant higher, with 138 participants that marked and cleaned 4,017 inlets. An additional 136 inlets were cleaned that were already marked. In 2019, 3,060 inlets were marked and cleaned with an additional 339 cleaned that were already marked. No door hangers were distributed in 2020 due to the Covid-19 pandemic. The Program in 2021 will continue to increase exposure of participation opportunities for the public on websites and social media.

Illicit Discharge Detection and Elimination:
BMPs in this MCM have been effective in eliminating illicit discharges in the MS4 service area. In 2020, the City drafted a strategy for how the MS4 map will be updated and is included in Attachment I. GIS information maintained by the Sewer Maintenance Division continued to be reviewed in 2020 to ensure all applicable outfalls were accounted for and screened. Complaints received by the Program continues to utilize the CityWorks asset management software and has been very beneficial in streamlining documentation and tracking of all complaints, including those that involve an illicit discharge. The majority of complaints that are received are able to be resolved simply by requesting voluntary compliance and educating the responsible party, resulting in less stormwater pollution. The complainants and the responsible parties from these complaints are generally understanding and want to do the right thing in keeping stormwater pollution low.

Construction:
BMPs in this MCM have been effective in reducing construction site runoff and erosion issues in 2020. Incorporating construction stormwater training into the existing monthly safety toolbox meetings for City EQC Environmental Inspectors has helps improve overall understanding of the program and addressing any issues that may arise in the previous month. By providing training to municipal staff, mechanisms for complaints, and education to developers and contractors, the Program continues to promote construction site compliance. Emphasis on compliance and education continues to have positive results for public and private construction activity. Public input and transparency prompts the Program to best serve the needs of the regulated community, the public, and the City. Improving communication between grading permit applicants, inspecting firms, and contractors has also been an emphasis in 2020. Improving the flow of communication between these parties is essential in order to have timely response to issues to minimize stormwater pollution.

Post Construction:
BMPs in this MCM have been effective in achieving the goals of the Post-Construction Stormwater Program. In 2019, the City began requiring a project to submit and have approved, a post-construction application prior to the issuance of a grading permit. In 2020, the City then began requiring any permanent component of a post-construction stormwater BMP that is also used as a component of a temporary BMP for construction stormwater be approved as part of the Post-Construction Stormwater Management Plan (PCSMP) review process before grading permit approval. This was necessary to address an increase of permanent features being installed and used as part of a temporary sediment basin system, i.e. the riser and barrel, before their PCSMP was approved. These two steps have proven to be an effective way to ensure projects are progressing forward and ensuring are adequate in meeting the requirements of the Post-Construction ordinance. Coordination with other Public Works Departments and Planning has improved in 2020 with monthly meetings to review projects that will be in front of the Planning Board for approval. These meetings allow for comments to be shared with the project regarding their PCSMP and Grading Permit documents to be addressed early on in the process or even after construction has begun and compliance is being sought on a site that is out of compliance. In 2021, the Program will continue working with projects to incorporate their PCSMPs earlier into their planning process and update the strategy to inspect certified projects to ensure that long-term maintenance is being conducted.

Pollution Prevention & Good Housekeeping:

BMPs in this MCM have been effective in managing stormwater pollution from City facilities and operations in 2020. Ensuring the Program is in compliance with its own regulations is crucial for maintaining integrity and achieving water quality goals. The City's facilities continue to be reviewed for potential pollutant exposure to stormwater, to identify vulnerabilities, and further educational needs. The Program continues to enhance training programs for City employees to provide more applicable information to more individuals. This included providing a virtual IDDE training video to municipal facilities to show their employees based upon their schedules and provide a roster back to the Program. The Program will continue to utilize this method of distribution as part of its overall training strategy as it has proven an effective and efficient means of training, especially during the Covid-19 pandemic. City-owned basins and green infrastructure continued to have regular inspections and maintenance in 2020 to ensure they are working to their highest potential.

Industry:
BMPs in this MCM have been effective in increasing compliance with the NDEE Industrial Stormwater Permit (ISW Permit) in 2020. The Program continues to coordinate with NDEE to maintain an updated and accurate list of industries in Omaha. This has proven to be an effective way to work with the regulated community to improve overall compliance with the industrial stormwater permit by industries. NDEE has stated they plan to develop a list of industries that should be permitted and will share that with the Program, this was not received in 2020. This will be used to provide education and outreach to those industries to obtain and maintain compliance with the NDEE industrial stormwater permit. In 2021, the Program will continue to implement these BMPs and improve education and outreach to industries in order improve water quality and industry compliance.

BMP Assessment Monitoring:
The Program, prior to 2019, contracted out the monitoring of some BMPs to consultants in order to fully implement the BMP monitoring plan. Due to the lack of State Stormwater Grant funds in 2019, the Program took on this requirement. The BMP monitoring plan was updated in 2019 to update the sites and parameters. The locations and parameters for monitoring have remained consistent from 2019 to 2020 and data collected in 2020 continues to supports that BMPs are effective at improving water quality, reducing stormwater peak flows and quantity. Efforts will continue to be made to partner with more groups to reference and compare data. This data helps the Program make recommendations to residents, designers, and developers for types and styles of BMPs that will be most effective under specific conditions. Because of this monitoring, the Program can confidently say that BMPs being recommended are having a positive impact on water quality.

5. Expenditures for the Storm Water Program

At the time of preparation of this annual report the City Finance Department had not finalized the accounting for 2020 expenditures, so the following figures are subject to minor revisions. A copy of the complete City of Omaha budget with past expenditures can be found at http://finance.cityofomaha.org. Stormwater management activities are embedded in a variety of City programs and work groups. These activities are funded by a variety of sources including the General Fund, Sewer Revenue Funds, Stormwater Administrative Fee Fund, Street and Highway Allocations, and the Street Maintenance Fund.

As such, it is difficult to accurately compile a comprehensive financial summary of every City activity that may have impacts on stormwater. For example, the City maintains litter cans in business districts throughout

the City and has a contractor scheduled to empty them on a regular basis. This activity constitutes a stormwater source control or pollution prevention program. These costs are expended from the Solid Waste budget and are not included in the figures below.

1. Administrative

The Quality Control Division of the Omaha Public Works Department has responsibility for coordinating City activities to implement the SWMP and insure that the City meets its MS4 permit requirements. The estimated MS4 administrative expenditures for 2020 and appropriated 2021 budget amounts are listed below.

Administrative	2020 Expenditures	2021 Planned
Flood Control Administration	$263,046	$438,481
Baseline/BMP Monitoring[1]	$403,560	$424,672
Sediment/Erosion Control Program	$403,560	$424,672
Industrial Program[2]	$80,712	$84,934
Public Education/Outreach	$295,944	$311,426
MS4 Planning	$161,424	$169,869
Annual Administrative Total	$1,608,246	$1,854,053

[1] Includes outfall monitoring, outfall inspections, and illicit discharge investigations

[2] Includes industrial inspections and permitting

2. Operation and Maintenance

The major MS4-related Operation and Maintenance 2020 expenditures and budgeted amounts for 2021 are listed below. These amounts were estimated by evaluating the overall activity costs in the City budget organizations and assigning a percentage for the costs attributable to stormwater related activities. There are undoubtedly additional City funded expenditures that impact storm water management, and the following is a conservative estimate of total costs for the City.

Operation and Maintenance	2020 Expenditures	2021 Budgeted
Engineering Design	$896,997	$883,337
Pavement Maintenance	$687,968	$3,023,535
Creek/Open Channel Maintenance	$470,687	$528,868
Street /Right of Way Cleaning	$2,553,053	$5,067,481
OWP (debris removal)	$14,652	$13,832
Residential Street Rehabilitation	$1,541,521	$1,000,000
Bridge Maintenance and Rehab	$24,268	$72,500
Sewer Maintenance	$1,313,476	$1,152,473
Annual O&M Total	$7,502,623	$11,742,026

ATTACHMENT A

City of Omaha - Storm Water Management Plan

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

A. Public Education and Outreach		
BMP #	**SWMP Element Description**	**Target Goals & Implementation Schedule**
1, 3, & 4.	Develop a plan for outreach that defines the goals, objectives, target audience and distribution process of materials for the public education and outreach program.	**Year 1 –** Develop a 5-year education and outreach plan. Submit the plan to NDEQ with the Annual Report. **Years 2-5** – Review and update the plan each permit year and include the revised plan in the Annual Report.
2.	Maintain and update appropriate messages for targeted residential, construction, and commercial issues.	**Year 1 –** Inventory current outreach materials in each of these targeted areas and develop new materials as needed. **Years 2-5 –** Provide copies of new outreach materials in the annual report.

B. Public Participation and Involvement		
BMP #	**SWMP Element Description**	**Target Goals & Implementation Schedule**
1.	Provide opportunities for citizens to comment on new rules, ordinances, and regulations regarding the MS4.	**On-Going All Years –** Post on the City Stormwater Website proposed changes to rules, ordinances, and regulations. Provide information in the annual report on approved changes and input received from the public.
2.	Create opportunities for citizens to participate in the implementation of stormwater controls.	**On-Going All Years –** Post on the City Stormwater Website opportunities for public involvement in stormwater control related activities.
3.	Provide access to information about the City's SWMP.	**On-Going All Years –** Maintain current City SWMP and MS4 annual reports on the Omaha Stormwater website.

C. **Illicit Discharge Detection and Elimination**			
BMP #		**SWMP Element Description**	**Target Goals & Implementation Schedule**
1.	a	Maintain a compliance plan or mechanism to follow up on illicit discharges.	**On-Going All Years** – Maintain the compliance procedures per the permit requirements.
1.	b	Maintain a map showing all known MS4 outfalls and the location of all state-designated waters receiving direct discharges from MS4 outfalls.	**On-Going All Years** – Maintain a continually updated storm sewer system map per the permit requirements.
1.	c	Conduct field screening activities per the permit requirements (set forth in 40 CFR Part 122.26(d)(1)(iv)(D))specifically geared to local TMDL pollutants of concern such as *E. Coli* and to eliminate illicit discharges,	**Year 1 –** Develop dry weather screening, sampling, and quality control plan to address pollutants of concern. Conduct screening under current plan during Year 1. **On-Going All Years –** Annually conduct dry weather monitoring according to screening and sampling plan.
1.	d	Implement procedures to investigate and trace sources of identified illicit discharges to the MS4.	**On-Going All Years** – Document investigations include date observed, result of investigation(s) and date closed.
1.	e	Implement procedures to remove illicit discharges to the MS4. Document all interactions with potentially responsible parties.	**On-Going All Years** – Use the code enforcement procedures to eliminate unauthorized non-stormwater discharges identified during an investigation
1.	f	Identify and address allowable non-stormwater discharges determined to be significant contributors to pollutants. Identify any additional non-stormwater discharges that will not be addressed as illicit discharges.	**On-Going All Years –** Report on any local controls or conditions placed upon exempt non-stormwater discharges and additional identified exempted non-stormwater discharges.
2 & 3.		Coordinate with adjacent permitted MS4s to report illicit discharges to the appropriate authority having jurisdiction and respond to reports from other MS4s.	**Year 1 –** Develop procedures for coordination with adjacent permitted MS4's. **On-Going All Years –** Include in the annual report any known illicit discharge reports to and from adjacent MS4s.
4.		Maintain written procedures for the IDDE component of the MS4 permit.	**On-Going All Years –** Make available upon request the standard operating procedures developed under this program component.
5.		Receive reports and complaints, internally and from the public, of illicit discharges and illegal dumping into the MS4. Respond to and investigate complaints about spills, dumping, or disposal of materials other than stormwater to the MS4.	**On-Going All Years** – Coordinate with others in the City to resolve complaints. Develop a system to generate reports and track the number of calls per year in regard to spills, dumping or improper disposal of material to the MS4. Include a count of complaints received and investigations completed in the annual report.
6.		Develop, implement and maintain a training program for municipal field staff with respect to IDDE.	**Year 1 –** Develop a strategy which identifies field staff and appropriate levels of training. **Years 2 - 5** – Provide a count of employees which have received training in the annual report.

D. Construction Site Runoff Control		
BMP #	**SWMP Element Description**	**Target Goals & Implementation Schedule**
1.	Maintain the established program requiring operators of public or private construction activities to comply with local erosion and sediment control requirements.	**On-Going All Years –** Include any updates to City Code or Permit requirements in the annual report.
2.	Maintain a compliance plan or mechanism to follow up on construction site non-compliance.	**On-Going All Years** – Maintain the compliance procedures per the permit requirements.
3.	Review grading permit applications and maintain a continually updated inventory of all private and public construction sites.	**On-Going All Years** – Include in the annual report the number and type of grading permits reviewed.
4.	Maintain the electronic records for inspection of construction sites and enforcement of erosion and sediment control measures.	**Year 1 –** Develop a strategy for site inspections by municipal staff, and include in the annual report. **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. Include a summary of inspections completed and enforcement actions taken in the annual report.
5.	Provide training for municipal staff with respect to their assigned duties as it relates to sediment and erosion control from construction activity. One formal training course for inspection staff during their employment with the City and internal training on an as needed basis to maintain consistent reporting among all inspectors.	**On-Going All Years –** Include in the annual report the number of staff and their sediment and erosion control training completed.
6.	Communicate with the regulated community and other groups affected by the Construction Site Runoff program and provide a mechanism to receive complaints from the public.	**On-Going All Years** – Conduct workshops for developers, builders, site designers, contractors, and/or City staff as determined necessary (i.e., a rule or regulation is changed). Track reports from the public regarding construction sites. Include the number of reports received in the annual report and the permittees response.

E. Post Construction Runoff Control		
BMP #	**SWMP Element Description**	**Measurable Commitments & Implementation Schedule**
1.	Continue to implement the Post Construction Program as stipulated in the OMC. Periodically update guidance material and develop divergent standards for difficult sites such as linear projects. Update as needed the Omaha Regional Stormwater Design Manual (ORSDM).	**Year 1 –** Develop divergent standards for guidance document and update guidance as needed. Submit standards with the annual report. **On-going All Years –** Revise as necessary. Include a summary of revisions in the annual report.
2.	Review and update, if needed, the standards outlined in the OMC and ORSDM for consistency with required performance standards as they relate to post-construction stormwater management plans.	**On-going All Years –** Report on any updates to the OMC or ORSDM.
3.	Maintain an online submittal and review process for site plans, easement and maintenance agreements, as built drawings, deed recordings and drainage studies.	**On-going All Years –** Report number of PCSMP projects and the status of their progress in the annual report.
4.	Develop SOP's for responding to complaints regarding Post Construction BMPs and a strategy for verifying BMPs are being installed & maintained in perpetuity.	**Year 1 –** Submit SOP's with the annual report. **On-going All Years –** Report on any complaints and/or BMP's which have been certified as complete.
5.	Maintain a database that stores information on approved PCSMPs.	**On-going All Years –** Provide an inventory of certified stormwater control measures installed as part of the PCSMP requirements. Include a count of BMP types as well as any known changes to BMPs in the annual report.
6.	Inspect sites that are certified by the engineer of record and all sites identified as deficient on a complaint basis. Develop a protocol to bring sites in to compliance.	**Year 1 –** Develop protocol for compliance assistance, and inspection strategy **On-going All Years –** Document and maintain inspection records of the certified PCSMP projects as identified in the strategy developed. Document any enforcement actions taken. Summarize activities in annual report.

F. Pollution Prevention and Good Housekeeping		
BMP #	**SWMP Element Description**	**Target Goals & Implementation Schedule**
1.	Maintain an inventory and map of municipal facilities. Review annually and update if needed.	**On-Going All Years** – Maintain an inventory and map of all municipal facilities.
2.	Conduct assessments of municipal maintenance facilities and review their municipal runoff control plans as applicable. Revise plans as needed if facilities expand or reduce activities and implement recommendations based on annual inspections.	**Year 1 –** Develop a strategy to assess municipal facilities and prioritize them based upon a defined set of criteria, include strategy in the annual report. **Years 2 - 5 –** Track the number of assessments for municipal facilities based upon the strategy developed in year 1. Include the number of assessments completed, a description of the assessment procedure and any changes in facilities ranking in the annual report.
3.	Continue to implement Omaha's Good Housekeeping Program for municipal facilities that addresses "high-priority" facilities (hot spot score of 20-30 out of 30) and site specific SOPs.	**On-Going All Years** – Annually report new, removed, or significantly updated municipal facilities
4.	Implement practices for maintaining the storm sewer system that includes catch basin maintenance, open channels and other drainage structures, street sweeping, and structural stormwater controls. All maintenance procedures are to be performed such that waste water and waste materials do not enter the MS4.	**Year 1 –** Provide a description of the maintenance programs in the annual report. **On-Going All Years –** Annually report on Sewer Maintenance activities related to maintaining the storm sewer system and changes to any of the maintenance practices.
5.	Provide training for municipal employees in pollution prevention and good housekeeping.	**Year 1 – Develop** a strategy for municipal employee training in pollution prevention and good housekeeping, include strategy in annual report. **On-Going All Years** – Conduct training events for municipal staff include number of employees trained, based on strategy developed in year 1, in annual report.
6.	Provide educational material to contractors hired to perform maintenance activities on the MS4.	**Year 1 –** Develop materials to provide to contractors and include in the annual report**.** **Years 2 - 5 –** Include in the annual report any new materials or updates to existing materials.

G. Industrial and Related Facilities		
BMP #	**SWMP Element Description**	**Target Goals & Implementation Schedule**
1.	Maintain a program that identifies Industries within the MS4 area which fall into sectors identified in the ISW- NPDES permit.	**Year 1 –** Develop strategy that will identify industries and their compliance with NPDES permits. **On-going All Years –** Review and update strategy developed in year on and report on any changes in the annual report.
2.	Request a list of permitted facilities and the NOI from NDEQ in January of each permit year.	**On-going All Years –** Maintain a database to track NPDES permitted facilities.
3.	Inform industries about the NPDES ISW Permit and notify the state when industries are not in compliance with the state regulations.	**On-going All Years –** Develop industry specific publications regarding the NPDES regulations and distribute to inspected facilities.
4.	Inspect NPDES permitted industries from a list provided by NDEQ in January of each year. Maintain a tracking system for inspections and SWPPP reviews. Review the SWPPP or NEC prior to completing an inspection.	**On-going All Years –** Inspect 20% of the facilities on the list provided by NDEQ each year so that all industries are inspected once in the permit cycle.
5.	Ensure inspectors completing industrial stormwater inspections are competent.	**On-going All Years –** Report inspection activities in the annual report.

H. Monitoring Program		
BMP #	**SWMP Element Description**	**Measurable Commitments & Implementation Schedule**
1.	Dry Weather Screening	**On-going All Years –** Implement a dry weather screening of priority outfalls for IDDE following screening and sampling plan. Keep a record of outfalls observed and a record of the field screening results. Follow strategy in SWMP Program Component C - IDDE for outfalls showing presence of an illicit discharge. Update priority list based on observations.
2.	Develop a wet weather BMP assessment monitoring plan for demonstration BMPs to facilitate future SWMP planning. Evaluate the effectiveness of the selected BMPs. BMP assessment may include flow based monitoring, or water quality sampling. Biological systems may include plant assessments and visual observations. Construct structural BMPs and implement non-structural BMPs to evaluate the effectiveness of their ability to address pollutants of concern. Include in the BMP assessment program if appropriate.	**Year 1 –** Revise the BMP assessment monitoring plan and submit to NDEQ for approval. Amend as necessary when new demonstration projects have been constructed. **On-going All Years –** Implement monitoring plan in demonstration projects. Report findings in the Annual Report. 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 of the findings.
3.	Utilize data collected by others to help assess the effectiveness of BMPs.	**On-going All Years** -**–** Gather data from others and include in the annual report with a summary of findings.

ATTACHMENT B

Environmental Enforcement Manual

Environmental Quality Control
City of Omaha

May, 2019

Table of Contents

Section I: Omaha EQC Enforcement Guidelines

ENFORCEMENT GOALS & PROCEDURES

The City's environmental enforcement goals are to:

- Reduce the risk to human health and the environment
- Correct existing violations and deter future violations
- Prevent or have cleaned up pollution and minimize waste
- Preserve the integrity of the regulatory structure

To accomplish this the City will assure a high level of compliance, and strive for timely discovery and correction of significant compliance problems. This manual was written in order to maximize resources and ensure the effective and consistent enforcement of the various regulations.

It is very important in enforcement to understand that every enforcement action the City takes must have supportive power set out in the Federal State and/or City statutes. To carry out the policies of the administrative branch of Government, the Legislature has granted numerous powers and responsibilities to the City.

> The Nebraska Statute # 84-901 et seq… governs various aspects of administrative Environmental Law, such as the adjudication of cases and judicial review of the City actions. *Agencies in their decision-making and enforcement cannot be arbitrary or capricious or disregard the law that applies to their actions.*

The City can exercise its enforcement powers in administrative, civil and / or criminal proceedings, or can refer cases to the NDEQ or EPA. The exercise of this authority is discretionary. The City also has informal and indirect enforcement options available. These include seeking voluntary compliance through warning communications (Faxes, e-mails, etc…) and compliance assistance to provide a violator an opportunity to return to compliance. It is important to keep in mind that the City's statutes and regulations are part of a larger system of environmental law that includes federal and state court decisions, policies, and guidance. The City has the power to enact and enforce laws and regulations that meet minimum federal criteria. In many cases the City has become the primary permitting and enforcement authority.

The EPA and NDEQ negotiate with the City through permits, work-plans and delegation Memorandums on how the agencies will work together. The EPA and NDEQ retain the right to take enforcement actions independently of the City, but defer to the City in most cases if the City's action has been timely and appropriate.

Process and Mechanisms

<u>The primary goal of enforcement is compliance.</u> A strong enforcement program establishes credibility that when violations are identified, a return to compliance is achieved and, if appropriate, penalties are obtained. The enforcement strategy and priorities developed by the City are implemented through regular inspections and complaint investigation activities. The enforcement program strives for compliance, prosecuting violators in as systematic and uniform manner as possible, while retaining enough flexibility to make adjustments based on the particular case.

The various program managers make the final decisions on the issuance of administrative orders, referrals to the Law Department, and settlement. The City staff in recommending enforcement action should consider the same factors that affect the managers' ultimate decision. This requires the exercise of professional judgment and discretion in determining the most appropriate response. Some considerations during the review are:

- ☐ The severity of the violation in terms of its environmental impact; the degree of variance from the standards; the impact of the violation upon the integrity of the program under consideration.
- ☐ The enforcement history of the entity involved in terms of past violations and demonstration of good faith.
- ☐ Whether the violation can be corrected through improved operation and maintenance and, if so, will correction be lengthy? Has the problem already been corrected?
- ☐ Consideration of "Fairness and Equity." Is the requirement reasonable? Was it imposed with complete information? Is the City treating facilities with similar violations in the same manner? Have events occurred beyond the control of the violator, which have resulted in the violation?

Program Priorities

Violations are classified in terms of their importance to the regulatory schemes and whether pollution is likely to result. Other factual considerations, such as whether the violations are chronic, the violator is cooperative or recalcitrant, or the extent of the deviation must be evaluated on a case-by-case basis.

Prompt and timely communication is the key to an effective enforcement program. Timeliness equates to importance in the eyes of the violator, regulatory community, public, and courts. Prompt communication ensures that evidence is gathered and presented while fresh and improves agency credibility.

Situations involving an emergency or imminent and substantial endangerment to public health and welfare or the environment should be given highest priority and the enforcement accelerated.

DISCOVERY OF VIOLATIONS

The City discovers violations in a variety of ways, including but not limited to, report reviews, compliance inspections, complaint investigations, and referrals from other agencies. Once a violation has been determined, they should be documented in an inspection report or memorandum as soon as possible, and filed in the company or complaint file.

Inspections

Typically most site inspections occur as a result of routine, program-specific compliance inspections. When the City receives a complaint of a possible violation, the City staff should document all of the

information on a complaint form. The name of the complainant is confidential, but may be disclosed in an enforcement proceeding or if compelled by a court.

Entry / Access

An inspector, upon arriving at a facility, source, or site should attempt to locate the owner, operator, or agent in charge, and identify him or herself, show his or her credentials, and explain the reason for the inspection. Nebraska Statute authorizes the inspector "to enter and inspect, during reasonable hours, any building or place, except a building designed for and used exclusively for a private residence." Statute also allows a representative of the Director to enter and inspect any contaminant source with the consent of the person or persons in control.

An inspector may sign a login sheet, but cannot sign a sheet, which purports to hold the source harmless in the event of injury to the inspector regardless of the facility's negligence. It is the facility's right to refuse entry or access to records for that or other reasons, but if this should occur the inspector should inform the source that that is a violation, and leave the facility. The inspector should contact their supervisor. The supervisor should contact the Law Department to obtain an inspection and search warrant. Nothing prohibits an inspector from viewing the property from a location where the public has access, such as a roadway or adjacent property, with permission of the owner.

Evidence

As a general rule, photographs should begin with the general area and then move in on the area that portrays the violation itself. At hearing or trial, photographs are most often used to illustrate the inspector's or another's testimony. Photographs are usually admissible as a form of non-verbal testimony. The photograph should be a good, fair, and accurate depiction of the object or scene at the relevant time. If videotape is used, only the voice of the person taping the video should be recorded.

Field Notes/Sketches/Diagrams

The field log should contain only relevant, objective observations and remarks. The major benefit to a field log is that it may be used latter in court or administrative hearing to "refresh" the inspector's memory of events. However, the decision to retain or discard field log notes must be consistent within the program.

When asking people information about a matter under investigation or in taking written statements, the inspector should focus on the basic questions of who, what, where, when, why, and how. If a person appears to have done an illegal act under the direction or order of another person, the inspector should find out who gave the order or direction. Inspectors should avoid intimidating people since a less confrontational approach usually elicits more information.

The inspector should also be aware of the records or documents that are required to be filed with the Department, such as weekly erosion control reports, semi-annual air compliance reports, emission inventories, discharge monitoring reports, biennial hazardous waste reports and Title III reports. These documents may provide support for a determination as to the extent of harm that may result from a violation.

Samples

When samples are collected, the inspector should give a receipt to the facility representative, describing the sample(s) obtained. The sample shall be collected in a proper container, labeled with time, date, facility, sample collector, point of collection, type of sample, etc… The sample collector shall maintain a chain of custody form on the sample, which indicates when and to whom a sample is transferred. There must be no "broken link" in the chain of custody where the sample may be unknowingly tampered with. Once the results of the samples are reviewed, a copy of the results should be sent to the facility representative, unless otherwise directed by the Law Department.

Inspection Reports

The central purpose of an inspection report is to clearly, accurately, and objectively communicate the factual information gathered during the inspection to the reader. It should be written as if the reader had no knowledge of the operation, or the facts outside of the report. The inspector should avoid any opinions, erroneous conclusions, inferences, or interpretations in the report. A good inspection report strengthens the credibility of the inspector as a witness.

Inspection reports should be written as soon as possible after the inspection, and filed. This helps to assure that the facts are recorded accurately while the events are fresh in the inspectors mind. An inspection report must make clear what actions are required of the facility, the inspector, or their supervisor.

After the report is written, a letter should be sent to the facility representative with a copy of the inspection. This is a courtesy, and in keeps them clearly informed of their compliance status, and if non-compliance was found during the inspection, it is a clear record of the violation and what actions, or timeframes where established to bring the facility back into compliance.

ENFORCEMENT

If possible, all discussions with the violator should be coordinated first through the Law Department during pending enforcement action, unless otherwise instructed by the attorney. The "Date of Discovery" is important to highlight with the report, this date establishes the statutory date that the Law Department has to bring legal action, or the action is barred.

The inspector or their supervisor should prepare any "Letter of Warning" (LOW). The program manager should prepare and sign "Notices of Violation" (NOV). For civil penalty actions or actions for injunctive relief, the manager will prepare an initial contact letter, which may be signed by the attorney, to send to the violator. This letter acknowledges to the source that the matter has been referred to the Law Department with the recommendation that enforcement action be taken. It will identify the violations or reference the LOW & NOV previously sent. It will outline the civil penalties, or injunctive relief deemed appropriate by the agency to settle the matter without litigation.

Settlement agreements are considered to be confidential, and any questions on an ongoing enforcement should be referred to the Law Department.

Enforcement Mechanisms

It is important to provide the violator with the opportunity to voluntarily come into compliance prior to referring a violation to the Law Department for enforcement. The purposes of the various stages of notices are to document the violations that have been observed and alert the violator to the consequences for failing to comply.

Voluntary Compliance

The City's first course of action is to pursue correction of the violation through voluntary compliance, unless an emergency exists. Documentation of this steep is essential. This is typically done less formally, through Faxes, or e-mails. The violation should be clearly outlined, and the timeline for submitting a voluntary compliance schedule clearly stated, typically not more than 10 working days. Some cases will warrant enforcement action regardless of whether the violator voluntarily returns to compliance. The City can make the decision to forgo voluntary compliance efforts.

Letter of Warning

If voluntary compliance is not successful, or the violator has a history of non-compliance on the same issue, the City should send a "Letter of Warning". This letter should identify the specific violation(s), with citations, such as 40 CFR 61,145(b)(i), that has occurred and, when necessary, the required action to be taken to correct the violation. The "Letter of Warning" should require the violator to submit a written response with a compliance schedule within a specific number of days, generally not more than thirty (30) days. The letter should state that failure to respond, or continued violation will result in referral to the Law Department with the recommendation of enforcement action (fine). Attach a copy of the specific regulation violated to this LOW. These LOW are always sent by certified mail, establishing the date of receipt of the information.

Notice of Violation

A "Notice of Violation" is a legal document that may be issued by the Program Manager whenever he or she has reason to believe that a violation of the City laws, regulations, or permit requirements has occurred. The "NOV" is a written complaint that specifies:

1) The provisions of the law, regulations, or permit alleged to be violated.
2) The facts alleged to constitute the violation thereof, and
3) The corrective action to be taken within a reasonable time necessary to achieve compliance.

The City does not have the authority to impose penalties in a "NOV". Therefore, a "NOV" is the appropriate vehicle to impose compliance schedules for improved operation and maintenance, capital improvements, installation of pollution control equipment, remedial actions, or any other actions necessary to achieve compliance.

A "NOV" can include a penalty calculation, which if agreed to and paid by the alleged violator through a voluntary consent order, would be acceptable in lieu of the City seeking judicial action. Advantages

to accepting a "NOV" settlement over a judicial action are that a "NOV" is usually faster and therefore requires fewer resources. It also allows the Department more control of the conduct and progress of the action, rather than relying on Judicial Decisions.

Voluntary Consent Order

These are voluntary, negotiated, written legal documents between the City and the violator that regulate any matter within the City's jurisdiction. They are signed by both the Director, or his representative, and a representative of the violator and are equally binding on both. They are frequently used when a violator agrees to come into compliance and is willing to make a written commitment in good faith. These agreements may be negotiated before a NOV is issued, or as a result of a NOV.

If a compliance provision in a Voluntary Consent Order, agreement or stipulation is missed, unless otherwise agreed, this is a violation of a final order of the Director and the matter may be referred to the Law Department with a recommendation for further action.

Permit Denial, Revocation, or Modification

If a chronic violation occurs at a site, a permit may need to be denied, revoked, or modified. Nebraska Statute provides that any person who is denied a permit by the director or who has one revoked or modified shall have the opportunity for an administrative hearing. The Public Works Director usually chairs all Administrative Hearings. The request for a hearing must be filed within thirty days of the permit action. After the hearing the director shall make his decision known. The permit holder may appeal the director's final decision in court.

Civil Action

If the City has exhausted all administrative alternatives, it may seek to impose civil penalties for a violation, the director may refer the matter to the Law Department for prosecution. In order for the Law Department to determine if there is sufficient legal merit to justify a civil or criminal proceeding, the program managers must develop a Litigation Report that should include basic factual information about the violation(s) and the violator(s), a description and analysis of the legal elements necessary to prove the statutory, regulatory, order or permit violations, the documentation on the potential penalties to which the violator may be subject, injunctive relief to which the City is entitled, and any potential weakness in the case or affirmative defenses and any suggested resolution of the matter.

In practice the City and the defendant in a civil action may negotiate a settlement of the matter. Typically, this settlement is memorialized in a consent decree that is filed with the court. A consent decree may also include compliance requirements in addition to payment of civil penalties. Violation of a consent decree may be pursued in court.

Criminal Cases

State law establishes criminal liability for many of the same violations subject to civil penalties, if they are committed "knowingly and willingly". In order to prevail in a criminal action, the City must prove each element of the case "beyond a reasonable doubt", which is a higher standard of proof than a civil

action. Evidence gathering in a criminal case is more restrictive, and the Police Department or State Patrol should provide assistance with witness investigation.

PENALTIES

The assessment of penalties for violations of environmental statutes, regulations, and permits provides incentives to comply with these requirements and services as a deterrent to further violations. The City's policy in seeking penalties is to ensure that penalties are:

1. Assessed in a fair, consistent, and equitable manner.
2. Appropriate to the circumstances of the violation
3. Sufficient to remove any economic benefit or other financial incentive to non-compliance
4. Sufficient in severity to deter further non-compliance by the violator and others similarly situated
5. Resolve any outstanding environmental problems quickly.

There is EPA and NDEQ guidance documents on the assessment of penalty size. These workbooks should be used as a general guide in assessing a penalty. The factors used in the evaluation of penalties include:

- *Statutory Factors* such as degree, duration and extent of the violation and economic benefit on behalf of the violator;
- *Mitigating Factors* such as the response and compliance history of the violator and the ability to pay; and
- *Injunctive Relief* with respect to environmental costs, costs of mitigation and/or damaged infrastructure.

A complete procedure for the assessment of penalties is located in the following section of this manual.

Section II: Civil Penalty Policy

POLICY

(Copied after: EPA's CLEAN WATER ACT Civil Penalty Policy)

Before filing a Notice of Violation, the City of Omaha will use the following guidelines to determine the minimum amount the City will accept in settlement for counts based on violations of the erosion or dust regulations. This amount, along with the appropriate worksheet and a supporting rationale, should be included in the enforcement-confidential portion of the case file. After a complaint is filed, as the City receives more relevant information regarding liability and penalty issues, the City should adjust its settlement figure accordingly, documenting the rationale for the changes.

The bottom-line figure resulting from application of this civil penalty settlement policy and the specific calculation that led to it are not public. Each is privileged, enforcement-confidential information. It is work product developed for negotiation purposes and should not be shared with administrative judges, respondents or defendants, or the public.

This policy itself, however, is public and not confidential. In calculating the bottom-line settlement figure, the City should assume that all the allegations in the complaint will be successfully proven, except to the extent this policy specifically allows for the incorporation of litigation considerations into the penalty calculation. The subjective aspects of the various penalty factors should be applied conservatively in determining the settlement bottom-line because that figure represents the minimum the Agency will accept in settlement, which may be less than the penalty amount that the City considers otherwise ideally suited to the violation. The City may, of course, republish this policy to clarify the newly adjusted settlement amounts.

- The seriousness of the violation or violations;
- The degree of culpability involved;
- The nature, extent, and degree of success of any efforts of the violator to minimize or mitigate the effects of the discharge;
- Any history of prior violations.

ASSESSMENT CRITERIA

Step 1: Seriousness

The seriousness of a violation depends, in part, on the risk it poses to the public and the environment. "Risk" can encompass the coverage area of the violation, the likelihood of a spill, the sensitivity of the environment, and the duration of the violation. The coverage area of the violation, which also contributes to the severity of the violation, depends on the erodible area covered, the existence and adequacy of sediment containment, the degree and nature of the violations of relevant requirements, and the duration of the violation. The sensitivity of the environment can be characterized by considering the potential environment impact from a worst-case discharge at the site.

Step 1.a: Apply matrix. Determine an initial figure from the following table. Within each range, the City should exercise discretion, considering capacity and extent of noncompliance only, since other considerations are incorporated in later steps.

Extent of Noncompliance	Less than 1 acre	1 acre to 5 acres	5 acres to 10 acres	More than 10 acres
Minor	$50 to 100	$75 to $175	$125 to $250	$225 to $350
Moderate	$110 to $175	$175 to $275	$250 to $375	$350 to $450
Major	$175 to $225	$275 to $325	$375 to $450	$450 to $500

Use the following criteria to determine the extent of noncompliance:

Minor Noncompliance. Cumulatively, the violations have only a minor impact on the ability of the respondent to prevent or respond to worst-case erosion or dust violation through the development and implementation of a compliance plan.

> Minor noncompliance: Failure to have GR2 inspections on site in a timely manner; failure to submit required report online in a timely manner; failure of reports to reflect minor changes in BMP.

Moderate Noncompliance. Cumulatively, the violations have a significant impact on the ability of the respondent to prevent or respond to worst-case erosion or dust violation through the development and implementation of a compliance plan.

> Moderate Noncompliance: Site work inconsistent with BMP; Failure to update BMP or reflect major changes; Failure to amend plan after rainfall or work practices show the plan to be inadequate; Failure to submit information of a control measure failure.

Major Noncompliance. Cumulatively, the violations essentially undermine the ability of the respondent to prevent or respond to worst-case erosion or dust violation through the development and implementation of a compliance plan.

> Major Noncompliance: No BMP submitted; Work started prior to permit issuance; inadequate or incomplete plan resulting in major environmental or citizen harm; failure to maintain equipment and/or personnel to implement BMP/dust control measure resulting in hazardous conditions; intentional or known violations.

Step 1.b: Adjust the amount determined from the matrix to reflect the potential environmental impact of a worst-case discharge. Choose the most serious applicable category.

Major Impact. A discharge would likely have a significant on human health/safety, an actual or potential effect on a receiving lake or wildlife due to factors such as proximity or adequacy of containment. Upward adjustment of 25-50%.

Moderate Impact. A discharge would likely have a significant effect on storm sewers or receiving stream or vegetation due to factors such as proximity to water or adequacy of containment. Upward adjustment of up to 25%.

Minor Impact. No adjustment.

Step 1.c: Adjust the amount from **Step 1.b** to account for the duration of the violation. Determine the number of weeks that the violation continued. For each week, add one half of one percent to the amount from Step 1.b (e.g., if the violation continued for 32 weeks, increase the amount from the previous step by 16%) up to a 30% maximum.

Step 2: Culpability

Assess the degree to which the respondent should have been able to prevent the violation, considering the sophistication of the respondent, the resources and information available to them, and any history of regulatory staff explaining to the respondent legal obligations or notifying the respondent of violations. Depending upon the degree of culpability, the city may increase the amount from STEP 1 by as much as 75%.

Step 3: Mitigation

This policy requires that in assessing a penalty the City must consider the "nature, extent, and degree of success of any efforts of the violator to minimize or mitigate the effects of the discharge". Though a violation of the regulations increases the threat of a discharge rather than actually causing a discharge, this factor can be taken into account by considering how quickly the violator comes into compliance, thereby mitigating the threat of a discharge. The City should use the following guidelines:

> When the violator comes into compliance before being notified of violation by regulatory staff orally or in writing, reduce the amount from **STEP 2** by up to 25%.
>
> When the violator, after notification of violation, comes into compliance within a reasonable time period not exceeding six weeks: No adjustment.

This is a downward adjustment only because any failure to come into compliance promptly after being informed of the violation is accounted for in **STEP 2** (Culpability).

Step 4: History of Previous Violations

Adjust the amount from **STEP 3** if the respondent has a relevant history of violations within the past five years. Consider violations of erosion and dust regulations, the BMP or reporting requirements, and any violation of an environmental statute that relates to the respondent's ability to prevent or mitigate a violation. Related violations, for example, could include certain operation and maintenance violations that indicate a respondent's inattention to pollution control requirements. Relevant violations at any other facility under common ownership or control should be considered under this step. Violations include admitted violations (such as reports or other required self-reporting), adjudicated violations, findings of violations by the City, NDEQ, EPA or other agencies that have not been withdrawn or overturned by a reviewing authority, and cases that were settled by consent and involved the payment of a penalty (whether or not liability was admitted). If there is a history of such violations, the City may increase the **STEP 3** amount by up to 100%, depending on the frequency and severity of such past violations

Section III: Supplemental Environmental Project Policy

APPLICABILITY

In the settlement of environmental enforcement cases in Omaha, the City requires that violators resolve the violation, change standard operational procedures to avoid future non-compliance, and pay a civil penalty; in certain instances "Supplemental Environmental Projects" (SEP) and their environmental and community benefits may be part of the settlement; the primary purpose of the SEP policy is to obtain environmental and/or public benefits that may not otherwise occur, in the community impacted by the violation. SEPs are offered as an opportunity to contribute to the community in lieu of paying a penalty, and to help the defendant / respondent understand that their action has had an impact on the community as a whole, and is therefore offered to first time offenders only.

The environmental programs administered by the City have penalty assessment criteria used in determining an appropriate penalty. These policies establish an appropriate initial settlement offer to avoid the time and cost of a court hearing where appropriate. These policies have been established with consideration of the economic benefit to the violator, the seriousness of the violation, and any prior history of violations. Penalties deter violations and level the playing field, while the use of SEP's add an additional role of securing the advantage environmental or public benefits. The penalty calculation worksheets from the appropriate program are used to determine the Initial Settlement offer, without the influence of a SEP;

The primary goal of the City's Environmental regulations is the avoidance or reduction of pollution, followed in order by the responsible recycling of pollutants, then the proper disposal of pollutants.

CRITERIA

The Environmental Quality Control Division of the City of Omaha Public Works Department reviews SEP's with the following criteria:

1. The City of Omaha evaluates the types of settlement cases where SEP's would be appropriate, the types of projects that are acceptable, and the penalty mitigation that is allowed;
2. The City of Omaha uses this SEP policy is part of that evaluation process, and is typically only considered for first time violators;
3. All else being equal, the final settlement penalty cost will be lower for a violator who agrees to perform an acceptable SEP compared to one who does not agree to perform a SEP;
4. The City of Omaha encourages the use of SEP's that are consistent with this policy, and recognizes that SEP's may not be appropriate in settlement of all cases, but they are an important part of the City's environmental enforcement program;
5. SEP's that have an educational or pollution prevention aspect are preferred, and would be given preference in consideration;

The Environmental Quality Control Division determines that a SEP is qualified only if the SEP meets the following criteria;

1. The SEP is a project that has environmental benefits, that the violator is not otherwise legally obligated to perform;
2. The SEP cannot be inconsistent with any Environmental Statutes;
   2.1. The SEP must advance an environmental objective of the statutes the enforcement action is based on.
   2.2. The SEP must reduce the likelihood of similar violations, or
      2.2.1. Reduce the consequence on the public or the environment that was impacted by the violation, or
      2.2.2. Reduce the overall risk to the public or the environment affected by the violation;
3. The SEP should affect the Public or the environment in the Omaha Metropolitan area;
4. The City retains the right to oversee a SEP and ensure that it is implemented pursuant to the provisions of the settlement offer, and retains legal recourse if the SEP is not adequately performed;
5. The City may not play any role in managing or controlling the funds that are to provide for the SEP;
6. The SEP cannot be used to satisfy a City statutory obligation, and cannot provide the City with additional resources to support activities that are covered by budgetary obligations, e.g. a SEP cannot buy a computer for City personnel use;
7. The SEP cannot be used to extend an existing City contract;

There are several broad categories of projects that qualify as SEP's; these are:

1. Environmental Restoration & Protection: a restoration project is one that enhances or restores a natural environment, or a man-made environment in the Omaha Metropolitan area;
   1.1. Help protect the environment from actual or potential damage or improve the overall condition of the ecosystem; OR
   1.2. The protection of endangered species or their habitat; OR
   1.3. Augment another environmental restoration project with recreational improvements such as hiking & bicycling trails, or information signage not already earmarked for the project;
   1.4. Remediation of pollution of man-made environments, like community centers, may include the removal of asbestos, lead paint, or contaminated soils;
2. Environmental Compliance Promotion: These projects can be contracted to experts to develop and implement the compliance promotion project and shall provide training, or outreach to other parts of the community to;
   2.1. Achieve and maintain compliance with the regulatory requirements;
   2.2. Go further than the regulations and reduce pollution beyond legal requirements;
   2.3. Promote the same environmental program as the violation;
3. Public Health: a project to provide diagnostic, preventative and /or remedial components of health care to the population potentially harmed, including but not limited to, epidemiological data, examinations, or medical treatment;

4. Pollution Prevention: a project that targets the reduction at the source so that the amount of pollution entering into the atmosphere or waste stream is reduced;
5. Pollution Reduction: is a project which results in a decrease in the amount or toxicity of any pollutant in a waste stream or released into the environment (e.g. offsite recycling of waste collected and used as raw material for another products);
6. Other projects that do not fit into one of the above categories may be considered if they have environmental merit~~,~~ and are consistent with the rest of the SEP goals

The City of Omaha uses the above criteria to determine if a SEP is qualified, and excludes the following from SEP consideration;

1. Projects done for private gain;
2. Projects that the defendant / respondent would be required to do under any rule or regulation;
3. Projects that the respondent would directly benefit from
4. Projects where the City needs to contribute significant resources to assure completion;

In a settlement where the defendant / respondent agree to a SEP, the SEP amount has to be calculated to;

1. Exceed any known economic benefit from the non-compliance activity;
2. Be at least 75% of the total agreed upon initial settlement offer

The defendant / respondent shall submit a settlement agreement that accurately describes the SEP and provides reliable and objective means to verify that the defendant / respondent completes the project, including clear benchmarks that can be tracked and reported, and can be completed in a timely manner while having community benefit.

The settlement agreement shall outline a requirement that the defendant / respondent pay a stipulated penalty of at least 75% to 150% of the initial settlement amount originally proposed, depending on the degree of completion and the monies spent, if the SEP outlined in the settlement agreement is not completed, or is only partially completed.

The defendant /respondent may only publicize his involvement in the results of the SEP if it is prominently stated that the SEP was taken as a part of a settlement of an environmental enforcement action.

ATTACHMENT C

ATTACHMENT C – Complaint and Illicit Discharge Investigations

Date Initiated	Address	Valid Complaint	Illicit Discharge	Complaint Type	Enforcement Action Taken
1/6/2020	2045 N 67th St	Yes	No	Construction	No Action Taken
1/8/2020	901 Grace St	Yes	No	Illegal Dumping	RVC - Verbal
1/13/2020	1085 Applied Pkwy	No	No	Construction	No Action Taken
1/22/2020	23202 West Q Rd	No	No	Construction	No Action Taken
1/31/2020	6152 Military Ave	Yes	No	Construction	RVC - Verbal
2/10/2020	6716 N 180th St	No	No	Construction	No Action Taken
2/10/2020	17875 Ida St	Yes	No	Construction	RVC - Verbal
2/12/2020	2734 S 90th St	Yes	Yes	Illicit Discharge	RVC - Verbal
2/14/2020	8607 Pacific St	Yes	No	Construction	RVC - Verbal
2/18/2020	5202 Q St	Yes	No	Construction	RVC - Written
2/19/2020	2300 N 15th St E	Yes	No	Construction	RVC - Verbal
2/19/2020	N 33rd St & Maple St	Yes	No	Construction	RVC - Verbal
2/19/2020	18010 Fort St	Yes	No	Construction	RVC - Verbal
3/9/2020	4969 C St	Yes	No	Other	RVC - Verbal
3/16/2020	6515 Spencer St	Yes	No	Construction	RVC - Verbal
3/18/2020	6275 S 118th St	Yes	No	Construction	RVC - Verbal
3/19/2020	11911 I St	Yes	Yes	Illicit Discharge	RVC - Verbal
3/31/2020	6601 S 108th Ct	Yes	Yes	Illicit Discharge	RVC - Written
4/1/2020	S 132nd St & Trendwood Dr	No	No	Construction	No Action Taken
4/15/2020	S 194th Ave & Q St	No	No	Construction	RVC - Verbal
4/17/2020	1230 & 1429 Pine Rd	Yes	No	Construction	RVC - Verbal
4/17/2020	3262 Davenport St	Yes	No	Stormwater Runoff	RVC - Verbal
4/20/2020	7326 N 154th Ave	Yes	No	Construction	RVC - Verbal
4/21/2020	5646 William St	Yes	No	Other	No Action Taken
4/23/2020	4411 N 20th St	No	No	Construction	No Action Taken
4/23/2020	13th & Locust	Yes	No	Construction	No Action Taken
4/27/2020	1616 Capitol Ave	Yes	No	Construction	No Action Taken
4/27/2020	1322 S 35th Ave	Yes	No	Construction	RVC - Verbal
4/28/2020	5414 S 49th St, NE, 68117	No	No	Construction	No Action Taken
4/28/2020	8th & Pierce St	Yes	No	Other	No Action Taken
4/28/2020	S 44th St & R St	Yes	Yes	Illicit Discharge	NOV
5/8/2020	8391 Arbor St	Yes	Yes	Construction	RVC - Verbal
5/14/2020	3651 Lake St	Yes	No	Illegal Dumping	RVC - Verbal
5/15/2020	3111 S 145th Ave	No	No	Illicit Discharge	No Action Taken
5/15/2020	6101 N 151st Ave	Yes	No	Other	No Action Taken

ATTACHMENT C – Complaint and Illicit Discharge Investigations

Date Initiated	Address	Valid Complaint	Illicit Discharge	Complaint Type	Enforcement Action Taken
5/15/2020	4407 Fontenelle Blvd	No	No	Other	No Action Taken
5/15/2020	6499 Grover St (outfall on E side of creek, S side of Grover)	Yes	No	Illegal Dumping	RVC - Verbal
5/18/2020	S 14th St & Douglas St	Yes	No	Other	RVC - Verbal
5/19/2020	2901 N 168th Ave	Yes	No	Other	No Action Taken
5/19/2020	12561 Westwood Ln	Yes	No	Construction	No Action Taken
5/19/2020	2004 N 160th St	Yes	No	Construction	No Action Taken
5/20/2020	8113 Emmet St	Yes	No	Yard Waste	RVC - Verbal
5/20/2020	Raven Oaks Dr & Willit St	Yes	Yes	Illicit Discharge	No Action Taken
5/22/2020	19870 Chicago St, NE, 68022	Forwarded	No	Stormwater Runoff	Forwarded to NDOT
5/27/2020	6825 State St	Yes	No	Construction	RVC - Verbal
5/28/2020	4628 Capitol Ave	Yes	Yes	Illegal Dumping	RVC - Verbal
5/28/2020	808 N 108th Ave	Yes	Yes	Construction	RVC - Verbal
5/28/2020	10413 Pinehurst Ave	Yes	No	Construction	RVC - Verbal
5/29/2020	5201 N 8th St, Omaha, NE, 68110	No	No	Illicit Discharge	No Action Taken
6/8/2020	1469 Fowler Ave	Yes	Yes	Illicit Discharge	RVC - Verbal
6/8/2020	6155 M St	Yes	No	Other	No Action Taken
6/12/2020	6455 William St	Yes	No	Construction	RVC - Verbal
6/15/2020	3257 Madison St	No	No	Construction	Forwarded to Planning
6/16/2020	12572 Ohern St	No	No	Yard Waste	RVC - Written
6/17/2020	8508 Potter St	Yes	No	Construction	No Action Taken
6/22/2020	3309 Davenport St	Yes	No	Construction	RVC - Verbal
6/23/2020	3405 S 204th St	Yes	No	Construction	RVC - Verbal, LOW
6/24/2020	1003 Turner Blvd, Omaha, NE, 68105	Yes	No	Construction	RVC - Verbal
6/25/2020	4816 L St	Yes	Yes	Other	RVC - Written
6/25/2020	403 N 38th St	Yes	No	Construction	RVC - Verbal
6/29/2020	3810 N 161st St	Yes	No	Other	Forwarded
7/1/2020	909 N 69th St, Omaha, NE, 68132	No	No	Illicit Discharge	No Action Taken
7/1/2020	S 106th St & Shirley St	Yes	No	Construction	RVC - Verbal

ATTACHMENT C – Complaint and Illicit Discharge Investigations

Date Initiated	Address	Valid Complaint	Illicit Discharge	Complaint Type	Enforcement Action Taken
7/2/2020	11123 Crown Point Ave, NE, 68164	No	No	Illegal Dumping	No Action Taken
7/9/2020	N 180th St & Fort St	Yes	No	Construction	RVC - Verbal
7/10/2020	1413 N 34th St	No	No	Illicit Discharge	No Action Taken
7/13/2020	6363 Grover St	No	No	Illicit Discharge	No Action Taken
7/15/2020	4765 S 135th St	Yes	Yes	Illicit Discharge	RVC - Verbal
7/23/2020	Elmwood Park at outfall MH0687020F	Yes	Yes	Illicit Discharge	RVC - Verbal
7/23/2020	6219 N 155th St	Yes	Yes	Construction	RVC - Written
7/23/2020	18621 Honeysuckle Dr	Yes	No	Construction	No Action Taken
7/23/2020	19908 Madison St	Yes	Yes	Construction	RVC - Verbal
7/23/2020	12424 West Dodge Rd	No	No	Illicit Discharge	No Action Taken
7/27/2020	9708 Southby Plz	Yes	No	Illicit Discharge	RVC - Verbal
7/27/2020	8520 Blondo St	Yes	Yes	Construction	LOW
7/28/2020	15064 Lake St	Yes	Yes	Construction	RVC - Written
7/31/2020	NE corner of N 17th & Capitol Ave	Yes	No	Stormwater Runoff	RVC - Verbal
8/4/2020	3028 Kansas Ave	Yes	No	Other	No Action Taken
8/7/2020	11120 N 72nd St	Yes	No	Construction	No Action Taken
8/7/2020	N 120th & West Maple Rd	Yes	No	Construction	RVC - Verbal
8/12/2020	8401 Park Dr	Yes	Yes	Illicit Discharge	RVC - Verbal
8/12/2020	916 S 200th St	No	No	Illicit Discharge	No Action Taken
8/13/2020	11017 Prairie Village Dr, Omaha, NE, 68144	Yes	No	Construction	No Action Taken
8/18/2020	72nd & Pacific	Yes	Yes	Construction	RVC - Verbal
8/20/2020	422 Woolworth Ave	Yes	No	Construction	RVC - Verbal
8/20/2020	2117 S 33rd St	Yes	No	Illicit Discharge	RVC - Verbal
8/26/2020	1735 N 42nd St	Yes	Yes	Illicit Discharge	RVC - Verbal
8/26/2020	5555 N 90th St	Yes	Yes	Other	No Action Taken
8/27/2020	7167 N 122nd Ave	Yes	Yes	Construction	RVC - Verbal
8/31/2020	13424 Chandler Road	Forwarded	Yes	Illicit Discharge	Forwarded to La Vista
9/11/2020	12788 Deauville Dr	Yes	No	Illicit Discharge	RVC - Verbal
9/18/2020	1268 Peterson Dr	Yes	Yes	Construction	RVC - Verbal
9/23/2020	3427 Nebraska Ave	Yes	No	Other	RVC - Verbal
9/24/2020	S 102nd St & Adams St	Yes	Yes	Illicit Discharge	RVC - Verbal
9/28/2020	2717 S 25th St	Yes	No	Other	RVC - Verbal

ATTACHMENT C – Complaint and Illicit Discharge Investigations

Date Initiated	Address	Valid Complaint	Illicit Discharge	Complaint Type	Enforcement Action Taken
9/30/2020	6275 S 118th St	No	No	Stormwater Runoff	No Action Taken
9/30/2020	7804 N 154 N AVE	Yes	Yes	Illicit Discharge	No Action Taken
10/6/2020	1129 Locust St	Forwarded	No	Other	Forwarded to NDEE
10/13/2020	6120 N 16th St, Omaha, NE, 68110	Yes	No	Other	RVC - Verbal
10/13/2020	13720 P St	Yes	No	Construction	RVC - Verbal
10/21/2020	9856 Devonshire Dr	Yes	Yes	Illicit Discharge	RVC - Verbal
10/26/2020	7326 N 154th Ave	No	No	Construction	No Action Taken
10/26/2020	2227 Washington St	Yes	No	Construction	RVC - Verbal
11/2/2020	4010 Dahlman Ave	Yes	No	Other	RVC - Verbal
11/4/2020	3321 S 72nd St	Yes	Yes	Illicit Discharge	RVC - Verbal
11/4/2020	5112 N 13th St, Omaha, NE, 68110	Yes	No	Illegal Dumping	RVC - Verbal
11/9/2020	640 N 155th Ave, NE, 68154	Yes	No	Other	RVC - Verbal
11/12/2020	2911 S 67th St	Yes	No	Construction	RVC - Verbal
11/17/2020	1501 Avenue G	Yes	No	Stormwater Runoff	RVC - Verbal
11/20/2020	9824 Pratt	Yes	No	Construction	RVC - Verbal
11/20/2020	5531 Mason St	Yes	No	Construction	RVC - Verbal
11/25/2020	6110 State St	Yes	No	Construction	RVC - Verbal
12/22/2020	1901 N 84 Ave	No	No	Illicit Discharge	No Action Taken

ATTACHMENT D

ATTACHMENT D – Inlet Marking Activities

Date(s) of Service	Location Description [Starting Address]	Organization [Group #]	# of Drains Marked	# of Drains Cleaned (already marked)	# of Door Hangers Distributed	Total # of Adult Volunteers	Total # of Youth Volunteers	Hours for the Event	Total Volunteer Hours	# of Trash Bags Collected	# of Recycling Bags Collected
April-May	Near 108th & Q	Girl Scout Troop #48303	187	0		1	4	5	25	2	0
May-June	72nd - 98th, I-80 to Center	Brandon Wheeler	150	0		2	0	4	8	4	0
June-August	156th - 168th from Blondo to Maple	Burkman Family	404	0		1	2	22	66	0	0
July	190th & Maple (Indian Creek Neighborhood)	Gavin Visser	169	0		0	1	8	8	0	0
July	76th & Maple, 96th & Meadow Drive, 90th & Boyd (Keystone Neighborhood)	Prism of Possibilities	173	8		3	0	8	24	7	2
July-August	168th & Center	Bunz Family (NHS Service)	268	0		1	1	40	80	2	0
July-August	192nd from Center to F	Alex Rindone (Scout Service)	193	0		1	1	8	16	3	0
July-August	Near 166th & Pacific	Heather Sliva	41	7		1	1	3	6	1	0
July - September	Area around 165th & Pine	Cub Scout Pack 492	173	0		2	3	14	70	0	0
August	Leavenworth from 10th - 16th	Rebecka Mossman	17	0		1	0	2	2	1	1
August	49th & Maple	Ben Stallings	47	0		3	0	6	18	1	0
August	96th & Center	Michaella Wittman	21	0		6	8	4	56	2	0
August	180th from Blondo to Maple	Kline Family (NHS Service)	208	34		0	1	36.5	36.5	5	0
August	82nd & Grover to 75th & Hascall	Michael Stinson	34	24		2	0	15	30	6	0
August	Area northwest of 90th & Maple	Hecser Barros	10	0		2	0	2	4	1	0
August	192nd & Harrison	Connor Ehrman (Scout Service)	150	6		1	1	8	16	3	0
August	180th & Fort	Ettleman Family	69	0		2	1	6	18	1	0
August	50th from Pinkney to Maple	Bailey Family	23	0		1	0	4	4	2	0
August-October	192nd from Pacific to Dodge and 45th & Center	Junior League of Omaha	350	12		25	0	13	325	5	0
September	Around 180th from Pacific to Center	Spring Ridge Girl Scout Troop	19	0		2	9	1	11	1	0
September	Area around 50th & Ames	Andrew Marcoux (Eagle Scout Project)	1238	0		21	10	12	372	0	0
September	South of 96th & Center (Paddock Road area)	GBA	38	45		6	0	2	12	7	0
October	168th and Harrison	Abbey Lee	14	0		1	1	2	4	0	0
October	Around 114th from Military to Ida	Cub Scout Troop	21	0		4	5	1	9	1	0
		TOTAL	**4017**	**136**		**89**	**49**	**-**	**1220.5**	**55**	**3**

ATTACHMENT E

City of Omaha Stormwater Program Public Education and Outreach Activities				
Date	**Event Name**	**Activity**	**People/ Reach**	**Target Audience(s)**
1/9/2020	EGA Grading Permit & PCSMP Training	Presentation/ Demonstration	12	Construction, Commercial
1/14/2020	Olsson SEC presentation	Presentation/ Demonstration	10	Construction
1/14/2020	TD2 designers Grading Permit & PCSMP Training	Presentation/ Demonstration	30	Construction, Commercial
1/16/2020	TD2 inspectors Grading Permit & PCSMP Training	Presentation/ Demonstration	12	Construction, Commercial
2/6/2020	2020 Sediment and Erosion Control Seminar	Workshop	310	Construction, Commercial, Residential
2/6/2020	2020 Omaha Home Show & Garden Expo	Education Booth	1000	Residential, Commercial, Construction
2/10/2020	UNL project discussion	Meeting	1	Residential, Commercial
2/11/2020	UNO ENVN 4090 Green Infrastructure Class - Permeable Pavement	Presentation/ Demonstration	13	Residential
2/27/2020	SEC Flipbook Distribution	Distribution	2	Construction, Commercial, Construction
3/2/2020	UNL Urban Soils	Presentation/ Demonstration	17	Residential
3/3/2020	Sherman Elementary Model Presentation	Presentation/ Demonstration	12	Residential
3/4/2020	Cody Elementary Model Presentation	Presentation/ Demonstration	40	Residential
3/11/2020	Julie Godberson - Offutt AFB	Distribution	20	Construction, Commercial
4/8/2021	UNO ENV 2010 Class	Presentation/ Demonstration	21	Residential, Commercial
4/13/2020	SEC Flipbook Distribution	Distribution		Construction
4/14/2020	UNO ENVN 4090 GI Class	Presentation/ Demonstration	14	Residential, Commercial
4/18/2020	Earth Day Omaha - Virtual	Presentation/ Demonstration	1000	Residential
4/21/2020	UNO ENVN 4090 GI Class	Tour	14	Residential, Commercial
5/11/2020	SEC Flipbook Distribution	Distribution	8	Construction
5/19/2020	Sustainable Landscapes Distribution	Distribution	1	Residential
6/17/2020	SEC Flipbook Distribution	Distribution	1	Construction
6/30/2020	Conservation Nebraska webinar	Presentation/ Demonstration	30	Residential, Commercial
8/18/2020	SEC Flipbook Distribution	Distribution	10	Construction
9/9/2020	Permix Website Training	Meeting	3	Construction

City of Omaha Stormwater Program Public Education and Outreach Activities				
Date	**Event Name**	**Activity**	**People/ Reach**	**Target Audience(s)**
9/9/2021	World O! Water - Virtual	Presentation/ Demonstration	600	Residential, Commercial
9/12/2021	Rain Gardens - Facebook Live*	Presentation/ Demonstration	10	Residential
9/28/2020	Water pollution brochure	Distribution	10	Commercial, Construction, Residential
9/30/2020	Conservation Nebraska webinar	Presentation/ Demonstration	28	Residential, Commercial
10/8/2020	SEC Flipbook Distribution	Distribution	10	Construction
10/12/2020	UNO 2010 Environmental Problems & Solutions lecture	Presentation/ Demonstration	16	Commercial
10/16/2020	City Sprouts - Rain Gardens	Meeting	4	Residential, Commercial
10/30/2020	GI at new restaurant	Meeting	2	Commercial
11/20/2020	SEC Flipbook Distribution		10	Construction
11/20/2020	2020 Virtual Green Infrastructure Tour	Tour	75	Commercial, Residential
TOTALS			**3,274**	

ATTACHMENT E – Education and Outreach Activities

Date	Event Name (if applicable)	Location	Primary Topic	MS4 Target Audience Category	# of Separate Presentations	# of Youth	# of Adults	# of Activity Webpage and/or Educational Video Viewers	Student Reach (for teachers of KOB's environmental education training workshops)	Service Learning Activity Included	Stormwater-Pieces	HHW/UTS Pieces	Litter Reduction or Recycling Pieces
1/7/2020	School Presentation (OPS)	Wilson Focus School (5141 F St, Omaha, NE 68117)	Stormwater Pollution or Water Conservation	Community	1	20	1			yes	0	0	0
1/9/2020	School Presentation (OPS)	Lewis and Clark (6901 Burt St, Omaha, NE 68132)	Litter-Waste Reduction or Recycling	Community	1	4	0			no	0	0	0
1/14/2020	School Presentation (OPS)	Wilson Focus School (5141 F St, Omaha, NE 68117)	Stormwater Pollution or Water Conservation	Community	1	18	1			yes	0	0	0
1/16/2020	School Presentation (OPS)	Lewis and Clark (6901 Burt St, Omaha, NE 68132)	Litter-Waste Reduction or Recycling	Community	1	4	0			no	0	0	0
1/20/2020	Environmental Education Teacher Certification/Training	Westside School District - Swing School (3534 S. 108th St., Omaha, NE 68144)	Litter-Waste Reduction or Recycling	Community	1	0	40		1683	no	40	40	40
1/21/2020	Environmental Education Teacher Certification/Training	Nebraska Extension Douglas-Sarpy (8015 W Center Rd, 68124)	Stormwater Pollution or Water Conservation	Community	1	0	11		448	no	0	11	11
1/23/2020	School Presentation (OPS)	Lewis and Clark (6901 Burt St, Omaha, NE 68132)	Litter-Waste Reduction or Recycling	Community	1	7	0			no	0	0	0
1/30/2020	School Presentation (OPS)	Lewis and Clark (6901 Burt St, Omaha, NE 68132)	Litter-Waste Reduction or Recycling	Community	1	2	0			no	0	0	0
2/5/2020	Environmental Education Teacher Certification/Training	Nebraska Extension Douglas-Sarpy (8015 W Center Rd, 68124)	Litter-Waste Reduction or Recycling	Community	1	0	20		487	no	20	20	20

ATTACHMENT E – Education and Outreach Activities

Date	Event Name (if applicable)	Location	Primary Topic	MS4 Target Audience Category	# of Separate Presentations	# of Youth	# of Adults	# of Activity Webpage and/or Educational Video Viewers	Student Reach (for teachers of KOB's environmental education training workshops)	Service Learning Activity Included	Stormwater-Pieces	HHW/UTS Pieces	Litter Reduction or Recycling Pieces
2/5/2020	School Presentation (Millard)	Norris Elementary (12424 Weir St, Omaha, NE 68137)	Litter-Waste Reduction or Recycling	Community	1	19	2			yes	0	25	25
2/6/2020	School Presentation (OPS)	Lewis and Clark (6901 Burt St, Omaha, NE 68132)	Litter-Waste Reduction or Recycling	Community	1	3	0			yes			
2/13/2020	School Presentation (OPS)	Lewis and Clark (6901 Burt St, Omaha, NE 68132)	Litter-Waste Reduction or Recycling	Community	1	2	0			no			
2/20/2020	School Presentation (OPS)	Lewis and Clark (6901 Burt St, Omaha, NE 68132)	Litter-Waste Reduction or Recycling	Community	1	5	0			yes			
2/22/2020	Environmental Education Teacher Certification/Training	Elkhorn Public Schools (20650 Glenn St, Omaha, NE 68022)	Stormwater Pollution or Water Conservation	Community	1	0	22		384	no	22	22	22
2/25/2020	Rotary Club Presentation	Happy Hollow Country Club (1701 S 105th St, Omaha, NE 68124)	Litter-Waste Reduction or Recycling	Community	1	0	20			no	10	10	10
2/27/2020	OrthoNebraska Education & Volunteer Fair	OrthoNebraska (2725 S 144th St Suite #212, Omaha, NE 68144)	Litter-Waste Reduction or Recycling	Community	1	0	32			no	0	3	18
2/28/2020	Offutt AirForce Base Education & Volunteer Fair	Offut Air Force Base Main Exchange (106 Meyer Ave bldg 166, Offutt AFB, NE 68113)	Litter-Waste Reduction or Recycling	Community	1	5	55			no	0	7	17
3/2/2020	School Presentation (Westside)	Loveland Elementary (8201 Pacific St, Omaha, NE 68114)	Litter-Waste Reduction or Recycling	Community	2	40	2			yes	45	45	45
3/4/2020	School Presentation (Millard)	Beadle Middle School (18201 Jefferson St, Omaha, NE 68135)	Stormwater Pollution or Water Conservation	Community	9	325	3			no	125	325	325
3/5/2020	School Presentation (OPS)	Lewis and Clark (6901 Burt St, Omaha, NE 68132)	Litter-Waste Reduction or Recycling	Community	1	12	0			no			

ATTACHMENT E – Education and Outreach Activities

Date	Event Name (if applicable)	Location	Primary Topic	MS4 Target Audience Category	# of Separate Presentations	# of Youth	# of Adults	# of Activity Webpage and/or Educational Video Viewers	Student Reach (for teachers of KOB's environmental education training workshops)	Service Learning Activity Included	Stormwater-Pieces	HHW/UTS Pieces	Litter Reduction or Recycling Pieces
3/6/2020	Omaha Young Professionals Summit	CHI Health Center	Litter-Waste Reduction or Recycling	Community	1	0	186			no	132	0	132
3/6/2020	Woodmen Life WeCare Fair	Woodmen Life (1700 Farnam St, Omaha, NE 68102)	Litter-Waste Reduction or Recycling	Community	1	0	66			no	0	11	17
4/16/2020	Nature in Your Neighborhood: Things Out of Place (Litter)	Online	Litter-Waste Reduction or Recycling	Community	1			180		no			
4/18/2020	Virtual Earth Day Omaha	Online	Litter-Waste Reduction or Recycling	Community	1	0	255			no			
4/24/2020	Zoo's Virtual Party for the Planet	Online	Stormwater Pollution or Water Conservation	Community	1			361		no			
5/7/2020	Environmental Education Teacher Certification/Training	Online	Litter-Waste Reduction or Recycling	Community	1	0	12		120	no			
5/11/2020	Stewardship School: Home Waste Audit	Online	Litter-Waste Reduction or Recycling	Community	1			182		no			
5/18/2020	Stewardship School: Upcycled T-Shirt Bag	Online	Litter-Waste Reduction or Recycling	Community	1			386		no			
5/30/2020	Environmental Education Teacher Certification/Training	Online	Litter-Waste Reduction or Recycling	Community	1	0	7		104	no			
6/4/2020	Environmental Education Teacher Certification/Training	Online	Litter-Waste Reduction or Recycling	Community	1	0	6		82	no			
6/15/2020	Environmental Education Teacher Certification/Training	Online	Litter-Waste Reduction or Recycling	Community	1	0	5		68	no			
6/18/2020	Stewardship School: How Fast Does it Decompose?	Online	Litter-Waste Reduction or Recycling	Community	1			146		no			
6/19/2020	New Student Orientation Program (MCC)	Online	Litter-Waste Reduction or Recycling	Community	1	0	22			yes			
6/24/2020	Nature In Your Neighborhood: Tree Benefits & Stormwater	Online	Stormwater Pollution or Water Conservation	Community	1	0	0	64		no			

ATTACHMENT E – Education and Outreach Activities

Date	Event Name (if applicable)	Location	Primary Topic	MS4 Target Audience Category	# of Separate Presentations	# of Youth	# of Adults	# of Activity Webpage and/or Educational Video Viewers	Student Reach (for teachers of KOB's environmental education training workshops)	Service Learning Activity Included	Stormwater-Pieces	HHW/UTS Pieces	Litter Reduction or Recycling Pieces
7/2/2020	Stewardship School: Star Spangled Cleanup	Online	Litter-Waste Reduction or Recycling	Community	1			76		no			
7/10/2020	Completely Kids Summer Program	Online	Litter-Waste Reduction or Recycling	Community	1	3	2			no			
7/17/2020	Completely Kids Summer Program	Online	Litter-Waste Reduction or Recycling	Community	1	3	1			no			
7/20/2020	Stewardship School: Upcycled Rain Chain	Online	Stormwater Pollution or Water Conservation	Community	1			456		no			
7/24/2020	Completely Kids Summer Program	Online	Stormwater Pollution or Water Conservation	Community	1	2	1			yes			
7/31/2020	Completely Kids Summer Program	Online	Litter-Waste Reduction or Recycling	Community	1	2	1			yes			
7/31/2020	New Student Orientation Program (MCC)	Online	Litter-Waste Reduction or Recycling	Community	1	0	10			yes			
8/3/2020	Stewardship School: Only Rain Down The Storm Drain	Online	Stormwater Pollution or Water Conservation	Community	1			257		no			
8/18/2020	Environmental Education Teacher Certification/Training	Online	Stormwater Pollution or Water Conservation	Community	1	0	65		1300	no			
8/20/2020	Stewardship School: Upcycled School Supplies	Online	Litter-Waste Reduction or Recycling	Community	1			363		no			
8/20/2020	School Presentation (private)	Reyes Early Chilhood Education Center (2334 S. 35th Avenue, Omaha, NE 68105)	Stormwater Pollution or Water Conservation	Community	1	9	2			no			
9/3/2020	School Presentation (private)	Reyes Early Chilhood Education Center (2334 S. 35th Avenue, Omaha, NE 68105)	Litter-Waste Reduction or Recycling	Community	1	10	2			no			

ATTACHMENT E – Education and Outreach Activities

Date	Event Name (if applicable)	Location	Primary Topic	MS4 Target Audience Category	# of Separate Presentations	# of Youth	# of Adults	# of Activity Webpage and/or Educational Video Viewers	Student Reach (for teachers of KOB's environmental education training workshops)	Service Learning Activity Included	Stormwater-Pieces	HHW/UTS Pieces	Litter Reduction or Recycling Pieces
9/9/2020	World O Water	Online	Stormwater Pollution or Water Conservation	Community	1			559		no			
9/12/2020	Facebook Live - Rain Gardens	Online	Stormwater Pollution or Water Conservation	Community	1	0		375		no			
9/16/2020	Community Education/Service Event #1 - Mulhall's	Mullhall's (3615 N 120th St, Omaha, NE 68164)	Stormwater Pollution or Water Conservation	Community	1	0	32			yes			
9/17/2020	Environmental Education Teacher Certification/Training	Online	Stormwater Pollution or Water Conservation	Community	1	0	60		1090	no			
9/17/2020	Community Education/Service Event #2 - Mulhall's	Mullhall's (3615 N 120th St, Omaha, NE 68164)	Stormwater Pollution or Water Conservation	Community	1	0	27			yes			
9/18/2020	School Presentation (private)	Reyes Early Chilhood Education Center (2334 S. 35th Avenue, Omaha, NE 68105)	Litter-Waste Reduction or Recycling	Community	1	9	2			no			
9/24/2020	School Presentation (private)	Reyes Early Chilhood Education Center (2334 S. 35th Avenue, Omaha, NE 68105)	Litter-Waste Reduction or Recycling	Community	1	10	2			no			
9/24/2020	Environmental Education Teacher Certification/Training	Online	Stormwater Pollution or Water Conservation	Community	1	0	49		890	no			
9/26/2020	Mulhall's Open House	Mullhall's (3615 N 120th St, Omaha, NE 68164)	Litter-Waste Reduction or Recycling	Community	1	0	10			no			
10/12/2020	Educational Event with Cub Scout Pack	Swanson Arboretum (410 S S 86th St, Omaha, NE 68114)	Stormwater Pollution or Water Conservation	Community	3	25	23			yes			

ATTACHMENT E – Education and Outreach Activities

Date	Event Name (if applicable)	Location	Primary Topic	MS4 Target Audience Category	# of Separate Presentations	# of Youth	# of Adults	# of Activity Webpage and/or Educational Video Viewers	Student Reach (for teachers of KOB's environmental education training workshops)	Service Learning Activity Included	Stormwater-Pieces	HHW/UTS Pieces	Litter Reduction or Recycling Pieces
10/15/2020	School Presentation (private)	Reyes Early Chilhood Education Center (2334 S. 35th Avenue, Omaha, NE 68105)	Litter-Waste Reduction or Recycling	Community	1	7	2			no			
10/29/2020	School Presentation (private)	Reyes Early Chilhood Education Center (2334 S. 35th Avenue, Omaha, NE 68105)	Litter-Waste Reduction or Recycling	Community	1	9	2			yes			
11/5/2020	School Presentation (private)	Reyes Early Chilhood Education Center (2334 S. 35th Avenue, Omaha, NE 68105)	Litter-Waste Reduction or Recycling	Community	1	11	2			no			
11/10/2020	UNMC - LiveGreen	Online	Litter-Waste Reduction or Recycling	Community	1	0	28			no			
11/12/2020	Environmental Education Teacher Certification/Training	Online	Litter-Waste Reduction or Recycling	Community	1	0	21		350	no			
11/23/2020	Environmental Education Teacher Certification/Training	Online	Litter-Waste Reduction or Recycling	Community	1	0	21		368	no			
12/3/2020	Stewardship School: Repurpose Recycling & Trash Bins	Online	Litter-Waste Reduction or Recycling	Community	1			319		no			
					74	**566**	**1133**	**3724**	**7374**	**-**	**394**	**519**	**682**

Target Markets

- Construction – Developers, contractors, owners
- Commercial – Stores, commercial property managers
- Residential – Homeowners, residential property managers
    - School – Students, teachers, administrators
    - Community – Non-profit groups, homeowner associations, etc...

Stormwater Facebook Page		
2020 Month	**Total Reach**	**Total Impressions**
January	54	153
February	165	270
March	529	663
April	4,411	5,827
May	500	767
June	314	691
July	696	969
August	169	310
September	1,384	2,065
October	1,001	1,336
November	1,134	1,263
December	38	174
Totals	**10,395**	**14,488**

Omaha Stormwater Website			
2020 Month	**Users**	**Page Views**	**Sessions**
January	445	635	1,132
February	410	619	1,232
March	381	545	956
April	454	671	1,172
May	280	349	558
June	273	331	1,118
July	367	407	651
August	NA	NA	NA
September	NA	NA	NA
October	NA	NA	NA
November	NA	NA	NA
December	204	237	350
Totals	**2,814**	**3,794**	**7,169**

Omaha Plants Website			
2019 Month	**Users**	**Page Views**	**Sessions**
January	65	110	73
February	51	89	54
March	90	121	94
April	117	384	133
May	130	324	141
June	161	292	166
July	152	287	166
August	85	136	91
September	113	179	122
October	113	125	116
November	76	90	76
December	67	141	69
Totals	**1,220**	**2,278**	**1,301**

World O! Water Website			
2019 Month	**Users**	**Page Views**	**Sessions**
January	43	155	48
February	50	139	52
March	105	306	108
April	59	168	63
May	43	99	43
June	94	320	101
July	80	233	90
August	406	1480	458
September	681	5368	885
October	149	345	153
November	139	289	143
December	110	217	112
Totals	**1,959**	**9,119**	**2,256**

ATTACHMENT F

Official Name to Use	Title on Piece	Res	Com	Con	Ind	Developed by
Landscape Brochure	*Keep It Clean On Your Golf Course or Landscape Projects!*	X	X			OSW
Stormwater & Dust Control Brochure	*Stormwater & Dust Control*	X	X	X		OSW
Water Pollution Brochure	*Water Pollution Comes In Many Forms*	X	X	X		OSW
Rain Barrel Brochure	*Building A Rain Barrel*	X	X			OSW
Storm Drain Awareness Brochure	*Keeping Pollution Out Of Our Storm Drains*	X	X			OSW
Concrete Brochure	*Best Management Practices for Concrete Masonry and Ready Mix Professionals*				X	OSW
Pressure Washing Brochure	*Take Some Pressure Off Our Environment*				X	OSW
Metal Fabrication Brochure	*Shape Your Plans to Control Wastewater*				X	OSW
Proper Paint Disposal Brochure	*Know Your Role In Protecting The Environment*	X	X			OSW
Restaurant Brochure	*Keep It Clean At Your Restaurant!*		X			OSW
Outdoor Event Brochure	*Keep It Clean At Your Outdoor Event!*		X			OSW
LUPs Brochure	*Linear Underground Projects & Stormwater Best Management Practices*			X	X	OSW
10 Important Things Flyer	*10 Important Things To Remember On The Job Site*		X	X		OSW
Pet Waste Flyer	*Some Things Are Better Not Left Behind!*	X				OSW
Rain Garden Fact Sheet	*Rain Gardens*	X				OSW
Bioretention Garden Fact Sheet	*Bioretention Systems*		X			OSW
Bioswale Fact Sheet	*Bioswales and Filter Strips*		X			OSW
Green Roof Fact Sheet	*Green Roofs*	X				OSW
Downspout Disconnection Fact Sheet	*Downspout Disconnections*	X				OSW
Permeable Pavement Fact Sheet	*Permeable Pavement*		X	X		OSW
Rain Harvesting Fact Sheet	*Rain Harvesting*	X				OSW
Soil Conditioning Fact Sheet	*Soil Conditioning*					OSW
Storm Drain Fact Sheet	*Storm Drain*					
Bioretention Manual	*Bioretention Gardens*		X	X		OSW
Sustainable Landscapes Manual	*Sustainable Landscapes*		X	X		OSW

Official Name to Use	Title on Piece	Res	Com	Con	Ind	Developed by
OmahaPlants.com Postcard	*Omahaplants.org*	X	X	X		OSW
Grass Clipping Door Hanger	*Properly Dispose of Grass Clippings and Yardwaste*	X	X			OSW
Rain Barrel Door Hanger	*Omaha's Rain Barrel Program*	X				OSW
OSW Frisbees		X				OSW
Pet Waste Bag Dispensers		X				OSW
WOW! Activity Books	*WOW! Activity Books*	X				OSW
WOW! Crayon Boxes	*WOW! Crayon Boxes*	X				OSW
City of Omaha Environmental Field Guide	*City of Omaha Environmental Field Guide*		X	X		CSO
Automotive UTS		X		X		SW/Recycling
Guide to HHW		X				SW/Recycling
Housing Dangerous Products		X				SW/Recycling
How to Discard Your Unusued Medications		X				SW/Recycling
OmaGro		X	X	X		SW/Recycling
Used Motor Oil, Tires, etc.		X				SW/Recycling
Pollution Sources Around Your House		X				SW/Recycling
Prepare Yourself for UTS		X				SW/Recycling
Recycling Paint UTS		X				SW/Recycling
Illegal Dumping		X				SW/Recycling
Get the Point (Medical HHW)		X				SW/Recycling
UTS Drop-off Locations		X				SW/Recycling
Proper Paint Disposal		X				SW/Recycling
Clean Water Team Certificate	*Clean Water Team Certificate*	X				OSW
Little Steps. Big Impact. Brochure		X				OAQ
Little Steps. Big Impact. Index Card		X				OAQ
SEC Flip Book				X		OSW
World O! Water patches		X				OSW

Official Name to Use	Title on Piece	Res	Com	Con	Ind	Developed by
Inlet Marking Door Hanger	*Only Rain Down the Storm Drain*	X				KOB
Sector A - Timber Products	Sector A - Timber Products				X	OSW
Sector AA - Fabricated Metal Products	Sector AA - Fabricated Metal Products				X	OSW
Sector AB - Industrial Machinery and Auto Repair	Sector AB - Industrial Machinery and Auto Repair				X	OSW
Sector AC - Eletrical Photographic and Optical Goods	Sector AC - Electrical Photographic and Optical Goods				X	OSW
Sector B - Paper and Allied Products	Sector B - Paper and Allied Products				X	OSW
Sector C - Chemical and Allied Products	Sector C - Chemical and Allied Products				X	OSW
Sector D - Asphalt Paving and Roofing	Sector D - Asphalt Paving and Roofing				X	OSW
Sector E - Glass, Clay, Cement, and Gypsum	Sector E - Glass, Clay, Cement, and Gypsum				X	OSW
Sector F - Primary Metals	Sector F - Primary Metals				X	OSW
Sector J - Mineral Mining and Dressing	Sector J - Mineral Mining and Dressing				X	OSW
Sector K - Hazardous Waste Treatment, Storage, and Disposal Facilities	Sector K - Hazardous Waste Treatment, Storage, and Disposal Facilities				X	OSW
Sector M - Automotive Salvage Yards	Sector M - Automotive Salvage Yards				X	OSW
Sector N - Scrap Recycling	Sector N - Scrap Recycling				X	OSW
Sector O - Steam Electric Generating Facilities	Sector O - Steam Electric Generating Facilities				X	OSW
Sector P - Land Transportation and Warehouse	Sector P - Land Transportation and Warehouse				X	OSW
Sector R - Ship and Boat Building	Sector R - Ship and Boat Building				X	OSW
Sector S - Air Transportation Facilities	Sector S - Air Transportation Facilities				X	OSW
Sector U - Food and Kindred Products	Sector U - Food and Kindred Products				X	OSW
Sector W - Furniture and Fixtures	Sector W - Furniture and Fixtures				X	OSW
Sector X - Printing and Publishing	Sector X - Printing and Publishing				X	OSW
Sector Y - Rubber, Misc Plastics Industries	Sector Y - Rubber, Misc Plastics Industries				X	OSW

Official Name to Use	Title on Piece	Res	Com	Con	Ind	Developed by
Sector Z - Leather Tanning and Finishing	Sector Z - Leather Tanning and Finishing				X	OSW
Creighton Prep Final 11-9-2017	Creighton Prep Project Fact Sheet	X	X			OSW
UNO Final 4-24-18	UNO Project Fact Sheet	X	X			OSW
Rockbrook_Prairie Lane Park Final 4-18-18	Rockbrook_Prairie Lane Park Project Fact Sheet	X	X			OSW
Dundee Final 11-7-17	Dundee Project Fact Sheet	X	X			OSW
Saddlebrook Final 4-24-18	Saddlebrook Project Fact Sheet	X	X			OSW
Florence Streetscape Final 4-18-18	Florence Streetscape Project Fact Sheet	X	X			OSW
UTS Final 4-18-18	UTS Project Fact Sheet	X	X			OSW
Orchard Park Final 10-27-2017	Orchard Park Project Fact Sheet	X	X			OSW
58th and Maple St Final 10-27-2017	58th and Maple St Project Fact Sheet	X	X			OSW
50th & Pine Final 11-9-2017	50th & Pine Project Fact Sheet	X	X			OSW
Saddle Hills Final 10-27-2017	Saddle Hills Project Fact Sheet	X	X			OSW
Urban Waters Fact sheet Nebraska	Urban Waters Fact Project Fact Sheet	X	X			OSW
Country Club Final 10-27-2017	Country Club Project Fact Sheet	X	X			OSW
Elmwood Park Diversion Project Sheet FINAL11-28-2017	Elmwood Park Diversion Project Fact Sheet	X	X			OSW
Hillsdale Swale Final 4-24-18	Hillsdale Swale Project Fact Sheet	X	X			OSW
Adams Park Final 4-24-18	Adams Park Project Fact Sheet		X			OSW
Douglas Streetscape Final 4-18-18	Douglas Streetscape Project Fact Sheet		X			OSW
SOIA Final 4-18-18	SOIA Project Fact Sheet		X			OSW
SE Precinct Final 4-24-18	SE Precinct Project Fact Sheet		X			OSW
Zorinsky FINAL 11-30-17	Zorinsky Project Fact Sheet		X			OSW
Spring Lake Project Sheet FINAL 11-9-17	Spring Lake Project Sheet Project Fact Sheet	X	X			OSW
Fontenelle Park Final 11-7-17	Fontenelle Park Project Fact Sheet		X			OSW
24th St Bioretention Final 10-27-2017	24th St Bioretention Project Fact Sheet	X	X			OSW
VIL Final 10-27-2017	VIL Project Fact Sheet		X			OSW
OPS GI BuyIn Guide Final	Omaha Public Schools Green Infrastructure Buy-In Guide	X				OSW
GI Education Package final	Green Infrastructure Education Package	X				OSW
Middle School Standards 12-18-17	Middle School Science and Mathmatics Standards for GI	X				OSW UNL
High School Standards 12-18-17	High School Science and Mathmatics Standards for GI	X				OSW UNL
Elementary School Standards 12-18-17	Elementary School Science and Mathmatics Standards for GI	X				OSW UNL

Attachment F - Education and Outreach Materials

Official Name to Use	Title on Piece	Res	Com	Con	Ind	Developed by
GI Industry Fact Sheet 12-12-17	Green Infrastructure Industry Fact Sheet	X				OSW UNL
High School Lesson Plans	High School Example Lesson Plans	X				OSW UNL
Elementary School Lesson Plans	Elementary School Example Lesson Plans	X				OSW UNL
Middle School Lesson Plans	Middle School Example Lesson Plans	X				OSW UNL

Res – Residential
Com – Commercial
Con – Construction
Ind - Industrial

OSW - Omaha Stormwater Program
OAQ - Omaha Air Quality Program
SW/Recycling - Omaha Solid Waste & Recycling Programs
CSO - Omaha CSO Program
KOB - Keep Omaha Beautiful\
UNL – University of Nebraska - Lincoln

ATTACHMENT G

Hot Spot Checklist Form

Facility: **Date:**

Activity	Never (0)	Occ. (1)	Freq. (2)	Routinely / Everyday (3)	Comments	Score
Maintenance & Repair						
Fueling (0, ≤10, 10-100, >100 gallons)						
Washing						
Storage						
Loading & Unloading						
Outdoor Material Storage						
Dumpsters/Trash Compactors						
Building & Ground Maintenance						
Parking Lot Maintenance						
Turf Management / Landscaping						
						0

Rating

Never = 0 or only rare occasion, Occasionally = 1-2/yr., Frequently = Approx. 1/mo., Routine = At least 1/wk.

Maintenance yards are defined as locations where activities include:
Vehicle & equipment maintenance & repair (excluding small engine repair)
Vehicle & equipment fueling (bulk fuel storage capacity - stationary or mobile)
Vehicle & equipment washing (particularly outdoor washing)
Vehicle & equipment storage outdoor)
Outdoor loading & unloading
Outdoor material storage (stockpiles & bulk storage, etc.)
Dumpster/trash compactors for waste management
Building & Grounds Maintenance (i.e. trench drains, sumps, o/w separators, stormwater drainages)
Parking Lot Maintenance (i.e. sweeping, patching, paving, grading)
Turf management & landscaping maintenance (i.e. fertilizer and pesticide management, mixing, storage)

Scale	Result	Action
>20	Hot Spot	FRCP required
10-20	Potential Hot Spot	Targeted Education & Policy (Consider FRCP)
<10	Not a Hot Spot	Targeted Education

ATTACHMENT H

Site Weather Observations

Data

Daily weather history and observations were gathered from the National Weather Service (NWS) Eppley Airfield (Station ID: USW00014942) and Valley (Station ID: USC00258795) weather stations. Provisional rain data from the Papio Missouri Natural Resource District City Maintenance Shop (411701095570601), Cole Creek (06610760), Hitchcock Park (411232095584201), Big Papillion Creek at Q Street (06610770), and Little Papillion Creek near Irvington, Nebraska (06610750) rain gauges was used to supplement data gaps from on-site rain gauges.

Observations

Average high and low temperatures in 2020 were generally higher than average during the monitoring period, however, during the monitoring period average temperatures fell within the normal range. The Eppley Weather Station data recorded a total precipitation in 2020 of 17.65 inches, a substantial departure from the NOAA Average Rainfall of 30 inches annually (Table 1). It is also substantially lower than in 2019 when 39.77 inches fell, a difference of 22.12 inches. Cumulative precipitation was less than normal for the entire year and especially decreased during the monitoring period. For the 6 months that monitoring occurred, less than average rainfall was recorded. (Figure 1).

Month	NOAA 2020 Precipitation (in)	NOAA Normal Precipitation (in)	Depart from Normal (in)		2020 Average Low (ºF)	2020 Average High (ºF)	Omaha Normal Low (ºF)	Omaha Normal High (ºF)
January	1.3	0.72	0.58		18.7	34.1	13.6	33.4
February	0.05	0.85	-0.8		19.5	42	18.1	38.1
March	1.98	1.99	-0.01		34.0	54.3	28.1	50.9
April	0.69	2.96	-2.27		37.9	64.2	39.8	63.7
May	3.25	4.76	-1.51		50.9	68.7	50.9	73.8
June	2.61	4.18	-1.57		67.0	89.2	61.0	83.2
July	1.56	3.83	-2.27		68.8	89.6	66.2	87.3
August	0.46	3.82	-3.36		65.7	88.6	64.0	85.1
September	1.7	2.68	-0.98		54.1	77.2	53.9	77.6
October	1.02	2.15	-1.13		38.2	60.7	41.6	64.7
November	1.88	1.64	0.24		31.7	56.4	28.8	48.9
December	1.15	1.04	0.11		19.2	40.2	16.7	35.3
TOTAL	**17.65**	**30.62**	**-12.97**	**Avg:**	**42.1**	**63.8**	**40.2**	**61.8**

Table 1: Summary of NOAA Valley Weather Station 2020 and historical average precipitation and temperatures

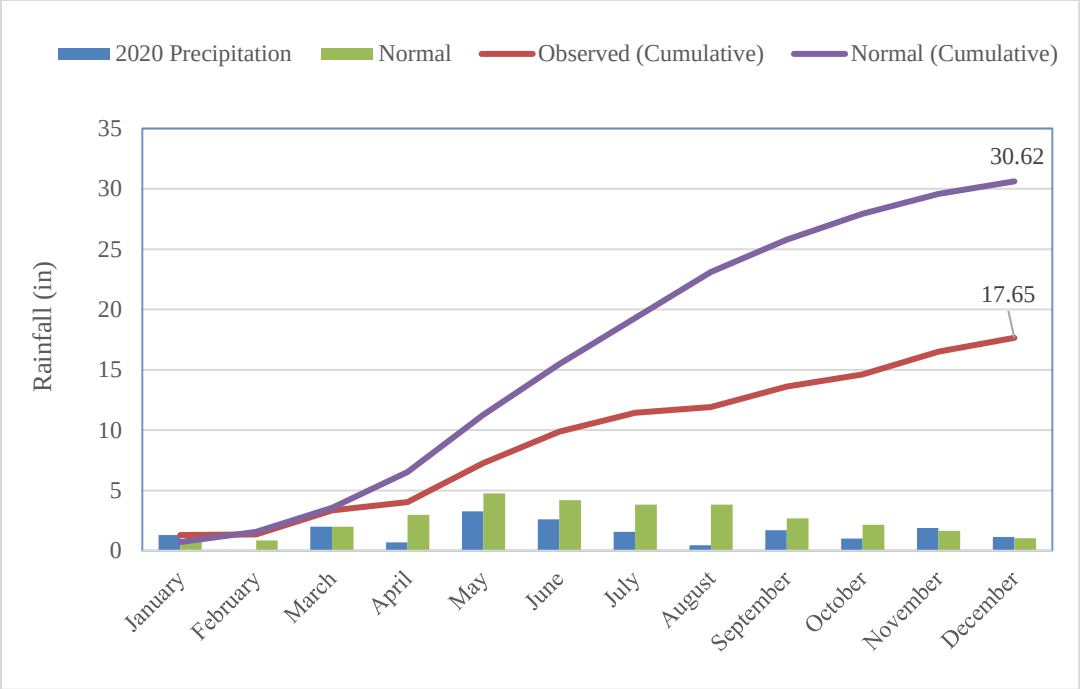


Figure 1: 2020 Comparison of Observed and Normal Rainfall

According to the NWS Eppley Rain Gauge, over 50 measurable rain events during a calendar day timeframe, from 0.01 inches to 1.32 inches, occurred between May 2020 and October 2020. During this monitoring period, 5 rain events exceeded 0.5 inches, and 3 of these precipitation events exceeded 1 inch in accumulation. Note: The events with greater than 1" accumulation were calculated over a span of time to include times with no or trace rain that did not exceed 8 hours. A summary of the 0.5-inch and 1-inch events are included in Table 2.

Date	Rainfall
May 24	0.63"
May 26	0.50"
June 9-10	1.30"
June 18-19	1.14"
September 8-10	1.32"

Table 2: Summary of 2020 rain events of 0.5 in or greater

Rain Events for BMP Assessment

Two rain events were evaluated for each monitoring site. All sites were analyzed for the same two events in 2020, with the exception of Orchard Park. The two events included a large, intense storm and a smaller, gentle storm. On-site rain gauges or the nearest rain gauge was utilized for each site. The rain gauge at Eppley Airfield is presented below and is used to describe why these events were selected for BMP assessment.

The first event (Event 1) was a 0.51-inch event that occurred the morning of 05/24/20 (Figure 2). Event 1 was the first rain event during the monitoring season to register greater than a half an

inch at the National Weather Service (NWS) rain gauge at Eppley Airfield. The event lasted only about 2 hours and had the average intensity of 8.00 mm/hr. It should also be noted that Event 1 occurred at the end of a string of low intensity storms that occurred throughout the month of May. Events ranged from 0.1 inches to 0.43 inches.

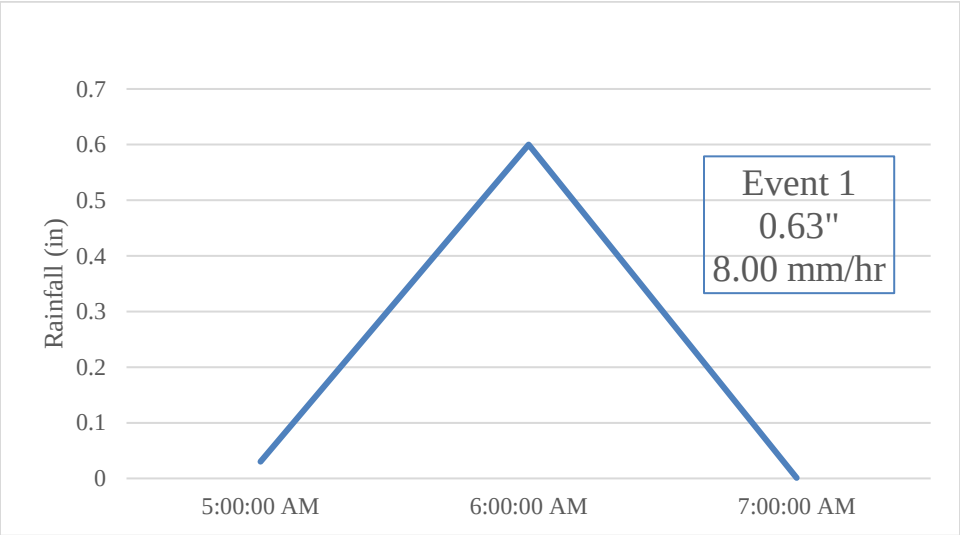


Figure 2: Event 1 Hydrograph

The second event (Event 2) was a 1.30 inch event that occurred 06/09/20 to 06/10/20. Event 2 had an overall average intensity of 3.30 mm/hr. Event 2 was characterized by the highest intensity peak during at the onset of the rain event, followed by several hours of low intensity rain. Event 2 was preceded by approximately 10 days without precipitation.

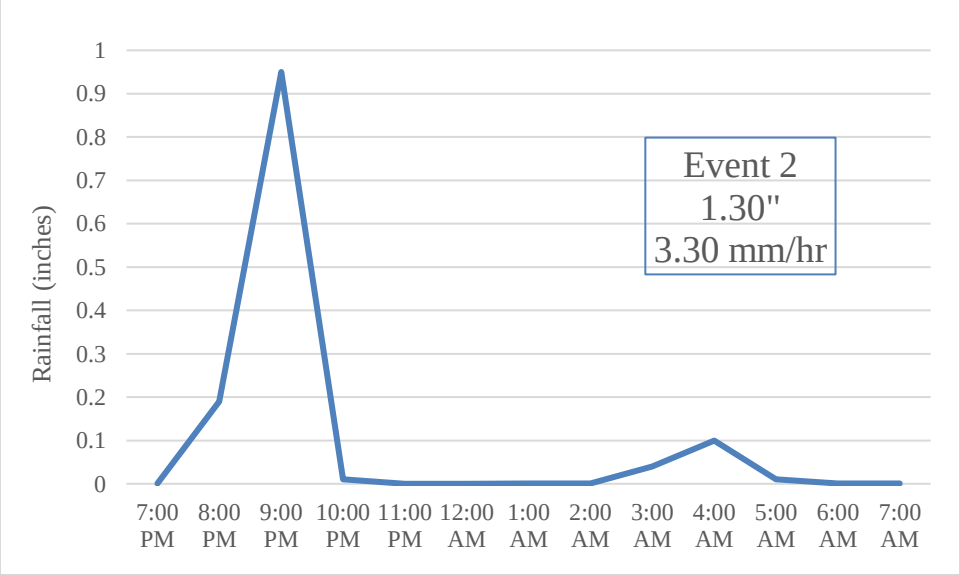


Figure 3: Event 2 Hydrograph

Saddlebrook

Data was collected with Isco 2150 Area Velocity Flow Modules and Sensors that measure quantity and velocity of stormwater runoff. Flow analysis is included for the green and grey roofs as well as the bioretention system for the 2020 sampling period. This data is used to compare volume, peak flow rate, and overall efficiency between the traditional and green infrastructure practices. Outflow (discharge) data was collected from the grey and green roofs for direct comparison. Outflow data was collected from the bioretention system and inflow (runoff) data was collected from the east parking lot. Runoff to the dry detention basin from the east parking lot has not been treated by a BMP and serves as a control for the bioretention system in this study. An Isco 674 Tipping Bucket rain gauge was also installed on site for local and accurate precipitation measurements.

Monitoring equipment collected data from May to October 2020. During this time 17 rain events totaling 5.35 inches were measured. Due to COVID precautions, the Saddlebrook rain gauge could not be installed on the roof of the building until September. In the interim, data from the National Weather Service Valley weather station (Valley, NE; station ID USC00258795) was used. Also, review of data shows that equipment lost power at times unexpectedly during the monitoring period, preventing data collection. Maintenance of equipment was conducted throughout monitoring time period so source of power loss is unclear.

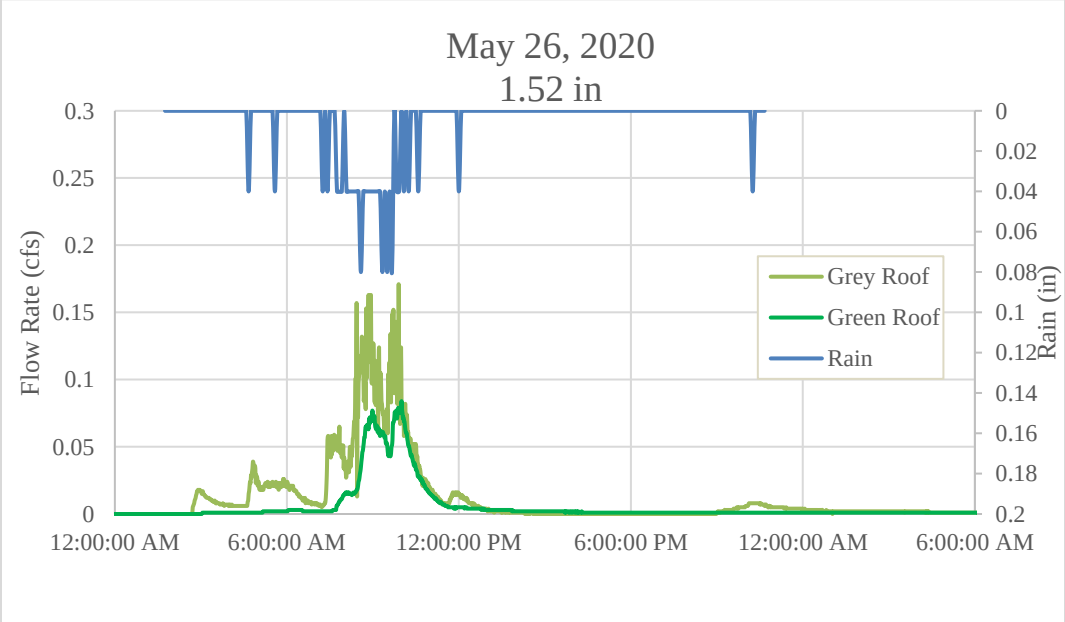
Total discharge from the green and grey roofs varied greatly, and largely depended on the amount of rainfall. During the 2020 sampling period the flow meter on the grey roof measured a total volume of 6,785.61 cubic feet (50,759.87 gallons). Monitoring equipment recorded the green roof discharged only 12 of the 17 rain events and observed 1,818.48 cubic feet (13,603.18 gallons) of total flow. The green roof had 4967.13 cubic feet (37,156.69 gallons) less total flow than the grey roof, a 73.2% reduction in volume from May through October. On only one occasion, the green roof had greater flow than the gray roof.

On average, peak flow reduction through the green roof has been consistent with previous years of monitoring. In 2020 peak flow was reduced by 86.79%, a noticeable increase from 76.8% last year, 76.01% in 2018 and 75% reduction in 2017. The green roof showed a delay of flow compared to the traditional grey roof. In all cases except one, the start of flow from the green roof was recorded after the gray roof with times ranging 3 minutes to over 10 hours (Table 3). During most rain events, especially those less than one inch, flow through the green roof displayed a common pattern in which initial and peak flow was delayed and peak flow was slower and more muted compared to the gray roof (Figure 4).

Year	Date	Precip	Total Grey Roof Flow	Total Green Roof Flow	Peak Grey Roof Flow Rate	Peak Green Roof Flow Rate	Peak Flow Rate Reduction	Initial Flow Delay
yyyy	*dd-mmm*	*in*	*cf*	*cf*	*cfs*	*cfs*	*%*	*min*
2020	4-May	0.16	248.76	0	0.41	0	100.00%	-
2020	4-May	0.04	44.76	0	0.012	0	100.00%	-
2020	5-May	0.04	0.028	0	94.92	0	100.00%	-

Year	Date	Precip	Total Grey Roof Flow	Total Green Roof Flow	Peak Grey Roof Flow Rate	Peak Green Roof Flow Rate	Peak Flow Rate Reduction	Initial Flow Delay
2020	22-May	0.08	115.26	4.8	0.048	0.001	97.92%	11
2020	24-May	0.04	277.38	51.84	0.102	0.022	78.43%	102
2020	25-May	0.08	230.46	12.24	0.048	0.002	95.83%	105
2020	25-May	0.08	297.72	19.74	0.031	0.001	96.77%	95
2020	26-May	1.52	1404.06	654	0.171	0.084	50.88%	20
2020	1-Aug	0.48	172.14	37.56	0.084	0.007	91.67%	3
2020	5-Aug	0.12	205.68	1.68	0.041	0.001	97.56%	287
2020	6-Aug	1.12	464.7	822.9	0.442	0.455	-2.94%	-1
2020	9-Aug	0.04	66.6	7.86	0.074	0.002	97.30%	18
2020	16-Aug	0.08	294.3	0.6	0.041	0.001	97.56%	35
2020	8-Sep	0.01	71.76	0	0.012	0	100.00%	-
2020	9-Sep	1.12	1904.4	131.88	0.131	0.02	84.73%	644
2020	10-Sep	0.32	903.6	73.38	0.039	0.004	89.74%	69
2020	11-Sep	0.02	84	0	0.011	0	100.00%	-
		5.35	**6785.61**	**1818.48**		**Average:**	**86.79%**	**116**

Table 3: Summary of 2020 rain/discharge events for the Green and Grey Roofs at Saddlebrook



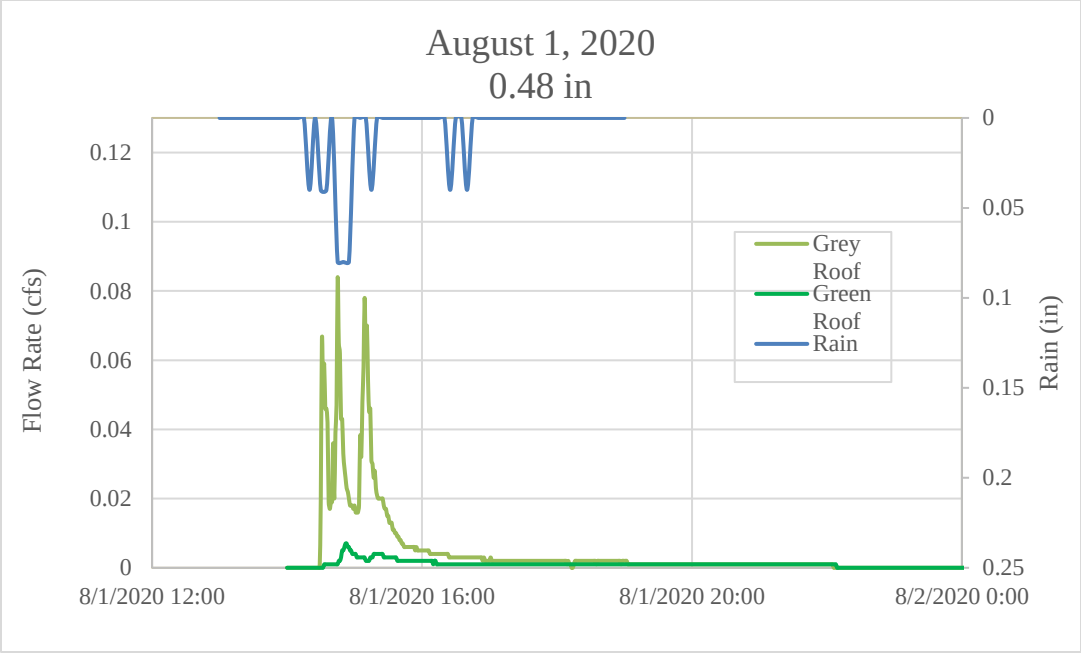


Figure 4: Discharge events for 5/26/20 and 08/1/20 at the green/grey roofs

Total discharge from the bioretention and basin also varied greatly. During the 2020 sampling period the basin flow meter measured a total volume of 46,750.19 cubic feet (349,715.70 gallons). Monitoring equipment recorded discharge from the bioretention system only 16 of the 17 rain events and observed 24,353.76 cubic feet (182,178.78 gallons) of total flow. The bioretention system had 22,396.43 cubic feet (167,536.92 gallons) less total flow than the basin, a 47.92% reduction in volume from May through October.

On average, peak flow reduction through the bioretention system has been consistent with previous years of monitoring. In 2020 peak flow was reduced by 80.87%, a noticeable increase from 69.3% last year. The bioretention system showed a delay of flow compared to the basin flow. In all cases, the start of flow from the bioretention system was recorded after the basin with times ranging 18 minutes to over 4 hours (Table 4). During most rain events, especially those less than one inch, flow through the bioretention system displayed a common pattern in which initial and peak flow was delayed and peak flow was slower and more muted compared to the basin (Figure 5).

Year	Date	Event Precip	Total Basin Flow	Adjusted Total Basin Flow	Total Bioretention Flow	Peak Flow Rate Basin	Peak Flow Rate Bioretention	Flow Rate Reduction	Initial Flow Delay
yyyy	*dd-mmm*	*in*	*cf*	*cf*	*cf*	*cfs*	*cfs*	*%*	*min*
2020	4-May	0.12	303.6	367.36	229.86	0.074	0.038	48.65%	165
2020	7-May	-	1193.2	1443.80	832.74	0.407	0.053	86.98%	55
2020	13-May	0.012	686.1	830.18	423.12	0.037	0.035	5.41%	423

Year	Date	Event Precip	Total Basin Flow	Adjusted Total Basin Flow	Total Bioretention Flow	Peak Flow Rate Basin	Peak Flow Rate Bioretention	Flow Rate Reduction	Initial Flow Delay
2020	16-May	1.08	1534	1856.16	1376.16	0.79	0.088	88.86%	30
2020	30-May	0.76	4059.3	4911.75	2448.9	0.328	0.068	79.27%	60
2020	18-Jun	1.04	4544.3	5498.65	2747.64	1.672	0.088	94.74%	83
2020	22-Jun	0.04	251.88	304.77	0	0.061	0	100.00%	-
2020	28-Jun	0.44	1506.2	1822.55	982.02	1.801	0.086	95.22%	31
2020	1-Jul	0.76	3761	4550.86	2585.82	1.21	0.318	73.72%	29
2020	9-Jul	0.2	482.16	583.41	183.12	0.353	0.048	86.40%	58
2020	20-Jul	0.84	1688.5	2043.11	901.98	2.067	0.194	90.61%	30
2020	21-Jul	0.24	950.28	1149.84	319.86	0.166	0.033	80.12%	58
2020	26-Jul	0.32	611.04	739.36	167.94	0.496	0.03	93.95%	30
2020	29-Jul	0.24	1008	1219.68	250.98	0.813	0.026	96.80%	40
2020	1-Aug	0.48	1024.3	1239.43	322.08	1.022	0.028	97.26%	30
2020	5-Aug	0.12	532.68	644.54	56.1	0.115	0.005	95.65%	119
2020	6-Aug	1.12	8894.9	10762.88	8995.92	3.613	2.622	27.43%	26
2020	9-Aug	0.04	429.84	520.11	94.02	0.208	0.017	91.83%	78
2020	16-Aug	0.08	556.92	673.87	122.28	1.446	0.028	98.06%	24
2020	8-Sep	0.74	1572.8	1903.06	916.74	0.373	0.144	61.39%	240
2020	9-Sep	0.36	1412.7	1709.37	280.14	0.365	0.021	94.25%	18
2020	10-Sep	0.32	1632.6	1975.45	116.34	0.106	0.008	92.45%	52
			Total Flow:	**46750.19**	**24353.76**		**Average:**	**80.87%**	**80**

Table 4: Summary of 2020 rain/discharge events for the bioretention system and basin at Saddlebrook

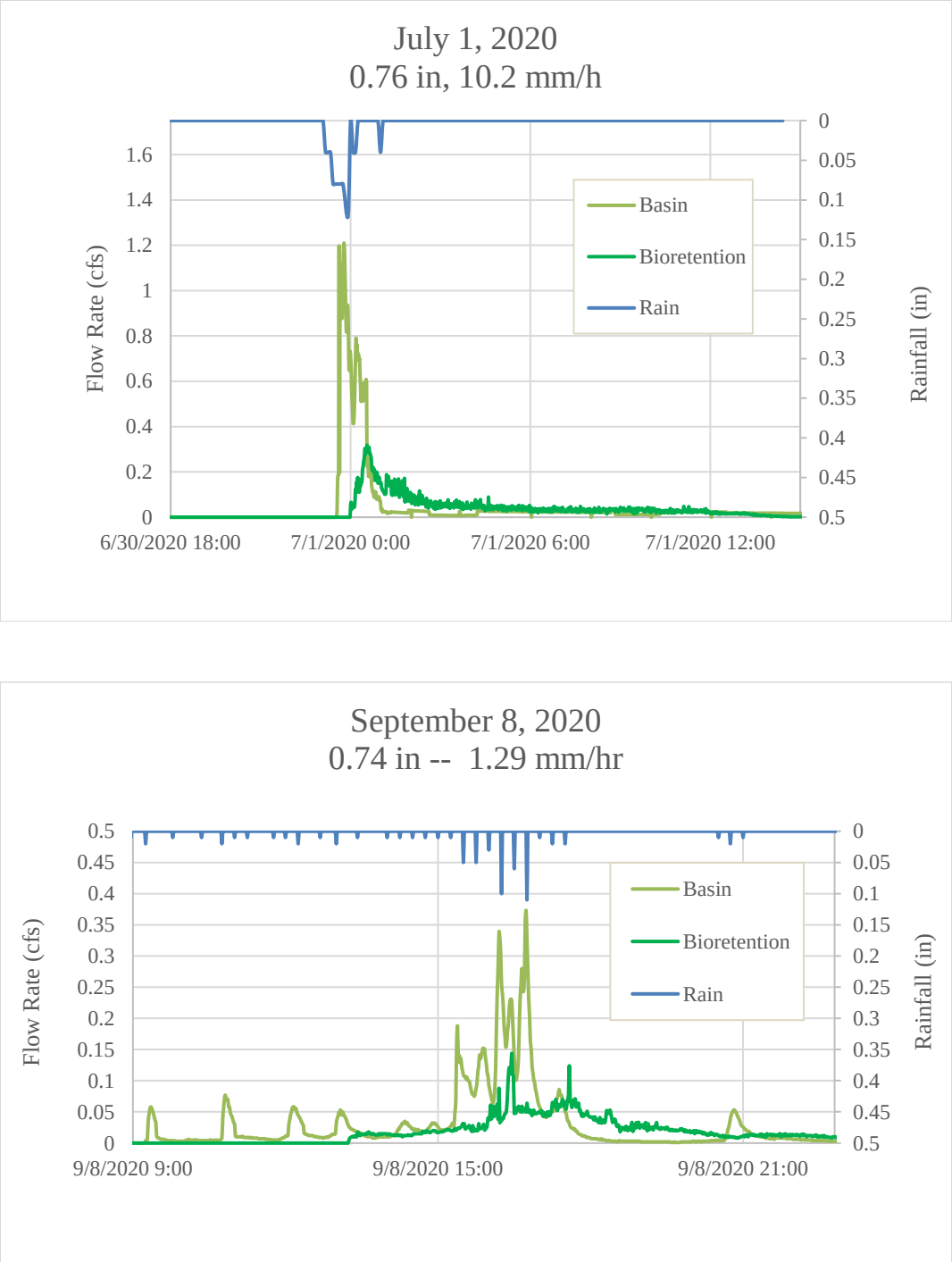


Figure 5: Discharge events for 07/1/20 and 9/8/20 at the bioretention system/basin

In 2020, a HOBO water level sensor was installed at the bottom of the bioretention system. Total precipitation for this event was 0.96 inches with an average intensity of 24.38 inches per hour (9.14 mm/hr). Average drawdown was 1.10 in/hr, and took 7.5 hours to completely dewater from the surface.

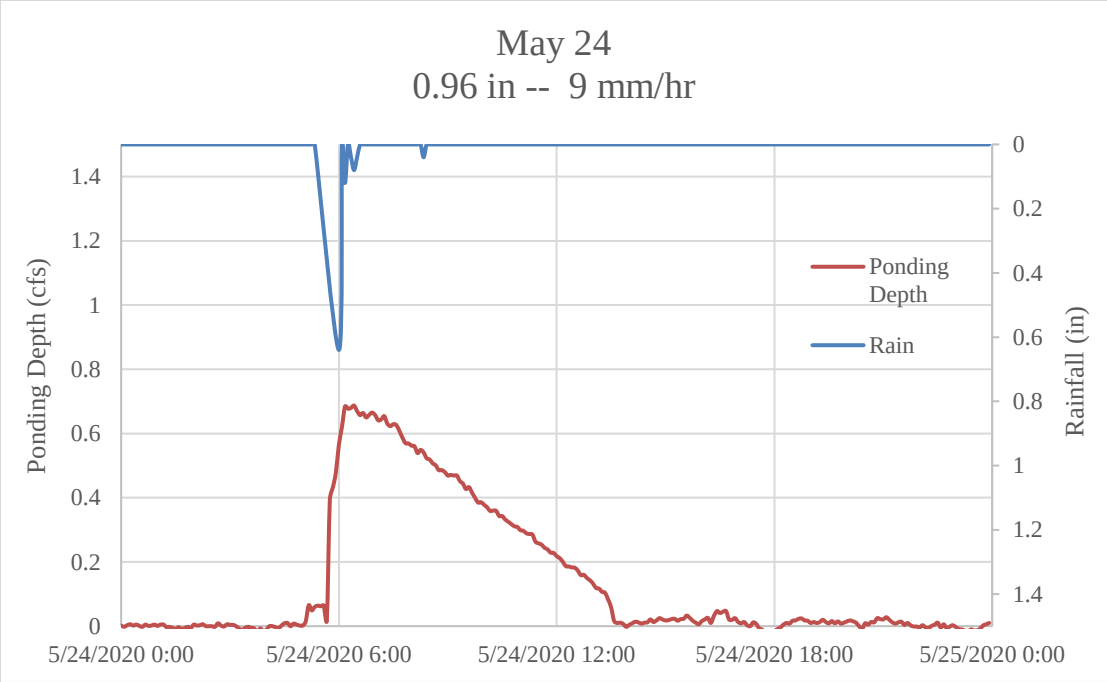


Figure 6: Saddlebrook Bioretention System event

Orchard Park

Local rain data was gathered from the Papio Missouri NRD weather station at Little Papillion Creek near Irvington, Nebraska (ID: 06610750). One HOBO water level pressure transducer was installed in the east bioretention system at the north end of Orchard Park. Flow enters through curb cuts along N 66th Street into the west bioretention system then overflows into the east cell. During the 2020 monitoring period, the underdrain valve in the west bioretention cell was minimally open to promote ponding and subsequent spillover from the street garden to main bioretention system. There was no observed ponding during the dates used for Event 1 and 2 for the other sites, therefore a substitute event, May 16, 2020, was chosen for Orchard Park.

Event 1

The local rain gauge during the event recoded 1.04 inches of rainfall in just under one hour for an average intensity of 0.35 in/hr (8.81 mm/hr).

A small peak was recorded early followed by a rapid increase in water level that corresponded with peak rainfall. The maximum ponded water level reached 1.11 inches. Water level drawdown was slow at first then increased rapidly.

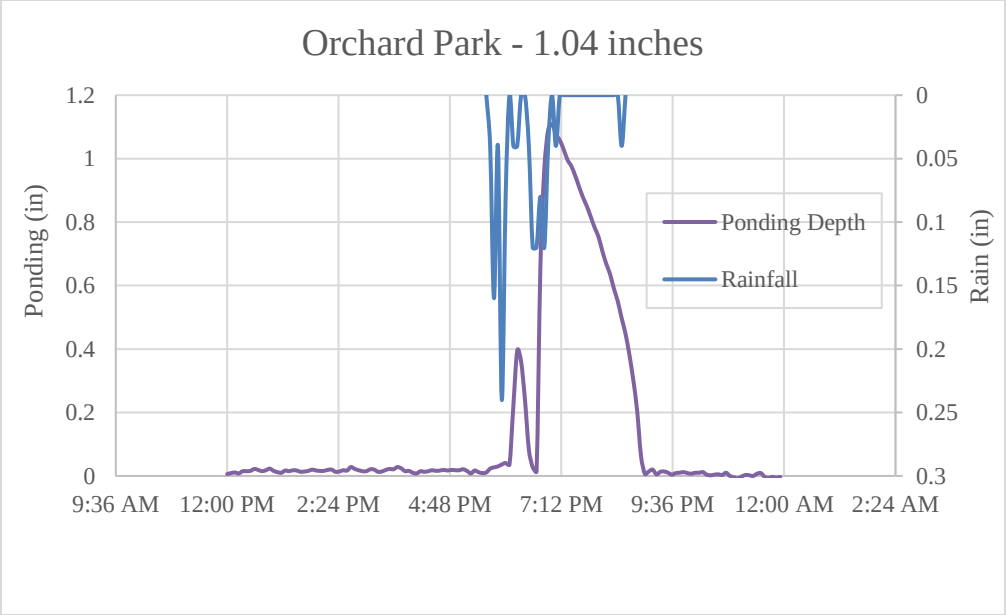


Figure 7: Orchard Park Event 1

Water Quality Sampling

Three inflow samples were grabbed as runoff entered the pretreatment area of the system. A blind duplicate was grabbed for validation of lab and field sampling techniques. The storm did not result in sufficient runoff for flow to reach the larger bioretention system that would then result in a discharge to allow for outflow samples to be collected.

Water quality samples were delivered to Midwest Laboratories in an iced cooler on 10/12/20 at 8:00am when they opened. Water quality samples were tested for Total Kjeldahl Nitrogen (TKN), Nitrate/Nitrite Nitrogen (NO3/NO2-N), Phosphorous (P), Total Dissolved Phosphorus, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), and *E. coli*. Because of the late sample time, the Orchard Park samples had exceeded the allotted holding time for *E. coli* but were tested anyway. The sample holding time from sample collection until sample preparation for *E. coli* by Midwest Laboratories was approximately 16 hours. Therefore, actual concentrations of *E. coli* may be less than reported values. Table 5 summarizes the results of the water quality testing at the inflow. Concentrations for all parameters decreased with time at the inflow, with the exception of *E.coli*.

Lab ID:	15511630-01	15511630-02	15511630-03	15511630-07	Reporting Limit
Sample Time:	22:19	22:34	22:49		
Constituent	In 1	In 2	In 3	Duplicate	
TKN (mg/L)	11.8	3.19	2.24	3.59	0.5
NO2/NO3-N (mg/L)	0.98	0.74	0.32	0.76	0.2
Dissolved P (mg/L)	0.58	0.71	0.4	0.7	0.05

Lab ID:	15511630-01	15511630-02	15511630-03	15511630-07	Reporting Limit
P (mg/L)	2.1	1.1	0.5	1.04	0.05
TS (mg/L)	1170	413	120	200	10
TSS (mg/L)	752	58	32	66	4
^E. coli (CFU/100mL)	24.5	64	42.5	48.9	1

Table 5: Orchard Park Inflow Water Quality Results

^*E. coli* results are included but may not be representative as the sample holding times exceeded the 6-hour regulatory holding time for *E. coli*

Orchard Park bioretention system continues to perform as designed and is effective at managing stormwater runoff that enters it. This is the oldest bioretention system demonstration project for the Program that utilizes the infiltration cell concept (limited footprint of amended soils and underdrain with a valve). The valve on the underdrain system is a significant factor for improving the overall effectiveness of the bioretention system. The ability to slow water flow through it significantly reduces peak flow and total flow due to evapotranspiration and infiltration losses. Monitoring will continue in 2021.

Creighton Prep

A stilling basin with a pressure transducer near the overflow weir measures the ponding depth of the bioretention system. An on-site rain gauge was used for measuring rain events.

Event 1

Total precipitation for this event was 0.43 inches with an average intensity of 0.43 in/hr (10.99 mm/hr). A small level of ponding was briefly observed as the rain was concluding, but this was quickly drawn down. More significant ponding began 40 minutes after the end of the storm and lasted approximately 2.5 hours. The maximum ponded depth for Event 1 was 1.052 feet which occurred 20 minutes after ponding began. Average drawdown for Event 1 was 0.50 inches per hour.

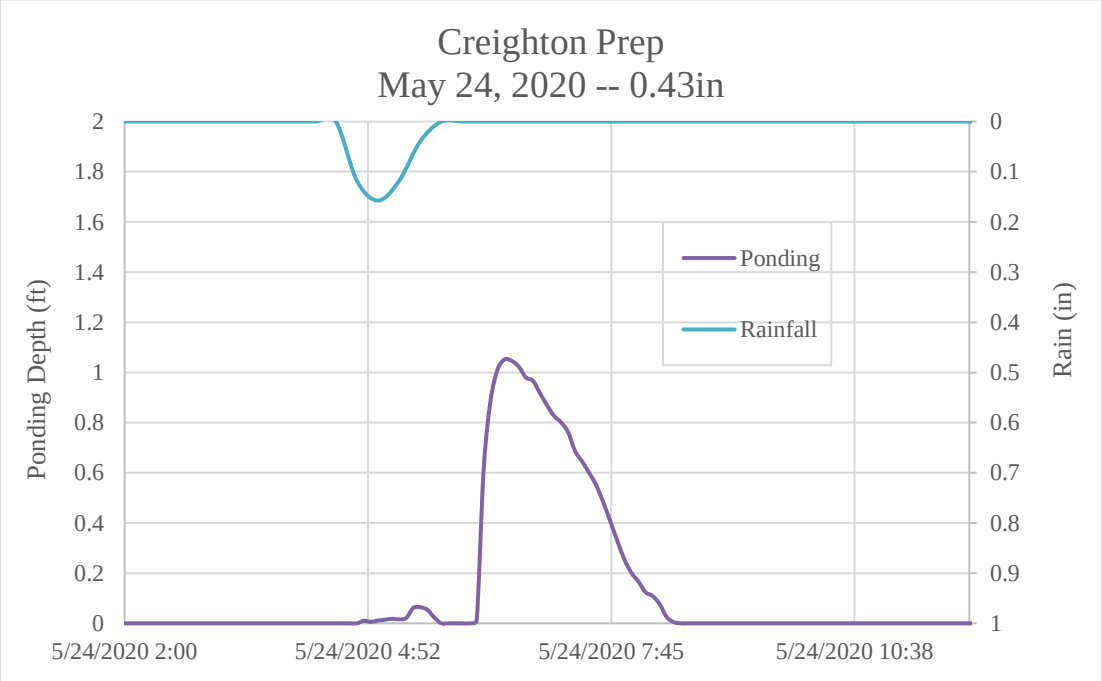


Figure 8: Event 1 Creighton Prep Water Level

Event 2

Total precipitation was recorded at 0.87 inches of rain at an average intensity of 0.49 in/hr (12.55 mm/hr). Similar to Event 1, there was slight ponding during the rain event, but this was quickly drawn down. More significant ponding did not occur until roughly 30 minutes after the end of the rain. Maximum ponding depth was 1.46 feet and occurred just over 20 minutes after ponding began. Average drawdown for Event 2 was 0.63 in/hr and it took less than 2.5 hours to dewater. There was no recorded rain on the rain gauge during the month of June prior to this event.

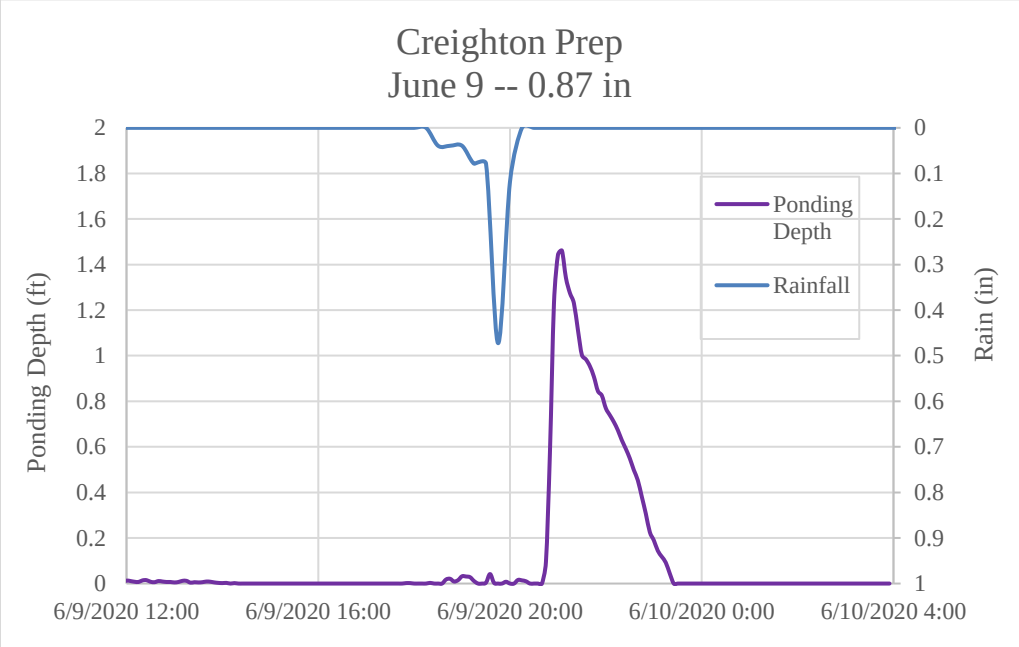


Figure 9: Event 2 Creighton Prep Water Level

Water Quality

There was no water quality sampling conducted at Creighton Prep in 2020.

Adams Park

Local rain data was gathered from the Papio Missouri NRD Rain Gauge at City Maintenance Shop (ID: 411701095570601). A total of 0.51 inches of rain fell at Adams Park during Event 1 at an average rate of 12.91 mm/hr. A total of 1.34 inches fell during Event 2 at an average rate of 3.48 mm/hr.

Water level data was used to assess the Adams Park site in 2020. Water level data was collected from three pressure transducers installed on site: PT-1) upstream of outlet structure, PT-2) in a micropool on the west side of the wetland area, and PT-3) upstream of the culvert beneath the future park road, as shown in Figure 12. Pressure Transducer-3 (PT-3) encounters flow first. In 2020, the placement of the sensor was adjusted to the bottom of the channel so that if any water present, the sensor would definitely capture the reading, compared to its previous placement more off to the side where some accumulation data may have been missed. Ponding in the micropool is largely dependent on flow from the main channel overtopping a berm at roughly 1074.75 feet. Pressure Transducer-1 (PT-1) is installed at a lower elevation to record data even when water elevation is low. When the water surface elevation is above 1076.50 feet, drawdown is controlled by the slotted weir at the outlet structure. After the water surface elevation drops below 1076.50 feet, drawdown is controlled by an 8-inch orifice with an invert elevation of 1074.00 feet. Flow monitoring equipment was not installed in 2020.

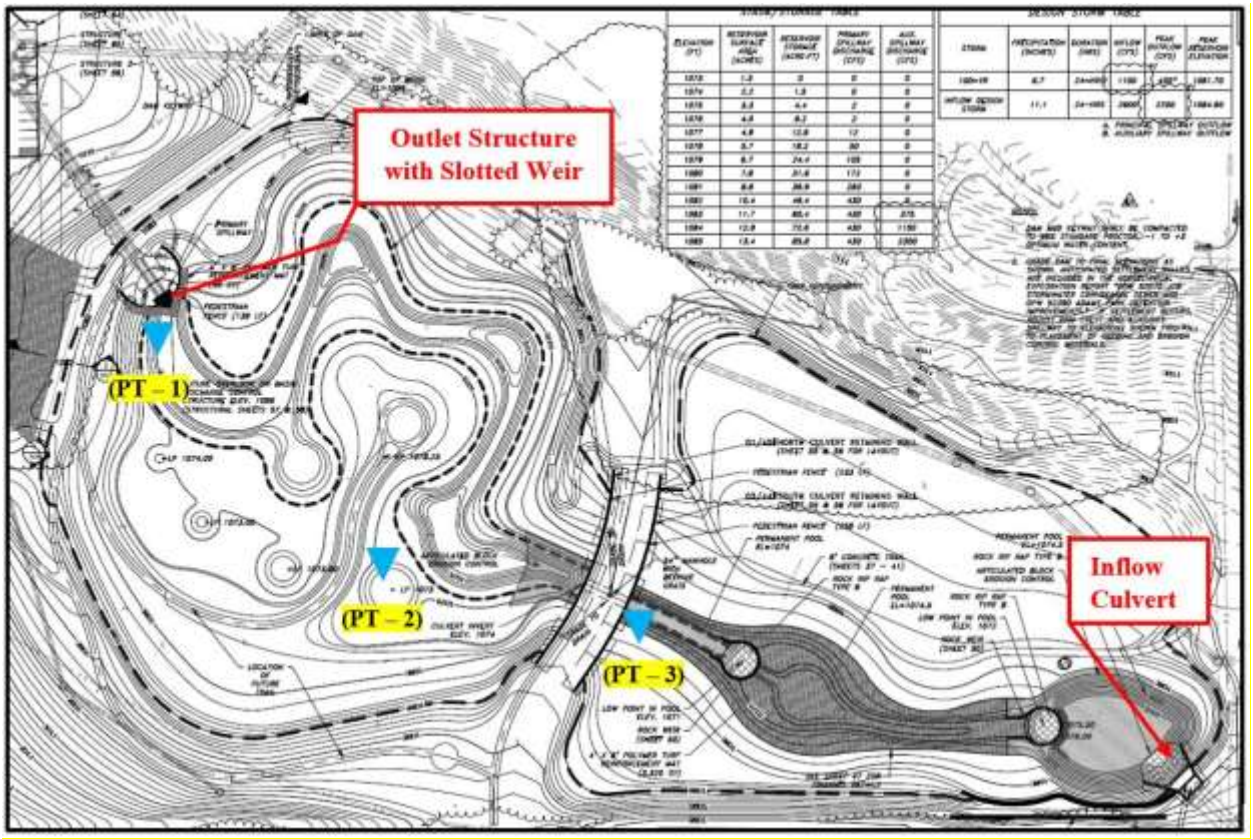


Figure 12: Inflow, outflow and pressure transducer locations at Adams Park

Event 1
There is approximately a 30 minute lag time between the peak water surface elevation in the detention area upstream of the future park road (PT-3) and the peak water surface elevation observed at the basin discharge structure (PT-1). PT1 observed ponding 25 minutes prior to PT3. Once ponding was observed, PT-1 peak water surface elevation of 1075.12 feet was reached after 1.58 hours. Ponding at PT-3 dewatered to its permanent pool elevation in approximately 2 days after each influx of runoff from the ongoing rain event, whereas ponding at PT-1 lasted over 4 days after the second spike (Figure 13).

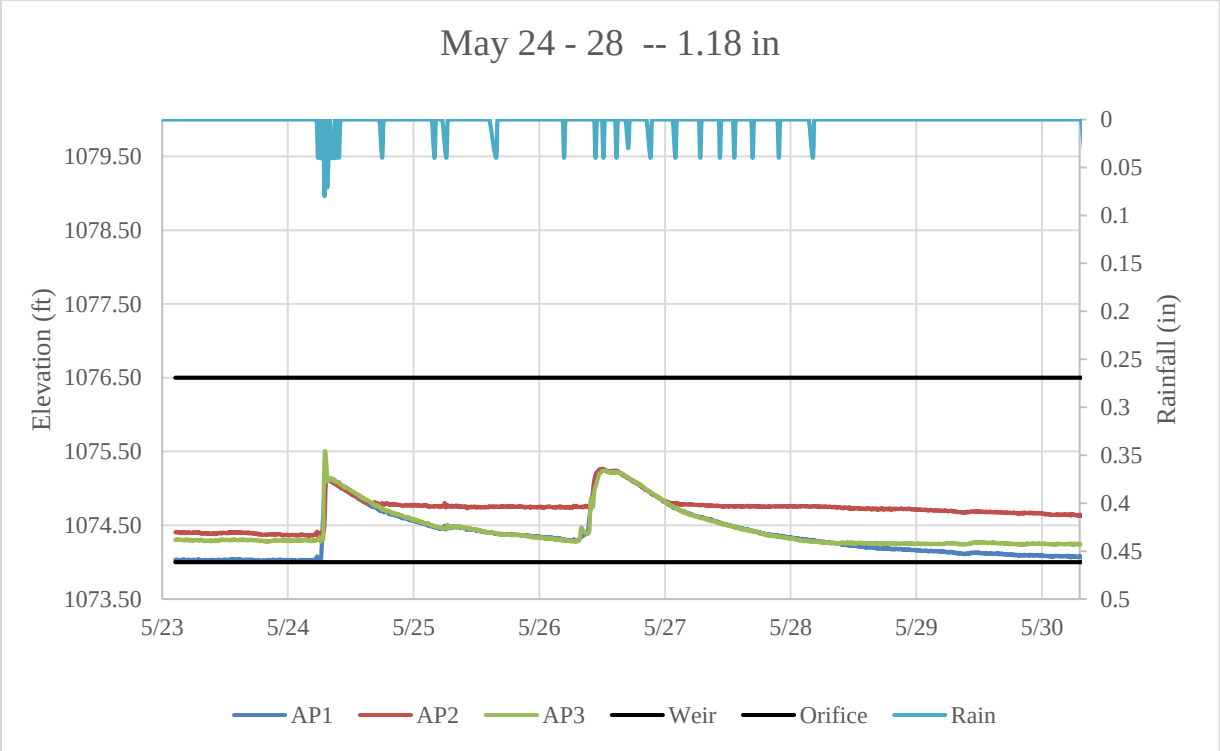


Figure 13: Adams Park Event 1

Event 2
There was approximately a 5 minute lag between the start of ponding at AP1 than AP3. Once ponding was observed, PT-1 peak water surface elevation of 1076.34' was reached in 1.17 hours. Ponding at PT-3 dewatered to its permanent pool elevation in approximately 2.15 days after the rain event, whereas ponding at PT-1 lasted 5 days.

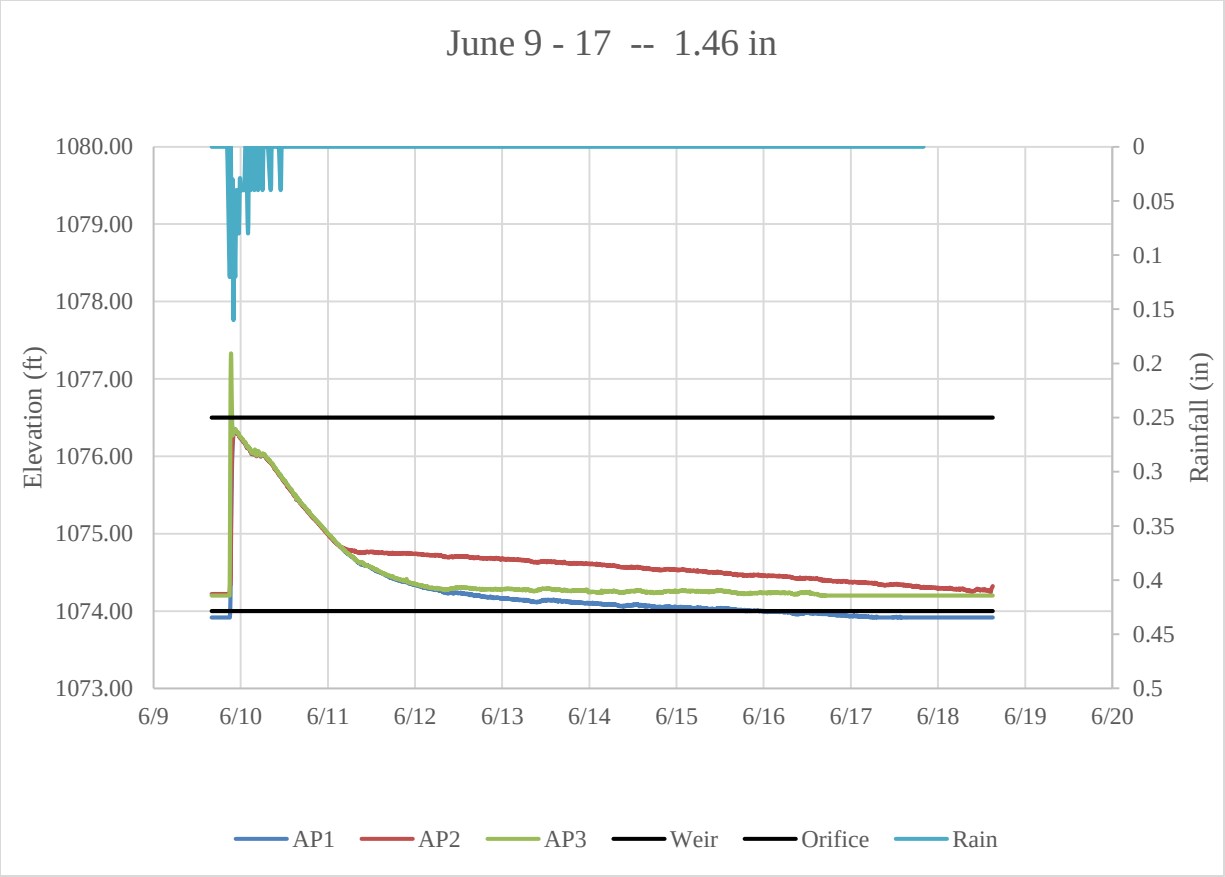


Figure 14: Adams Park Event 2

Albright Park

Rainfall was obtained from the rain gauge located at Hitchcock Park. One pressure transducer was installed in the AgriDrain outlet control structure, on the upstream side of the inline weir. Installing the pressure transducer at this location allows for observation of the drawdown rate within the bioretention system due to evaporation (in the case of ponded water), infiltration, and evapotranspiration. The pressure transducer was installed at the bottom of the AgriDrain structure, approximately 72 inches below the structure rim elevation, as depicted in Figure 15. The top of the inline weir is approximately 62 inches above the bottom of the AgriDrain structure. Ponding occurs when the water depth reaches approximately 36 inches above the sensor level. Based on the construction plans, there is approximately 26 inches of ponding available until the hydraulic grade line of the ponded water exceeds the weir elevation, when water from the bioretention system would discharge to the downstream system. Ponded water that overtopped the AgriDrain rim elevation would enter control structure through the bar grate lid and could bypass the inline weir, discharging directly to the outlet pipe.

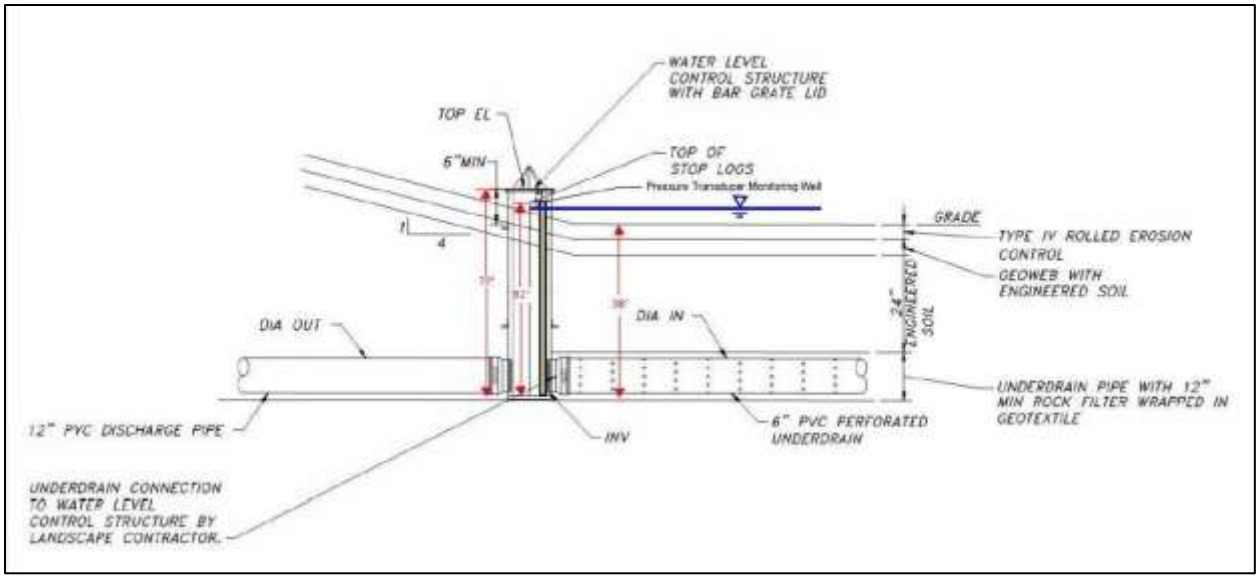


Figure 15: Albright Park AgriDrain Structure

Late in 2019, a four inch gap between stop logs was found. The gap was located where the third stop log from the bottom would sit, roughly 15 to 20 inches above the sensor. Due to this gap, the water level within the Agridrain structure did not exceed 16 inches for any events from June through October 2019. It is unclear what caused this gap or when it occurred. During the Spring 2020 monitoring equipment installation, the stop logs were pushed down approximately 4" to seal the gap. The height of the overall Agridrain structure is now approximately 62" tall.

Event 1

The event did not result in an overflow/bypass of the Agridrain weir. Slight ponding occurred in the bioretention system, beginning approximately 1.5 hours after the initiation of the rain event, peaking 2 hours after the beginning of the storm. There was a 10 minute delay in the Agridrain sensor registering precipitation from the initiation of ponding, and a 15 minute lag in the Agridrain peaking after the bioretention system peak. Drawdown from this event occurred in four parts. Right after the peak, sharp drawdown of 10.79 in/hr was observed. Approximately,

30 minutes after ponding has ceased in the bioretention system, the Agridrain level then more slowly drew down at an average rate of 2.96 in/hr for the next two hours until the level reached the top of the underdrain. The drawdown rate increased to 8.21 inches per hour during elevations between the top and bottom elevations of the underdrain. Remaining drawdown took approximately 4 hours, with a rate of 0.49 inches per hour.
The system successfully treated the storm event without a discharge to the storm sewer system.

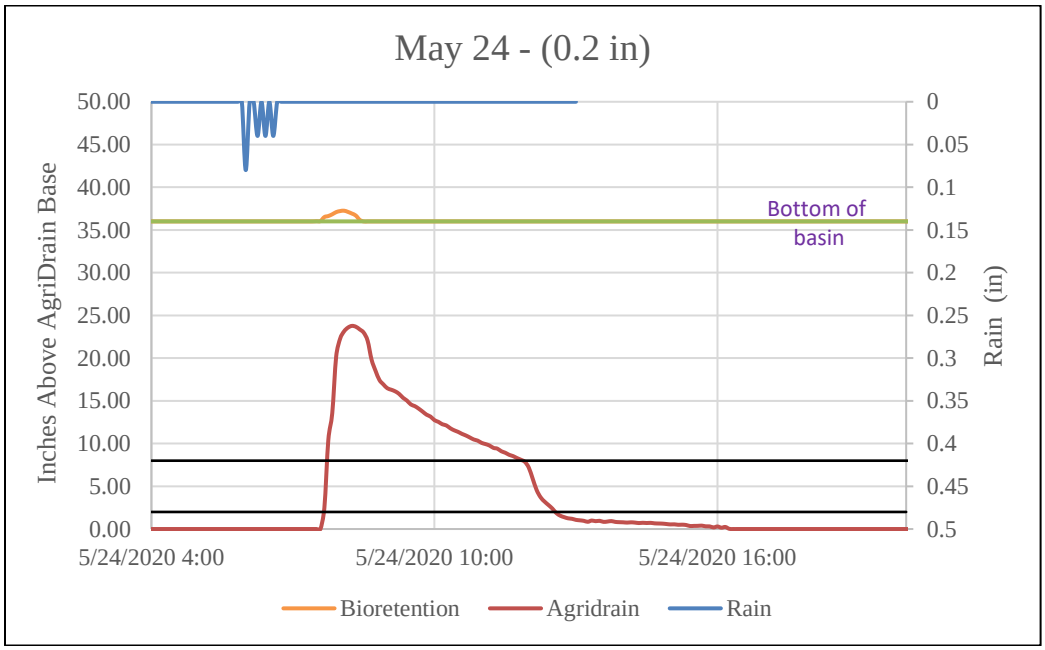


Figure 16: Albright Park Event 1 Water Level

Event 2
The Event 2 rain event for Albright Park was characterized by the largest volume being received in a period of 25 minutes, followed by lighter rain that extended over the following 10 hours.

Water level peaked at the Agridrain and in the bioretention system within 5 hours of the peak rain and while rain was still active, with the Agridrain 15 minutes after the bioretention system. The first phase of drawdown at the Agridrain had a rate of 0.89 inches per hour. Then, once the bioretention system had drawn down, the Agridrain rate steeply increased to 3.67 inches per hour for the next 4 hours, until the level reached approximately 18 inches – half the height between the bottom of the Agridrain structure and bottom of the bioretention system. Drawdown continued for approximately the next 24 hours at a rate of 0.34 inches per hour until level reached the top of the underdrain, at which point, the drawdown slowed down to 0.22 inches per hour for the following 24 hours, approximately. The final phase of drawdown below the bottom of underdrain took almost 63 hours with a rate of 0.03 inches per hour.
Water level drew down slowly during and immediately after rainfall in comparison to Event 1 as expected with a larger and longer duration storm. The system successfully treated the storm event without a discharge to the storm sewer system

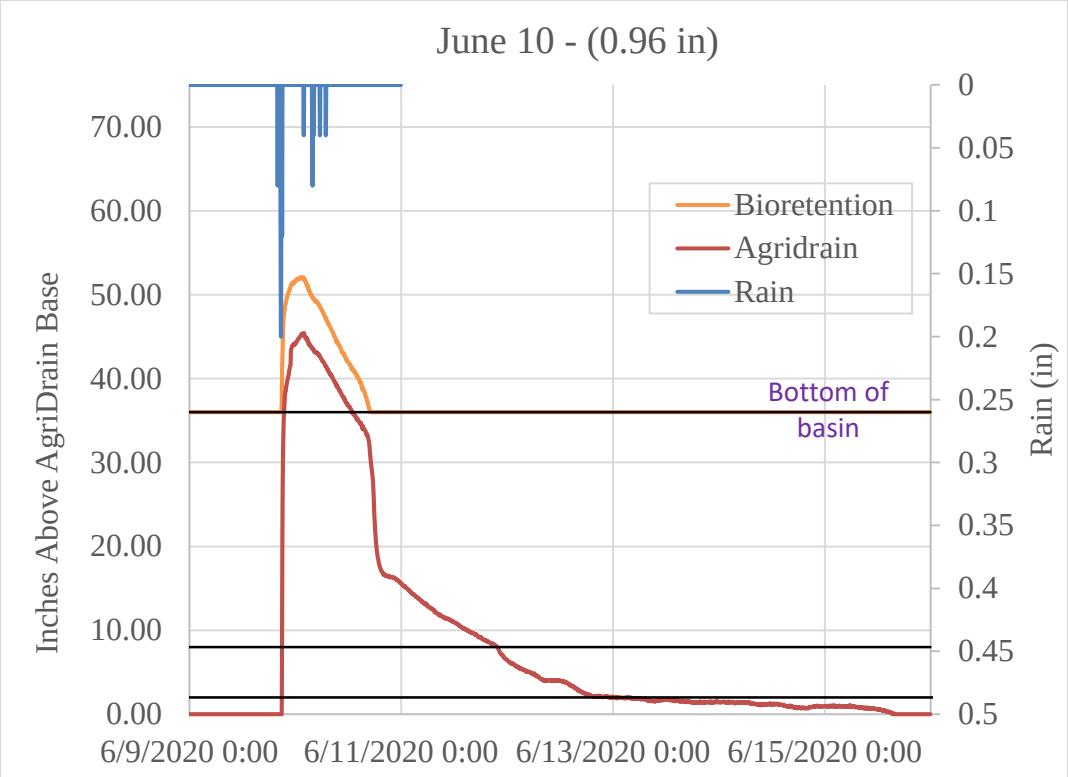


Figure 17: Albright Park Event 2

The Albright Park bioretention system is functioning as intended. The removal of the gap in the outflow weir provided additional capacity and the weir structure was not overtopped during the two events. With the additional capacity, low drawdown rates were observed even for a rain that was almost 1inch in accumulation. With the gap in the weir addressed in 2020, the bioretention system performance was significantly improved with respects to total water quantity managed and reducing peak flows. Monitoring at Albright Park will continue in 2021.

Infiltration Assessment of Existing City of Omaha Bioretention Systems and Rain Gardens

The purpose of this study was to estimate infiltration rates via saturated hydraulic conductivity (K_{sat}) measurements within bioretention systems, rain gardens, and adjacent traditional turf areas. K_{sat} is a quantitative measure of the maximum water transmission rate of a saturated soil. Data generated from this study will be added to annual assessments for each project, provide comparison estimates to baseline measurements collected in 2016, and examine seasonal variation of K_{sat} within individual bioretention systems and rain gardens. An additional objective of this study was to examine the spatial distribution of K_{sat} values. Understanding how these living systems function over time will help improve overall stormwater management.

For the past 5 years, except for 2018, nine sites have been studied: Saddle Hills Park (SHP), University of Nebraska at Omaha (UNO) Welcome Center, Orchard Park (OP), Florence Streetscape (FL), The Benson East Gateway (BEN), Under the Sink Facility (UTS), Creighton Prep (CRP), South Omaha Industrial Area (SOIA) Lift Station, and Omaha Sewer Maintenance Facility (SMF) (Figure 18). A summary of site details can be found in Table 8.

Measurements were collected at all sites using Modified Philip-Dunne (MPD) Infiltrometers. The MPD infiltrometer is a falling head device used to measure the saturated hydraulic conductivity (K_{sat}) at the soil surface. K_{sat} is important for modeling infiltration rates within Best Management Practices (BMPs). Sampling at each site was conducted using a grid method technique. Grid sampling allows for a better approximation of the spatial variability for a given parameter within site, is easier to set up for routine monitoring, and provides better estimates for site characteristics as a whole. Grid sampling for each site was set up to account for 2016 sampling locations, while still trying to capture the spatial variability of K_{sat} within each site accurately.

Samples were collected during two periods in 2020; summer (late-May to August), and fall (September to early November). Sampling in fall occurred prior to the ground freezing. Samples were collected at all 9 of the sites during the summer and fall periods, with the exception of UTS not being sampled during the summer season. A total of 72 MPD Infiltrometer samples were acquired in 2020, with a combined total of 702 samples since 2016. Data generated were compared within site and against non-BMP controls (nearby turf and landscape areas) adjacent to each site. Data were compared across sites for evaluation of pretreatment effect on K_{sat} within the bioretention systems, distribution of K_{sat} across the entire system and plant influence.

In the fall of 2020 site average Ksat values ranged from 8.95 in/hr to 72.17 in/hr with an average of 31.90 in/hr (Table 9). This is higher than mean Ksat values in 2016, 2017, and 2019 at 29.89 in/hr, 25.63 in/hr, and 11.44 in/hr respectively. All sites showed an increase in average values between Spring and Fall, with the Spring average being only 8.69 in/hr. Spring 2020 values for the four sites monitored during the Summer 2019 effort were significantly lower than their first readings for 2019, and with the exception of Benson Park were also lower than the Fall 2019 readings. The increased Fall Ksat values reinforce the benefit of the plant growing season for the infiltration capabilities.

The City's rain gardens and bioretention systems are fully functional and plants are healthy and vibrant. The mean K_{sat} values across all sampling periods and for both rain gardens and bioretention systems sampled ranged from 14.37 to 31.20 in/hr (Table 10). Across all survey sites and all sampling periods, average measurements of K_{sat} in rain gardens (32.46 in/hr) and bioretention systems (18.08 in/hr) were significantly higher than those acquired over adjacent turf grasses (4.37 in/hr) (Table 11). Also worth noting, is that 2020 was much drier than normal annual totals. This may have also affected the overall trend for increased Ksat during the Fall effort.

K_{sat} monitoring will likely continue in 2021 at all sites in spring, and fall to continue analysis of seasonal and annual K_{sat} variation in green infrastructure. There is a chance this will need to be scaled back or not conducted depending on available staff. Previous years had an intern on-staff to help with conducting the tests. There is no intern currently on-staff and anticipated not to be filled in 2021.

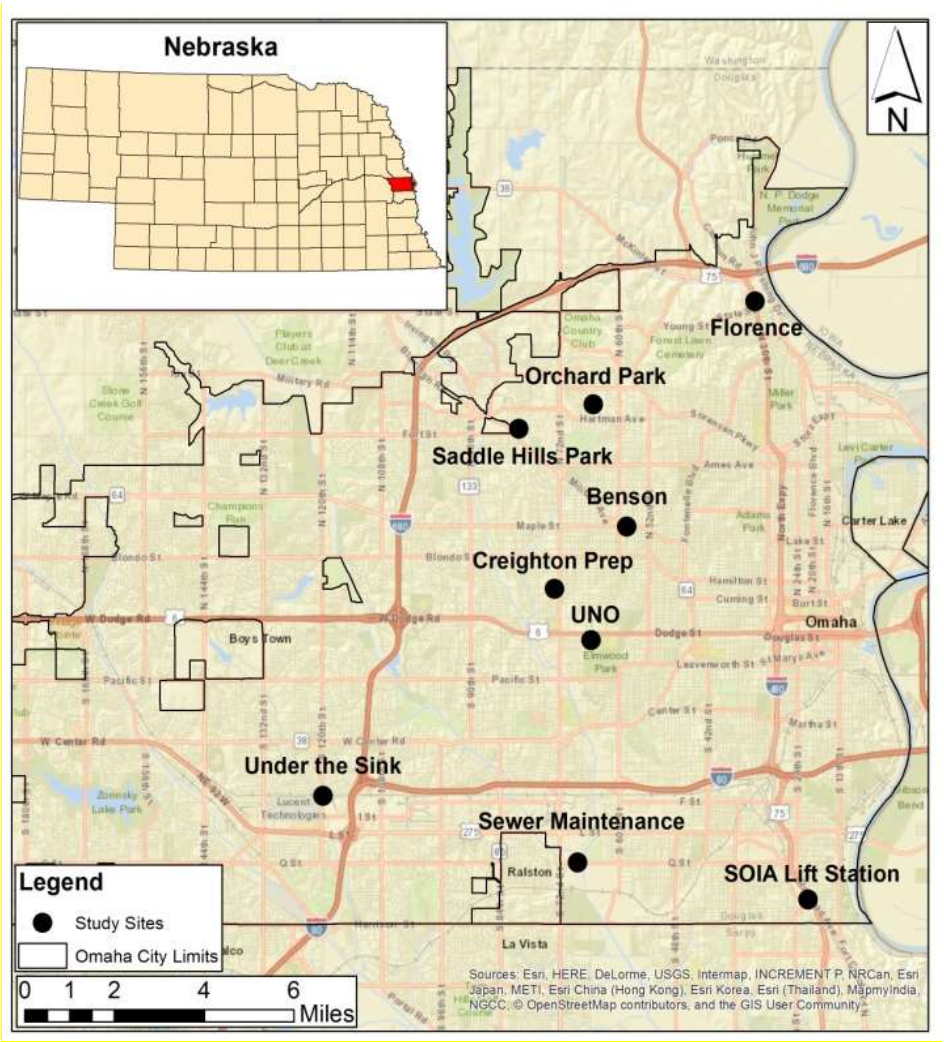


Figure 18: Map of the City of Omaha, Douglas County, highlighting the nine K_{sat} study sites

Site	Install	Type *	Footprint (ft^2)	Contributing Area (acres)	% Footprint to Contributing Area	Design Volume (gal)	Pre-treatment	Under-drain Outlet Control	Under-drain	Overflow	Bioretention Soil Mix
Saddle Hills Park	2014	RG	2,310	2.5	2.2	N/A	Utility box curb-wells	None	None	Soft weir in berm	Compost amended in-situ soils
University of Nebraska-Omaha	2012	B	1,345	0.6	5.5	2,469	None	4" Polyball valve	4" perforated HDPE	Soft weir in berm	50/50 sand/ compost
Orchard Park	2009	B	3,180	0.8	9.2	14,270	Vegetated Forebay	2" Brass Curb-Stop Valve	4" perforated PVC	Offline system	50/50 sand/ compost
Florence	2012	B	440	0.7	1.5	2,825	Stainless steel sediment trap w/ Permeable Base	2" Brass Curb-Stop Valve	4"perforated HDPE	Offline system	50/50 sand/ compost
Benson	2013	B	1,225	1.0	2.8	5,535	2 Forebays & Dry Creek Bed	2" Brass Curb-Stop Valve	4" perforated PVC	High flow structure & soft weir	50/50 sand/ compost
Under the Sink Facility	2008	B	1,540	2.5	1.4	9,620	Bioswale	4" Polyball valve	4" perforated HDPE	Soft weir in berm	50/50 sand/ compost
Creighton Prep	2014	B	5,720	2.7	4.9	40,395	Permeable patio (East) & manhole sump w/ Envirohood (West)	4" Slide Gate Valve	4" perforated PVC	Soft weir in berm	80/20 sand/ compost
South Omaha Industrial Area	2014	B	3,400	0.7	11.5	25,430	Turf swale	4" Polyball valve	4" perforated PVC	High flow structure & soft weir	100% 1" washed limestone
Sewer Maintenance Facility	2014	B	2,200	0.95	5.3	39,085	Permeable paver parking lot (East) & Forebay (West)	4" Slide Gate Valve	4" perforated PVC	High flow structure	100% pea gravel

*RG = Rain Garden; B= Bioretention System

Table 8: Summary of project details for the nine sites examined in this study

Site	Fall 2016	*N*	Spring 2017	*N*	Summer 2017	*N*	Fall 2017	*N*	Summer 2019	*N*	Fall 2019	*N*	Spring 2020	*N*	Fall 2020	*N*	Cumulative	*N*
SHP	55.31	*16*	13.92	*25*	25.59	*7*	34.15	*29*	0	*0*	43.69	*4*	35.35	*4*	42.63	*4*	32.46	*89*
OP	11.77	*4*	13.68	*13*	0	*0*	15.99	*12*	15.39	*9*	8.51	*9*	10.96	*5*	37.60	*4*	14.95	*56*
BEN	27.55	*6*	4.56	*18*	0	*0*	25.66	*18*	0	*0*	29.49	*4*	10.76	*3*	72.17	*3*	20.69	*52*
UNO	55.35	*6*	5.37	*20*	40.69	*17*	15.63	*18*	25.33	*5*	6.89	*7*	5.89	*4*	15.16	*3*	20.71	*80*
FL	18.28	*6*	8.84	*17*	0	*0*	24.61	*17*	6.92	*6*	13.65	*10*	0.89	*4*	11.17	*4*	14.13	*64*
CRP	4.01	*8*	10.12	*25*	16.47	*25*	15.57	*26*	0	*0*	1.92	*9*	1.09	*5*	8.95	*5*	11.35	*103*
UTS	12.57	*7*	0	*0*	0	*0*	16.48	*9*	0	*0*	4.88	*6*	0.00	*0*	42.76	*4*	16.79	*89*
SOIA	29.14	*15*	17.19	*34*	0	*0*	33.31	*33*	0	*0*	16.88	*4*	7.92	*4*	57.83	*4*	26.08	*94*
SMF	20.83	*7*	7.73	*11*	21.36	*13*	37.62	*13*	10.04	*7*	2.57	*7*	1.88	*6*	17.60	*6*	17.18	*70*

Table 9: Summary of mean Ksat values (in/hr) and number of samples acquired (N) for study sites during sample periods

Site	Fall 2016	*N*	Spring 2017	*N*	Summer 2017	*N*	Fall 2017	*N*	Summer 2019	*N*	Fall 2019	*N*	Spring 2020	*N*	Fall 2020	*N*	Cumulative	*N*
SHP	55.31	*16*	13.92	*25*	25.59	*7*	34.15	*29*	**0**	*0*	43.69	*4*	35.35	*4*	42.63	*4*	32.46	*89*
SHP-E	65.41	*10*	17.28	*11*	29.36	*3*	35.66	*12*	0	*0*	50.66	*2*	54.75	*2*	51.62	*2*	39.86	*42*
SHP-W	38.48	*6*	11.27	*14*	22.76	*4*	33.08	*17*	0	*0*	36.72	*2*	15.95	*2*	33.65	*2*	25.84	*47*
UNO	55.35	*6*	5.37	*20*	40.69	*17*	15.63	*18*	25.33	*5*	6.89	*7*	5.89	*4*	15.16	*3*	20.71	*80*
UNO-N	76.46	*3*	2.43	*9*	50.36	*8*	4.89	*8*	12.49	*2*	3.68	*4*	3.89	*2*	8.58	*1*	20.25	*37*
UNO-S	34.25	*3*	7.78	*11*	32.09	*9*	24.23	*10*	33.9	*3*	11.18	*3*	7.89	*2*	18.45	*2*	21.10	*43*
FL	18.28	*6*	8.84	*17*	*0*	*0*	24.61	*17*	8.05	*5*	13.65	*10*	0.89	*4*	11.17	*4*	14.34	*63*
FL-E	30.56	*3*	8.2	*12*	*0*	*0*	18.72	*12*	1.26	*2*	6.91	*5*	0.89	*4*	11.17	*4*	11.91	*42*
FL-W	6	*3*	10.39	*5*	*0*	*0*	38.73	*5*	12.58	*3*	20.38	*5*	0.00	*0*	0.00	*0*	19.20	*21*
CRP	4.01	*8*	10.12	*25*	16.47	*25*	15.57	*26*	0	*0*	1.92	*9*	1.09	*5*	8.95	*5*	11.35	*103*
CRP-W	3.09	*4*	9.37	*13*	12.25	*14*	13.84	*14*	0	*0*	0	*0*	0.18	*2*	4.22	*2*	10.37	*49*
CRP-E	4.93	*4*	10.94	*12*	21.85	*11*	17.59	*12*	0	*0*	0	*0*	0.76	*2*	1.05	*2*	14.09	*43*
UTS	12.57	*7*	0	*0*	0	*0*	16.48	*9*	0	*0*	4.88	*6*	0	*0*	42.76	*4*	16.79	*26*
UTS-N	10.88	*3*	0	*0*	0	*0*	7.05	*4*	0	*0*	1.47	*3*	0	*0*	23.48	*2*	9.35	*12*
UTS-S	18.12	*3*	34.93	*7*	0	*0*	24.02	*5*	0	*0*	8.29	*3*	0	*0*	62.05	*2*	28.40	*20*

Table 10: Summary of mean Ksat values (in/hr) and number of samples acquired (N) for individual bioretention systems and/or rain gardens at the nine study sites during sample period.

Site Description	Fall 2016	*N*	Spring 2017	*N*	Summer 2017	*N*	Fall 2017	*N*	Summer 2019	*N*	Fall 2019	*N*	Spring 2020	*N*	Fall 2020	*N*	Cumulative	*N*
Turf	6.3	*14*	3.23	*13*	0	*0*	7.45	*14*	1.8	*6*	1.57	*14*	*0*	*0*	*0*	*0*	4.38	*61.00*
Bioretention - All	23	*59*	11.62	*145*	25.11	*55*	23.94	*146*	13.96	*27*	9.13	*56*	*5.24*	*31*	*30.60*	*33*	18.08	*552.00*
Bioretention Infiltration Cell	19.42	*13*	14.38	*37*	22.66	*15*	20.99	*39*	8.85	*8*	14.94	*15*	*9.39*	*4*	*49.00*	*4*	18.31	*135.00*
Bioretention Basin	24.01	*46*	10.68	*108*	26.03	*40*	25.01	*107*	16.12	*19*	7.01	*41*	*4.63*	*27*	*28.06*	*29*	18.00	*417.00*
Rain Garden	55.31	*16*	13.92	*25*	25.59	*7*	34.15	*29*	0	0	43.69	*4*	*35.3*	*4*	*42.63*	*4*	32.46	*89.00*

Table 11: Summary of mean Ksat values (in/hr) and number of samples acquired (N) from all nine study sites

Sewer Maintenance

Water Quality Assessment

Water quality samples were collected on 10/11/20 at the inflow and outflow locations as depicted in Figure 10. Three inflow grab samples were collected from the curb cut that discharges to the bioswale and conveys flow to the bioretention system, and three outflow samples were collected from the bioretention underdrain via monitoring flume. A blind duplicate was grabbed from the curb cut for validation of lab and field sampling techniques.

Local rain data was unavailable for this site because the rain gauge was taken down before sampling occurred. Data from NWS Weather Station at Eppley Airfield (ID: USW00014942) was used for site analysis. The rain event sampled produced 0.45 inches. Rain started between 10:00 PM and 11:00 PM and the first sample was taken at 10:29 PM (Figure 11). Last measurable rainfall was prior to sampling was 0.03 inches of rain 10/02/2020, 9 days without runoff prior.

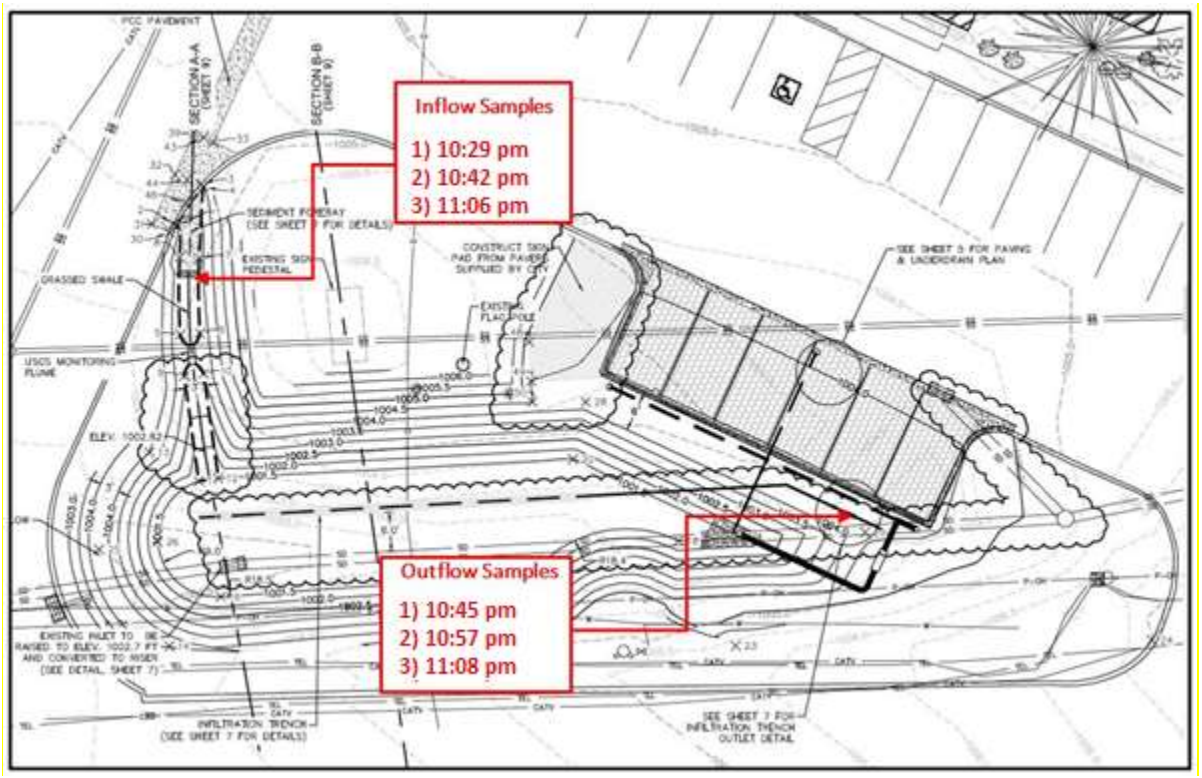


Figure 10: Sewer Maintenance water quality sampling locations

Water quality samples were delivered to Midwest Laboratories in an iced cooler on 10/12/20 at 8:00am when they opened. Water quality samples were tested for Total Kjeldahl Nitrogen (TKN), Nitrate/Nitrite Nitrogen (NO3/NO2-N), Phosphorous (P), Total Dissolved Phosphorus, Total Dissolved Solids (TDS), Total Suspended Solids (TSS), and *E. coli*. Because of the late sample time, the Sewer Maintenance samples had exceeded the allotted holding time for *E. coli* but were tested anyway. The sample holding time from sample collection until sample preparation for *E. coli* by Midwest Laboratories ranged from 15.07 – 15.70 hours. Therefore,

actual concentrations of *E. coli* may be less than reported values. Tables 6 and 7 summarize the results of the water quality testing at the inflow and outflow.

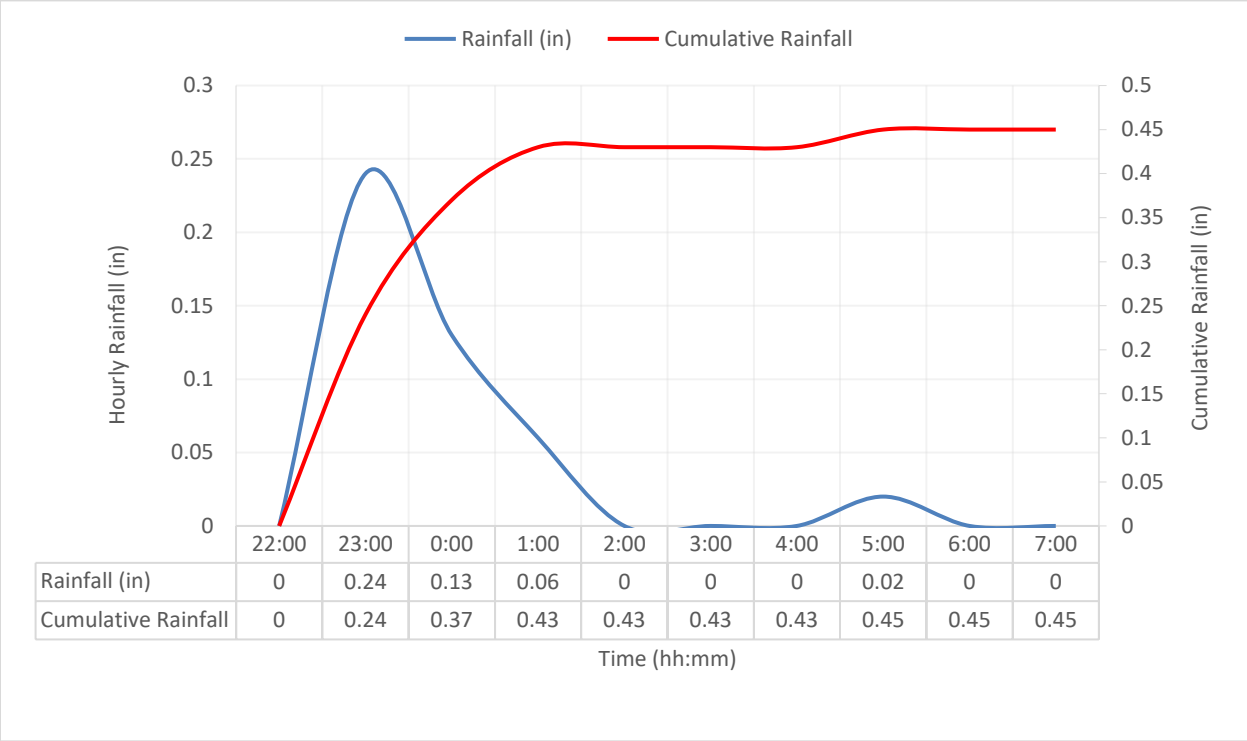


Figure 11: Inflow and outflow sample time during 10/11/20 sample event (0.45 inches)

Lab ID:	**1561806-01**	**1561806-02**	**1561806-03**	**1561806-07**	**Reporting Limit**
Sample Time:	22:29	22:42	23:06		
Constituent	**In 1**	**In 2**	**In 3**	**Duplicate**	
TKN (mg/L)	6.37	1.54	1.42	0.98	0.5
NO2/NO3-N (mg/L)	1.44	0.23	0.46	0.22	0.2
Dissolved P (mg/L)	0.23	0.1	0.12	0.1	0.05
P (mg/L)	2.34	0.17	0.15	0.15	0.05
TS (mg/L)	2070	280	220	187	10
TSS (mg/L)	1810	142	31	92	4
^E. coli (CFU/100mL)	19.7	3	7.4	10.7	1

Table 6: Sewer Maintenance Inflow Water Quality Results

^*E. coli* results are included but may not be representative as the sample holding times exceeded the 6-hour regulatory holding time for *E. coli*

Lab ID:	1561806-04	1561806-05	1561806-06	Reporting Limit
Sample Time:	22:45	22:57	23:08	
Constituent	**Out 1**	**Out 2**	**Out 3**	
TKN (mg/L)	1.71	1.58	1.42	0.5
NO2/NO3-N (mg/L)	0.9	1.19	1.5	0.2
Dissolved P (mg/L)	0.26	0.31	0.31	0.05
P (mg/L)	0.4	0.37	0.28	0.05
TS (mg/L)	333	287	327	10
TSS (mg/L)	86	32	22	4
E. coli (CFU/100mL)	2419.6	2419.6	2419.6	1

Table 7: Sewer Maintenance Outflow Water Quality Results

^*E. coli* results are included but may not be representative as the sample holding times exceeded the 6-hour regulatory holding time for *E. coli*

Average outflow concentrations were higher than average inflow concentrations for NO2/NO3-N, DP and *E. coli*. At the inflow, all of the constituents decreased over time. At the outflow, a decrease with time was also observed, with the exception of NO3/NO2-N and DP. *E. coli* concentrations for the outflow samples exceeded upper limits but may not be representative of actual *E. coli* concentrations due to exceeded holding times.

United State Geologic Survey (USGS) monitoring equipment was in-place at the Sewer Maintenance Facility in 2020 to assess the water balance of the bioretention system, see their summary report in this attachment for more details. Results from 2020 metered events were very low due to multiple factors including removing the underdrain flume and replacing it with an ultrasonic flow sensor and infiltration into the monitoring manhole. Despite not having as many metered events and having some water quality parameters showing an increase in concentration, total pollutant load is most likely reduced due to the reduction in runoff.

USGS Water Balance Assessment

In 2020, the City of Omaha Stormwater Program contracted with USGS to monitor the Sewer Maintenance Facility, which has a bioretention system and permeable pavement parking area. Monitoring at the site characterized the water balance components of 189 stormwater events from 2015-20. On average, during metered events, the bioretention cell redirected approximately 61-percent of the stormwater volume away from the storm sewer through infiltration and evaporative processes. This and other metrics will be considered locally when trying to identify ways to improve performance in other green infrastructure projects. Regionally, those metrics will be put in the context of other cities to evaluate how different soils and climatic conditions may influence the design and performance of otherwise similar green infrastructure projects.

The 2020 monitoring season had several complications that delayed the start of the monitoring season. Finalization of the annual agreement and then the work of underdrain flume removal,

concrete sealing of the underdrain chamber floor, and installation of the ultrasonic sensor and flow control structure delayed the start of the monitoring season until August 12, 2020. This was during a period of regional drought, so only 5 events occurred before freezing conditions ended the monitoring season on October 23, 2020. The first 2 events were marked as unmonitored – the first due to excessive infiltration into the chamber that overtopped the flow control structure and invalidated the underdrain measurements, and the second because of sensor fouling that prevented accurate measurement in the swale inflow.

Several actions were taken in 2020 to prevent infiltration into the underdrain chamber but the issue is not yet fully resolved. Continued efforts to seal the walls of the chamber will be necessary to ensure monitoring of large events.

The bioretention system at the City's Sewer Maintenance facility is functioning as designed and continues to reduce total flow and peak flow rates of stormwater runoff. Vegetation at the site performed very well, continuing to become denser and have a healthy overall look to it. The percent water removal dropped to 13% in 2020 on three metered event, but this is likely not representative of the overall effectiveness of the system in 2020. With repairs to the monitoring manhole and recent work in early 2021, 2021 will likely provide much better data. Monitoring will continue with USGS as well as water quality monitoring in 2021.

2020 Green Infrastructure Monitoring at the Omaha Sewer Maintenance Facility

Provided by: USGS

Project Title: Green Infrastructure Monitoring at the Omaha Sewer Maintenance Facility

Monitoring Objectives:

- To characterize the water balance components of a green infrastructure project during storm events.
- To demonstrate green infrastructure performance in the soils and climate of Omaha, Nebraska for comparison to other sites nationwide.

Monitoring Approach: The project site was selected through consultation with the City of Omaha in anticipation of the design and construction of a green infrastructure project at their Sewer Maintenance Facility near 69th and Q Streets. The project included permeable pavers in sequence with a bioretention cell, and monitoring equipment was incorporated into the design. The project was designed in 2013, constructed in 2014, and non-winter monitoring occurred from 2015-20.

The water balance was measured in the bioretention cell in the following manner: inflow into the bioretention cell was measured by a cutthroat flume at one entrance to the cell and by a Palmer Bowlus flume to capture the flow entering the cell through the permeable pavers. Flow out of the cell through an underdrain was measured by a Palmer Bowlus flume installed on the underdrain pipe. Due to construction of the underdrain pipe at a slope greater than that specified in the design, the data from this underdrain flume was often compromised by critical velocities. More recently, this flume was also impacted by leakage into the monitoring chamber. In 2020 the underdrain flume was removed and replaced with an ultrasonic flow sensor (and flow control structure to maintain pipe-full conditions) and full system monitoring began on August 13, 2020. Overflow leaving the cell through a standpipe during high-volume events was estimated by treating the standpipe opening as a weir and measuring the depth of water above the standpipe. Potential evapotranspiration was measured by a Campbell Scientific ET107 system, and rainfall was measured using a tipping bucket mechanism. Infiltration was estimated as the residual of that water balance.

Soil moisture was monitored using Time Domain Reflectometry probes distributed within and adjacent to the bioretention cell in an attempt to identify wetting fronts moving vertically as well as laterally. However, these data were problematic in their collection and interpretation, likely as a result of preferential flow-paths being introduced by the sensor cables in the clay-loam soils, especially when standing water was occurring. These data were evaluated this fall and the discussion is included below. Of the 32 soil moisture probes installed in the bioretention cell, seven were classified as invalid (with no useable data), six were classified as valid but not representative (with good data that are likely influenced by preferential flow along the cables), and the remaining 19 probes were classified as valid and representative. All valid data will be published in the USGS system.

Preliminary Results:

Monitoring at the site characterized the water balance components of 189 metered stormwater events from 2015-20. These monitoring data are published in the USGS National Water Information System under station number 411219096010601. On average, during metered events, the bioretention cell redirected approximately 61-percent of the stormwater volume away from the storm sewer through infiltration and evaporative processes. This and other metrics will be considered locally when trying to identify ways to improve performance in other green infrastructure projects. Regionally, those metrics will be put in the context of other cities to evaluate how different soils and climatic conditions may influence the design and performance of otherwise similar green infrastructure projects.

The 2020 monitoring season had several complications that delayed the start of the monitoring season. Finalization of the annual agreement and then the work of underdrain flume removal, concrete sealing of the underdrain chamber floor, and installation of the ultrasonic sensor and flow control structure delayed the start of the monitoring season until August 12, 2020. This was during a period of regional drought, so only 5 events occurred before freezing conditions ended the monitoring season on October 23, 2020. The first 2 events were marked as unmonitored – the first due to excessive infiltration into the chamber that overtopped the flow control structure and invalidated the underdrain measurements, and the second because of sensor fouling that prevented accurate measurement in the swale inflow.

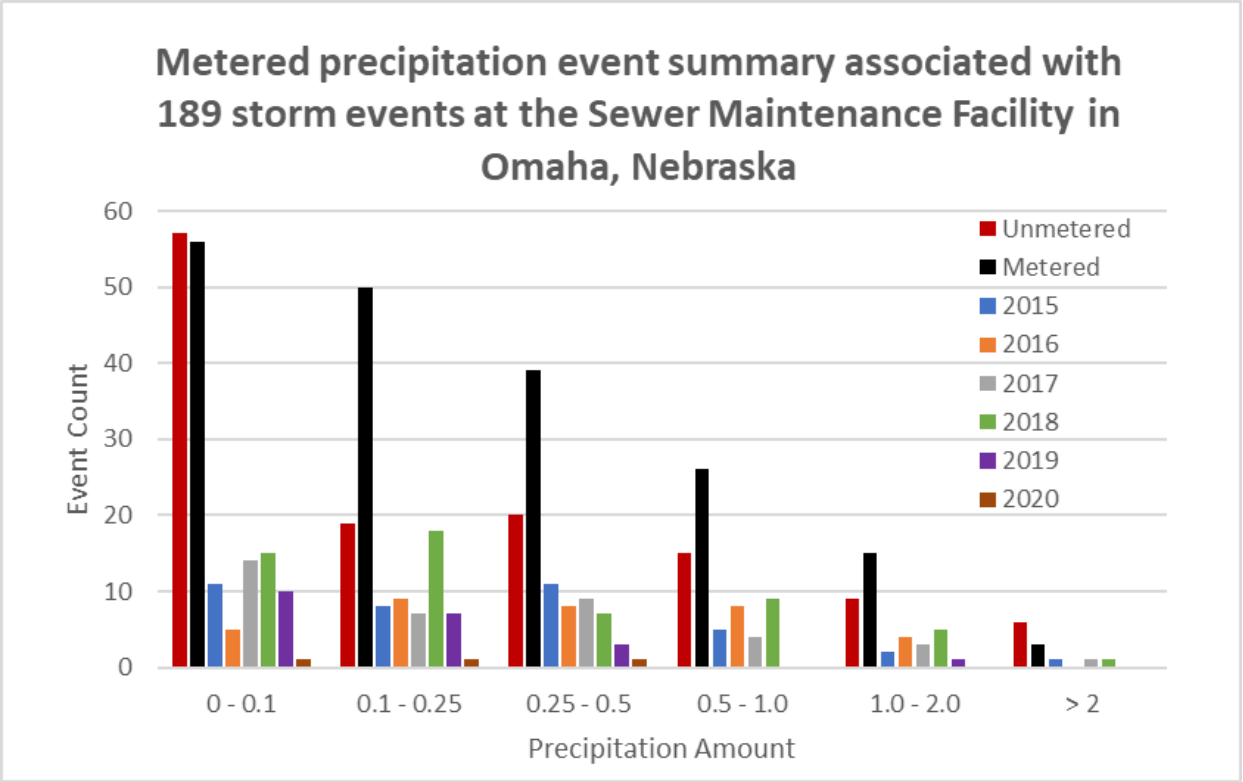
Several actions were taken in 2020 to prevent infiltration into the underdrain chamber but the issue is not yet fully resolved. Continued efforts to seal the walls of the chamber will be necessary to ensure monitoring of large events.

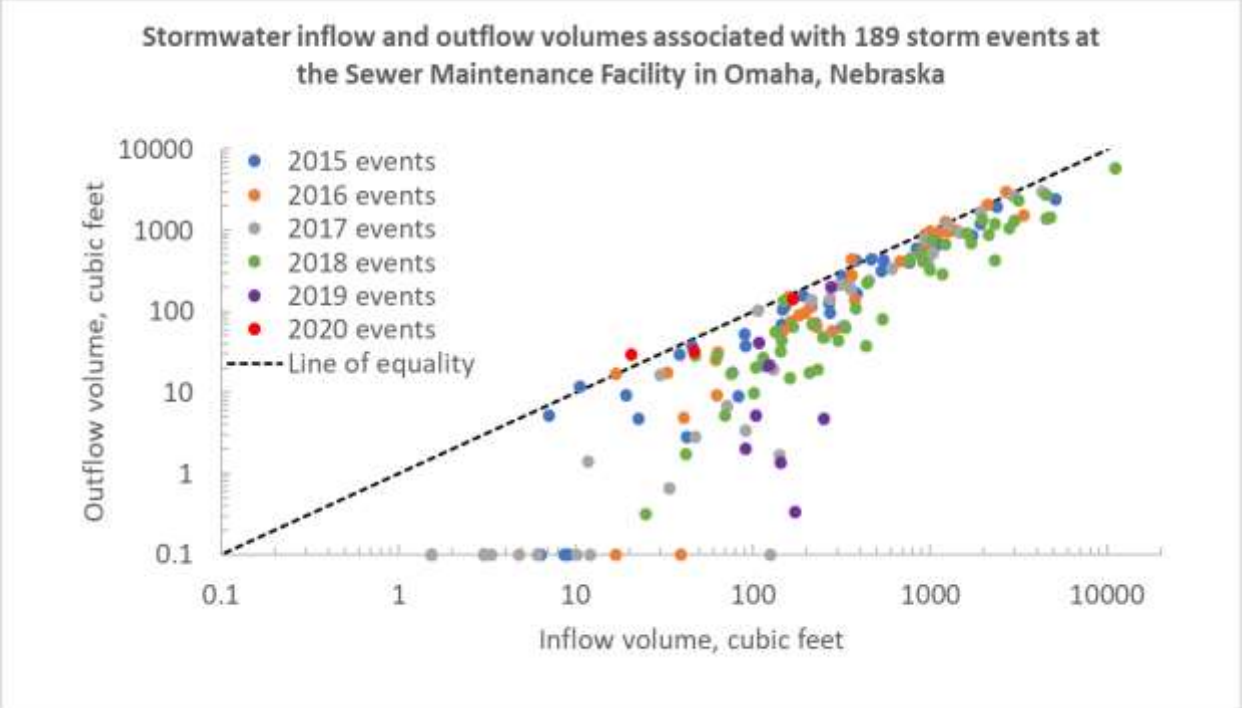
Measured stormwater removed from the storm sewer system by the bioretention cell at the Omaha Sewer Maintenance Facility.

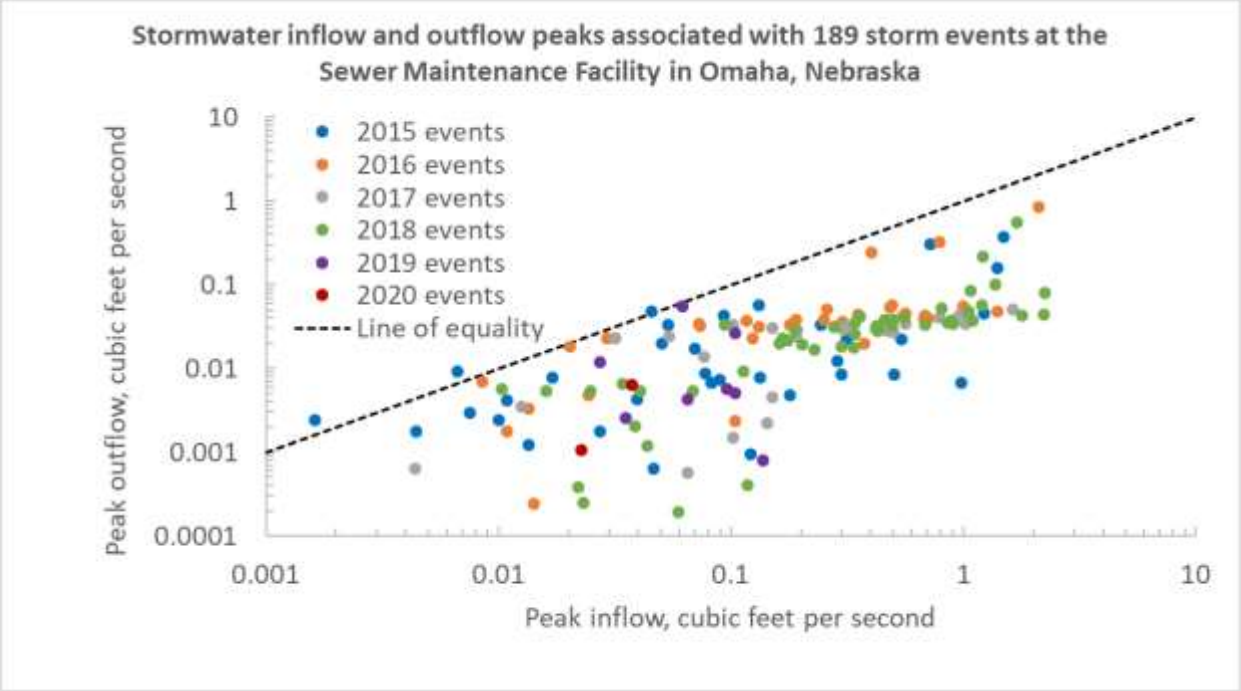
	Number of metered events	Number of unmetered events	Metered Inflow volume, cubic ft	Metered Outflow volume, cubic ft.	Removal, cubic feet	Removal, percentage	Average peak reduction, percent	Maximum peak reduction, percent
Total	187	125	119,292	68,531	50,761	43%	79%	100%
2015	38	24	19,063	11,360	7,703	40%	73%	100%
2016	34	28	22,512	17,532	4,980	22%	76%	100%
2017	39	22	19,562	13,335	6,227	32%	89%	100%
2018	55	4	58,154	26,303	31,851	55%	91%	100%
[1]2019	21	38	1,813	274	1,539	85%	91%	100%
[2]2020	3	2	236	206	30	13%	41%	95%

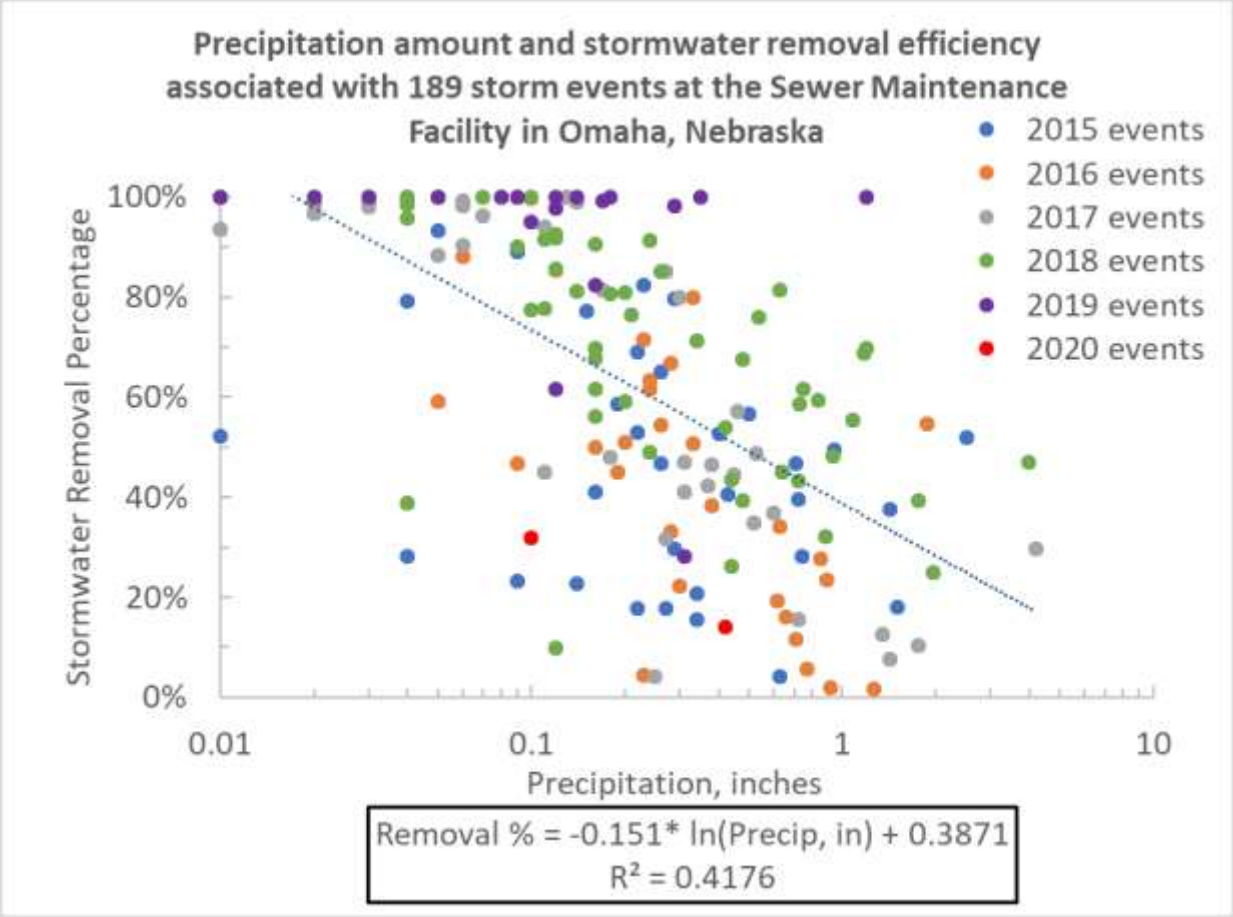
[1] External leakage into the underdrain flume in 2019 compromised water balance measurements on precipitation events generally greater than 0.3 inches, and so the 2019 metrics represent only small events.

[2] Monitoring did not begin until August 12, 2020 due to underdrain maintenance.


Metered precipitation event summary associated with 189 storm events at the Sewer Maintenance Facility in Omaha, Nebraska
Event Count
60
50
40
30
20
10
0
Unmetered
Metered
2015
2016
2017
2018
2019
2020
0 - 0.1
0.1 - 0.25
0.25 - 0.5
0.5 - 1.0
1.0 - 2.0
> 2
Precipitation Amount


Stormwater inflow and outflow volumes associated with 189 storm events at the Sewer Maintenance Facility in Omaha, Nebraska
Outflow volume, cubic feet
10000
1000
100
10
1
0.1
2015 events
2016 events
2017 events
2018 events
2019 events
2020 events
Line of equality
0.1
1
10
100
1000
10000
Inflow volume, cubic feet

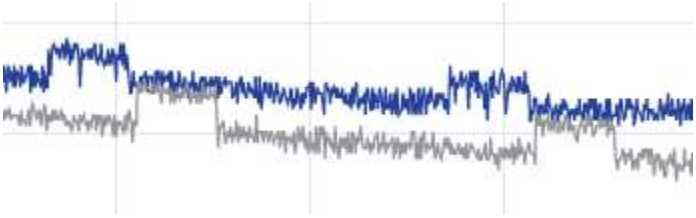

Stormwater inflow and outflow peaks associated with 189 storm events at the Sewer Maintenance Facility in Omaha, Nebraska
Peak outflow, cubic feet per second
10
1
0.1
0.01
0.001
0.0001
0.001
0.01
0.1
1
10
Peak inflow, cubic feet per second
2015 events
2016 events
2017 events
2018 events
2019 events
2020 events
Line of equality


Precipitation amount and stormwater removal efficiency associated with 189 storm events at the Sewer Maintenance Facility in Omaha, Nebraska
Stormwater Removal Percentage
100%
80%
60%
40%
20%
0%
0.01
0.1
1
10
Precipitation, inches
2015 events
2016 events
2017 events
2018 events
2019 events
2020 events
Removal % = -0.151* ln(Precip, in) + 0.3871
R² = 0.4176

Soil Moisture Analysis

A survey of the soil moisture data was done to assess the quality and potential usefulness of the data for deeper analyses related to the water balance and soil hydrology of the bioretention cell. Several locations showed an improvement in the data beginning in 2017, presumably from the soil settling around the probes to give more representative readings. The readings of the probes are temperature dependent (positive influence) and the correction factor is not applied during data collection. Applying the manufacturer's temperature correction equation to the data generally produced results with stable saturation values, although some fine-tuning of the coefficients of the equation may be warranted to adjust for the soil properties at the site.

Some sites showed a binary response in the readings, with the value jumping slightly and then returning abruptly to the prior value after a few hours. This occurred primarily at locations C, D, and E, but the general trends and response to wetting seem unaffected. The sensor manufacturer was asked about this and they believe that there is electrical noise in the area (maybe from a pump or generator) that provides interference with the probe operation.



An example of the binary behavior of probes from 2 depths in the same profile (2 and 3 ft in hole D).

Overall, the uppermost probes at each location are the most reliable relating to timing of wetting. When deeper probes respond to wetting at the same time as the surface probe, preferential flow along the cables to the deeper depths is suspected and the usefulness of data for vertical infiltration studies is likely compromised (six probes that were classified as valid but not representative). This occurred most prominently in the locations that had standing water in the bioretention cell (locations C, D, E). While preferential flow may be occurring for the surface probes, the lack of a shallower reading and the proximity of the probe to the soil surface give no justification for discarding the data.

Of the 32 soil moisture probes installed in the bioretention cell, seven were classified as invalid (with no useable data), six were classified as valid but not representative (with good data that are likely influenced by preferential flow along the cables), and the remaining 19 probes were classified as valid and representative. All valid data will be published in the USGS system.

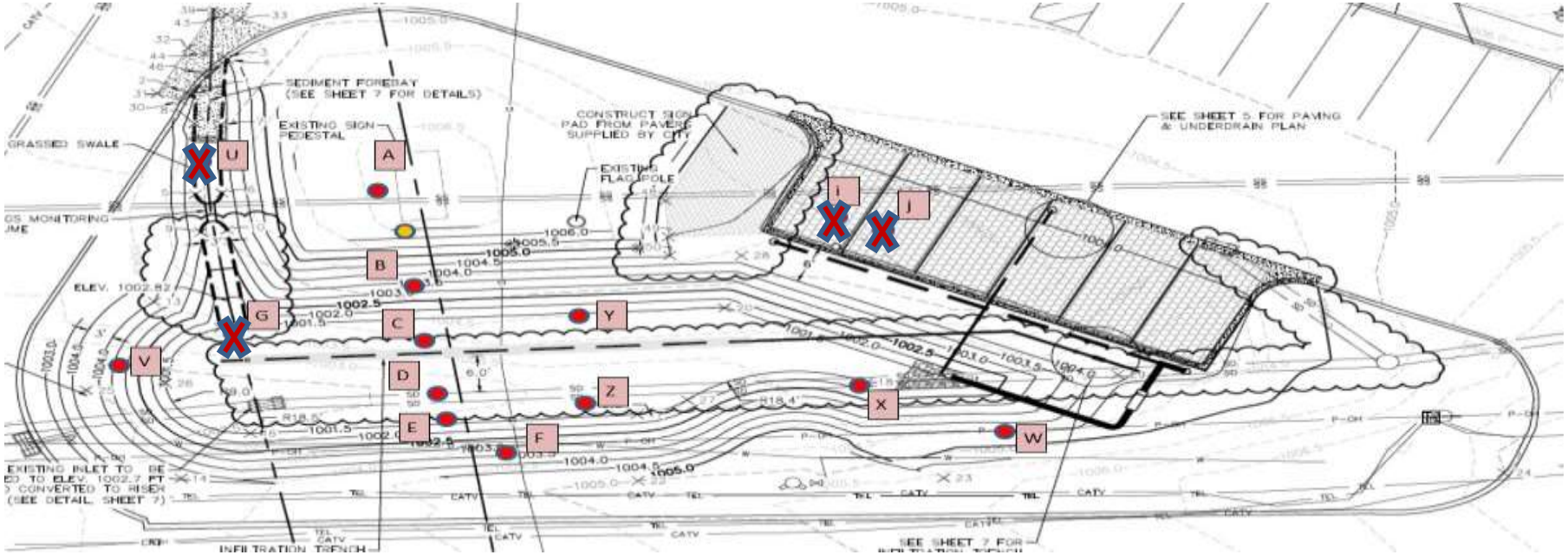
Locations A, B, and F are on the raised edges of the bioretention cell above the water line associated with the overflow. Therefore, these data are less likely to be compromised by preferential flow along the cables. An assessment of several events showed rapid wetting at depth and indicate vertical infiltration was occurring. Data from these locations could potentially be used in horizontal infiltration studies, but in this analysis potential horizontal infiltration could not be distinguished from vertical infiltration.

The data from seven probes show either no stabilization of readings or no response to wetting events and is classified as invalid and is not usable.

Overall, 19 probes were classified were classified as valid and representative. All valid data will be published in the USGS system.

Below is a table summarizing the soil moisture analysis, a map of the bioretention cell showing the location of the soil moisture probes, and a matrix of the cross-sectional probes and the response to a rain event.

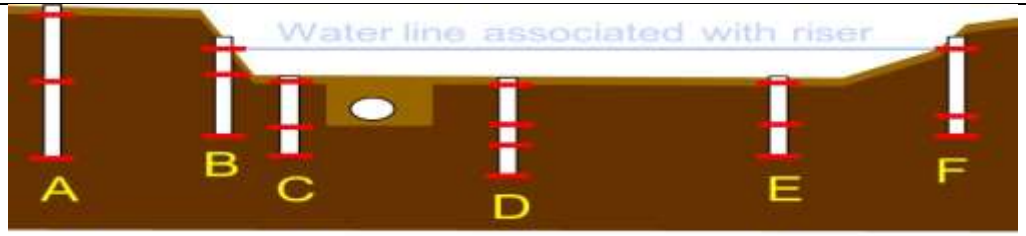
Location	Probe Depth(s) – ft	Assessment
A	0.5, 3, 6	Valid and representative, deeper probes are often saturated
B	0.5, 1, 3	Valid and representative beginning mid-year 2017
C	0.5, 1.5, 2.5	0.5 valid and representative, 1.5 and 2.5 valid but not representative beginning mid-year 2017 - likely influenced by preferential flow along the cable and not useful for vertical infiltration studies
D	0.5, 1.5, 2, 3	0.5 valid and representative, 1.5, 2, and 3 valid but not representative - likely influenced by preferential flow along the cable and not useful for vertical infiltration studies
E	0.5, 1.5, 2.5	0.5 and 1.5 valid and representative, 2.5 valid but not representative - likely influenced by preferential flow along the cable and not useful for vertical infiltration studies
F	0.5, 2.5, 3	Valid and representative
G	0.5, 1.5, 2.5	0.5 limited valid and representative - (recession curves only starting in 2018), 1.5 and 2.5 invalid
I	0.5, 1.5	Invalid
J	0.48, 1.5	Invalid
U	0.5	Invalid
V	0.5	Valid and representative
W	0.5	Valid and representative
X	0.5	Valid and representative
Y	0.5	Valid and representative
Z	0.5	Valid and representative

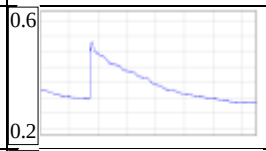
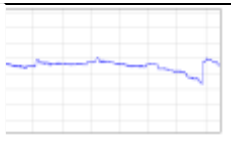
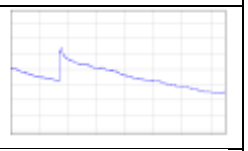
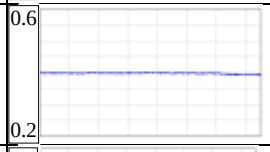
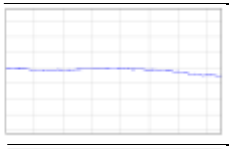
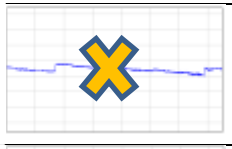
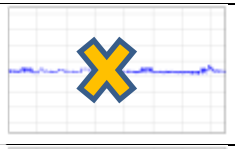
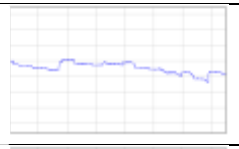
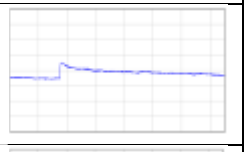
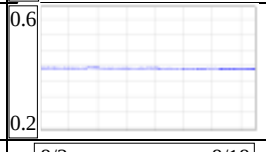
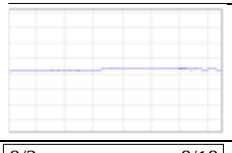
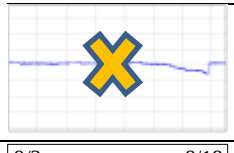
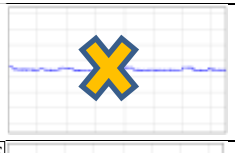
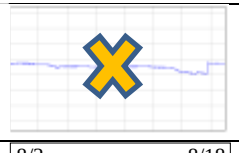
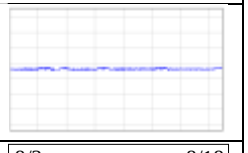
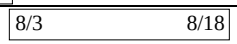
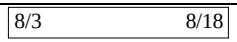
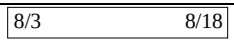
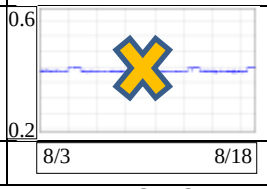
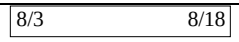
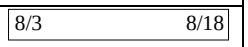


Map showing the location of soil moisture sensors and the letter name given to each location. X - invalid data

Example soil moisture responses to rainfall event of August 6, 2020. ✖ - data valid but not representative

Water depth in the cell (ft):

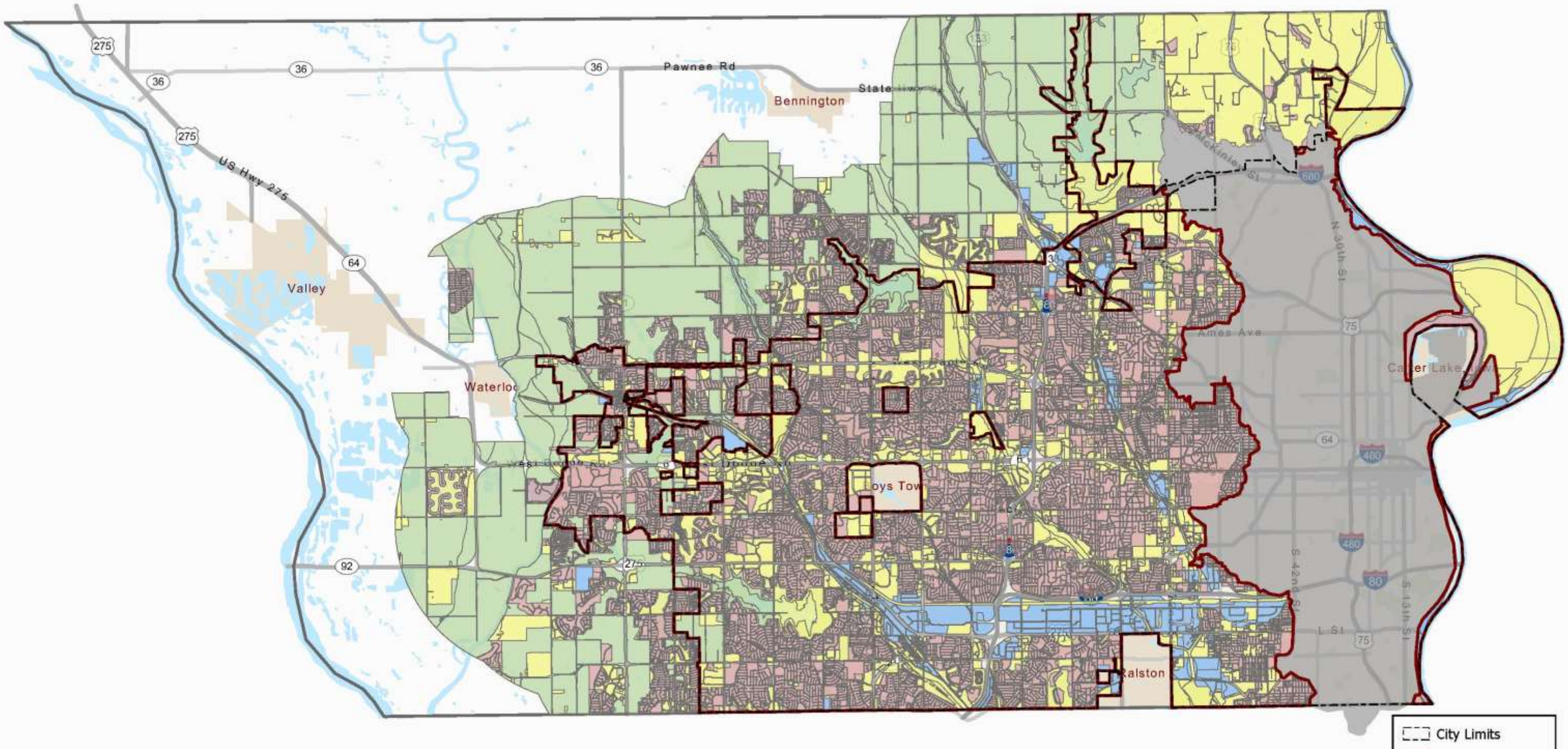


	A	B	C	D	E	F
Shallow						
Mid						
Deep						
Deep #2						

All axes values are approximate. Y-axis is volumetric water content with units of m^3/m^3. X-axis is date in 2020.

ATTACHMENT I

City of Omaha MS4 and ETJ Land Use



City of Omaha Land Use - Sq Mile

Land Use	Omaha	ETJ	Total
Agricultural	5.05	54.23	59.24
Commercial	27.02	21.85	46.71
Industrial	7.17	1.09	8.25
Residential	46.11	13.98	59.98

ATTACHMENT J

Municipal Storm Sewer System (MS4) Map (GIS) Update Strategy

(Revision date: 2/16/21)

The City of Omaha Sewer Maintenance Division of Public Works maintains the GIS layers for the MS4. There are two GIS layers that comprise the MS4 map, sewer lines and sewer nodes. New storm sewers and nodes, including outfalls, are mapped in GIS as part of the design plan approval process. Once the as-built plan is complete, the GIS is updated with the as-built information. Permanent water quality BMP locations are included in the sewer lines and nodes.

Storm sewer GIS updates from field work, annexations, and other sources are completed by Sewer Maintenance Division of Public Works.

The City of Omaha Environmental Quality Control (EQC) maintains a GIS layer for outfalls that is based upon the Sewer Nodes layer maintained by the City of Omaha Sewer Maintenance Division as described above. This layer is used by EQC for outfall asset management within the CityWorks program, including dry-weather screening locations. EQC also maintains layers based on sewer lines and nodes for permanent water quality BMPs as part of its asset management within the CityWorks program.

The state-designated waters layer is created by importing GIS data from the United States Geological Survey (USGS) and relating it with the Waterbodies layer maintained by DOGIS. The Waterbodies layer is created with LiDAR data from DOGIS. The LiDAR data is updated approximately every 3 years for the City. This layer includes polygons of all bodies of water, regardless of whether it is a Waters of the State or US. The USGS data is used to provide current and consistent information regarding receiving waters in and around the City of Omaha and avoid confusion with other, non-regulated waterbodies that are captured as part of the LiDAR data. The Douglas-Omaha GIS (DOGIS) Department maintains this layer.

Land use for drainage areas is derived from the zoning code GIS layer that is maintained the by the Planning Department.

GIS layers described above meet the requirements for maintaining an updated MS4 map, including the following, at a minimum:

1. The geographic location and identification number of all known MS4 outfalls and the boundary of drainage areas contributing to those outfalls;
2. The location of all state-designated waters receiving direct discharges from MS4 outfall pipes;
3. Dry-weather field screening locations;
4. Storm drain infrastructure and collection system;
5. Permanent water quality BMP locations; and

Land use within outfall drainage area boundaries.

ATTACHMENT K

2020 REPORT

Keep Omaha Beautiful

KOB'S EFFORTS RELATED TO STORMWATER

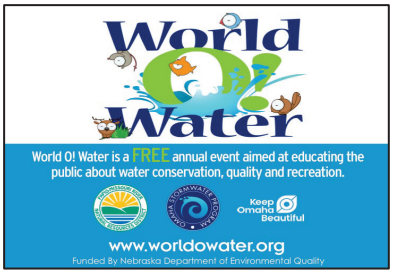
Marking Storm Inlets

AGREEMENT: KOB shall organize the marking of storm inlets with discs warning that illegal dumping is prohibited and that storm drains are connected to open bodies of water. KOB will recruit, train, and coordinate volunteers to perform the markings and distribute educational door hangers to area residents regarding how to prevent water pollution. KOB will document the number of storm inlets marked, the locations and the year the markings occurred, the number of educational door hangers distributed, and the results of the related online assessment survey. KOB will also track the number of volunteers involved and total number of volunteer hours completed.

RESULTS:

- **Discs** – KOB volunteers installed "No Dumping / Drains to Waterways" discs on 4,107 storm drains, which is an increase of 31% from last year's record of 3,060. Contractors for the City's Public Works Department also obtained 135 discs and installed them over the course of the year. In addition, volunteers cleaned out 136 drains that already had discs.
- **Door Hangers** – As part of this program, KOB normally asks volunteers to distribute English/Spanish "Only Rain Down the Storm Drain" educational door hangers to residents living near the marked storm drains. However, given the COVID-19 pandemic and social distancing guidelines, we felt it was prudent for volunteers to refrain from approaching people's homes and hanging the educational items on door handles. Typically, volunteers distribute door hangers to at least two homes per installed disc. In light of this, had the pandemic not occurred, we estimate that volunteers would have distributed roughly 8,200 door hangers (this would have far exceeded last year's record of 5,448 door hangers).
- **Community Survey** – In addition to encouraging people to never dump anything down a storm drain and highlighting simple actions that residents can take to prevent stormwater pollution, the educational door hangers also advertise an incentive (i.e., monthly gift certificate drawing) for completing an online assessment. We would typically report the results of the online survey; however, we are unable to provide any data given that volunteers did not distribute door hangers this year due to COVID-19.
- **Volunteers** – Despite the pandemic which reduced volunteer interest, 138 volunteers (49 youth and 89 adults) were involved in the Only Rain Down the Storm Drain program this year, providing a total of 1,220 hours of community service (last year = 1,601 hours).
- **Tracking File** – KOB staff updated the City's GIS system with the marked storm drains. The **2020 Tracking Google Document for EQC** also notes the locations of the marked storm drains, the month they were marked, and additional information about volunteers (e.g., organizations/families/troops involved).

World O! Water



AGREEMENT: KOB shall assist with the planning, coordination, promotion, and evaluation of the World O! Water event, which engages the public on issues related to water conservation, pollution, and recreation. KOB's role will include helping with advertising, recruiting and coordinating volunteers, securing new event partners and vendors, reserving equipment for the event, coordinating waste reduction efforts, and surveying event attendees.

RESULTS:

- **Event Support & Participation** – Due to the pandemic, the City of Omaha decided to convert the World O! Water (WOW) festival into a virtual event. The City reported that the event website received 559 visitors. In support of the virtual festival, KOB developed an educational video with hands-on activities related to testing water quality and evaluating the health of aquatic ecosystems. In addition, we reviewed and edited content on the website, provided recommendations regarding modifications to the site layout and user interface, and digitally promoted the event achieving 66,249 impressions and 1,549 engagements.
- **Feedback Survey** – The virtual event/website did not include functionality to capture feedback from visitors. Thus, KOB was unable to conduct a follow-up survey to assess satisfaction levels, knowledge gained, perceived benefit, etc.

Public Awareness Communications

AGREEMENT: KOB shall develop public awareness communications that promote stormwater protection and educate the community about the impacts that specific human activities have on water quality. KOB will document the number of announcements, the type of media, the specific topic addressed, and the dates that the announcements were made.

RESULTS:

- **Social Media & E-Newsletters** – KOB developed and paid for boosted, educational Facebook/Instagram posts covering virtual events and a variety of topics including: HHW & UnderTheSink, appropriate disposal of fireworks waste, the virtual World O! Water festival, stormwater benefits of native trees/plants and green infrastructure, and various actions people can take to prevent stormwater pollution. In addition, KOB sent out a monthly e-newsletter to our distribution list covering various stormwater pollution topics and virtual events. In total, these posts and e-newsletters achieved 393,540 impressions and 22,486 engagements (last year's record = 146,492 impressions and 12,004 engagements).
- **Video & Webpage Views** – In addition to the *Only Rain Down the Storm Drain* volunteer training video and the *How to Use UnderTheSink* video that KOB previously produced and continued to promote, KOB also professionally developed two videos in 2020 related to stormwater. One focuses on demonstrating how local litter and stormwater pollution can impact the Papillion Creek Watershed and ultimately the Gulf of Mexico (entitled *Protecting our Waters*), which was released in late October in conjunction with KOB's Youth LitterBusters event. We also developed a video demonstrating how to appropriately dispose of firework waste to help prevent stormwater pollution, which was promoted around the Independence Day holiday. A total of 804 people viewed these educational videos via YouTube and Facebook. In addition, 2,356 individuals visited KOB webpages related to stormwater (Only Rain Down the Storm Drain, Firework Waste Disposal, etc.); last year's total was 911 visitors.
- **Tracking File** – The **2020 Tracking Google Document for EQC** notes additional details about paid advertising/outreach and free media coverage (e.g., date of the advertising or media coverage).

Household Hazardous Waste

AGREEMENT: KOB shall distribute brochures provided to them by the City of Omaha or developed by KOB regarding the proper disposal of household hazardous waste (HHW) and promote the use of the HHW facility, UnderTheSink. KOB will document the distribution outlets as well as the number and type of brochures distributed.

RESULTS:

- **Brochures** – Prior to mid-March and the onset of the pandemic, KOB distributed 913 brochures that highlighted UnderTheSink and the appropriate disposal of HHW (519 of KOB's *Disposing of Household Chemicals* brochure and 394 of the City's *Water Pollution Comes in Many Forms* brochure). After mid-March, KOB refrained from distributing brochures per COVID-19 safety protocols. The estimated total number of distributed brochures would have likely eclipsed last year's total of 2,212 had the pandemic not occurred.
- **Door Hangers** – As noted in the "Marking Storm Inlets" section of this report, KOB did not ask volunteers to distribute "Only Rain Down the Storm Drain" educational door hangers to homes near marked storm drains this year (due to COVID-19 safety concerns). The door hangers promote the UnderTheSink facility and how to appropriately dispose of HHW.
- **Tracking File** – A full list of distribution outlets and dates, along with the type and number of brochures passed out, is included in the **2020 Tracking Google Document for EQC**.

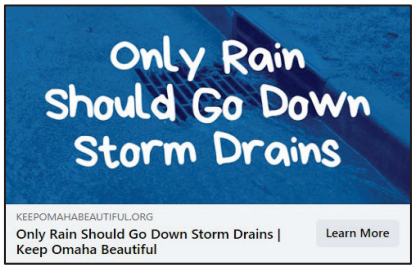
School-Based Educational Activities/Presentations

AGREEMENT: KOB shall conduct age-specific educational activities with youth in Omaha schools regarding the topics of water conservation, water quality, and storm water management. KOB will document the date and location of activities as well as the number of activities conducted, the participants involved, and the percentage of activities that integrate service learning.

RESULTS:

- **Participants & Service-Learning** – Prior to mid-March and the beginning of the pandemic, KOB conducted in-person educational activities at metro area schools. Starting in April, we transitioned to virtual programming. In total, we provided 15 onsite/virtual lessons for 427 school youth and their classroom teachers. This is a significant reduction from last year's total of 2,709 participants due to challenges posed by the pandemic (i.e., restrictive hybrid school schedules and the inability for outside providers to conduct onsite programming). In addition, there were fewer integrated service-learning opportunities given the pandemic. A total of 33% of our activities with school youth incorporated service-learning elements (last year = 66%). Had the COVID-19 outbreak not occurred, we estimate that we would have worked with roughly 3,000 school youth and achieved a service-learning rate of around 75%.
- **Teacher Trainings** – We conducted five onsite/virtual teacher training workshops for 207 educators, significantly exceeding last year's record of 89 participants. The workshops focused on the topic of water (i.e., water pollution prevention, impacts of pollutants on aquatic ecosystems, native trees/plants & green infrastructure, water conservation, etc.). Through these workshops, teachers became certified in the environmental education curriculum and learned how to effectively integrate it into their classrooms. The educators who completed our workshops will reach a total of 4,112 students on an annual basis.
- **Tracking File** – The **2020 Tracking Google Document for EQC** notes additional details about KOB's school-based education efforts connected to stormwater management & pollution prevention (e.g., presentation date, location, etc.).

Community-Based Educational Activities/Presentations



AGREEMENT: KOB shall conduct presentations at community outreach events that educate citizens about the City of Omaha's Stormwater Program and how to prevent water pollution. KOB will document the type and number of presentations conducted, and the estimated number of participants involved. KOB will also track the date that the presentation was conducted and the location and name of each event.

RESULTS:

- **Participants** – In light of the pandemic, KOB transitioned to virtual, community-based programming in April. But in September, given the reduced COVID-19 levels at the time, we conducted two outdoor, in-person service-learning events that followed strict safety guidelines. The events were very successful and safe given the protocols that were put in place, but we decided to discontinue in-person events again shortly thereafter due to increases in COVID-19 cases. Our online programming consisted of providing virtual activities for summer school sessions (e.g., Completely Kids), hosting Facebook Live events & webinars, and developing educational lessons that caretakers (and teachers) could use with their children. We worked with a total 62 individuals via "live" onsite or virtual events, and our online educational lessons and webinars/videos were accessed by 2,072 individuals. Even though a true comparison is challenging given the virtual programming element, the figure from this year exceeds last year's total of 1,113 community participants.
- **Tracking File** – The **2020 Tracking Google Document for EQC** notes additional details about KOB's community outreach efforts connected to stormwater pollution prevention (e.g., event date, location, etc.).

Litter Cleanups Near Dam Sites & Streams

AGREEMENT: KOB shall recruit and coordinate volunteers to collect litter near streams and dam sites, as well as other public areas that have storm water management features (green infrastructure) or a body of water nearby. KOB will document the areas addressed, the number of volunteers involved, the total number of volunteer hours completed, the dates of the cleanup activities, and the number of bags of litter collected.

RESULTS:

- **Cleanups** – This year, KOB volunteers conducted 630 litter cleanups, which is less than last year's record of 772, but is still impressive given the challenges of the COVID-19 pandemic and the impact on volunteer interest. Unlike previous years in which we typically worked with large groups and organizations, the vast majority of the cleanups in 2020 were conducted by individuals, families, and small Adopt-A-Spot partners. Out of the 630 litter cleanup events that KOB volunteers conducted this year, 291 of the cleanups involved a lake/dam site (e.g., Zorinsky Lake Park), a park/trail in close proximity to a water body (e.g., Seymour Smith Park, Keystone Trail, etc.), or a stream bank cleanup (e.g., Hell Creek). Last year's total was 288 cleanups.
- **Volunteers & Service Hours** – A total of 1,705 volunteers (597 youth and 1,108 adults) participated in these 291 litter cleanups, providing 3,544 hours of service to the community (last year's totals = 3,299 volunteers and 6,484 service hours).
- **Bags of Litter Collected** – The volunteers collected 1,742 bags of litter (trash & recycling) from the noted areas, which is a reduction from last year's total of 2,466 bags.
- **Tracking File** – The **2020 Tracking Google Document for EQC** notes additional details about KOB's litter cleanups for the year, including date, location, families/organizations involved, etc.