

MUNICIPAL SEPARATE STORM SEWER SYSTEM PERMIT 2020 ANNUAL REPORT

FOR THE LEXINGTON CAMPUS OF THE



General Permit Annual Compliance Report Phase II MS4

Kentucky Division of Water

2020 GENERAL PERMIT ANNUAL COMPLIANCE REPORT

Phase II Stormwater MS4
Kentucky Division of Water

For questions regarding this form, contact:
Lucas Hanks
ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Water
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601
Phone: (502) 782-0143

NOTE:

- In order to comply with KPDES sMS4 permits, annual reports must be submitted to the Kentucky Division of Water.
 - Please type or print in ink.
 - Please answer all questions **thoroughly** and return the form by the due date.
 - Return this form and any required addenda to the KDOW MS4 Coordinator at the address listed in the box on the upper-right or through the eForms Portal.
- <https://dep.gateway.ky.gov/eForms/default.aspx?FormId=50>
- eForms Portal submittals preferred.
 - Due April 15, 2021.

REPORTING YEAR
(Check one)

- 2018
 2019
 2020

PART A: GENERAL INFORMATION—MS4 OPERATOR

1. Report Completed By: University of Kentucky
(MS4 Operator — i.e., name of permit holder)

2. Permit Number: K Y G 2 0 0 0 5 2 AI #: 1104 4. Population 45,000 (31,000 Students, 14,000 Employees)

5. Mailing Address
Street Address: 355 Cooper Drive

City of: Lexington, KY Zip: 40506 County: Fayette
 County
 Other

PART B: GENERAL INFORMATION—CONTACT PERSON

6. Contact Person Name (please print): Kevin Lewis

7. Contact Person Title: Water Quality Compliance Manager

8. Phone Number: 859-257-0093

9. Facsimile Number (if applicable): 859-323-6274

10. E-mail Address (if applicable): kevin.lewis@uky.edu

PART C: CONTROL MEASURE ACTIVITIES

11. For the following items, please provide a summary of control measure activities related to sMS4 performed during the previous year. List any updated measurable goals from the Stormwater Quality Management Plan (SWQMP), compliance activities, Best Management Practices (BMP) installed or initiated, and updated or developed regulatory mechanisms with effective dates.

A. Public Education and Outreach:

Provide a summary of your public education/outreach efforts during 2020:

The majority of public education and outreach efforts in 2020 were completed by the members of the University of Kentucky (UK) Stormwater Stakeholder Advisory Committee that form the MCM 1 Subcommittee, which consists of staff from the Kentucky Water Resources Research Institute (KWRRI), Tracy Farmer Institute for Sustainability and the Environment (TFISE), UK Environmental Management Department (EMD), UK Cooperative Extension (Extension), and UK's Office of Sustainability (Sustainability). The primary goals of 2020 were to continue to improve and formalize the overall outreach and education program while expanding educational opportunities for UK's public. This was accomplished by providing specific annual goals, creating new opportunities, and coordinating efforts between the various parties already providing outreach, education, and participation opportunities at UK.

The following efforts took place in 2020 to strengthen the education, outreach, and participation program.

- 1.A
 - Employ interns to assist TFISE in education and outreach activities—A graduate student was hired in 2019 to assist with MCMs 1 and 2 efforts. His employment continued through 2020. His job description includes providing support in the implementation of MCMs 1 and 2 activities related to UK's MS4 permit. Activities include, but are not limited to, development of GIS story maps, development of stormwater education materials, design and construction of stormwater educational aids, and assisting with stormwater educational outreach events.
 - Development of partnership with TFISE—In 2018, the partnership between EMD and TFISE was developed and continued throughout much of 2019. However, organizational and personnel changes in and around TFISE led to complications and a need to review this management approach to UK's outreach and education efforts. A partnership with KWRRI was sought but is not possible due to the heavy workload of its personnel. EMD began and is continuing discussions with Sustainability regarding the possibility of partnering to complete the MCMs 1 and 2 efforts. A decision on how to proceed is critical to the development of a formal outreach and education program. Moving forward, changes to the program will likely require additional review and modification of the target completion dates for MCMs 1 and 2 related to SWQMP tasks.
 - Budget Development—A budget for MCMs 1 and 2 was developed and approved (see the following and the discussion for MCM 2 for more information) in 2018. This budget included funding for the establishment of internships (two for fall, two for spring, and two for the summer) to assist with accomplishing the Outreach, Education, and Participation program tasks.

The following efforts are related to the update and maintenance tasks associated with the Stormwater website.

- 1.B
 - A portion of EMD's website is specifically devoted to stormwater management issues. Located at <https://ehs.uky.edu/env/overview.php>, this website continues to serve as a means of providing information regarding UK's stormwater program. Completed in 2010, this website is due for significant updates, which were originally scheduled to be completed by the end of Permit Year two (PY2). Because of the increased level of detailed information being provided, development of the new site is taking longer than expected. It was scheduled to go online in the beginning of Permit Year three (PY3) but has been delayed due to the continued reallocation of efforts during the COVID pandemic. The current progress includes the preparation of the development website, the first layer of web pages, and several subsections. The current developmental phase website can be viewed here: <http://dib.uky.edu/env>. Also, a UK Stormwater e-mail address was created for website and program use. The new address, stormwater@uky.edu, will be used throughout website and outreach and education.
- 1.B.1
 - Interactive MS4 Map Development
 - UK's GIS has been hired by EMD to assist in the development of this map for inclusion in the new website. The initial development of this map is included in Phase I and has been completed. Efforts included the development of a naming convention for each of the stormwater assets to be displayed on the map, updates to the original two-dimensional map to keep the information displayed as current as possible, and collection of representative photographs to provide locational context. Efforts are ongoing to improve the mapping and include additional information.

- The graduate student hired to assist with MCMs 1 and 2 has been working to complete basic story maps for UK that can be used as educational materials that specifically address how UK's public impacts and can protect stormwater. The story maps will be added to the new website as it becomes available. The following is a list of current story maps.
 - FEMA Basin Project—<https://arcg.is/1nSKOD>
 - Alumni Drive Bioswale and Stream Restoration—<https://arcg.is/1m9bCC>
 - Best Management Practices at the University of Kentucky—<https://arcg.is/1Pqm19>
 - Urban Forest Initiative Big Green Nation—<https://arcg.is/anGuG>
- UK Storm Drain Marking Tracking System was updated and is schedule for field testing by UK classes in 2021. More information can be found under MCM 2.

- 1.B.2
- While the existing website provided contact information for the reporting of illicit discharges, the updated website will allow for reporting of illicit discharges within the MS4 via a new Illicit Discharge Reporting Tool. EMD worked with UK GIS to develop a smart reporting tool that provides a fillable form and allows the collection of additional data using features from smart devices including GPS location and the ability to attach photographic documentation. Development of this tool has been completed and will be added to the developmental website. The effectiveness of this tool will be tracked through the number of reported instances and is expected to increase when the updated website becomes live. Additional Illicit Discharge Detection and Elimination (IDDE) efforts are further discussed in Section C.

- 1.B.3
- Educator Resource Page Development
 - A location for Educator Resources has been identified on the UK Stormwater Program website where resources can be organized and posted for distribution. An outline has been developed for this subpage that will continue to be developed and added to over time.
 - Educational resource videos were developed for inclusion on the website and for use as general outreach material and social media content. Topics includes Pet Waste Impacts, Rain Gardens, Stream Restoration, among others. These videos are in the process of final editing and production with a targeted availability of the beginning of 2021. An overview of the topics included on the Stormwater Educator Resources Page is included in **Appendix A**.

- 1.B.4
- Social Media
 - A more robust use of social media to promote UK's stormwater program began in 2019. The primary accounts being used for this effort are the UK Bioenvironmental Facebook (UK Bioenvironmental) and Twitter Accounts (BAE XStream Team). Social media posts are scheduled and managed via Hootsuite and use the tags #UKStormCats and #stormwaterquality. A social media tracking spreadsheet has been developed to record these activities. It includes the posting date, text included in the post, and the number of likes and shares from each post. This spreadsheet is included in **Appendix A**.
 - As part of UK's stormwater program branding efforts (see Stormwater Logo Competition), plans may include a shift to create social media accounts that allow for a singular identity of the stormwater program such as UKStormwater@Facebook and UKStormwater@twitter rather than using existing accounts in the College of Agriculture.
 - The UK Sustainability Facebook Page promotes various activities related to stormwater, such as the Urban Forest Initiative, Water Week, The Greg Page Sustainability Festival, UK's Anti-Litter Campaign, and UK's Pass on Plastic (POP) Campaign (one of the benefits is reducing aquatic pollution). The Sustainability Facebook Page can be located here: <https://www.facebook.com/UKYSustainability/>.
 - A location on the redesigned UK Stormwater website has been identified that will provide links to the various stormwater related social media. This will occur once the website is completed and a decision has been made on which social media accounts to include.

1.C
1.C.1.a
1.C.4

The following materials were developed and/or distributed in 2020.

- In an effort to engage UK staff, a member of the MCM 1 Subcommittee met with an Extension Forester who teaches an Environmental Education Course through Natural Resources and Environmental Science. The Extension Forester is interested in including more lessons on water and stormwater using Project WET curriculum. She is also interested in service opportunities, like the drain marking program, and the development of stormwater lesson plans for MS4 program. The subcommittee member provided an overview of UK MS4 goals to students and how lesson plans would fit into her curriculum. She also placed an order for 20 copies of the Project WET materials. A total of nine project WET books were used to train nine students in the Project WET curriculum as a part of NRE 356 course during the Spring semester 2020.

- A Wards Stormwater Floodplain Model was purchased in 2019 for outreach and education events. This model provides a visual and hands-on simulation of the role floodplains play in a watershed and the impact of human activity. In 2020, the model was used to develop video content and educational material for use in UK College of Agriculture, Food, and Environment classes.
- American Society of Agricultural and Biological Engineers 2020 Conference—The Annual International Meeting was held virtually in July 2020. Cole Crankshaw, Carmen Agouridis, Bill Ford, and Chris Barton prepared and presented a poster titled Evaluating the Biotic Condition of Restored Streams in Kentucky’s Inner Bluegrass Region regarding stormwater improvements and stream restoration efforts and how they can improve biological communities in impaired watersheds. Plans are to include this poster in social media posts as well as on the stormwater website. A copy of the poster is available in **Appendix A**.

1.D
1.D.1

The following events were hosted or supported by UK in 2020 to involve the public and engaged student groups.

- WRD 204—Water Issues
 - EMD Staff met with students on February 25, 2020, to discuss water sustainability efforts on campus.
 - Discussions included the MS4 permit, SWQMP, the latest water sustainability efforts and the role of stormwater in the Sustainability Strategic Plan.
- LFUCG Pet Waste Education Grant (also in 2.B)
 - A pet waste campaign was developed to inform pet owners of the importance of picking up after their pets. This included a Pet Waste Program Logo Design competition held involving the UK community. Announcements were made through UKNow, social media, student listservs, posters, and flyers along with presentations being made to three classes. Additional information can be found in MCM 2.
- Webinar—University Partnerships for Stormwater Outreach and Instruction
 - Description: UK College of Agriculture, Food, and Environment uses Extension and Instructional opportunities to bring together campus resources to address community water issues. This is an overview of several unique campus-community watershed projects, followed by discussion of creative ways to engage partners to achieve water quality goals.
 - Hosted by Clean Water Professionals of Kentucky and Tennessee on May 19, 2020
 - Presenters: UK—Carmen Agouridis and Amanda Gumbert
 - Recording can be viewed at: https://www.cleanwaterprofessionals.org/2020_0519_webinar.php
 - Presentation Slides available in **Appendix A**.
- The following Green Infrastructure Tours were held on campus in 2020.
 - A rain garden tour was provided to approximately 20 future students and their parents on January 10, 2020. A walking tour was provided, and stormwater issues were discussed.

1.E The following Podcast and Articles were created for campus-wide distribution.

- The WRFL Radio Show—Discussions on Sustainability Initiatives at UK included a GreenTalks Interview with Dr. Carmen Agouridis aired on February 26, 2020. They discussed the Alumni Stream Restoration, Rain Garden, and UK Stormwater Projects. A list of interview questions is included in **Appendix A**.
- KYH2O Podcast Series—In early 2019, UK staff members launched a KYH2O podcast series. This series is regarding all things water in Kentucky and several of the podcasts connect with UK Stormwater. The podcast can be accessed at the KYH2O website: <https://kyh2o.podbean.com/>. At the end of each podcast, listeners are encouraged to learn more regarding topics through the Explore More section featuring publications, videos, and websites of interest. The following episodes aired in 2020.
 - Episode 29—January 6, 2020—Nutrient Management in Lawn Care
 - Episode 30—March 5, 2020—Project WET
 - Episode 31—March 19, 2020—Watershed Planning
 - Episode 32—April 2, 2020—Scuba in KY?! Part 1 of 3
 - Episode 33—April 20, 2020—Scuba in KY?! Part 2 of 3
 - Episode 34—May 4, 2020—Scuba in KY?! Part 3 of 3

- UK Facilities Newsletter—Created by Shane Tedder was distributed weekly and several issues included stormwater-related stories, including the following. Issues are included in **Appendix A**.
 - Student Center Water Harvesting System
 - Cooper Drive Pedestrian Tunnel Project
 - Peterson Service Building Washing Station

1.E Update Staff IDDE Training and Create Method to Ensure Training Is Conducted Annually

- Staff IDDE training will be incorporated into the basic stormwater training being developed by Strand Associates, Inc.® (Strand) that will be taken by employees annually. Additional IDDE Training will be developed and added to the website over time to address specific concerns if and when necessary.

1.G Update Individual Departmental Stormwater Training and Improve Delivery System and Participation

- Strand has been tasked with updating the existing basic stormwater training for all necessary departments that will be made available online through the EHS training system. This will need to be taken by all new employees as well as all applicable employees annually. The task is currently scheduled for completion by the end of PY3.
- For departmental specific training, each division or department will assess activities performed by employees and create/provide departmental specific training to cover those activities. This training can be provided by supervisors during departmental staff and safety meetings. At present, there are specific activity Fact Sheets in the Environmental Protection Handbook that can be used for these purposes and are in the process of being updated. Module and other related information will be made available on the EMD Stormwater Website for use by area and departmental supervisors to develop training specific to the employee job duties.

1.H Outreach and Education Survey

- Stormwater Survey
 - An updated survey was developed based on the original survey from the first permit cycle.
 - Members of the MCM 1 Subcommittee met in February 2020 to discuss updates on the process for the campus-wide survey to determine the effectiveness of the Outreach and Education program. This effort is ongoing and was scheduled to be completed by the end of PY2 but has been delayed due to the COVID-19 pandemic.
 - Ongoing efforts include working through the UK Institutional Research Board (IRB) process to gain approval to issue the survey and develop a distribution plan with a target date of spring 2021. This included revisions to the initial submittal based on suggestions from the IRB.
 - Draft of survey: https://uky.az1.qualtrics.com/jfe/form/SV_24OD9ESOQZnaRUh

1.I LFUCG MS4 Program Coordination

- EMD and university staff continued regular meetings with the LFUCG MS4 Coordinator to coordinate programs and provide updates. This was achieved through regular attendance and participation with LFUCG Stormwater Stakeholder Advisory Committee Meetings held quarterly, as well as through participation in additional workgroups and trainings that were held throughout the year. UK participated in the following:
 - LFUCG Stormwater Stakeholder Advisory Committee Meetings
 - LFUCG Trainings:
 - Erosion and Sediment Control (October 15, 2020)
 - Construction Industry Workshop (December 11, 2020)
 - Stormwater Manual Update Meeting (January 22, 2020)
 - LFUCG Stormwater Video Review and Survey

1.J Stormwater Professional Consortium

- Consortium of Professionals Targeting Universities—UK staff conducted initial meetings regarding the development of this group. This was scheduled to begin by the end of PY2 but has been delayed due to the COVID-19 pandemic. It has been rescheduled to begin 2021 and is anticipated to build as the program continues.

Additional Public Education and Outreach Efforts

- The UK MS4 boundary lies within the LFUCG MS4 boundary. The Kentucky Transportation Cabinet (KYTC) also has numerous state highway routes in the LFUCG jurisdiction. Both LFUCG and KYTC use multimedia campaigns as part of their MCM 1 activities. Given that UK is within the Lexington, Kentucky media market, the students, faculty, and staff have access to these media campaigns and are regularly exposed to their content.

The 2020 summary of ad play includes 68,932 radio spots, 6,832 television plays, and a total expenditure for the program of over \$1.5 million. Documentation of KYTC’s education and outreach efforts from their 2020 Annual Report is included in **Appendix A**.

Are public education/outreach efforts targeted towards a pollutant of concern or local waterbody or a particular segment of the population?

Being a nontraditional MS4, UK’s “public” has a different demographic as compared to a typical municipality. UK’s “public” includes faculty, staff, students, and visitors. Based upon the activities of each on campus, it has been determined that staff have the greatest ability to impact stormwater. As a result, education and outreach efforts are typically focused on this group. Staff’s actions are primarily governed through UK’s policies and procedures and education is typically done through employee training. With that being said, since 2015, efforts have been made to develop stronger relationships with faculty and to begin educating and working with students regarding stormwater on campus. Plans are to rely heavily upon this effort as UK moves forward with the MCMs 1 and 2 program.

Having two streams on campus provides UK with outdoor classroom and hands-on training opportunities for UK’s students. The recently restored Big Elm Fork area and Alumni Drive Stream Restoration projects have been used extensively for these purposes. More information is provided in MCM 2.

What is your budget for MCM #1?

MCM 1 efforts are completed with assistance from multiple UK departments. As a result, the budget to accomplish this measure exists within each individual department. The responsibility to manage the stormwater program falls under UK’s EMD. EMD’s overall budget is funded by an environmental service surcharge applicable to all UK departments. This surcharged-based funding creates a stable platform for program development. As a result, monies are allocated on an as-needed basis.

A specific budget has been created for MCM 1 to assist KWRRI and TFISE in the development of a more robust program. This estimated budget covers specific tasks and direct costs only. It will be assessed annually and adjusted as necessary. Additional funding can also be provided on an as-needed basis.

The current recurring annual budget for this program is \$56,000 excluding one-time costs. Total MCM 1 implementation costs for the permit cycle have the potential to exceed \$300,000. See the following chart for more details:

| 2018 - 2023 SWQMP Estimated Budget | | | | | | | | | |
|------------------------------------|---|---------------|--------------------|-----------|-----------------|----------------------------|---------------------|---------------------|--------------------|
| Task (#) | Task/Expense Description | Min Cost (\$) | Task Max Cost (\$) | Task Year | Reoccurrence | Number of Years Multiplier | Total Min Cost (\$) | Total Max Cost (\$) | Funding Department |
| 1.A | Development of Education, Outreach and Participation Program - Program administration costs, materials, interns | | 40000 | Annual | Annual | 5 | 200000 | 200000 | EMD |
| 1.B | Update and Maintain Stormwater Website - Website Redesign | 500 | 15000 | Two | One-Time | 1 | 500 | 15000 | EMD |
| 1.B.1 | Development of Interactive MS4 Map (part of website improvement) | 2000 | 30000 | Three | One-Time | 1 | 2000 | 30000 | EMD |
| 1.B.2 | Development of Illicit discharge Web Reporting Feature | 500 | 2000 | Two | One-Time | 1 | 500 | 2000 | EMD |
| 1.B.3 | Development of Educator Resource Web Page | | 200 | Three | One-Time | 1 | 200 | 200 | EMD |
| 1.B.4 | Development of Social Media Account Web Page | | 100 | Two | One-Time | 1 | 100 | 100 | EMD |
| 1.C | Development and Distribution of Public Education Materials | | 1000 | Two | Annual | 4 | 4000 | 4000 | EMD |
| 1.C.1 | Extension of Outreach, Education, and Participation Program to Visitors | | 1000 | Three | Annual | 3 | 3000 | 3000 | EMD |
| 1.C.1.a | Development and Distribution of Tailgater RV Illicit Discharge Prevention Awareness Materials | | 500 | Three | Annual | 3 | 1500 | 1500 | EMD |
| 1.C.3 | Development and Distribution of Local Water Quality Impairment Awareness Materials | | 500 | Four | Annual | 2 | 1000 | 1000 | EMD |
| 1.C.4 | Development of Stormwater Curriculum and Education Materials | | 5000 | Two | Annual | 4 | 20000 | 20000 | EMD |
| 1.D | Participation in/Facilitation of Special Events for Stormwater Awareness | | 5000 | Annual | Annual | 5 | 25000 | 25000 | EMD |
| 1.D.1 | Involvement of Student Organizations in the Stormwater Program - Activity Participation & Incentive Program | | 2000 | Annual | Annual | 5 | 10000 | 10000 | EMD |
| 1.F.1 | Development of Illicit Discharge Identification and Reporting Video | | 500 | Four | One-Time | 1 | 1000 | 1000 | EMD |
| 1.H | Update and Conduct Campuswide Stormwater Survey | | 500 | Two | One-Time | 1 | 500 | 500 | EMD |
| 1.H.1 | Conduct Follow-up Campuswide Stormwater Survey | | 500 | Four | Every 2-4 years | 1 | 500 | 500 | EMD |
| 1.J | Development of Stormwater Professional Consortium | | 1000 | Two | Annual | 4 | 4000 | 4000 | EMD |
| 1.K | Development of Stormwater Steward Certification Program (StormCats) | | 500 | Four | One-Time | 1 | 500 | 500 | EMD |

Summary of COVID-19 Pandemic Program Impacts

Provide a summary of all planned MCM 1 activities and efforts for PY2020 which were affected by the public health protocols enacted in response to the COVID-19 pandemic. Include the name and a brief description of the activity, the status of the activity (cancelled/postponed/modified etc.) number of community members anticipated to be reached with the activity, and any activities undertaken to replace the planned activity.

- Website Development
 - Description: Update the existing stormwater website.
 - Status: Delayed because of staff reallocation.
 - Community Members Reached: Unknown.
 - Update: Phase 1 now complete. Phase 2 is anticipated to be completed in early Permit Year 4 (PY4).
- Campus Sustainability Showcase
 - Description: Expo showcasing many achievements and operational units relating to sustainability at UK. Originally scheduled to take place April 20, 2020.
 - Status: Cancelled.
 - Community Members Reached: Unknown.
 - Update: UK Sustainability intends to continue holding this event annually as local restrictions on gatherings are lifted and students return more fully to campus.
- UK's Pick it Up (Litter Elimination) Campaign
 - Description: Launched in 2014, the goal of this campaign is to eliminate litter on campus and prevent the action of littering as a whole. The Adopt-A-Spot program is a component of this campaign.
 - Status: Cancelled because of low population on campus during 2020.
 - Community Members Reached: Campus-wide Event.
 - Update: UK Sustainability intends to continue holding this event annually as local restrictions on gatherings are lifted and students return more fully to campus.
- Water Week
 - Description: Water Week is sponsored by KWRRRI; the TFISE; UK College of Agriculture, Food and Environment; and the City of Lexington, with the goal of celebrating the importance of water and our role in protecting it. Originally scheduled March 21 to 28, 2020.
 - Status: Cancelled.
 - Community Members Reached: City-Wide event.
 - Update: This event is planned to continue annually and occurred from March 21 to 27, 2021.
- 1.C.1 • Extend MS4 program focus to visitors
 - Description: A 2020 program goal was to extend the MS4 program focus to visitors. UK's "public," which is made up of faculty, staff, students, and visitors was not on campus for a large portion of 2020 due to the COVID-19 pandemic.
 - Status: Postponed.
 - Community Members Reached: All visitors to campus.
 - Update: This task will be rescheduled based on the return of the "public" to campus.
- 1.C.1.a • Develop Awareness Materials to Address Illicit Discharge Prevention from Tailgater Recreational Vehicles
 - Description: A 2020 program goal was to develop awareness materials and distribute them with annual parking pass and ticket sales for applicable events. It is scheduled to be completed in PY3, but it is unknown what tailgating may look like in 2021.
 - Status: Postponed.
 - Community Members Reached: All visitors during tailgating events.
 - Update: Task will be revisited during subsequent permit years as tailgating returns to campus.

The following documentation of public education/outreach activities held in 2020 is included in Appendix A:

- Educational Resources Page Overview
- Social Media Tracker Spreadsheet
- Poster for ASABE
- UK Stormwater Presentation Slides
- WRFL GreenTalks Interview Questions
- UK Facilities Newsletters
- KYTC's Education and Outreach Efforts

B. Public Involvement and Participation:

Describe any events or activities facilitated by or sponsored by the MS4 in 2020:

2.A
2.A.1
2.A.2
2.A.3

Storm Drain Marking Program

- As a part of the effort to update the Storm Drain Marking Program, work began on a Marking Database and Program Update in 2019. The updated approach uses Survey 123 and ArcGIS to create inspection reports and documentation through a mobile-based platform. Using this, participants can locate, document, and track marked storm drains. Through this effort, UK's Environmental Storm Drain Collector was created. Storm drain marking technical support documents, marker installation instructions, and a presentation on drain marking and inspection can be found in **Appendix B**.
- The graduate student hired by the MS4 program began field testing the program in early 2020. This led to several revisions that improve the user experience. Training materials, including videos, were developed for the marking application as well as medallion placement to allow further implementation of this tool.
- Development of an advertising and awareness campaign targeted at improving program participation by faculty, staff, students, and visitors will continue to be developed over the permit cycle. The next step in the process will be adding the training materials and videos to the updated stormwater website.
- Field Testing of the program update by students is scheduled to begin in spring 2021.

2.B The following activities involving students, faculty, and staff in stormwater activities occurred in 2020.

- Recognizing Trees as Stormwater Infrastructure—UK's Urban Forest Initiative (UFI) initiated discussions revolving around the promotion of trees as officially recognized stormwater "infrastructure." A meeting of interested parties to discuss the issue further was held on November 10, 2020, and included representatives from UK Sustainability, UK Environmental Management, UK Grounds, UK Extension, Friends of Wolf Run, UK UFI, and LFUCG. Main points of discussion included LFUCG's openness to collaboration with UFI and other interested groups regarding trees and their benefits to stormwater, exploring inclusion of trees as stormwater BMPs in the LFUCG stormwater manual, crediting trees to reduce impervious surface fees, and interest in bringing in an expert from a community that has already dealt with this issue. This discussion led to UFI presenting at LFUCG SSAC Meeting on December 4, 2020, where an introduction to UFI was provided and the topic of trees as stormwater BMPs was introduced. Also, UK partnered with the Center for Watershed Protection to provide expert advice toward this subject and scheduled presentations on multiple topics in March 2021.
- Sustainability in Operations Meetings—Inspired by the impacts of remote work because of COVID-19 and to improve communication between those involved in sustainability initiatives on campus. These meetings include representatives from Sustainability, Dining, Recycling, Transportation, Grounds, Environmental Management (Water), and Utilities and Energy Management. Weekly meetings began in March 2020 and eventually became biweekly.
- UK Sustainability Grant Challenge—The Sustainability Challenge Grant program is designed to engage multidisciplinary teams from the University community in the creation and implementation of ideas that will promote sustainability by simultaneously advancing economic vitality, ecological integrity, and social equity. In 2020, ten teams of UK students, faculty, and staff were selected to receive Sustainability Challenge Grants totaling more than \$200,000, many of which directly impact stormwater. For more information, see the following UK Now article: <https://uknow.uky.edu/campus-news/over-200000-awarded-10-teams-sustainability-efforts> and the project abstracts on the UK Sustainability website: <https://www.uky.edu/sustainability/2020-challenge-grant-recipients>.
- LFUCG Pet Waste Education Grant—UK and extension staff, in conjunction with LFUCG, developed a pet waste campaign to inform pet owners of the importance of picking up after their pets. A Pet Waste Program logo design competition was held involving the UK community. The project was promoted via a UK Now article: <https://uknow.uky.edu/student-and-academic-life/students-cash-design-competition>, social media, student listservs, posters, and flyers. A presentation about the project was made to three classes. Additional information can be found in the project summary in **Appendix B**.
- UK Stormwater Logo Competition—In an effort to brand the stormwater program and create a symbol that can be universally recognized across campus, the UK MS4 Stormwater Program created a competition calling for students to develop a design for a logo that effectively illustrates the interplay between campus and stormwater management. The entries were judged based on creativity and suitability for diverse uses, including website, apparel, and brochures. The Sustainability Counsel provided funding (\$500) to be used as an incentive for participants. The logo competition flyer is included in **Appendix B**. For more information see the following

UK Now article: <https://uknow.uky.edu/campus-news/uk-stormwater-student-design-competition-announced>. The logo competition ended in spring 2020 and submittals have been reviewed. The final logo is nearing completion and will be used on stormwater-related outreach.

- Farm Road Rain Garden (UK CATchment Cleanup)—The CATchment rain garden is a living, learning laboratory and demonstration site for sustainable stormwater management and is located behind the Gluck Equine Research Center. A dedicated advisory group of UK faculty and staff, representing both academic and administrative departments across campus, oversees the management and specialized maintenance of the garden, outreach, and education. Twenty students partnered with UK Grounds to conduct a service-learning event, accumulating 43.75 total service hours for the day. A flyer and sign-up sheets for the event are included in **Appendix B**.
- USEPA Rainworks Challenge—From epa.gov “The Campus RainWorks Challenge is a green infrastructure design competition for American colleges and universities that seeks to engage with the next generation of environmental professionals, foster a dialogue about the need for innovative stormwater management techniques, and showcase the environmental, economic, and social benefits of green infrastructure practices.” In spring 2020, a senior Landscape Architecture Design Studio student prepared a submittal on a South Campus Stormwater Green Infrastructure Masterplan. Additional efforts carried over to the Fall Semester through LA425 Landscape Architecture Design Studio V class. Eleven students comprised of two teams each prepared Green Infrastructure Masterplans for a portion of South Campus. The poster, final report, and narratives are available upon request.
- With the stream restoration project along Alumni Drive completed in 2019, efforts are continuing to create education, involvement, and participation opportunities with various classes. Dr. Carmen Agouridis, former Extension Professor in and now Associate Dean for Instruction for the College of Agriculture, Food, and Environment, has been diligently working to create interest in the project. Four sections of GEN 100-Issues in Agriculture, Food, and Environment (approximately 444 students total) were involved an Urbanization and Stream Health module that featured the Alumni Drive Stream Restoration. The lesson plan for this activity is provided in **Appendix B**.

2.B.1 Procedures for notifying students, faculty, and staff of stormwater activities

2.B.2

- To improve the communication with students and staff, the Outdoor Classroom Coordination Committee was formed in 2019. This committee includes member from CAFÉ, Grounds, Sustainability, EMD, and TFISE. The Committee’s purpose is to promote use of outdoor spaces along with stormwater-focused opportunities around campus. Because of the COVID-19 pandemic, continuation of this work has been delayed until opportunities for meeting allow.
- The updated website design includes a section titled “Get Involved” that will provide resources for students, faculty, and staff to learn regarding ways to engage in stormwater activities. As a part of this, the creation of a separate media page has also been explored. This will allow for the public to be informed on calendar events and latest information.

2.C Consider development of brief pre and post survey for activity participants

- The inclusion of a survey for activity participants has been discussed with stakeholders engaged in MCMs 1 and 2 activities. The potential implementation and approach are still being considered.

If applicable, describe any events or activities in which the public is involved in the development or review of your stormwater management program. Were any stormwater management related events or activities initiated by the public?

All the events, activities, and projects previously noted were initiated by students, faculty, and staff and were related to the continued development of UK’s stormwater management program. Additionally, a group of students from Dr. Osborn’s WRD 204 class were interested in meeting with EMD to discuss water and sustainability, specifically stormwater pollution and the effects of construction on campus.

How can the public find information about the SWQMP?

UK has a stakeholder group made up of 26 faculty and staff that assist in the implementation of the Stormwater Program. Each individual was responsible for the development or approval of the SWQMP and was provided a final copy of the plan as well as spreadsheets to track implementation progress. The SWQMP is a discussion topic at each quarterly Stakeholder Group meeting with updates provided by EMD staff and each represented department. The remainder of

UK's public can access information regarding UK's stormwater program through the Stormwater website (http://ehs.uky.edu/env/storm_water_quality.php) and via request.

Additionally, detailed information regarding UK's stormwater program will be made available on the new website in the following sections: Program Information, Stormwater 101, Protecting Our Streams, Educational Resources, Getting Involved, Training, Illicit Discharges, Construction, Post-Construction BMPs, and Mapping when it becomes available.

What is your budget for MCM #2?

As mentioned in MCM 1, a specific budget has been created for MCM 2 to assist in the development of a more robust program. This estimated budget covers specific tasks and direct costs only. It will be assessed annually and adjusted as necessary. Additional funding can also be provided on an as-needed basis. It should also be noted that because MCMs 1 and 2 are being managed together, a significant portion of the MCM 1 budget also benefits MCM 2.

The current recurring annual budget for the MCM 2 portion of this program is \$6,000 excluding one-time costs. Total MCM 2 implementation costs for the permit cycle are estimated at a maximum of \$37,000. Refer to the following chart for more details:

| 2018 - 2023 SWQMP Estimated Budget | | | | | | | | | |
|------------------------------------|--|---------------|--------------------|-----------|--------------|----------------------------|---------------------|---------------------|--------------------|
| Task (#) | Task/Expense Description | Min Cost (\$) | Task Max Cost (\$) | Task Year | Reoccurrence | Number of Years Multiplier | Total Min Cost (\$) | Total Max Cost (\$) | Funding Department |
| 2.A.1 | Development of Marked Stormdrain Inventory - Intern and Tracking Mechanism | | 6000 | Two | One-Time | 1 | 6000 | 6000 | EMD |
| 2.A.2 | Development of Interactive Stormdrain Marking Map and Webpage Integration | | 3000 | Two | One-Time | 1 | 3000 | 3000 | EMD |
| 2.A.3 | Development of Stormdrain Marking Program Advertising/Awareness Campaign | | 1000 | Three | Annual | 3 | 3000 | 3000 | EMD |
| 2.B | Sponsorship/Creation of Public Stormwater Activity Participation Events | | 5000 | Annual | Annual | 5 | 25000 | 25000 | EMD |

Summary of COVID-19 Pandemic Program Impacts

Provide a summary of all planned MCM#2 activities/events for PY2020 which were affected by the public health protocols enacted in response to the COVID-19 pandemic. Include the name and a brief description of the activity/event, the status of the activity (cancelled/postponed/modified/etc.) number of community members anticipated to participate, and any activities undertaken to replace the planned activity.

- UK's Pick it Up (Litter Elimination) Campaign
 - Description: Launched in 2014, the goal of this campaign is to eliminate litter on campus and prevent the action of littering as a whole. The Adopt-A-Spot program is a component of this campaign that encourages teams of three to seven individuals (with swag, prizes, and a celebration) to keep campus clean and prevent litter from reaching local waterways by adopting high litter areas of campus and conducting at least two monthly cleanups throughout the spring semester.
 - Status: Cancelled because of low population on campus during 2020.
 - Community Members Reached: Campus-wide Event.
 - Update: UK Sustainability intends to continue holding this event annually as local restrictions on gatherings are lifted and students return more fully to campus.
- UK POPs Campaign
 - Description: Launched in September 2018, UK Sustainability, Dining, and Recycling teamed up to reduce the impacts of single-use plastic items on campus by encouraging reuse and new habits. Learning that plastic pollution negatively impacts aquatic environments, wildlife, roadsides, human health, and economies in the Commonwealth of Kentucky and around the world, students and employees at UK receive reusable stainless-steel straws by pledging to "reduce plastic pollution by refusing single-use plastic items, replacing them with reusable options, recycling everything (they) can, and encouraging friends to do the same."
 - Status: Cancelled because of low population on campus during 2020.
 - Community Members Reached: Campus-wide event.
 - Update: UK Sustainability intends to continue holding this event annually as local restrictions on gatherings are lifted and students return more fully to campus.

- Gluck Pond Planting Outreach and Participation Activity (also doubles for MCM 6 activity–Goose Control Program)
 - Description: Staff from the College of Agriculture and Grounds work alongside Horticulture Club, and Volunteer Assistance to install native plants around Gluck Pond.
 - Status: Cancelled because of restrictions on public meetings.
 - Community Members Reached: Typically have three dates that average 20 attendees.
 - Update: The stakeholders are considering scheduling another event this year depending on need.

The following documentation of public involvement/participation events held in 2020 is included in Appendix B:

- Storm Drain Marking Tech Support Document
- Marker Installation Instructions
- MS4 Program and Drain Marking/Inspection Presentation
- Pet Waste Project Summary
- UK Stormwater Logo Competition Article
- Farm Road Rain Garden Sign-in Sheet (CATchment Cleanup)
- Fall CATchment Cleanup Flyer
- GEN 100 Lesson Plan

C. Illicit Discharge Detection and Elimination:

Did you have any reported/discovered illicit discharges for 2020? If so, describe the incident and the elimination.

- 3.E The use of the MS4 Web software for IDDE tracking began in 2012 and is still being used. Stormwater-related complaints are also tracked with this tool. For the 2020 reporting period, there were a total of 13 illicit discharge or stormwater complaints reported and resolved. A detailed report of each is included in **Appendix C-1**.

How can the public notify the MS4 of spills or illicit discharges?

- 3.C UK has 24-Hour Spill Response Service. Illicit discharges are reported using the same contact methods. During work hours (8 A.M. to 5 P.M.) the public are encouraged to dial 859-323-6280. After hours 911 can be dialed from campus phones or the UK Police Department can be contacted at 257-UKPD. This information is provided on the EMD website, via the MS4 Stormwater Quality Management pamphlet, and via spill reporting cards that are handed out during special events. As previously discussed, implementation is currently underway to update the stormwater website and create an illicit discharge reporting mechanism that will allow mobile friendly notification of spills and other stormwater-related issues.

Do you have a written IDDE Plan in place?

- 3.B
3.B.1
3.D EMD originally created its IDDE Field Protocol Plan in 2011 and updated the plan in March 2015. The plan includes sections on Field Screening and Inspection, Identifying Illicit Discharges, Indicator Parameters, Steps to Remove Illicit Discharges, Enforcement Procedures, and Recordkeeping. Refer to previous annual reports for a copy of the IDDE plan.

The plan was reviewed in 2018 and an updated draft was completed in 2020. Final review is underway and is schedule to be completed in 2021. In addition, staff training on illicit discharge identification and reporting will be prepared and distributed once the finalized update is ready for distribution.

- 3.B.2 Work has also begun on the development of a sanitary sewer overflow protocol document to supplement the IDDE plan as a part of the Stormwater Operations Manual development. Following the review and finalization of this document, copies of the procedures will be distributed, and training provided as needed and added to the stormwater website.

Have you completed the mapping of major outfalls? Have you begun to complete the new mapping requirement from the latest iteration of the Phase II General MS4 Permit? Approximately how much of this new mapping has been completed and how do you plan to accomplish this requirement by the end of the current permit term?

- 3.A This task was completed at the very outset of UK's submittal of its Notice of Intent and SWQMP in April 2010. There are five outfalls that have been identified and noted as WR-1, WR-2, WR-3, WH-1, and WH-2 along with two stream segments (Big Elm Fork and an Unnamed Tributary to West Hickman). Both stream segments are located adjacent to Alumni Drive, one at the eastern end toward Tates Creek Road and the other at the western end toward Nicholasville Road.

Because of the unprecedented level of construction on campus in recent years, a major update to this map was completed in the fall 2016. At that time, a standing work order was created with UK's GIS department so the map could be updated on a more regular basis. The most recent round of updates occurred in winter 2020 during the development of the interactive map for the stormwater website. Efforts are now made to update the map on an annual basis, as needed. This includes, but is not limited to, utility location, impervious surfaces, and stormwater management infrastructure locations. A copy of the overall and impervious area maps are available on UK's website and is included in **Appendix C-2**.

- 3.A.1 It should also be noted that a more comprehensive stormwater infrastructure map has also been developed by UK as part of its infrastructure master plan. This map contains all UK stormwater infrastructure and will be updated regularly to include changes to the system as they occur. A major effort occurred in 2017 where information was collected to update the stormwater collection system. UK GIS has reviewed the data and identified that integration cannot be automated and will required effort beyond what was originally anticipated. The information will be integrated manually into the system as staff availability allows.

During 2020, efforts were also made to update and refine formal IDs for all stormwater structures. This map is located online at <https://maps.uky.edu/utilities/> and is maintained for use by employees only due to the level of information provided.

- 3.A.2 Real Property Transfer Policy—Because of the ever-changing nature of the campus boundary, UK tasked itself with developing procedures for recording and reporting MS4 boundary expansions to facilitate inclusion of new territory in the MS4 regulatory boundary and campus operation and maintenance. The policy, originally developed in 2019, was reviewed in 2020 and includes process steps as well as departmental roles and responsibilities when acquiring additional properties to be included in the MS4. Support documents include the policy paper, process checklist, acquisition chart, and process chart.

Have you dry-screened any major outfalls during the current permit term? What is your plan for dry-screening all major outfalls during the current permit term?

- 3.B.4 Staff have routinely made efforts to inspect outfalls on an annual basis even though the previous SWQMP required once per permit term. The new SWQMP reflects this effort and now requires annual inspection of UK’s major outfalls. Inspections during 2020 are reflected in the following table:

| Total Number of Major Outfalls | Major Outfalls Dry-Screened in 2020 | Illicit Discharges Detected by Dry-Screening in 2020 |
|--------------------------------|-------------------------------------|--|
| 5 | 5 | 0 |

Copies of the inspection reports are included in **Appendix C-3**.

What is your budget for MCM #3?

With the development of a new SWQMP and the associated program improvements, a budget for certain MCM 3 tasks has been developed. This budget covers the estimated expenses of tasks with direct costs. All other tasks and associated indirect costs will be absorbed by the division responsible for task completion.

The current recurring annual budget for this program is \$53,500 excluding one-time costs. Total MCM 3 implementation costs for the permit cycle have the potential to exceed \$278,000. Refer to the following chart for more details:

| 2018 - 2023 SWQMP Estimated Budget | | | | | | | | | |
|------------------------------------|---|---------------|--------------------|-----------|---------------|----------------------------|---------------------|---------------------|---------------------|
| Task (#) | Task/Expense Description | Min Cost (\$) | Task Max Cost (\$) | Task Year | Reoccurrence | Number of Years Multiplier | Total Min Cost (\$) | Total Max Cost (\$) | Funding Department |
| 3.A | Regular Updating of the MS4 and Utility Maps | 500 | 500 | Annual | Annual | 5 | 2500 | 2500 | EMD/Utilities |
| 3.A.1 | Addition of the Bell 2017 Stormsewer Assessment to the Utility map | | 1000 | Two | One-Time | 1 | 1000 | 1000 | Utilities |
| 3.B.5 | Assessment (sampling) of Dry Weather Flow In the Stormsewer System | 5000 | 20000 | Two | Annual | 4 | 20000 | 80000 | EMD |
| 3.B.5.a | Assessment of the Manchester Street Culvert (Investigation and Sampling) | 5000 | 20000 | Two | Annual | 4 | 20000 | 80000 | EMD |
| 3.E | Illicit discharge tracking program (MS4 Web License Fee) | | 3000 | Annual | Annual | 5 | 15000 | 15000 | EMD |
| 3.F | Conducting Thermal Imaging Scans of Campus for Illicit Discharge & Heating/Cooling Leak Detection | | 15000 | Two | Every 2 years | 2 | 0 | 30000 | Utilities |
| 3.F.1 | Repair of Heating/Cooling System Leaks | 5000 | 10000 | Annual | Annual | 5 | 25000 | 50000 | Utilities |
| 3.G | Connection of Remaining Greenhouses to Sanitary Sewer | 10000 | 20000 | One | One-Time | 1 | 10000 | 20000 | Facility Operations |

Summary of COVID-19 Pandemic Program Impacts

Provide a summary of all planned MCM#3 activities for PY2020 which were affected by the public health protocols enacted in response to the COVID-19 pandemic. Include the name and a brief description of the activity, how the activity was affected by the public health protocols, and how permit requirement compliance was maintained.

- 3.B.5
3.B.5.a
- Campus Dry Weather Flow Assessments
 - Description: Determine the need for additional dry weather flow assessment of areas of concern on campus based on historical sampling data and outfall inspections. This is intended to include the evaluation of the Manchester Street Culvert specifically. This task was scheduled to be completed in PY3.

- Status: As a result of budget reallocation caused by COVID-19, this task has been postponed.
- Compliance: UK intends to progress on the determination of need later in the permit cycle.

3.H

- Minimize Cigarette Butts Entering Storm Drains
 - Meet with the UK Tobacco-free Taskforce to discuss cigarette butts entering storm drains, the impact on stormwater, and develop and implement BMPs to mitigate.
 - Status: Scheduled to occur in PY3; however, because of the lack of public on campus, restrictions on group meetings, and reallocation of staff, this task has been postponed.
 - Compliance: UK intends to reschedule this task later in the permit cycle.

Additional IDDE Efforts:

In addition to the efforts mentioned previously, UK also continued or completed the following in 2020:

3.F

Evaluate Thermal Imaging

- A thermal imaging scan was completed in 2017, with the goal of identifying heating and cooling leaks as well as sanitary sewer overflows. Since that time, UK Utilities has been using it to complete repairs around campus. Because the current data is still in use and applicable, the \$45,000 cost to complete a campus scan is not justified at this time. Future scans will be performed on an as-needed basis and will likely employ the use of a drone for data collection in targeted areas around campus. This need will be re-evaluated in conjunction with future UK Utilities planning efforts.

3.F.1

Locate, Prioritize, and Minimize of Heating/Cooling System Leaks

- The UK Utility Infrastructure Master Plan was completed in 2016 and provided an assessment on the campus energy and utility systems. The purpose of the plan was to evaluate necessary improvements and provide a tool to prioritize and budget for large capital projects.
- Maintenance and repair of the system are completed on an as-needed basis with active leaks being addressed immediately. A list of the completed repairs is included in Sections E of this report.

3.G

Divert Greenhouse Drains to the Sanitary Sewer

- UK Physical Plant Division (PPD) staff continued its work regarding Phase II of the greenhouse conversion to divert the drains from the storm sewer to sanitary sewer system. Project price quotes were received (\$18,000) and project will be completed as funding allows.

Shawnee Town Collection System Investigation

- As a continuation of the 2017 investigation into sanitary sewer discharges into the storm system at Shawneetown, the remaining Shawneetown sanitary sewer collection system was televised. Several problems were identified, including separated, crushed, and collapsed lines. To date, all brick manholes in the Shawneetown area have been sealed and tree roots have been removed from the sewer lines. Reinspection of the sewers is scheduled for spring 2020 to assess the needed repairs.

The following documentation is attached in the appendices referenced above.

- **Appendix C-1**—Illicit Discharge and Stormwater Complaint Reports
- **Appendix C-2**—UK MS4 System and Boundary Map
- **Appendix C-3**—Major Outfall Inspection Reports

D. Construction Site Stormwater Run-off Control:

Are you permitting land disturbances for one acre or larger, or smaller than one acre if part of a larger common plan of development or sale?

4.B As in the past, contractors are not issued a permit from UK because they are being directly employed by UK. This gives UK direct control of their actions. However, to encourage future compliance with all projects, UK has added task 4.B in the SWQMP to develop an alternative to permit issuance as part of the project review process. To accomplish this task, the Project Checklist, UK Design Standards, and UK Contract Language were updated in 2019 to require the submittal and approval of stormwater information as well as the approval of the SWPPP and obtainment of KYR10 permit coverage before sitework can begin.

Article 11.3 of the General Conditions of the Contract for Construction states that "The Contractor, on projects disturbing one acre or more, or projects less than one acre that are part of a large common development plan, including grading, clearing, excavation, material laydown, or other earth moving activities, shall assure full compliance with the requirements of the KYR10 and shall:

- 11.3.1—File a Notice of Intent (KPDES Form eNOI-SWCA with the Kentucky Division of Water and copy the UKCPM Project Manager and Water Quality Manager prior to the start of any excavation, grading, or site development work.
- 11.3.2—Develop a Stormwater Pollution Prevention Plan (SWPPP) based on the Erosion Prevention and Sediment Control Plan (EPSC as a minimum design standard. Ensure all requirements of KYR10 are fully addressed in the SWPPP. Once the SWPPP is written, forward a copy to the Capital Projects Project Manager and to the Water Quality Manager for approval. Work cannot begin until SWPPP is approved and permit coverage obtained."

The latest copy of Article 11.3 in its entirety can be found at the following website address:

<https://www.uky.edu/cpmd/design-standards/division-00---procurement-and-contracting-requirements-group>

The UK Design Standard 334000S01 provides additional stormwater requirements for consultants and contractors. The latest copy of these standards can be located here: <https://www.uky.edu/cpmd/download/file/fid/1195>

How many permits were issued by the MS4 in 2020?

While no permits were issued (see response to previous question), SWPPPs, Executive Summaries, and project plans were reviewed for the following 10 projects:

- Alpha Delta Pi
- Memorial Coliseum
- Kirwan/Blanding Demolition/Construction
- Scovell Hall (SD)
- Student Center Expansion
- Cooper House Renovation
- Rose Street Utilities
- Reynolds 1 Renovation
- Still and Barrel/Maturation House
- Frazee Hall Remodel

Does the MS4 or its designee perform plan reviews for land disturbances of one acre or larger, or smaller than one acre if part of a larger common plan of development or sale? If not, who does? Is there a standardized form that is used to review plans?

4.A UK personnel review all construction projects, regardless of size, and require in EPSC Plans/SWPPPs when necessary.
4.E.1 LFUCG stormwater requirements have been adopted by UK and as a result EPSC Plans, Project Narratives, New Development or Redevelopment Executive Summaries, and SWPPPs are required for most projects. Each item is reviewed by Capital Projects and EMD staff. As such, EMD and CPMD staff continually engage in workshops and trainings on changes being considered by LFUCG as noted in the following.

4.E.2 EMD and CMPD staff have developed an updated EPSC review checklist. The LFUCG Land Disturbance Permit Application and Sediment Control Plan Checklist was tailored to meet UK needs. The updated UK Checklist is included in **Appendix D-1**. This checklist will continue to undergo modifications as project needs change.

Kentucky Erosion Prevention and Sediment Control (KEPSC)

- 4.F
 - KEPSC Certification—EMD and CMPD staff responsible for reviewing SWPPPs are required to maintain KEPSC certification. More information regarding training attendees is included in subsequent sections of this report.
- 4.G.4
 - Kentucky Transportation Center KEPSC Training—EMD has been involved in ongoing discussion regarding the need for updated KEPSC training with KWRRI and the president of the Kentucky Stormwater Association. All agreed that the training is outdated and there are opportunities to both update and improved the training offerings.

As a result of COVID-19, the Kentucky Transportation Center developed an online version of the KEPSC training and are offering both the Qualification and Requalification courses more frequently. Special training sessions can also be scheduled upon request. These recent updates and changes have rendered the need to hold training on campus annually unnecessary. EMD will reevaluate the need in subsequent permit years.

4.H Formal Procedures for Small Construction Projects

- A flow diagram has been developed for major project milestones that includes stormwater and site protection as part of the process. The majority of construction projects handled by UK Facilities occur in the interior of structures. Exterior projects typically consist of concrete sidewalk and curb and gutter replacements. The development of a project submittal checklist that provides EMD with the opportunity to review and comment on a project before construction is still being discussed.

How many plan reviews were conducted in 2020?

- 4.E As noted previously, SWPPPs, Executive Summaries, and project plans were reviewed for ten projects. Information from these plan reviews was uploaded and organized in MS4 Web and is available upon request.

At what frequency are inspections occurring at active construction sites? How many inspections were conducted in 2020?

- 4.D Inspections at active construction sites typically occur on a monthly basis; however, more frequent visits often take place. As part of an annual evaluation of the inspection and enforcement tracking mechanism, UK Construction Site Inspectors elected to continue to use MS4 Web for tracking inspections during 2020. Inspections are recorded in the MS4 Web database and are available upon request.

How many inspections in 2020 resulted in enforcement actions? Fines collected?

- 4.D.2 No construction site inspections resulted in enforcement actions. UK relies on contract language and design standards to direct the actions of contractors performing work. This escalating enforcement policy allows UK to hire a third party to remediate all BMP deficiencies and pass the cost onto the permittee of the KPDES Permit. No enforcement action was required in 2020.

Describe any training given to operators/contractors in 2020? How often is training for operators/contractors conducted?

- 4.G
 - 4.G.1 At the beginning of each project CPMD and EMD staff meet with designers to walk through the project stormwater design
 - 4.G.2 standard requirements based on the project parameters. This typically includes the submittal of an EPSC Plan, SWPPP,
 - 4.G.3 and Executive Summary/Project Narrative. Before construction begins, CPMD staff attend a preconstruction meeting
 - 4.G.5 where stormwater requirements are discussed with the contractors. CPMD also provides compliance assistance and guidance during each of its site visits.

Many contractors working at UK have several ongoing projects on campus. This leads to varying degrees of familiarity and understanding of UK's stormwater requirements. The level of instruction they require differs from contractors who may not work with UK as often. In response to this, EMD and CMPD staff make themselves available for questions that may arise during projects. In addition to project and site meetings, e-mail instruction is regularly provided.

In regard to specific training for contractors, UK has adopted LFUCG stormwater standards. Each year, LFUCG provides training for area contractors on its stormwater requirements and any updates that may have taken place. This year's

Construction Industry Workshop took place virtually on December 11 from 9 A.M. until 12:30 P.M.. The agenda is included in **Appendix D-2**.

More formal training will be developed and incorporated into the updated website. This will include the development of a training program to educate contractors and designers on stormwater requirements and UK review process, KYR 10 requirements, SWPPP development and requirements, and site inspection requirements. As a result of the increased time frame for the new website development, the contractor training module development will need to be rescheduled until a later phase of website's development and will either take place in later years of this permit term or during the next permit cycle.

What is your budget for MCM #4?

As previously stated, UK's stormwater program is part of the EMD's overall budget, which is funded by an environmental service surcharge applicable to all UK departments. For this reason, funding for the program is very stable. A current budget is not specified for this MCM as monies are allocated on an as-needed basis. This MCM also uses a portion of UK's Capitol Projects Management Division's budget as the Construction Stormwater Inspector and individual Project Managers are funded through this department and are involved (directly or indirectly) in the management of stormwater on construction sites.

Summary of COVID-19 Pandemic Program Impacts

Provide a summary of all planned MCM#4 activities for PY2020 which were affected by the public health protocols enacted in response to the COVID-19 pandemic. Include the name and a brief description of the activity, how the activity was affected by the public health protocols, and how permit requirement compliance was maintained.

4.D.1
4.D.3

- Update Construction Site Inspection Checklist
 - Description: During 2019, EMD began the implementation of a new compliance tracking software. Cority, a computer-based compliance management system, will be used to track permit compliance and complete inspection forms.
 - Status: Transition to this system was schedule for early 2020 but has been delayed due to staff and resource reallocation because of the COVID-19 pandemic. As such, review and modification if the Construction Site Inspection checklist, as needed to fit the format of the new system, has been delayed.
 - Compliance: The current tracking system is being maintained until transition to the new system can occur.

4.D.4

- Internal QC of Inspection Process
 - Description: Develop an annual audit process to review the construction site inspection program for compliance with the MS4 permit requirements.
 - Status: Shortly after beginning the process development, both staff and budget resources were reallocated away from this task because of the COVID-19 pandemic.
 - Compliance: UK intends to complete this task later in the permit cycle at staff availability and budget allow.

The following documentation is included in the appendices:

Appendix D-1–UK Capital Projects Erosion and Sediment Control Plan Checklist

Appendix D-2–Construction Industry Workshop Agenda

E. Post-construction Stormwater Management in New Development and Redevelopment:

Describe how the MS4 is implementing the post-construction stormwater management in new development or redevelopment requirements in your MS4; including the 80% stormwater treatment standard and the process for project review, approval, and enforcement.

- 5.A UK has adopted the design standards used by LFUCG in its Stormwater Manual as the recommended standard for UK projects. The Stormwater Manual can be located at the following web address: <https://www.lexingtonky.gov/new-development>. LFUCG uses the 90th percentile storm event (see Chapter 10) as its water quality standard. UK has also adopted the use of LFUCG's Executive Summary–Stormwater Management Plan for Re-Development and New Development to be completed for each redevelopment and new development project (copies can be found at the previously provided website address). A predesign meeting is held for each UK project at which time the post-construction stormwater requirements are discussed.
- 5.B UK has established contract language for construction managers and general contractors that require them to incorporate post-construction stormwater quality treatment into their design plans for all construction projects disturbing one acre or more. Enforcing these requirements through contract stipulations can be accomplished in an escalated fashion in that there are amounts of retainage that UK can withhold from any monthly progress payment or nullify any progress payment in whole or in part as necessary.
- 5.A.2 The need for the development of a Stormwater Master Plan for campus was added as Task 1.1 of the UK Sustainability Strategic Plan and the potential scope is part of ongoing discussions. These discussions include working with Sustainability and Utilities about assessing UK's "water footprint" that will help inform the goals and objectives of the master plan. Because of the impact of the COVID-19 pandemic on budgets, staff workloads, and transitions in the Capital Projects staffing, this task is being put on hold for the immediate future but considerations will continue to be given as ongoing discussions continue through PY4.
- 5.A.1 Initial efforts were previously made toward finalizing a Memorandum of Understanding with LFUCG. These efforts are being reviewed with the potential of moving forward in subsequent permit years, if needed.

How many and what types of projects were reviewed for new and redevelopment considerations in 2020? What types of BMPs were installed?

As noted in Part D, SWPPPs, Executive Summaries, and project plans were reviewed for 10 projects. BMP types installed include, but are not limited to, the following.

- Pretreatment Devices–Hydrodynamic Separators, Catch Basin Inserts
- Underground Detention Systems
- Pervious Pavement Systems

MS4 staff must be trained in the fundamentals of long-term stormwater-quality treatment management practices and in how to review such practices on construction plans and how to inspect practices for long-term protection, operation and maintenance. Please describe the training of staff in 2020.

- 5.B.1 UK personnel completed the "KEPSC Inspector Qualification Training" provided by the Kentucky Transportation Center held on October 29, 2020. Three individuals were recertified.

UK Staff responsible for permit implementation also attended and participated in the following:

- Webinar: USFS–Investigating the Stormwater Quantity and Quality Impacts of Trees (January 8, 2020–1.0 hour)
- KSA Quarterly Meeting (January 13, 2020–4.0 hours)
- Webinar: EPA–Effective Public Outreach Programs (May 7, 2020–1.5 hours)
- Webinar: SWS–MS4 Challenges Posed by Evolving Construction Site Storm Water Requirements (June 4, 2020–1.0 hour)
- Webinar: EPA–Community Buy-In for Stormwater Funding (June 11, 2020–1.5 hours)
- Webinar: EPA–Site Remediation and Green Infrastructure Practices on Contaminated Properties (July 8, 2020 1.0 hour)
- Webinar: SWS–SW Compliance Demands More Than Inspections (July 23, 2020–1.0 hour)

- Webinar: EPA–Porous in Provincetown: How Green Infrastructure Revitalized Commercial Street (July 28, 2020 1.5 hours)
- Webinar: Ohio Stormwater Conference–Wetland Restoration & Streamflow/Water Quality Monitoring (August 5, 2020–2.0 hours)
- Webinar: EPA–Clean Water on the Cape: Green Infrastructure in MA (August 11, 2020–1.0 hour)
- LFUCG Erosion and Sediment Control Training (October 15, 2020–1.0 hour)
- KSA Mini-Conference (October 16, 2020–4.5 hours)
- LFUCG Construction Industry Workshop (December 11, 2020–3.0 hours)

Certificates, agendas, and meeting minutes for these activities, if available, are included in **Appendix E-1**.

Is the MS4 requiring long-term maintenance agreements for new development and redevelopment projects?

UK’s BMP maintenance is provided by one of two entities on campus: UK Utilities or Grounds. All underground BMPs fall under the responsibility of Utilities while all aboveground BMPs fall to Grounds. Utilities maintains BMPs on an as-needed basis while Grounds maintains many BMPs as part of routine campus maintenance. The FEMA project basins and associated stream restoration of Big Elm Fork is currently being maintained via contract with EcoGro. The annual report for the basin is included in **Appendix E-2**.

- 5.D Over the past several years, UK has developed a public-private partnership with Greystar in the building and maintaining of new campus residence halls. Part of this partnership is the agreement that Greystar build and maintain the storm sewer system related to each of its on-campus properties. Each project has been required to meet stormwater requirements and as a result, has post-construction stormwater BMPs that are the responsibility of Greystar to maintain. EMD along with other stakeholders intends to meet with Greystar to provide a summary of the necessary maintenance actions required, as well as work together to develop a preventative maintenance program for these BMPs.

Describe the process for annual post-construction BMP inspection. Keep in mind, this is with the goal of inspecting all such BMPs within the permit term. How many total post-construction BMPs are in the MS4? How many were inspected in 2020? Did any inspections discover a need for maintenance or repair by the owner? Did any enforcement actions result from these inspections? If your MS4 conducts a BMP owner self-inspection program, describe that program and how you maintain oversight.

- 5.C The post-construction inspection process begins with Notice of Terminations (NOT) Inspections that are completed as a part of the closeout process for each project. NOT Inspections were completed by EMD and CMPD staff for the following projects in 2020 and documented in MS4 Web.
- Research Building 2 (Health Kentucky Research Building)
 - Alumni Stream Restoration
 - KAT

- 5.D Wanting to further strengthen its maintenance of BMPs, UK developed the goal of inspecting 20 percent of aboveground BMPs and 100 percent of belowground BMPs, annually. Additionally, EMD staff have begun work on developing a preventative maintenance program for all UK-owned BMPs. After reviewing the implementation approach of these combined goals, it was decided that to support the development of a preventative maintenance program, the condition of the entire system needed to be investigated. As such, the goal was modified to include the inspection of 100 percent of the aboveground BMPs, which was completed during PY2 spanning 2019 and 2020. To complete this effort, UK has partnered with Strand who completed the inspections in 2020 shown in the following table.

| Total Number of Post-Construction BMPs | Post-Construction BMPs Inspected in 2020 | Number of Post-Construction BMPs Requiring Maintenance or Repair | Number of Resulting Enforcement Actions |
|--|--|--|---|
| 151 | 63 | 38 | 0 |

A consolidated report of the MS4-wide BMP condition was prepared and presented to the stakeholders. While the number of BMPs requiring maintenance appears high, most were noted for routine annual maintenance to track the type of maintenance required and support the development of the preventative maintenance program. Targeted reinspection of the BMP following completed maintenance will be used to meet the goal of inspecting 20 percent of the aboveground BMPs and 100 percent of the underground BMPs annually.

What is your budget for MCM #5?

Post-Construction Stormwater is primarily implemented and maintained by four UK Departments: EMD, CPMD, Grounds, and Utilities, with each having its own independent budgets. EMD provides services such as consultation and inspection to UK regarding Post-Construction through an environmental service surcharge that is applied to all UK departments. As a result of this surcharge, EMD’s budget is relatively stable and is used to support Post-Construction activities on an as-needed basis.

CPMD is responsible for the installation of BMPs as part of new construction. The budget for this department is in the millions of dollars although only a small portion of that is dedicated to post-construction BMPs. Each project managed by CPMD has a specified budget that impacts the level of stormwater controls that can be installed for post-construction purposes. Once installed, maintenance of these BMPs is handled by Grounds or Utilities.

10.A UK Grounds is responsible for any aboveground BMPs, such as the FEMA detention basins, campus rain gardens, green roofs, or pervious pavement. Efforts are underway to increase the departmental budget including additional funding requests to administration and the seeking of alternative funding sources (grants). A request to fund a two- to three-person stormwater crew was not approved by the administration. However, the recently hired Grounds Manager shifted department assets in order to dedicate more resources to stormwater and improve BMP maintenance practices on campus. As a result, a dedicated Stormwater Maintenance Position was created within Grounds. This position officially started on August 26, 2019. Since that time there have been additional changes in personnel and the Grounds Department has been restructured. These changes led to the dissolution of the individual Stormwater Maintenance Position in fall 2020. The restructuring created three main campus areas overseen by individual teams. Each team has been assigned a section of campus and will be responsible for maintaining the stormwater controls in that section.

Utilities is responsible for any BMPs below the surface, such as the multiple underground detention basins on campus or any manufactured treatment devices (hydrodynamic separators, snouts, or baffle boxes). A portion of this division’s budget is dedicated to stormwater system maintenance, including post-construction BMPs. This portion is likely to increase as the previously mentioned preventative maintenance program is developed.

During the development of the SWQMP, two direct costs were factored into the budget for MCM 5. They include the following:

| 2018 - 2023 SWQMP Estimated Budget | | | | | | | | | |
|------------------------------------|---|---------------|--------------------|------------------|--------------|----------------------------|---------------------|---------------------|--------------------|
| Task (#) | Task/Expense Description | Min Cost (\$) | Task Max Cost (\$) | Task Year | Reoccurrence | Number of Years Multiplier | Total Min Cost (\$) | Total Max Cost (\$) | Funding Department |
| 5.A.2 | Development of Stormwater Masterplan | 10000 | 50000 | Two, Three, Four | One-Time | 1 | 10000 | 50000 | CPMD |
| 5.D | Conduction of Routine Underground BMP Inspections | 10000 | 20000 | Annual | Annual | 5 | 50000 | 100000 | EMD or Utilities |
| 5.D | Operation of Preventative Maintenance Program for Post-Construction BMP's | | | Annual | Annual | 5 | | | Utilities/Grounds |

Because the Preventative Maintenance Program is still being developed, no cost has yet been assigned to this task. Completion of the Preventative Maintenance Program development and associated maintenance costs as determined by the parties responsible for operation and maintenance will aid in this assessment.

Summary of COVID-19 Pandemic Program Impacts

Provide a summary of all planned MCM#5 activities for PY2020 which were affected by the public health protocols enacted in response to the COVID-19 pandemic. Include the name and a brief description of the activity, how the activity was affected by the public health protocols, and how permit requirement compliance was maintained.

- No MCM 5 activities were significantly impacted by the COVID-19 pandemic public health protocols.

The following documentation is included in the appendices:

Appendix E-1–Training and Certification Documentation

- Training Certificates
- LFUCG Erosion and Sediment Control Meeting Agendas

Appendix E-2–EcoGro FEMA Basin Annual Maintenance Report

F. Pollution Prevention and Good Housekeeping for Municipal Operations:

The permittee must develop and implement an Operation and Maintenance (O & M) program that includes a training component with the goal of preventing or reducing pollutant runoff from municipal operations. Please describe the progress the Pollution Prevention/Good Housekeeping Program has made in 2020.

The following Pollution Prevention and Good Housekeeping Activities occurred in 2020.

O&M:

- 6.A
 - Stormwater Operation Manual—Targeted for completion by the end of the permit term, efforts began on the development of an overarching outline for the Stormwater Operations Manual. This was done to identify existing and future documents that will be incorporated into the manual. Additionally, a document template was created, through the update to the IDDE Procedure Manual, that can be applied to future manual sections.
- 6.A.1
 - Updated BMP Operation and Maintenance Manual—In conjunction with the previously mentioned BMP Inspection Report and to support the further development of the preventative maintenance program, Strand has been hired to update UK's existing BMP O&M Manual to include detailed maintenance plans including a table showing proposed maintenance tasks and schedules for said tasks. With assistance from UEM and Grounds, these tasks and schedules will need to be input into UK's PM system. This will also include guidelines and procedures for tracking cost to support the development of the Preventative Maintenance Program Budget.
- 6.A.1.a
 - Preventative Maintenance Program—As previously noted, beginning in PY2, Strand has been hired to perform inspections of all post-construction BMP within the MS4 boundary. This effort will support the development of a preventative maintenance program and help to identify the need to issue an RFP to contract out these services. Additional determinations will be made following the completion of the inspections and through the development of the Preventative Maintenance Program.
- 6.A.2
 - Evaluate Incorporation of Spill Prevention, Control, and Countermeasure (SPCC) Program into Stormwater Program—There is a direct impact from SPCC on stormwater quality for Campus. Already, SPCC training is being considered as stormwater training because of this impact. Additionally, UEM has added the inspection of storm inlets to its monthly SPCC inspections. Future opportunities to further incorporate of SPCC into the Stormwater Program will be considered as opportunities arise.
- 6.A.3
 - Rainwater Harvesting and Monitoring—Based on recent inspections of some of the rainwater harvesting system O&M, it has been determined that this topic needs additional discussion and planning. These efforts began at the end of PY2, are ongoing, and will include clarification of responsibilities though informing and training on O&M and the LFUCG requirements associated with their operation. The procedures for rainwater harvesting system monitoring and reporting will be developed and included in the Stormwater Operations Manual that EMD and Strand are in the process of developing. This will include all plans, O&M Manuals, and requirements for Student Center, RB2, and JSB systems.
 - As previously mentioned, because of the complexity of the vegetation installed as part of the FEMA project and Big Elm Fork restoration, EcoGro was hired to maintain these areas. This partnership began in 2016 and continued through 2020. Maintenance takes place periodically throughout the year. EcoGro's annual report is included in **Appendix E-2**.
 - Oil/Water Separators for Research Building No. 2 and Student Center were incorporated into UK's preventative maintenance system to support inspection and maintenance in accordance with the manufacturer's requirements.
- 6.E.3
 - Steam and Chilled Water Infrastructure Priority List—As previously mentioned, the UK Utility Infrastructure Master Plan was completed in 2016 and evaluated necessary improvements to provide a tool to prioritize and budget for large capital projects. Maintenance and repair of the system are completed on an as-needed basis with active leaks being addressed immediately. Various heating and cooling system repairs costing approximately \$75,000 in 2020 included:
 - Chilled Water—Main Lawn, CUP Spline
 - Steam and Condensate—Mines/Minerals, Patterson Office Tower Tunnel, Parking Structure #1, B&E, Ag Seedhouse Basement, Cooling Plant #2, KTR Tunnel, Panama Canal, Farm Road, Kastle Hall, ASTeCC
 - Pence Hall—Steam Line Point Repair
 - Garrigus Building—New Condensate Line

- Additional stormwater-related infrastructure maintenance and repair tasks with a cost of \$56,747.32 were completed in 2020. A list of these tasks is included in **Appendix F-1**.
- Campus has been divided into areas, with each area team responsible for maintenance of inlets and BMPs in their area. In order to monitor progress, Grounds has worked with GIS to develop a data collection system to track, which inlets have been cleaned, and the result of the inspection. As part of this system, information on the structure is collected, including if marking has been completed. This information is added to a map and database and a report is generated depicting the various information collected. Reports from the tracking system are available in **Appendix F-2**.
- UEM developed a Dig Permit Policy & Procedure Document in spring 2020. This document governs any trenching, excavation, or digging operations on campus. The original purpose is to prevent injury, avoid damage to property, and to ensure uninterrupted utility service. After review in April, EMD recommended that Stormwater Protection be added to the policy. Finalization with the inclusion of the stormwater protection is scheduled to be completed in 2021.
- EMD is working with Campus Physical Plant to update the information included in the Environmental Handbook Fact Sheets. Draft Edits have been completed for the Waste Management Section and are moving forward with review and finalization.
- Post-Event Stadium Sanitization Procedure—In response to concerns regarding COVID-19 transmission, Athletics evaluated a Stadium Sanitization Procedure that considered using sanitizing solutions (bleach, etc.) to hose down seats after home games. Based upon CDC guidelines and stormwater requirements, the decision was made to forego using sanitizing solutions and maintain existing cleaning practices for stadium washdown.
- Annual Stadium Cleaning Procedure Development—Each year, Grounds has been using bleach and industrial-grade cleaners to wash down the stadium to remove dirt and algae. This has been discharging directly to the storm sewer and detention basin. Grounds was advised that alternative procedures need to be developed because no chemicals can be discharged to the storm sewer. Currently, Grounds has elected to use water only to address these concerns.
- Cooper Drive Pedestrian Tunnel Improvement Project—Grounds and Sustainability worked together to improve aesthetics and stormwater drainage of the immediate area surrounding the tunnel. This was funded by contributions from both Grounds (\$10,000) and Sustainability Grant Funds (\$13,000). Improvements include slope improvements on either side of tunnel and replacement of turf with native grasses and plants to provide pollinator habitat, prevent erosion, and reduce runoff to improve stormwater quality.

Pollution Prevention:

- Peterson Garage Washing Station—An existing area adjacent to the Peterson Garage has been used for equipment washdown for many years. To protect stormwater quality, filters were installed in the area storm inlets. After several years it was determined that the continued use of these filters was not sustainable due to constant loading. To reduce the loading to the storm drains, improve water quality, and decrease maintenance, a dedicated washing station with oil water separator connected to sanitary sewer was installed adjacent to the garage. Plans are to replace and maintain the storm drain filters as a preventative measure due to the activity that occurs in this area.
- UK has procedures in place whenever special events occur on campus. Event Services Coordinators from the Event Management Office contact staff from multiple UK departments, in order to determine whether there are any issues, problems, concerns, or regulatory requirements that pertain to the event in question. Because of COVID-19, most public events in 2020 were cancelled. However, there was one unique “event” that occurred that needed to be assessed. See the following:
 - Nutter Field Hospital—A 400-bed hospital was built at the Nutter Field House, UK Football’s indoor training facility. The facility included divided rooms, cots, nurses’ stations, showers, and sanitation areas. EMD assessed and provided requirements and recommendations regarding wastewater discharge requirements, including preventing the discharge of hand sinks to storm sewer. For more information, see the following UK Now article: <https://uknow.uky.edu/uk-healthcare/conversion-field-house-temporary-field-hospital-complete>.
- Street sweeping continued around campus. Purchased in 2017, and used on a limited basis, the sweeper is currently being operated at five days for 40 hours per week. The unit is also being operated routinely around the coal piles to prevent coal fines from entering the storm sewer system.

- Coal Pile Assessments and Improvements—Strand assessed the Wildcat Coal Pile and created a series of recommendations to improve upon the modifications that were previously made. This led to additional efforts by grounds and utilities to improve the operation, maintenance, and condition of the coal piles and surrounding areas. To date, improvements have included modified operational BMPs, road widening and grading modifications, coal pile size reduction, pre-filter installation, and drainage area rehabilitation. Grounds and Utilities are working together to improve the area downstream of the coal pile including modification and plantings within the grass swale area. Preliminary documentation is included in **Appendix F-3**.

6.D

- Waterfowl Management Efforts were continued at Gluck Pond and in the surrounding area. The following occurred in 2020:
 - USDA Wildlife Services was hired to provide weekly goose population reduction and control activities from March 1, 2020 to June 21, 2020.
 - Three active nests were removed.
 - Fifteen eggs were removed.
 - Three aggressive nesting waterfowl were removed.
 - Harassment techniques were employed to discourage geese from remaining on-site.
 - The final report of services provided is included in **Appendix F-4**.
 - Grounds introduced habitat manipulation in 2019. This area was maintained throughout 2020.

6.A.5

- Develop SOPs for All Athletics Activities that Impact Stormwater—Building on the Stormwater Policy updated completed in 2019, Athletics is working on preparing and updating written procedures for Sports Turf Storm Water Quality and BMPs for Custodial and Skilled Trades staff. This mainly includes information related to materials handling, storage, and proper disposal as it relates to stormwater protection. This information along with any other relevant topics will be reviewed on a bi-annual basis with Sports Turf, custodial, and skilled trades staff starting in 2021.
- Athletics completed construction of a materials bin for the Sports Turf Department in summer 2020. This is being used to store mulch and topdressing material and has helped improve materials containment and prevent stormwater pollution.
- Grounds continues to investigate, through an LFUCG Stormwater Class A&B Education Grant, the effectiveness of a pressured-steam weed control system to reduce chemical weed control on campus, especially around stormwater BMPs. The grant application goals were to demonstrate and develop education materials related to nonchemical weed management techniques. Testing began with Cooper Tunnel Rehabilitation Project in 2020 and is scheduled to continue in the UK Arboretum in spring 2021.

Good Housekeeping:

- Stormwater Stakeholder Meetings in 2020 were held on February 7, July 24, and October 9. Meeting Information and sign-in sheets are enclosed in **Appendix F-5**. The May 8 meeting was cancelled due to COVID. Instead of meeting, an e-mail was sent to stakeholders that included the Annual Report, Executive Summary, MS4 documentation guidelines. Additionally, the e-mail discussed the need for stakeholders to begin working on their individually assigned tasks.
- Individualized SWQMP Implementation e-mails were sent to all stakeholders detailing all PY3 tasks and requesting updates, assessments, and rescheduling of all tasks. These e-mails were sent following the July 24 stakeholder meeting in preparation for discussions at the October 9 meeting.
- In an effort to obtain additional assistance in the completion of SWQMP tasks, EMD hired Strand in 2019 for Phase II Permit Compliance Assistance. This contract was extended through June 2021. To date, Strand has assisted in tasks including, but not limited to, the following.
 - Post-Construction BMP Inspection Reports
 - Outfall Inspection Reports
 - SWQMP Update and Schedule Modifications
 - IDDE Plan Update
 - Stormwater Operations Manual Development
 - Coal Pile Field Reviews
- As previously discussed in Section 4, EMD began the implementation of a new compliance tracking software. Cority, a computer-based compliance management system, was purchased for use in all areas of EMD. The purchase also includes access to RegScan, a program that can be used to review regulations, track regulatory

changes, and determine regulation applicability with regards to UK activities. Transition to this system was scheduled for early 2020 but has been delayed due to staff and resource reallocation because of the COVID-19 pandemic. Moving forward, it is the intention of EMD that Cority be used to conduct inspections and document compliance with permit requirements. Current inspection and tracking methods have been continued to maintain compliance.

- MS4 Web—While transition to Cority is underway, MS4 Web was continued to be used for activities related to MS4 compliance including BMP Inspection, Outfall Inspections, Design Document Collection and Organization, Construction Site Inspections, and NOT inspections.
- 6.D • Following the completion of the FEMA project, the basin immediately upstream from University Court was not draining properly. The water that it was holding was both a maintenance and safety concern. To address this issue and improve waterfowl management, UK hired Bell to reassess the basin design and develop potential modifications. Suggested improvements include regrading the bottom of the basin, installing a stone channel, and modifying the outlet control structure and trash grate. Preliminary costs were significantly higher than expected. Utilities personnel are currently working with Bell to reduce cost and schedule work, which will take place in 2021. The preliminary scope of work is available.

Has a comprehensive assessment of the pollutant discharge potential for all municipally-owned facilities been conducted? If not, indicate a status and planned completion date.

The following assessments have been completed to date regarding pollutant discharge potential.

- CEC was hired in 2010 to assess all campus buildings with floor drains for their potential to cause an illicit stormwater discharge. More than 200 UK buildings were identified to have floor drains. After screening out those that were not located within the MS4 boundaries and those that were known to be connected to sanitary sewer, the hospital cafeterias were excluded. Three priority buildings were identified that needed further investigation or repairs:
 - The greenhouses off Veterans and Hospital Drives
 - Cooling Plant No. 1
 - The College of Agriculture Motor Pool
- In October 2011, the storm drains under Cooling Plant No.1 were rerouted to sanitary sewer. Approximately the same time frame, dye testing was conducted at the Ag Motor Pool and showed that the floor drains were already directed to the sanitary sewer. Further investigations found that the greenhouses were indeed directed to the storm sewer system. In 2016, construction was completed redirecting greenhouses 1, 3, 5, 7, 9, and 11 to the sanitary sewer system. The project to connect the remaining greenhouse received price quotes (\$18,000) and project will be completed as funding allows.
- An inventory of facilities and maintenance activities on campus was conducted in 2010. In 2012, this inventory was updated, and 57 facility inspections were conducted. An additional 11 facilities were inspected in 2013.
- In 2015, UK commissioned the creation of a Utility Infrastructure Master Plan. Completed in January 2016, the goals of this plan are to:
 - Identify existing energy and utility system capacities
 - Identify deficiencies and inefficiencies
 - Account for future growth over the next 20 years
 - Recommend improvements

The campus energy and utility systems being included in this plan are: heating, cooling, electrical, domestic water, sanitary sewer, and stormwater. Primary objectives have been developed for each of these utilities. The primary objectives for stormwater include:

- Completing a detailed condition analysis of the existing system
 - Building a hydraulic model and conducting a capacity analysis of the existing system
 - Identifying deficiencies in the system
 - Providing recommendations that can be used to determine where future growth can be best accommodated
- In 2017, Environmental Audits of all UK Utility Plants were performed in order to assess environmental compliance at each location. These audits included a thorough inspection to determine any potential impacts to stormwater.

- UK has individual Spill Prevention Control and Countermeasure plans to cover the five major operational areas of campus:
 - Physical Plant Division
 - Dining Services Division
 - Medical Center Physical Plant Division
 - Good Samaritan Hospital
 - Athletics

Each area has been assessed for stormwater discharge potential related to petroleum products and is required to be inspected monthly and annually.

- The Peterson Garage floor drains were reassessed in 2019 to confirm their connection to the sanitary sewer system, rather than storm sewer. Grounds had been instructed to not wash equipment and vehicles at the Peterson Garage after erroneously being told the drains were connected to storm. Further evaluation including a review of the record drawings confirmed the drains are connected to sanitary sewer.
- The Groundwater Protection Plan for campus was rewritten in 2019. As part of the update process, the regulated activities at UK with the potential to impact groundwater were assessed, the locations and activities inspected, and the plan updated to reflect current BMPs. A copy of the updated plan was included in the 2019 Annual Report.

Is the Operation and Maintenance Program/Plan formalized or written? If it is not written, indicate a status and planned completion date.

- UK created an Environmental Protection Handbook in 2013 to serve the needs of main campus operations. Available for download on the EMD website (<http://ehs.uky.edu/env/>), this document contains specific Fact Sheets for a variety of campus activities that have the potential to impact stormwater. In addition to this handbook, UK has developed several additional policy manuals including:
 - Grounds Stormwater Policies and Procedures
 - PPD Contractor Handbook
 - Post-Construction BMP O&M Manual
 - UK Landscape Guidelines
 - PPD Dewatering Bag SOP
 - Stadium and Parking Garage Washdown SOPs

These additional manuals are included in **Appendix N** of the 2017 Annual Report.

- O&M manuals are also required to be provided for each post-construction stormwater BMP installed with new construction.
- During this permit term, UK will begin developing a comprehensive Stormwater Operations Manual (Task 6.A) that will include all policies, procedures, and BMPs used to meet the MS4 permit requirements. As previously mentioned, there are various SOPs and policies that protect stormwater throughout campus. The goal of this task is to integrate all existing information into one manual, update that information, and create new policies and procedures to improve permit compliance.

As part of this manual, the existing O&M manual will be updated to include specific maintenance requirements for each BMP on campus. Rather than generic requirements, manufacturer and designer-specific requirements will be included. These requirements will be translated into a calendar of required activities that will be integrated into the SAP Plant Maintenance system, UK's preventative maintenance program. This program will then automatically create work orders pertaining to each maintenance activity for staff to complete. This process will be coordinated with the development of UK's preventative maintenance program as certain maintenance tasks may be assigned to outside contractors for completion. The development of this manual will be an ongoing effort throughout this and subsequent permit cycles.

Provide a general summary of how your Operations & Maintenance Plan provides for the inspection of structural and non-structural BMPs at municipal facilities (as described in KYG200000 section 2.2.6.3.) This summary should include the frequency of inspections, who is responsible for conducting the inspections, and what written documents are referenced for inspection criteria.

The plan for UK guiding inspections of facilities around campus is the SPCC plan. Although this document targets oil spills associated with facilities, stormwater inspections are now being conducted at each utility plant in conjunction with monthly SPCC inspections. If any type of impact to the storm sewer system is observed, EMD will be notified. Guidance on inspection protocol and report is included. A copy of the SPCC plan is available upon request. In addition to the regular monthly inspections, EMD completed inspections of the following campus locations covered by an SPCC plan in 2020:

| | | |
|------------------------------|--------------------------------|-------------------------------|
| • Central Heating Plant | • Memorial Coliseum | • John Cropp Softball Stadium |
| • Peterson Service Building | • Wildcat Coal Lodge | • Softball Hitting Pavilion |
| • Chemistry-Physics Building | • Joe Craft Center | • Kentucky Proud Park |
| • Cooling Plant No. 1 | • Cliff Hagen Baseball Stadium | • Multi-Dis. Science Building |
| • Cooling Plant No. 2 | • Shively Grounds Annex | • Markey Cancer Center |
| • Central Utility Plant | • Nutter Training Center | • College of Nursing |
| • Good Samaritan Hospital | • Kroger Field | • Chandler Medical Center |
| • Medical Office Building | • Football Training Facility | |

As previously mentioned, the UK Groundwater Protection Plan was updated in 2019. This included inspection schedules, specifying the type of equipment and storage systems inspected, examples of general issues that may occur, and the required frequency of the inspections. A copy of the plan was included in the 2019 Annual Report.

Describe any training presented to staff on pollution prevention/good housekeeping in 2020.

The following trainings were updated or provided relating to pollution prevention and good housekeeping in 2020.

6.B

- Employee Training Update—EMD and Strand are working to develop updated online general stormwater training for all necessary staff to take annually. Once training is developed and available, the Facilities Training Coordinator will work to assign training to employees. The Stormwater website will also have a training section that provides information to aid supervisors in creating training to be conducted during safety and staff meetings on a routine or as needed basis. Supervisors can assess those staff that perform activities capable of impacting stormwater and determine whether training is needed or has been received. Supervisors can develop or update training as necessary to discuss stormwater protection during job-related activities.
- EMD continued to coordinate UK’s SPCC program throughout 2020. Training was provided to employees in the following departments: Campus PPD, Medical Center PPD, Utilities and Energy Management, and Grounds. Training topics included the following:
 - Part 1—General Awareness Topics
 - Topics and Objectives
 - What is an SPCC Plan and the Definition of Oil
 - Contents of the SPCC Plan
 - Updating Requirements
 - Applicable Laws and Regulations
 - Part 2—UK Specific Topics
 - Oil Handling Facilities at UK
 - Oil Spill Response Procedures
 - Understanding Spill Pathways
 - O&M Procedure Requirements
 - Inspection requirements

- Part 3–Area Specific Topics
 - Discharge Control and Cleanup (area specific operating procedures, spill kits, notification requirements)
 - Details of Decision-Making and Reporting in Case of a Spill or Leak
 - Location and Quantities of Oil in the Area
 - Review of Spill Pathways in the Area

The sign-in sheets and training presentations are enclosed in **Appendix F-6**.

- Custodial Services Stormwater Protection Lunch and Learn–This event was scheduled to be held in 2020 but was cancelled due to COVID-19 restrictions.
- Custodial Services Stormwater Training–Custodial Services worked to develop stormwater specific training for its new employees. In doing so, they were provided the existing Custodial Staff Fact Sheet, Custodial Services and Stormwater Pamphlet, UK Environmental Handbook, IDDE Factsheet, Stormwater 101 Video, and Stormwater 201 Video. This information was shared with employees as part of initial employee training.
- Grounds New Employee Stormwater Training–Consisted of viewing Stormwater 101 (Introduction to Stormwater) and 102 (Illicit Discharge) videos. Training documentation is included in **Appendix F-7**.
- UK Facilities PPD–Planning, Design, and Construction–Concrete Washout Training was held on February 21, 2020. Training content and sign-in sheets are available in **Appendix F-8**.
- Aramark Maintenance Coordinator Training–A new Maintenance Coordinator was hired in October of 2020. Training for the new staff included review of grease interceptor program requirements and Dining’s SPCC Plan. This led to the inspection of all cooking oil waste tanks, tank replacement at The 90, Gatton Student Center, and Kroger Field, placing tanks on plastic pallets for ease of inspection or relocation, and spill kit verification and restocking.
- EMD worked closely with UEM on several efforts related to training on SWQMP task requirements in 2020.
 - EMD provided a memo outlining UEM’s role in meeting the MS4 permit requirements. This also included the SWQMP and Strand’s Coal Pile Assessment.
 - EMD Prepared Environmental Compliance Checklists for UEM-related tasks. This included Air, Waste, and Water checklists. Water-related checklists include SPCC, Groundwater, Stormwater, and Wastewater. Copies of the checklists are included in **Appendix F-9**.
 - EMD presented the results of the BMP inspections performed by Strand. The presentation covered needed maintenance, permit requirements, and SWQMP tasks awaiting completion. The presentation is included in **Appendix F-10**. Summary report is available upon request.
 - Three additional meetings were held in the second half of 2020 to discuss UEM responsibilities, task types, and top priority tasks requiring action.
- EMD and CPMD staff attended LFUCG’s Annual Erosion and Sediment Control Training on October 22, 2020.

What is your budget for MCM #6?

EMD provides consultation and services to UK regarding Minding Pollution Prevention and Good Housekeeping through funding provided by an environmental service surcharge applicable to all UK departments. As a result of this surcharge, EMD’s budget is relatively stable and is used to support O&M needs on an as-needed basis. Depending upon the activity, need, or project, additional funding sources from other UK departments (e.g., PPD, Athletics) may be used.

With the development of the 2018 to 2023 SWQMP, an estimated budget was created for those tasks with associated direct costs. The following chart provides the potential costs for several MCM 6 tasks:

| 2018 - 2023 SWQMP Estimated Budget | | | | | | | | | |
|------------------------------------|---|---------------|--------------------|-------------------|--------------------------|----------------------------|---------------------|---------------------|--------------------|
| Task (#) | Task/Expense Discription | Min Cost (\$) | Task Max Cost (\$) | Task Year | Reoccurrence | Number of Years Multiplier | Total Min Cost (\$) | Total Max Cost (\$) | Funding Department |
| 6.A | Development of Stormwater Operations Manual | | 50,000 | Year 5 completion | One-Time | 1 | 50000 | 50000 | EMD |
| 6.A.1.b | Increased Recurring Maintenance Costs Based on Completed O&M Manual | | | Annual | Annual | 5 | | | Utilities/Grounds |
| 6.C | Coal Pile Pollution Prevention Assessments and Upgrades | 2000 | 15000 | Four | One-Time | 1 | 2000 | 15000 | Utilities |
| 6.D | Gluck Pond Alternative Management for Geese (Landscaping) | | 20000 | Year 4 completion | One-Time | 4 | 80000 | 80000 | Grounds |
| 6.D | Assessment of Waterfowl Impact and Management Program | 4000 | 20000 | Annually | Annually for permit term | 5 | 20000 | 100000 | Grounds |

Summary of COVID-19 Pandemic Program Impacts

Provide a summary of all planned MCM#6 activities for PY2020 which were affected by the public health protocols enacted in response to the COVID-19 pandemic. Include the name and a brief description of the activity, how the activity was affected by the public health protocols, and how permit requirement compliance was maintained.

- UK's Pick it Up (Litter Elimination) Campaign
 - See Section A for more information on the status of this campaign.
- 6.A.4 • Create Policy and Procedures Surrounding Stormwater Protection During Emergency and Unplanned Events
 - Description: Develop a procedure to implement BMPs for emergencies or unplanned events, like water main breaks, that have the potential to impact stormwater.
 - Status: This task was scheduled to begin at the end of PY2 and be completed in PY3. Shortly after beginning the process development, both staff and budget resources were reallocated away from this task because of the COVID-19 pandemic.
 - Compliance: UK intends to progress on this task later in the permit cycle at staff availability and budget allow.
- 6.A.5 • Policy for Unknown Spill Cleanup
 - Description: Create procedures for response, notification, and proper clean-up of unknown spills.
 - Status: This task was scheduled to begin at the end of PY2 and be completed in PY3. Shortly after beginning the process development, both staff and budget resources were reallocated away from this task because of the COVID-19 pandemic.
 - Compliance: UK intends to progress on this task later in the permit cycle at staff availability and budget allow.

The following documentation is attached in the appendices referenced above.

Appendix F-1–Stormwater Infrastructure Repair Cost Summary

Appendix E-2–EcoGro FEMA Basin Annual Maintenance Report

Appendix F-2–UK Grounds Stormwater Data Tracking Results

Appendix F-3–Coal Piles Documentation

Appendix F-4–Gluck Pond Waterfowl Management Efforts

Appendix F-5–Stormwater Stakeholder Meetings Sign-in Sheets and Agendas

Appendix F-6–Spill Prevention and Control Countermeasures Training Sign-in Sheets and Presentations

Appendix F-7–Grounds New Employee Training Documents

Appendix F-8–Concrete Washout Training Sign-in Sheet and Training Information

Appendix F-9–UEM Environmental Compliance Self-Evaluation Checklist

Appendix F-10–BMP Inspections by Strand Associates

PART D: MISCELLANEOUS INFORMATION

Provide any data regarding the following indicators (if applicable). Attach separate sheets as necessary, and indicate, as appropriate, the rationale behind not using a listed indicator.

One person responsible for permit implementation is to receive at least 12 hours of documented training annually, related to furthering MS4 goals and objectives. List the person that received this training in 2020 and attach documentation for the training they received.

Refer to previous discussion in Section E and Appendix E-1 for applicable training.

13. Stormwater Quality Management Plan

a.) Have there been any changes to the urbanized area covered by the MS4? If yes, is this reflected by updates to the SWQMP? Have you provided an updated MS4 Map to the KDOW?

UK routinely acquires properties adjacent to the MS4 boundary that are subsequently absorbed into the MS4 area. These properties are typically older houses that are retained until such time as UK decides to develop them and are typically rented or remain vacant until that time. Contractors provide basic maintenance for these assets. As properties are acquired and sales are final, UK's Real Estate Services Division communicates the new acquisitions to GIS who updates the UK map. The main UK map can be found on the Facilities Management website: <http://www.ppd.uky.edu/map/> and contains a base layer entitled "UK Owned" that displays the main campus boundary, including all the latest additions. The MS4 map is based on this boundary and is updated annually/as needed. Because of the routine incremental increase in the MS4 Boundary, the "UK Owned" map is the most up-to-date source of property information. This is facilitated through the procedures outlined in the previously discussed MS4 Boundary Expansion Process developed though Task 3.A.2.

b) Are there any proposed changes to the goals or BMPs in the SWQMP?

Most of 2018 was spent assessing the previous SWQMP, strengths and weaknesses of UK's MS4 program, and developing a robust SWQMP to strengthen compliance with the permit, improve UK operations, and improve campus water quality. This includes a total of 106 tasks, 80 of them new for the permit cycle, and a total of 225 measurable goals.

During 2020, many additional tasks were designated for implementation with significant progress being made on several of them. However, there were also many lessons learned on some of the difficulties encountered in implementing such an aggressive SWQMP. These include the realities of the time taken to complete tasks, existing workload of stakeholders, and the impact of personnel changes. Each has an impact on the ability to complete these tasks to the high standard that UK is working to achieve and maintain.

All of this, in addition to the continued impacts of the COVID-19 on staff availability, budget, and focus have led to the following changes being made to the target beginning or completion dates for the tasks from the 2018 to 2023 SWQMP listed in the following. While some tasks have been postponed later in the permit term, others have begun early.

| Task | Task Summary | Changes |
|---------|--|---|
| 1.B | Update and Maintain a Stormwater Website | Began in PY2, will extend to PY4 |
| 1.C | Extend Program to Visitors | Extend task to PY4 |
| 1.C.1 | Develop Awareness Materials for Tailgating | Extend task to PY4 |
| 1.J | Develop a Consortium of Professionals Targeting Universities | Rescheduled to begin in PY4 |
| 2.A.2 | Develop Interactive Drain Marking Activity | Extend task to PY4 |
| 2.B.1 | Develop Procedure for Announcing Engagement Opportunities | Extend task to PY4 |
| 3.A.1 | Update Utility Map with Bell 2017 Assessment | Due to implementation issues, extended into PY5 |
| 3.B.2 | Develop SSO Protocols and Resolution Time Frames | Began in PY2, will extend to PY4 |
| 3.B.5 | Assessment of Dry Weather Flows on Campus | Began in PY2, will extend to PY5 |
| 3.B.5.a | Assessment of Manchester Culvert Dry Weather Flows | Rescheduled to begin in PY4 |
| 3.D.1 | Integrate Illicit Discharge Detection and Prevention into Routines | Task began ahead of schedule in PY3 |
| 3.G | Complete Greenhouse Conversion to Sanitary Sewer | Rescheduled to occur in PY3 and PY4 |
| 3.H | Minimize Cigarette Butts Entering Storm Drains | Extend task to PY4 |
| 4.D.4 | Implement QC Process for KYR10 Site Inspections | Rescheduled to begin in PY4 |
| 4.G.5 | Develop Stormwater Training for Preconstruction Meetings | Extend task to PY4 |
| 4.H | Develop Small Project Stormwater Guidance | Extend task to PY4 |
| 5.A.1 | Review Possibility of LFUCG MOU | Extend task to PY5 |

| | | |
|-------|--|---|
| 5.E | Incorporate BMP Information in Stormwater Operations Manual | Task began ahead of schedule in PY3 |
| 5.F | Prepare Comparison of Green and Gray Infrastructure | Extend task to PY4 |
| 6.A.1 | Update BMP O&M Manual | Task began ahead of schedule in PY3 |
| 6.A.3 | Develop Rainwater Harvesting System Procedures | Rescheduled to begin in PY4 |
| 6.A.4 | Create Procedures to Respond to Unplanned Stormwater Events | Extend task to PY4 |
| 6.A.5 | Create Procedures for Unknown Spill Cleanup | Extend task to PY4 |
| 6.A.6 | Develop Standard Operating Procedures for Athletics Activities | Extend task to PY4 |
| 6.C | Evaluate Coal Pile Pollution Prevention Measures | Task began ahead of schedule in PY2 |
| 8.B | Begin Watershed Focused Monitoring | Rescheduled to begin in PY4, if necessary |
| 9.A | Assess Implementation of Watershed Focused Monitoring Plan | Rescheduled to begin in PY4 |

More information regarding the specifics of the measurable goal progress is available in the previous text and the updated SWQMP summary table included in **Appendix G**.

14. Discuss any problems encountered during this period (include any BMP changes in response to problems encountered).

Since implementation began of UK's aggressive SWQMP, several difficulties have been identified that will result in extended time frames for the previously noted tasks to allow the full effort to be completed. As previously mentioned, these include lessons learned on the time taken to complete tasks, the impact of the existing workload of stakeholders, and the impact of personnel changes.

As discussed in MCM 1, personnel changes, organizational changes within TFISE, and staff unavailability have caused EMD to abandon partnership development with TFISE and/or KWRRI for the management of MCMs 1 and 2. This has created a need to seek alternative methods for management of the outreach, education, and public participation program. Discussions have begun with Sustainability about a possible partnership with EMD to complete these efforts. EMD is also considering hiring additional personnel to provide assistance in completing these tasks. A strategy on how to proceed with the development of a formal MCM 1 and 2 program will be developed in 2021. As a result of the complications surrounding these efforts, target completion dates for tasks in this area will need to be reviewed and modified.

15. Identify any new funding source(s) for implementing this permit.

A grant application was submitted to LFUCG's Stormwater Incentive Grant Program in 2018 related to stormwater harvesting for utility plant usage. While it was not selected in 2018 the project was resubmitted in 2019 and selected for funding providing \$216,800 of the projected \$271,000 cost to implement the project. The Grant Award Agreement was signed and submitted to LFUCG July 23, 2020. Bell Engineering was hired to provide engineering services for the project. The project is currently in the design phase.

UK was previously awarded an LFUCG Stormwater Class A&B Education Grant for implementation of trial program to determine effectiveness of a pressured-steam weed control system to reduce chemical weed control on campus, especially around stormwater BMPs. The grant application goals were to demonstrate and develop education materials related to nonchemical weed management techniques. The grant was partially funded at \$21,646 requiring that alternatives be developed to reduce the budget and allow the project to begin. Work on this project is ongoing.

16. Provide a summary of complaints received and the follow-up actions taken in reference to storm water quality issues.

The number of complaints received is discussed in Section C of this report and all complaints and illicit discharge reports from 2020 are included in **Appendix C-1**.

17. Implementation status:

- a. Are the six minimum control measures being implemented within the compliance schedule and SWQMP timetables?

Yes No*

* If no, submit revised compliance schedule and SWQMP Timetables.

As previously noted in questions 13 and 14, while a significant amount of work has been completed on tasks both in and outside the original scope of the SWQMP, several tasks have implementation schedules that are being expanded allow for the full effort to be completed.

In addition to routine complications prohibiting the timely completion of SWQMP tasks, the COVID-19 pandemic and the UK's response efforts have impacted the program in both direct and indirect ways. For much of spring and summer 2020, the majority of campus was shut down with classes either cancelled or moved online and most employees working remotely. Many of those that remained on campus were tasked with preparing campus for in-person classes, bringing employees back to work, and making campus safe for those that remained. For example, 9,200 pieces of furniture were relocated to promote social distancing, 1,450 cleaning kits were assembled, 370 wheeled classroom shields were deployed, and 30,000 signs were printed and distributed. More regarding UK's COVID-19 response can be found here: <https://www.uky.edu/coronavirus/>. The preparation efforts, sampling, sanitation, etc. were in addition to regular employee workloads and as a result, some SWQMP tasks were hindered.

Changes in work focus, a reduced campus population and state-wide stay at home orders impacted the economy, causing budget shortfalls across the Commonwealth. The stormwater program was not immune as the contract with Strand for stormwater assistance saw a 50 percent reduction in value.

b. Do you foresee any problems which may affect full implementation of all the measures?

Yes No*

* If yes, explain:

The 2018 to 2023 SWQMP is comprehensive, ambitious, and requires assistance from multiple stakeholders to be completed. While every effort will be made to complete all assigned tasks and measurable goals within the assigned time frame, the possibility remains that tasks may not be completed by the goal specified in the plan. A tracking spreadsheet has been developed to monitor progress and routine update meetings will be held to assess efforts. Time frames will be adjusted annually as necessary.

18. Do you have any impaired streams? If so, impaired for what pollutant?

Areas of UK's MS4 drain to Town Branch, Wolf Run, and West Hickman Creek. Based on the KDOW 2016 303(d) list, segments of West Hickman, Wolf Run, and Town Branch, along with many of their tributaries, are impaired. None of these impaired stream segments or tributaries are within UK's boundary with the exception of Big Elm Fork (listed as an unnamed tributary to Vaughn's Branch).

Newly listed in 2016, the section of Big Elm Fork that begins at the outlet of the Greg Page underground detention basin and continues to the WR-1 Outfall at the corner of Alumni Drive and Nicholasville Road does not support aquatic life and partially supports swimming, fishing, wading, and boating because of specific conductance, *E.coli*, and Fecal Coliform impairments. The data used to make this determination was collected in 2011 and 2012. Important to note is that since that time the entire watershed has undergone a major redesign due to the efforts of the FEMA Flood Mitigation Project as well as the rerouting and redesign of Alumni Drive. Also, in 2016, an illicit discharge to this watershed was discovered coming from a storm drain line in the Shawneetown area. Caused by wastewater intrusion from a nearby sewer line, the problem was identified and eliminated in 2017. Since that time, follow-up samples have shown a sharp decrease in *E.coli* concentrations. With remaining numbers still above the water quality standard, investigation and remediation efforts in the area are still underway. Lines were televised in 2018 with several severe problems noted. Line repair, replacement, and brick manhole lining to resolve these issues began in 2019 and are ongoing.

19. TMDL—Do you have a TMDL in your MS4? For which stream segments? What is the impairment?

There are two TMDLs associated with UK's MS4: The South Elkhorn Creek Fecal Coliform and *E. Coli* TMDL and the Kentucky Statewide TMDL for Bacteria Impaired Waters.

The South Elkhorn TMDL includes the following stream segments associated with UK: section 0.0 to 4.4 of Wolf Run Creek and section 10.8 to 12.1 of Town Branch Creek. These stream segments are not located within the boundary of UK's MS4; however, UK is located within the overall watershed represented by the TMDL.

In 2019, the Kentucky Division of Water has developed a new state-wide approach for addressing the numerous bacteria-impaired waterbodies found throughout Kentucky. Rather than creating a separate TMDL for the Unnamed Tributary of Vaughn's Branch 0.0 to 1.85, the impaired stream will be included under this TMDL.

Even though a TMDL has yet to be completed for Big Elm Fork (Unnamed Tributary of Vaughn's Branch), UK is addressing the impairment through tasks included in the SWQMP. Task 8A requires BMPs to be implemented in response to the recent impairment. These BMPs include sewer line evaluation and repair, sealing brick manholes, evaluating RV grey and blackwater discharge during tailgating events, monitoring, and waterfowl management to name a few.

20. What can the Division of Water do to assist you with program compliance?

Nothing at this time.

PART E: CERTIFICATION AND SIGNATURE

► The individual completing this report, listed in "PART A: GENERAL INFORMATION-MS4 OPERATOR" must sign the following certification statement:

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

Type or Print Name: Mary S. Vosevich

Signature: Mary S. Vosevich

Date: 4/08/21
(mm/dd/year)

APPENDIX A

Public Education and Outreach

Included Documentation

Educational Resource Page Overview

Social Media Tracker Spreadsheet

Poster for ASABE

UK Stormwater Presentation Slides

WRFL GreenTalks Interview Questions

UK Facilities Newsletters

KYTC's Education and Outreach Efforts

Overview of Stormwater Educational Resources Pages

- These are the topic categories for educational resources that we came up with.
- We think a tiled series of images that represent each topic on the educational resource topic categories will be a good layout
- We plan to shoot a video to serve as the introduction content on each topic page. Videos will need to be rescheduled, once we can return to campus.
- We will provide our top three resources for each category (Assuming we have three that we can identify. We can have a "more resources" link at the bottom of each topic page.

1

Stormwater Overview

These resources provide background information on the topic of stormwater and its management. They also identify problems associated with urban stormwater and solutions to address these issues. This is a great place to start developing an understanding of the complex interactions of human development and stormwater.

Video
 Additional Resources
 Resource 1: [HENV 203: Stormwater](#)
 Resource 2: [Stormwater- Issues and Impacts](#)

2

Watersheds

A watershed is all the area that drains to a common point. This is a scalable concept that can range from all the area that drains to a small creek to all the area that drains to the Mississippi River. A watershed is a useful concept in managing water quality and quantity issues because it is an identifiable area that can be analyzed for implementing management strategies to address known or suspected water resource related issues. The resources provided here will aid in developing a basic understanding of the watershed concept and how we can protect water sheds in Kentucky.

Video
 Additional Resources
 Resource 1: [HENV 204: What is a Watershed](#)
 Resource 2: [HENV 206: Understanding and Protecting KY Watersheds](#)

3

Stream Restoration

Stream restoration is the practice of identifying and addressing issues with the form and function of existing waterways and developing and implementing a plan to address these issues. The scope and scale of a restoration depends on many factors including time, budget, expected impact, and many other human/non-human factors. The resources on this page provide a basic understanding of the stream restoration processes and some of the issues that the practice attempts to address.

Video
 Additional Resources
 Resource 1: [AEN 122: Restoring Streams](#)
 Resource 2: [AEN 124: Streambank Erosion](#)

4

Riparian Areas

Riparian areas are the vegetated areas along waterways. Riparian areas serve many functions, including bank stabilization, flood mitigation, nutrient cycling, and wildlife habitat, to name a few. Establishing and protecting riparian areas is a key technique for protecting waterways. The resources on this page provide details on the concept of riparian buffers and how to manage them in a manner that protects water quality.

Video
 Additional Resources
 Resource 1: [HENV 202: Planting Along Your Stream Pond or Lake](#)
 Resource 2: [ID-185: Planting a Riparian Buffer](#)
 Resource 3: [IP 73: Living Along a KY Stream](#)

5

Low Impact Development and Green Infrastructure

Low impact development and green infrastructure are stormwater management techniques and structures that are designed to slow, spread, and soak water into the ground as opposed to traditional methods of rapid conveyance of stormwater to local waterways from urban areas. The resources provided on this page provide details on these topics and provide guidance on when they might benefit your project area.

Video
 Additional Resources
 Resource 1: [AEN 118: Managing SW Using Low Impact Development](#)
 Resource 2: [ID 215: Stormwater Wetlands](#)
 Resource 3: [AEN 108: Permeable Pavement for Stormwater Management](#)

6

Groundwater

Groundwater is the water that flows through soil, caves, aquifers beneath our feet. Surface water and groundwater interact in multiple ways and it is important to consider and protect these connections to manage potential sources of groundwater contamination. Here in central Kentucky, we have a high level of connectivity between surface water and groundwater resources due to the limestone that underlies our region. The limestone dissolves over time and creates rickholes and conduits in the rock formation that readily allow surface water into the groundwater system. The resources available on this page provide details on ways we can protect groundwater quality and provide additional information on the general concepts of groundwater, aquifers, and karst.

Video
Additional Resources
 Resource 1: [AEN 120: Groundwater Quality](#)
 Resource 2: [AEN 126: Common Hazards in Karst Terrain](#)

7

Litter

Litter on campus can quickly be transported by stormwater into our storm sewer and directly to local water ways. Proper disposal of litter, often referred to as floatables in the context of litter in water ways, can help reduce the amount of trash that ends up in our local streams. The resources on this page describe ways that you can do your part to make sure we minimize the amount of litter that ends up as floatables in our nearby streams.

Video
Additional Resources
 Resource 1: [AEN 119: Keeping Trash Out of Streams](#)

8

Pollution Prevention and Monitoring

Pollution prevention and monitoring are complementary techniques that help to identify and address issues with water quality. Not only are these practices required as a part of many permit conditions, they are also the ethical core of being responsible keepers of our natural resources and protecting them for future generations. The resources on this page identify ways we can prevent, reduce, and monitor pollution of our local water ways.

Video
Additional Resources
 Resource 1: [AEN 106: Reducing SW Pollution](#)
 Resource 2: [ID 228: Aquatic Macroinvertebrates: Biological Indicators of Stream Health](#)

9

Pets

Pet waste on campus has grown as an issue over the past several years and it is important to identify this as an issue that needs management to the campus community. If we do not manage pet waste at the time of deposition, it will quickly find its way into stormwater systems through leaching and runoff from stormwater infrastructure. The resources shared on this page identify ways we can all do our part to ensure pet waste is properly managed on campus.

Video
Additional Resources
 Resource 1: [The Scoop on Poop: Pet Waste Issues](#)

10

Wildlife

Like pets, wildlife can have a detrimental impact on water quality when their waste enters our stormwater and ends up in our stormwater systems. Wildlife and pet wastes can be sources of pathogens, nutrients, and debris by accumulating in our campus environment. The resource provided on this page describes methods for educating our wildlife populations on campus that can add to water quality issues in our stormwater systems.

Video
Additional Resources
 Resource 1: [ID 174: Options for Controlling Canada Geese](#)

11

Twitter Posts 2020

| Post Date | Text of Post | Impressions | Total engagements | # Retweets | # Likes |
|-----------|--|-------------|-------------------|------------|---------|
| 1/7/2020 | We all could use a little more art in our day. Check out our podcast on The Artistry of Water https://www.podbean.com/eu/pb-3eg7s-ca0e8c#.XhRirn96RVk.twitter | 616 | 5 | 1 | 2 |
| 1/23/2020 | Look what's coming! Water Week https://www.lexingtonky.gov/WaterWeek | 320 | 22 | 0 | 3 |
| 1/25/2020 | pic.twitter.com/wuiehloWHr | 361 | 11 | 0 | 0 |
| 1/27/2020 | How to make conservation practical and profitable https://www.morningagclips.com/how-to-make-conservation-practical-and-profitable/ | 631 | 13 | 1 | 4 |
| 1/27/2020 | Excited to be a part of the Kentucky Climate Consortium. https://news.ca.uky.edu/article/kentucky-climate-consortium-empowers-kentuckians-be-environmental-stewards | 371 | 6 | 0 | 2 |
| 1/28/2020 | Check out the video on the Kentucky Climate Consortium https://uknow.uky.edu/research/kentucky-climate-consortium-empowers-kentuckians-be-environmental-stewards?utm_medium=social | 743 | 12 | 2 | 7 |
| 3/2/2020 | How to build more effective monarch gardens https://www.morningagclips.com/how-to-build-more-effective-monarch-gardens/ | 675 | 15 | 3 | 4 |
| 3/24/2020 | Project WET https://www.podbean.com/eu/pb-d3wgq-d55b2f#.XnoxhBtbYug.twitter | 512 | 3 | 1 | 1 |
| 3/24/2020 | Watershed Planning https://www.podbean.com/eu/pb-4kx2f-d5ce4d#.XnoxCHenwGg.twitter | 478 | 4 | 1 | 1 |
| 4/2/2020 | Join us as we chat with Dr. Lou Hirsch in this episode - Scuba in KY?! Part 1 of 3 https://www.podbean.com/eu/pb-ibvb5-d6a446#.XoY_sP_3sqg.twitter | 298 | 2 | 0 | 1 |
| 4/20/2020 | UK President Eli Capilouto: Serving Kentucky Is at the Heart of Our Mission https://youtu.be/yDGSy5GUPMg via @YouTube | 589 | 2 | 1 | 1 |

| | | | | | |
|-----------|--|-----|----|---|---|
| 4/28/2020 | Check out these neat and useful Fix It Guides. https://www.uky.edu/facilities/cppd/services/facilities-services/recycling/fix-it-guides | 398 | 13 | 0 | 1 |
| 5/7/2020 | Congratulations, Sophie! https://uknow.uky.edu/student-and-academic-life/sophie-beavin-honored-student-employee-year?utm_medium=social | 511 | 23 | 0 | 2 |
| 5/8/2020 | Earn a digital badge (such as one in environmental protection) this summer. Learn more here. https://summer.uky.edu/courses-and-programs/badges ... pic.twitter.com/PvJ7iD5kmo | 425 | 5 | 0 | 0 |
| 6/30/2020 | Our great blue heron friend is enjoying the morning sun with the #UKStormCats Gluck Pond planting in the foreground. We'll check back in to see what kind of bugs are enjoying the native wildflowers 🐱 #stormwaterquality pic.twitter.com/a8ri1qsJyo | 654 | 20 | 1 | 4 |
| 7/2/2020 | Check out this tiny swallet at Coldstream Park draining all of Cane Run! #UKStormCats know that urban stormwater runoff recharges much of our groundwater and everyone can help improve #stormwaterquality @UKAgriculture @SustainableUKY @UKTFISE @LexingtonKyGov pic.twitter.com/f9RnjOmxHQ | 757 | 20 | 1 | 6 |
| 7/5/2020 | #UKStormCats will be featuring local streams that have undergone restoration efforts to improve #stormwaterquality and stream ecosystems. Check out Green Acres Park in @LexKyParks. Visit http://ow.ly/gWtH50ApYSm to learn more. @UKAgriculture @SustainableUKY @UKTFISE @UKWater pic.twitter.com/YClzTINGld | 807 | 28 | 3 | 4 |
| 7/16/2020 | https://uknow.uky.edu/research/uk-entomologists-find-invasive-paper-wasps-preying-monarch-butterfly-larvae?utm_medium=social ... | 511 | 6 | 1 | 0 |
| 9/14/2020 | http://ow.ly/2rcP50Bq4Z2 #UKStormCats @UKAgriculture @UKTFISE @SustainableUKY | 452 | 10 | 1 | 2 |

| | | | | | |
|------------|--|-------|----|---|---|
| 9/24/2020 | Plant highlight: Swamp milkweed (<i>Asclepias incarnata</i>) provides food and shelter for wildlife (like this monarch caterpillar in my backyard!) and its tolerance for wet soil makes it great for #stormwaterquality projects like rain gardens and streamside buffers. #UKStormCats pic.twitter.com/h3KX3mQggj | 466 | 13 | 1 | 3 |
| 10/22/2020 | Come on out and help keep the Farm Road rain garden looking great! #UKStormCats #stormwaterquality @UKAgriculture @UKTFISE @SustainableUKY pic.twitter.com/djwM1aCifS | 1,524 | 33 | 4 | 3 |
| 12/14/2020 | Keep in touch this winter! @UKAgriculture pic.twitter.com/5u3j2O7sdm | 349 | 7 | 0 | 1 |

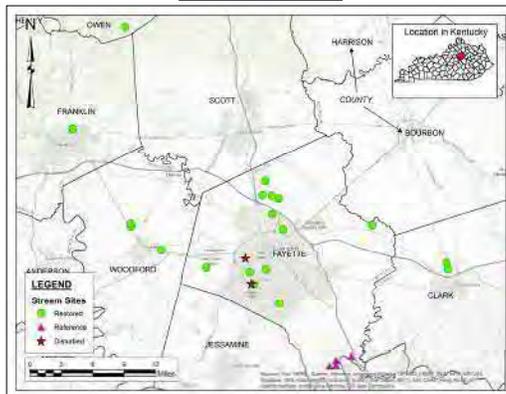
Evaluating the Biotic Condition of Restored Streams in Kentucky's Inner Bluegrass Region

INTRODUCTION

The Inner Bluegrass region of Kentucky is home to dozens of stream restoration sites in Lexington and the surrounding environment. Stream restoration efforts are intended to improve the structure and function of streams that have been disturbed by human activity.

Healthy streams provide varied habitat and support diverse biological communities while buffering the erosive effects of stormflow events. This project's purpose is to evaluate the biological integrity of stream restoration sites in the Inner Bluegrass in comparison with natural and disturbed reference streams.

RESEARCH SITES



Elm Fork's streambanks are stabilized by dense vegetation that provides shade, provisioning in the form of organic debris, and filtration of stormwater runoff. The stream carries a visible load of suspended sediment and algae.

Cole Crankshaw, M.S. Student

Department of Biosystems & Agricultural Engineering
University of Kentucky

Dr. Carmen Agouridis, Ph.D., P.E., M.P.P.

Associate Dean for Instruction, College of Agriculture, Food, and Environment
University of Kentucky

OBJECTIVES

1. To evaluate stream health and habitat potential along stream restoration sites in Kentucky's Inner Bluegrass region.
2. To quantify stream health based on a biotic index calculated from the diversity and richness of benthic macroinvertebrate indicator species living in each stream.
3. To identify watershed characteristics and geomorphic parameters that improve instream habitat and biotic indices.



This restored reach of Elm Fork flows through the Kleber Wild Life Management Area in Owen County, Kentucky.

KEY STREAM FEATURES FOR HABITAT ASSESSMENT

1. Presence of a variety of habitat types: riffles, large woody debris, vegetation, leaf packs, pools, undercut banks.
2. Streambank stability: while stream migration is natural, evidence of frequent scouring flows and streambank failure indicates poor habitat.
3. Riparian buffer: streamside vegetation provides numerous benefits, including shade, which increases dissolved oxygen concentrations, provisioning for aquatic animals, including leaves and woody debris, and an anchoring effect that helps to hold the streambanks in place.
4. Water clarity: excessive sediment loads and algal blooms can make it difficult for aquatic organisms to locate food and shelter.

ANTICIPATED OUTCOMES

This project is currently in the data analysis phase, so the following preliminary conclusions are based on first impressions gathered during site visits.

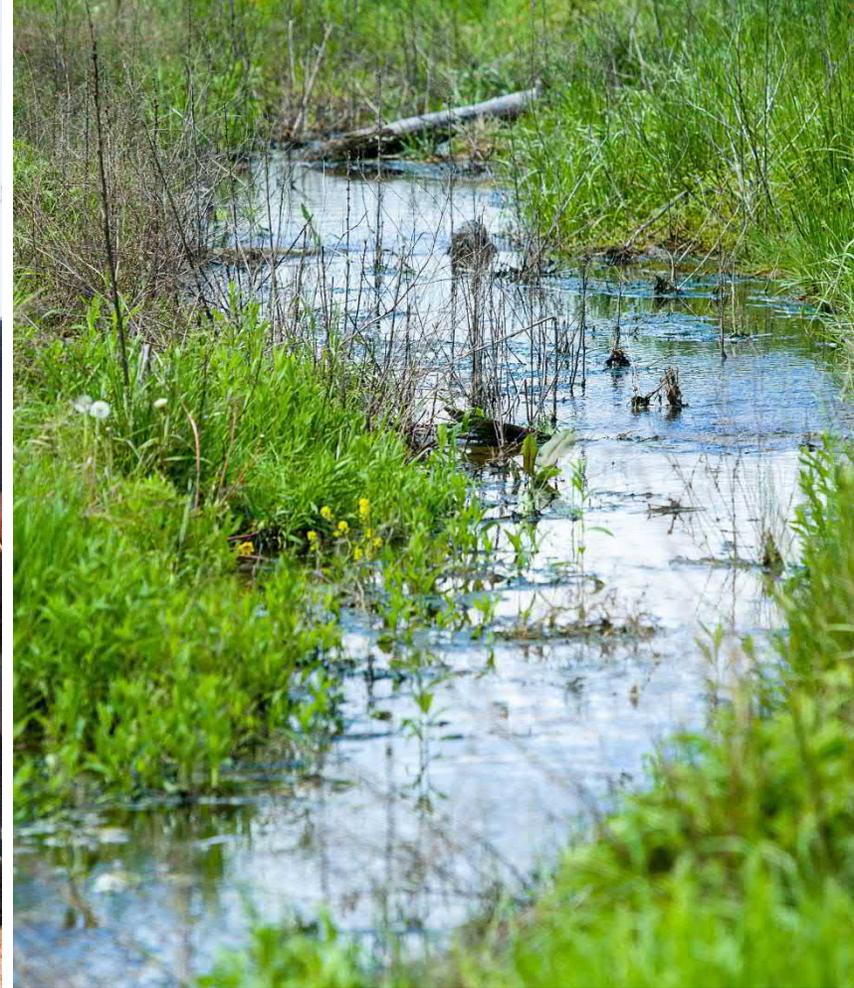
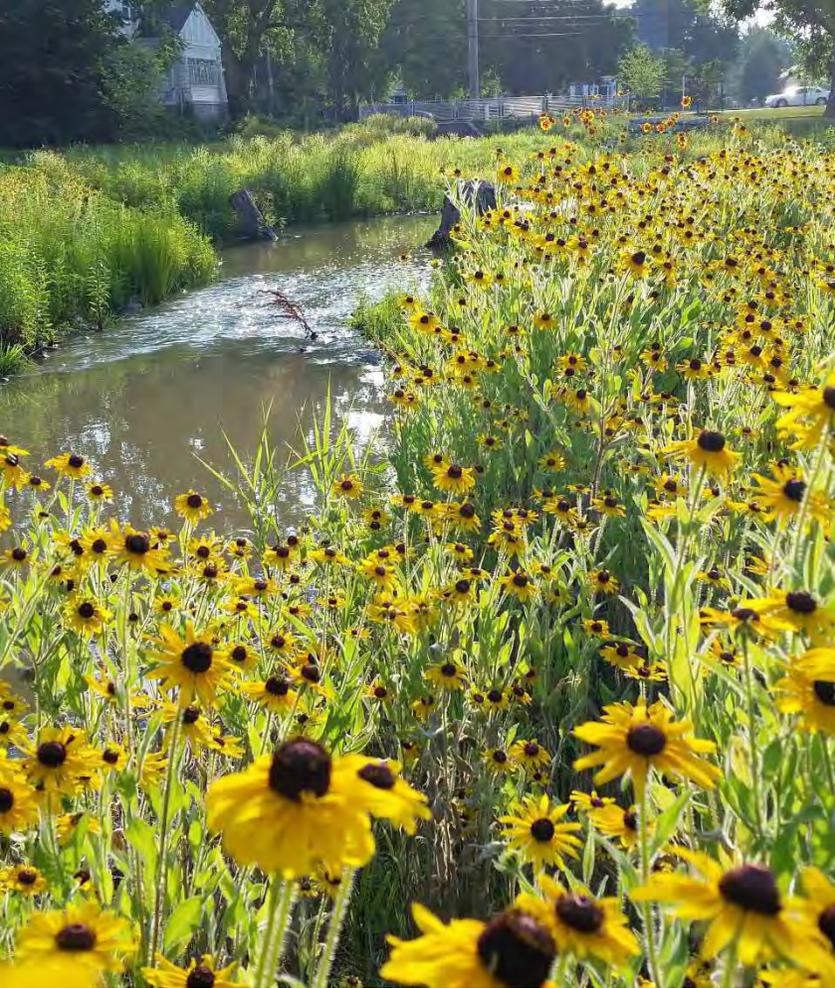
- In general, natural reference streams support the greatest biological integrity, followed by restored streams, and then disturbed streams.
- Wider riparian buffers of streamside vegetation are associated with a better biotic index.
- Increased watershed imperviousness (as % of land area) is associated with decreased biological integrity.

METHODS

1. Conduct visual assessments of stream health using Rapid Bioassessment Protocols (RBP, developed by EPA) and the Stream Visual Assessment Protocol (SVAP, developed by NRCS)
2. Determine bioassessment index scores to quantify stream health for each restoration site using Kentucky Watershed Watch benthic macroinvertebrate sampling methods.
3. Conduct field surveys and GIS analyses to characterize each site's streambed material, cross-sectional measurements, valley and channel slope, and watershed land use and imperviousness.



This stonefly nymph is among the most pollution-sensitive benthic macroinvertebrate species that are found in Kentucky streams. Other pollution-sensitive macroinvertebrates include mayflies, dragonflies and some caddisflies among others. Streams that are dominated by sensitive species indicate greater stream health compared with streams that are dominated by pollution-tolerant species such as leeches, aquatic worms and isopods.



UNIVERSITY PARTNERSHIPS FOR STORMWATER OUTREACH & INSTRUCTION

CARMEN AGOURIDIS, PHD, PE, MPP, MBA & AMANDA GUMBERT, PHD

AGENDA

INSTRUCTION & RESEARCH

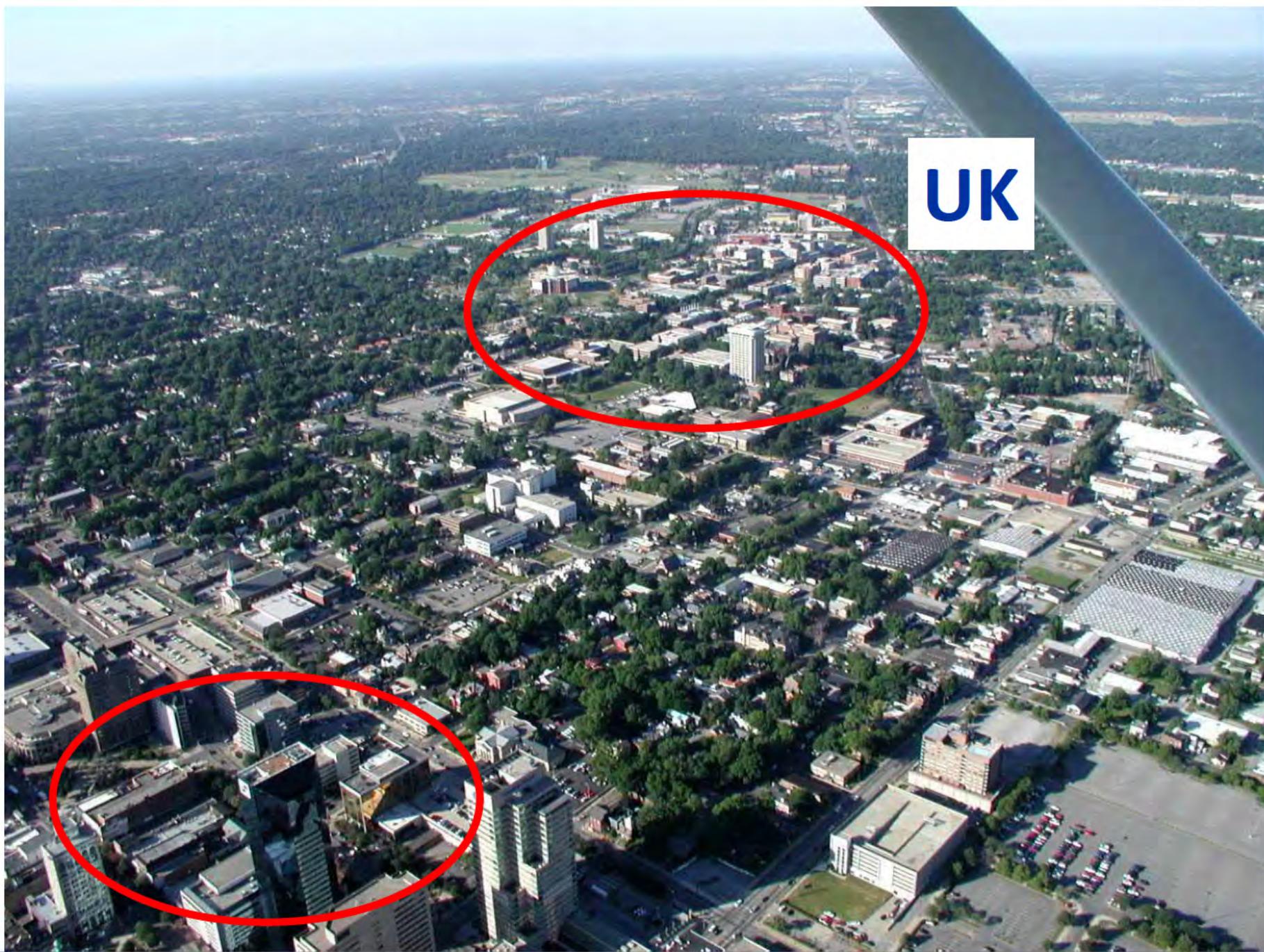
- Stream restoration
- Green infrastructure
- Pollinator habitat
- Student involvement

EXTENSION

- Friends of Wolf Run
- Backyard Streams
- KYH2O
- Water Week
- Resources



UK
University of
Kentucky

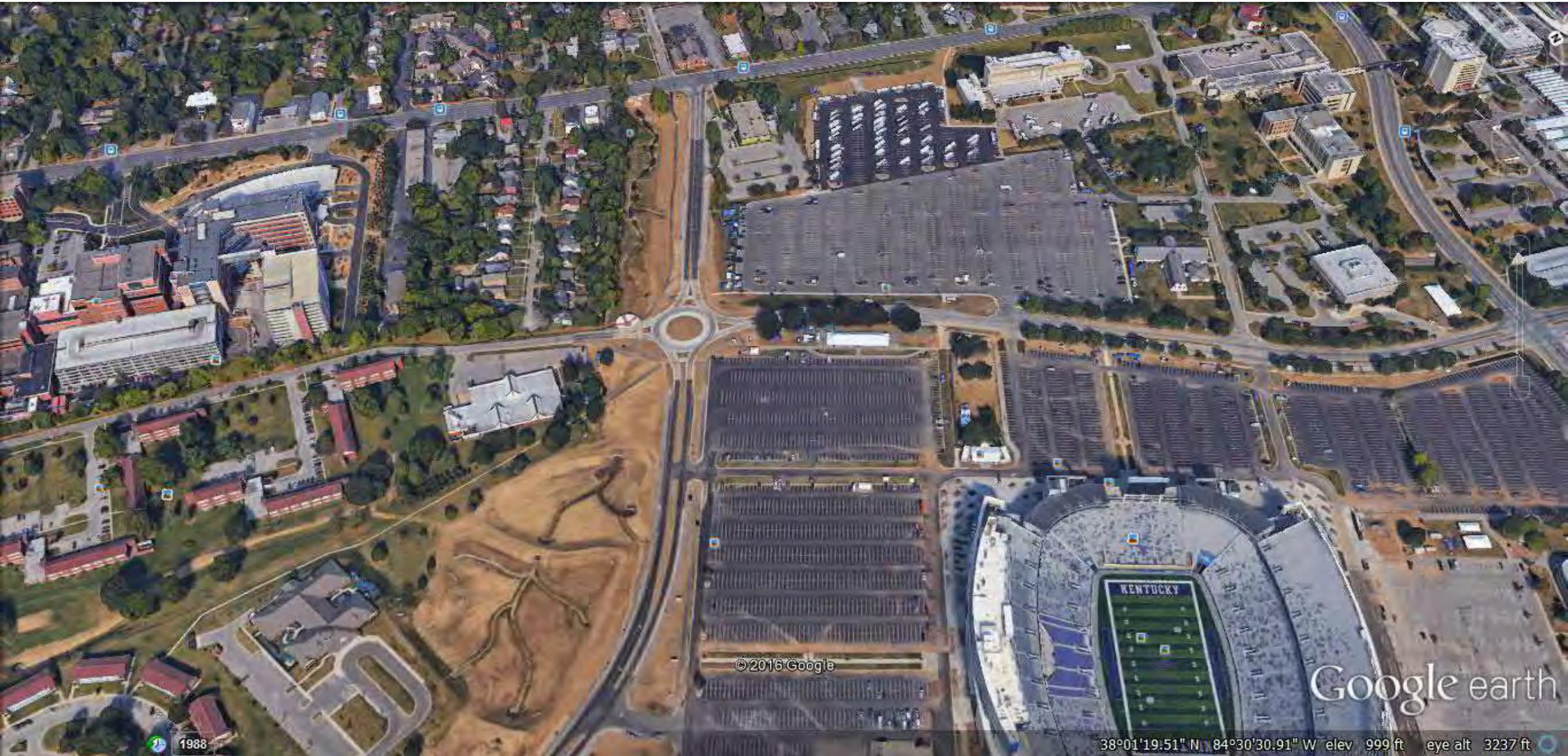


UK



**Stream
Restoration**





© 2016 Google

Google earth

1988

38°01'19.51" N 84°30'30.91" W elev 999 ft eye alt 3237 ft









-  Culvert
-  Stream Restoration
-  Riparian Buffer
-  Enhance Hyporheic Zone
-  Bioinfiltration Swale
-  Flow Direction

Bioinfiltration swale

Stream Restoration

Riparian Buffer

Enhanced Hyporheic Zone











**Green
Infrastructure**





**Pollinator
Gardens**

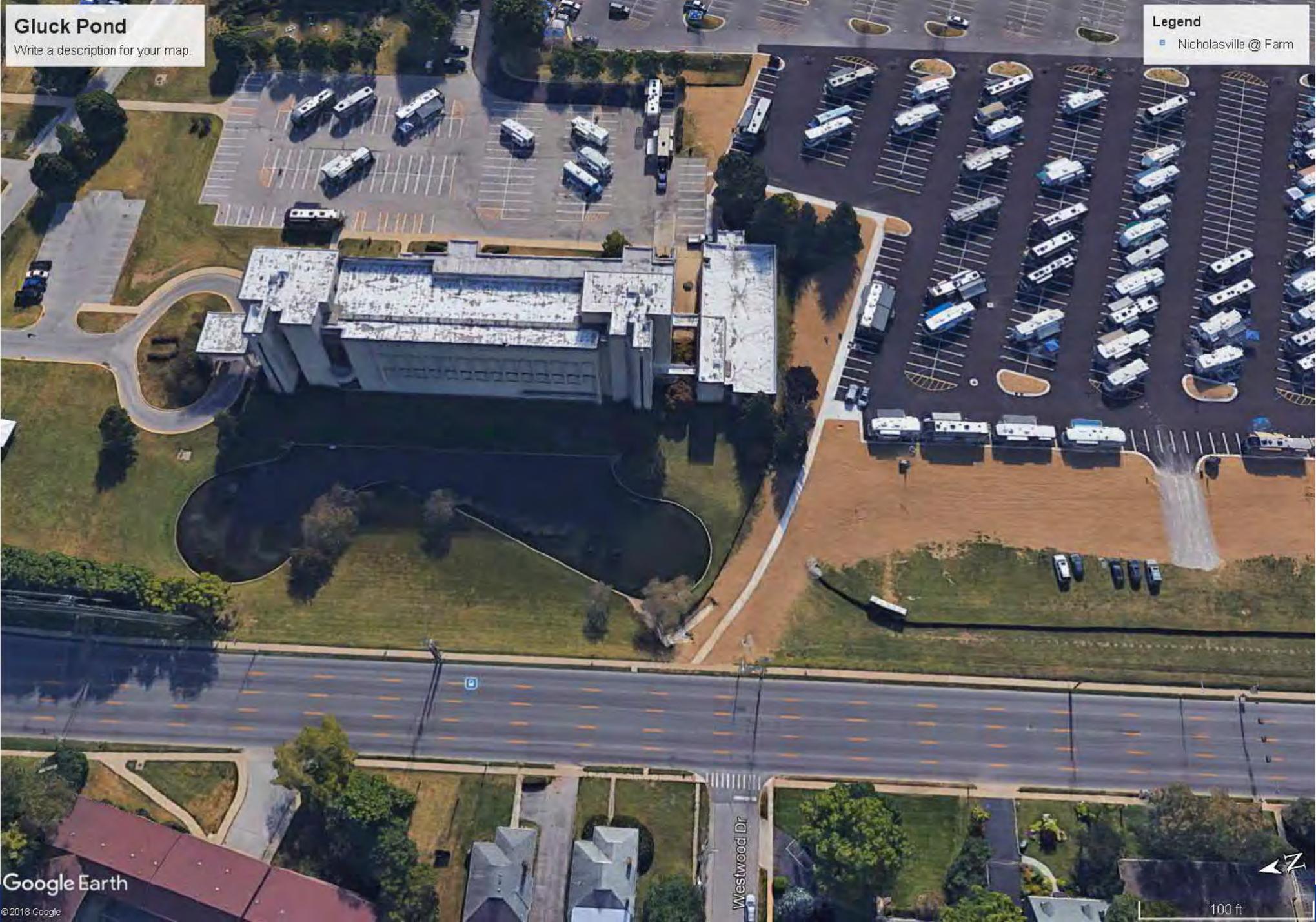


Gluck Pond

Write a description for your map.

Legend

Nicholasville @ Farm









Student
Involvement



HOW IT STARTED

A large portion of the University of Kentucky's Agricultural Campus is located in the headwaters of Wolf Run, which is a 303(d) listed stream. As a holder of an MS4 (municipal separate storm sewer systems) permit, the University of Kentucky through the Environmental Management Department is continually seeking ways to reduce the impacts of UK's stormwater while educating its citizens (e.g. students, staff and faculty). Through a graduate-level low impact development (LID) course taught by Dr. Agouridis, a stormwater management plan was developed for a 9.3 ha subwatershed of the Agricultural Campus. This plan included the conversion of a non-functioning detention basin into a rain garden.

After hearing of this plan in the spring of 2013, the Tracy Farmer Institute for Sustainability and the Environment (TFISE) secured funding from UK's Office of Sustainability and the Lexington-Fayette Urban County Government (LFUCG). Working with Dr. Brian Lee and Corey Wilson of UK's Landscape Architecture Department a design was developed in the summer of 2013. With support from the Administration in the College of Agriculture, Food and Environment (CAFE), the rain garden was constructed in the fall of 2013 by faculty, staff and students from the Biosystems and Agricultural Engineering Department.



WHY IT'S IMPORTANT

Urbanization converts pervious areas such as forests and pastures into impervious ones such as parking lots and buildings. Because of this, runoff volumes and peak flows increase while infiltration rates and water quality decrease. These changes all negatively impact downstream ecosystems. One way to reduce stormwater quantity and quality impacts is through a rain garden which is a shallow depression that uses amended soils and vegetation to promote infiltration and evapotranspiration.



Source: Corey Wilson, Landscape Architecture

DESIGN, CONSTRUCTION & PLANTING

The rain garden contains a forebay, three basins, and a rock-lined swale. Stormwater enters the forebay from a 38.1 cm pipe where it then flows into the two upper basins. Overflow from Basin 1 enters Basin 2 via a rock-lined walking path, which also serves as Basin 1's spillway. Overflow from Basin 2 flows to Basin 3 via a rock-lined swale. Overflow from Basin 3 exits the rain garden via a 30.5 cm pipe where it eventually flows to Wolf Run.

The project was constructed using two backhoes, three skid steers, one dump truck, and lots of manual labor. A Trimble robotic total station was used to stake-out the design and check elevations during construction. Soils (clay loam texture) in each basin were excavated and amended with washed coarse sand and leaf compost (2:1:1 of soil, sand, compost) resulting in a sandy loam texture. About 30.5 cm of course woodchips were placed on top of bedrock before filling the excavated basins with amended soil. Hardwood mulch and coarse wood chips were used to top-dress the basins.



Native trees, shrubs grasses such as bald cypress, winterberry, button bush, Joe-Pye weed, and little bluestem were planted in and around the rain garden by volunteers in the spring on 2014.

METHODS

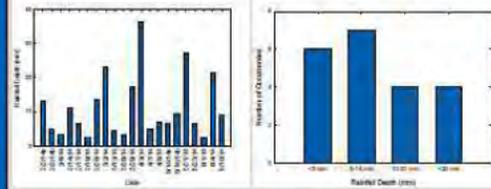
Inflow and outflow were monitored using ISCO 4250 flow meters (one per pipe). The flow meters recorded water level and velocity in the pipes. Discharge was computed using the area-velocity method. Water level and temperature in each basin was monitored using wells and In-Situ Level Trolls. Rainfall data were obtained from USGS gage which is located 2.3 km from the site. Statistical comparisons between In transformed inflow and outflow were made using paired t-tests.



RESULTS: RAINFALL

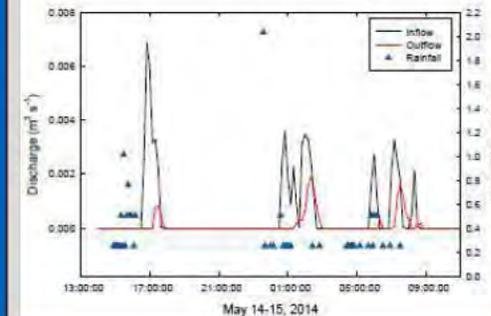
A total of 21 storm events were observed for which rainfall, inflow and outflow data were all collected between January 1st and June 15th of 2014. Over half of the inflow producing rain events were less than 10 mm.

| Statistic | Depth (mm) | Duration (h) | I_{avg} (mm h ⁻¹) |
|------------------|------------|--------------|---------------------------------|
| Minimum | 2.3 | 0.3 | 1.1 |
| Maximum | 36.3 | 19.3 | 14.8 |
| Mean ± Std. Dev. | 11.1±9.2 | 3.8±4.3 | 4.5±3.5 |
| Median | 6.9 | 2.6 | 3.4 |



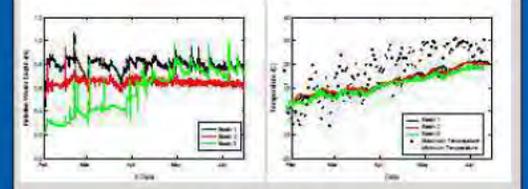
RESULTS: INFLOW & OUTFLOW

Results of the paired t-tests indicated that significant reductions in discharge volumes and peak discharges were achieved as were significant increases in discharge durations. Over the study period, discharge volumes decreased by 14.5%, discharge peaks decreased by 47.0%, and discharge durations increased by 88.9%. Small reductions in discharge volumes are due largely to three main factors: (1) presence of bedrock, (2) nearly equal inlet and outlet pipe inverts, and (3) clay loam soils surrounding the rain garden. These constraints mean water is frequently present in the center of the basins, particularly Basins 1 and 2. The presence of limited vegetation is also a factor with regards to evapotranspiration during the growing season.



RESULTS: INFILTRATION RATES & TEMPERATURE

Infiltration rates varied between 0.1 and 4.4 mm h⁻¹ across the three basins. The mean infiltration rate in Basin 1 was 1.5 mm h⁻¹ (median=1.0 mm h⁻¹); it was 0.5 mm h⁻¹ (median=0.6 mm h⁻¹) for Basin 2. Both Basins 1 and 2 are located immediately below the inlet and up-gradient of the rock-lined swale. For Basin 3, which is located down-gradient of the rock-lined swale, the mean infiltration rate was 0.7 m h⁻¹ (median=0.5 mm h⁻¹). Water levels tended to fluctuate most in Basins 1 and 2 and least in Basin 3. Temperatures in all three basins were reflective of air temperatures.



CONCLUSIONS

Despite the constraints of bedrock and nearly equal inlet and outlet pipe inverts, both of which cannot be moved, the rain garden did offer stormwater quantity improvements. Significant reductions in discharge volumes and peaks and significant increases in discharge durations were seen. Unlike a typical rain garden, surface water is almost always present in the center of the basins meaning wetland plants are needed. It is expected that the further addition of plants will help remove water through evapotranspiration during the growing season.



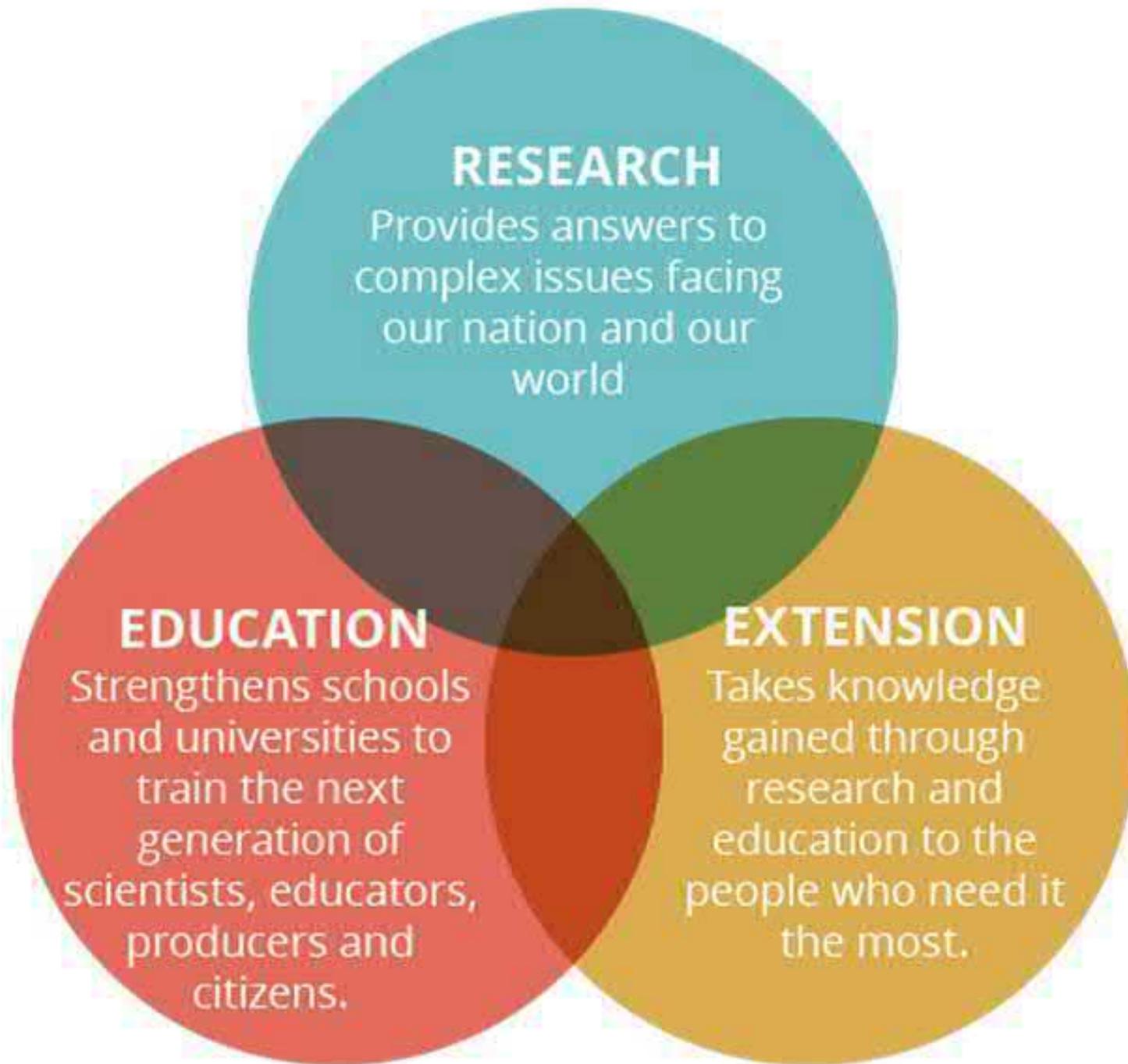
WHAT'S NEXT

Future plans for the rain garden include the installation of stone seating, a handicap accessible trail, signage, and of course more plants. Additional funds are needed for detailed water quality sampling. The rain garden will serve as an outdoor classroom for students and the community.

ACKNOWLEDGEMENTS

This project would not have been possible without the support of TFISE, LFUCG, UK's Office of Sustainability, and numerous faculty, staff and students from CAFE. Special thanks is extended to Alex Fogle and Evan Wesley for their help in equipment installation and data collection.





THE LAND-GRANT UNIVERSITY MISSIONS

NEED: RESOURCES FOR RESIDENTS



FRIENDS OF WOLF RUN PARTNERSHIP





Many of our homeowners are not sure what to do about the stream in their backyard. Who owns it? How can I take care of it? What plants are good for the streambank? These common questions lead to some clarifying answers. This website is designed to help homeowners in backyard stream riparianity to reduce erosion, protect personal property, and improve water quality and habitat.



Interested in becoming a Certified Backyard Stream Steward? This online course is designed in 12 modules designed to help homeowners understand how to protect and manage their backyard stream. Learn how fundamental stream principles are related to stream shape, flow characteristics, riparian stream conditions, why stream beds and banks erode, what riparian (or forest) and stream bank vegetation, what plants are required to reduce stream, how bank stabilization affects stream, and how to design a certified stream.

Interested? Register to become a Certified Backyard Stream Steward!

Interested in learning more about riparianity for the online course? Use the link below to access relevant publications and webinars.

Have questions or comments about backyard streams? Please reach out to Amanda Gumbert, Ph.D. (agumbert@uky.edu) and Carmen Agouridis, Ph.D., F.R.C. (carmen.agouridis@uky.edu).



ID-242



Central Kentucky Backyard Stream Guide

Amanda Gumbert, Agricultural Programs, Carmen Agouridis, Biosystems and Agricultural Engineering, and Chris Sass, Landscape Architecture



Cooperative Extension Service | Agriculture and Natural Resources | Family and Consumer Sciences | 4-H Youth Development | Community and Economic Development

PUBLICATIONS
ONLINE COURSE
WORKSHOPS

WWW.UKY.EDU/BAE/BACKYARDSTREAMS



Account



Dashboard



Courses



Calendar



Inbox



Commons



Help



Home

Resources

Modules

Syllabus

Grades

Assignments

Discussions

Quizzes

Outcomes

Wishes

Files

Files

Communities

Collaboration

Settings

Backyard Streams Program

Edit

Many urban homeowners are not sure what to do about the stream in their backyard. Who owns it? How can I take care of it? What plants are good for my streambanks? These common questions can lead to some confusing answers. This course is designed to help homeowners with backyard streams appreciate this resource, protect personal property, and improve water quality and habitat.



Import from Commons

Choose Home Page

View Course Stream

Course Setup Checklist

New Announcement

Student View

View Course Analytics

Coming Up

View Calendar

Nothing for the next week

Welcome to the Backyard Streams Program!

Welcome to the University of Kentucky Cooperative Extension Service's Backyard Streams program. This program is comprised of 12 online modules that are designed to help homeowners understand how to protect and manage their backyard streams. After successfully completing each module, you will become a Certified Backyard Stream Steward.

To learn more about our Backyard Stream program, visit www.uky.edu/bae/backyardstreams .

BACKYARD STREAMS COURSE TOPICS

- Backyard Stream Basics
- Challenges for Urban Streams
- Fluvial Geomorphology 101
- Ecosystem Services 101
- Streambank Erosion 101
- Riparian Buffer Vegetation 101
- Stream Restoration 101
- Stormwater 101
- Low Impact Development 101
- Permitting 101
- Karst 101
- Watershed Assessment 101

UNIVERSITY OF KENTUCKY

KYH2O

A podcast about all things water in Kentucky.

Hosted by Drs. Carmen Agoundis and Amanda Gumbert

Produced by Brian Volland

www.uky.edu/bae/kyh2o

WATER PODCAST

<https://kyh2o.podbean.com/>

UK AND LFUGG PRESENT

WATER WEEK

March 21-28, 2020
CONNECTING PEOPLE, PLACES and WATER.

Join us for free water-focused events and programs.
 Details at LexingtonKY.gov/WaterWeek.

LEXINGTON, KY

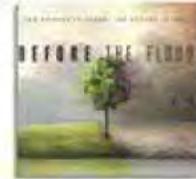


MON, 9/17 TO FRI, 10/19: SHOE DRIVE TO SAVE LIVES
 Donate new and gently used shoes to WaterStep to fund safe drinking water projects. Collection bins are located at Ag Science North, Barnhart, WT Young Library, RGAN, Newman Center, JSB, MMRB
 Lead: Dr. Carmen Agouridis (UK BAE)
waterstep.org



TUES, 10/16: PROJECT WET

Become a Project WET Educator
 Good Barn 9:00 AM to 4:00 PM
 \$55 Registration; Lunch and Snacks Provided
 Project Leads: Carmen Agouridis (UK BAE), Amanda Gumbert (UK CES), & Malissa McAlister (KWRRRI)
www.projectwet.org | register:
<https://www.uky.edu/bae/cpd>



TUES, 10/16: BEFORE THE FLOOD

Screening and Discussion from 5:30 to 8:00 PM
 Food and Refreshments provided @ 5:00 PM
 Location W.T. Young Library, AA Auditorium
 Panel Discussion Led by Shane Tedder (UK Office of Sustainability)
beforetheflood.com



MON, 10/15: WATERSTEP

Mark Hogg Founder/CEO & Greg Heitzman (BlueWaterKY)
 Gatton Student Center, Room 330AB, 6:00 PM to 7:00 PM
 Food and Refreshments provided at 5:30 PM
 Lead: Dr. Carmen Agouridis (UK BAE)
waterstep.org



WED, 10/17: CAREER PANEL

Gatton College Room 435UV, 12:30 PM to 1:30 PM
 Lunch provided at 12:00 PM
 Leads: UK Water Professionals and Dr. Carmen Agouridis (UK BAE)



THURS, 10/18: SEMINAR

"ENGAGING IN PLACE"
 Susan Seacrest, Founder of Groundwater Foundation
 Location: MMRB Room 102, 4:00 PM to 5:00 PM
 Refreshments at 3:30 PM
 Leads: Drs. Alan Fryar & Ryan Thigpen (UK EES)
<http://www.groundwater.org/who/>



FRI 10/19: CATCHMENT CLEANUP

Service Opportunity for the UK Community
 UK South Campus, Farm Rd. between Good Barn and Gluck
 3:00 PM to 6:00 PM, Refreshments provided.
 Leads: Dr. Carmen Agouridis (UK BAE) and BAE Student Branch

LEARN MORE ON THE WEB

- Publications
 - Search <http://www2.ca.uky.edu/agcomm/pubs.asp>
- Videos
 - UK Watershed Protection and Restoration (YouTube channel)
 - Cat's CATchment
 - <https://vimeo.com/85960433>
- Social media
 - Facebook: @UKYBioenvironmental, @UKWaterWeek
 - Twitter: @BAE_XStreamTeam
- Podcast
 - <https://kyh2o.podbean.com/>
- Email: carmen.agouridis@uky.edu or amanda.gumbert@uky.edu

CONTACT US



Carmen
Agouridis (carmen.agouridis@uky.edu)

UK personal
page: <https://www.uky.edu/bae/agouridis>



Amanda Gumbert
(amanda.gumbert@uky.edu)

UK personal
page: <https://anr.ca.uky.edu/person/amanda-gumbert-phd>

WRFL Green Talks – Dr. Carmen Agouridis, Associate Dean for Instruction, CAFÉ

You're listening to WRFL Lexington. It's 4 o'clock on Wednesday, which means it's time for Green Talks, an outreach initiative of the UK Student Sustainability Council. Today we're going to be talking with Dr. Carmen Agouridis, the Associate Dean for Instruction in the CAFE, as well as a professor and researcher in the Biosystems and Agricultural Engineering Department. Thanks for coming on the show!

1. Would you mind going over your positions at UK in a little more detail than I gave, and how would you define your area of research?
2. Are you teaching currently, and, if so, what classes do you teach?
3. What is your career path and how did you end up where you are today?
4. Could you tell us about the current stream restoration project on Alumni drive, across from the arboretum?
5. What stages have you completed and what do you still have to go? What's your timeline?
6. What was the need for the project/what inspired you to take it on?
7. What groups/clubs/people were involved in the design and implementation of the project?
8. Where did the funding come from?
9. What is your research process, from idea to project implementation?
10. I learned a fact from Dr. Barton last week: that you created water week! Would you mind explaining your inspiration for this annual (or... bi-annual) event and what it's all about?
 - a. There are now two water weeks! How did that happen?
11. Are there many resources and people in your field in Kentucky, or is it the same faces again and again?
12. What is your perspective on the gender gap in engineering? How can we close the gap?
13. What project are you most proud of, or is there a project that you'd like to highlight?
14. You also implemented the catchment rain garden, which is now a living learning laboratory according to the website. Would you mind explaining a bit about that project?
15. When you're not teaching, writing for a range of scientific publications, or otherwise implementing crazy cool projects, what are your hobbies?
16. Is there anything else you'd like to talk about in the time we have left?

End of show notes:

Water week is March 21-28. There are a range of environmental events detailed on the Lexingtonky.gov, from geocaching to the reforest the bluegrass 5k, to park clean-ups.

*The Covid-19 pandemic has had a tremendous impact on our campus and community. The people of UK Facilities Management remain the “boots on the ground” for UK, providing the essential services needed to keep our campus safe, secure, and positioned to respond to the evolving crisis. The strength each of you demonstrate daily is inspiring and represents such courage and compassion. We are in this together and we will get through it together. **Thank you for everything you do.** – Mary Vosevich, Vice President for Facilities Management*

OUR PEOPLE. ————— OUR STORIES.



One of the many innovative aspects of **UK Grounds’ Arboriculture** (tree care) program has been our effort to partner with other UK stakeholders to harvest and use the wood from trees that have to be taken down on campus. Yesterday, this team, led by **Stacy Borden** (Grounds Manager, far right) and **Chad Niman** (Forestry, near right) set up their new portable saw mill for the first time (left). The mill was purchased with funds provided by Coca-Cola to support student discovery. The wood milled from this tree will be available for use by students and departments.



Outdoor spaces will be critically important to a safe campus this fall and Facilities Management is leading an effort to install 15 large tents across campus. Yesterday, the frames (left) of the first four tents were set up by contractors with support and guidance from a team of FM professionals (right).



Did you know that the rain that falls on much of the roof of the Gatton Student Center is harvested and used for irrigation? There is a 20,000 gallon underground tank under the terraces of Barker Plaza (left). A valve on this tank recently malfunctioned. At right, UK Grounds Superintendent **Jerry Hart** performs repairs on the faulty valve. This system is one of several large stormwater harvesting systems installed in recent years.



We all scream for ice cream!
Friday 11am-1pm

Ice Cream Friday is back!

We are incredibly grateful for the tremendous effort each of you are putting into our work to reopen the campus. Everyone is invited to take an ice cream break at any time between 11am and 1pm on Friday, 8/7/2020. A selection of **Blue Bunny®** frozen treats will be available. There will be three locations:

- **Whitehall Plaza** - Patio area near POT
- **Kelly Building** - In front of building
- **Barnhart Building**. – The courtyard on east side

*The Covid-19 pandemic has had a tremendous impact on our campus and community. The people of UK Facilities Management remain the “boots on the ground” for UK, providing the essential services needed to keep our campus safe, secure, and positioned to respond to the evolving crisis. The strength each of you demonstrate daily is inspiring and represents such courage and compassion. We are in this together and we will get through it together. **Thank you for everything you do.** – Mary Vosevich, Vice President for Facilities Management*

OUR PEOPLE. ————— OUR STORIES.



UK Grounds is transforming the slopes on either side of the Cooper Drive pedestrian underpass (left) to improve maintenance conditions by restoring the ecological function of the vegetation in this area. The turf grass is being replaced by native grasses and plants to create the University’s largest pollinator habitat. The deeper rooted native plants and lack of mowing will also provide erosion control improving stormwater quality and reducing run-off. Grounds is partnering with faculty from the College of Agriculture, staff from the UK Arboretum, and the Kentucky Nature Preserves on a research project to document the effectiveness of three treatments for removing the turf (fire, steam, and herbicide) and existing seedbank. Above, **Eric Kenneweg** uses a propane torch on one of the plots while **Michael Barnes** ensures the burn is contained to a very small area using a tool called a flapper.

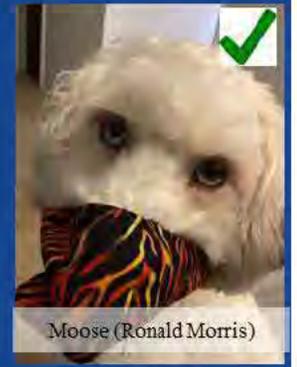


WayBack Wednesday – Return of the Miller Hall sunburst.

Miller Hall was constructed in 1898 as the home for the Natural Sciences at UK. The original construction included a ‘sunburst’ feature highlighting the central tower (left). The three-story building was built of pressed brick and trimmed with Bowling Green limestone, which was typical of college buildings of that time. At some point between 1898 and 1920 the sunburst was lost (top right), possibly due to a fire. Planning Design and Construction recently completed a restoration of the façade returning the sunburst and original details on the front doors (bottom right).



Remember to #MaskUpCats!



*The Covid-19 pandemic has had a tremendous impact on our campus and community. The people of UK Facilities Management remain the “boots on the ground” for UK, providing the essential services needed to keep our campus safe, secure, and positioned to respond to the evolving crisis. The strength each of you demonstrate daily is inspiring and represents such courage and compassion. We are in this together and we will get through it together. **Thank you for everything you do.** – Mary Vosevich, Vice President for Facilities Management*

OUR PEOPLE.

OUR STORIES.



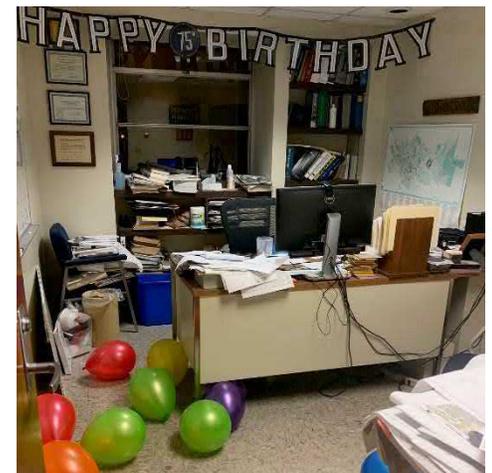
The Peterson Service Building’s garage dock area has been completely resurfaced with concrete and new features have been added to improve performance. **Planning, Design, and Construction** project manager **Scott Hogue** reported that the project is nearing completion. The installation of bollards is one of the last steps and this should be completed soon. The dock/parking area was in poor condition, was badly cracked in places, and had become a concern for stormwater quality. To protect campus watersheds from vehicle fluids and debris resulting from washing vehicles and equipment, a wash-pit was added in the rear area of the dock. New filters will be installed on the storm sewer inlets to further protect water quality.



Lexington’s [3rd annual Tree Week](#) is underway and runs through Saturday, October 17. **UK Grounds** helped kick off this annual celebration of all the benefits our urban trees provide by hosting a multi-station workshop at the W.T. Young Library on Saturday. The workshop included demonstrations and hands-on trainings. At left, UK Grounds Manager **Stacy Borden** helps students plant a tree, emphasizing proper hole size and planting depth. At right, **the UK Arboriculture team** conducts a tree climbing demo and describes how they use this technique to care for the more than 12,000 trees on campus.



Our **Utilities and Energy Management team** helped Joe Graft (left) celebrate his 75th birthday yesterday with a surprise party that included cake and refreshments. **Joe** arrived at UK as a student in 1964 and has worked as an engineer for UK FM and the Physical Plant Division for almost 50 years. He is currently responsible for our storm and sanitary sewer infrastructure. **HAPPY BIRTHDAY JOE!!**



11. For the following items, please provide a summary of control measure activities related to sMS4 performed during the previous year. List any updated measurable goals from the Stormwater Quality Management Plan (SWQMP), compliance activities, Best Management Practices (BMP) installed or initiated, and updated or developed regulatory mechanisms with effective dates.

A. Public Education and Outreach:

Describe your public education efforts for the last 12 months:

KYTC with our MS4 and partner communities utilize several approaches to public education. The most pronounced is a mass media play via radio and television. We also utilize a website tied in with the radio and television spots. KYTC in a combined effort with the MS4 communities manage the Adopt-A-Highway program. KYTC also utilizes our Kentucky Engineers Exposure Network (KEEN) to promote stormwater issues in community schools. During 2018 KYTC completed a Statewide Stormwater Survey. The Survey is on the KYTC Stormwater website.

Describe your method of outreach:

The KYTC Media Outreach Program (MOP), in conjunction with our partner MS4 communities, contracted with the Kentucky Broadcasters Association (KBA) to air a video spot and six audio spots in 2020. The 30 second spots have been aired statewide as a public education initiative to inform the general population about stormwater issues. The ads messages were developed after the statewide survey conducted in 2008 identified that half of the population is unaware that storm drains discharge directly to waters of the Commonwealth without treatment. The ads can be viewed on stormwater.ky.gov. The TV and radio plays combined totaled 75,764 plays statewide in 2020 for a total value of \$1,504,547.

KYTC initiated a committee of five MS4 representatives and the DOW representative in 2009 to work with our consultant, New West, to develop the ads. The members are Abby Rains – DOW, Suzie Bradley – Campbellsville, Randy Stambaugh – MSD, Vicki Brackett – Hardin County, Jamie Holtzapfel – SD1 and Jack Wright – Plum Springs Warren County Joint Storm Water Sewer Agency. A mix of general information and specific item ads were developed. The resulting work of the committee was the six audio spots and the one video spot. In 2012 the committee was called together again to develop a new TV advertisement for the stormwater program. The new ad began airing in December 2012. KBA distributes the ads to 230 stations in 132 communities. The KBA receives certified reports from the member stations verifying the number of times the spots are played. Since the inception of the Media Outreach Program there have been 818,245 plays for a total value of \$16,483,635.

The 2020 summary of ad play is as follows:

68,932 radio Spots with a value of \$1,164,987

6832 television plays with a value of \$339,560

TV and radio plays combined totaled 75,764 plays statewide for a total value of \$1,504,547.

A new website URL was secured and a new website prepared to help launch the MOP and provide a statewide resource for the KYTC and our partner MS4 communities to promote stormwater issues. The website was designed to address both the public and those involved with the MS4 program either as a permitted community, construction contractor or KYTC. It provides basic information regarding what is stormwater and stormwater pollution, who to contact if more information is needed or a concern needs to be reported, and technical information for MS4 communities and contractors. The website had 1,082 visits in 2020 and 4023 page views.

Kentucky has participated in the International Adopt-A-Highway Program since 1988. The Commonwealth has one Statewide Adopt-A-Highway Coordinator in central office and 12 Adopt-A-Highway District Coordinators throughout the state. The Adopt-A-Highway program involves community groups to organize and pick up litter. The Transportation Cabinet participates in Adopt-A-Highway meetings as agreed upon by the Local Community and KYTC. There are 528 groups that manage 2,190 miles of roads throughout the state.

The Members of KYTC's KEEN organization held two presentations across the state during 2020. The presentations included the Enviroscope and watershed discussion. The locations were Madison County and Fayette County,

APPENDIX B

Public Involvement and Participation

Included Documentation

Storm Drain Marking Tech Support Document

Marker Installation Instructions

MS4 Program and Drain Marking/Inspection Presentation

Pet Waste Project Summary

UK Stormwater Logo Competition Article

Farm Road Rain Garden Sign-in Sheet (CATchment Cleanup)

Fall CATchment Cleanup Flyer

GEN 100 Lesson Plan

Storm Drain Marking – Tech Support Doc

Summary

This document is intended to provide support for how to use ArcGIS Field Maps and Survey123 for the Storm Drain Marking Program. It includes information on setting up Field Maps and Survey123 and how to use them to inspect drains, add unmapped drains, and report illicit discharges.

- I. [Getting Started](#)
- II. [Inspecting Storm Drain Features](#)
- III. [Inspecting Unmapped Storm Drain Features](#)
- IV. [Reporting Illicit Discharge Features](#)

NOTE: Try to use data, instead of Wi-Fi, especially when placing Unmapped Features or Illicit Discharges. Using data will improve GPS accuracy for capturing your location.

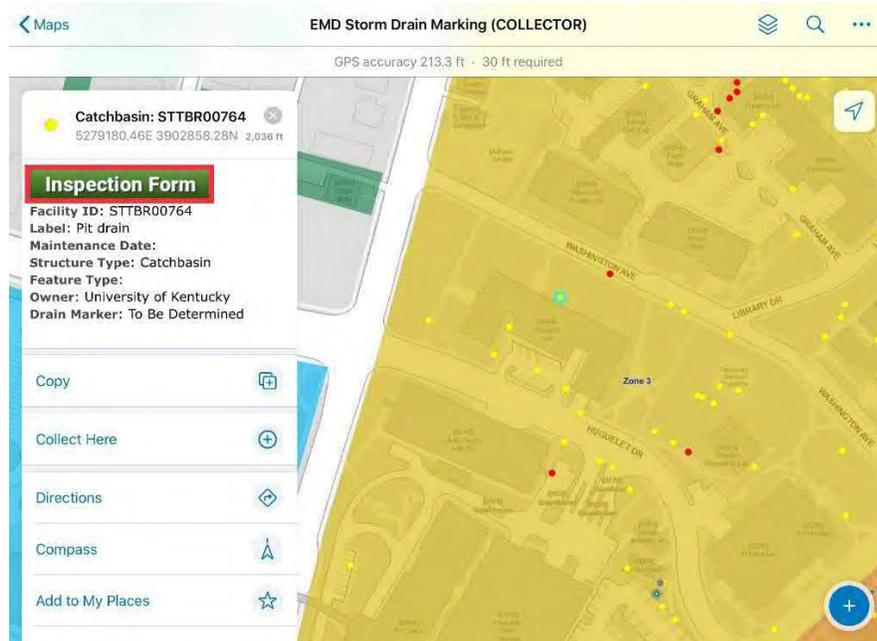
Process

- I. **Getting Started** (*NOTE: Be sure you can sign in before going onto campus to survey storm drains*)
 - a. Download ArcGIS Survey123  and ArcGIS Field Maps  from app store
 - b. Open Survey123 and Field Maps, sign in with your credentials using the steps below for both apps
 - i. Select 'Sign In with ArcGIS Online'
 - ii. Select 'Your ArcGIS organization's URL'
 - iii. Enter 'ukyfm' (url will be ukyfm.maps.arcgis.com), check 'Remember this URL', and select 'Continue' (*NOTE: after checking 'Remember this URL', next login select 'ukyfm' under 'Your ArcGIS organization's URL'*)
 - iv. Linkblue Login
 1. If you are signing in with linkblue credentials, select the 'University of Kentucky' button
 2. This will take you to the UK Single Sign On portal, enter your linkblue and password as normal
 3. You will be prompted with the Duo account authentication, proceed with 'Push' or 'Passcode' to authenticate your account
 4. If you have issues contact geospatial.requests@uky.edu
 - v. ArcGIS Online Login
 1. If you have been provided a username that is appended with '_UKYFM', select 'ArcGIS login' button
 2. Enter your provided username and password you set up
 3. If you have issues contact geospatial.requests@uky.edu
 - c. After logging in to Survey123, download the survey
 1. Select 'Download Surveys' at the bottom off screen or your initials in the top right corner and select 'Download Surveys'
 2. Navigate to "EMD Storm Drain Marking (SURVEY)" and select the cloud download  button to download the survey (*NOTE: if the survey is updated another download will be required*)
 - d. After logging in to Field Maps, select "EMD Storm Drain Marking (COLLECTOR)" to open the map environment

Storm Drain Marking – Tech Support Doc

II. Inspecting Storm Drain Features (NOTE: If you are not signed in to Survey123 will not be able to submit)

- a. Open “EMD Storm Drain Marking (COLLECTOR)” Field Map
- b. Tap on the feature



- c. In the info window tap on the “Inspection Form” button
 - i. Survey123 will open and auto populate the Structure ID, Global ID, Date/Time, and Drain Marked Status

EMD Storm Drain Marking (SURVEY)

Structure ID
STTBR00864

Global ID
[501FD927-9359-4038-B5CF-976858404EBC]

Inspector Name *

Inspection Date & Time *
Wednesday, January 27, 2021 9:01 PM

Location Description *
Give a detailed description of the location of the drain.

Is the structure marked as a storm drain? *
If the storm drain was marked during this survey, please select "Yes - Temporary Marker".
To Be Determined

Condition *
(Check all that apply)
 Good Damaged Clogged Surface Stains Flow Present
 Odors Other

Drain Photo *
Take a photo of the drain and try to get the surrounding area/landmarks in the photo.

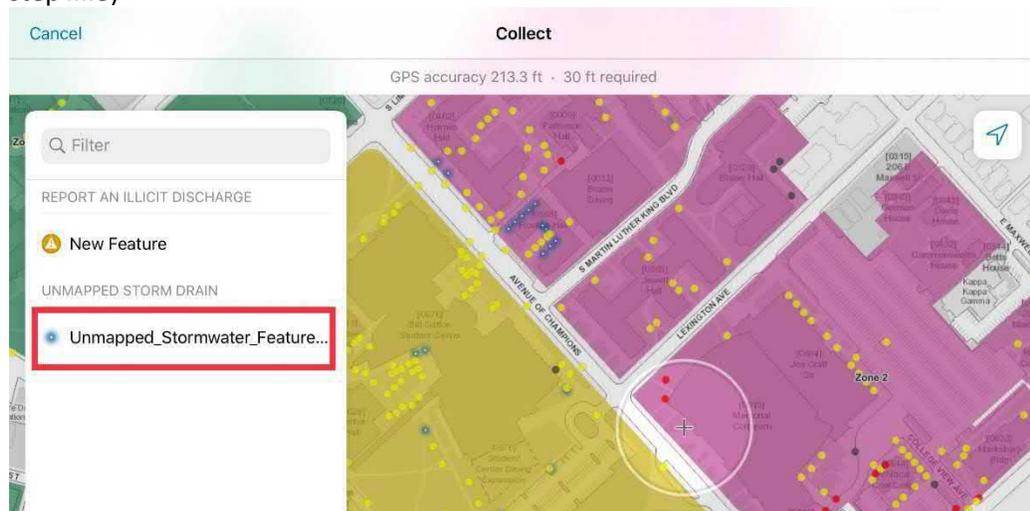
Area Photo
Take a photo of the surrounding area or any notable conditions.

Storm Drain Marking – Tech Support Doc

- d. Fill out the following fields:
 - i. Inspector Name
 - ii. Inspection Date & Time – Auto-populates (Change date/time if needed)
 - iii. Location Description
 - iv. Is the structure marked as a storm drain – Auto-populates (Update field if marker status was identified incorrectly, if the drain is ‘To Be Determined’ change to appropriate marker status, if the drain was marked or replaced during the survey change to “Yes – Temporary Marker”, if you identify a marker that needs repair but are unable to fix at time of survey change to “Yes – Marker Needs Repair”)
 - v. Condition – Can select multiple
 - vi. Drain Photo
 - vii. Area Photo
- e. Tap the checkmark in the bottom right corner
 - i. If there are more inspections to complete:
 1. Tap ‘Save in Outbox’
 2. Tap ‘Field Maps’ in the upper left corner and continue to the next feature (if this option times out, exit Survey123 and open Field Maps)
 - a. Proceed with inspections: repeat [Step II](#)
 - ii. If all inspections are completed for the day:
 1. Tap ‘Send Now’ – this will send all surveys in the Outbox
 - a. All completed surveys will be uploaded

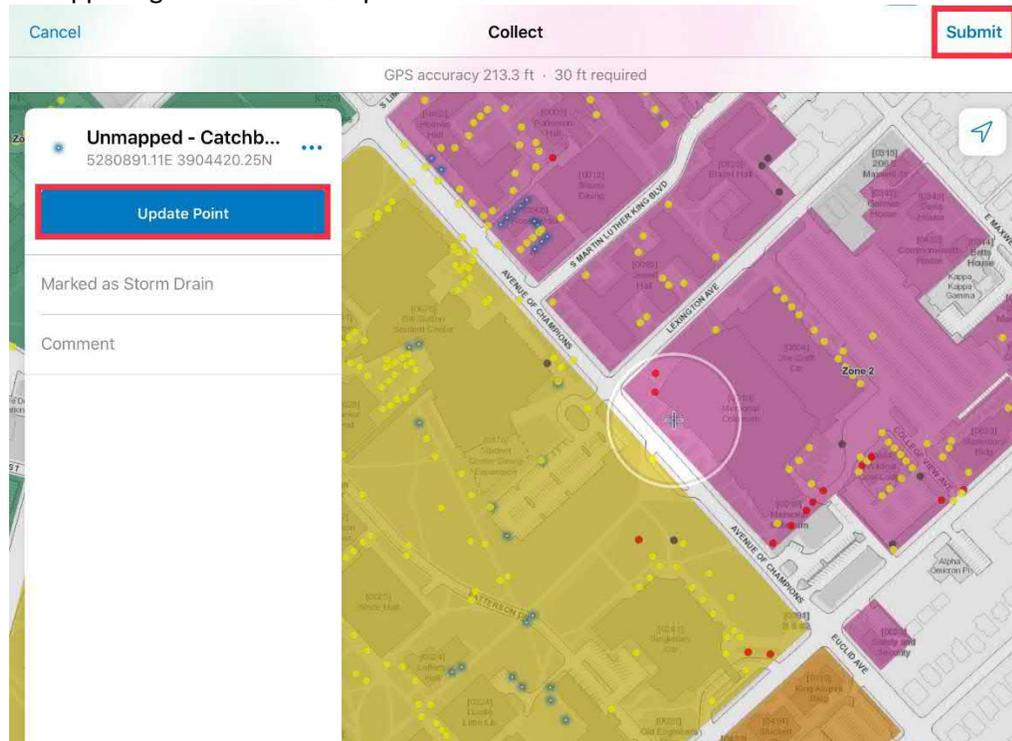
III. Inspecting Unmapped Storm Drain Features *(NOTE: Geospatial team will review submission and apply updates as necessary)*

- a. If there is a stormwater structure that does not show up on the map, it needs to be added
- b. If you are connected to a Wi-Fi network, disconnect and use data for better GPS reading
- c. Tap on the ‘+’ sign on the bottom right of the screen
- d. Select the layer “Unmapped_Stormwater_Feature_pt” to create a new Unmapped Drain, this will place the point at your GPS location (if you have poor GPS accuracy the point will not place, will need to add feature using the method described in the next step *III.e*)



Storm Drain Marking – Tech Support Doc

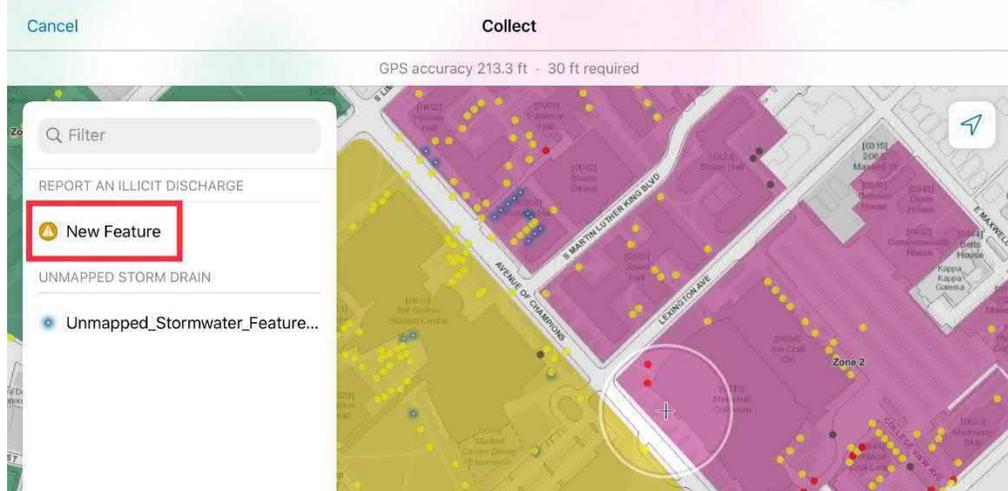
- e. If you need to move the feature on the map to its correct location
 - i. Drag the map so that the crosshair is aimed at the location of the feature and tap 'Update Point'
- f. Fill out the following fields:
 - i. Status (Unmapped Drains = 'Active', Drain Not Present = 'Removed')
 - ii. Marked as Storm Drain
 - iii. Department Reporting ('Drain Marking Program')
 - iv. Comment
- g. Once all information is entered and the location is correct, tap the "Submit" button in the upper right corner to complete the submission.



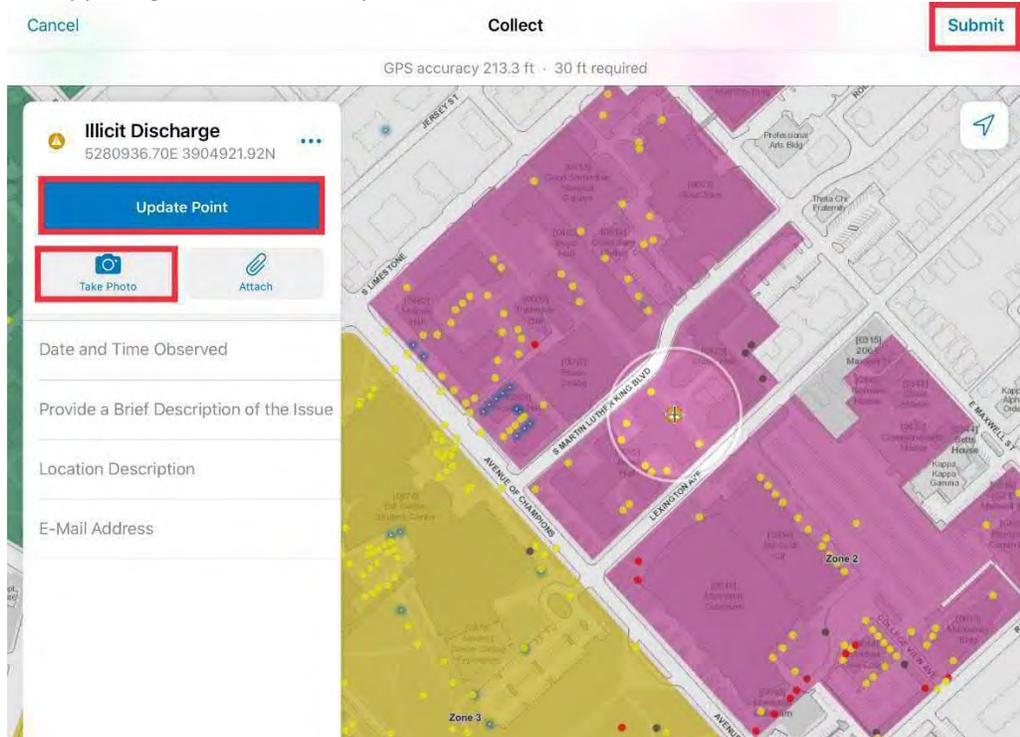
- h. After the feature has been mapped
 - i. Conduct an inspection
 1. Follow all Steps from [Step II](#) above

- IV. **Reporting Illicit Discharge Features** (NOTE: EMD will review submissions before posted online)
- a. If you are connected to a Wi-Fi network, disconnect and use data for better GPS reading
 - b. Tap on the '+' sign on the bottom right of the screen
 - c. Select the layer "New Feature" to create a new Illicit Discharge Report, this will place the point at your GPS location (if you have poor GPS accuracy the point will not place, will need to add feature using the method described in the next step IV.d)

Storm Drain Marking – Tech Support Doc



- d. Place the feature on the map in its correct location
 - i. Drag the map so that the crosshair is aimed at the location of the feature and tap 'Update Point'
- e. Fill out the following fields:
 - i. Date and Time Observed
 - ii. Provide a Brief Description of the Issue
 - iii. Location Description
 - iv. E-mail Address
 - v. Take Photo
- f. Once all information is entered and the location is correct, tap the "Submit" button in the upper right corner to complete the submission.

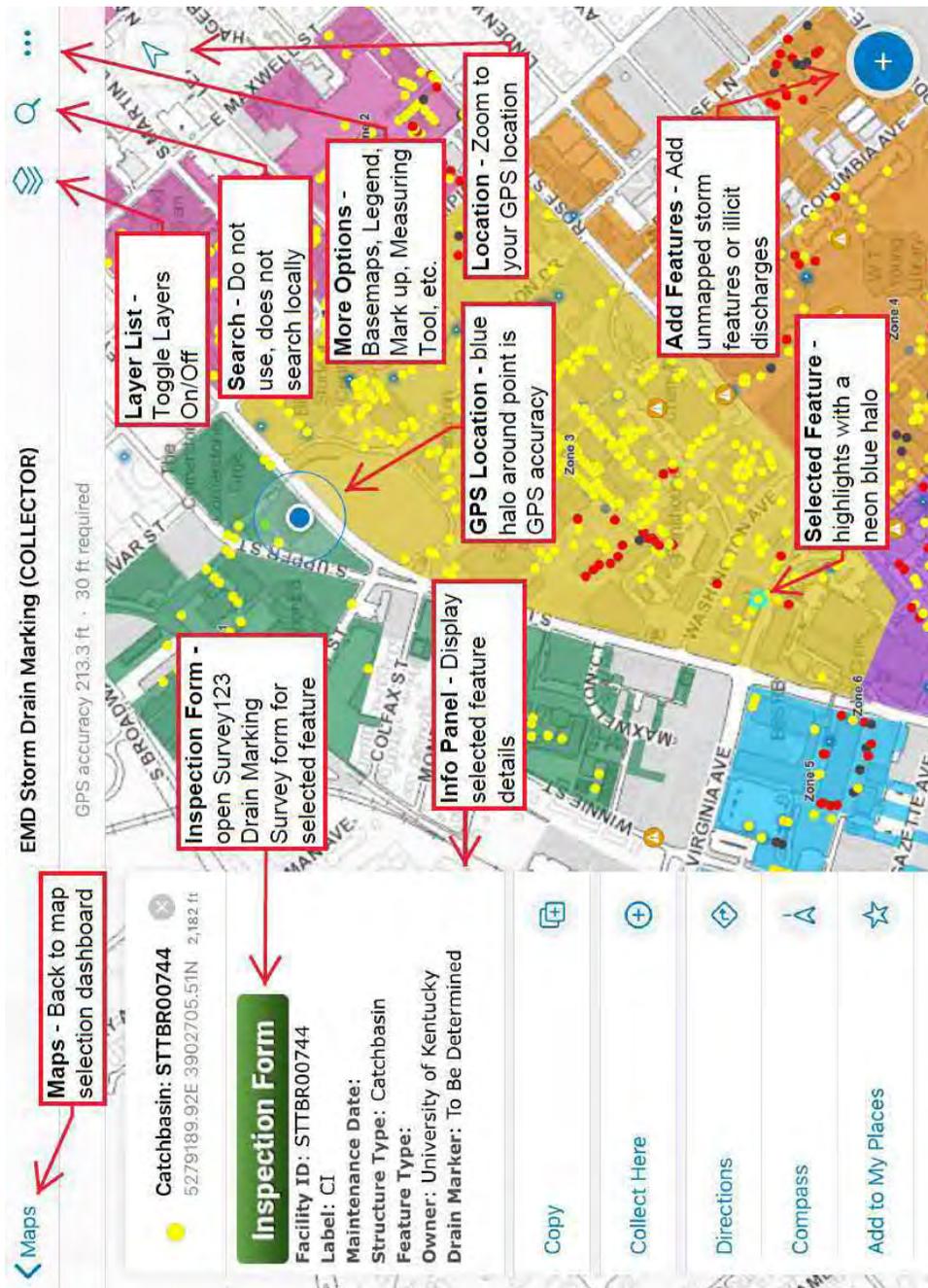


Storm Drain Marking – Tech Support Doc

Trouble Shooting Techniques:

- Problems logging into app(s) contact geospatial.requests@uky.edu
- Field Map layers not loading go back out to the main dashboard, select the ellipsis (...) next to 'EMD Storm Drain Marking (COLLECTOR)', then select 'Reload Map'
- If the solution above for Field Maps does not work try logging out and back in to the app
- Survey not loading properly, check for updates and/or redownload the survey (there should be a prompt at the top of the survey dashboard that will say there are updates and direct you to redownload the survey)
- If the solution above for Survey123 does not work try logging out and back in to the app
- Contact geospatial.requests@uky.edu if further technical support is needed

ArcGIS Field Maps – Quick Guide



Installation Instructions

das Curb Markers® Adhesive #RS-222

Please Read Before Installation

- Read Cautionary Statement and First Aid Procedures.
- Surfaces to be bonded must be clean, dry and free of any loose debris.
- If the application surface is painted, all loose paint should be removed. An installation should then be made and tested for adhesion before proceeding further.
- Follow installation instructions carefully.
- Application surface must be flat. The das Curb Marker will not conform to uneven or curved surfaces.



Clean application surface with wire brush. Surface must be clean, dry, and free of any loose debris. *The presence of any foreign material (paint, oil, etc.) may affect adhesion.*



Apply adhesive to the back of the marker as shown. Start 1/8" in from the outside edge, applying an even bead around the entire edge, and then work to the center.



Place the marker on the application surface. Push down HARD with a twisting motion, forcing adhesive out from the edge. It is important that the entire edge of the marker is sealed to the application surface.

At 75°F, adhesive will skin over in 1 hour, become hard to the touch in 4 hours, and achieve a full cure in 18 hours.

Hints for Use

- It is not necessary to use a large amount.
- Push down on the marker so that it is "tight" to the surface. Large amounts of adhesive trapped under the surface of the marker can retard cure time.
- Make sure that the edge has approximately 1/8" of adhesive all around to seal edge to the surface.
- Wash hands with hand cleaner, then soap and water.

DANGER: Extremely flammable. Vapor harmful. Vapors may ignite explosively. Use only in well ventilated area. Keep away from and do not use near heat, sparks, and open flame. Do not smoke. Extinguish or remove from area all sources of ignition during use and until all vapors are gone. Keep container closed when not in use and store at room temperature. Do not swallow or breathe vapor. Can cause respiratory irritation, dizziness, headache, nausea, unconsciousness. Avoid contact with skin, eyes or clothing. Can cause irritation and burns. **KEEP OUT OF REACH OF CHILDREN.**

FIRST AID PROCEDURES: **Inhalation:** Remove to fresh air, administer oxygen or artificial respiration. Contact physician. **Eyes:** Flush eyes with water for at least 15 minutes. **Skin Contact:** Wash with soap and water. Contact physician if irritation persists. **Ingestion:** Do not induce vomiting. Contact physician immediately.

Hazardous ingredients: Toluene C.A.S. No. 108 88 3

NOTICE TO PURCHASER: The following warranty is in lieu of all other expressed or implied warranties, specifically all goods manufactured of first class materials and by competent workmen. We have no control over the use and application of the contents herein. Our liability shall not exceed the purchase price of this product.

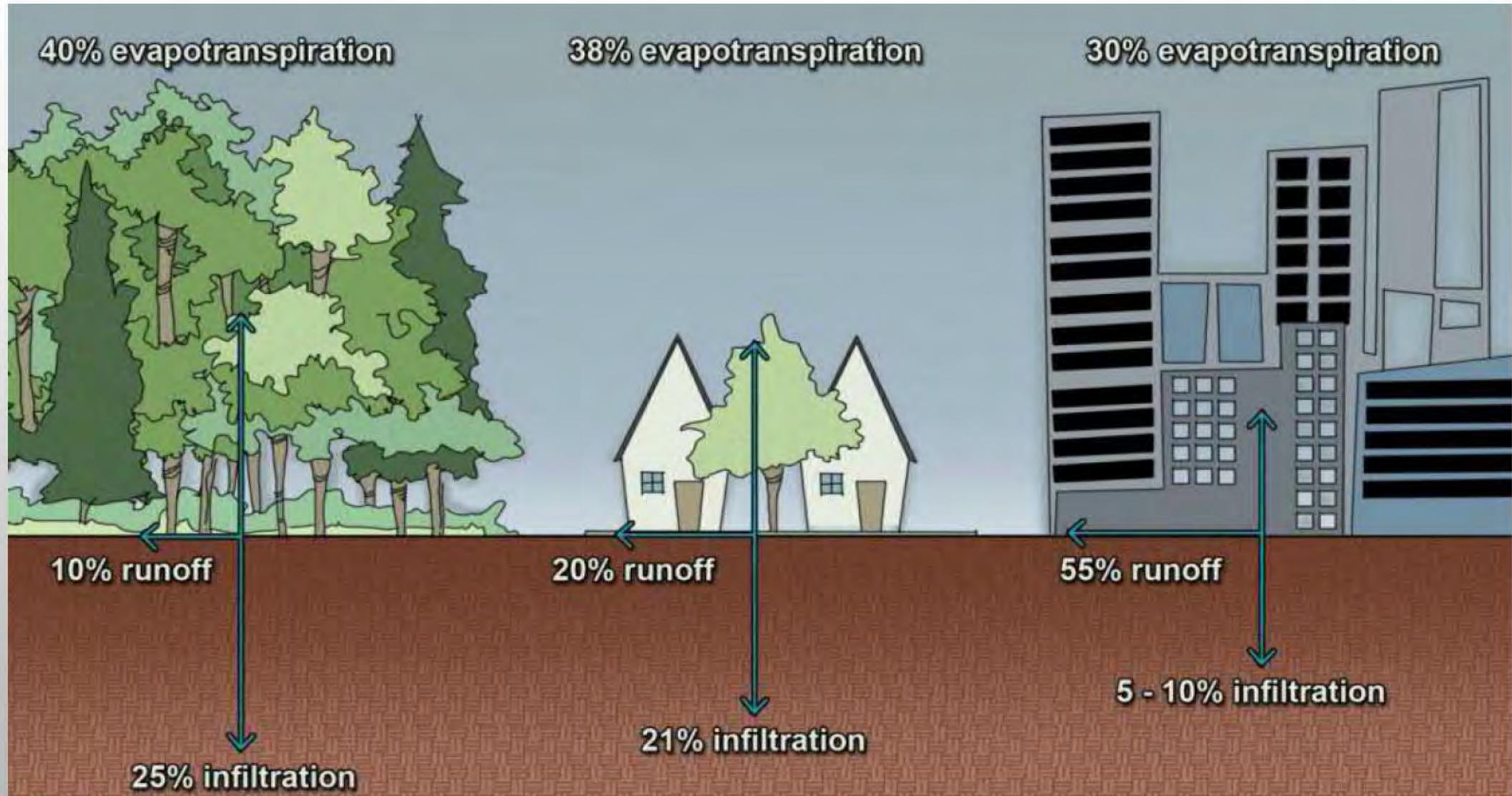


MS4 Program & Drain Marking/Inspection

Lee Moser – Agriculture Extension Associate Senior (CAFE) – lee.moser@uky.edu – 859.218.4327
Kevin Lewis – Water Quality Compliance Manager – kevin.lewis@uky.edu – 859.257.0093

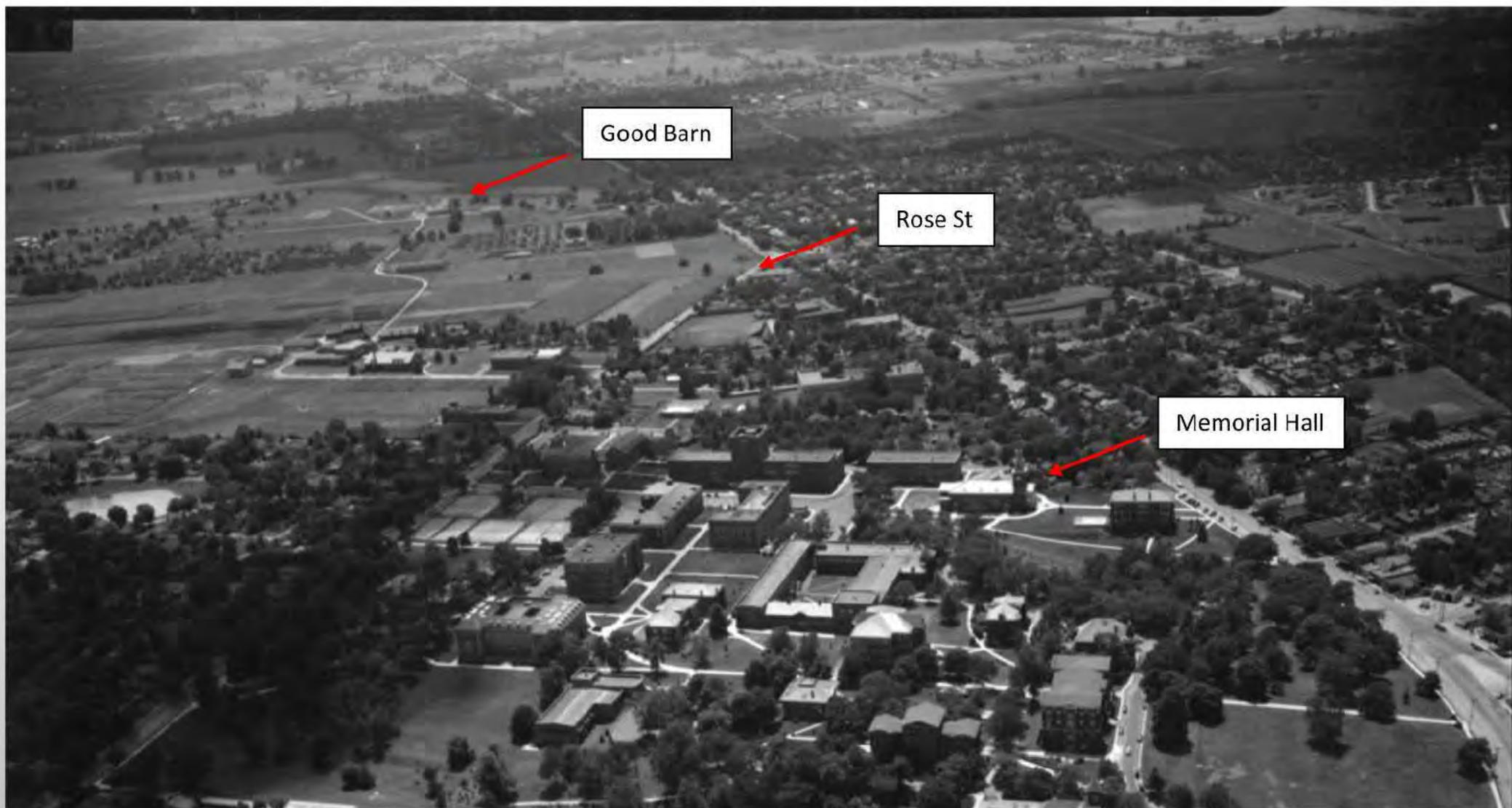


WHAT'S THE DEAL WITH STORMWATER?





1945-1946



1.13-275.04. *John C. Wyatt Lexington Herald-Leader photographs*. 2004av001. University of Kentucky Libraries Special Collections Research Center. Accessed October 3, 2019. <https://lhlphotoarchive.org/ark:/16417/th768n1jshjq5>



PRESENT





UNIQUE CHALLENGES AND THE FUTURE

- INCREASED DEVELOPMENT (IMPERVIOUS SURFACES)
- INCREASED FLOWS FROM IMPERVIOUS SURFACES CAN INCREASE FLOODING RISK
- INCREASED HUMAN AND VEHICLE TRAFFIC
- GREEN INFRASTRUCTURE/LID/BMPS ADOPTION RATE?
- WHAT ABOUT OUR LOCAL GEOLOGY?
- WHAT ABOUT CLIMATE CHANGE?!?!?

LOTS OF UNKNOWNNS



WHAT IS A MS4?

- MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4)
- “AN MS4 IS A CONVEYANCE OR SYSTEM OF CONVEYANCES THAT IS:
 - OWNED BY A STATE, CITY, TOWN, VILLAGE, OR OTHER PUBLIC ENTITY THAT DISCHARGES TO WATERS OF THE U.S.,
 - DESIGNED OR USED TO COLLECT OR CONVEY STORMWATER (E.G., STORM DRAINS, PIPES, DITCHES),
 - NOT A COMBINED SEWER, AND
 - NOT PART OF A SEWAGE TREATMENT PLANT, OR PUBLICLY OWNED TREATMENT WORKS (POTW).” (US EPA)
- PERMITTED THROUGH KENTUCKY DIVISION OF WATER MS4 GENERAL PERMIT
- REQUIRES SPECIFIC MANAGEMENT, MONITORING, CONTROL, AND OUTREACH PLAN/PROGRAM



UK's Watersheds...

TOWN BRANCH

(AVERAGE ANNUAL FLOW 37,800 GAL/MIN)





UK's Watersheds...



WOLF RUN

(AVERAGE ANNUAL FLOW 4,734 GAL/MIN)





UK's Watersheds...

WEST HICKMAN CREEK

(AVERAGE ANNUAL FLOW 30,758 GAL/MIN)





THE UNIVERSITY OF KENTUCKY MS4



Figure 1:
UNIVERSITY OF KENTUCKY
Municipal Separate Storm Sewer Systems (MS4)
~ Boundary Map ~

This map provides information as required by the Kentucky Division of Water's *Phase II Storm Water Quality Management Plan Preparation Guidance*, Revised May 2008. Further, this map is a companion to the University of Kentucky's Notice of Intent for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4) KPDES General Permit.

| Storm Control | Storm Water Features | MS4 Boundary | Campus Map |
|-------------------------|----------------------|---|----------------------|
| Retention | Cave | To On-Campus Sanitaries | Index Contour |
| Class V Injection Well | Chertall | To Town Branch or On-Campus Caves/Sinkholes | Intermediate Contour |
| Grass Road | UK Drain | To West Hickman (through outfall WH-1) | Absentism |
| Water Control | Non-UK Drain | To West Hickman (through outfall WH-2) | Non-UK Building |
| Permeable Pavement | UK Headwall | To Wolf Run | Paved Surface |
| Retention Pond | Non-UK Headwall | To Wolf Run (through outfall WR-1) | Pond |
| Exit Catches | UK Manhole | To Wolf Run (through outfall WR-2) | |
| Unintentional Detention | Non-UK Manhole | | |
| Water Harvesting System | | | |

NOTE: This map was prepared for the purpose of this map, the University of Kentucky's complete storm water system has not been shown. Only drainage features that are 18" or larger in diameter that are equal to 18 inch, diameter, and constructed materials, drains, and headwalls have been shown.



Source: The information presented on this map was derived from the City and relevant storm water utility data at the time of issue. Data was developed from CAD records, aerial and field surveys, LIDAR, recent records, and with guidance from engineering personnel.



UK'S MS4 (STORMWATER) SYSTEM



AND... ALL THE PIPES UNDERGROUND CONNECTING THEM.



POTENTIAL POLLUTANTS OF CONCERN

- LITTER (FLOATABLES)
- PET WASTE
- FERTILIZERS (NUTRIENTS) AND PESTICIDES
- OIL AND GREASE
- ERODED SOIL
- SANITARY SEWER OVERFLOW (SSO)
- USED MASKS AND OTHER PPE
- CIGARETTE BUTTS
- ROAD SALTS AND DEICER
- VARIOUS OTHER WATER-MOBILE POLLUTANTS
- ILLICIT DISCHARGES

TREAT IT THIS WAY: IF IT'S ON THE GROUND, IT'S IN THE WATER.



STORMWATER DRAINS DISCHARGE DIRECTLY TO LOCAL WATERWAYS UNTREATED! THAT'S WHY IT IS IMPORTANT TO BE ABLE TO.....

RECOGNIZE AND REPORT AN ILLICIT DISCHARGE

DO NOT CLEAN BRUSHES, ROLLERS OR OTHER PAINTING EQUIPMENT WHERE IT WILL ENTER A STREET GUTTER OR STORM DRAIN

CALL 323-5280 OR 267-8673 (UKPD) TO REPORT ILLICIT DISCHARGES

ALL OIL MUST BE PLACED IN PROPER RECEPTACLES

DUMPING OF MOP AND WAX WATER FROM FLOOR CLEANING

RECOGNIZE UNUSUAL APPEARANCES

NO CONSTRUCTION RUNOFF

**NO DUMPING
STORMWATER
DRAINS TO WEST HICKMAN CR.**

MOP BUCKETS AND SINKS

- Never empty a mop bucket outside or where it can drain into a storm drain.
- Always dump mop water into a mop sink, or other appropriate sink where food prep is not done.
- Keep the mop sink accessible. Don't use it to store materials or equipment.

SWEEP UP

**NO DUMPING
UK
DRAINS TO WOLF RUN**

GO TO CAR WASH OR WASH ON GRASS



BRIEF OVERVIEW OF GENERAL PERMIT REQUIREMENTS: MINIMUM CONTROL MEASURES (MCM)

- MCM 1- PUBLIC EDUCATION AND OUTREACH
- MCM 2- PUBLIC INVOLVEMENT/PARTICIPATION
- MCM 3- ILLICIT DISCHARGE DETECTION AND ELIMINATION
- MCM 4- CONSTRUCTION SITE STORMWATER RUNOFF CONTROL
- MCM 5- POST CONSTRUCTION STORMWATER MANAGEMENT
- MCM 6- POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

SOME EXAMPLE ACTIVITIES FROM EACH MCM.....



MCM 1- PUBLIC EDUCATION AND OUTREACH

- STRENGTHEN EDUCATION, OUTREACH, AND PARTICIPATION PROGRAM
- UPDATE AND MAINTAIN STORMWATER WEBSITE
- DEVELOP INTERACTIVE MS4 MAP
- DEVELOP AND DISTRIBUTE PUBLIC (FACULTY, STAFF, STUDENTS, VISITORS) SPECIFIC EDUCATIONAL MATERIALS
- DEVELOP AND MAINTAIN SOCIAL MEDIA SITES FOCUSED ON UK STORMWATER
- UPDATE AND CONDUCT CAMPUS WIDE SURVEY TO DETERMINE EFFECTIVENESS OF THE OUTREACH AND EDUCATION PROGRAM



MCM 2- PUBLIC INVOLVEMENT/PARTICIPATION

- UPDATE AND IMPROVE THE STORM DRAIN MARKING PROGRAM
- UPDATE INVENTORY OF MARKED DRAINS VIA INTERN PROGRAM
- DEVELOP INTERACTIVE MAP TO SHOW/TRACK DRAIN MARKING ACTIVITY
- INVOLVE STUDENTS, FACULTY, AND STAFF IN STORMWATER ACTIVITIES (DRAIN MARKING, RAIN GARDEN MAINTENANCE, NEW STREAM RESTORATION PROJECT)
- SERVICE-LEARNING EVENTS



MCM 3- ILLICIT DISCHARGE DETECTION AND ELIMINATION

- MAINTAIN AND UPDATE MS4 AND UTILITY MAPS ANNUALLY/AS NECESSARY
- UPDATE WEBSITE AND COMPLAINT REPORTING MECHANISM (SEE TASKS 1.B AND 1.B.2)
- INCLUDE ALL INFORMATION/PROCEDURES INTO A COMPREHENSIVE STORMWATER OPERATIONS MANUAL
- UPDATE AND MAINTAIN THE ILLICIT DISCHARGE TRACKING PROGRAM AS NECESSARY



MCM 4- CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

- PERFORM AUDIT INSPECTIONS ON CONSTRUCTION SITES MONTHLY
- UPDATE CONSTRUCTION SITE INSPECTION CHECKLIST AS NECESSARY
- REVIEW CONSTRUCTION PLANS TO ENSURE SWPPP MEASURES ARE BEING INCORPORATED FOR ALL PROJECTS DISTURBING 1 ACRE OR MORE
- CONTINUE TO UTILIZE LFUCG'S MOST RECENT STORMWATER REQUIREMENTS, INCLUDING THEIR STORMWATER MANUAL AND LID GUIDELINES
- DEVELOP TRAINING PROGRAM TO EDUCATE CONTRACTORS AND DESIGNERS ON STORMWATER REQUIREMENTS
- DEVELOP UK CONSTRUCTION PROCESS/REQUIREMENT TRAINING



MCM 5- POST CONSTRUCTION STORMWATER MANAGEMENT

- CONTINUE THE ADOPTION OF LFUCG POST CONSTRUCTION REQUIREMENTS FOR NEW/REDEVELOPMENT
- REVIEW PLANS TO ENSURE POST-CONSTRUCTION STORMWATER QUALITY TREATMENT HAS BEEN ADDRESSED
- CONDUCT INSPECTIONS TO ENSURE MEASURES ARE BEING INSTALLED CORRECTLY
- INCORPORATE ALL RELEVANT POST-CONSTRUCTION INFORMATION INTO NEW STORMWATER OPERATIONS MANUAL



MCM 5- POST CONSTRUCTION STORMWATER MANAGEMENT



129 Best Management Practices (BMPs) and growing:

- Water Harvesting = 3 systems (80,000 gallons)
- Green Roofs = 6
- Underground Detention = 20 systems
- Water Quality Units = 33
- Permeable Pavement = 18 locations
- Detention Basins = 26
- Bioretention = 16
- Inlet Controls = 6
- Retention Pond = 1





MCM 6- POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS

- DEVELOP COMPREHENSIVE UK STORMWATER OPERATIONS MANUAL TO INCLUDE ALL POLICIES/PROCEDURES/BMPS UTILIZED TO MEET PERMIT REQUIREMENTS (ALL MCM'S)
- UPDATE BMP OPERATIONS AND MAINTENANCE (O&M) MANUAL TO INCLUDE SPECIFIC MAINTENANCE REQUIREMENTS, CALENDAR OF REQUIRED ACTIVITIES, AND RESPONSIBILITIES FOR EACH EXISTING POST CONSTRUCTION BMP
- UPDATE EMPLOYEE TRAINING PROGRAM
- CREATE PROCEDURES TO ADDRESS/REPAIR STORMWATER ISSUES/PROBLEMS ON CAMPUS ONCE THEY ARE IDENTIFIED



STORM DRAIN MARKING AND INSPECTION PROGRAM

- WHAT IS IT?
 - A VOLUNTEER-BASED PROGRAM
 - MARKING AND INSPECTING STORM DRAINS AND STRUCTURES
 - WE HAVE AN APP!
- WHY IS IT IMPORTANT?
 - IT HELPS IDENTIFY MAINTENANCE NEEDS
 - IT HELPS INVENTORY UNMARKED FEATURES
 - IT PROVIDES A WAY TO REPORT ILLICIT DISCHARGES





STORM DRAIN MARKING AND INSPECTION PROGRAM

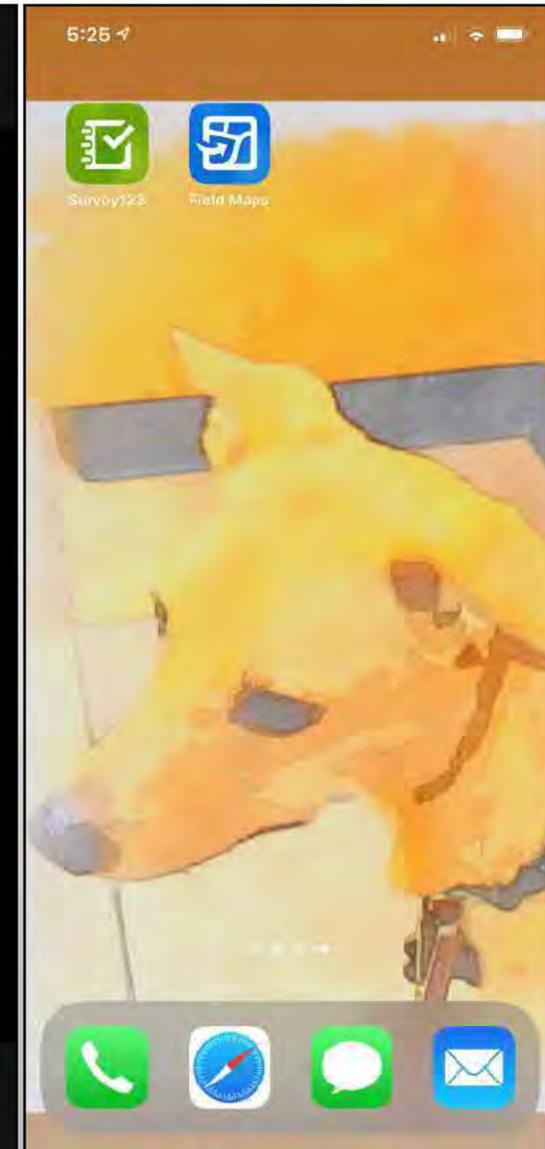
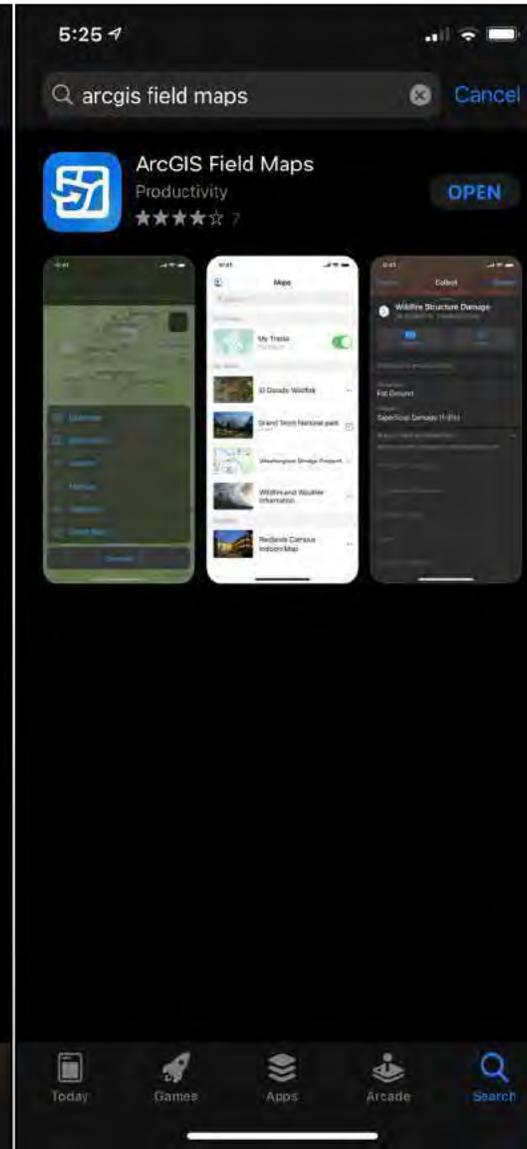
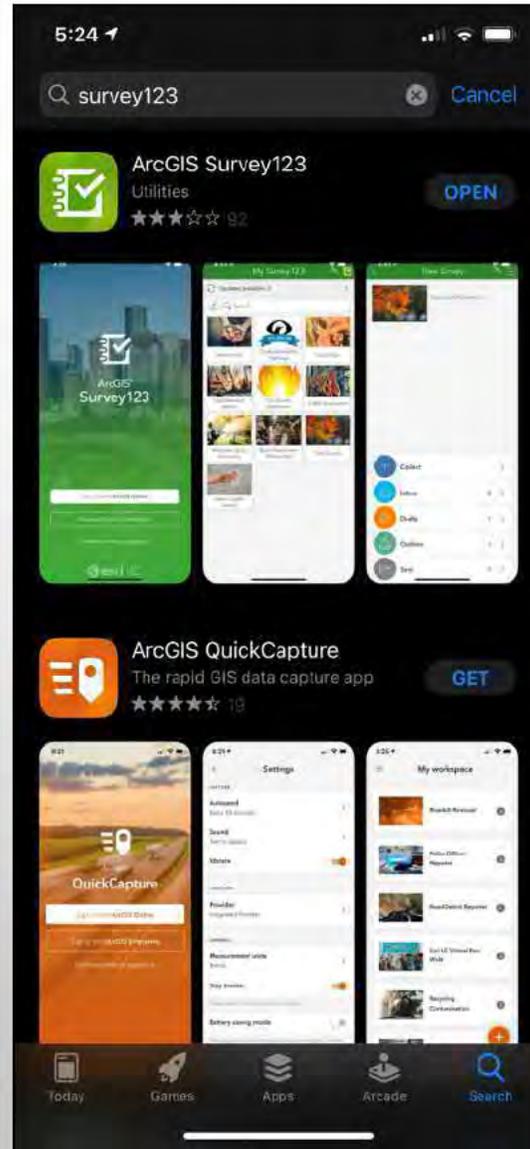
- GETTING STARTED

- DOWNLOAD THE APPS

- ARCGIS SURVEY123

- ARCGIS FIELD MAPS

- ACCESS APPS FROM THE HOME SCREEN

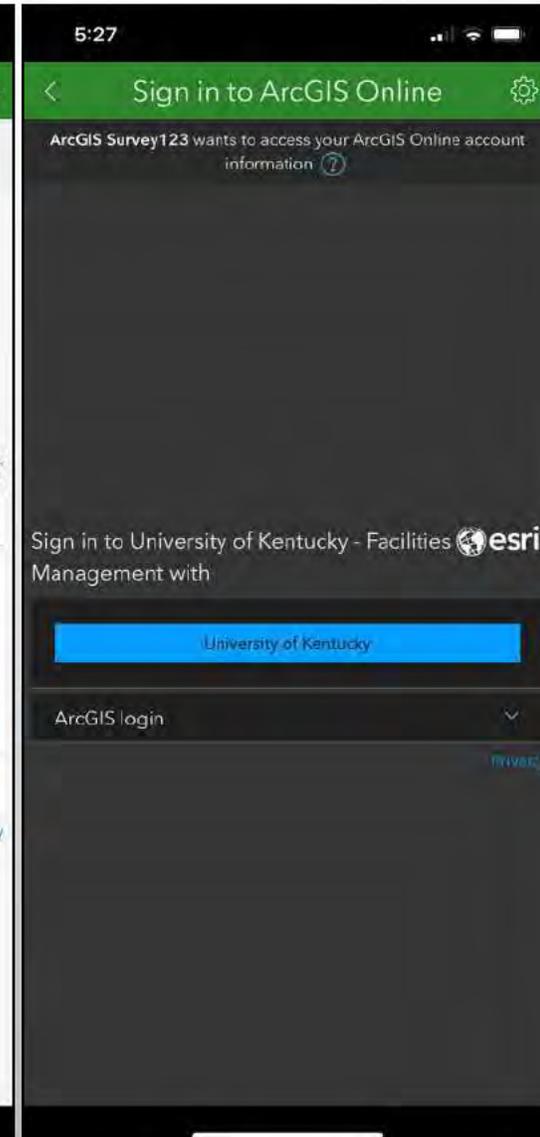
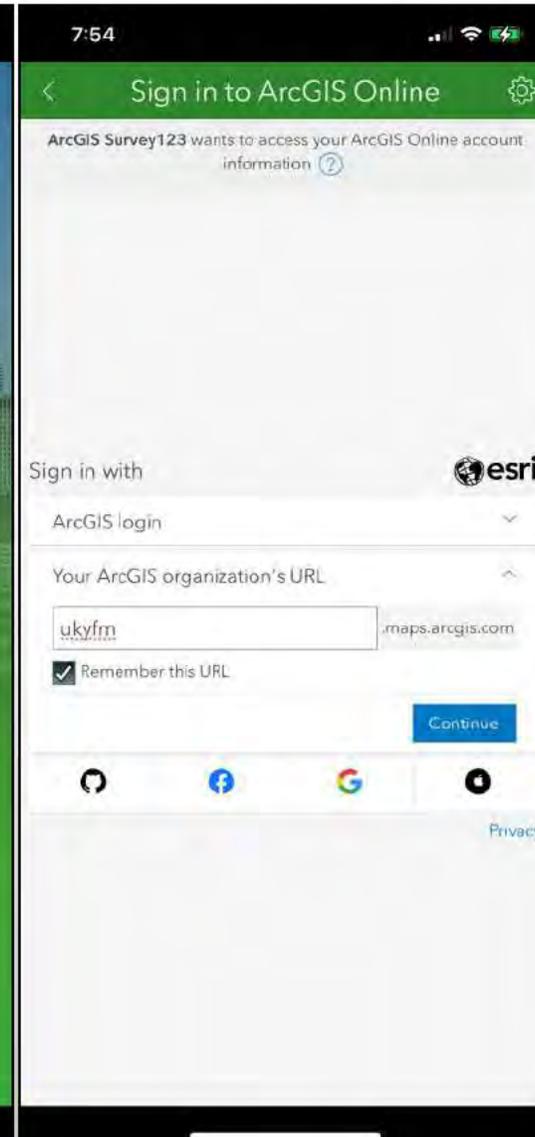




STORM DRAIN MARKING AND INSPECTION PROGRAM

- GETTING STARTED

- OPEN SURVEY123
- TAP “SIGN IN WITH ARCGIS ONLINE”
- TAP “YOUR ARCGIS ORGANIZATION’S URL”
 - ENTER “ukyfm”
- CHECK “REMEMBER THIS URL”
- TAP “CONTINUE” BUTTON
- TAP BLUE “UNIVERSITY OF KENTUCKY” BUTTON

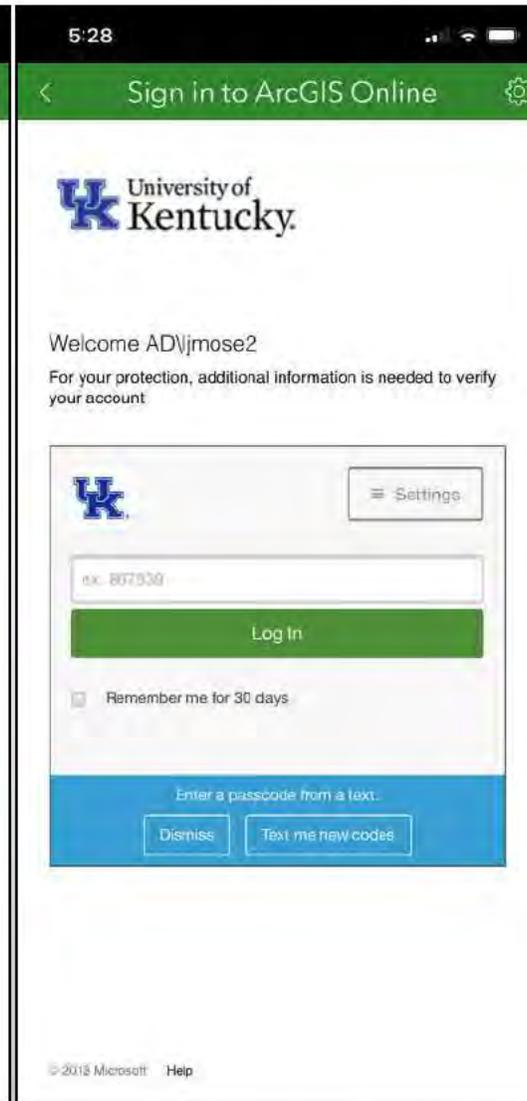
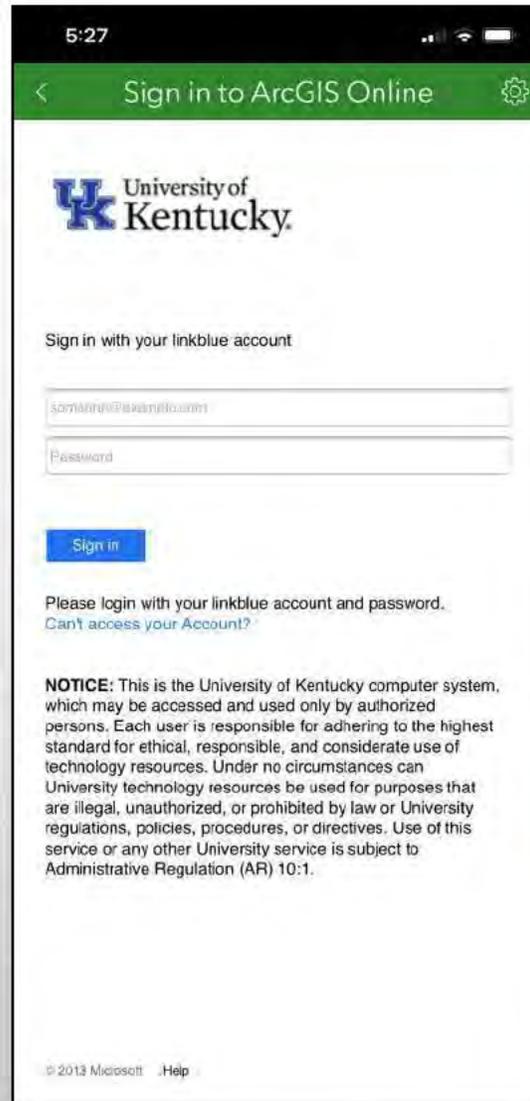




STORM DRAIN MARKING AND INSPECTION PROGRAM

- GETTING STARTED

- LOGIN WITH YOUR LINKBLUE CREDENTIALS
- SEND YOURSELF A 2FA PASSCODE VIA TEXT TO AUTHENTICATE
- RETRIEVE CODE FROM TEXT AND ENTER IN TEXT BOX
- TAP “LOG IN” BUTTON
- LAND IN SURVEY123 AND DOWNLOAD SURVEY





STORM DRAIN MARKING AND INSPECTION PROGRAM

- GETTING STARTED

- OPEN FIELD MAPS
- TAP “SIGN IN WITH ARCGIS ONLINE”
- TAP “YOUR ARCGIS ORGANIZATION’S URL”
 - ENTER “ukyfm”
- CHECK “REMEMBER THIS URL”
- TAP “CONTINUE” BUTTON
- TAP BLUE “UNIVERSITY OF KENTUCKY” BUTTON

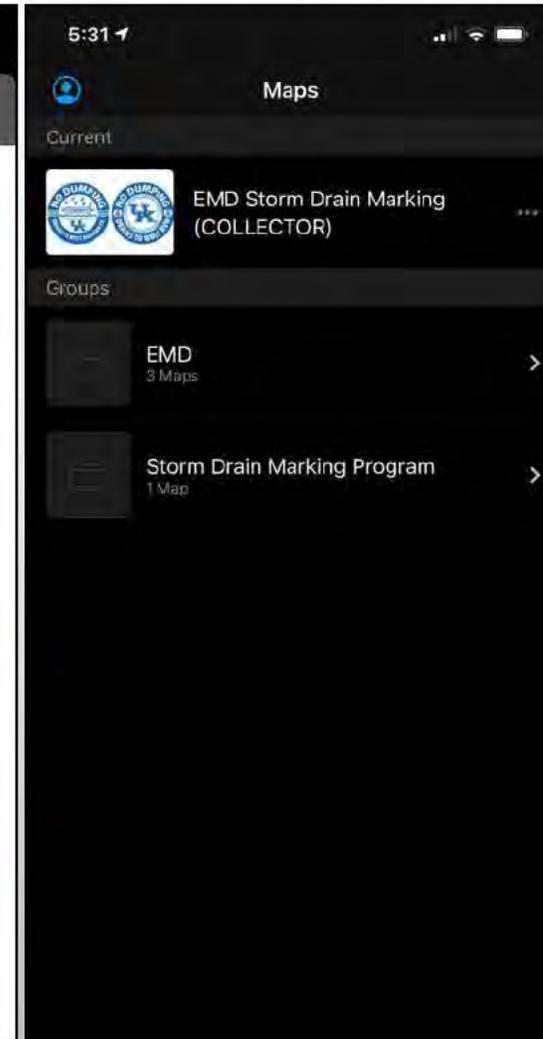
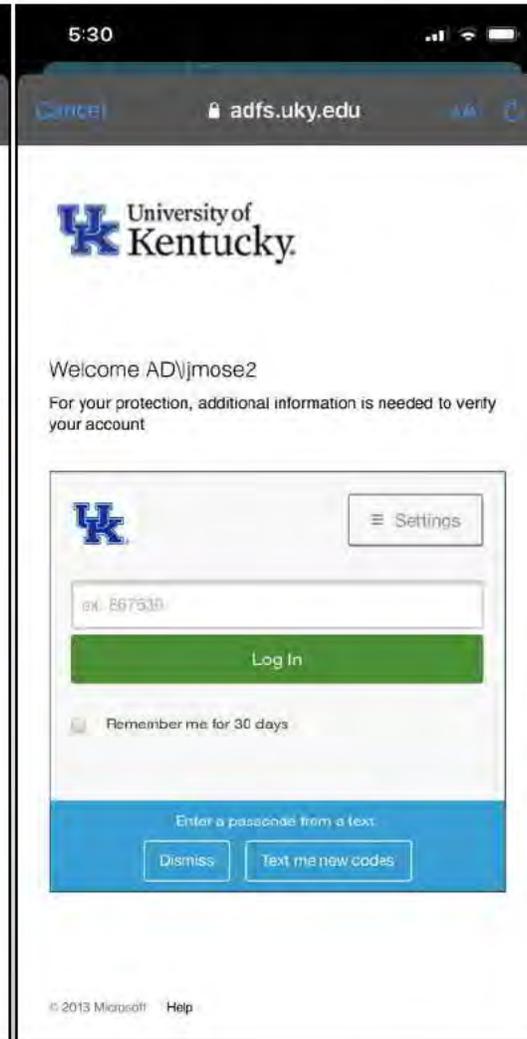
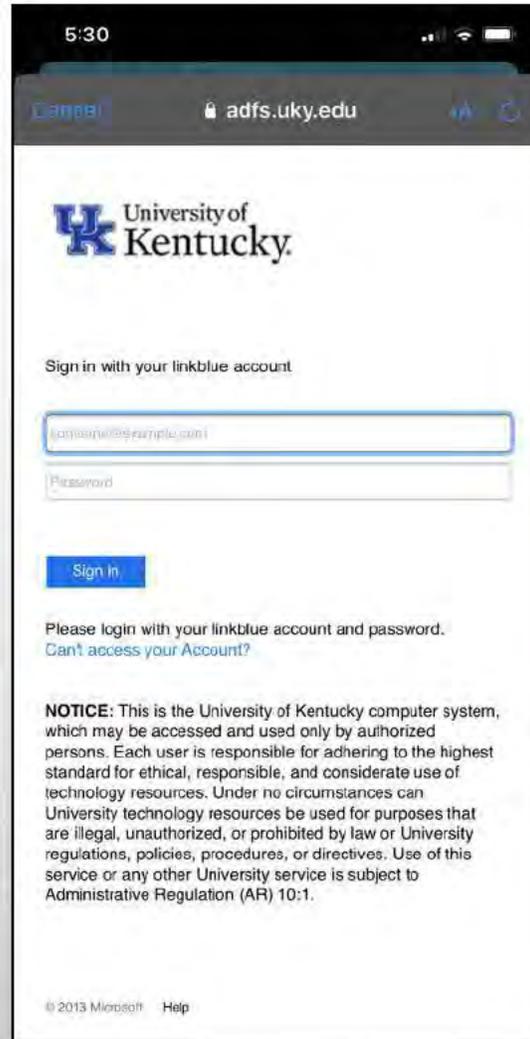




STORM DRAIN MARKING AND INSPECTION PROGRAM

- GETTING STARTED

- LOGIN WITH YOUR LINKBLUE CREDENTIALS
- SEND YOURSELF A 2FA PASSCODE VIA TEXT TO AUTHENTICATE
- RETRIEVE CODE FROM TEXT, ENTER IN TEXT BOX
- TAP “LOG IN” BUTTON
- LAND IN FIELD MAPS AND TAP “STORM DRAIN MARKING PROGRAM”

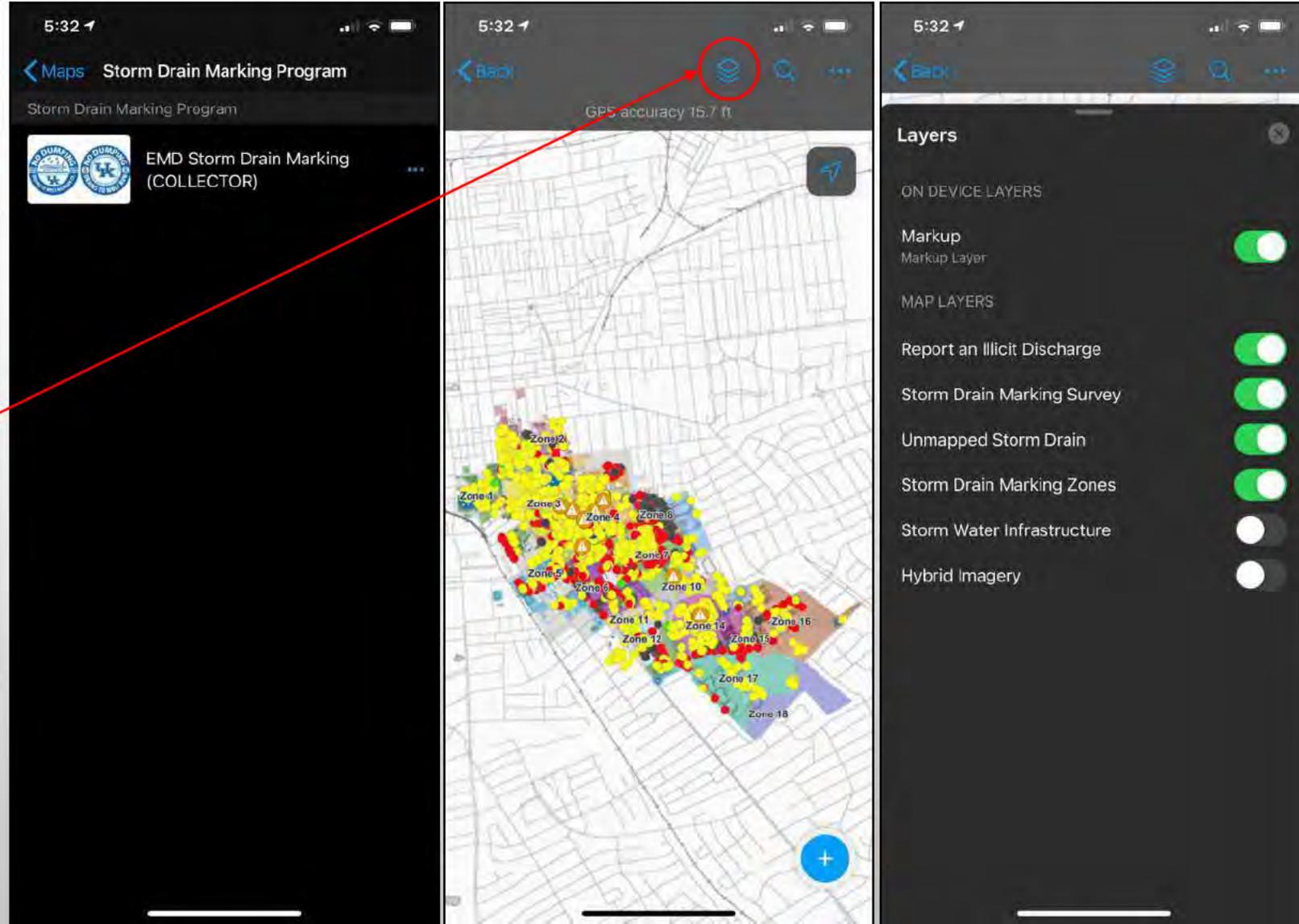




STORM DRAIN MARKING AND INSPECTION PROGRAM

- GETTING STARTED

- TAP “EMD STORM DRAIN MARKING (COLLECTOR)”
- YOU WILL LAND ON THE MARKING APP MAP
- TAP STACKED SQUARES TO MANAGE LAYERS

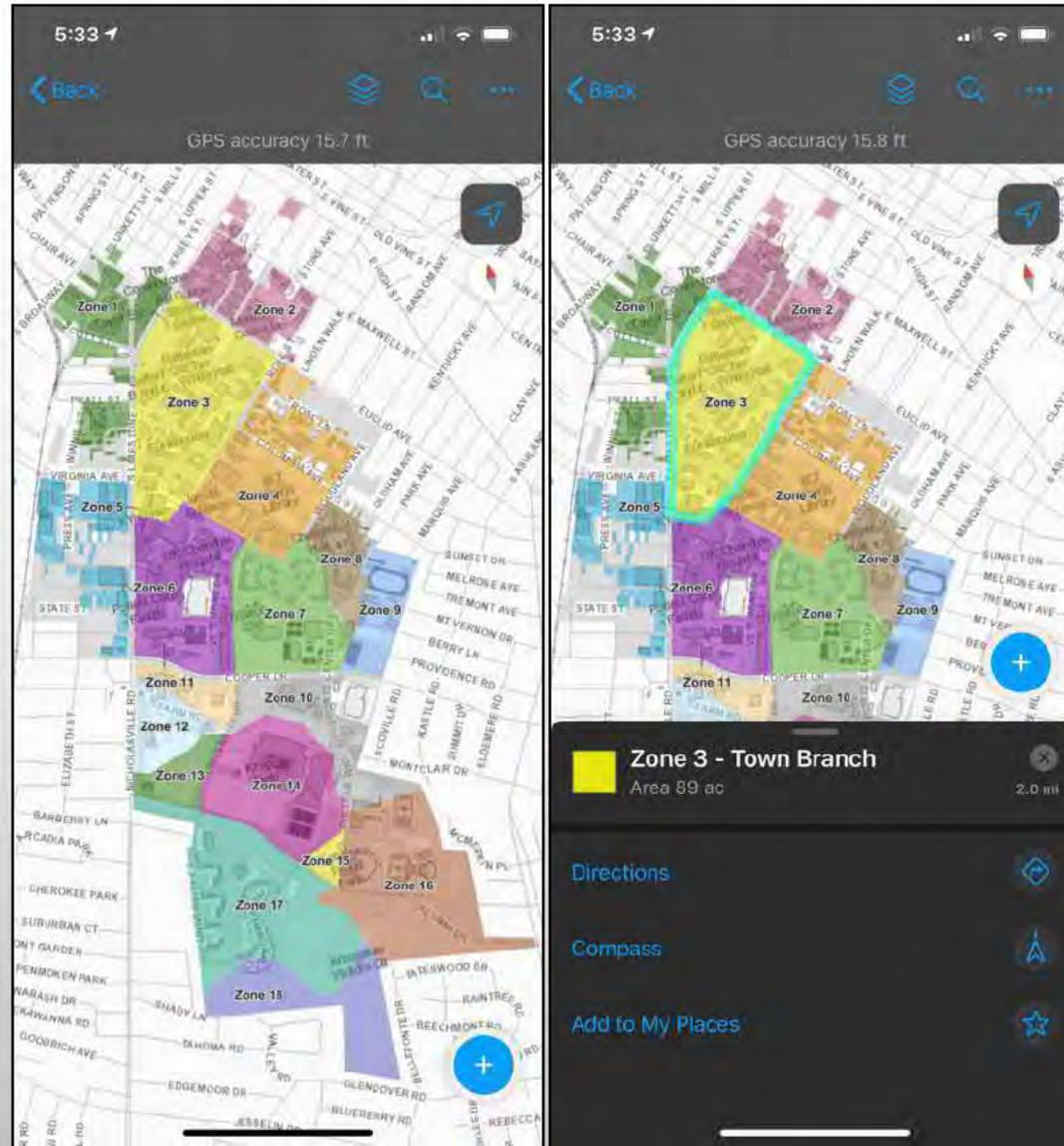




STORM DRAIN MARKING AND INSPECTION PROGRAM

- GETTING STARTED

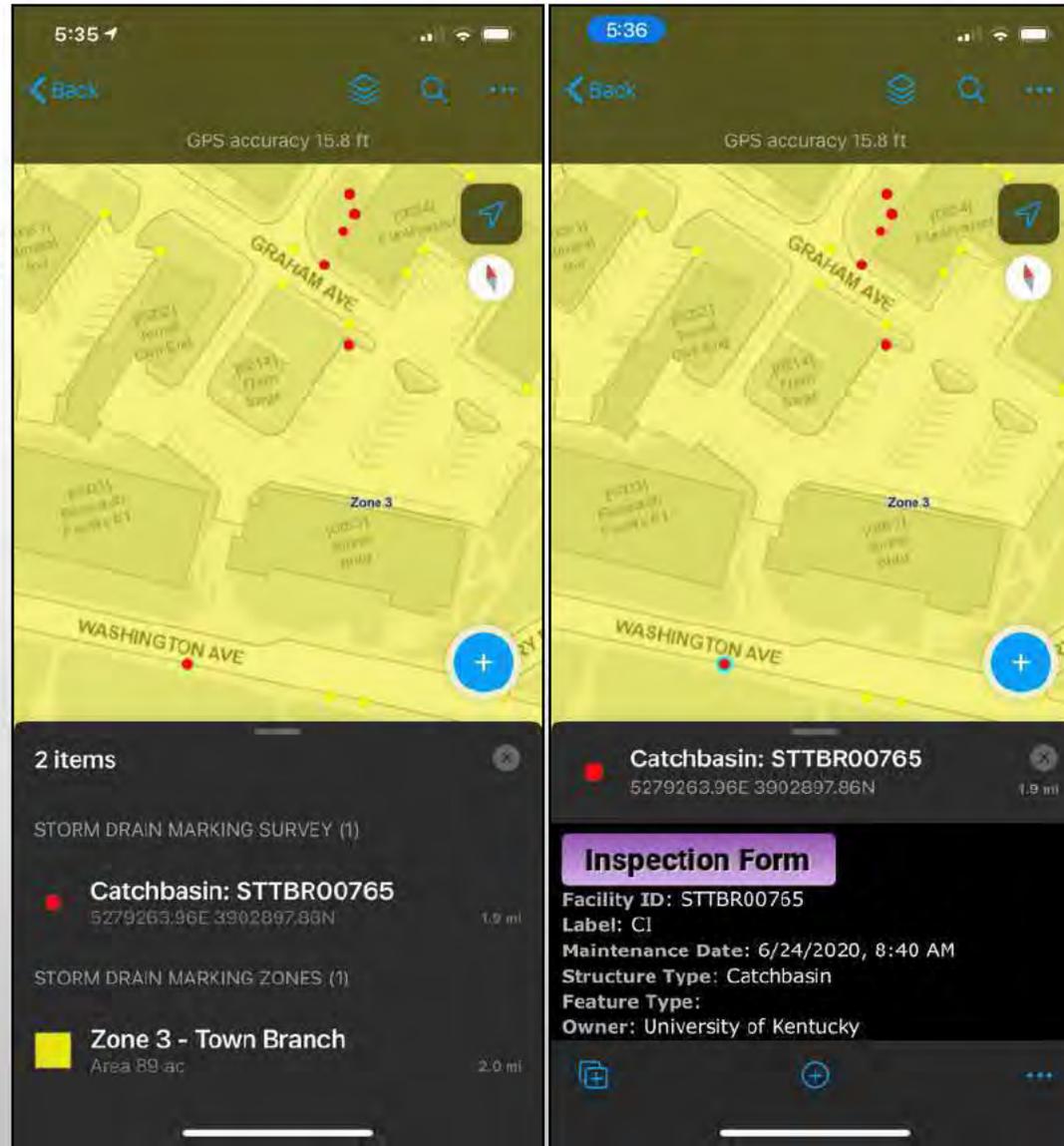
- I HAVE ROTATED THE MAP AND TURNED OFF ALL LAYERS EXCEPT “STORM DRAIN ZONES”
- DETERMINE STORM DRAIN ZONE YOU ARE IN BY TAPPING ON THE ZONE POLYGON
- YOU WILL WANT TO TURN BACK ON THE STORM DRAIN LAYER





STORM DRAIN MARKING AND INSPECTION PROGRAM

- INSPECTING STORM DRAIN FEATURES
 - TAP ON FEATURE YOU ARE INSPECTING
 - TAP ON “INSPECTION FORM BUTTON”





STORM DRAIN MARKING AND INSPECTION PROGRAM

- INSPECTING STORM DRAIN FEATURES

- FILL IN ALL FIELDS ON THE FORM
- TAKE PHOTO OF DRAIN
- TAKE PHOTO OF THE AREA
- TAP SUBMIT CHECK MARK AND THEN TAP SEND NOW
- WILL KICK YOU OUT TO SURVEY1 23, SO RE-ENTER FIELD MAPS

5:36
Field Maps

EMD Storm Drain Marking (SURVEY)

Structure ID
STTBR00765

Global ID
{3D432A41-A985-4CE0-9E4C-84B7BDEC126E}

Inspector Name *

Inspection Date & Time *
Tuesday, February 9, 2... 5:36 AM

Location Description *
Give a detailed description of the location of the drain.

Is the structure marked as a storm drain? *
If the storm drain was marked during this survey, please select "Yes - Temporary Marker".
No - Marker Install Required

Condition *
(Check all that apply)
Good Damaged Clogged
Surface Stains Flow Present Odors
Other

Drain Photo *
Take a photo of the drain and try to get the surrounding area/landmarks in the photo.

Area Photo
Take a photo of the surrounding area or any notable conditions.



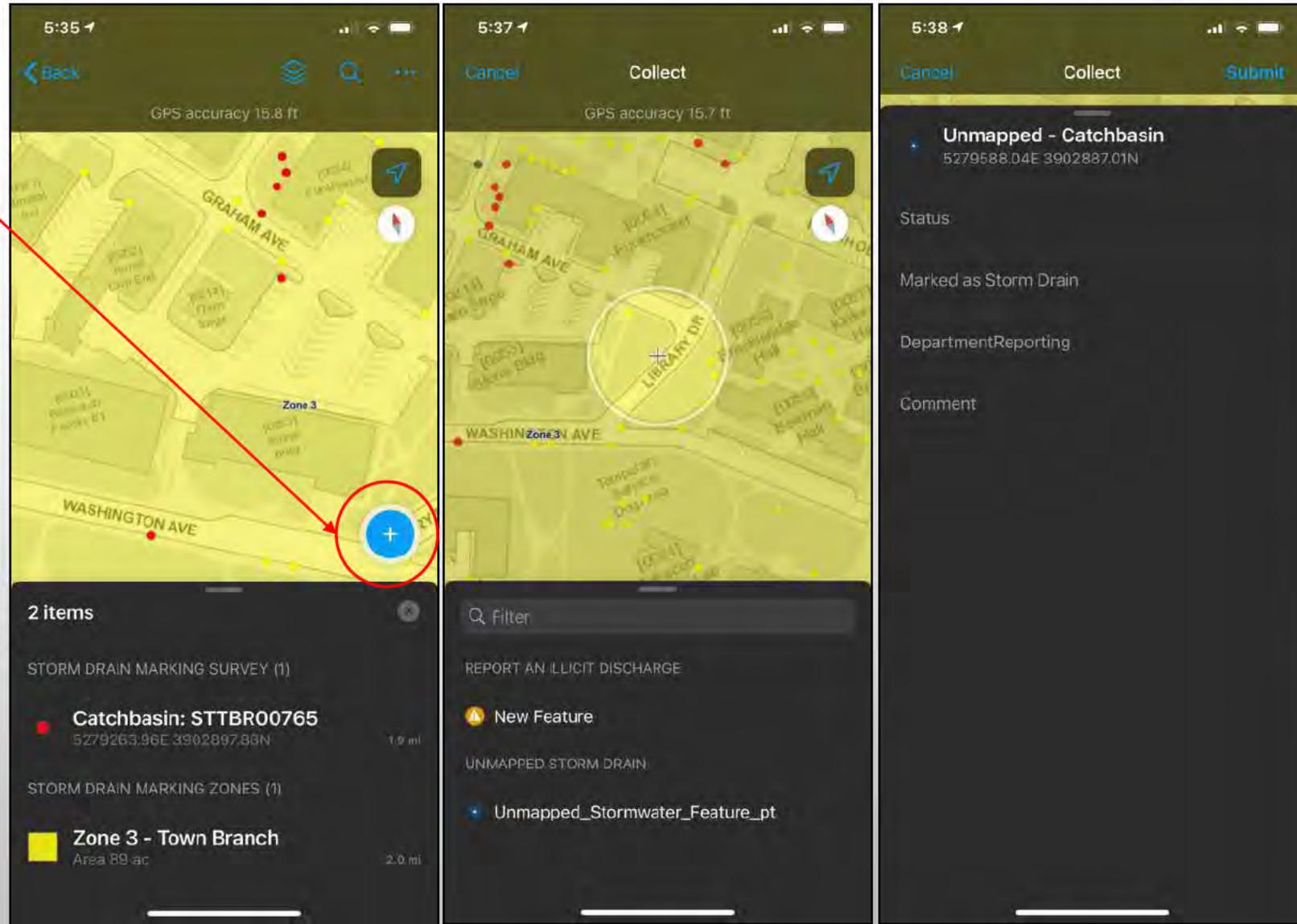
INSTALLING A MARKER ON AN UNMARKED STRUCTURE

 College of Agriculture,
Food and Environment



STORM DRAIN MARKING AND INSPECTION PROGRAM

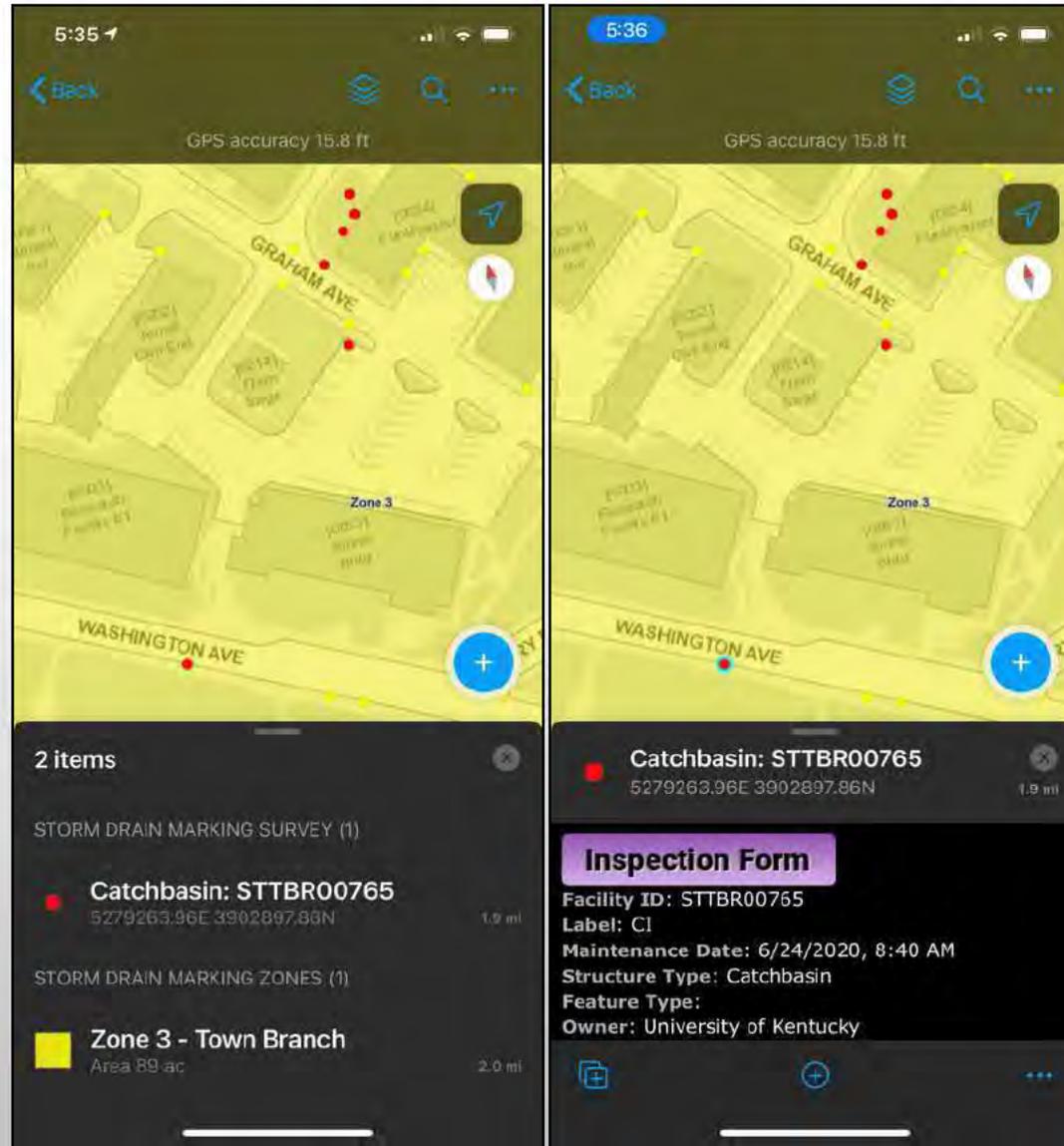
- ADDING UNMARKED DRAINS TO THE APP
 - TAP THE BLUE “+” BUTTON
 - THE LOCATION SHOULD BE CLOSE; CAN ADJUST LOCATION BY SCROLLING MAP, TARGETING WITH CROSSHAIRS
- TAP “UNMAPPED_STORMWATER_FEATURE_PT”
- COMPLETE FORM AND TAP “SUBMIT”





STORM DRAIN MARKING AND INSPECTION PROGRAM

- CONDUCT AN INSPECTION ON THE NEW FEATURE
 - TAP ON THE NEW FEATURE YOU ADDED
 - TAP ON “INSPECTION FORM BUTTON”





STORM DRAIN MARKING AND INSPECTION PROGRAM

- INSPECTING NEWLY ADDED STORM DRAIN FEATURE
 - FILL IN ALL FIELDS ON THE FORM
 - TAKE PHOTO OF DRAIN
 - TAKE PHOTO OF THE AREA
 - TAP SUBMIT CHECK MARK AND THEN TAP SEND NOW
 - WILL KICK YOU OUT TO SURVEY 1 23, SO RE-ENTER FIELD MAPS, IF NEEDED

5:36
Field Maps

EMD Storm Drain Marking (SURVEY)

Structure ID
STTBR00765

Global ID
{3D432A41-A985-4CE0-9E4C-84B7BDEC126E}

Inspector Name *

Inspection Date & Time *
Tuesday, February 9, 2... 5:36 AM

Location Description *
Give a detailed description of the location of the drain.

Is the structure marked as a storm drain? *
If the storm drain was marked during this survey, please select "Yes - Temporary Marker".
No - Marker Install Required

Condition *
(Check all that apply)
 Good Damaged Clogged
 Surface Stains Flow Present Odors
 Other

Drain Photo *
Take a photo of the drain and try to get the surrounding area/landmarks in the photo.

Area Photo
Take a photo of the surrounding area or any notable conditions.



RULES AND GUIDELINES TO REMEMBER DURING YOUR MARKING/INSPECTION PROJECT

- SAFETY FIRST!! BE SURE TO FOLLOW SAFETY GUIDELINES PROVIDED IN BADGE INSTALLATION PROCEDURES.
- WEAR A SAFETY VEST TO MAKE YOUR SELF HIGHLY VISIBLE TO VEHICLES.
- WEAR THE PROVIDED GLOVES DURING MARKING PROCEDURES.



REMINDERS

- ACCOUNTS WILL BE DELETED AT THE END OF THE SEMESTER. AFTER THE SEMESTER IS OVER, IF STUDENTS ARE INTERESTED IN LEARNING MORE ABOUT ESRI ARCGIS PRODUCTS OR EXPERIMENTING WITH SOME SOLUTIONS OF THEIR OWN THEY CAN SUBMIT AN ESRI LICENSE AND RESOURCE REQUEST AT: [HTTPS://WWW.UKY.EDU/GISSUPPORT/LICENSE-REQUEST](https://www.uky.edu/gissupport/license-request) .
- FEATURES WILL NOT CHANGE COLOR BASED ON DRAIN MARKED STATUS IMMEDIATELY. UPDATES RUN NIGHTLY, AND WILL BE REFLECTED THE NEXT DAY.
- BEFORE GOING INTO THE FIELD MAKE SURE YOU CAN LOG IN TO BOTH APPS SUCCESSFULLY.
- TRY TO USE DATA, INSTEAD OF WI-FI, ESPECIALLY WHEN PLACING UNMAPPED FEATURES OR ILLICIT DISCHARGES. USING DATA WILL IMPROVE GPS ACCURACY FOR CAPTURING YOUR LOCATION.
- HAVING ISSUES WITH THE APPS, REFERENCE THE LAST PAGE OF TECH SUPPORT DOC FOR TROUBLE SHOOTING TECHNIQUES. IF STILL HAVING ISSUES AFTER TROUBLE SHOOTING CONTACT GEOSPATIAL.REQUESTS@UKY.EDU .



QUESTIONS?

- KEVIN LEWIS – WATER QUALITY COMPLIANCE MANAGER –
KEVIN.LEWIS@UKY.EDU – 859.257.0093
- LEE MOSER– AGRICULTURE EXTENSION ASSOCIATE SENIOR (CAFE)–
LEE.MOSER@UKY.EDU – 859.218.4327
- STORMWATER@UKY.EDU



Dog waste is one of the top contributors to bacterially contaminated waters and is a leading source of nutrients (phosphorus, specifically) from urban areas. Transport via storm sewer systems has been identified as a primary mechanism for entry of these contaminants to our waterways. Working in collaboration with LFUCG, a pet waste campaign was developed to inform pet owners of the importance of picking up after their pet and to incentivize them to adopt sound pet waste management practices in both public places and at home.

One of the project deliverables was a logo design contest involving the UK campus community, which was launched in Fall 2019 and finalized in March 2020. The project was announced via UKnow and campus was engaged via social media and student listservs. Additional posters and flyers were distributed across campus to ensure opportunity for all students. Members of the ENRI team were invited to present to 3 classes. Two faculty members in design utilized the competition for a class design project.

Twenty-five students participated in the contest for a total of 38 entries. Entries were received from 8 colleges and one interdisciplinary study and ranked by a panel of graphic design professionals. From the top ten, three designs were selected based on stakeholder input and a public opinion poll. Awards were presented for top design, runner-up, and people's choice. It is estimated that the project received approximately 65,000 views through electronic and printed media with 118 personal contacts. **Details for calendar year 2020 are shown below.**



| Date | Description | Participants | Reach |
|-------------------|--|--------------|-------------|
| 1/17/20 | Re-issue contest call via college listservs targeting colleges/departments with design curriculum (CFA, COD, LA, CI) | 5 | 1762 |
| 1/22/20 | Presentation to Dr. Zhu's hydrogeology class - project background, logo contest recruitment | 12 | |
| 1/23/20 | Presentation to Dr. Stallins' Environment and Film class, project background, recruitment for logo contest | 11 | |
| 1/26/20 | Entries for logo contest: participants researched and developed logo for pet waste campaign. Total of 25 participants and 38 entries. | 25 | |
| 2/16/20 | Contest judges - Professionals in graphic design and marketing. Educated on purpose and goals of project of project to assist with judging. | 6 | |
| 2/26/20 - 2/28/20 | Public opinion poll and stakeholder input - informed participants of purpose and objectives for campaign and solicited ranking input for top 10 entries. | 34 | |
| 4/20/20 | CAFÉ News Article: Winner Announcement | | 900 |
| | Total 2020 | 93 | 2662 |



Final Logo Design was used to brand educational materials, signage, and incentive items.

LOGO CONTEST

Enter for a chance to win the
\$500 PRIZE

The UK MS4 Stormwater Program is seeking a new logo design that speaks to the interplay between campus and stormwater management.

In municipalities and campuses with separate storm sewer systems (MS4s), special permits, monitoring programs, and management protocols are put in place to reduce the impacts of urban development on stormwater systems. These procedures aid in reducing the risk of potential contaminants (nutrient, sediment, trash, yard debris, etc.) from entering stormwater systems, which often discharge directly into local surface waterbodies such as streams, rivers, and lakes.

SUBMISSION DEADLINE MARCH 29 2020



Scan this code to
see details and
submit your design



Student design competition for UK stormwater program announced



Photo by Dzurag iStock/Getty Images Plus
January 28, 2020

LEXINGTON, Ky., — There's money in stormwater. At least there's money in designing a logo for the University of Kentucky MS4 Stormwater Program. The UK Cooperative Extension Service and the UK Environmental Health and Safety Division are holding a competition for best logo design submitted by a UK student. The winner will receive a cash prize of \$500.

MS4s are municipalities and campuses with separate storm sewer systems. In such cases, special permits, monitoring programs and management protocols are put in place to reduce the impacts of urban development on stormwater systems. This reduces the risk of contaminants entering stormwater systems, which often discharge directly into local streams, rivers and lakes.

The UK MS4 Stormwater Program is designed to raise awareness of stormwater management issues on campus. The goal is to educate community members to do their part to identify and address stormwater management issues. The university will launch the MS4 educational campaign in the spring.

Organizers are looking for a design that effectively illustrates the interplay between campus and stormwater management. They recommend that entrants research logos used by similar programs

in other states, although all entries must be composed of original material and must be the sole property of the entrant and not previously published or submitted to other contests. Published material includes that which has been posted online in any format. This includes, but is not limited to, Facebook, Twitter or any other social media platform where images are posted and shared.

Students may enter up to three designs, of four or fewer colors, each submitted separately. All designs must be submitted electronically as a JPEG, TIF, PNG, GIF or Adobe Illustrator file, and must be at least 300 dpi. Maximum file size allowed for a single entry is 10 MB. Entries must be received by 11:59 p.m. EDT, Sunday, March 29.

Organizers of the UK MS4 Stormwater Program will judge entries based on creativity and suitability for diverse uses, including website, apparel and brochures.

To submit an entry, use the Google form <https://forms.gle/UvNcBjxJGvsUYtcXA>.

[UK Cooperative Extension](#) is part of the [College of Agriculture, Food and Environment](#). With its land-grant partner, Kentucky State University, the UK Cooperative Extension Service brings the university to the people in their local communities, addressing issues of importance to all Kentuckians.

The [Environmental Health and Safety Division](#) supports the university's teaching, research and public service missions by promoting a safe, healthful, clean and accessible campus environment.

Funding for the contest is provided by the [UK Student Sustainability Council](#).

Contact:

Lee Moser, 859-218-4327

LOGO DESIGN CONTEST

UK MS4 STORMWATER PROGRAM

Deadline: March 29th, 2020 @ 11:59 PM

About the Contest

The UK MS4 Stormwater Program is sponsoring a contest to help us design a logo for this program.

ABOUT UK MS4 Stormwater Program

In municipalities and campuses with separate storm sewer systems (MS4s), special permits, monitoring programs, and management protocols are put in place to reduce the impacts of urban development on stormwater systems. These procedures aid in reducing the risk of potential contaminants (nutrient, sediment, trash, yard debris, etc.) from entering stormwater systems, which often discharge directly into local surface waterbodies such as streams, rivers, and lakes.

Contest entrants should research logos from similar programs in other states and create something that speaks to the interplay between campus and stormwater management (see paragraph above).

Contest Guide

Who can enter?

All undergraduate or graduate students currently enrolled in the University of Kentucky (UK) are welcome to submit designs for the contest.

Must be original, non-plagiarized work

Entries must be composed of original material and must be the sole property of the entrant, not previously published or submitted to any other contest. Published material includes that which has been posted on the World Wide Web in any format. This includes but is not limited to, Facebook, Twitter, or any other social media website where images have been posted and shared.

What do I need to submit?

Entrants may submit up to three unique designs, each submitted separately. A valid submission will consist of the following:

1. One digital logo for the UK MS4 Stormwater Program that must be the original work of the entrant. Ideally, logos should be four or less colors.
2. Your personal information:
 - First and last name
 - Email
 - Campus mailing address
 - Phone number
 - University of Kentucky Student Identification Number (not a social security number)

How should I submit my logo?

Submissions must be submitted electronically as a JPEG, TIFF, PNG, GIF, or Adobe Illustrator file, and must be at least 300 dpi. Maximum file size allowed (combined for a single entry) is 10 MB.

In order to submit your logo and personal information, follow this Google Forms link:

<https://forms.gle/UvNcBjxJGvsUYtcXA>

Entrants may submit more than once. Separate entries are required for each submission. If you have any difficulty submitting your entry, email Lee Moser at lee.moser@uky.edu with the subject heading "UK MS4 Stormwater Program Logo Contest."

When is the deadline?

All eligible submissions must be received electronically by 11:59 pm EST, Sunday, March 29th, 2020. Late submissions will not be accepted.

How will the entries be judged?

Logos will be judged by the organizers of the UK MS4 Stormwater Program based on creativity and suitability of the logo(s) for diverse uses (e.g., website, apparel, brochures).

What are the prizes?

The winning entry will receive a cash prize of \$500.

Funding

Funding provided by the UK Student Sustainability Council

<https://www.uky.edu/sustainability/student-sustainability-council>).

Disclaimer

By submitting an entry, the entrant agrees to allow the UK MS4 Stormwater Program to use his/her name to post on its website without compensation. All entries and all rights of ownership including all rights to use, reproduce, publish, modify, edit, and distribute the same will become the exclusive property of the UK MS4 Stormwater Program and will not be returned. UK MS4 Stormwater Program is not responsible for lost, late, misdirected, or incomplete entries.

11/12/20 CATchment Cleanup Sign-In

| Name | Time in | Time out | Class |
|--------------------|---------|----------|-------------------|
| Rachel Rohrer | 2:00 | 3:00 | NA |
| Mason Bradley | 2:00 | 3:45 | BAE 200 |
| Will Scott | 2:00 | 5:00 | BAE 301 |
| Dillon Buckingham | 2:00 | 5:00 | BAE 301 |
| Katy Berry | 2:00 | 4:00 | BAE 200 |
| Kate Moore | 2:00 | 3:30 | BAE 200 |
| Abby Jull | 2:00 | 5:00 | BAE 200/ 301 |
| Julia Loeb | 2:00 | 5:00 | BAE 200 |
| Benjamin Shacklett | 2:00 | 4:00 | BAE 200 |
| Lara Larson | 2:00 | 5:00 | BAE 200 |
| Caleb Kennedy | 2:00 | 5:00 | BAE 200 |
| Chloe Brangers | 2:00 | 5:00 | BAE 200 |
| Matthew Jenkins | 2:00 | 4:30 | BAE 200 |
| Megan Grubb | 2:00 | 5:00 | Student Branch |
| Hunter Walters | 2:30 | 4:15 | BAE 200 |
| Lauren Doyle | 3:00 | 5:00 | BAE 200 |
| Brendan Henegar | 3:00 | 4:30 | BAE 200 |
| Samantha Schultz | 4:00 | 5:00 | BAE 301 |
| Meredith Spohn | 4:00 | 5:00 | BAE 200 |
| Abby Dawson | 4:15 | 5:00 | BAE 200 |
| | | | |
| | | | |

FALL CATCHMENT CLEANUP

Come and help with Fall maintenance and cleanup of the Farm Road Raingarden.

MASKS AND SOCIAL DISTANCING REQUIRED

**OCTOBER 29, 2020 | 2:00 PM - 6:30PM
@ FARM ROAD RAINGARDEN**



FOR MORE INFORMATION, EMAIL LEE.MOSER@UKY.EDU

GEN 100 Lesson Plan – Fillable Template**Lesson Title:**

Urbanization & Stream Health

Lesson Description:

Students will learn basic concepts of watersheds, investigate land use impacts to water resources, and explore the impacts of urbanization on water quality and water quantity.

By the end of this lesson, students will be able to:

1. Describe what a watershed is and identify their home watershed.
2. Understand landuse impacts to water quality and water quantity, and how climate plays a role in each.
3. Describe how surface water and groundwater are connected in Kentucky.
4. Identify key components of streams and how they function with regards to habitat provision.
5. Learn about efforts to restore stream systems.

Topic Area:

- Nature & Landscapes
 Food & Health
 Family & Community
 Livestock & Equine
 Other

Resources: Please attach pdf readings via the button below. If there are online resources or other materials needed, share the URL or details below:

Read:

Understanding and Protecting Kentucky's Watersheds

<http://www2.ca.uky.edu/agcomm/pubs/HENV/HENV206/HENV206.pdf>

Watch:

What is a Watershed? <https://www.youtube.com/watch?v=OOrVotzBNto>**Attach PDF Readings****Suggested Activities, Questions (Before, During and/or After Class):**

Assignment:

Read: "Understanding and Protecting Kentucky's Watersheds"

Explore: EPA's How's My Waterway website: <https://mywaterway.epa.gov/> (Amanda Gumbert's tutorial here: <https://uky.yuja.com/V/Video?v=1435013&node=5390190&a=1590368825&autoplay=1>)

Do: Work individually and then with your designated group to complete the assignment:

Answer the following questions individually (graded survey). Then, team members should compare their results and be prepare to discuss the below questions in class.

- 1) Describe what a watershed is and where you might find one.
- 2) What is your home watershed? (List all team members' responses)
- 3) Explore someone's home watershed using the How's My Waterway website. Answer these questions:
 - a) What data are available for the watershed?
 - b) What is the date of the most recent water quality assessment?
 - c) What is the quality of the water?
 - d) What is the water used for?
 - e) Are there impairments?
 - f) If there are impairments, what are the probable causes of the impairments?

In-Class Discussion Questions:

1. What is your experience with water? Did you grow up near water or participating in water recreation? How does that shape your view of water?
2. What is an individual's responsibility for water quality?

Your Name: Amanda Gumbert**Your Email:** amanda.gumbert@uky.edu*We appreciate your support in improving our GEN 100 freshmen course. Please email your completed lesson plan to carmen.agouridis@uky.edu*

APPENDIX C-1

Illicit Discharge and Stormwater Complaint Reports



MCPPD - Dwayne Welch - KY

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|---------------------------|------------------------|----------|
| Name: | MCPPD - Dwayne Welch - KY | Compliance: | Resolved |
| Reported: | 01/06/2020 | Site Physical Address: | KY |

Discharge Description

Heating fuel (Off-road Diesel) entering creek at Simpson Avenue Outfall

Inspection Properties

| | | | |
|----------------------------|---------------------------|--------------------|----------|
| Investigator: | MCPPD - Dwayne Welch | Inspection ID: | 1399 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | 01/06/2020 | | |
| Date Eliminated: | 01/06/2020 | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |

| | | | |
|---------------|---|--------------------|---|
| Conversation: | <p>Kevin Lewis was contacted by Kevin Lyne (LFUCG Division of Water Quality) on 1/6 with a report of off-road diesel entering Vaughn's Branch at Simpson Avenue. The discharge was tracked to the corner of the UK Hospital. Lexington Fire Department deployed booms to capture the fuel.</p> <p>Kevin Lewis contacted UK Utilities and MCPPD. It was determined that a generator test was run on the morning of 1/6 and the generator day tank was overfilled. Overflow was thought to have been captured in the secondary containment.</p> | Corrective Action: | <p>Dwayne Welch (MCPD) was alerted of the spill and went onsite to investigate. Lexington Fire Department personnel met Bob Kjelland (UKEMD) and Dwayne Welch onsite at MedCenter Generator Building to determine source of leak. State Emergency Response was alerted of spill (by Lexington Fire) and requested to assist in assessing source. Source was determined to be faulty solenoid valve remaining partially open allowing day tank to continually fill at slow rate. Tank overflow was capped, which forced fuel up vent pipe and onto Generator Building roof. Fuel pooled on roof and eventually made its way to rain gutter and into storm sewer system. Valve was closed eliminating flow, PECCO was called in for clean-up. Release estimated at approximately 200-250 gallons. UK to perform root-cause analysis and put preventative measures in place to avoid future occurrences.</p> |
|---------------|---|--------------------|---|

Additional Information

No additional information recorded

Photos



Wehr Construction - Lexington, KY

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|-----------------------------------|------------------------|---------------|
| Name: | Wehr Construction - Lexington, KY | Compliance: | Resolved |
| Reported: | 01/14/2020 | Site Physical Address: | Lexington, KY |

Discharge Description

Mud being tracked along Rose and Funkhouser from Chem Phys construction site

Inspection Properties

| | | | |
|----------------------------|---|--------------------|--|
| Investigator: | Wehr Construction | Inspection ID: | 1401 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | 01/14/2020 | | |
| Date Eliminated: | 01/14/2020 | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |
| Conversation: | Kevin Lewis observed mud tracked along Rose/Funkhouser Drive from Chem Phys construction project and contractor sweeping mud from pavement in the am. | Corrective Action: | Contacted Bob Brashear (UK CPMD) to alert of issue and to inform contractor of need for preventative bmp's. Follow-up inspection revealed pavement to have been cleared. |

Additional Information

No additional information recorded

Photos



Kirwan/Blanding Demolition Project -

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|--------------------------------------|------------------------|----------|
| Name: | Kirwan/Blanding Demolition Project - | Compliance: | Resolved |
| Reported: | 01/24/2020 | Site Physical Address: | |

Discharge Description

Storm drains along University Drive filling with mud from Kirwan/Blanding demolition project.

Inspection Properties

| | | | |
|----------------------------|---|--------------------|--|
| Investigator: | Kirwan/Blanding Demolition Project | Inspection ID: | 1521 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | 01/24/2020 | | |
| Date Eliminated: | 01/24/2020 | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |
| Conversation: | Email received on 1/24/20 from Grounds Dept. stating storm drains on University Drive are being impacted by mud from demolition site. | Corrective Action: | Bob Brashear with UK CPMD inspected the surrounding area. Roadways appeared to be clean. A skid steer with broom box was located onsite and may have been used prior to the investigation to remove any sediment on the roadway. |

Additional Information

No additional information recorded

Photos



Chem Phys Renovation - Lexington

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|----------------------------------|------------------------|-----------|
| Name: | Chem Phys Renovation - Lexington | Compliance: | Resolved |
| Reported: | 01/31/2020 | Site Physical Address: | Lexington |

Discharge Description

Mud on roadways surrounding project

Inspection Properties

| | | | |
|----------------------------|---------------------------|--------------------|----------|
| Investigator: | Chem Phys Renovation | Inspection ID: | 1522 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | NA | | |
| Date Eliminated: | 01/31/2020 | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |

| | | | |
|---------------|---|--------------------|---|
| Conversation: | Kevin Lewis send email to Bob Brashear reporting mud on the roadways surrounding the Chem Phys renovation project on 1/31/20. | Corrective Action: | According to Bob Brashear, EC Mathews has been utilizing their street sweeper and sweeper box to keep the roads clean. Downstream drains are protected with gravel bags. Mud on roadway caused by drilling contractor moving equipment to a new site location and needing to go from one entrance outside the fence to another. Issue brought to site contractor's attention and contractor cleaned the roadways. |
|---------------|---|--------------------|---|

Additional Information

No additional information recorded

Photos



Med Center Heating/Cooling Plant - Lexington, 40506, KY

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

Name: Med Center Heating/Cooling Plant - Lexington, 40506, KY Compliance: Resolved

Reported: 02/05/2020 Site Physical Address: Lexington, 40506, KY

Discharge Description

Oil puddle on asphalt adjacent to coal pile

Inspection Properties

Investigator: Med Center Heating/Cooling Plant Inspection ID: 1523

Inspection Type: Default Illicit Discharge Compliance Status: Resolved

Follow Up Inspection Date: NA

Date Eliminated: 02/05/2020 Phone Number: NA

Cell Number: NA Fax Number: NA

Conversation: Received email from Steve Vogel on 2/5/20 with photo of oil puddle on asphalt in front of coal pile at Med Center Heating/Cooling Plant. Corrective Action: Contacted Mike Duffy with UK UEM. Staff instructed to cover spot with oil dry, sweep used oil dry, and dispose of in dumpster. Photo recieved on 2/5/30 @ 15:55 with oil puddle removed.

Additional Information

No additional information recorded

Photos





UK PPD - Lexington, 40506, KY

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|-------------------------------|------------------------|----------------------|
| Name: | UK PPD - Lexington, 40506, KY | Compliance: | Resolved |
| Reported: | 02/19/2020 | Site Physical Address: | Lexington, 40506, KY |

Discharge Description

Employee draining scrubbing machine onto Huguelet Drive.

Inspection Properties

| | | | |
|----------------------------|---------------------------|--------------------|----------|
| Investigator: | UK PPD | Inspection ID: | 1524 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | NA | | |
| Date Eliminated: | 02/19/2020 | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |

| | | | |
|---------------|--|--------------------|---|
| Conversation: | Email received from Kevin Horn (College of Ag.) stating that he witnessed a UK PPD employee intentionally draining an industrial scrubbing machine on Huguelet Avenue at the entrance to the KY Clinic Parking Garage. The flow was observed heading to a storm drain. | Corrective Action: | Contacted Tim Clark - Facility Services Director. Employee was identified and the issue addressed. The equipment contained water only and no chemicals. |
|---------------|--|--------------------|---|

Additional Information

No additional information recorded

Photos





LFUCG -

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|------------|------------------------|----------|
| Name: | LFUCG - | Compliance: | Resolved |
| Reported: | 03/04/2020 | Site Physical Address: | |

Discharge Description

LFUCG Sewer Project on Winslow - curb inlet getting heavy load of mud and gravel

Inspection Properties

| | | | |
|----------------------------|---------------------------|--------------------|----------|
| Investigator: | LFUCG | Inspection ID: | 1525 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | NA | | |
| Date Eliminated: | NA | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |

| | | | |
|---------------|---|--------------------|--|
| Conversation: | <p>Bob Brashear received call from Cornerstone/PS5 contractor on 3/4/20. Caller expressed concern over mud on Winslow from LFUCG Sewer Rehab Project. Based on site observations, Bob offered the following comments:</p> <ul style="list-style-type: none"> -The curb inlet is getting a heavy load of mud and gravel - A tractor broom is being used on the streets, which is moving gravel and mud to the curb - Two pits are being dewatered without the appropriate BMPs (dewatering bags) in place <p>Photos are provided.</p> | Corrective Action: | <p>Contacted Gabe Hensley with LFUCG about this issue on 3/4/20. Gabe copied Bob Peterson (LFUCG project contact) and stated that LFUCG Capitol Projects has their own third party ESC looking over their projects. No further action taken.</p> |
|---------------|---|--------------------|--|

Additional Information

Sewer project finished in record time as a result of less traffic impact due to COVID 19.

Photos





CPMD - Lexington, KY

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|----------------------|------------------------|---------------|
| Name: | CPMD - Lexington, KY | Compliance: | Resolved |
| Reported: | 05/20/2020 | Site Physical Address: | Lexington, KY |

Discharge Description

Chem Phys construction issues: Sediment accumulating at bottom of Funkhouser Drive in pedestrian pathway and drain inside of construction area behind Chem Phys clogged with construction debris causing area to flood.

Inspection Properties

| | | | |
|----------------------------|---------------------------|--------------------|----------|
| Investigator: | CPMD | Inspection ID: | 1456 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | 05/21/2020 | | |
| Date Eliminated: | 05/29/2020 | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |

| | | | |
|---------------|--|--------------------|--|
| Conversation: | Email received from Stacy Borden (Grounds Manager) on 5/20/20 requesting that contractors clean sediment that has accumulated at the bottom of Funkhouser Drive in the pedestrian pathway and notifying that the drain inside the construction area directly behind Chem Phys is clogged and the area is backed up with water. | Corrective Action: | Kevin Lewis forwarded email from Stacy Borden to Bob Brashear (CPMD) on 5/20/20. Bob Brashear contacted the CPMD project manager overseeing the Chem Phys renovation on 5/20 and scheduled meeting with contractors (Wehr and Marillia) to discuss issue. Email received from Marrillia Construction on 5/29 with photos stating that most of the silt removal and installation of additional erosion control measures have been completed. Email received from Bob Brashear on 5/29 with additional photos of area and installed BMP's. |
|---------------|--|--------------------|--|

Additional Information

No additional information recorded

Photos





BCTC - Lexington, 40506

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|-------------------------|------------------------|------------------|
| Name: | BCTC - Lexington, 40506 | Compliance: | Resolved |
| Reported: | 05/27/2020 | Site Physical Address: | Lexington, 40506 |

Discharge Description

Floor Waxing/Cleaning compound found in a storm inlet at the corner of the Oswald Building adjacent to the Academic Tech building.

Inspection Properties

| | | | |
|----------------------------|---------------------------|--------------------|----------|
| Investigator: | BCTC | Inspection ID: | 1454 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | NA | | |
| Date Eliminated: | 05/27/2020 | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |

| | | | |
|---------------|--|--------------------|--|
| Conversation: | Upon cleaning storm drains in the BCTC area, Mike Rhodus (UK Grounds - Stormwater) observed a milky white substance with a strong odor indicative of floor cleaner/stripper/polishing compound in a storm inlet adjacent to the Oswald Building across from the Academic Tech Building. A single inlet contained approximately 4 inches of liquid that appeared unable to move downstream due to debris in the inlet's drain line. Upstream and downstream inlets were investigated and confirmed to not have been impacted. | Corrective Action: | Mike was asked to vacuum the substance from the inlet with a wet/dry vac and dispose of via the sanitary sewer. This occurred on 5/27. Approximately 6 gallons of the substance were collected. BCTC operations will be informed so that future instances can be prevented. BCTC contact information: Beecher McCarty Dean of Operations 859-246-4624 859-368-6738 (cell) beecher.mccarty@kctcs.edu |
|---------------|--|--------------------|--|

Additional Information

No additional information recorded

Photos



Greg Page - 40506, KY

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|-----------------------|------------------------|-----------|
| Name: | Greg Page - 40506, KY | Compliance: | Resolved |
| Reported: | 06/11/2020 | Site Physical Address: | 40506, KY |

Discharge Description

Overflowing sanitary cleanout

Inspection Properties

| | | | |
|----------------------------|---------------------------|--------------------|----------|
| Investigator: | Greg Page | Inspection ID: | 1527 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | NA | | |
| Date Eliminated: | 06/11/2020 | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |

| | | | |
|---------------|---|--------------------|--|
| Conversation: | Received notification from UK Grounds (Jerry Hart) that sanitary sewer clean out for Greg Page unit 17 is overflowing in the grassed area adjacent to the building. | Corrective Action: | Contacted UK UEM (Britney Ragland) to remedy line blockage. Provided proper SSO cleanup protocols. Emergency work order was created for plumbing shop to remove blockage in 6/11. UEM working with Grounds to make sure sanitary solids on ground surface are properly cleaned up/removed. |
|---------------|---|--------------------|--|

Additional Information

No additional information recorded

Photos





UK Waste Management - Lexington, KY

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|-------------------------------------|------------------------|---------------|
| Name: | UK Waste Management - Lexington, KY | Compliance: | Resolved |
| Reported: | 08/06/2020 | Site Physical Address: | Lexington, KY |

Discharge Description

Hydraulic leak from garbage truck caused spill at Kentucky Clinic, Wethington Building, and WT Young in front of dumpsters. No discharge to stormdrains noted, no large puddles of standing liquid. Majority of spill has soaked into asphalt.

Inspection Properties

| | | | |
|----------------------------|---------------------------|--------------------|----------|
| Investigator: | UK Waste Management | Inspection ID: | 1470 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | 08/06/2020 | | |
| Date Eliminated: | 08/06/2020 | Phone Number: | NA |
| Cell Number: | 502-475-9981 | Fax Number: | NA |

| | | | |
|---------------|--|--------------------|--|
| Conversation: | Line blew inside garbage truck during dumpster pick-up. Hydraulic fluid mixed in truck sump with leachate and leaked as truck collected waste from the Kentucky Clinic, Wethington Building, and WT Young. The majority of the oil spilled at the Clinic followed by mostly water at WT Young. Substance did not enter stormdrains and no standing puddles exist. Central Kentucky Hauling personnel have placed absorbent on spill areas and are in the process of cleaning the impacted locations. | Corrective Action: | EMD reminded waste management of need to brush absorbent into impacted asphalt and to sweep up absorbent, bag, and place in garbage. EMD representative (Lee Faulkner) observed impacted areas to confirm clean up occurring as appropriate. Only stains on blacktop remained. Photos were taken and are attached. |
|---------------|--|--------------------|--|

Additional Information

No additional information recorded

Photos





University of Kentucky Med Center - Lexington, 4506, KY

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-------|--|-------------|----------|
| Name: | University of Kentucky Med Center - Lexington, 4506, KY | Compliance: | Resolved |
|-------|--|-------------|----------|

| | | | |
|-----------|------------|------------------------|---------------------|
| Reported: | 10/12/2020 | Site Physical Address: | Lexington, 4506, KY |
|-----------|------------|------------------------|---------------------|

Discharge Description

Cart rinse water and solidifier being dumped in storm drain at Pav A Dock 1.

Inspection Properties

| | | | |
|---------------|-----------------------------------|----------------|------|
| Investigator: | University of Kentucky Med Center | Inspection ID: | 1495 |
|---------------|-----------------------------------|----------------|------|

| | | | |
|------------------|---------------------------|--------------------|----------|
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
|------------------|---------------------------|--------------------|----------|

| | |
|----------------------------|------------|
| Follow Up Inspection Date: | 10/12/2020 |
|----------------------------|------------|

| | | | |
|------------------|------------|---------------|----|
| Date Eliminated: | 10/12/2020 | Phone Number: | NA |
|------------------|------------|---------------|----|

| | | | |
|--------------|----|-------------|----|
| Cell Number: | NA | Fax Number: | NA |
|--------------|----|-------------|----|

| | | | |
|---------------|---|--------------------|---|
| Conversation: | Received call from Tim Meyers on the morning of 10/12/20. Storm drain (trench drain) at Pav A Dock 1 being used to empty hospital cart wash water and solidifier. Drain also covered in medical waste (gloves, etc.). | Corrective Action: | Kevin Lewis and Lee Faulkner inspected area on morning of 10/12/20. Large pile of solidifier was observed resting on storm drain grate. Drain surface and area surrounding drain also contained a large amount of trash/debris. Contacted Brian Butler with UK EMD (On-call at time of incident and also oversees certain aspects of waste disposal from the hospital). Brian Butler contacted Rob Jackson (Director of Environmental Services for Crothall Healthcare) and notified of CWA/MS4 permit violations regarding disposal of waste into storm drain and instructed to properly clean area immediately. Brian conducted a follow-up inspection on the afternoon of 10/12/20 and confirmed that area had been cleared. |
|---------------|---|--------------------|---|

Additional Information

EVS Contact Info: Rob Jackson, CHESP
Sr. Director - Environmental Services
Crothall Healthcare
720-569-7202

Follow-up inspection conducted by Kevin Lewis on 10/21/20 in the am. Medical Waste observed dumped on storm drain grate. Forwarded photos to EMD Director. Have requested issue be brought up to Hospital Administration for long term solution development. Sharon Berry (UKHC Safety and Em. Mgmt Dir) notified on 10/21/20. UKHC working with EVS (contractor) to put action plan in place to alleviate future issues.

Photos





UK Grounds - Lexington, 40502, KY

Default Illicit Discharge

University of Kentucky

Illicit Discharge Details

| | | | |
|-----------|-----------------------------------|------------------------|----------------------|
| Name: | UK Grounds - Lexington, 40502, KY | Compliance: | Resolved |
| Reported: | 10/30/2020 | Site Physical Address: | Lexington, 40502, KY |

Discharge Description

Storm Inlet buried under mulch pile

Inspection Properties

| | | | |
|----------------------------|---------------------------|--------------------|----------|
| Investigator: | UK Grounds | Inspection ID: | 1497 |
| Inspection Type: | Default Illicit Discharge | Compliance Status: | Resolved |
| Follow Up Inspection Date: | NA | | |
| Date Eliminated: | NA | Phone Number: | NA |
| Cell Number: | NA | Fax Number: | NA |

| | | | |
|---------------|--|--------------------|--|
| Conversation: | Received email from Joe Graft - Storm inlet near Grounds Greenhouse area covered with mulch. | Corrective Action: | Joe Graft contacted Grounds via email on 10/30/20 and requested the impacted drain be uncovered, cleaned out, and that preventative measures be put in place to prevent recurrence. Grounds responded on 10/30/20 - drain will be cleared, cleaned, and a solution sought. The mulch pile in question will also be reduced in size in the near future. |
|---------------|--|--------------------|--|

Additional Information

No additional information recorded

Photos

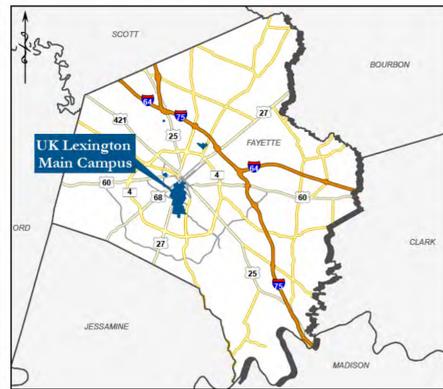


APPENDIX C-2

UK MS4 System and Boundary Map



Figure 1:
UNIVERSITY OF KENTUCKY
Municipal Separate Storm Sewer Systems (MS4)
~ Boundary Map ~



This map provides information as required by the Kentucky Division of Water General Permit for Phase II Municipal Separate Storm Sewer Systems, effective May 2018.

| Storm Control | Storm Water Features | MS4 Boundary | Campus Map | |
|--|---|--|---|--|
| <ul style="list-style-type: none"> Bioretention Class V Injection Well Green Roof Inlet Control Permeable Pavement Pretreatment Device Rain Garden Underground Detention Water Harvesting System | <ul style="list-style-type: none"> Cave Outfall UK Drain Non-UK Drain UK Headwall Non-UK Headwall UK Manhole Non-UK Manhole | <ul style="list-style-type: none"> UK Storm Line Non-UK Storm Line Stream Segment Intermittent Flow Sinkhole Detention Basin Retention Basin Underground Detention | <ul style="list-style-type: none"> To On-Campus Sinkholes To Town Branch or On-Campus Caves/Sinkholes To West Hickman (through outfall WH-1) To West Hickman (through outfall WH-2) To Wolf Run To Wolf Run (through outfall WR-1) To Wolf Run (through outfall WR-2) | <ul style="list-style-type: none"> Index Contour Intermediate Contour Arboretum Non-UK Building Paved Surface Pond |

*PROPOSED storm controls are represented as black and white symbols

Note: For the purpose of this map, the University of Kentucky's complete storm water system has not been shown. Only drains greater than 3ft x 3ft, storm lines greater than or equal to 15 inch diameter, and connected manholes, drains, and headwalls have been shown. For a detailed map of the complete storm water system, please see the "Facilities Storm Sewer Utility Map".



Created by UK Facilities Information Services
Geospatial.Requests@uky.edu
REV: 20210323

Source: The information provided on this map product reflects current base map and relevant storm water utility data at the time of print. Data was developed from CAD records, aerial and field surveys, LFUCG storm records, and with guidance from engineering personnel.

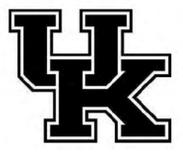


Square Footage Calculations
 Total Campus: 35,885,595 sqft
 Pervious Areas: 18,112,352 sqft
 Impervious Areas: 17,773,243 sqft

Note: Square footage calculations based off current campus area information and does not include future planned construction.

| | | |
|-------------------------|--------------------|-------------------------|
| Green Roof | Pervious Concrete | UK Affiliated Building |
| Permeable Pavement | Impervious Surface | Construction Zones |
| Water Harvesting System | Pervious Surface | Multi-Use Pervious Area |

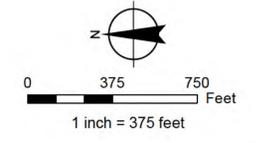
Note: "Pervious Concrete" may include areas such as pavers, lattice concrete, green roofs, or other hardscape features.



Created by UK Facilities Information Services
 Data Source: UK Facilities Management (2020)
Geospatial.Requests@uky.edu
 REV: 20200317

Impervious & Pervious Surfaces

University of Kentucky



APPENDIX C-3

Major Outfall Inspection Reports



WR-1 (STR-1) (Nicholasville Rd. @ Alumni Dr.)

Default Outfall Inspection

University of Kentucky

Outfall Details

| | | | |
|-----------|---|-------------|-----------|
| Location: | WR-1 (STR-1) (Nicholasville Rd. @ Alumni Dr.) | Compliance: | Compliant |
|-----------|---|-------------|-----------|

| | | | |
|--------|------------|-----------------|------------|
| Added: | 01/01/2012 | Last Inspected: | 11/20/2020 |
|--------|------------|-----------------|------------|

Inspection Properties

| | | | |
|------------|--------------|----------------|---------|
| Inspector: | Bailee Young | Inspection ID: | O-30558 |
|------------|--------------|----------------|---------|

| | | | |
|------------------|----------------------------|------------------|------------|
| Inspection Type: | Default Outfall Inspection | Inspection Date: | 11/20/2020 |
|------------------|----------------------------|------------------|------------|

| | | | |
|----------------------------|----|--------------------|-----------|
| Scheduled Inspection Date: | NA | Compliance Status: | Compliant |
|----------------------------|----|--------------------|-----------|

| | |
|----------------------------|----|
| Follow Up Inspection Date: | NA |
|----------------------------|----|

| | | | |
|---------------------|-----|-----------------------|---|
| Dry or Wet Weather: | Dry | Days Since Last Rain: | 3 |
|---------------------|-----|-----------------------|---|

| | | | |
|--------|-------|----------|-------------|
| Color: | Clear | Clarity: | Transparent |
|--------|-------|----------|-------------|

| | | | |
|-------|----|-------|----|
| Odor: | NA | Foam: | NA |
|-------|----|-------|----|

| | | | |
|--------|----|-------------------|----|
| Sheen: | NA | Suspended Solids: | NA |
|--------|----|-------------------|----|

| | | | |
|-----------------|--------|------------------|-------|
| Settled Solids: | Medium | Floating Solids: | Light |
|-----------------|--------|------------------|-------|

| | | | |
|-----|----|-----------------|----|
| PH: | NA | Temperature(F): | NA |
|-----|----|-----------------|----|

| | | | |
|------------|----|------------------|----|
| DO (mg/L): | NA | Turbidity (NTU): | NA |
|------------|----|------------------|----|

| | | | |
|---------------|----|------------|----|
| Cond (mOhms): | NA | DO (%Sat): | NA |
|---------------|----|------------|----|

| | | | |
|-----------------|----|----------------|----|
| Flowrate (GPM): | NA | Copper (mg/L): | NA |
|-----------------|----|----------------|----|

| | | | |
|-----------------|----|-----------------|----|
| Phenols (mg/L): | NA | Ammonia (mg/L): | NA |
|-----------------|----|-----------------|----|

| | | | |
|--------------------|----|---------------|----|
| Detergents (mg/L): | NA | T.PO4 (mg/L): | NA |
|--------------------|----|---------------|----|

| | | | |
|-------------|----|-------------|----|
| Cl2 (mg/L): | NA | BOD (mg/L): | NA |
|-------------|----|-------------|----|

| | | | |
|-------------|----|-------------|----|
| COD (mg/L): | NA | TSS (mg/L): | NA |
|-------------|----|-------------|----|

| | | | |
|---|---|--|---|
| NO3 (mg/L): | NA | Fecal Coliform (col/100mL): | NA |
| E. Coli (col/100mL): | NA | Discharge Description: | Discharge is clear. There are a few pieces of trash. There is some sedimentation upstream of outfall (1") around the southern bank. |
| 1a. Does the vegetation around the outfall show visible signs of pollution?: | No | 1b. Explain:: | Vegetation is full and appears to be healthy. |
| 2. Is there excessive sediment accumulation below outfall?: | NA | 2b. If yes describe appearance of the discharge: (Color? Turbidity? other?): | NA |
| 3. Are there any activities in the area that may be contributing to polluted runoff?: | No | 4. Are non-paved areas vegetated and free from erosion potential?: | Yes |
| 5a. Are there any construction activities in the area?: | No | 5b. If yes, are they employing sediment and erosion controls that appear to be working?: | NA |
| 5c. If no, list and provide description:: | NA | 6. Are there visible signs of sanitary sewer overflows?: | No |
| 7a. Are there any individual sewage treatment systems in the area?: | No | 7b. If yes, are system discharge points exhibiting odors or septic conditions?: | NA |
| 7c. If yes, list and provide description:: | NA | 8a. Are there any gas stations or car washes in the area? : | No |
| 8b. If yes, list and provide description:: | NA | 8c. Does the business appear to be discharging non-stormwater into the drainage system?: | NA |
| 8d. Are there any visible spills or leaks on site?: | NA | 8e. If yes, list and provide description:: | NA |
| 9a. Any other ind. or businesses in the area appear to be contributing to polluted runoff?: | Yes | 9b. If yes, list and provide description of business/industry:: | The residence on the southern side of the outfall has trash around the parking lot that could pollute the outfall. |
| 10. COMMENTS / RECOMMENDED ACTIONS: | Remove/contain trash at the adjacent residence. | 11. Field Screening performed?: | NA |
| TDS (mg/L): | NA | 12. Was sample taken?: | NA |
| Bicarbonate Alkalinity as CaCo3 (mg/L): | NA | Carbonate Alkalinity as CaCO3 (mg/L): | NA |
| Alkalinity (mg/L as CaCO3): | NA | Hardness (mg/L as CaCO3): | NA |
| Fluoride, F (mg/L): | NA | Chloride (mg/L): | NA |
| Sulfate (mg/L): | NA | Nitrate-N (mg/L): | NA |

| | | | |
|-----------------------|----|------------------------|----|
| Nitrite-N (mg/L): | NA | Iron, Fe (mg/L): | NA |
| Magnesium, Mg (mg/L): | NA | Molybdenum, Mo (mg/L): | NA |
| Zinc, Zn (mg/L): | NA | Bromide (mg/L): | NA |
| Calcium, Ca (mg/L): | NA | Sodium, Na (mg/L): | NA |
| Potassium, K (mg/L): | NA | Surfactants (mg/L): | NA |

Additional Information

Weather

| | | | |
|-----------------------------------|-----------|-----------------------------------|----|
| Weather Condition: | Clear Day | Temperature (F): | 65 |
| Precipitation (in): | 0 | Precipitation Last 72 Hours (in): | 0 |
| Precipitation Last 24 Hours (in): | 0 | | |

Contacts

No contacts to display.

Photos





WR-2 (STR-2) (Gluck Pond)

Default Outfall Inspection

University of Kentucky

Outfall Details

| | | | |
|-----------|---------------------------|-----------------|------------|
| Location: | WR-2 (STR-2) (Gluck Pond) | Compliance: | Compliant |
| Added: | 01/01/2012 | Last Inspected: | 11/20/2020 |

Inspection Properties

| | | | |
|----------------------------|----------------------------|-----------------------|------------|
| Inspector: | Bailee Young | Inspection ID: | O-30559 |
| Inspection Type: | Default Outfall Inspection | Inspection Date: | 11/20/2020 |
| Scheduled Inspection Date: | NA | Compliance Status: | Compliant |
| Follow Up Inspection Date: | NA | | |
| Dry or Wet Weather: | Dry | Days Since Last Rain: | 3 |
| Color: | NA | Clarity: | NA |
| Odor: | NA | Foam: | NA |
| Sheen: | NA | Suspended Solids: | NA |
| Settled Solids: | NA | Floating Solids: | NA |
| PH: | NA | Temperature(F): | NA |
| DO (mg/L): | NA | Turbidity (NTU): | NA |
| Cond (mOhms): | NA | DO (%Sat): | NA |
| Flowrate (GPM): | NA | Copper (mg/L): | NA |
| Phenols (mg/L): | NA | Ammonia (mg/L): | NA |
| Detergents (mg/L): | NA | T.PO4 (mg/L): | NA |
| Cl2 (mg/L): | NA | BOD (mg/L): | NA |
| COD (mg/L): | NA | TSS (mg/L): | NA |

| | | | |
|---|---|--|---|
| NO3 (mg/L): | NA | Fecal Coliform (col/100mL): | NA |
| E. Coli (col/100mL): | NA | Discharge Description: | No discharge present. |
| 1a. Does the vegetation around the outfall show visible signs of pollution?: | No | 1b. Explain:: | Vegetation appears full and healthy around outfall. Some fallen leaves and trash are present. |
| 2. Is there excessive sediment accumulation below outfall?: | No | 2b. If yes describe appearance of the discharge: (Color? Turbidity? other?): | NA |
| 3. Are there any activities in the area that may be contributing to polluted runoff?: | No | 4. Are non-paved areas vegetated and free from erosion potential?: | Yes |
| 5a. Are there any construction activities in the area?: | No | 5b. If yes, are they employing sediment and erosion controls that appear to be working?: | NA |
| 5c. If no, list and provide description:: | NA | 6. Are there visible signs of sanitary sewer overflows?: | No |
| 7a. Are there any individual sewage treatment systems in the area?: | No | 7b. If yes, are system discharge points exhibiting odors or septic conditions?: | NA |
| 7c. If yes, list and provide description:: | NA | 8a. Are there any gas stations or car washes in the area? : | No |
| 8b. If yes, list and provide description:: | NA | 8c. Does the business appear to be discharging non-stormwater into the drainage system?: | No |
| 8d. Are there any visible spills or leaks on site?: | NA | 8e. If yes, list and provide description:: | NA |
| 9a. Any other ind. or businesses in the area appear to be contributing to polluted runoff?: | No | 9b. If yes, list and provide description of business/ industry:: | NA |
| 10. COMMENTS / RECOMMENDED ACTIONS: | There is algae growing on the pond surface and on the concrete channel leading to the outfall. Grate on outfall is bent and warped. Leaves and trash need to be removed from adjacent area. | 11. Field Screening performed?: | No |
| TDS (mg/L): | NA | 12. Was sample taken?: | No |
| Bicarbonate Alkalinity as CaCo3 (mg/L): | NA | Carbonate Alkalinity as CaCO3 (mg/L): | NA |
| Alkalinity (mg/L as CaCO3): | NA | Hardness (mg/L as CaCO3): | NA |
| Fluoride, F (mg/L): | NA | Chloride (mg/L): | NA |
| Sulfate (mg/L): | NA | Nitrate-N (mg/L): | NA |

| | | | |
|-----------------------|----|------------------------|----|
| Nitrite-N (mg/L): | NA | Iron, Fe (mg/L): | NA |
| Magnesium, Mg (mg/L): | NA | Molybdenum, Mo (mg/L): | NA |
| Zinc, Zn (mg/L): | NA | Bromide (mg/L): | NA |
| Calcium, Ca (mg/L): | NA | Sodium, Na (mg/L): | NA |
| Potassium, K (mg/L): | NA | Surfactants (mg/L): | NA |

Additional Information

Weather

| | | | |
|-----------------------------------|-------------------|-----------------------------------|----|
| Weather Condition: | Partly Cloudy Day | Temperature (F): | 65 |
| Precipitation (in): | 0 | Precipitation Last 72 Hours (in): | 0 |
| Precipitation Last 24 Hours (in): | 0 | | |

Contacts

No contacts to display.

Photos





WR-3 (BCTCS)

Default Outfall Inspection

University of Kentucky

Outfall Details

| | | | |
|-----------|--------------|-----------------|------------|
| Location: | WR-3 (BCTCS) | Compliance: | Compliant |
| Added: | 01/01/2012 | Last Inspected: | 11/20/2020 |

Inspection Properties

| | | | |
|----------------------------|----------------------------|-----------------------|------------|
| Inspector: | Bailee Young | Inspection ID: | O-30565 |
| Inspection Type: | Default Outfall Inspection | Inspection Date: | 11/20/2020 |
| Scheduled Inspection Date: | NA | Compliance Status: | Compliant |
| Follow Up Inspection Date: | NA | | |
| Dry or Wet Weather: | Dry | Days Since Last Rain: | 3 |
| Color: | NA | Clarity: | NA |
| Odor: | NA | Foam: | NA |
| Sheen: | NA | Suspended Solids: | NA |
| Settled Solids: | NA | Floating Solids: | NA |
| PH: | NA | Temperature(F): | NA |
| DO (mg/L): | NA | Turbidity (NTU): | NA |
| Cond (mOhms): | NA | DO (%Sat): | NA |
| Flowrate (GPM): | NA | Copper (mg/L): | NA |
| Phenols (mg/L): | NA | Ammonia (mg/L): | NA |
| Detergents (mg/L): | NA | T.PO4 (mg/L): | NA |
| Cl2 (mg/L): | NA | BOD (mg/L): | NA |
| COD (mg/L): | NA | TSS (mg/L): | NA |

| | | | |
|---|---|--|---------------------|
| NO3 (mg/L): | NA | Fecal Coliform (col/100mL): | NA |
| E. Coli (col/100mL): | NA | Discharge Description: | No flow is present. |
| 1a. Does the vegetation around the outfall show visible signs of pollution?: | No | 1b. Explain:: | NA |
| 2. Is there excessive sediment accumulation below outfall?: | No | 2b. If yes describe appearance of the discharge: (Color? Turbidity? other?): | NA |
| 3. Are there any activities in the area that may be contributing to polluted runoff?: | No | 4. Are non-paved areas vegetated and free from erosion potential?: | No |
| 5a. Are there any construction activities in the area?: | No | 5b. If yes, are they employing sediment and erosion controls that appear to be working?: | NA |
| 5c. If no, list and provide description:: | NA | 6. Are there visible signs of sanitary sewer overflows?: | No |
| 7a. Are there any individual sewage treatment systems in the area?: | No | 7b. If yes, are system discharge points exhibiting odors or septic conditions?: | NA |
| 7c. If yes, list and provide description:: | NA | 8a. Are there any gas stations or car washes in the area? : | No |
| 8b. If yes, list and provide description:: | NA | 8c. Does the business appear to be discharging non-stormwater into the drainage system?: | NA |
| 8d. Are there any visible spills or leaks on site?: | NA | 8e. If yes, list and provide description:: | NA |
| 9a. Any other ind. or businesses in the area appear to be contributing to polluted runoff?: | No | 9b. If yes, list and provide description of business/ industry:: | NA |
| 10. COMMENTS / RECOMMENDED ACTIONS: | There is bare soil on the western bank of the northern headwall. Bank should be stabilized to prevent further erosion. Fallen leaves are present around headwall. | 11. Field Screening performed?: | NA |
| TDS (mg/L): | NA | 12. Was sample taken?: | No |
| Bicarbonate Alkalinity as CaCo3 (mg/L): | NA | Carbonate Alkalinity as CaCO3 (mg/L): | NA |
| Alkalinity (mg/L as CaCO3): | NA | Hardness (mg/L as CaCO3): | NA |
| Fluoride, F (mg/L): | NA | Chloride (mg/L): | NA |
| Sulfate (mg/L): | NA | Nitrate-N (mg/L): | NA |

| | | | |
|-----------------------|----|------------------------|----|
| Nitrite-N (mg/L): | NA | Iron, Fe (mg/L): | NA |
| Magnesium, Mg (mg/L): | NA | Molybdenum, Mo (mg/L): | NA |
| Zinc, Zn (mg/L): | NA | Bromide (mg/L): | NA |
| Calcium, Ca (mg/L): | NA | Sodium, Na (mg/L): | NA |
| Potassium, K (mg/L): | NA | Surfactants (mg/L): | NA |

Additional Information

Weather

| | | | |
|-----------------------------------|-------------------|-----------------------------------|----|
| Weather Condition: | Partly Cloudy Day | Temperature (F): | 64 |
| Precipitation (in): | 0 | Precipitation Last 72 Hours (in): | 0 |
| Precipitation Last 24 Hours (in): | 0 | | |

Contacts

No contacts to display.

Photos





WH-1 (Alumni Drive @ Tates Creek Dr.)

Default Outfall Inspection

University of Kentucky

Outfall Details

| | | | |
|-----------|---------------------------------------|-----------------|------------|
| Location: | WH-1 (Alumni Drive @ Tates Creek Dr.) | Compliance: | Compliant |
| Added: | 01/01/2012 | Last Inspected: | 11/20/2020 |

Inspection Properties

| | | | |
|----------------------------|----------------------------|-----------------------|------------|
| Inspector: | Bailee Young | Inspection ID: | O-30554 |
| Inspection Type: | Default Outfall Inspection | Inspection Date: | 11/20/2020 |
| Scheduled Inspection Date: | NA | Compliance Status: | Compliant |
| Follow Up Inspection Date: | NA | | |
| Dry or Wet Weather: | Dry | Days Since Last Rain: | 3 |
| Color: | Brown | Clarity: | Murky |
| Odor: | NA | Foam: | Light |
| Sheen: | NA | Suspended Solids: | NA |
| Settled Solids: | Medium | Floating Solids: | Light |
| PH: | NA | Temperature(F): | NA |
| DO (mg/L): | NA | Turbidity (NTU): | NA |
| Cond (mOhms): | NA | DO (%Sat): | NA |
| Flowrate (GPM): | NA | Copper (mg/L): | NA |
| Phenols (mg/L): | NA | Ammonia (mg/L): | NA |
| Detergents (mg/L): | NA | T.PO4 (mg/L): | NA |
| Cl2 (mg/L): | NA | BOD (mg/L): | NA |
| COD (mg/L): | NA | TSS (mg/L): | NA |

| | | | |
|---|--|--|--|
| NO3 (mg/L): | NA | Fecal Coliform (col/100mL): | NA |
| E. Coli (col/100mL): | NA | Discharge Description: | 2 inches of water in outfall pipe. 4 inches of standing water in apron. Aquatic life is present. |
| 1a. Does the vegetation around the outfall show visible signs of pollution?: | No | 1b. Explain:: | Vegetation looks healthy. Vegetation is lining banks of channel, downstream of the outfall. Leaves are present around the outfall and in the apron and pipe. |
| 2. Is there excessive sediment accumulation below outfall?: | No | 2b. If yes describe appearance of the discharge: (Color? Turbidity? other?): | NA |
| 3. Are there any activities in the area that may be contributing to polluted runoff?: | No | 4. Are non-paved areas vegetated and free from erosion potential?: | Yes |
| 5a. Are there any construction activities in the area?: | No | 5b. If yes, are they employing sediment and erosion controls that appear to be working?: | NA |
| 5c. If no, list and provide description:: | NA | 6. Are there visible signs of sanitary sewer overflows?: | No |
| 7a. Are there any individual sewage treatment systems in the area?: | No | 7b. If yes, are system discharge points exhibiting odors or septic conditions?: | NA |
| 7c. If yes, list and provide description:: | NA | 8a. Are there any gas stations or car washes in the area? : | No |
| 8b. If yes, list and provide description:: | NA | 8c. Does the business appear to be discharging non-stormwater into the drainage system?: | NA |
| 8d. Are there any visible spills or leaks on site?: | NA | 8e. If yes, list and provide description:: | NA |
| 9a. Any other ind. or businesses in the area appear to be contributing to polluted runoff?: | No | 9b. If yes, list and provide description of business/ industry:: | NA |
| 10. COMMENTS / RECOMMENDED ACTIONS: | Outfall structure appears to be in good condition. There is a gap at the first joint of pipe, upstream of the outfall. Monitor gap to make sure it does not increase. There is 0.5 inch of sediment in the apron. There is a small amount of foam on the surface of the water. Leaves and a few pieces of trash are built up on the apron. There is some green algae growing within the apron. | 11. Field Screening performed?: | NA |

| | | | |
|---|----|---|----|
| TDS (mg/L): | NA | 12. Was sample taken?: | NA |
| Bicarbonate Alkalinity as CaCO ₃ (mg/L): | NA | Carbonate Alkalinity as CaCO ₃ (mg/L): | NA |
| Alkalinity (mg/L as CaCO ₃): | NA | Hardness (mg/L as CaCO ₃): | NA |
| Fluoride, F (mg/L): | NA | Chloride (mg/L): | NA |
| Sulfate (mg/L): | NA | Nitrate-N (mg/L): | NA |
| Nitrite-N (mg/L): | NA | Iron, Fe (mg/L): | NA |
| Magnesium, Mg (mg/L): | NA | Molybdenum, Mo (mg/L): | NA |
| Zinc, Zn (mg/L): | NA | Bromide (mg/L): | NA |
| Calcium, Ca (mg/L): | NA | Sodium, Na (mg/L): | NA |
| Potassium, K (mg/L): | NA | Surfactants (mg/L): | NA |

Additional Information

Weather

| | | | |
|-----------------------------------|-----------|-----------------------------------|------|
| Weather Condition: | Clear Day | Temperature (F): | 64 |
| Precipitation (in): | 0 | Precipitation Last 72 Hours (in): | 0.01 |
| Precipitation Last 24 Hours (in): | 0 | | |

Contacts

No contacts to display.

Photos





WH-2 (UK Abor.)

Default Outfall Inspection

University of Kentucky

Outfall Details

| | | | |
|-----------|-----------------|-----------------|------------|
| Location: | WH-2 (UK Abor.) | Compliance: | Compliant |
| Added: | 01/01/2012 | Last Inspected: | 11/20/2020 |

Inspection Properties

| | | | |
|----------------------------|----------------------------|-----------------------|------------|
| Inspector: | Bailee Young | Inspection ID: | O-30556 |
| Inspection Type: | Default Outfall Inspection | Inspection Date: | 11/20/2020 |
| Scheduled Inspection Date: | NA | Compliance Status: | Compliant |
| Follow Up Inspection Date: | NA | | |
| Dry or Wet Weather: | Dry | Days Since Last Rain: | 3 |
| Color: | NA | Clarity: | NA |
| Odor: | NA | Foam: | NA |
| Sheen: | NA | Suspended Solids: | NA |
| Settled Solids: | NA | Floating Solids: | NA |
| PH: | NA | Temperature(F): | NA |
| DO (mg/L): | NA | Turbidity (NTU): | NA |
| Cond (mOhms): | NA | DO (%Sat): | NA |
| Flowrate (GPM): | NA | Copper (mg/L): | NA |
| Phenols (mg/L): | NA | Ammonia (mg/L): | NA |
| Detergents (mg/L): | NA | T.PO4 (mg/L): | NA |
| Cl2 (mg/L): | NA | BOD (mg/L): | NA |
| COD (mg/L): | NA | TSS (mg/L): | NA |

| | | | |
|---|---|--|--|
| NO3 (mg/L): | NA | Fecal Coliform (col/100mL): | NA |
| E. Coli (col/100mL): | NA | Discharge Description: | There is no water in the outfall. |
| 1a. Does the vegetation around the outfall show visible signs of pollution?: | No | 1b. Explain:: | Vegetation appears healthy around outfall. |
| 2. Is there excessive sediment accumulation below outfall?: | No | 2b. If yes describe appearance of the discharge: (Color? Turbidity? other?): | NA |
| 3. Are there any activities in the area that may be contributing to polluted runoff?: | No | 4. Are non-paved areas vegetated and free from erosion potential?: | Yes |
| 5a. Are there any construction activities in the area?: | No | 5b. If yes, are they employing sediment and erosion controls that appear to be working?: | NA |
| 5c. If no, list and provide description:: | NA | 6. Are there visible signs of sanitary sewer overflows?: | No |
| 7a. Are there any individual sewage treatment systems in the area?: | No | 7b. If yes, are system discharge points exhibiting odors or septic conditions?: | NA |
| 7c. If yes, list and provide description:: | NA | 8a. Are there any gas stations or car washes in the area? : | No |
| 8b. If yes, list and provide description:: | NA | 8c. Does the business appear to be discharging non-stormwater into the drainage system?: | NA |
| 8d. Are there any visible spills or leaks on site?: | NA | 8e. If yes, list and provide description:: | NA |
| 9a. Any other ind. or businesses in the area appear to be contributing to polluted runoff?: | No | 9b. If yes, list and provide description of business/ industry:: | NA |
| 10. COMMENTS / RECOMMENDED ACTIONS: | The headwall structure is broken. There is major deterioration of the back wall. It is cracked and broken. There are cut logs immediately downstream of the headwall that were not there last year. | 11. Field Screening performed?: | NA |
| TDS (mg/L): | NA | 12. Was sample taken?: | NA |
| Bicarbonate Alkalinity as CaCo3 (mg/L): | NA | Carbonate Alkalinity as CaCO3 (mg/L): | NA |
| Alkalinity (mg/L as CaCO3): | NA | Hardness (mg/L as CaCO3): | NA |
| Fluoride, F (mg/L): | NA | Chloride (mg/L): | NA |
| Sulfate (mg/L): | NA | Nitrate-N (mg/L): | NA |

| | | | |
|-----------------------|----|------------------------|----|
| Nitrite-N (mg/L): | NA | Iron, Fe (mg/L): | NA |
| Magnesium, Mg (mg/L): | NA | Molybdenum, Mo (mg/L): | NA |
| Zinc, Zn (mg/L): | NA | Bromide (mg/L): | NA |
| Calcium, Ca (mg/L): | NA | Sodium, Na (mg/L): | NA |
| Potassium, K (mg/L): | NA | Surfactants (mg/L): | NA |

Additional Information

Weather

| | | | |
|-----------------------------------|-----------|-----------------------------------|------|
| Weather Condition: | Clear Day | Temperature (F): | 64 |
| Precipitation (in): | 0 | Precipitation Last 72 Hours (in): | 0.01 |
| Precipitation Last 24 Hours (in): | 0 | | |

Contacts

No contacts to display.

Photos



APPENDIX D-1

LFUCG Checklist

UK Capital Projects Erosion and Sediment Control Plan Checklist

University of Kentucky Capital Projects Erosion and Sediment Control Plan (ESCP) Checklist

| | |
|---------------------|----------------|
| Project # and Name: | Date: |
| Architect: | Contact Name: |
| ESCP Design Firm: | Contact Ph. #: |
| | Email: |

| ESCP Drawing | Yes | No | N/A | Notes | Comments |
|---|-----|----|-----|---|----------|
| Plans stamped by a licensed professional | | | | | |
| Limits of construction | | | | Identify "no disturbance areas" | |
| Topography and drainage patterns (pre & post) | | | | | |
| Existing Post Construction BMP's | | | | Identify protection and reconstruction | |
| Construction entrance(s) | | | | Show detail | |
| Wheel wash | | | | Show detail with sediment catch basin and cleaning procedures | |
| Water source for wheel wash | | | | Show location | |
| Check dams | | | | Detail showing construction with weir top and inspection and maintenance procedures | |
| Silt fence | | | | Show installation detail and inspection and maintenance procedures | |
| Inlet protection measures | | | | Show detail, inspection and maintenance procedures | |
| Outlet erosion protection measures | | | | Show detail | |
| Ditch stabilization | | | | Show detail | |
| Dewatering method | | | | Show detail | |
| Soil stockpile area | | | | Show location and stabilization requirements | |
| Concrete wash | | | | Describe methods and location | |
| Fuel, contaminant storage | | | | Covered and contained | |
| ESCP Approved: | | | | Missing Items: | |

APPENDIX D-2

Construction Industry Workshop Agenda



LEXINGTON

Annual Workshop with the Engineering, Development, and Construction Industry

**Municipal Separate Storm Sewer System (MS4) Permit, Construction Site Stormwater Runoff Control,
and Post-Construction Stormwater Management in New Development and Redevelopment**

Friday, December 11, 2020

Zoom Webinar

| | |
|-------------|---|
| 9:00-9:20 | Welcome and Stormwater Program Overview – Jennifer Carey, Division of Water Quality |
| 9:20-9:40 | New Development Overview – Doug Burton, Director of the Division of Engineering |
| 9:40-10:00 | Stormwater Section Overview – Mark Sanders, Division of Water Quality |
| 10:00-10:20 | Compliance and Monitoring Overview – Gabe Hensley, Division of Water Quality |
| 10:20-10:30 | Break |
| 10:30-10:50 | ESC on New Development, Redevelopment, and Capital Project Sites – Barry Topping, Tetra Tech |
| 10:50-11:10 | Potential Changes to Article 19 (Floodplain Conservation and Protection) of the Zoning Ordinance – Tom Martin, Division of Planning |
| 11:10-11:30 | Sidewalks – Scott Thompson, Division of Planning |
| 11:30-11:50 | Open Forum: What Can LFUCG Do Better? |
| 11:50 | Wrap Up and Adjourn – <i>Complete the Survey Upon Leaving the Zoom Meeting</i> |

APPENDIX E-1

Training and Certification Documentation

Included Documentation

Training Certificates

LFUCG Erosion and Sediment Control Meeting Agendas

KSA QUARTERLY MEETING

THIS IS TO CERTIFY THAT

Kevin Long

HAS COMPLETED 4 PROFESSIONAL DEVELOPMENT HOURS FOR THE
FOLLOWING TRAINING:

KSA Winter Quarterly Meeting

- Welcome and Updates – KSA
- What's happening in your basin? An overview of the basin activities throughout Kentucky– Kentucky Division of Water
- Get to know your Basin Coordinator – a great resource for your MS4 community - Kentucky Division of Water
- Does EPCRA TIER II reporting apply to your MS4? – Matt Powell, City of Bowling Green
- State MS4 Program Updates – Lucas Hanks, Kentucky Division of Water



DAVE HERNDON

DAVE HERNDON, AICP, CFM
KSA PRESIDENT

01/13/2020

DATE

University of Kentucky

*College of Engineering
Kentucky Transportation Center
Technology Transfer Program
Lexington, Kentucky*

This is to certify that

Kevin Lewis

has earned 2.5 professional development hours at the
KEPSC Inspector Requalification

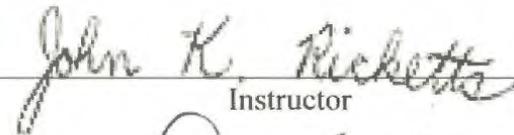
Qualification #: 201000015

10/29/2020

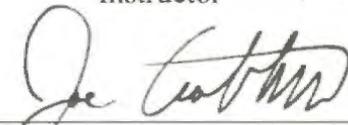
Date



Dean, College of Engineering



Instructor



Director, Kentucky Transportation Center



2020 Kentucky Stormwater Association Mini Conference
October 16, 2020
Professional Development Hours
Berea, KY

| Presentation Title | Speaker | Duration (hours) | Session Attended (check box) |
|--|--|------------------|-------------------------------------|
| Welcome and KSA Board Updates | Multiple Speakers | 0.5 | <input checked="" type="checkbox"/> |
| State of the Commonwealth | Jason Hurt & Lucas Hanks, Kentucky Division of Water | 0.5 | <input checked="" type="checkbox"/> |
| Beyond Facebook - Next Steps for Social Media | Jennifer Myatt, LFUCG | 0.5 | <input checked="" type="checkbox"/> |
| No More Dirty Words: Changing Public Perception about Water | Christopher Dent, SynTerra Corporation | 0.5 | <input checked="" type="checkbox"/> |
| MS4 Legal Update | Skipp Kropp, Steptoe & Johnson PLLC | 0.5 | <input checked="" type="checkbox"/> |
| Activating Neighborhood Greenspaces for Better Stormwater Management and Accessibility through Stakeholder Engagement and Landscape Design | Kristan Wieland Curry, LFUCG | 0.5 | <input checked="" type="checkbox"/> |
| Lessons Learned for Long Term Success of Green Infrastructure | Lori Rafferty & Brett Clark, Louisville MSD | 0.5 | <input checked="" type="checkbox"/> |
| MS4 Compliance Expectations During COVID-19 | Lucas Hanks, Kentucky Division of Water | 0.5 | <input checked="" type="checkbox"/> |
| A City's Approach to Environmental Compliance During a Pandemic | Matt Powell, City of Bowling Green | 0.5 | <input checked="" type="checkbox"/> |
| Total PDH Hours | | | 4.5 |



CERTIFICATE OF ATTENDANCE

This certifies that:

Kevin Lewis

Has earned 2 hours of continuing education credit

Harry Stark

Signature

August 5, 2020

Date

The Professional Development Webinar provides training and discussions on restoration, engineering, and stormwater management. This workshop is relevant to the practice of civil engineering, planning, and landscape design, to partially fulfill Continuing Professional Development (CPD) requirements for Ohio Professional Engineers, EnvioCert Certifications, Surveyors, and other related professions. The Ohio State Board of Registration for Professional Engineers and Surveyors does not pre-approve CPD courses nor does the board pre-approve CPD providers. Each registrant is responsible to make sure that the courses they take meet the requirements specified in O.R.C. 4733.151. It is the individual's responsibility to provide supporting material as to the sessions and hours attended.



Kevin Lewis

**Is awarded 1.0 Professional Development Hour
For the successful completion of the Storm Water Solutions webinar:**

Stormwater Compliance Demands More Than Inspections

presented in partnership with the International Erosion Control Association (IECA)

July 23rd, 2020

Facilitator:
Ryan Hanson
Vice-President / Group Publisher
Storm Water Solutions

1 Hour Webinar
1 PDH

Acceptance of this credit is at the discretion of the receiving agency



Kevin Lewis

Is awarded 1.0 Professional Development Hour
For the successful completion of the Storm Water Solutions webinar:

MS4 Challenges Posed by Evolving Construction Site Storm Water Requirements - SWS Webinar Series 2020

June 4th, 2020

Facilitator:
Ryan Hanson
Vice-President / Group Publisher
Storm Water Solutions

1 Hour Webinar
1 PDH
0.1 CEU

CERTIFICATE OF ATTENDANCE

THIS CERTIFICATE IS PRESENTED TO

Kevin Lewis

FOR ATTENDING 1.0 HOUR
OF THE
DWQ CAPITAL PROJECTS EROSION AND SEDIMENT CONTROL TRAINING
ON OCTOBER 15, 2020

CONDUCTED BY THE
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
DIVISION OF WATER QUALITY



Jenif M. Carey

MS4 / Water Quality Section Manager

October 15, 2020

NAME

TITLE

DATE

CERTIFICATE OF ATTENDANCE

THIS CERTIFICATE IS PRESENTED TO

Kevin Lewis

FOR ATTENDING 3.0 HOURS
OF THE VIRTUAL
ENGINEERING, DEVELOPMENT, AND CONSTRUCTION INDUSTRY WORKSHOP
ON DECEMBER 11, 2020

CONDUCTED BY THE
LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT
DIVISION OF WATER QUALITY



Jenif M. Carey

MS4 / Water Quality Section Manager

December 11, 2020

NAME

TITLE

DATE

From: [EPA R1 Assist](#)
To: [Lewis, Charles K.](#)
Subject: Thank you for attending Effective Public Outreach in Massachusetts MS4 Communities
Date: Friday, May 8, 2020 2:31:10 PM

CAUTION: External Sender

We hope you enjoyed our webinar.

Please send your questions, comments and feedback to: r1assist@epa.gov.

You are receiving this email because you registered for this webinar. Your email address and personal information will be used by the Webinar organizer to communicate with you about this event and their other services. To review the organizer's privacy policy or stop receiving their communications, please contact the organizer directly.

[Stop GoToWebinar emails](#) | [Report spam](#)

This email is sent on behalf of the organizer by GoToWebinar.
7414 Hollister Avenue | Goleta, CA 93117 [Privacy Policy](#) | [Anti-spam Policy](#) | www.gotowebinar.com ©2020 LogMeIn, Inc.

From: [EPA R1 Assist](#)
To: [Lewis, Charles K.](#)
Subject: Thank you for attending Community Buy-in for Stormwater Funding: An EPA Roundtable Series
Date: Friday, June 12, 2020 2:30:46 PM

CAUTION: External Sender

We hope you enjoyed our webinar.

Please send your questions, comments and feedback to: r1assist@epa.gov.

You are receiving this email because you registered for this webinar. Your email address and personal information will be used by the Webinar organizer to communicate with you about this event and their other services. To review the organizer's privacy policy or stop receiving their communications, please contact the organizer directly.

[Stop GoToWebinar emails](#) | [Report spam](#)

This email is sent on behalf of the organizer by GoToWebinar.
7414 Hollister Avenue | Goleta, CA 93117 [Privacy Policy](#) | [Anti-spam Policy](#) | www.gotowebinar.com ©2020 LogMeIn, Inc.

From: [EPA R1 Assist](#)
To: [Lewis, Charles K.](#)
Subject: Thank you for attending Porous in Provincetown: How Green Infrastructure Revitalized Commercial Street
Date: Wednesday, July 29, 2020 2:30:37 PM

CAUTION: External Sender

We hope you enjoyed our webinar.

Please send your questions, comments and feedback to: r1assist@epa.gov.

You are receiving this email because you registered for this webinar. Your email address and personal information will be used by the Webinar organizer to communicate with you about this event and their other services. To review the organizer's privacy policy or stop receiving their communications, please contact the organizer directly.

[Stop GoToWebinar emails](#) | [Report spam](#)

This email is sent on behalf of the organizer by GoToWebinar.
7414 Hollister Avenue | Goleta, CA 93117 [Privacy Policy](#) | [Anti-spam Policy](#) | www.gotowebinar.com ©2020 LogMeIn, Inc.

Annual Erosion and Sediment Control Training Workshop for Construction Projects

LFUCG Division of Engineering Capital Projects

October 20, 2020 11:00 AM Zoom Virtual Meeting

Meeting Agenda

- **Review of Permitting, Inspection, and Enforcement Procedures** (10 minutes)
 - Role of the design engineer and the Responsible Project Representative
 - ESC Plan development and permitting procedures
 - Construction inspection and compliance responsibilities
 - Enforcement procedures and deadlines for compliance assurance
 - All ESC complaints should go to LexCall immediately, not internal emails
 - Table on severity of major/minor violations, deadlines, & enforcement response
- **Changes to Chapter 11 of the LFUCG Stormwater Manual** (5 minutes)
 - Summary of key edits and additions in the 2020 manual
 - Stream/wetland definition, phasing plans, filter strips, stream crossings, others
- **Erosion and Sediment Control Best Management Practices** (25 minutes)
 - Perimeter control – silt fences, fiber logs, rock berms, others
 - Drainage system stabilization – blankets, mats, seeding, rock, etc.
 - Disturbed area stabilization – seeding, mulch, rolled erosion control products
 - Housekeeping measures – fueling and material storage areas, stable exits, etc.
 - Final site closeout – removal of temporary BMPs, stabilize bare areas and ditches
- **Focus Areas for Erosion and Sediment Control** (15 minutes)
 - Pre-construction meetings: discuss phasing, site challenges, schedule, etc.
 - Dewatering: what works, what doesn't
 - Use of fiber logs (a/k/a: wattles, fiber rolls, etc.)
 - Storing materials in the floodplain
- **Resources for Contractors and LFUCG Staff** (5 minutes)
 - LFUCG website, Contractor's Handbook, Permitting Packet, KDOW resources
- **Final Comments and Evaluation Forms**
 - Contractor/staff coordination; fill out evaluation forms

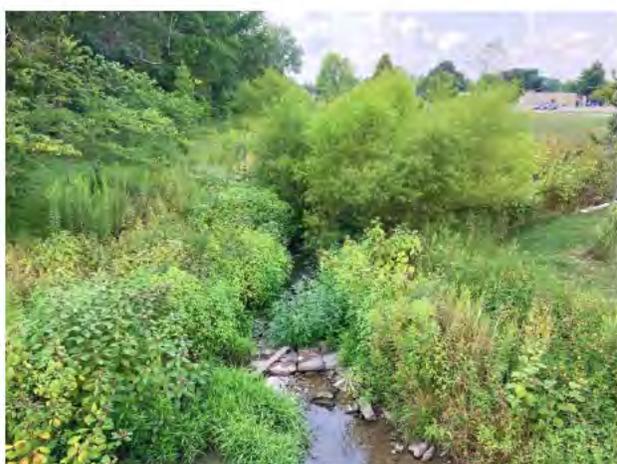
APPENDIX E-2

EcoGro FEMA Basin Annual Maintenance Report



UK / FEMA Alumni Drive Corridor
2020 Natural Areas Stewardship Summary
 EcoGro, December 2020

| | | |
|--|--|--|
| Site Name: FEMA Alumni Drive Corridor | | UK Project No: 4300268219 |
| Time Period: January 6, 2020 – December 11, 2020 | | EcoGro Project No: 2035 |
| Personnel On-Site: Jim Hanssen, Russ Turpin, Chad Relinski, and Larissa Sales | | |
| Work Completed: | <ul style="list-style-type: none"> ● Conducted Site Assessment <ul style="list-style-type: none"> ○ Took photo documentation ○ Planned work based on conditions at time of inspection ○ Inspect stormwater control structures / outfalls ● Weed / Invasive Species Treatments <ul style="list-style-type: none"> ○ Used a trimmer to cut weeds/invasives ○ Spot sprayed weeds/invasives with herbicide ● Other Work <ul style="list-style-type: none"> ○ Site overview with Richie Katko from the PPD Grounds team ○ Marked vounteer trees and planted shrubs ○ Used a bush hog and handheld trimmers to cut back dead vegetation during the winter months ○ Native seed was collected from swamp rose mallow, bull rush, cup plant, and button bush; and redistributed as needed ○ The basin outfall inlets were cleared of obstructions as needed | |
| Comments/Concerns: | <ul style="list-style-type: none"> ● Capstone rocks still missing from lower basin (3.1) outlet ● Growing cavities around outlet structure in upper basin (3.3) ● No grate to prevent debris from entering inlet of outlet structure in upper basin (3.3) | |
| Prepared by: Larissa Sales Date: 12/11/2020 | | Reviewed by: Jim Hanssen and Russ Turpin Date: 12/14/2020 |



Stream Area: Throughout the summer of 2020 the stream buffer flourished with native vegetation.



Middle Basin (3.2): During the fall of 2020, wildflowers continued to bloom after the warm summer months, covering the basins in whites, purples, and yellows.



In both the stream and basin areas, wildflowers and pollinators were abundant throughout the growing season, adding to the aesthetic beauty and health of the project sites.



**UK / FEMA Alumni Drive Corridor
2020 Natural Areas Stewardship Summary
EcoGro, December 2020**



Lower Basin (3.1): The outfall inlet of the basin was cleared of obstructions to ensure proper flow. Missing capstone rock (outlined above right) from basin outlet.



Upper Basin (3.5): There are two growing cavities around the basins outlet structure.

APPENDIX F-1

Stormwater Infrastructure Repair Cost Summary

Storm System \$
01/01/20 - 12/31/2020

| Row Labels | Sum of Val.in RC |
|---|--------------------|
| CAMPUS GENERAL FUND - STORM WATER MGT. | |
| 807002741065 - 2/H Service - Grounds Stormwater Inspect | \$4,511.68 |
| CAMPUS GENERAL FUND - STORM WATER MGT. Total | \$4,511.68 |
| CAMPUS GENERAL FUND-GROUNDS MAINT. | |
| 807002432023 - CAMPUS GENERAL FUND - STORM WATER MGT. | \$33,273.42 |
| CAMPUS GENERAL FUND-GROUNDS MAINT. Total | \$33,273.42 |
| CENTRAL CAMPUS AREA - STORM | |
| 807002701879 - CLEAN OUT OUTDOOR STORM DRAINS | \$24.75 |
| 807002748744 - UNCLOG WALKWAY DRAINS ON S.E. CORNER | \$389.63 |
| 807002751443 - CLEAN OUTSIDE STORM DRAIN | \$99.00 |
| 807002751445 - STORM DRAIN STOPPED UP | \$277.75 |
| 807002779266 - REPR/REPL BROKEN GRATE ON STORM DRAIN | \$3,729.73 |
| 807002790421 - CLEAN STORM DRAIN BEHIND BLDG | \$222.75 |
| 807002827749 - BTWN MIK & LAFFERTY, MANHOLE COVER | \$49.50 |
| 807002836719 - BCTC/STADIUM AREA, STORM SEWER BACKED UP | \$707.00 |
| 807002850395 - UNCLOG STORM DRAIN @ NORTH END OF BLDG | \$447.50 |
| 807002886443 - CHECK ALL OUTSIDE DRAINS | \$247.50 |
| 807002996677 - REPR METAL GRATE ACROSS SIDEWALK | \$1,638.75 |
| 807003009991 - BLUE LOT, NEAR ROW 8,GRATE DRAIN | \$431.25 |
| 807003035942 - SO. SIDE OF MIK, REPAIR DRAIN COVER | \$9,190.00 |
| 807003112014 - RESEAL DRAIN COVER BY SIDE ENTRANCE | \$310.86 |
| 807003112155 - BOLT DOWN 2 STORM DRAIN COVERS | \$86.25 |
| 807003139128 - ORANGE LOT, REPR STORM MANHOLE COVER | \$690.00 |
| 807003153200 - UNCLOG OUTDOOR AREA DRAIN | \$247.50 |
| 807003176563 - MED CTR COAL PILE, SEDIMENT TANK | \$172.50 |
| CENTRAL CAMPUS AREA - STORM Total | \$18,962.22 |
| Grand Total | \$56,747.32 |

APPENDIX F-2

UK Grounds Stormwater Data Tracking Results

Stormwater Inspection Results

2020 Annual Report

Mapped Structures Surveyed:

1447/1763

**1763 = Catchbasins, Headwalls, and Junction Box, that are mapped within the Utilities Database*

Unmapped Structures Surveyed:

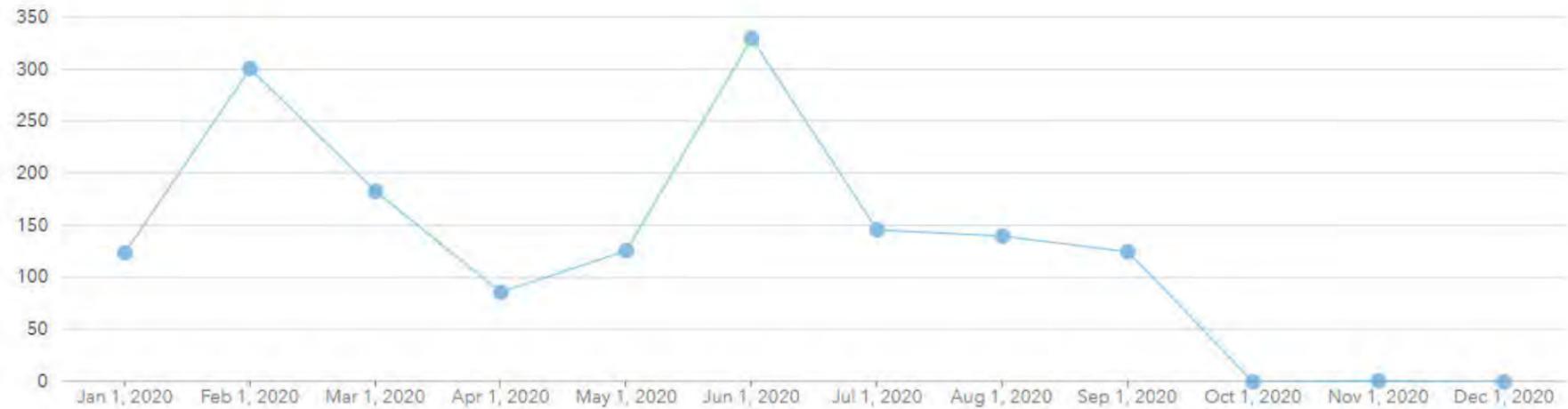
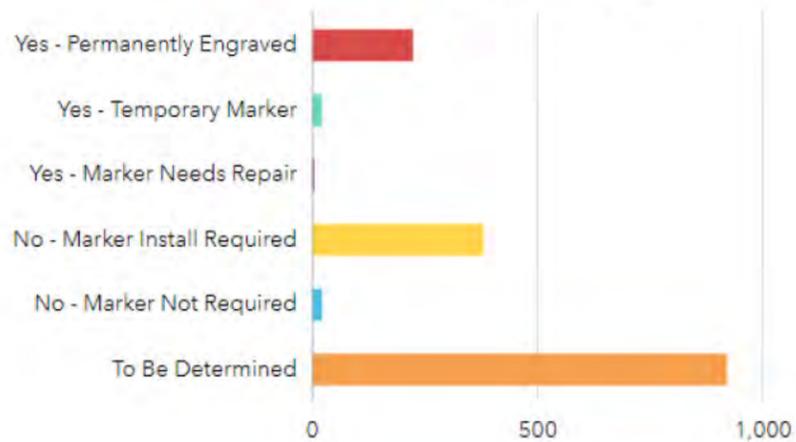
114

Structures with Structural Problems & Action Needed:

157

Structures not Marked as Storm Drains:

379 Need Marker Install
917 To Be Determined

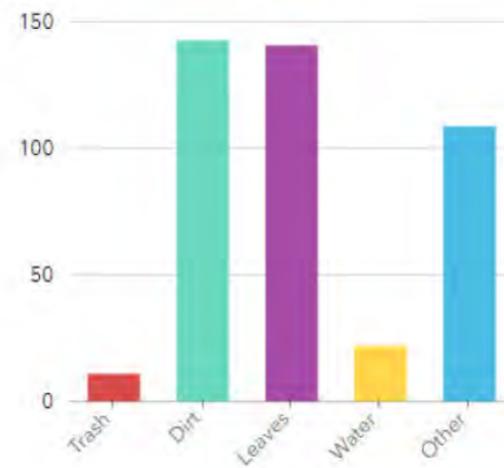


Structures with Debris:

283

Structures cleaned:

199/283



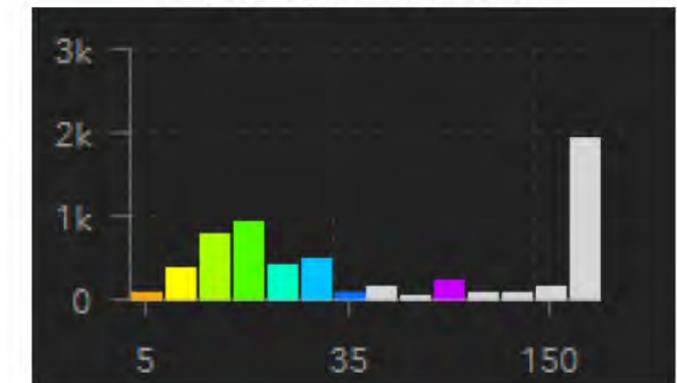
Other Debris Types:

See next page for additional information

Amount of Debris Removed (cubic feet):



Time Spent Cleaning (minutes):



| Stats | Value | Stats | Value |
|-------|------------------|-------|-----------------|
| Min. | 0.25 | Min. | 5 |
| Max. | 36 | Max. | 480 |
| Avg. | 2.45326633165829 | Avg. | 28.894472361809 |
| Sum. | 488.2 | Sum. | 5,750 |

Stormwater Inspection Results

2020 Annual Report

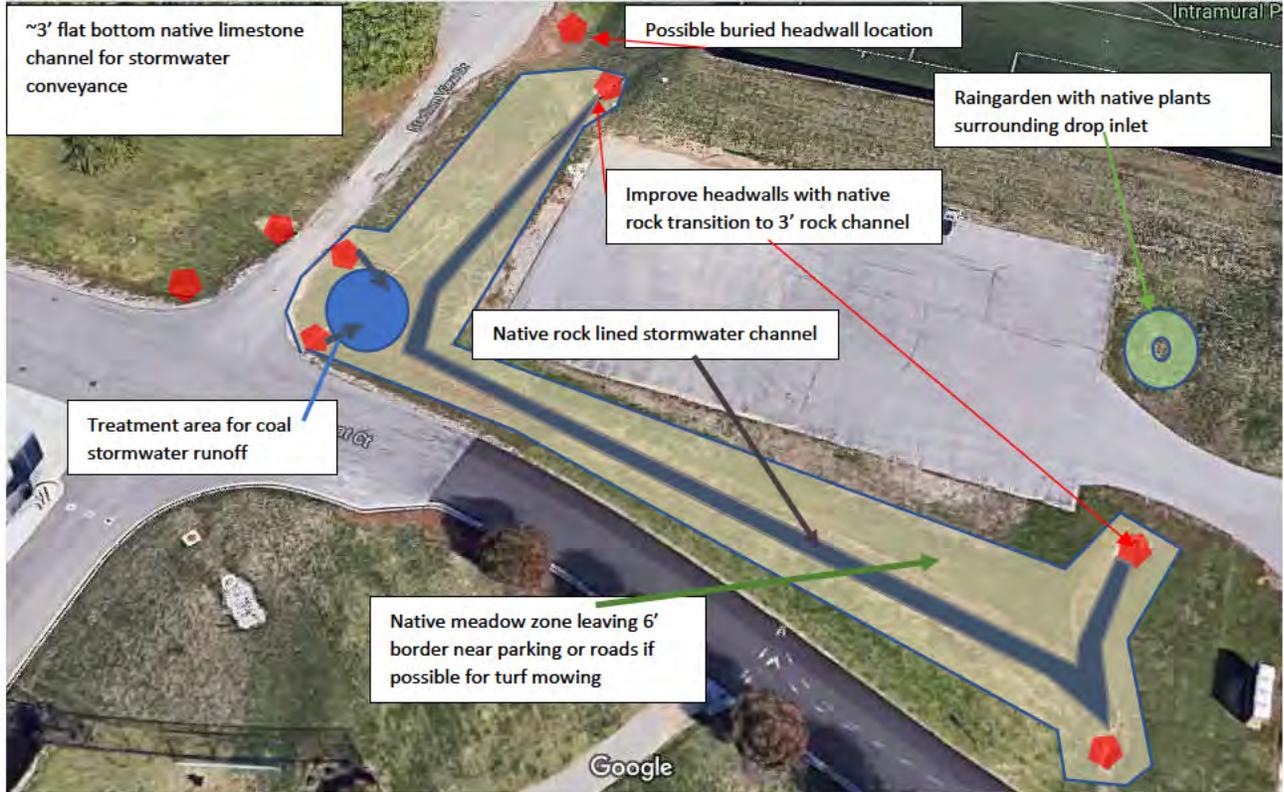
Other Types of Debris:

| Response | Count | Response | Count |
|--------------------------------|-------|--|-------|
| Construction | 53 | Pine needles | 1 |
| Unknown | 9 | Lumber 3 foot piece of 2x4 | 1 |
| Sand | 6 | Gravel, concrete pieces | 1 |
| | 6 | Garbage bag | 1 |
| Mulch | 5 | Construction debris y | 1 |
| Gravel | 4 | Construction debris inspect after construction is done | 1 |
| Sticks | 3 | Concrete, asphalt | 1 |
| Rock | 3 | Brick, gravel | 1 |
| Grass | 3 | Branches | 1 |
| Fabric on drain | 2 | Branch | 1 |
| Wood plank | 1 | Acorns, gravel | 1 |
| Wood chips | 1 | | |
| Unknown white liquid | 1 | | |
| Unknown in construction area | 1 | | |
| Shale from bed | 1 | | |
| Sand, gravel, blacktop | 1 | | |
| Sand from masonry construction | 1 | | |
| Roots | 1 | | |
| Rocks | 1 | | |
| Plywood strip | 1 | | |
| Pine needles | 1 | | |

APPENDIX F-3

Coal Piles Documentation

Wildcat Ct Stormwater Improvements







EXISTING PIPE ID'd AS RCP BY UTILITY LOCATORS

UNCOVER EXISTING HEADWALL OF STORM WATER PIPE LEADING FROM GREENHOUSE PARKING AREA TO DITCH; REWORK DITCH AS-NEEDED TO IMPROVE DRAINAGE.

THE ROADWAY WAS RECENTLY WIDENED AND RE-PAVED. THE EXISTING HEADWALLS WERE REPLACED WITH NEW ONES. THE OLD CMP UNDER THE ROAD WAS REPLACED WITH RCP AND LENGTHENED TO ALLOW FOR THE ROAD WIDENING.

THE RIP-RAP LINED SECTION OF DITCH, AS SHOWN IN THE GREEN AREA, IS HOW IT LOOKED PRIOR TO ALL OF THE CONSTRUCTION IN THE AREA IN RECENT YEARS. IT HAS BEEN DAMAGED AND NO LONGER DRAINS PROPERLY OR LOOKS THIS WAY. IT NEEDS TO BE RE-GRADED AND RELINED WITH RIP-RAP TO RESTORE IT INTO A FUNCTIONING DRAINAGE WAY.

APPROXIMATE LIMITS OF DITCH RE-CONSTRUCTION, EXACT LENGTH TBD BASED UPON EXISTING GRADE.

Opinion of Probable Cost for Design and Construction

To Mr. Stacy Borden
 University of Kentucky Grounds Manager
 102 Peterson Service Building
 Lexington, KY
 859.323.5260
 859.608.6706 cell
stacy.borden@uky.edu



PO Box 22273
 Lexington, KY 40522
 859.621.7461
 Fax: (866) 348-0528
jim@ecogro.net



From Jim Hanssen

Date 11/30/2020

Project Wildcat Ct. Stormwater Improvement Project
 Location At the intersection of Wildcat Ct and Stadium View Dr on UK campus
 Lexington, KY

Scope of Work

We propose to provide the design, permitting (if necessary), labor, equipment and materials necessary to provide stormwater enhancement to an area near the intersection of Wildcat Ct and Stadium View Dr. on UK campus. The design would be performed to an appropriate level to acquire any permits necessary and to provide for a construction utilizing a design / build approach. Construction would entail uncovering a buried headwall, improving the utility and appearance of up to 8 headwalls, creating a rock lined channel for conveyance of stormwater, building a raingarden around an existing drop inlet, creating a treatment area for stormwater exiting the nearby coal stockpile, and planting a native vegetation zone to envelope these improvements. Additional topsoil, soil conditioning and planting of native seed will be utilized.

Time and Material Construction Budget with NTE

Upon direction of the UK Grounds Manager, we propose to perform the above Scope of Work on a Time and Material basis with a Not To Exceed (NTE) cost of \$55,000.00

| Item | Quantity | Unit | Unit Rate | Cost |
|---|----------|---------|-------------|-------------|
| Time and Material Design and Construction Budget with Not To Exceed | | | | |
| 1 Design and Construct and area for stormwater improvements near Wildcat Ct. and Stadium View Dr. | 1 | T&M NTE | \$55,000.00 | \$55,000.00 |

Assumptions/Clarifications:

- 1 Assumes access to property will be granted immediately upon contract signing for work to be performed.
- 2 Assumes NO BONDING is required for the Design Builder to obtain.
- 3 Assumes no / very limited permitting will need to take place for construction.
- 4 Assumes all private utilities will be marked by owner. Public utilities will be marked by Owner or 811.
- 5 Assumes there will be no retainage on billings.
- 6 Billing will be submitted once per month with payment due in no more than 30 days.

We will perform the above scope of work for the Time and Material with Not to Exceed price listed. If there is anything you need, please do not hesitate to call. If this proposal is acceptable, please sign, date, and return to us. Thank you for the opportunity to perform this work with you.

Sincerely,

Jim Hanssen
 President

Accepted by: _____

Date: _____

APPENDIX F-4

Gluck Pond Waterfowl Management Efforts



07/16/2020

ATTN: Jerry Hart

USDA/Wildlife Services- summary of waterfowl damage management activities for the University of Kentucky Gluck Building.

Canada geese residing on the pond and surrounding areas of the Gluck Equine Building on the University of Kentucky campus have become hazardous to human health and safety and cause extensive damage to landscaping, walkways and grassy areas. In this area of campus it has become typical for 50-100 Canada geese to reside here throughout the nesting season (March through July) Aggressive nesting geese can cause injury to students or employees of the university. The extensive amount of droppings and debris left by these birds in walking areas and parking structures have also been cause for concern. Accumulations of droppings from waterfowl can carry diseases such as salmonella and ecoli which can be carried into buildings on the shoes of those walking through these areas.

In an action to resolve these issues an agreement was signed between the University of Kentucky and USDA/Wildlife Services. The university asked WS to initiate wildlife damage management activities to help alleviate the human health and safety risks associated with the large number of Canada Geese residing on the property.

Wildlife Services provided Canada goose population reduction and control activities on a weekly basis from March 1 2020 through June 21 2020. To reduce the number of geese in the area WS removed 3 active nests and 15 eggs from the Gluck pond, Gluck building and other nearby buildings and nesting areas. Several nesting birds in these areas had become habitually aggressive towards employees, students, and event patrons. WS removed 3 aggressive nesting waterfowl to prevent injury to any persons using walking areas and parking lots. Harrassment techniques were also included in the integrated wildlife damage management approach for this area to encourage the offending waterfowl to leave and find a more suitable area to reside.

Control efforts were deemed successful by WS due to the decrease in nests and eggs from the previous year. Only 18 birds were found residing in the area during early June of this year and had left the area by mid June. This area typically has 50-100 birds during this time period.

In late spring of last year university grounds personel introduced habitat manipulation and environmental control techniques to further dissuade waterfowl from using the pond at the Gluck Building. The increase in grass height surrounding the pond and the addition of plants that these waterfowl find unsuitable should help with future efforts in reducing the overall Canada goose population and the human health and safety concerns that they create.

APPENDIX F-5

Stormwater Stakeholder Meetings Sign-in Sheets and Agendas

MS4 Stormwater Stakeholders Advisory Committee Meeting Agenda

Date: February 7th, 2020
0900 - 1030

Location: Peterson Service Bldg., Room 215

Purpose: To discuss the recent audit, new regulatory requirements, current program activities, and needs.

| | |
|---|------------------|
| I. WELCOME | 0900-0905 |
| II. STORMWATER AUDIT | 0905-0910 |
| III. NEW REQUIREMENTS | 0910-0920 |
| • New KYR10 Permit (Construction Stormwater) | |
| • LFUCG Stormwater Manual Changes | |
| IV. ANNUAL REPORT | 0920-0930 |
| V. STORMWATER GRANTS | 0930-0935 |
| VI. STORMWATER LOGO COMPETITION | 0935-0945 |
| VII. STORMWATER MASTERPLAN | 0945-1000 |
| • Purpose/Where to begin? | |
| • Assessing UK's Water Footprint | |
| • LA Student Capstone Project – EPA RainWorks Challenge | |
| VIII. SWQMP IMPLEMENTATION/UPDATES | 1000-1030 |
| What are you working on? Progress Made? Problems Encountered? | |

- EMD
 - BMP Inspections
 - New Stormwater Website
 - New Compliance Software
- Strand
 - BMP Inspections
 - IDDE Plan Update
 - Outfall Inspections
 - Stormwater Operations Manual
 - College Way Coal Pile Assessment
- MCM's 1&2 – TFISE/Extension (Suzette, Carmen, Steve, Cole)
 - Outreach/Education/Participation Activities; TFISE/KWRRRI Partnership
 - Stormdrain Marking Program
 - UK/LFUCG Water Week
- Utilities (Xavier/Mike/Graham)
 - FEMA Pond Problems/Solutions – Bell Assessment
- Grounds/Custodial/Etc. (Tim/Don/Jerry)
 - BMP/Stormwater Maintenance
 - GIS Maintenance Tracking System
- Facility Operations (Phil/Harold/Tim)
- Athletics (Donnie)
 - Procedure Development
 - Training
- CPMD (Bob)
 - Construction Projects
 - Design Standard Updates
 - New Soil Rehabilitation Design Standard
- Sustainability (Shane)

MS4 Stormwater Stakeholders Advisory Committee Meeting Agenda

Date: July 24th, 2020
0930 - 1100

Location: Microsoft Teams Meeting - Online

Purpose: To provide an update on the stormwater program, our efforts since the February meeting, and to discuss program needs for Permit Year 3.

- | | |
|---|------------------|
| I. WELCOME | 0930-0935 |
| II. 2019 ANNUAL REPORT | 0935-0940 |
| III. PERMIT YEAR 3 TASKS/NEEDS | 0940-0955 |
| IV. PROGRAM UPDATES | 0955-1025 |
| <ul style="list-style-type: none">• Website Progress<ul style="list-style-type: none">○ Formatting and Content Development○ Interactive MS4 Map○ Storm Drain Marking Program○ IDDE Reporting Feature• BMP Inspection Completion and Results• Preventative Maintenance Program Development• Stormwater Operations Manual Progress• Program Logo Competition | |
| V. STAKEHOLDER UPDATES | 1025-1045 |
| <ul style="list-style-type: none">• MCM's 1&2 (Suzette, Carmen, Steve, Cole, Lee)• UEM (Xavier/Mike/Graham/Britney)• Grounds/Custodial (Tim/Stacy/Jerry)• Facility Operations (Harold/Tim)• Athletics (Donnie)• CPMD (Bob)• Sustainability (Shane) | |
| VI. COVID 19 RESPONSE/ISSUES | 1045-1100 |
| <ul style="list-style-type: none">• Have any stormwater specific Covid 19 issues developed?• Has the pandemic impacted our SWQMP task completion?• Documentation Requirements | |

MS4 Stormwater Stakeholders Advisory Committee Meeting Agenda

Date: October 9th, 2020
0930 - 1100

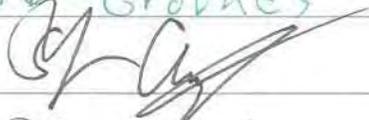
Location: Zoom Meeting - Online

Purpose: To provide an update on the stormwater program, our efforts since the July meeting, and to get updates and/or answer questions regarding stakeholder efforts outlined in the individual emails sent out in early August.

- | | |
|--|------------------|
| I. WELCOME | 0930-0935 |
| II. STORMWATER WEBSITE PROGRESS/REVIEW | 0935-0955 |
| III. PROGRAM UPDATES | 0955-1025 |
| <ul style="list-style-type: none">• Addressing Program Weaknesses/Recommendations• PY3 Major Tasks• Individual Departmental PY3 Responsibility Emails• Stormwater Harvesting Grant• Fact Sheets• Peterson Garage Washing Station• Reynolds 1 Renovation• Smith Hall Detention | |
| IV. STAKEHOLDER UPDATES | 1025-1055 |
| <ul style="list-style-type: none">• MCM's 1&2 (Suzette, Carmen, Steve, Cole, Lee)• UEM (Xavier/Mike/Graham/Britney)• Grounds/Custodial (Tim/Stacy/Jerry)• Facility Operations (Harold/Tim)• Athletics (Donnie)• CPMD (Bob)• Sustainability (Shane) | |
| V. COVID 19 REMINDER | 1055-1100 |
| <ul style="list-style-type: none">• Have any stormwater specific Covid 19 issues developed?• Has the pandemic impacted our SWQMP task completion?• Documentation Requirements | |

Sign-In Sheet

UK MS4 Stormwater Stakeholders Advisory Committee Meeting
February 7th, 2020

| Name | Department |
|--------------------|--|
| 1. Lee J Moser | CAFE |
| 2. Bob Brashear | CPM |
| 3. Kevin Sewing | EMD |
| 4. STEVEN JOGEL | STRAND ASSOCIATES |
| 5. HAROLD SANDFORD | FACILITIES |
| 6. Donnie Mefford | UKAD |
| 7. TIM CLARK | FACILITIES |
| 8. Shane Tedder | Sustainability |
| 9. Graham Gray | Utilities |
| 10. DAVID HIBBARD | EHS |
| 11. Bob Kietland | EMD |
| 12. Mike Nuff | UEM |
| 13. Jerry PHART | PPD - Grounds |
| 14. J.M. Armstrong |  |
| 15. Stacy Borden | PPD Grounds |
| 16. | |
| 17. | |
| 18. | |
| 19. | |
| 20. | |

Lewis, Charles K. joined the meeting.

July 16, 2020

Lewis, Charles K. renamed the meeting to Stormwater Stakeholder Meeting.

Agouridis, Carmen and 22 others joined the meeting.

Today

Meeting started 9:21 AM

Jerry Hart joined the meeting.

Vogel, Steven (Guest) joined the meeting.

Ragland, Britney M. joined the meeting.

Tedder, Shane 9:57 AM
Great (deal)!

Drop the fourth

Hibbard, David W. 10:23 AM
Kevin, I have to bow out. Thanks and will follow-up with you after

Tedder, Shane 10:28 AM
Sorry, i had to take a call. I have updates if called on me and I was silent

Tedder, Shane 10:40 AM
Looks good and I have heard no complaints

Moser, Lee 10:45 AM
Photo from Gluck Pond on 7.23.20



Tedder, Shane 10:50 AM
<https://www.uky.edu/sustainability/FacilitiesDaily>

Brashear, Robert S. 10:59 AM
Good job Kevin.

Thank you.

Mefford, Donald B. 10:59 AM
Thanks Kevin.

Rivera Marzan, Xavier 11:00 AM
Thanks Kevin!

Jerry Hart left the conversation.

Meeting ended 2h 5m 11:26 AM

Tracking

- CL Lewis, Charles K. Organizer
- TA Armstrong, Timothy J. Accepted
- DC Clark, Dall Accepted
- Hart, Jerry P. Accepted
- Hibbard, David W. Accepted
- DM Mefford, Donald B. Accepted
- Moser, Lee Accepted
- HS Sandford, Harold R. Accepted
- Tedder, Shane Accepted
- SV Vogel, Steven Accepted
- SW Walling, Suzette D. Accepted
- Clark, Timothy E. Tentative
- GG Gray, Graham M. Tentative
- Agouridis, Carmen Declined
- LB Broeking, Lance Declined
- JG Graft, Joseph E. Declined
- Vosevich, Mary S. Declined
- Borden, Stacy J. Unknown
- RB Brashear, Robert S. Unknown
- MD Duffy, Michael J. Unknown
- Evans, Steven J. Unknown
- Kjelland, Robert D. Unknown
- Lee, Brad D. Unknown
- PT Tockett, Phillip R. Unknown
- Optional
- XM Rivera Marzan, Xavier Accepted
- Ragland, Britney M. Tentative

| Meeting ID | Topic | Start Time | End Time | User Email | Duration (Minutes) | Participants |
|-------------|--------------------------------|----------------|-----------------|-----------------|--------------------|--------------|
| 89651976777 | Stormwater Stakeholder Meeting | 10/9/2020 9:15 | 10/9/2020 11:07 | ckle226@uky.edu | 112 | 18 |

| Name (Original Name) | User Email | Total Duration (Minutes) |
|-----------------------------|-----------------|--------------------------|
| Kevin Lewis (Charles Lewis) | ckle226@uky.edu | 112 |
| Steven Vogel | | 111 |
| Steven Evans | sjevan0@uky.edu | 102 |
| Robert Kjelland | rdkjel2@uky.edu | 90 |
| jgraft | | 99 |
| Shane Tedder | dstedd0@uky.edu | 87 |
| jphart | | 98 |
| suzettewalling | | 98 |
| Tim Armstrong | | 97 |
| Britney Ragland | | 97 |
| Timothy Clark | tecl225@uky.edu | 94 |
| mike duffy | | 86 |
| Stacy Borden | | 81 |
| Xavier Rivera Marzan | xiri222@uky.edu | 56 |
| 00050211N034637 | | 39 |

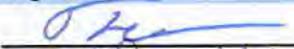
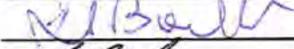
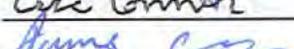
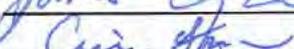
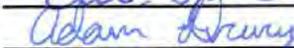
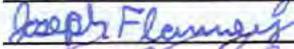
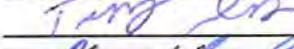
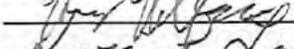
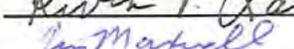
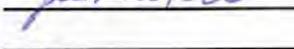
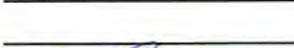
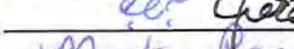
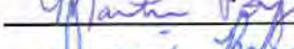
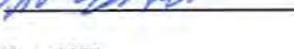
APPENDIX F-6

Spill Prevention and Control Countermeasures Training Sign-in Sheets and Presentations

Schedule

Scheduled Offering ID: 14297
 Title: Facilities-EHS Spill Prevention Control & Countermeasures Training

| Segment | Start Date/Time | End Date/Time | Instructor | Location |
|---------|-------------------------------|-------------------------------|-------------------|-----------------|
| 1 | 1/29/2020 01:00 PM US/Eastern | 1/29/2020 02:00 PM US/Eastern | Robert Kjelland * | The 90 Room 219 |

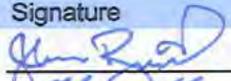
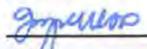
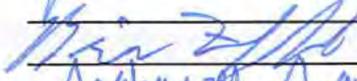
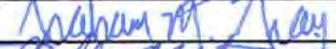
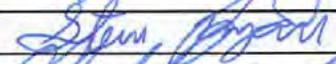
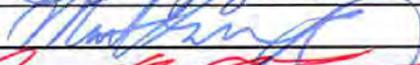
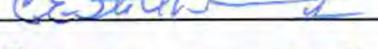
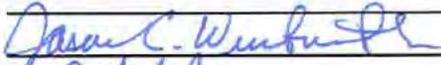
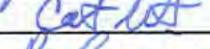
| User Name | Department | Signature |
|-----------------------------|-------------------------------|---|
| 1 Billings, Travis Keith | Utilities & Energy Management |  |
| 2 Boelhauf, Lindy D | Campus maintenance Area 4 |  |
| 3 Cafego, Joseph Mitchell | Utilities & Energy Management |  |
| 4 Chenault, Cory D | Utilities & Energy Management |  |
| 5 Conner, Eric S. | Utilities & Energy Management |  |
| 6 Crawford, James P | Utilities & Energy Management |  |
| 7 Cui, Hua | Utilities & Energy Management |  |
| 8 Drury, Adam Curry | Utilities & Energy Management |  |
| 9 Flannery, Joseph D. | Utilities & Energy Management |  |
| 10 Gillispie, Terry Lynn | Phys Plt-Grounds Services |  |
| 11 Havens, Brandon | Medical Center Physical Plant |  |
| 12 Huffines, Henry L. | Utilities & Energy Management |  |
| 13 Larkin, Kevin Paul | Medical Center Physical Plant |  |
| 14 Maxwell, Jim Herbert | Utilities & Energy Management |  |
| 15 Meredith, Casey Michael | Utilities & Energy Management |  |
| 16 Paullin, Eric L | Utilities & Energy Management |  |
| 17 Perry, Orin Michael | Utilities & Energy Management |  |
| 18 Phillips, Jerry D | Utilities & Energy Management |  |
| 19 Poynter, Martin L | Utilities & Energy Management |  |
| 20 Robinson, Travis W | Medical Center Physical Plant |  |
| 21 Saunier, Orion Zachariah | Utilities & Energy Management |  |

| | User Name | | Department | Signature |
|----|-------------------------|--|-------------------------------|-------------------|
| 22 | Shelton, Carlton Brooks | | Utilities & Energy Management | |
| 23 | Smith, William T | | Utilities & Energy Management | |
| 24 | Stidham, Clarence E | | Utilities & Energy Management | |
| 25 | Sullivan, James A | | Utilities & Energy Management | James A Sullivan |
| 26 | Templeton, Chad Edward | | Utilities & Energy Management | Chad E. Templeton |
| 27 | True, Matthew R | | Utilities & Energy Management | Matthew True |
| 28 | Wager, Stephen M | | Utilities & Energy Management | Stephen Wager |
| 29 | White, Leroy | | Utilities & Energy Management | Leroy White |
| 30 | White, Marshall Lee | | Utilities & Energy Management | |
| 31 | Woodrum, Kenneth Shane | | Utilities & Energy Management | |
| 32 | Yaden, Spencer Emory | | Medical Center Physical Plant | |
| | Bobby Bailey | | PPD MC | Bobby Bailey |

Schedule

Scheduled Offering ID: 14154
 Title: Facilities-EHS Spill Prevention Control & Countermeasures Training

| Segment | Start Date/Time | End Date/Time | Instructor | Location |
|---------|-------------------------------|-------------------------------|-------------------|----------------------------------|
| 1 | 1/30/2020 08:30 AM US/Eastern | 1/30/2020 09:30 AM US/Eastern | Robert Kjelland * | Student Center (Gatton) Room 331 |

| User Name | Department | Signature |
|----------------------------|-------------------------------|---|
| 1 Brazil, John Wesley | Medical Center Physical Plant |  |
| 2 Burton, Matthew R | Phys Plt-Grounds Services |  |
| 3 Combs, Joshua Scout | Utilities & Energy Management | |
| 4 Cullop, Michael Jason | Utilities & Energy Management |  |
| 5 Duquette III, John W. | Phys Plt-Grounds Services | |
| 6 Elliott, Kevin Scott | Utilities & Energy Management | |
| 7 Fyffe, Brian L | Utilities & Energy Management |  |
| 8 Gray, Graham M | Utilities & Energy Management |  |
| 9 Marinaro, Phillip A. | Medical Center Physical Plant |  |
| 10 May, Charles Henderson | Utilities & Energy Management | |
| 11 Ryan, Steven E | Campus maintenance Area 4 |  |
| 12 Sandford, Matthew T | Utilities & Energy Management |  |
| 13 Santiamagro, Peter E | Medical Center Physical Plant |  |
| 14 Shouse, Danny | Phys Plt-Grounds Services |  |
| 15 Spickard, Patrick James | Utilities & Energy Management |  |
| 16 Stidham, Clarence E | Utilities & Energy Management |  |
| 17 Waits, Timothy Aaron | Utilities & Energy Management | |
| 18 Wentworth, Jason C | Medical Center Physical Plant |  |
| 19 Whitton, Carter H | Utilities & Energy Management |  |
| 20 Zierer, Paul J. | Utilities & Energy Management |  |



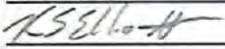
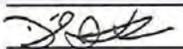
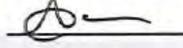
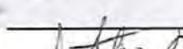
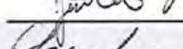
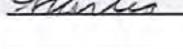
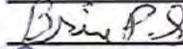
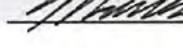
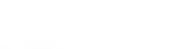
Scheduled Offering Roster

| User Name | [REDACTED] | Department | Signature |
|-----------|------------|------------|-----------|
|-----------|------------|------------|-----------|

Schedule

Scheduled Offering ID: 14476
 Title: Facilities-EHS Spill Prevention Control & Countermeasures Training

| Segment | Start Date/Time | End Date/Time | Instructor | Location |
|---------|--------------------------------|--------------------------------|-------------------|-----------------|
| 1 | 2/12/2020 08:30 AM US/ Eastern | 2/12/2020 09:30 AM US/ Eastern | Robert Kjelland * | The 90 Room 219 |

| User Name | Department | Signature |
|---------------------------|-------------------------------|---|
| 1 Burnette, Alan Leslie | Campus maintenance Area 4 |  |
| 2 Elliott, Kevin Scott | Utilities & Energy Management |  |
| 3 Hart, Roger D | Phys Plt-Grounds Services |  |
| 4 Keely, Daniel C | Utilities & Energy Management |  |
| 5 Kendrick, Logan Edward | Utilities & Energy Management |  |
| 6 Marshall, Aaron J | Utilities & Energy Management |  |
| 7 Meredith, Casey Michael | Utilities & Energy Management |  |
| 8 Minton, Jonathan Edward | Utilities & Energy Management |  |
| 9 Moberly, Charles W | Utilities & Energy Management |  |
| 10 Moody, James E | Campus maintenance Area 4 |  |
| 11 Seat, Douglas P | Campus maintenance Area 4 |  |
| 12 Stanton, Brian P | Phys Plt-Grounds Services |  |
| 13 Walters, Aubrey | Utilities & Energy Management |  |
| 14 White, Marshall Lee | Utilities & Energy Management |  |
| 15 Whitt, Marvin L. | Phys Plt-Grounds Services |  |
| 16 Woodrum, Kenneth Shane | Utilities & Energy Management |  |



SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN



A Training Module for UK Employees who Handle Oil and Oil Products

1

TOPICS & OBJECTIVES

40 CFR 112.7(f)

PART 1: General Awareness Topics

OBJECTIVES

- o To understand what an SPCC Plan is, its contents, and requirements for updates.
- o To understand the applicable laws, rules and regulations regarding oil spills.

PART 2: UK-Specific Topics

OBJECTIVES

- o To understand the general oil-handling operations at UK facilities.
- o To understand oil spill procedures at UK facilities.
- o To understand the operational/maintenance procedures in place at UK to prevent oil spills.

PART 3: Area Specific Topics

OBJECTIVES

- o To understand locations of oil in the area.
- o To understand discharge control and spill clean-up equipment locations and use.
- o To understand the spill pathways for area and reporting obligations.
- o To understand the specific area operating procedures.

2

PART 1: General Awareness Topics

- o What is an SPCC Plan?
- o What are the contents of an SPCC Plan?
- o What are the requirements for updating an SPCC Plan?
- o What are the applicable laws, rules and regulations regarding oil spills?

3

What is an SPCC Plan?

A document which must be maintained by certain oil-handling facilities that describes:

- **Spill containment and procedures to prevent oil* discharges.**
- **Control measures to keep oil discharges from entering the waters of the U.S.**
- **Countermeasures to contain, clean up and mitigate any oil discharge (spill response measures).**



*Oil is defined as:

- Petroleum and non-petroleum based
- Crude Oil
- Refined Products
- Animal Fats
- Vegetable oils

4

What are the contents of an SPCC Plan?

| | |
|--|--|
| <ol style="list-style-type: none"> 1. Background and technical approach for preparation 2. Applicability 3. Definitions 4. Requirements to Prepare and Implement a SPCC Plan 5. Amendment of SPCC Plan by EPA | <ol style="list-style-type: none"> 6. Amendment of SPCC Plan by UK 7. General Requirements 8. SPCC Plan Requirements 9. Facility Response Plan Figures and Appendices |
|--|--|

5

What are the requirements for updating an SPCC Plan?

- Must be amended if facility changes occur.
- Must be reviewed at least every 5 years.
- Must be prepared based on Good Engineering Practices.
- Must be certified by a Professional Engineer.
- Requires management approval for implementation.
- Requires routine inspections.
- Requires annual training for persons handling oil.

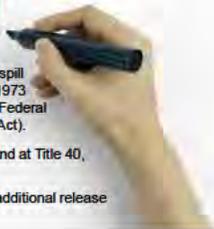
6

Part 1: General Awareness Topics

What are the applicable laws, rules and regulations regarding oil spills?

Regulations!

- The SPCC rule is part of the U.S. EPA's oil spill prevention program originally published in 1973 under the statutory authority of §311 of the Federal Pollution Control Act (i.e., the Clean Water Act).
- The federal regulatory authority may be found at Title 40, Code of Federal Regulations, Part 112.
- Kentucky's rules for oil spills also includes additional release notification requirements.



7

PART 2 – UK-Specific Topics

- What are the oil-handling facilities at UK?
- What are the oil spill procedures in place at UK facilities?
- What operational and maintenance procedures are in place at UK to prevent oil spills?

8

Part 2: UK-Specific Topics

What are the oil-handling facilities at UK?

| | | | | | |
|------------|--------------------|-------------------------|--------------------------|-----------|------------------------|
| Campus PPD | Medical Center PPD | Good Samaritan Hospital | Dining Services Division | Athletics | College of Agriculture |
|------------|--------------------|-------------------------|--------------------------|-----------|------------------------|

| | |
|--|--|
| <p>Types of Oil at UK</p> <ul style="list-style-type: none"> • Gasoline • Fuel Oil • Used Oil • Animal Oil • Transformer Oil • Hydraulic Oil • Motor Oil | <p>Types of Oil Storage at UK</p> <ul style="list-style-type: none"> • Aboveground Tanks • Underground Tanks • Hydraulic Elevator Reservoirs • Electrical Transformers • Motor Vehicle Shops • Waste Oil Collection Locations • Waste Cooking Oil Collection Tanks • Portable Containers > 55 gallons in various locations |
|--|--|

9

Part 2: UK-Specific Topics

What are the oil spill procedures in place at UK facilities?

General Spill Clean Up Procedures*

- Take action to stop the discharge, if safe.
- Notify your supervisor immediately.
- Determine the magnitude of the spill.
- Notify the UK Environmental Management Dept. immediately, if necessary.
- Obtain the on-site spill kit and protect all drains, if safe.



*Also know the detailed spill response procedures for your facility and the Petroleum Spill Decision & Notification Chart as provided in your SPCC Plan.

10

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)

- Don appropriate Personal Protective Equipment (nitrile gloves, rubber boots)
- Identify and protect all drains and drainage areas from oil flow by:
 - Covering all drain grates with rubber drain protector mat
 - Placing oil absorbent socks around manholes, curb inlets, and any other drains
 - Placing absorbent material, oil absorbent socks, earth, or sand across any drainage ditches to which the oil may flow



11

Part 2: UK-Specific Topics

Post-Spill Clean Up Procedures – No Assistance Needed

If the spill is of such a size that it can be cleaned up by the operating department personnel safely, follow these steps:

Clean Up

- Place oil absorbent pads over the surface of the spill.
- Pour granular absorbent material around the perimeter of the spill.
- Work the granular material and the absorbent pads toward the center of the area using a shovel.
- Add additional pads or granular material as necessary to absorb all spilled material.

Disposal

- Pick up all material and place into an empty drum.
- Ensure that any impacted soil, etc., is also picked up and placed in the drum.
- Close the drum, label the drum as "Non-Regulated Waste – Oil Clean up"
- Contact the UK Environmental Management Dept. at 859-323-6280 for pick up.

12

Part 2: UK-Specific Topics

Post-Spill Clean Up Procedures - Assistance Needed

If the spill is of such a size that it can not be cleaned up by the operating department personnel safely, follow these steps by:

- Secure the area.
- Protect drains if possible.
- Await UK Environmental Management Dept. and outside assistance.
- Remain at the spill area to ensure it remains secure until assistance arrives.

13

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)

Some spills into the environment require "immediate" reporting to regulatory authorities, such as:

- Gasoline and other oils greater than 25 gallons.
- Diesel fuel greater than 75 gallons.
- Spills that create a sheen on the surface of water ways.

"immediate" regulatory reporting is assumed to be within 15 minutes of confirmation of the above spills!



The UK Environmental Management Dept. can assist in this notification - only if time allows.

14

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)



- Drainage of spilled oil can be through surface runoff, curb inlets, storm drains, or drainage ditches.
- Ensure familiarity with drainage pathways as identified in the plan.
- Drainage paths for each facility are identified in the *Figures* section of each individual SPCC plan.
- In the event of a spill, it is imperative to prevent runoff from entering nearby drainage areas.

15

Part 2: UK-Specific Topics

What operational and maintenance procedures are in place at UK to prevent oil spills?

Each facility will have appropriate operating procedures for oil handling processes to describe:

- Start up and shutdown
- Operating instructions for equipment
- Equipment testing requirements if necessary
- Loading and unloading of oil containers
 - ✓ Authorized persons to load and unload the container
 - ✓ Observations during the operation

16

Part 2: UK-Specific Topics

INSPECTIONS

- ✓ Must be performed monthly
- ✓ More comprehensive annual inspection
- ✓ Inspect containers, piping, containment, response equipment
- ✓ Ensure any deficiencies noted are corrected as scheduled
- ✓ Document using the monthly or annual inspection form
- ✓ Records must be maintained at the facility
- ✓ Some equipment such as UST's may require additional periodic testing and certification



17

PART 3 – Area Specific Topics

- What are the operating procedures for the area to prevent discharges and where are they located?
- Where are spill kits located?
- What are the discharge reporting procedures?
- Where is the oil located in the area?
- Where will oil flow if discharged (spill pathways)?

18

PART 3: Area Specific Topics

DISCHARGE CONTROL / CLEAN UP (SPCC Plan, Sections 7.6 and 7.7)

- Follow established area operating procedures to prevent spills and leaks
- Know spill kit location (usually near oil vessel)
- Inventory spill kit supplies annually and if used
- Protect drains
- Notify EMD immediately
- Clean up spills following departmental and UK procedures




19

PART 3: Area Specific Topics

SPILL DECISION MAKING AND REPORTING (SPCC Plan, Appendix A)




1. Notify EMD immediately, including, but not limited to, providing, identifying, describing, locating, assessing, assessing or recording of environmental impacts.

2. Notify the appropriate regulatory agency (e.g., EPA, state, local, tribal) as required by applicable laws, regulations, and/or permits (e.g., NPDES, RCRA, CERCLA, etc.).

3. Notify the appropriate insurance carrier (e.g., Pollution Legal Liability, etc.) as required by applicable laws, regulations, and/or permits (e.g., NPDES, RCRA, CERCLA, etc.).

4. Notify the appropriate regulatory agency (e.g., EPA, state, local, tribal) as required by applicable laws, regulations, and/or permits (e.g., NPDES, RCRA, CERCLA, etc.).

5. Notify the appropriate regulatory agency (e.g., EPA, state, local, tribal) as required by applicable laws, regulations, and/or permits (e.g., NPDES, RCRA, CERCLA, etc.).

6. Notify the appropriate regulatory agency (e.g., EPA, state, local, tribal) as required by applicable laws, regulations, and/or permits (e.g., NPDES, RCRA, CERCLA, etc.).

7. Notify the appropriate regulatory agency (e.g., EPA, state, local, tribal) as required by applicable laws, regulations, and/or permits (e.g., NPDES, RCRA, CERCLA, etc.).

8. Notify the appropriate regulatory agency (e.g., EPA, state, local, tribal) as required by applicable laws, regulations, and/or permits (e.g., NPDES, RCRA, CERCLA, etc.).

9. Notify the appropriate regulatory agency (e.g., EPA, state, local, tribal) as required by applicable laws, regulations, and/or permits (e.g., NPDES, RCRA, CERCLA, etc.).

10. Notify the appropriate regulatory agency (e.g., EPA, state, local, tribal) as required by applicable laws, regulations, and/or permits (e.g., NPDES, RCRA, CERCLA, etc.).

20

PART 3: Area Specific Topics (College of Agriculture – North Farm)

LOCATION OF OIL IN THE AREAS (SPCC Plan, Section 7.4)

College of Agriculture (North Farm)

| Source | Volume | Contents | Location |
|-------------------------------|-----------|--------------------|----------------------------------|
| Drain & Wash Area AST | 7,000 Ga. | Gasoline | Outside - North of Main Shop |
| Drain & Wash Area AST | 5,000 Ga. | Diesel | Outside - North of Main Shop |
| Storage Wash Area AST | 385 Ga. | Used Oil | Outside - Northeast of Main Shop |
| Round Vehicle Drum | 55 Ga. | Used Oil | Outside - Northeast of Main Shop |
| Round Vehicle Drum | 55 Ga. | Used Oil | Outside - Northeast of Main Shop |
| Round Vehicle Drum | 55 Ga. | Used Oil | Outside - Northeast of Main Shop |
| Drain & Wash Area AST | 250 Ga. | Used Oil | Inside Main Shop |
| Rear Engine - Horse Area Drum | 55 Ga. | Hydraulic Oil | Inside Main Shop |
| Rear Engine - Horse Area Drum | 55 Ga. | Hydraulic Oil | Inside Main Shop |
| Rear Engine - Horse Area Drum | 55 Ga. | Transmission Fluid | Inside Main Shop |
| Rear Engine - Horse Area Drum | 55 Ga. | Transmission Fluid | Inside Main Shop |
| Rear Engine - Horse Area Drum | 55 Ga. | Antifreeze | Inside Main Shop |
| Rear Engine - Horse Area Drum | 55 Ga. | Antifreeze | Inside Main Shop |
| Rear Engine - Horse Area Drum | 55 Ga. | Engine Oil | Inside Main Shop |

21

PART 3: Area Specific Topics (College of Agriculture – North Farm)

LOCATION OF OIL IN THE AREAS (SPCC Plan, Section 7.4)

College of Agriculture (North Farm)

| Source | Volume | Contents | Location |
|-----------------------------|---------|-----------------|------------------|
| Rectangular Horse Area Drum | 55 Ga. | Engine Oil | Inside Main Shop |
| Rectangular Horse Area Drum | 55 Ga. | Engine Oil | Inside Main Shop |
| Rectangular Horse Area Drum | 55 Ga. | Engine Oil | Inside Main Shop |
| Rectangular Horse Area Drum | 55 Ga. | Engine Oil | Inside Main Shop |
| Rectangular Horse Area Drum | 55 Ga. | Engine Oil | Inside Main Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main Shop |
| AST | 80 Gal. | Used Oil | Inside Farm Shop |
| Drain & Wash Area AST | 250 Ga. | Engine Oil | Inside Farm Shop |

22

PART 3: Area Specific Topics (College of Agriculture – North Farm)

LOCATION OF OIL IN THE AREAS (SPCC Plan, Section 7.4)

College of Agriculture (North Farm)

| Source | Volume | Contents | Location |
|-----------------------|----------|----------------------------|-----------------------------------|
| Drain & Wash Area AST | 250 Ga. | Hydraulic Oil | Inside Farm Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Farm Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Farm Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Farm Shop |
| Concrete Basement AST | 500 Gal. | Gasoline | Outside - Northwest of Sand House |
| Concrete Basement AST | 500 Gal. | Diesel | Outside - Northwest of Sand House |
| Generator | 200 Gal. | Diesel | Behind the Greenhouse |
| Round Vehicle Drum | 55 Gal. | DEF (Diesel Exhaust Fluid) | Inside Shop near Bay Doors |
| Round Vehicle Drum | 55 Gal. | DEF (Diesel Exhaust Fluid) | Inside Shop near Bay Doors |

Total: Up to 16,220 gallons

23

PART 3: Area Specific Topics (College of Agriculture – Woodford County Farm)

LOCATION OF OIL IN THE AREAS (SPCC Plan, Section 7.4)

College of Agriculture (Woodford County Farm)

| Source | Volume | Contents | Location |
|----------------------------|-----------|----------------------------|--------------------------------------|
| Drain & Wash Area AST | 1,000 Ga. | Gasoline | Outside - West of Main entrance Shop |
| Drain & Wash Area AST | 2,000 Ga. | Diesel | Outside - West of Main entrance Shop |
| Portable Tank - Water Cage | 400 Ga. | Used Oil | Inside Main entrance Shop |
| Drain & Wash Area AST | 250 Ga. | Engine Oil | Inside Main entrance Shop |
| Drain & Wash Area AST | 250 Ga. | Hydraulic Oil | Inside Main entrance Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main entrance Shop |
| Round Vehicle Drum | 55 Ga. | Lubricating Oil | Inside Main entrance Shop |
| Round Vehicle Drum | 55 Ga. | DEF (Diesel Exhaust Fluid) | Outside - Under Dispenser Canopy |
| Generator | 200 Ga. | Diesel | Outside - Northeast of Field M |

24



25



26



27



**University of
Kentucky**

Contact the UK Environmental
Management Dept. for further
information:

Kevin Lewis
Water Quality Compliance Manager
257-0093
kevin.lewis@uky.edu



28

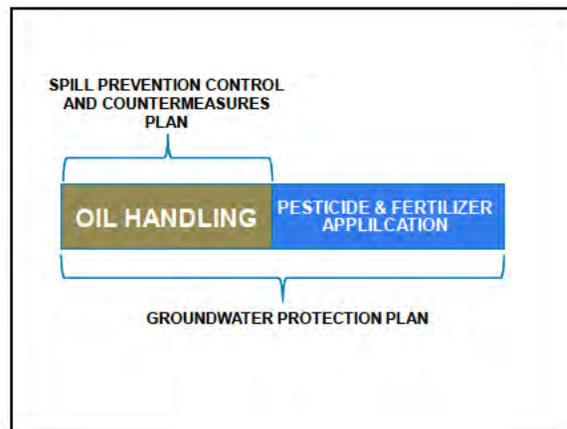


University of Kentucky

TRAINING FOR UK ATHLETICS

- SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN
- **GROUNDWATER PROTECTION PLAN**

1



2



University of Kentucky

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN



A Training Module for UK Employees who Handle Oil and Oil Products

3

SPCC PLAN TRAINING TOPICS & OBJECTIVES

40 CFR 112.7(f)

PART 1: General Awareness Topics

OBJECTIVES

- o To understand what an SPCC Plan is, its contents, and requirements for updates.
- o To understand the applicable laws, rules and regulations regarding oil spills.

PART 2: UK-Specific Topics

OBJECTIVES

- o To understand the general oil-handling operations at UK facilities.
- o To understand oil spill procedures at UK facilities.
- o To understand the operational/maintenance procedures in place at UK to prevent oil spills.

PART 3: Area Specific Topics

OBJECTIVES

- o To understand locations of oil in the area.
- o To understand discharge control and spill clean-up equipment locations and use.
- o To understand the spill pathways for area and reporting obligations.
- o To understand the specific area operating procedures.

4

PART 1: General Awareness Topics

- o What is an SPCC Plan?
- o What are the contents of an SPCC Plan?
- o What are the requirements for updating an SPCC Plan?
- o What are the applicable laws, rules and regulations regarding oil spills?

5

Part 1: General Awareness Topics

What is an SPCC Plan?

A document which must be maintained by certain oil-handling facilities that describes:

- Spill containment and procedures to prevent oil* discharges.
- Control measures to keep oil discharges from entering the waters of the U.S.
- Countermeasures to contain, clean up and mitigate any oil discharge (spill response measures).



*Oil is defined as:

- Petroleum and non-petroleum based
- Crude Oil
- Refined Products
- Animal Fats
- Vegetable oils

6

Part 1: General Awareness Topics

What are the contents of an SPCC Plan?

| | |
|--|---------------------------------|
| 1. Background and technical approach for preparation | 8. Amendment of SPCC Plan by UK |
| 2. Applicability | 7. General Requirements |
| 3. Definitions | 8. SPCC Plan Requirements |
| 4. Requirements to Prepare and Implement a SPCC Plan | 9. Facility Response Plan |
| 5. Amendment of SPCC Plan by EPA | Figures and Appendices |

7

Part 1: General Awareness Topics

What are the requirements for updating an SPCC Plan?

- Must be amended if facility changes occur.
- Must be reviewed at least every 5 years.
- Must be prepared based on Good Engineering Practices.
- Must be certified by a Professional Engineer.
- Requires management approval for implementation.
- Requires routine inspections.
- Requires annual training for persons handling oil.

8

Part 1: General Awareness Topics

What are the applicable laws, rules and regulations regarding oil spills?

Regulations!

- The SPCC rule is part of the U.S. EPA's oil spill prevention program originally published in 1973 under the statutory authority of §311 of the Federal Pollution Control Act (i.e., the Clean Water Act).
- The federal regulatory authority may be found at Title 40, Code of Federal Regulations, Part 112.
- Kentucky's rules for oil spills also includes additional release notification requirements.

9

PART 2 – UK-Specific Topics

- What are the oil-handling facilities at UK?
- What are the oil spill procedures in place at UK facilities?
- What operational and maintenance procedures are in place at UK to prevent oil spills?

10

Part 2: UK-Specific Topics

What are the oil-handling facilities at UK?

| | |
|--|--|
| <p><u>Types of Oil at UK</u></p> <ul style="list-style-type: none"> • Gasoline • Fuel Oil • Used Oil • Animal Oil • Transformer Oil • Hydraulic Oil • Motor Oil | <p><u>Types of Oil Storage at UK</u></p> <ul style="list-style-type: none"> • Aboveground Tanks • Underground Tanks • Hydraulic Elevator Reservoirs • Electrical Transformers • Motor Vehicle Shops • Waste Oil Collection Locations • Waste Cooking Oil Collection Tanks • Portable Containers > 55 gallons in various locations |
|--|--|

11

Part 2: UK-Specific Topics

What are the oil spill procedures in place at UK facilities?

General Spill Clean Up Procedures*

- Take action to stop the discharge, if safe.
- Notify your supervisor immediately.
- Determine the magnitude of the spill.
- Notify the UK Environmental Management Dept. immediately, if necessary.
- Obtain the on-site spill kit and protect all drains, if safe.

*Also know the detailed spill response procedures for your facility and the Petroleum Spill Decision & Notification Chart as provided in your SPCC Plan.

12

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)

- Don appropriate Personal Protective Equipment (nitrile gloves, rubber boots)
- Identify and protect all drains and drainage areas from oil flow by:
 - ❑ Covering all drain grates with rubber drain protector mat
 - ❑ Placing oil absorbent socks around manholes, curb inlets, and any other drains
 - ❑ Placing absorbent material, oil absorbent socks, earth, or sand across any drainage ditches to which the oil may flow



13

Part 2: UK-Specific Topics

Post-Spill Clean Up Procedures – No Assistance Needed

If the spill is of such a size that it can be cleaned up by the operating department personnel safely, follow these steps:

Clean Up

- Place oil absorbent pads over the surface of the spill.
- Pour granular absorbent material around the perimeter of the spill.
- Work the granular material and the absorbent pads toward the center of the area using a shovel.
- Add additional pads or granular material as necessary to absorb all spilled material.

Disposal

- Pick up all material and place into an empty drum.
- Ensure that any impacted soil, etc., is also picked up and placed in the drum.
- Close the drum, label the drum as "Non-Regulated Waste – Oil Clean up"
- Contact the UK Environmental Management Dept. at 859-323-6280 for pick up.

14

Part 2: UK-Specific Topics

Post-Spill Clean Up Procedures – Assistance Needed

If the spill is of such a size that it can not be cleaned up by the operating department personnel safely, follow these steps by:

- ❑ Secure the area.
- ❑ Protect drains if possible.
- ❑ Await UK Environmental Management Dept. and outside assistance.
- ❑ Remain at the spill area to ensure it remains secure until assistance arrives.

15

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)

Some spills into the environment require "immediate" reporting to regulatory authorities, such as:

- Gasoline and other oils greater than 25 gallons.
- Diesel fuel greater than 75 gallons.
- Spills that create a sheen on the surface of water ways.

"immediate" regulatory reporting is assumed to be within 15 minutes of confirmation of the above spills!



The UK Environmental Management Dept. can assist in this notification - only if time allows.

16

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)



- Drainage of spilled oil can be through surface runoff, curb inlets, storm drains, or drainage ditches.
- Ensure familiarity with drainage pathways as identified in the plan.
- Drainage paths for each facility are identified in the *Figures* section of each individual SPCC plan.
- In the event of a spill, it is imperative to prevent runoff from entering nearby drainage areas.

17

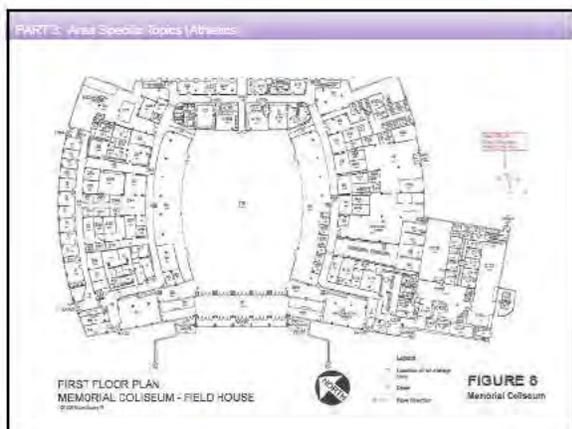
Part 2: UK-Specific Topics

What operational and maintenance procedures are in place at UK to prevent oil spills?

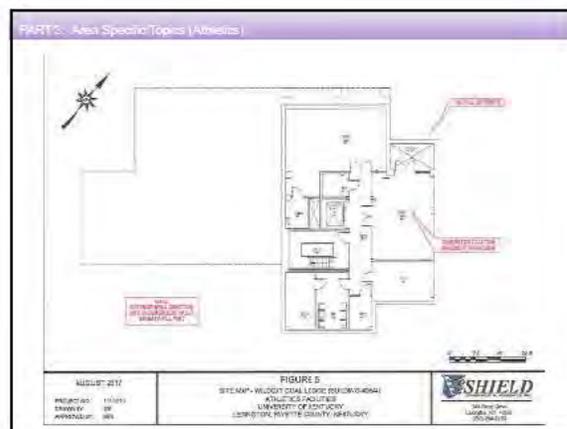
Each facility will have appropriate operating procedures for oil handling processes to describe:

- Start up and shutdown
- Operating instructions for equipment
- Equipment testing requirements if necessary
- Loading and unloading of oil containers
 - ✓ Authorized persons to load and unload the container
 - ✓ Observations during the operation

18



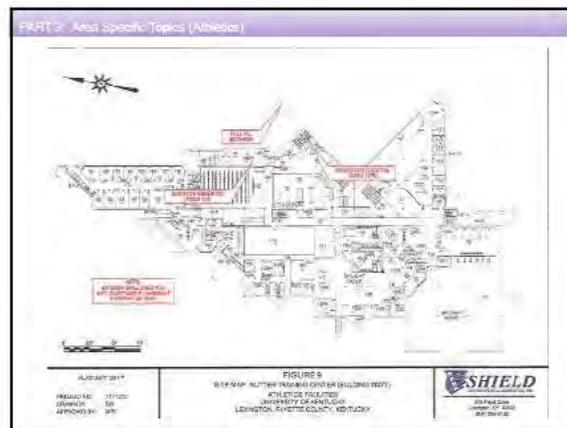
25



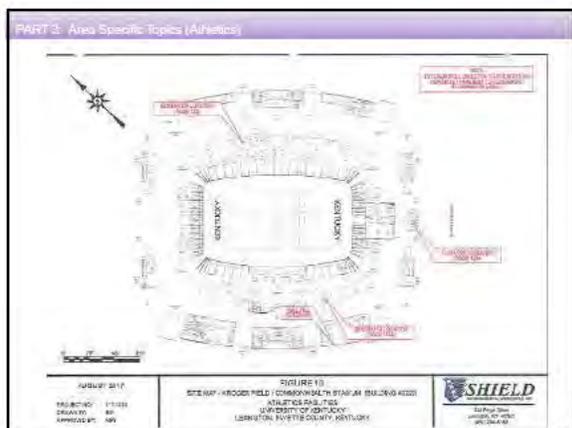
26



27



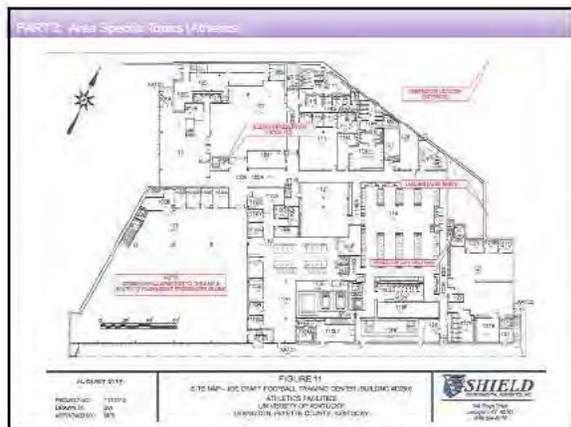
28



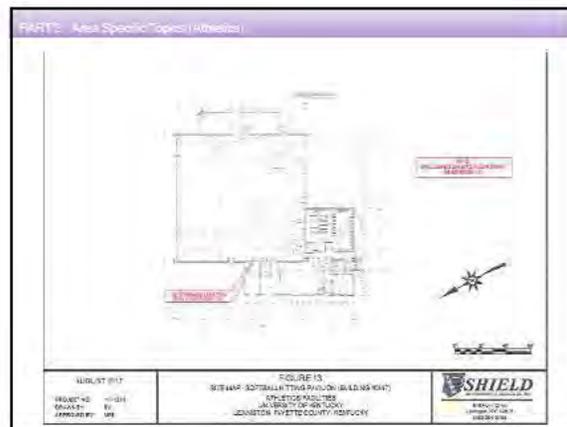
29



30



31



32



GROUNDWATER PROTECTION (GP) PLAN

A Supplement to the SPCC Plan Training Module for UK Athletics Employees who also Manage Fertilizers & Pesticides

33

GP PLAN TRAINING TOPICS & OBJECTIVES

401 KAR Chapter 5

PART 1: Content

OBJECTIVE

- To understand the GP Plan.

PART 2: Awareness

OBJECTIVE

- To understand the importance of a GP Plan.

PART 3: Record Retention

OBJECTIVES

- To understand the activities that have the potential to impact groundwater quality.
- To understand the inspection schedule for those activities.
- To understand the spill response measures related to those activities.

34

Part 1: Contents

What are the contents of a GP Plan?

| | |
|---|---|
| <ol style="list-style-type: none"> 1. General Information 2. Activities that have the Potential to Pollute Groundwater 3. Practices Selected to Protect Groundwater from Pollution 4. Implementation Schedule 5. Employee Training | <ol style="list-style-type: none"> 6. Inspection Schedule 7. Certification Statement 8. Record Retention Recertification & Revision Figure & Tables Appendix 1 Appendix 2 Appendix 3 Appendix 4 |
|---|---|

35

Part 2: Awareness

What is the importance of a GP Plan?

A GP Plan identifies the activities being conducted at a site that have the potential to pollute groundwater and states the practices that will be used to prevent groundwater pollution. The GP Plan must include all activities being conducted at a site that are subjected to 401 KAR 5.037.

Table 1. Registered Activities at UK

| | Activity | Regulatory Citation |
|----------------------|--|-----------------------------|
| GP Plan | Methods or fertilizer application for institutional lawn care | 401 KAR 5.037, Sec. 2(2)(c) |
| | Storage, treatment, disposal, or handling of hazardous waste, solid waste, or special waste in drums, or other containers | 401 KAR 5.037, Sec. 2(2)(f) |
| Covered In SPCC Plan | Commercial storage or related handling in bulk quantities of raw materials, intermediate substances or products, finished products, substances held for recycling, or other pollutants held in tanks, drums, or other containers or in piles | 401 KAR 5.037, Sec. 2(2)(g) |
| | Storage or related handling of descing agents at a central location | 401 KAR 5.037, Sec. 2(2)(h) |
| | Application or related handling of descing materials | 401 KAR 5.037, Sec. 2(2)(k) |

36

GP Plan Practices for Pesticide or Fertilizer Application
****** Appendix 1 ******

- Follow established area operating procedures to prevent spills and leaks (App. 1 - pg. A1-5)
- Know spill kit location
- Inventory spill kit supplies annually and if used
- Protect drains
- Notify EMD immediately
- Clean up spills following departmental and UK procedures

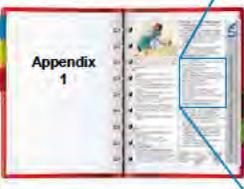


The image shows a checklist titled 'Appendix 1' with three items: '- Do', '- Don't', and '- Checklist'. Below the checklist is a yellow spill kit with various supplies like absorbent pads and a bucket.

37

GP Practices for Pesticide or Fertilizer Application
****** Appendix 1 ******

- Check EACH delivery shipment & do not accept leaking containers.
- Check chemical mixing & spraying operations WEEKLY.
- Check equipment including sprayers & pumps WEEKLY during application season.
- Check chemicals spill kits MONTHLY & promptly restock after use.
- Check chemical storage location ANNUALLY.
- Review chemical handling procedures ANNUALLY.
- Ensure SDSs are current & available ANNUALLY.
- Ensure personnel handling & applying chemicals are trained & licensed.



The image shows a checklist titled 'Appendix 1' with several items, including 'Check EACH delivery shipment & do not accept leaking containers.' and 'Check chemical mixing & spraying operations WEEKLY.'

38



University of Kentucky

Contact the UK Environmental Management Dept. for further information:

Ron Taylor
 Assistant Director
 257-3129
 ron.taylor@uky.edu

39

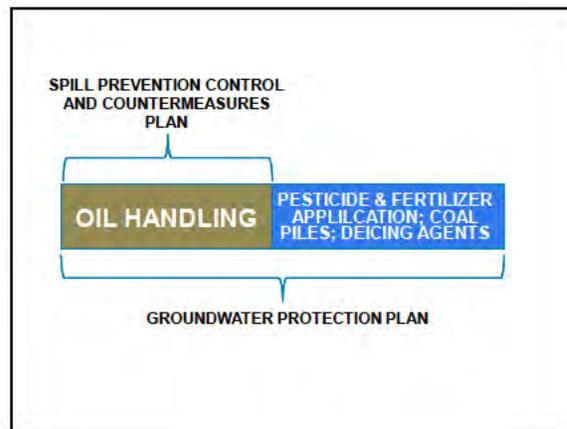


University of Kentucky

TRAINING FOR UK FACILITIES MANAGEMENT

- SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN
- **GROUNDWATER PROTECTION PLAN**

1



2



University of Kentucky

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN



A Training Module for UK Employees who Handle Oil and Oil Products

3

TOPICS & OBJECTIVES

40 CFR 112.7(f)

PART 1: General Awareness Topics

OBJECTIVES

- o To understand what an SPCC Plan is, its contents, and requirements for updates.
- o To understand the applicable laws, rules and regulations regarding oil spills.

PART 2: UK-Specific Topics

OBJECTIVES

- o To understand the general oil-handling operations at UK facilities.
- o To understand oil spill procedures at UK facilities.
- o To understand the operational/maintenance procedures in place at UK to prevent oil spills.

PART 3: Area Specific Topics

OBJECTIVES

- o To understand locations of oil in the area.
- o To understand discharge control and spill clean-up equipment locations and use.
- o To understand the spill pathways for area and reporting obligations.
- o To understand the specific area operating procedures.

4

PART 1: General Awareness Topics

- o What is an SPCC Plan?
- o What are the contents of an SPCC Plan?
- o What are the requirements for updating an SPCC Plan?
- o What are the applicable laws, rules and regulations regarding oil spills?

5

Part 1: General Awareness Topics

What is an SPCC Plan?

A document which must be maintained by certain oil-handling facilities that describes:

- Spill containment and procedures to prevent oil* discharges.
- Control measures to keep oil discharges from entering the waters of the U.S.
- Countermeasures to contain, clean up and mitigate any oil discharge (spill response measures).



*Oil is defined as:

- Petroleum and non-petroleum based
- Crude Oil
- Refined Products
- Animal Fats
- Vegetable oils

6

Part 1: General Awareness Topics

What are the contents of an SPCC Plan?

| | |
|--|---------------------------------|
| 1. Background and technical approach for preparation | 8. Amendment of SPCC Plan by UK |
| 2. Applicability | 7. General Requirements |
| 3. Definitions | 8. SPCC Plan Requirements |
| 4. Requirements to Prepare and Implement a SPCC Plan | 9. Facility Response Plan |
| 5. Amendment of SPCC Plan by EPA | Figures and Appendices |

7

Part 1: General Awareness Topics

What are the requirements for updating an SPCC Plan?

- Must be amended if facility changes occur.
- Must be reviewed at least every 5 years.
- Must be prepared based on Good Engineering Practices.
- Must be certified by a Professional Engineer.
- Requires management approval for implementation.
- Requires routine inspections.
- Requires annual training for persons handling oil.

8

Part 1: General Awareness Topics

What are the applicable laws, rules and regulations regarding oil spills?

Regulations!

- The SPCC rule is part of the U.S. EPA's oil spill prevention program originally published in 1973 under the statutory authority of §311 of the Federal Pollution Control Act (i.e., the Clean Water Act).
- The federal regulatory authority may be found at Title 40, Code of Federal Regulations, Part 112.
- Kentucky's rules for oil spills also includes additional release notification requirements.

9

PART 2 – UK-Specific Topics

- What are the oil-handling facilities at UK?
- What are the oil spill procedures in place at UK facilities?
- What operational and maintenance procedures are in place at UK to prevent oil spills?

10

Part 2: UK-Specific Topics

What are the oil-handling facilities at UK?

| | |
|--|--|
| <p><u>Types of Oil at UK</u></p> <ul style="list-style-type: none"> • Gasoline • Fuel Oil • Used Oil • Animal Oil • Transformer Oil • Hydraulic Oil • Motor Oil | <p><u>Types of Oil Storage at UK</u></p> <ul style="list-style-type: none"> • Aboveground Tanks • Underground Tanks • Hydraulic Elevator Reservoirs • Electrical Transformers • Motor Vehicle Shops • Waste Oil Collection Locations • Waste Cooking Oil Collection Tanks • Portable Containers > 55 gallons in various locations |
|--|--|

11

Part 2: UK-Specific Topics

What are the oil spill procedures in place at UK facilities?

General Spill Clean Up Procedures*

- Take action to stop the discharge, if safe.
- Notify your supervisor immediately.
- Determine the magnitude of the spill.
- Notify the UK Environmental Management Dept. immediately, if necessary.
- Obtain the on-site spill kit and protect all drains, if safe.

*Also know the detailed spill response procedures for your facility and the Petroleum Spill Decision & Notification Chart as provided in your SPCC Plan.

12

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)

- Don appropriate Personal Protective Equipment (nitrile gloves, rubber boots)
- Identify and protect all drains and drainage areas from oil flow by:
 - ❑ Covering all drain grates with rubber drain protector mat
 - ❑ Placing oil absorbent socks around manholes, curb inlets, and any other drains
 - ❑ Placing absorbent material, oil absorbent socks, earth, or sand across any drainage ditches to which the oil may flow



13

Part 2: UK-Specific Topics

Post-Spill Clean Up Procedures – No Assistance Needed

If the spill is of such a size that it can be cleaned up by the operating department personnel safely, follow these steps:

Clean Up

- Place oil absorbent pads over the surface of the spill.
- Pour granular absorbent material around the perimeter of the spill.
- Work the granular material and the absorbent pads toward the center of the area using a shovel.
- Add additional pads or granular material as necessary to absorb all spilled material.

Disposal

- Pick up all material and place into an empty drum.
- Ensure that any impacted soil, etc., is also picked up and placed in the drum.
- Close the drum, label the drum as "Non-Regulated Waste – Oil Clean up"
- Contact the UK Environmental Management Dept. at 859-323-6280 for pick up.

14

Part 2: UK-Specific Topics

Post-Spill Clean Up Procedures – Assistance Needed

If the spill is of such a size that it can not be cleaned up by the operating department personnel safely, follow these steps by:

- ❑ Secure the area.
- ❑ Protect drains if possible.
- ❑ Await UK Environmental Management Dept. and outside assistance.
- ❑ Remain at the spill area to ensure it remains secure until assistance arrives.

15

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)

Some spills into the environment require "immediate" reporting to regulatory authorities, such as:

- Gasoline and other oils greater than 25 gallons.
- Diesel fuel greater than 75 gallons.
- Spills that create a sheen on the surface of water ways.

"immediate" regulatory reporting is assumed to be within 15 minutes of confirmation of the above spills!



The UK Environmental Management Dept. can assist in this notification - only if time allows.

16

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)



- Drainage of spilled oil can be through surface runoff, curb inlets, storm drains, or drainage ditches.
- Ensure familiarity with drainage pathways as identified in the plan.
- Drainage paths for each facility are identified in the *Figures* section of each individual SPCC plan.
- In the event of a spill, it is imperative to prevent runoff from entering nearby drainage areas.

17

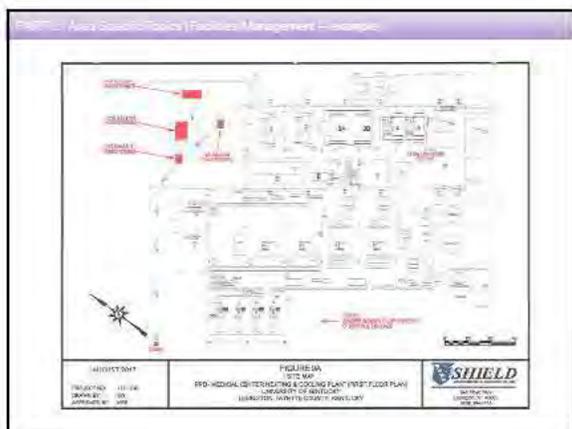
Part 2: UK-Specific Topics

What operational and maintenance procedures are in place at UK to prevent oil spills?

Each facility will have appropriate operating procedures for oil handling processes to describe:

- Start up and shutdown
- Operating instructions for equipment
- Equipment testing requirements if necessary
- Loading and unloading of oil containers
 - ✓ Authorized persons to load and unload the container
 - ✓ Observations during the operation

18



25

GROUNDWATER PROTECTION (GP) PLAN

A Supplement to the SPCC Plan Training Module for UK Facilities Management Employees who also Manage Fertilizers & Pesticides; Coal Piles; Deicing Agents

26

GP PLAN TRAINING TOPICS & OBJECTIVES

401 KAR Chapter 5

PART 1: Content

OBJECTIVE

- To understand the GP Plan.

PART 2: Awareness

OBJECTIVE

- To understand the importance of a GP Plan.

PART 3: Responsibilities

OBJECTIVES

- To understand the activities that have the potential to impact groundwater quality.
- To understand the inspection schedule for those activities.
- To understand the spill response measures related to those activities.

27

Part 1: Contents

What are the contents of a GP Plan?

| | | |
|--|----|--|
| 1. General Information | C1 | 6. Inspection Schedule |
| 2. Activities that have the Potential to Pollute Groundwater | C1 | 7. Certification Statement |
| 3. Practices Selected to Protect Groundwater from Pollution | C1 | 8. Record Retention |
| 4. Implementation Schedule | C1 | Recertification & Revision Figure & Tables |
| 5. Employee Training | C1 | Appendix 1 |
| | | Appendix 2 |
| | | Appendix 3 |
| | | Appendix 4 |

28

Part 2: Awareness

What is the importance of a GP Plan?

A GP Plan identifies the activities being conducted at a site that have the potential to pollute groundwater and states the practices that will be used to prevent groundwater pollution. The GP Plan must include all activities being conducted at a site that are subjected to 401 KAR 5.037.

| Activity | Regulatory Citation |
|--|---------------------------|
| Pesticide or fertilizer application for institutional lawn care | 401 KAR 5.037, Sec. 22(k) |
| Storage, treatment, disposal, or handling of hazardous waste, solid waste, or special waste in drums, or other containers | 401 KAR 5.037, Sec. 22(i) |
| Commercial storage or related handling in bulk quantities of raw materials, intermediate substances or products, finished products, substances held for recycling, or other pollutants held in tanks, drums, or other containers or in piles | 401 KAR 5.037, Sec. 22(k) |
| Storage or related handling of deicing agents at a central location | 401 KAR 5.037, Sec. 22(k) |
| Application or related handling of deicing materials | 401 KAR 5.037, Sec. 22(k) |

29

Part 3: Responsibilities

GP Plan Practices for Managing Pesticides or Fertilizers; Coal Piles; Deicing Agents

Appendices 1, 3, and 4

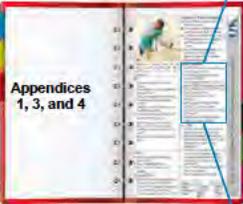
- Follow established area operating procedures to prevent spills and leaks (App. 1, 3, 4 pg. A1-A5; A3-1 through A4-3)
- Know spill kit location
- Inventory spill kit supplies annually and if used
- Protect drains
- Notify EMD immediately
- Clean up spills following departmental and UK procedures

30

Policy Responsibilities

GP Practices for Managing Pesticides or Fertilizers; Coal Piles; Deicing Agents (**** Appendices 1, 3, and 4 ****)

Example



Appendices 1, 3, and 4

- Check EACH delivery shipment & do not accept leaking containers.
- Check chemical mixing & spraying operations WEEKLY.
- Check salt pads, domes, or sheds DAILY for proper cover and integrity when in use and MONTHLY when not in use.
- Check salt storage areas DAILY when in use and WEEKLY when not in use for white runoff
- Check equipment including sprayers & pumps WEEKLY during application season.
- Check chemical spill kits MONTHLY & promptly restock after use.
- Check coal storage areas MONTHLY - clean filtration systems and sweep the area.
- Review chemical handling procedures ANNUALLY.
- Ensure SDSs are current & available ANNUALLY.

31



University of Kentucky

Contact the UK Environmental Management Department, for further information:

Ron Taylor
Assistant Director
257-3129
ron.taylor@uky.edu

32

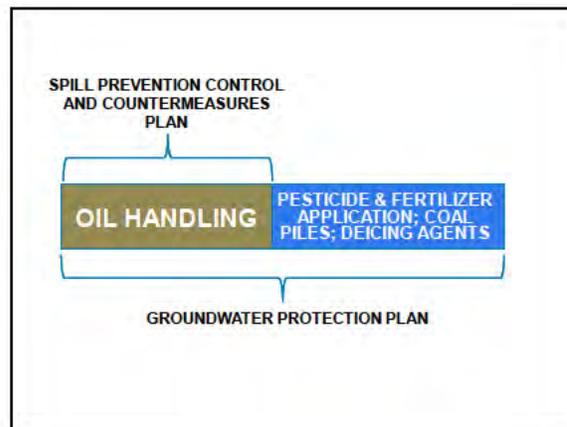


University of Kentucky

TRAINING FOR UK FACILITIES MANAGEMENT

- SPILL PREVENTION CONTROL AND COUNTERMEASURES PLAN
- **GROUNDWATER PROTECTION PLAN**

1



2



University of Kentucky

SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN



A Training Module for UK Employees who Handle Oil and Oil Products

3

TOPICS & OBJECTIVES

40 CFR 112.7(f)

PART 1: General Awareness Topics

OBJECTIVES

- o To understand what an SPCC Plan is, its contents, and requirements for updates.
- o To understand the applicable laws, rules and regulations regarding oil spills.

PART 2: UK-Specific Topics

OBJECTIVES

- o To understand the general oil-handling operations at UK facilities.
- o To understand oil spill procedures at UK facilities.
- o To understand the operational/maintenance procedures in place at UK to prevent oil spills.

PART 3: Area Specific Topics

OBJECTIVES

- o To understand locations of oil in the area.
- o To understand discharge control and spill clean-up equipment locations and use.
- o To understand the spill pathways for area and reporting obligations.
- o To understand the specific area operating procedures.

4

PART 1: General Awareness Topics

- o What is an SPCC Plan?
- o What are the contents of an SPCC Plan?
- o What are the requirements for updating an SPCC Plan?
- o What are the applicable laws, rules and regulations regarding oil spills?

5

Part 1: General Awareness Topics

What is an SPCC Plan?

A document which must be maintained by certain oil-handling facilities that describes:

- Spill containment and procedures to prevent oil* discharges.
- Control measures to keep oil discharges from entering the waters of the U.S.
- Countermeasures to contain, clean up and mitigate any oil discharge (spill response measures).



*Oil is defined as:

- Petroleum and non-petroleum based
- Crude Oil
- Refined Products
- Animal Fats
- Vegetable oils

6

Part 1: General Awareness Topics

What are the contents of an SPCC Plan?

| | |
|--|---------------------------------|
| 1. Background and technical approach for preparation | 8. Amendment of SPCC Plan by UK |
| 2. Applicability | 7. General Requirements |
| 3. Definitions | 8. SPCC Plan Requirements |
| 4. Requirements to Prepare and Implement a SPCC Plan | 9. Facility Response Plan |
| 5. Amendment of SPCC Plan by EPA | Figures and Appendices |

7

Part 1: General Awareness Topics

What are the requirements for updating an SPCC Plan?

- Must be amended if facility changes occur.
- Must be reviewed at least every 5 years.
- Must be prepared based on Good Engineering Practices.
- Must be certified by a Professional Engineer.
- Requires management approval for implementation.
- Requires routine inspections.
- Requires annual training for persons handling oil.

8

Part 1: General Awareness Topics

What are the applicable laws, rules and regulations regarding oil spills?

Regulations!

- The SPCC rule is part of the U.S. EPA's oil spill prevention program originally published in 1973 under the statutory authority of §311 of the Federal Pollution Control Act (i.e., the Clean Water Act).
- The federal regulatory authority may be found at Title 40, Code of Federal Regulations, Part 112.
- Kentucky's rules for oil spills also includes additional release notification requirements.

9

PART 2 – UK-Specific Topics

- What are the oil-handling facilities at UK?
- What are the oil spill procedures in place at UK facilities?
- What operational and maintenance procedures are in place at UK to prevent oil spills?

10

Part 2: UK-Specific Topics

What are the oil-handling facilities at UK?

| | |
|--|--|
| <p><u>Types of Oil at UK</u></p> <ul style="list-style-type: none"> • Gasoline • Fuel Oil • Used Oil • Animal Oil • Transformer Oil • Hydraulic Oil • Motor Oil | <p><u>Types of Oil Storage at UK</u></p> <ul style="list-style-type: none"> • Aboveground Tanks • Underground Tanks • Hydraulic Elevator Reservoirs • Electrical Transformers • Motor Vehicle Shops • Waste Oil Collection Locations • Waste Cooking Oil Collection Tanks • Portable Containers > 55 gallons in various locations |
|--|--|

11

Part 2: UK-Specific Topics

What are the oil spill procedures in place at UK facilities?

General Spill Clean Up Procedures*

- Take action to stop the discharge, if safe.
- Notify your supervisor immediately.
- Determine the magnitude of the spill.
- Notify the UK Environmental Management Dept. immediately, if necessary.
- Obtain the on-site spill kit and protect all drains, if safe.

*Also know the detailed spill response procedures for your facility and the Petroleum Spill Decision & Notification Chart as provided in your SPCC Plan.

12

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)

- Don appropriate Personal Protective Equipment (nitrile gloves, rubber boots)
- Identify and protect all drains and drainage areas from oil flow by:
 - ❑ Covering all drain grates with rubber drain protector mat
 - ❑ Placing oil absorbent socks around manholes, curb inlets, and any other drains
 - ❑ Placing absorbent material, oil absorbent socks, earth, or sand across any drainage ditches to which the oil may flow



13

Part 2: UK-Specific Topics

Post-Spill Clean Up Procedures – No Assistance Needed

If the spill is of such a size that it can be cleaned up by the operating department personnel safely, follow these steps:

Clean Up

- Place oil absorbent pads over the surface of the spill.
- Pour granular absorbent material around the perimeter of the spill.
- Work the granular material and the absorbent pads toward the center of the area using a shovel.
- Add additional pads or granular material as necessary to absorb all spilled material.

Disposal

- Pick up all material and place into an empty drum.
- Ensure that any impacted soil, etc., is also picked up and placed in the drum.
- Close the drum, label the drum as "Non-Regulated Waste – Oil Clean up"
- Contact the UK Environmental Management Dept. at 859-323-6280 for pick up.

14

Part 2: UK-Specific Topics

Post-Spill Clean Up Procedures – Assistance Needed

If the spill is of such a size that it can not be cleaned up by the operating department personnel safely, follow these steps by:

- ❑ Secure the area.
- ❑ Protect drains if possible.
- ❑ Await UK Environmental Management Dept. and outside assistance.
- ❑ Remain at the spill area to ensure it remains secure until assistance arrives.

15

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)

Some spills into the environment require "immediate" reporting to regulatory authorities, such as:

- Gasoline and other oils greater than 25 gallons.
- Diesel fuel greater than 75 gallons.
- Spills that create a sheen on the surface of water ways.

"immediate" regulatory reporting is assumed to be within 15 minutes of confirmation of the above spills!



The UK Environmental Management Dept. can assist in this notification - only if time allows.

16

Part 2: UK-Specific Topics

SPILL RESPONSE PROCEDURES (continued)



- Drainage of spilled oil can be through surface runoff, curb inlets, storm drains, or drainage ditches.
- Ensure familiarity with drainage pathways as identified in the plan.
- Drainage paths for each facility are identified in the *Figures* section of each individual SPCC plan.
- In the event of a spill, it is imperative to prevent runoff from entering nearby drainage areas.

17

Part 2: UK-Specific Topics

What operational and maintenance procedures are in place at UK to prevent oil spills?

Each facility will have appropriate operating procedures for oil handling processes to describe:

- Start up and shutdown
- Operating instructions for equipment
- Equipment testing requirements if necessary
- Loading and unloading of oil containers
 - ✓ Authorized persons to load and unload the container
 - ✓ Observations during the operation

18

Part 2: UK-Specific Topics

INSPECTIONS

- ✓ Must be performed monthly
- ✓ More comprehensive annual inspection
- ✓ Inspect containers, piping, containment, response equipment
- ✓ Ensure any deficiencies noted are corrected as scheduled
- ✓ Document using the monthly or annual inspection form
- ✓ Records must be maintained at the facility
- ✓ Some equipment such as UST's may require additional periodic testing and certification



19

PART 3 – Area Specific Topics

- What are the operating procedures for the area to prevent discharges and where are they located?
- Where are spill kits located?
- What are the discharge reporting procedures?
- Where is the oil located in the area?
- Where will oil flow if discharged (spill pathways)?

20

Part 3: Area Specific Topics

DISCHARGE CONTROL / CLEAN UP (SPCC Plan, Sections 7.6 and 7.7)

- Follow established area operating procedures to prevent spills and leaks
- Know spill kit location (usually near oil vessel)
- Inventory spill kit supplies annually and if used
- Protect drains
- Notify EMD immediately
- Clean up spills following departmental and UK procedures

Operating Procedures

Spill Clean up Procedures



21

Part 3: Area Specific Topics

SPILL DECISION MAKING AND REPORTING (SPCC Plan, Appendix A)



| Spill Type | Spill Decision Matrix | Spill Response |
|-----------------------------------|--|---|
| Minor Spill (Less than 5 gallons) | 1. Stop the release immediately. 2. Contain the spill. 3. Clean up the spill. 4. Report the spill to the supervisor. | 1. Notify the supervisor. 2. Notify the EMD. 3. Notify the fire department. |
| Major Spill (5 gallons or more) | 1. Stop the release immediately. 2. Contain the spill. 3. Clean up the spill. 4. Report the spill to the supervisor. 5. Notify the EMD. 6. Notify the fire department. | 1. Notify the supervisor. 2. Notify the EMD. 3. Notify the fire department. 4. Notify the police. |

22

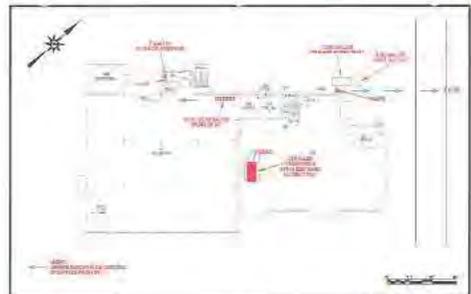
Part 3: Area Specific Topics (Facilities Management - example)

LOCATION OF OIL IN THE AREAS (SPCC Plan, Section 7.4)

| Area | Volume (gallons) | Content | Location |
|-------------------------------------|------------------|------------------|---------------------------------|
| Central Heating Plant | | | |
| Transformer | 180 | Dielectric Oil | Inside the Mtg. |
| Emergency Generator | 600 | Diesel Fuel | Inside the Mtg. |
| Transformer | 180 | Dielectric Oil | Roof of Building |
| Underground Storage Tank | 30,000 | Fuel Oil | North of Building |
| Peterson Service Building | | | |
| Oil Storage Tank | 300 | Used Oil | Basement Deck Area |
| Oil Storage Tank | 300 | Motor Oil | Basement / Room 9 |
| Drain Storage | 35 | Transmission Oil | Basement / Room 9 |
| Drain Storage | 110 | Hydraulic Oil | Basement / Room 7 |
| Drain Storage | 35 | Liquor Thinner | First Floor / Room 1220 |
| Drain Storage | 35 | Used Thinner | First Floor / Room 1220 |
| Chemistry / Physics Building | | | |
| Emergency Generator | 600 | Diesel Fuel | See see Coast North of Building |
| Emergency Generator | 250 | Diesel Fuel | See see Coast North of Building |
| Drain Storage | 250 | Hydraulic Oil | Room 30 |
| Drain Storage | 250 | Hydraulic Oil | Room 30 |
| Drain Storage | 35 | Hydraulic Oil | Room 30 |

23

Part 3: Area Specific Topics (Facilities Management - example)



AREA: ST-2117

PROJECT NO.: 11000

DATE: 06/10/09

APPROVED: JRM

FIGURE B

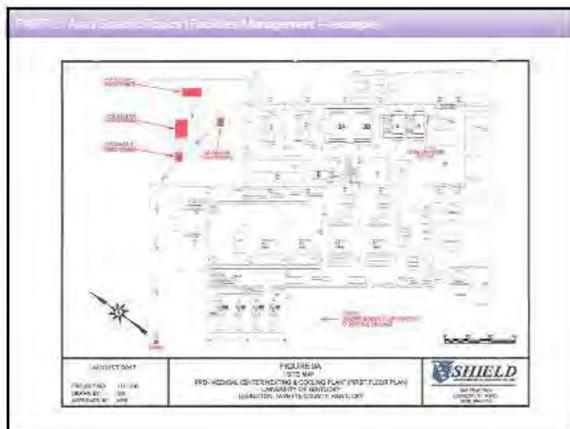
FIELD COLLECTED & FIELD PLOTTED PLAN

LOCATION OF PRODUCTS

OPERATIONAL FACILITIES (SPCC PLAN)



24



25

GROUNDWATER PROTECTION (GP) PLAN

A Supplement to the SPCC Plan Training Module for UK Facilities Management Employees who also Manage Fertilizers & Pesticides; Coal Piles; Deicing Agents

26

GP PLAN TRAINING TOPICS & OBJECTIVES

401 KAR Chapter 5

PART 1: Content

OBJECTIVE

- To understand the GP Plan.

PART 2: Awareness

OBJECTIVE

- To understand the importance of a GP Plan.

PART 3: Responsibilities

OBJECTIVES

- To understand the activities that have the potential to impact groundwater quality.
- To understand the inspection schedule for those activities.
- To understand the spill response measures related to those activities.

27

Part 1: Contents

What are the contents of a GP Plan?

| | | | |
|--|----|----------------------------|---|
| 1. General Information | C1 | 6. Inspection Schedule | |
| 2. Activities that have the Potential to Pollute Groundwater | C1 | 7. Certification Statement | |
| 3. Practices Selected to Protect Groundwater from Pollution | C1 | 8. Record Retention | |
| 4. Implementation Schedule | C1 | Recertification & Revision | |
| 5. Employee Training | C1 | Figure & Tables | |
| | | Appendix 1 | ← |
| | | Appendix 2 | ← |
| | | Appendix 3 | ← |
| | | Appendix 4 | ← |

28

Part 2: Awareness

What is the importance of a GP Plan?

A GP Plan identifies the activities being conducted at a site that have the potential to pollute groundwater and states the practices that will be used to prevent groundwater pollution. The GP Plan must include all activities being conducted at a site that are subjected to 401 KAR 5.037.

| Activity | Regulatory Citation |
|--|---------------------------|
| Pesticide or fertilizer application for institutional lawn care | 401 KAR 5.037, Sec. 22(k) |
| Storage, treatment, disposal, or handling of hazardous waste, solid waste, or special waste in drums, or other containers | 401 KAR 5.037, Sec. 22(i) |
| Commercial storage or related handling in bulk quantities of raw materials, intermediate substances or products, finished products, substances held for recycling, or other pollutants held in tanks, drums, or other containers or in piles | 401 KAR 5.037, Sec. 22(k) |
| Storage or related handling of deicing agents at a central location | 401 KAR 5.037, Sec. 22(k) |
| Application or related handling of deicing materials | 401 KAR 5.037, Sec. 22(k) |

GP Plan → (Pesticide or fertilizer application...)

Covered in SPCC Plan → (Storage, treatment, disposal...)

GP Plan → (Storage or related handling of deicing agents...)

29

Part 3: Responsibilities

GP Plan Practices for Managing Pesticides or Fertilizers; Coal Piles; Deicing Agents

Appendices 1, 3, and 4

- Follow established area operating procedures to prevent spills and leaks (App. 1, 3, 4 pg. A1-A5; A3-1 through A4-3)
- Know spill kit location
- Inventory spill kit supplies annually and if used
- Protect drains
- Notify EMD immediately
- Clean up spills following departmental and UK procedures

Appendices 1, 3, and 4

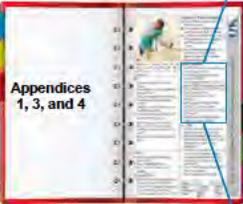
- Do
- Don't
- Checklist

30

Policy Responsibilities

GP Practices for Managing Pesticides or Fertilizers; Coal Piles; Deicing Agents (**** Appendices 1, 3, and 4 ****)

Example



Appendices 1, 3, and 4

- Check EACH delivery shipment & do not accept leaking containers.
- Check chemical mixing & spraying operations WEEKLY.
- Check salt pads, domes, or sheds DAILY for proper cover and integrity when in use and MONTHLY when not in use.
- Check salt storage areas DAILY when in use and WEEKLY when not in use for white runoff
- Check equipment including sprayers & pumps WEEKLY during application season.
- Check chemical spill kits MONTHLY & promptly restock after use.
- Check coal storage areas MONTHLY - clean filtration systems and sweep the area.
- Review chemical handling procedures ANNUALLY.
- Ensure SDSs are current & available ANNUALLY.

31



University of Kentucky

Contact the UK Environmental Management Department. for further information:

Ron Taylor
Assistant Director
257-3129
ron.taylor@uky.edu

32



GROUNDWATER PROTECTION (GP) PLAN

A Training Module for UK Grounds Employees who also Manage Fertilizers & Pesticides and Deicing Agents

1

GP PLAN TRAINING TOPICS & OBJECTIVES

401 KAR Chapter 5

PART 1: Content

OBJECTIVE

- To understand the GP Plan.

PART 2: Awareness

OBJECTIVE

- To understand the importance of a GP Plan.

PART 3: Responsibilities

OBJECTIVES

- To understand the activities that have the potential to impact groundwater quality.
- To understand the inspection schedule for those activities.
- To understand the spill response measures related to those activities.

2

Part 1: Contents

What are the contents of a GP Plan?

| | |
|---|---|
| <ol style="list-style-type: none"> 1. General Information 2. Activities that have the Potential to Pollute Groundwater 3. Practices Selected to Protect Groundwater from Pollution 4. Implementation Schedule 5. Employee Training | <ol style="list-style-type: none"> 6. Inspection Schedule 7. Certification Statement 8. Record Retention Recertification & Revision Figure & Tables Appendix 1 Appendix 2 Appendix 3 Appendix 4 |
|---|---|

3

Part 2: Awareness

What is the importance of a GP Plan?

A GP Plan identifies the activities being conducted at a site that have the potential to pollute groundwater and states the practices that will be used to prevent groundwater pollution. The GP Plan must include all activities being conducted at a site that are subjected to 401 KAR 5.037.

Table 1. Regulated Activities at UK

| Activity | Regulatory Citation |
|---|----------------------------|
| Application of fertilizer, application of herbicides, insecticides, fungicides, or other pesticides | 401 KAR 5.037 Sec. 2(2)(d) |
| Storage, treatment, disposal, or handling of hazardous waste, solid waste, or special waste in drums, or other containers | 401 KAR 5.037 Sec. 2(2)(f) |
| Commercial altering or related handling in bulk quantities of raw materials, intermediate substances or products, finished products, substances held for recycling, or other pollutants held in tanks, drums, or other containers at a site | 401 KAR 5.037 Sec. 2(2)(g) |
| Handling or installation/maintenance of storage systems at a site | 401 KAR 5.037 Sec. 2(2)(h) |
| Applying or installing liquid herbicides, pesticides, or other pollutants | 401 KAR 5.037 Sec. 2(2)(k) |

GP Plan → Application of fertilizer, application of herbicides, insecticides, fungicides, or other pesticides
 Covered in SPCC Plan → Commercial altering or related handling in bulk quantities of raw materials, intermediate substances or products, finished products, substances held for recycling, or other pollutants held in tanks, drums, or other containers at a site
 GP Plan → Handling or installation/maintenance of storage systems at a site

4

PART 3 – Responsibilities

- What are the operating procedures for the area to prevent discharges and where are they located?
- Where are spill kits located?
- What are the discharge reporting procedures?
- What are the inspection requirements?
- What are the spill pathways for the area (storm drains, curb inlets)?

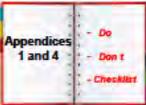
5

Part 3: Responsibilities

GP Plan Practices for Pesticide or Fertilizer Application or Deicing Agents

**** Appendices 1 and 4 ****

- Follow established area operating procedures to prevent spills and leaks (App. 1 - pg. A1-5 or App. 4 – pg. A4-1 through A4-2)
- Know spill kit location
- Inventory spill kit supplies annually and if used
- Protect drains
- Notify EMD immediately
- Clean up spills following departmental and UK procedures

6

GP Practices for Pesticide or Fertilizer Application
 **** Appendix 1 ****

Always immediately report any observed deficiencies to your supervisor to initiate corrective actions

- Check EACH delivery shipment & do not accept leaking containers.
- Check chemical mixing & spraying operations WEEKLY.
- Check equipment including sprayers & pumps WEEKLY during application season.
- Check chemicals spill kits MONTHLY & promptly restock after use.
- Check chemical storage location ANNUALLY.
- Review chemical handling procedures ANNUALLY.
- Ensure SDSs are current & available ANNUALLY.
- Ensure personnel handling & applying chemicals are trained & licensed.

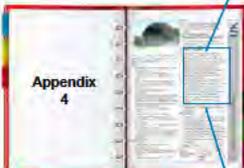


7

GP Practices for Managing Deicing Agents
 **** Appendix 4 ****

Always immediately report any observed deficiencies to your supervisor to initiate corrective actions

- Check EACH salt delivery operation.
- Check salt pads DAILY for proper cover with tarps and signs of runoff when in use.
- Check salt storage domes and sheds DAILY during snow and ice season (Oct. to Apr.) for water-tight roof and floors, tarp covers for entrances, ventilation, fans, lights, and building damage.
- Check salt storage areas for white chloride deposits DAILY during snow and ice season and WEEKLY during the rest of the year.
- Check salt domes, sheds, and pads MONTHLY between May and Sept. for structural integrity and runoff issues.
- Check salt pads ANNUALLY during summer for cracks and wear.
- Watch for and move salt from entrances.



8

PART 3: Area-Specific Topics

SPILL DECISION MAKING AND REPORTING



1. Assess the spill by asking: Is it leaking? Is it spreading? Is it igniting? Is it boiling? Is it emitting a toxic or flammable vapor? Is it emitting a noxious or irritating gas? Is it emitting a dust or solid particulate? Is it emitting a liquid or solid waste? Is it emitting a radioactive material? Is it emitting a biohazardous material? Is it emitting a chemical or biological agent? Is it emitting a radioactive material? Is it emitting a biohazardous material? Is it emitting a chemical or biological agent?

2. If the spill is a small spill (e.g., a few gallons) and the spill is contained, the spill can be cleaned up by the spill response team (SRT) using spill response kits (SRKs) and spill response procedures (SRPs).

3. If the spill is a large spill (e.g., a tanker truck spill) or if the spill is not contained, the spill must be reported to the appropriate regulatory agency (e.g., the Kentucky Department of Transportation (KDOT) or the Kentucky Department of Environmental Protection (KDEP)).

| CONTACT | PHONE / FAX / EMAIL | OTHER CONTACTS |
|-----------------------------------|---------------------|---|
| Emergency Response Team (ERT) | 257-3129 | ERT members: Ron Taylor, Assistant Director; Jeffery L. ... |
| UK Environmental Management Dept. | 257-3129 | Environmental Management Dept. (EMD) members: Ron Taylor, Assistant Director; ... |
| UK Environmental Management Dept. | 257-3129 | Environmental Management Dept. (EMD) members: Ron Taylor, Assistant Director; ... |

9



University of Kentucky

Contact the UK Environmental Management Dept. for further information:

Ron Taylor
 Assistant Director
 257-3129
 ron.taylor@uky.edu

10

APPENDIX F-7

Grounds New Employee Training Documents

Employee Health and Safety Training Form

Grounds Workers

Employee Name: Ray Gregor Cortez

University ID Number: XXXXXXXXXX Job Title: Grounds Hire Date: 3/16/2020

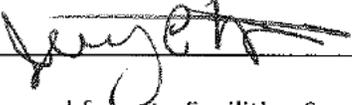
Health and Safety training must be completed within the first 90 days of employment.

| Subject | Length of Training | Date Completed | Employee Initials | Signature of Trainer |
|---|--------------------|----------------|-------------------|----------------------|
| 1) New Employee Health and Safety Program Orientation * | 4 minutes | 3/23/2020 | RGBC | |
| 2) Hazardous Communication (SDS Forms) | 20 minutes | 3/23/2020 | RGBC | |
| 3) Working in Cold Weather | 5 minutes | 3/23/2020 | RGBC | |
| 4) Heat Stress | 14 minutes | 3/23/2020 | RGBC | |
| 5) Stormwater 101 – Introduction | 15 minutes | 3/23/2020 | RGBC | |
| 6) Stormwater 201 – Illicit Discharge | 9 minutes | 3/23/2020 | RGBC | |
| 7) Back Injuries | 16 minutes | 3/23/2020 | RGBC | |
| 8) Slips, Trips and Falls | 8 minutes | 3/23/2020 | RGBC | |
| 9) Stinging Insect Allergy | 13 minutes | 3/23/2020 | RGBC | |
| 10) Landscape equipment | 18 minutes | 3/23/2020 | RGBC | |
| 11) Hearing Protection | 12 minutes | 3/23/2020 | RGBC | |
| 12) Utility Cart Training | | 3/19/2020 | RGBC | |
| a) Submit Motor Vehicle Record Check | | | | |
| b) Utility Cart Training | ***Classroom | | | |
| 13) First Aid/CPR & AED | ** Optional | | | |

* Within first 30 days

** Optional training – if interested please contact your supervisor who will arrange date and time for classroom training.

*** Classroom training will be held periodically

Supervisor Signature: 

Upon completion of the training, send form to Facilities Services Office. Copies will be provided to CPPD Health and Safety Office who will update employee training record and FMS Human Resources for inclusion in the personnel file.

Employee Health and Safety Training Form

Grounds Workers

Employee Name: Joshua D. Long

University ID Number: _____ Job Title: Steps Hire Date: 3/23/20

Health and Safety training must be completed within the first 90 days of employment.

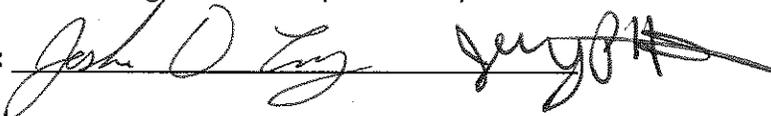
| Subject | Length of Training | Date Completed | Employee Initials | Signature of Trainer |
|---|--------------------|----------------|-------------------|----------------------|
| 1) New Employee Health and Safety Program Orientation * | 4 minutes | 3/23/20 | JDL | |
| 2) Hazardous Communication (SDS Forms) | 20 minutes | 3/23/20 | JDL | |
| 3) Working in Cold Weather | 5 minutes | 3/23/20 | ODL | |
| 4) Heat Stress | 14 minutes | 3/23/20 | JDL | |
| 5) Stormwater 101 – Introduction | 15 minutes | 3/23/20 | JDL | |
| 6) Stormwater 201 – Illicit Discharge | 9 minutes | 3/23/20 | JDL | |
| 7) Back Injuries | 16 minutes | 3/23/20 | JDL | |
| 8) Slips, Trips and Falls | 8 minutes | 3/23/20 | JDL | |
| 9) Stinging Insect Allergy | 13 minutes | 3/23/20 | JDL | |
| 10) Landscape equipment | 18 minutes | 3/23/20 | JDL | |
| 11) Hearing Protection | 12 minutes | 3/23/20 | JDL | |
| 12) Utility Cart Training | | 3/23/20 | JDL | |
| a) Submit Motor Vehicle Record Check | | | | |
| b) Utility Cart Training | ***Classroom | | | |
| 13) First Aid/CPR & AED | ** Optional | | | |

* Within first 30 days

** Optional training – if interested please contact your supervisor who will arrange date and time for classroom training.

*** Classroom training will be held periodically

Supervisor Signature: _____



Upon completion of the training, send form to Facilities Services Office. Copies will be provided to CPPD Health and Safety Office who will update employee training record and FMS Human Resources for inclusion in the personnel file.

Employee Health and Safety Training Form

Grounds Workers

Employee Name: Winston T. Cinnamon

University ID Number: [REDACTED] Job Title: Grounds Hire Date: 03/30/2020

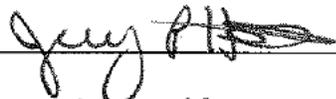
Health and Safety training must be completed within the first 90 days of employment.

| Subject | Length of Training | Date Completed | Employee Initials | Signature of Trainer |
|---|--------------------|----------------|-------------------|----------------------|
| 1) New Employee Health and Safety Program Orientation * | 4 minutes | 3/30/2020 | WTC | JPH |
| 2) Hazardous Communication (SDS Forms) | 20 minutes | 3/30/2020 | WTC | |
| 3) Working in Cold Weather | 5 minutes | 3/30/2020 | WTC | |
| 4) Heat Stress | 14 minutes | 3/30/2020 | WTC | |
| 5) Stormwater 101 – Introduction | 15 minutes | 3/30/2020 | WTC | |
| 6) Stormwater 201 – Illicit Discharge | 9 minutes | 3/30/2020 | WTC | |
| 7) Back Injuries | 16 minutes | 3/30/2020 | WTC | |
| 8) Slips, Trips and Falls | 8 minutes | 3/30/2020 | WTC | |
| 9) Stinging Insect Allergy | 13 minutes | 3/30/2020 | WTC | |
| 10) Landscape equipment | 18 minutes | 3/30/2020 | WTC | |
| 11) Hearing Protection | 12 minutes | 3/30/2020 | WTC | |
| 12) Utility Cart Training | | 3/30/2020 | WTC | |
| a) Submit Motor Vehicle Record Check | | 3/30/2020 | WTC | |
| b) Utility Cart Training | ***Classroom | 3/30/2020 | WTC | |
| 13) First Aid/CPR & AED | ** Optional | | | |

* Within first 30 days

** Optional training – if interested please contact your supervisor who will arrange date and time for classroom training.

*** Classroom training will be held periodically

Supervisor Signature: 

Upon completion of the training, send form to Facilities Services Office. Copies will be provided to CPPD Health and Safety Office who will update employee training record and FMS Human Resources for inclusion in the personnel file.

Employee Health and Safety Training Form

Grounds Workers

Employee Name: Adam Hanshaw

University ID Number: _____ Job Title: Grounds Worker Hire Date: _____

Health and Safety training must be completed within the first 90 days of employment.

| Subject | Length of Training | Date Completed | Employee Initials | Signature of Trainer |
|---|--------------------|----------------|-------------------|----------------------|
| 1) New Employee Health and Safety Program Orientation * | 4 minutes | 3-30-20 | ACH | JPH |
| 2) Hazardous Communication (SDS Forms) | 20 minutes | 3-30-20 | ACH | |
| 3) Working in Cold Weather | 5 minutes | 3-30-2020 | ACH | |
| 4) Heat Stress | 14 minutes | 3-30-2020 | ACH | |
| 5) Stormwater 101 – Introduction | 15 minutes | 3-30-2020 | ACH | |
| 6) Stormwater 201 – Illicit Discharge | 9 minutes | 3-30-2020 | ACH | |
| 7) Back Injuries | 16 minutes | 3-30-2020 | ACH | |
| 8) Slips, Trips and Falls | 8 minutes | 3-30-2020 | ACH | |
| 9) Stinging Insect Allergy | 13 minutes | 3-30-2020 | ACH | |
| 10) Landscape equipment | 18 minutes | 3-30-2020 | ACH | |
| 11) Hearing Protection | 12 minutes | 3-30-2020 | ACH | |
| 12) Utility Cart Training | | 3-30-2020 | ACH | |
| a) Submit Motor Vehicle Record Check | | | | |
| b) Utility Cart Training | ***Classroom | 3-30-2020 | ACH | |
| 13) First Aid/CPR & AED | ** Optional | | | |

* Within first 30 days

** Optional training – if interested please contact your supervisor who will arrange date and time for classroom training.

*** Classroom training will be held periodically

Supervisor Signature: 

Upon completion of the training, send form to Facilities Services Office. Copies will be provided to CPPD Health and Safety Office who will update employee training record and FMS Human Resources for inclusion in the personnel file.

Employee Health and Safety Training Form

Grounds Workers

Employee Name: EDWARD COMBS

University ID Number: _____ Job Title: GROUNDS Hire Date: 3/30/2020

Health and Safety training must be completed within the first 90 days of employment.

| Subject | Length of Training | Date Completed | Employee Initials | Signature of Trainer |
|---|--------------------|----------------|-------------------|----------------------|
| 1) New Employee Health and Safety Program Orientation * | 4 minutes | 3/30 | EC | JPH |
| 2) Hazardous Communication (SDS Forms) | 20 minutes | 3/30 | EC | JPH |
| 3) Working in Cold Weather | 5 minutes | 3/30 | EC | JPH |
| 4) Heat Stress | 14 minutes | 3/30 | EC | JPH |
| 5) Stormwater 101 – Introduction | 15 minutes | 3/30 | EC | JPH |
| 6) Stormwater 201 – Illicit Discharge | 9 minutes | 3/30 | EC | JPH |
| 7) Back Injuries | 16 minutes | 3/30 | EC | JPH |
| 8) Slips, Trips and Falls | 8 minutes | 3/30 | EC | JPH |
| 9) Stinging Insect Allergy | 13 minutes | 3/30 | EC | JPH |
| 10) Landscape equipment | 18 minutes | 3/30 | EC | JPH |
| 11) Hearing Protection | 12 minutes | 3/30 | EC | JPH |
| 12) Utility Cart Training | | 3/30 | EC | JPH |
| a) Submit Motor Vehicle Record Check | ✓ | | | |
| b) Utility Cart Training | ***Classroom | | | |
| 13) First Aid/CPR & AED | ** Optional | | | |

* Within first 30 days

** Optional training – if interested please contact your supervisor who will arrange date and time for classroom training.

*** Classroom training will be held periodically

Supervisor Signature: Jay P Hart

Upon completion of the training, send form to Facilities Services Office. Copies will be provided to CPPD Health and Safety Office who will update employee training record and FMS Human Resources for inclusion in the personnel file.

Employee Health and Safety Training Form

Grounds Workers

Employee Name: Kyle Hollingsworth

University ID Number: [REDACTED] Job Title: _____ Hire Date: _____

Health and Safety training must be completed within the first 90 days of employment.

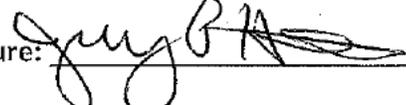
| Subject | Length of Training | Date Completed | Employee Initials | Signature of Trainer |
|---|--------------------|----------------|-------------------|----------------------|
| 1) New Employee Health and Safety Program Orientation * | 4 minutes | 4-20 | KWH | Jerry Hart |
| 2) Hazardous Communication (SDS Forms) | 20 minutes | 4-20-2020 | KWH | ' ' |
| 3) Working in Cold Weather | 5 minutes | 4-20-2020 | KWH | ' ' |
| 4) Heat Stress | 14 minutes | 4-20-2020 | KWH | ' ' |
| 5) Stormwater 101 – Introduction | 15 minutes | 4-20-2020 | KWH | ' ' |
| 6) Stormwater 201 – Illicit Discharge | 9 minutes | 4-20-2020 | KWH | ' ' |
| 7) Back Injuries | 16 minutes | 4-20-2020 | KWH | ' ' |
| 8) Slips, Trips and Falls | 8 minutes | 4-20-2020 | KWH | ' ' |
| 9) Stinging Insect Allergy | 13 minutes | 4-20-2020 | KWH | ' ' |
| 10) Landscape equipment | 18 minutes | 4-20-2020 | KWH | ' ' |
| 11) Hearing Protection | 12 minutes | 4-20-2020 | KWH | ' ' |
| 12) Utility Cart Training <i>online</i> | | 4-20-2020 | KWH | ' ' |
| a) Submit Motor Vehicle Record Check | | ATTACHED | | |
| b) Utility Cart Training | ***Classroom | | | Seen Card on Screen |
| 13) First Aid/CPR & AED | ** Optional | | | |

would not print

* Within first 30 days

** Optional training – if interested please contact your supervisor who will arrange date and time for classroom training.

*** Classroom training will be held periodically

Supervisor Signature: 

Upon completion of the training, send form to Facilities Services Office. Copies will be provided to CPPD Health and Safety Office who will update employee training record and FMS Human Resources for inclusion in the personnel file.

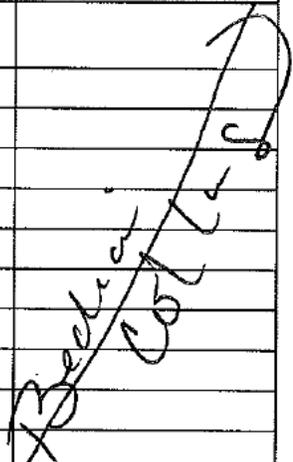
Employee Health and Safety Training Form

Grounds Workers

Employee Name: Alastair Norman

University ID Number: [REDACTED] Job Title: Grounds Worker Hire Date: 9/14/2020

Health and Safety training must be completed within the first 90 days of employment.

| Subject | Length of Training | Date Completed | Employee Initials | Signature of Trainer |
|---|--------------------|----------------|-------------------|---|
| 1) New Employee Health and Safety Program Orientation * | 4 minutes | 9/14/2020 | AAN |  |
| 2) Hazardous Communication (SDS Forms) | 20 minutes | 9/14/2020 | AAN | |
| 3) Working in Cold Weather | 5 minutes | 9/14/2020 | AAN | |
| 4) Heat Stress | 14 minutes | 9/14/2020 | AAN | |
| 5) Stormwater 101 – Introduction | 15 minutes | 9/14/2020 | AAN | |
| 6) Stormwater 201 – Illicit Discharge | 9 minutes | 9/14/2020 | AAN | |
| 7) Back Injuries | 16 minutes | 9/14/2020 | AAN | |
| 8) Slips, Trips and Falls | 8 minutes | 9/14/2020 | AAN | |
| 9) Stinging Insect Allergy | 13 minutes | 9/14/2020 | AAN | |
| 10) Landscape equipment / <u>Lawn Maint</u> | 18 minutes | 9/14/2020 | AAN | |
| 11) Hearing Protection | 12 minutes | 9/14/2020 | AAN | |
| 12) Utility Cart Training | | | | |
| a) Submit Motor Vehicle Record Check | | 9/14/2020 | AAN | |
| b) Utility Cart Training | ***Classroom | 9/14/2020 | AAN | |
| 13) First Aid/CPR & AED | ** Optional | | | |

* Within first 30 days

** Optional training – if interested please contact your supervisor who will arrange date and time for classroom training.

*** Classroom training will be held periodically

Supervisor Signature: Bedie Collins

Upon completion of the training, send form to Facilities Services Office. Copies will be provided to CPPD Health and Safety Office who will update employee training record and FMS Human Resources for inclusion in the personnel file.

Employee Health and Safety Training Form

Grounds Workers

Employee Name: Ritchie Katko

University ID Number: _____ Job Title: Grounds Worker Hire Date: 9/14/2020

Health and Safety training must be completed within the first 90 days of employment.

| Subject | Length of Training | Date Completed | Employee Initials | Signature of Trainer |
|---|--------------------|----------------|-------------------|----------------------|
| 1) New Employee Health and Safety Program Orientation * | 4 minutes | 9/14 | RK | |
| 2) Hazardous Communication (SDS Forms) | 20 minutes | 9/14 | RK | |
| 3) Working in Cold Weather | 5 minutes | 9/14 | RK | |
| 4) Heat Stress | 14 minutes | 9/14 | RK | |
| 5) Stormwater 101 – Introduction | 15 minutes | 9/14 | RK | |
| 6) Stormwater 201 – Illicit Discharge | 9 minutes | 9/14 | RK | |
| 7) Back Injuries | 16 minutes | 9/14 | RK | |
| 8) Slips, Trips and Falls | 8 minutes | 9/14 | RK | |
| 9) Stinging Insect Allergy | 13 minutes | 9/14 | RK | |
| 10) Landscape equipment | 18 minutes | 9/14 | RK | |
| 11) Hearing Protection | 12 minutes | 9/14 | RK | |
| 12) Utility Cart Training | | | | |
| a) Submit Motor Vehicle Record Check | | 9/14 | RK | |
| b) Utility Cart Training | ***Classroom | 9/14 | RK | |
| 13) First Aid/CPR & AED | ** Optional | | | |

* Within first 30 days

** Optional training – if interested please contact your supervisor who will arrange date and time for classroom training.

*** Classroom training will be held periodically

Supervisor Signature:

Upon completion of the training, send form to Facilities Services Office. Copies will be provided to CPPD Health and Safety Office who will update employee training record and FMS Human Resources for inclusion in the personnel file.

APPENDIX F-8

Concrete Washout Training Sign-in Sheet and Training Information

Minimum Measure

Construction Site Stormwater Runoff Control

Subcategory

Good Housekeeping/Materials Management

Description of Concrete Washout at Construction Sites

Concrete and its ingredients

Concrete is a mixture of cement, water, and aggregate material. Portland cement is made by heating a mixture of limestone and clay containing oxides of calcium, aluminum, silicon and other metals in a kiln and then pulverizing the resulting clinker. The fine aggregate particles are usually sand. Coarse aggregate is generally gravel or crushed stone. When cement is mixed with water, a chemical reaction called hydration occurs, which produces glue that binds the aggregates together to make concrete.

Concrete washout

After concrete is poured at a construction site, the chutes of ready mixed concrete trucks and hoppers of concrete pump trucks must be washed out to remove the remaining concrete before it hardens. Equipment such as wheelbarrows and hand tools also need to be washed down. At the end of each work day, the drums of concrete trucks must be washed out. This is customarily done at the ready mixed batch plants, which are usually off-site facilities, however large or rural construction projects may have on-site batch plants. Cementitious (having the properties of cement) washwater and solids also come from using such construction materials as mortar, plaster, stucco, and grout.

Environmental and Human Health Impacts

Concrete washout water (or washwater) is a slurry containing toxic metals. It's also caustic and corrosive, having a pH near 12. In comparison, Drano liquid drain cleaner has a pH of 13.5. Caustic washwater can harm fish gills and eyes and interfere with reproduction. The safe pH ranges for aquatic life habitats are 6.5 – 9 for freshwater and 6.5 – 8.5 for saltwater.

Construction workers should handle wet concrete and washout water with care because it may cause skin irritation and eye damage. If the washwater is dumped on the ground (Fig. 1), it can run off the construction site to adjoining roads and enter roadside storm drains, which discharge to surface waters such as rivers, lakes, or estuaries. The arrow in Figure 2 points to a ready mixed truck chute that's being washed out into a roll-off bin, which isn't watertight. Leaking washwater, shown in the foreground, will likely follow similar



Figure 1. Chute washwater being dumped on the ground



Figure 2. Chute washwater leaking from a roll-off bin being used as a washout container

paths to nearby surface waters. Rainfall may cause concrete washout containers that are uncovered to overflow and also transport the washwater to surface waters. Rainwater polluted with concrete washwater can percolate down through the soil and alter the soil chemistry, inhibit plant growth, and contaminate the groundwater. Its high pH can increase the toxicity of other substances in the surface waters and soils. Figures 1 and 2 illustrate the need for better washout management practices.

Best Management Practice Objectives

The best management practice objectives for concrete washout are to (a) collect and retain all the concrete washout water and solids in leak proof containers, so that this caustic material does not reach the soil surface and then migrate to surface waters or into the ground water, and (b) recycle 100 percent of the collected concrete washout water and solids. Another

objective is to support the diversion of recyclable materials from landfills. Table 1 shows how concrete washout materials can be recycled and reused.

Table 1 – Recycling concrete washout materials

| Uses of Recycled Materials | Concrete Washout Materials | | | | | |
|---|----------------------------|---------------------------|----------------|------------------|-------------------|---------------------|
| | Washwater | Cement fines ^a | Fine aggregate | Coarse aggregate | Hardened concrete | Unused wet concrete |
| Reused to washout additional mixer truck chutes or drums | x | | | | | |
| Reused as a ready mixed concrete ingredient | x | x ^b | x | x | | |
| Reused as an ingredient of precast concrete products, e.g., highway barriers, retaining wall blocks, riprap | x | x | x | x | | x |
| Reused as crushed concrete products, e.g., road base or fill | | x | x | x | x | |
| Reused to pave the yards of ready mixed concrete plants | | | | | | x |
| Returned back to a surface water, e.g., river, lake, or estuary | x ^c | | | | | |

- a. Fine particles of cementitious material (e.g., Portland cement, slag cement, fly ash, silica fume)
- b. Recyclable, if allowed by the concrete quality specifications
- c. Treated to reduce the pH and remove metals, so it can be delivered to a municipal wastewater treatment plant, where it is treated further and then returned to a natural surface water

Washwater recycling, treatment, disposal

Washwater from concrete truck chutes, hand mixers, or other equipment can be passed through a system of weirs or filters to remove solids and then be reused to wash down more chutes and equipment at the construction site or as an ingredient for making additional concrete. A three chamber washout filter is shown in Figure 3. The first stage collects the coarse aggregate. The middle stage filters out the small grit and sand. The third stage has an array of tablets that filter out fines and reduces the pH. The filtered washwater is then discharged through a filter sock. An alternative is to pump the washout water out of the washout container (Fig 4) and treat the washwater off site to remove metals and reduce its pH, so it can be delivered to a publicly owned treatment works (POTW), also known as a municipal wastewater treatment plant, which provides additional treatment allowing the washwater to be discharged to a surface water. The POTW should be



Figure 3. Concrete washout filter

contacted to inquire about any pretreatment requirements, i.e., the National Pretreatment Standards for Prohibited Dischargers (40CFR 403.5) before discharging the washwater to the POTW. The washwater can also be retained in the washout container and allowed to evaporate, leaving only the hardened cementitious solids to be recycled.

Solids recycling

The coarse aggregate materials that are washed off concrete truck chutes into a washout container can be either separated by a screen and placed in aggregate bins to be reused at the construction site or returned to the ready mixed plant and washed into a reclaimer (Fig. 5). When washed out into a reclaimer, the fine and coarse aggregates are separated out and placed in different piles or bins to be reused in making fresh concrete. Reclaimers with settling tanks separate cement fines from the washwater, and these fines can also be used in new concrete unless prohibited by the user's concrete quality specifications.



Figure 4. Vacuuming washwater out of a washout container for treatment and reuse



Figure 5. Ready mixed truck washing out into a reclaimer

Hardened concrete recycling

When the washwater in a construction site concrete washout container has been removed or allowed to evaporate, the hardened concrete that remains can be crushed (Fig. 6) and reused as a construction material. It makes an excellent aggregate for road base and can be used as fill at the



Figure 6. Crushed concrete stockpile and crusher

construction site or delivered to a recycler. Concrete recyclers can be found at municipal solid waste disposal facilities, private recycling plants, or large construction sites.

Wet concrete recycling

Builders often order a little more ready mixed concrete than they actually need, so it is common for concrete trucks to have wet concrete remaining in their drum after a delivery. This unused concrete can be returned to the ready mixed plant and either (1) used to pour precast concrete products (e.g., highway barriers, retaining wall blocks, riprap), (2) used to pave the ready mixed plant's yard, (3) washed into a reclaimer, or (4) dumped on an impervious surface and allowed to harden, so it can be crushed and recycled as aggregate. Unused wet concrete should not be dumped on bare ground to harden at construction sites because this can contribute to ground water and surface water contamination.

Washout Containers

Different types of washout containers are available for collecting, retaining, and recycling the washwater and solids from washing down mixed truck chutes and pump truck hoppers at construction sites.

Chute washout box

A chute washout box is mounted on the back of the ready mixed truck. If the truck has three chutes, the following procedure is used to perform the washout from the top down: (1) after the pour is completed, the driver attaches the extension chute to the washout box, (2) the driver then rotates the main chute over the extension chute (Fig. 7) and washes down the hopper first then the main chute, (3) finally the driver washes down the flop down chute and last the extension chute hanging on the box. All washwater and solids are captured in the box.



Figure 7. Chute washout box

After the wash down, washwater and solids are returned to the ready mixed plant for recycling. A filter basket near the top of the washout box separates out the coarse aggregates so they can be placed in a bin for reuse either at the construction site or back at the cement plant.

Chute washout bucket and pump

After delivering ready mixed concrete and scraping the last of the customer's concrete down the chute, the driver hangs a washout bucket shown in Figure 8 (see red arrow) on the end of the truck's chute and secures the hose to insure no leaks. The

driver then washes down the chute into the bucket to remove any cementitious material before it hardens. After washing out the chute, the driver pumps (yellow arrow points to the pump) the washwater, sand, and other fine solids from the bucket up into the truck's drum to be returned to the ready mixed plant, where it can be washed into a reclaimer. A removable screen at the bottom of the washout bucket prevents coarse aggregate from entering the pump. This coarse aggregate can also be returned to the plant and added to the coarse aggregate pile to be reused. All the materials are recycled.



Figure 8. Chute washout bucket and pump

Hay bale and plastic washout pit

A washout pit made with hay bales and a plastic lining is shown in Figure 9. Such pits can be dug into the ground or built above grade. The plastic lining should be free of tears or holes that would allow the washwater to escape (Fig. 10). After the pit is used to wash down the chutes of multiple ready mixed trucks and the washwater has evaporated or has been vacuumed off, the remaining hardened solids can be broken up and removed from the pit. This process may damage the hay bales and plastic lining. If damage occurs, the pit will need to be repaired and relined with new plastic. When the hardened solids are removed, they may be bound up with the plastic lining and have to be sent to a landfill, rather than recycled. Recyclers usually accept only unmixed material. If the pit is going to be emptied and repaired more than a few times, the hay bales and plastic will be generating additional solid waste. Ready mixed concrete



Figure 9. Hay bale and plastic washout pit



Figure 10. Leaking washout pit that has not been well maintained

Stormwater Best Management Practice: *Concrete Washout*

trucks can use hay bale washout pits, but concrete pump trucks have a low hanging hopper in the back that may prevent their being washed out into bale-lined pits.

Vinyl washout container



Figure 11. Vinyl washout pit with filter bag

The vinyl washout container (Fig. 11) is portable, reusable, and easier to install than a hay bale washout pit.

The biodegradable filter bag (Fig. 12) assists in

extracting the concrete solids and prolongs the life of the vinyl container. When the bag is lifted, the water is filtered out and the remaining concrete solids and the bag can be disposed of together in a landfill, or the hardened concrete can be delivered to a recycler. After the solids have been removed several times and the container is full of washwater, the washwater can be allowed to evaporate, so the container can be reused. The washwater can be removed more quickly by placing another filter bag in the container

and spreading water gelling granules evenly across the water. In about five minutes, the water in the filter bag will turn into a gel that can be removed with the bag. Then the gel and filter bag can be disposed to together.



Figure 12. Extracting the concrete solids or gelled washwater

Metal washout container

The metal roll-off bin (Fig. 13) is designed to securely contain concrete washwater and solids and is portable and reusable. It also has a ramp that allows concrete pump trucks to wash out their hoppers (Fig. 14). Roll-off providers offer recycling services, such as, picking up the roll-off bins after the washwater has evaporated and the solids have hardened,

replacing them with empty washout bins, and delivering the hardened concrete to a recycler (Fig. 15), rather than a landfill. Some providers will vacuum off the washwater, treat it to remove metals and reduce the pH, deliver it to a wastewater treatment plant for additional treatment and



Figure 13. Mixer truck being washed out into a roll-off bin

subsequent discharge to a surface water. Everything is recycled or treated sufficiently to be returned to a natural surface water.



Figure 14. Pump truck using the ramp to wash out into a roll-off bin



Figure 15. Delivering hardened Concrete to a recycler

Another metal, portable, washout container, which has a rain cover to prevent overflowing, is shown in Figure 16. It is accompanied by an onsite washwater treatment unit, which reduces the pH and uses a forced weir tank system to remove the coarse aggregate, fine aggregate, and cement fines. The washwater can then be reused at the construction site to wash out other mixer truck chutes and equipment.



Figure 16. Washout container with a rain cover and onsite washwater treatment

The solids are allowed to harden together and can be taken to a concrete recycler (Fig. 17) to be crushed and used as road base or aggregate for making precast products, such as retaining wall blocks. All materials are recycled.



Figure 17. Delivering hardened concrete to a recycler

Siting Washout Facilities

Concrete washout facilities, such as washout pits and vinyl or metal washout containers, should be placed in locations that provide convenient access to concrete trucks, preferably near the area where concrete is being poured. However they

should not be placed within 50 feet of storm drains, open ditches, or waterbodies. Appropriate gravel or rock should cover approaches to concrete washout facilities when they are located on undeveloped property. On large sites with extensive concrete work, washouts should be placed at multiple locations for ease of use by ready mixed truck drivers. If the washout facility is not within view from the pour location, signage will be needed to direct the truck drivers.

Operating and Inspecting Washout Facilities

Concrete washout facilities should be inspected daily and after heavy rains to check for leaks, identify any plastic linings and sidewalls have been damaged by construction activities, and determine whether they have been filled to over 75 percent capacity. When the washout container is filled to over 75 percent of its capacity, the washwater should be vacuumed off or allowed to evaporate to avoid overflows. Then when the remaining cementitious solids have hardened, they should be removed and recycled. Damages to the container should be repaired promptly. Before heavy rains, the washout container's liquid level should be lowered or the container should be covered to avoid an overflow during the rain storm.

Educating Concrete Subcontractors

The construction site superintendent should make ready mixed truck drivers aware of washout facility locations and be watchful for improper dumping of cementitious material. In addition, concrete washout requirements should be included in contracts with concrete delivery companies.

Reference

NRMCA 2009. *Environmental Management in the Ready Mixed Concrete Industry*. 2PEMRM. 1st edition. By Gary M. Mullins. Silver Springs, MD: National Ready Mixed Concrete Association.

Websites and Videos

Construction Materials Recycling Association
www.concreterecycling.org

National Ready Mixed Concrete Association
www.nrmca.org

National Ready Mixed Concrete Research and Education Foundation
www.rmc-foundation.org

Additional information and videos on concrete washout containers and systems can be found by a web search for "concrete washout."

Photograph Credits

Figures 1, 2. *Mark Jenkins, Concrete Washout Systems, Inc.*

Figure 3. *Mark Shaw, Ultra Tech International, Inc.*

Figure 4. *Mark Jenkins, Concrete Washout Systems, Inc.*

Figure 5. *Christopher Crouch, CCI Consulting*

Figure 6. *William Turley, Construction Materials Recycling Association*

Figure 7. *Brad Burke, Innovative Concrete Solutions, LLC*

Figure 8. *Ron Lankester, Enviroguard*

Figures 9, 10. *Mark Jenkins, Concrete Washout Systems, Inc.*

Figures 11, 12. *Tom Card, RTC Supply*

Figures 13, 14, 15. *Mark Jenkins, Concrete Washout Systems, Inc.*

Figures 16, 17. *Rick Abney Sr., Waste Crete Systems, LLP*

Disclaimer

Please note that EPA has provided external links because they provide additional information that may be useful or interesting. EPA cannot attest to the accuracy of non-EPA information provided by these third-party websites and does not endorse any non-government organizations or their products or services.

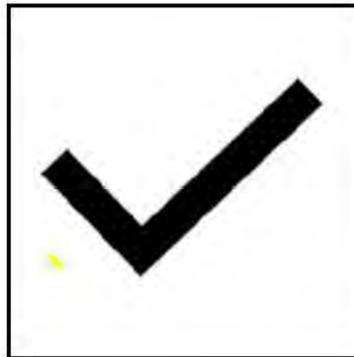
APPENDIX F-9

UEM Environmental Compliance Self-Evaluation Checklist

ENVIRONMENTAL COMPLIANCE SELF-EVALUATION CHECKLISTS

PREPARED FOR
UK UTILITIES & ENERGY MANAGEMENT

JANUARY 29, 2021



PREPARED BY:

 Environmental
Management

UK Utilities & Energy Management Environmental Compliance Self-Evaluation Checklists

INTRODUCTION

Included herein is a collection of environmental compliance checklists that have been prepared by UK's Environmental Management Dept. and are applicable to UK's Utility and Energy Management. They are arranged by each of the three major sectors of environmental management – air quality, water quality and waste management. Checklists are by their nature “summaries” of requirements and thus are not comprehensive in scope or content. Therefore, contacts have been provided for each checklist so more in-depth information or assistance is available, if needed.

CONTENTS

Air Quality

Requirements for Emergency Generators
Requirements for Chillers
Requirements for Boilers
Hourly Operation Verification for NOx Monitor
Horiba Hourly Reading
CUP-Horiba Maintenance
CUP-Horiba Daily
Central-Horiba Maintenance
Central-Horiba Daily

Water Quality

Groundwater Protection Plan
Spill Prevention Control & Countermeasures (SPCC) Plan
Stormwater Quality Management
Wastewater Discharge

Waste

Waste Management & Other

Water Quality Environmental Compliance Self-Evaluation Checklists

UK Utilities & Energy Management

GROUNDWATER PROTECTION PLAN

UK UTILITIES & ENERGY MANAGEMENT ENVIRONMENTAL COMPLIANCE SELF-EVALUATION CHECKLIST

Circle Location:

- | | |
|--------------------------|------------------|
| MC Heating/Cooling Plant | Cooling Plant #1 |
| Central Heating Plant | Cooling Plant #2 |
| Central Utility Plant | Samaritan |
| | Other _____ |

Date: _____

Time: _____

Evaluator Name: _____

| | Yes | No | Comments |
|---|-----|----|----------|
| 1. Have applicable personnel reviewed the current Groundwater Protection Plan, dated Aug. 5, 2019? | | | |
| 2. Have applicable personnel received annual Groundwater Protection training? | | | |
| 3. Have new employees received training prior to assuming responsibility for implementing any aspect of the Groundwater Protection Plan? | | | |
| 4. Does your location contain stormwater BMP's to address runoff from coal stockpiles? | | | |
| If yes, have these BMPs been inspected regularly for proper operation/maintenance and maintained in accordance with their O&M requirements? | | | |
| 6. Do the BMPs appear to be functioning adequately/as intended? | | | |
| 7. Are the coal stockpiles being maintained at appropriate levels as to not create excessive/unnecessary runoff? | | | |
| 8. Is coal present on surfaces outside of the stockpile storage pads? | | | |
| If yes, have housekeeping practices been reviewed/improved to eliminate this issue? | | | |
| 9. Is the street sweeper maintaining the area surrounding the coal pile on a minimum monthly basis? | | | |
| 10. Are monthly visual inspections of the stockpile(s) occurring as required? | | | |
| 11. Are the inspections being documented utilizing the form included in Appendix 3 of the GPP? | | | |
| 12. Are monthly visual inspections of oil storage areas being conducted as required? | | | |
| 13. Has the annual inspection been conducted? | | | |
| If yes, has the location personnel been made aware of the results? | | | |
| 14. Are inspection records being maintained for a minimum of 6 years as required? | | | |

- For assistance in completing this checklist contact:

Kevin Lewis
 Water Quality Compliance Manager
 UK Environmental Management Dept.
 (859) 257-0093
 kevin.lewis@uky.edu

SPILL PREVENTION CONTROL & COUNTERMEASURES (SPCC) PLAN

UK UTILITIES & ENERGY MANAGEMENT ENVIRONMENTAL COMPLIANCE SELF-EVALUATION CHECKLIST

Circle Location:

- MC Heating/Cooling Plant Cooling Plant #1
- Central Heating Plant Cooling Plant #2
- Central Utility Plant Samaritan
- Other _____

Date: _____

Time: _____

Evaluator Name: _____

| | Yes | No | Comments |
|--|-----|----|----------|
| 1. Is a complete copy of the SPCC Plan available? | | | |
| 2. Has there been a change in facility design, construction, operation or maintenance? | | | |
| 3. If yes, does this change affect the potential for a discharge? | | | |
| 4. If yes, the SPCC plan must be amended within six months. Has the plan been updated accordingly? <i>*See section 6.1 of plan for more details</i> | | | |
| 5. Do all suppliers and drivers meet requirements and regulations for tank truck loading/unloading established by the US Department of Transportation? | | | |
| 6. Are all suppliers/vendors made aware of the site layout and protocol for entering the facility and unloading the product? | | | |
| 7. Do all suppliers/vendors have the necessary equipment to respond to a discharge from the vehicle or fuel delivery hose? | | | |
| 8. Is a UEM designee supervising oil deliveries for all new suppliers and periodically observing deliveries for existing, approved suppliers? | | | |
| 9. Are all tank vehicles being unloaded only in designated areas with appropriate prevention equipment? | | | |
| 10. Is the truck driver remaining with the vehicle at all times while fuel is being transferred? | | | |
| 11. Is a UEM employee with communication equipment observing the tank for those locations where the truck driver cannot see the tank during fuel transfer? | | | |
| 12. Are spill response materials available during petroleum transfer operations? | | | |
| 13. Have spill response materials been regularly inspected and replaced as needed? | | | |
| 14. Are all applicable employees trained in discharge countermeasures for spill discovery, response, and clean-up? <i>*See section 7.7 of plan for more details</i> | | | |
| 15. Are employees trained in the proper disposal of materials recovered during spill response? | | | |
| 16. Are employees trained on who to contact should a spill occur, how to properly report a discharge, and how to locate and properly complete a Spill Report Form? | | | |
| 17. Are employees familiar with the potential for equipment failure for each oil storage container and oil handling area at their location? | | | |
| 18. Are employees familiar with the Oil Spill Contingency Plan for their specific location? | | | |
| 19. Has periodic integrity testing of bulk containers and periodic integrity and leak testing of valves and piping taken place in accordance with the written O&M procedures for the facility? <i>*See section 8.5 for more details</i> | | | |
| 20. Are the required monthly/annual visual inspections of all the oil storage containers and oil handling areas being conducted? | | | |
| 21. Are the appropriate forms located in Appendix C/D of the plan being used to document these tests and inspections? If yes, are the forms signed and being retained for at least three years? | | | |
| 22. Are plant associated stormwater BMPs, stormdrains, and the surrounding areas being inspected for possible impacts to stormwater during monthly SPCC inspections? | | | |
| 23. Have all personnel involved in oil handling operations received the required annual discharge prevention training? | | | |
| 24. Are all oil storage containers in use at the facility specifically designed and constructed for compatibility with the oils they store? | | | |
| 25. Are leaking oil storage containers repaired or disposed of immediately upon detection? | | | |

- For assistance in completing this checklist contact:

Kevin Lewis
 Water Quality Compliance Manager
 UK Environmental Management Dept.
 (859) 257-0093
 kevin.lewis@uky.edu

STORMWATER QUALITY MANAGEMENT

UK UTILITIES & ENERGY MANAGEMENT ENVIRONMENTAL COMPLIANCE SELF-EVALUATION CHECKLIST

Circle Location:

- MC Heating/Cooling Plant Cooling Plant #1
- Central Heating Plant Cooling Plant #2
- Central Utility Plant Samaritan
- Other _____

Date: _____

Time: _____

Evaluator Name: _____

| | Yes | No | Comments |
|---|-----|----|----------|
| 1. Has departmental stormwater training been updated by 4/30/2023? | | | |
| 2. Has the Bell 2017 stormwater assessment data been added to the Utility Map by 4/30/21? | | | |
| 3. Have SSO procedures been developed and provided to UEM for review by 4/20/21? | | | |
| If yes, have the procedures been finalized and have applicable employees reviewed the procedures/received training? | | | |
| 4. Has the inspection of the storm drains and area surrounding the Utility Plants been added to the SPCC monthly inspection? | | | |
| If yes, is this being documented and retained? | | | |
| 5. Are Thermal Imaging scans to detect possible discharges planned in the near future? | | | |
| If yes, has EMD been notified and the results provided? | | | |
| 6. Have investigations been performed to locate and eliminate heating/cooling/sanitary sewer leaks? | | | |
| If yes, have results been provided to EMD? | | | |
| 7. Has an up-to-date prioritized repair list been developed? | | | |
| If yes, has the list been provided to EMD? | | | |
| 8. Has a list of repairs made (including associated costs) been provided to EMD quarterly? | | | |
| 9. Have the annual underground stormwater BMP inspections been completed? | | | |
| If yes, have the results been provided to UEM? | | | |
| 10. Has the needed repair/maintenance outlined in the latest BMP inspection report been performed on the BMPs? | | | |
| 11. Has a preventative maintenance program been developed for the stormwater BMPs? | | | |
| If yes, is the maintenance being performed and documented as required? | | | |
| 12. Are costs associated with the PM program being tracked? | | | |
| 13. Is the maintenance data being provided to EMD quarterly? | | | |
| 14. Are there any existing departmental policies in place to protect stormwater? | | | |
| If yes, have these been updated to maintain permit compliance? | | | |
| 15. Have these policies been provided to EMD for inclusion in the Stormwater Operations Manual? | | | |
| 16. Has an inventory of facilities, maintenance activities, and maintenance schedule been developed? | | | |
| If yes, has this been provided to EMD? | | | |
| 17. Has a decision been made as to whether a contractor or UK will maintain the stormwater BMPs? | | | |
| 18. Has an SOP been developed for BMP implementation in response to emergencies or unplanned events? | | | |
| If yes, have employees been trained/made aware of these new procedures? | | | |
| 19. Has employee task related training been updated to include stormwater protection? | | | |
| 20. Have employees been trained on new procedures created to address stormwater protection? | | | |
| 21. Have departmental policies been updated to ensure stormwater protection is required when performing applicable job duties? | | | |
| 22. Have measures been put in place to ensure employees are implementing stormwater BMPs as required? | | | |
| 23. Have all coal stockpile BMPs been evaluated for proper performance and pollution prevention effectiveness? | | | |
| If yes, have any BMPs been removed, replaced, repaired, or installed? | | | |
| 24. Has the assessment information and list of replacement BMPs been provided to EMD? | | | |
| 25. Have the Shawneetown sanitary sewer repairs been completed? | | | |
| If yes, has documentation of their completion (reports, invoices, photos) been provided to EMD? | | | |
| 26. Has the effectiveness of the repairs on water quality been determined? | | | |
| If yes, were additional BMPs required to improve water quality? | | | |
| 27. Have the additional BMPs been installed as required? | | | |
| 28. Has the information associated with their installation been provided to EMD? | | | |
| 29. Has a budget assessment been performed to determine if UEM is adequately funded to perform the stormwater duties outlined in the SWQMP? | | | |
| 30. Has a stormwater budget been developed for UEM? | | | |
| If yes, has the budget information been provided to EMD? | | | |

- For assistance in completing this checklist contact:

Kevin Lewis
 Water Quality Compliance Manager
 UK Environmental Management Dept.
 (859) 257-0093
 kevin.lewis@uky.edu

APPENDIX F-10

BMP Inspections by Strand Associates



STRAND
ASSOCIATES®

Excellence in Engineering Since 1946

Strand Associates, Inc.® (SAI)

Phase II MS4 BMP Field Review Summary Report

June 2020

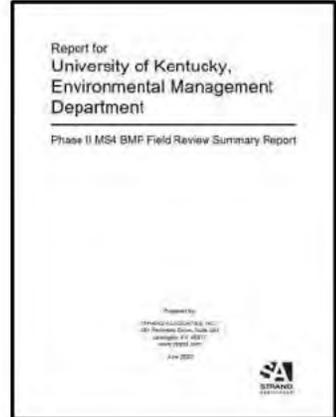
University of Kentucky
Environmental Management Department



Meeting Outline

Agenda

- MS4 Program Responsibilities Overview
- Summary of BMP Field Reviews
 - Report Overview
 - Common Deficiencies and Maintenance Tasks
 - Specific BMP Concerns
 - Additional Considerations
- Moving Forward
 - Maintenance Responsibility
 - Preventative Maintenance Program
 - Other Related SWQMP Tasks
 - Additional Information Required?
 - Next Meeting



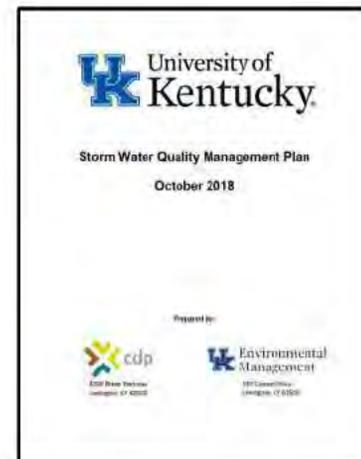
MS4 Program Responsibilities Overview

- MS4 Phase II Permit Requirements

- “In order to verify all stormwater management practices are operating correctly and are properly maintained, the permittee shall establish and implement written procedures for inspections of a representative number of installed BMPs annually, with the goal of completing an inspection of all BMPs within the MS4 during the permit cycle. Alternatively, the permittee may develop a program for BMP owner self-inspection documentation with oversight by the permittee(s).”
- The permittee shall create a program to notify the BMP owner or operator of deficiencies during a maintenance inspection. The permittee must conduct subsequent inspections to ensure completion of required repairs. If repairs are not made, the permittee shall enforce its correction orders and, if need be, perform the necessary work.

- Stormwater Quality Management Plan (SWQMP)

- Defines Implementation Requirements for the Permit



Stormwater Quality Management Plan (SWQMP) Requirements

- All Program Tasks Listed on Tracking Spreadsheet
- BMP Field Review Associated Tasks
 - Maintain and update the MS4 and Utility Maps annually/as necessary. (3.A)
 - Inspect 20% of above ground post construction BMPs annually. (5.D)
 - Inspect 100% of underground BMPs annually. (5.D)
 - Develop preventative maintenance program for all UK owned post construction BMPs in year two. (5.D)
 - Develop a tracking system to assess long term preventative maintenance cost for BMPs in conjunction with preventative maintenance program.
 - Assist EDR with development of preventative maintenance program for EDR owned BMPs in year two.
 - Document all inspections and maintenance in MS4 web or effective equivalent. (5.D)
 - Evaluate pollution prevention measures for coal stockpiles and upgrade, improve, or maintain as necessary. (6.C)

The image shows a portion of a tracking spreadsheet. It features a grid with a blue header row at the top. The main body of the spreadsheet is white with black grid lines. There are several rows of data. Some cells are highlighted in yellow, indicating specific tasks or dates. A vertical green bar runs down the right side of the grid, and a small red square is visible in one of the cells. The spreadsheet appears to be used for tracking the progress of various tasks over time.

Summary of BMP Field Reviews

| Type | Compliant | Percent | Not Acceptable | Percent | Unknown | Percent | Total |
|---------------------------|-----------|------------|----------------|------------|----------|-----------|------------|
| Detention Ponds | 3 | 12% | 21 | 84% | 1 | 4% | 25 |
| Rain Garden | 0 | 0% | 5 | 100% | 0 | 0% | 5 |
| Permeable Pavers | 8 | 35% | 15 | 65% | 0 | 0% | 23 |
| Filter Strips/Bioretenion | 5 | 100% | 0 | 0% | 0 | 0% | 5 |
| Vegetated Swales | 1 | 14% | 6 | 86% | 0 | 0% | 7 |
| Pretreatment Devices | 16 | 41% | 21 | 54% | 2 | 5% | 39 |
| Green Roof | 5 | 83% | 1 | 17% | 0 | 0% | 6 |
| Inlet Control | 5 | 45% | 6 | 55% | 0 | 0% | 11 |
| South Coal Pile | 0 | 0% | 1 | 100% | 0 | 0% | 1 |
| Sinkhole | 0 | 0% | 4 | 100% | 0 | 0% | 4 |
| Water Harvesting System | 0 | 0% | 3 | 100% | 0 | 0% | 3 |
| Underground Detention | 7 | 32% | 13 | 59% | 2 | 9% | 22 |
| Totals | 50 | 32% | 96 | 65% | 5 | 3% | 151 |

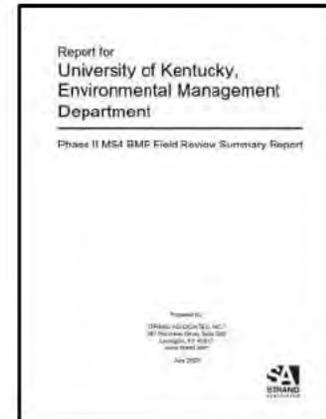
Table 1 BMP Inspection Report Summary Table

151 Total BMPs on Campus

- Permeable Pavers
- Rain Gardens
- Filter Strips
- Bioretention
- Vegetated Swales
- Pretreatment Devices
- Green Roofs
- Inlet Control Devices
- Detention Ponds
- Class IV Injection Wells
- Water Harvesting Systems
- Underground Detention Basins

Summary Report Overview

- Preliminary Evaluation of Field Review Program
- Pilot Area Study
- Overview of Field Review Process
 - Summary of Findings
 - BMP-Specific Concerns
- Recommendations
 - Organization of Data
 - Additional Procedures
- Appendix A – Summary Tables
- Appendix B – Inspection Reports



University of Kentucky
Strand Associates

Garigus Plaza Green Roof
Structure Inspection Report
University of Kentucky

Structure Details

| | | | |
|----------------|--------------------------|------------|----------|
| Name | Garigus Plaza Green Roof | Inspector | Donalyn |
| Address | 12112222 | City/State | 12111111 |
| City/State/Zip | 12345678 | | |

Inspection Properties

| | | | |
|-----------------|------------|----------------------|---------|
| Structure | Green Roof | Inspector | Donalyn |
| Inspection Date | 12/11/2021 | Structure Inspection | 01 |
| Inspection Time | 10:00 AM | Inspector License | 01 |

Vegetation

| | | | |
|--|-----|--|-----|
| Is there any vegetation on the roof? | Yes | Is there any vegetation growing in the cracks? | Yes |
| Is there any vegetation growing in the cracks? | Yes | Is there any vegetation growing in the cracks? | Yes |
| Is there any vegetation growing in the cracks? | Yes | Is there any vegetation growing in the cracks? | Yes |

Drainage

| | | | |
|------------------------------------|-----|------------------------------------|-----|
| Is there any drainage on the roof? | Yes | Is there any drainage on the roof? | Yes |
| Is there any drainage on the roof? | Yes | Is there any drainage on the roof? | Yes |
| Is there any drainage on the roof? | Yes | Is there any drainage on the roof? | Yes |

University of Kentucky
Strand Associates

General Comments

1. The roof is in good condition. There are no signs of leaks or damage. The drainage system is working properly. The vegetation is growing in the cracks. The inspector is satisfied with the results of the inspection.

Prohibited Maintenance Activities

| | | | |
|----------|------------|------------|------------|
| Activity | Prohibited | Prohibited | Prohibited |
| Activity | Prohibited | Prohibited | Prohibited |
| Activity | Prohibited | Prohibited | Prohibited |

Additional Information

Weather

| | | | |
|-------------|-------|----------------|-----|
| Temperature | 75°F | Humidity | 50% |
| Wind Speed | 5 mph | Wind Direction | SE |

Photos

Summary Tables

UK Aboveground BMP Field Reviews Type: Permeable Pavement

| Post Construction BMP Control Name | Location/Comments | Owner | Inspection Date | Compliance Status | Overall Condition of Facility | Maintenance Tasks | Structural Repairs | Recommended Maintenance Completion Date: | Additional Recommendations |
|---|---|----------------------|-----------------|-------------------|---|--|--|--|--|
| Academic Science Building Permeable Pavers | Interior courtyard at rear of building on Haggin side | UK Grounds | 12/10/2019 | Not Acceptable | Good: Adequately maintained, routine maintenance needed. | Remove leaves. Re-established vegetation where pedestrians and vehicle traffic have caused bare spots. Remove weeds from paver joints. | | 1 year | |
| Atrium - Permeable Pavement | ADA access patio entrance to the restroom adjacent to the Children's Garden. | UK Grounds | 12/10/2019 | Not Acceptable | Good: Adequately maintained, routine maintenance needed. | Leaves and mulch need to be cleared from the pavement surface. The bare soil exposed in the flower bed needs to be stabilized. Remove sediment from paver joints and replace joint fill material, as required. | | 1 year | Some spalls along the perimeter are beginning to rattle, recommend continued monitoring of structural stability. |
| AXO Patio - Previous Pavers | Rear Patio located at back of structure facing Alice Lloyd College | UK Grounds | 12/31/2019 | Compliant | Good: Adequately maintained, routine maintenance needed. | Remove leaves. | | Prior to next inspection | |
| Blue Lot Permeable Concrete | Corner of University and Alumni beneath tree at bottom of parking lot | UK Athletics Grounds | 12/5/2019 | Not Acceptable | Fair: Poorly maintained, routine maintenance and repair needed. | Remove the leaves and debris from the pavement surface. | Repair the pavement cracking. | 90 days | Monitor the crack to make sure the pavement deterioration does not worsen. |
| Garrigue Plaza - Previous Pavers | Behind Env. Management, courtyard of Garrigue Building | UK Grounds | 12/11/2019 | Not Acceptable | Good: Adequately maintained, routine maintenance needed. | Media that has washed out of the joints and is accumulating on the paver surface needs to be collected and redistributed to the northwest and the southwest areas. | | Prior to next inspection | |
| Greek Park Phase II - Permeable Concrete Pavement | Concrete Walk of Amphitheater near Fairhouse Frat. | UK Grounds | 12/31/2019 | Compliant | Good: Adequately maintained, routine maintenance needed. | Clean sediment accumulation out of southeast pavers. | Monitor cracks and pavement grade to ensure conditions do not worsen. | | |
| Haggin II (Lewis Hall) - Previous Pavement | Interior courtyard area locate in building center, near back corner of The 90 | EDR | 12/11/2019 | Not Acceptable | Fair: Poorly maintained, routine maintenance and repair needed. | Leaves need to be removed from paver surface. Sediment and organic material need to be removed from the joints, and the joint media needs to be replaced. | | 90 days | |
| Holmes Hall Previous Pavers* | Entryway along AOC at center of Limestone I Building (@ steps) | | 12/29/2019 | Not Acceptable | Fair: Poorly maintained, routine maintenance and repair needed. | Vegetation, sediment, and leaves need to be removed from paver surface and joints. | Consider enhancing barrier between mulch area and pavers to reduce the sediment buildup. | 1 year | |

Bioretention/Filter Strips

Concerns:

- Bare Soil
- Landscape Debris

Maintenance Recommendations:

- Replace Mulch or Vegetation
- Remove Leaves and Landscape Debris

Structural Recommendations:

- Further Investigation is needed to Understand the Extents and Performance Objectives



Detention Ponds

Concerns:

- Trash, Sediment, and Landscape Debris
- Bare Soil
- Debris and Rocks in Headwalls, Pipes, and Outlet Control Structure
- Ineffective Grading
- Sedimentation
- Erosion/Slope Instability
- Concrete Degradation
- Improper Grout around Pipes



Maintenance Recommendations:

- Remove Trash, Sediment, and Landscape Debris
- Establish Vegetation
- Remove Debris and Rocks that are Flow Impediments
- Remove Sediment
- Stabilize Banks

Structural Recommendations:

- Concrete Repair Spalls and Cracks
- Grout around Pipes
- Replace or Repair Headwalls
- Regrade Banks

Detention at Softball Complex

Deficiencies

- Brick Dust
- Broken Headwall
- Bank Erosion
- Lack of Vegetation
- Landscape Debris



Recommendations

- Eliminate source of brick dust
- Replace Headwall
- Stabilize Banks
- Re-establish Vegetation
- Remove Debris
- Evaluate Grading



Green Roofs

Concerns:

- Unhealthy Vegetation
- Bare Soil
- Unwanted Vegetation/Weeds
- Flow Impediments to Grates

Maintenance Recommendations:

- Establish Vegetation
- Remove Invasive Species
- Remove Vegetation from Grates

Structural Recommendations:

- None



Inlet Controls

Concerns:

- Sediment and Debris
- Missing/Broken Frame and Insert
- Coal Pile Operation and Maintenance

Maintenance Recommendations:

- Remove Sediment and Debris
- Coal Pile Operation

Structural Recommendations:

- Repair/Replace Frame and Insert
- Modify Coal Pile Inlet Controls



Coal Piles

Med Center Coal Pile:

- Stormwater Bypassing Filtration Device
- Short-term Solution
- Long-term Solution



Wildcat Court Coal Pile:

- Standard Operating Procedure
- Additional Monitoring Recommended
- Long-term Solution



Permeable Pavers

Concerns:

- Trash, Sediment, and Landscape Debris
- Vegetation in Joints
- Clogged Joints and Granular Material
- Sediment Accumulation
- Surface Deflection
- Material Degradation
- Missing Joint Media
- Paver Rippling
- Pavement Cracking



Maintenance Recommendations:

- Remove Trash, Sediment, and Landscape Debris
- Re-fill Joint Media
- Vacuum Paver Joints

Structural Recommendations:

- Consider Replacement
- Monitor Structural Stability

Permeable Pavers

SAE – Porous Pavers

Deficiencies

- Potential Subsurface Failure
- Rippling
- Clogged Joints

Recommendations

- Consider Replacing Pavers

Ronald McDonald – Porous Pavement

Deficiencies

- Surface Degradation
- Sediment and Landscape Debris

Recommendations

- Replace Pavement Surface
- Consider Stabilizing Outfall Area



Pretreatment Devices

Concerns:

- Trash, Sediment, and Construction Debris
- Film on Water's Surface
- Failed or Misaligned Riser and Ring
- Major Cracks and Spalls
- Improper Grout around Pipes



Maintenance Recommendations:

- Remove Trash, Sediment, and Landscape Debris
- Remove Construction Debris/Gravel
- Mitigate Film on Water's Surface

Structural Recommendations:

- Replace/Reset Riser and Ring
- Concrete Repair Cracks and Spalls
- Grout around Pipes

Pretreatment Devices

*(New) Student Center Contech CDS
Hydrodynamic Separator & University Flats
Downstream Defender #3*

Deficiencies

- Trash, Sediment, and Landscape Debris
- Vertical Crack

Recommendations

- Remove Sediment and Floatables
- Repair or Replace Structure



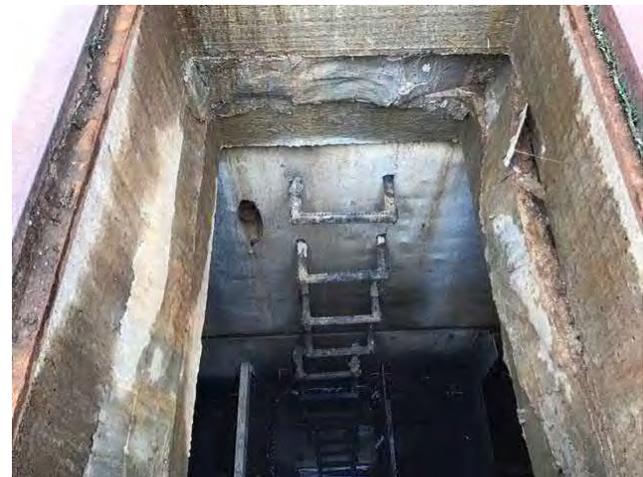
Pretreatment Devices

Track and Field – Baffle Box Deficiencies

- Gravel and Sediment
- Structural Deterioration

Recommendations

- Remove Gravel and Sediment
- Replace Structure's Ring



Rain Gardens

Concerns:

- Trash, Sediment, and Landscape Debris
- Lack of Vegetation
- Bare Soil

Maintenance Recommendations:

- Remove Trash, Sediment, and Landscape Debris
- Establish Vegetation

Structural Recommendations:

- None



Rain Gardens

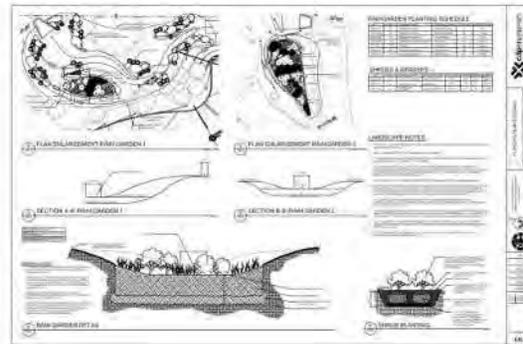
Ronald McDonald House Rain Garden & Marksbury Rain Garden

Deficiencies

- Lack of Vegetation
- Bare Soil

Recommendations

- Establish Vegetation



Sinkholes

Concerns:

- Improper Grout around Pipes
- Misaligned Riser and Ring
- Debris and Rocks in Principal Control Structure

Maintenance Recommendations:

- Remove Debris and Rocks in Principal Control Structure

Structural Recommendations:

- Grout around Pipes
- Reset Ring and Riser



Underground Detention Basins

Concerns:

- Trash, Sediment, and Landscape Debris
- Buried Access Ports
- Corroded/Inaccessible Inspection Ports
- Improper Grout around Pipes
- Failed/Deteriorated Riser
- Major Cracks and Spalls
- Broken/Misaligned Pipe at Inspection Port
- Standing Water

Maintenance Recommendations:

- Remove Trash, Sediment, and Landscape Debris
- Uncover Access Ports



Structural Recommendations:

- Repair/Replace Inspection Ports
- Grout around Pipes
- Replace/Reset Riser and Ring
- Concrete Repair Cracks and Spalls
- Replace Broken/Misaligned Pipe at Inspections Port

Roselle Hall Underground Detention

Deficiencies

- Significant Sedimentation in Structure
- Outlet Pipe Blockage

Recommendations

- Remove Sediment From Basin
- Remove Pipe Blockage
- Consider Pretreatment Device(s)



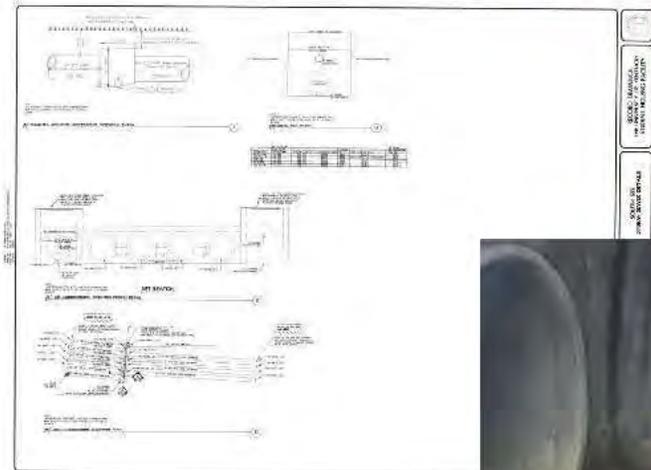
John Smith Hall Underground Detention

Deficiencies

- Trash, Sediment, and Landscape Debris
- 5-Gallon Buckets in Outlet Structure
- Broken Hydraulic Assist
- Broken/Corroded Inspection Port Covers

Recommendations

- Remove Sediment and Debris
- Repair or Replace Inspection Port Covers
- Repair Hydraulic Assist on Cover



Water Harvesting System

Concerns:

- System's Operating and Data Log Error
- Oil Slick

Maintenance Recommendations:

- Consider Downloading the System's Data
- Consider posting the Maintenance and Operating Procedures by the Control Panel
- Consider Inspecting System when Water Level is Pumped Down

Structural Recommendations:

- None



Additional Considerations

- Missing or Buried Structures
 - Roselle Hall Downstream Treatment Device
 - Track and Field Pretreatment Device
 - Farmhouse Underground Detention Access Points
- Tracking of Maintenance/Repair
 - Completion in Response to Report
 - Tracking Operating Cost
 - Frequency of Maintenance Required (Preventative Maintenance Program)



Moving Forward

- Moving Forward
 - Maintenance Responsibility
 - University Operated Facilities
 - Non-University Operated Facilities (Graystar, RMH, etc.)
 - Preventative Maintenance Program
 - Other Related SWQMP Tasks
 - Additional Information Required?
 - Next Meeting

University Operated Facilities

- Grounds
- Utilities
- Athletics
- Others

| BMP Type | UK Athletics/ Grounds | UK Grounds | UK Grounds/ Utilities | UK Utilities | UK Athletics | UK Athletics/ Utilities | UK Athletics/ PPD | UK PPD/ Grounds/ Utilities | UK Utilities/ Farmhouse |
|-----------------------------|--------------------------|------------|--------------------------|--------------|--------------|----------------------------|----------------------|----------------------------------|----------------------------|
| Detention Basins | | 22 | | | | | | | |
| Rain Garden | | 4 | | | | | | | |
| Permeable Pavers | 3 | 11 | | | 1 | | | | |
| Bioretention/Filter Strips | 4 | 1 | | | | | | | |
| Vegetated Swales | 3 | 3 | | | | | | | |
| Pretreatment Devices | | | 1 | 13 | | 5 | 2 | | |
| Green Roof | | 6 | | | | | | | |
| Inlet Control | | 2 | | 4 | | | | | |
| South Coal Pile | | | | 1 | | | | | |
| Sink Holes | | | 2 | | | | | | |
| Water Harvesting System | | | | | | | | 3 | |
| Underground Detention Basin | | | | 14 | | 1 | | | 1 |
| Totals | 10 | 49 | 3 | 32 | 1 | 6 | 2 | 3 | 1 |

Non-University Operated Facilities

- Graystar/EDR
- Ronald McDonald House (RMH)
- Shriner's Hospital

| BMP Type | EDR | RMHC | Shriners |
|-----------------------------|-----|------|----------|
| Detention Basins | | | |
| Rain Garden | | 1 | |
| Permeable Pavers | 3 | 2 | 1 |
| Bioretention/Filter Strips | | | |
| Vegetated Swales | | 1 | |
| Pretreatment Devices | 12 | | 1 |
| Green Roof | | | |
| Inlet Control | | | |
| South Coal Pile | | | |
| Sink Holes | 2 | | |
| Water Harvesting System | | | |
| Underground Detention Basin | 4 | 1 | |
| Totals | 21 | 5 | 2 |

Preventative Maintenance Program

Associated SWQMP Tasks

- 5.E/6.A – Develop comprehensive Stormwater Operations Manual & include all inspection, BMP Maintenance procedures, schedules, site plan review processes, etc.
- 6.A.1 – Update BMP O&M Manual: Compile existing manuals, create BMP specific requirements, create calendar for completing required BMP maintenance activities, assign/update responsibilities for the maintenance of each BMP, incorporate/coordinate with BMP inspection program
- 6.A.1.a – Determine which activities will be contracted vs in-house & issue RFP/Hire Contractor/Schedule & perform inspections and maintenance
- 6.A.1.b – Incorporate maintenance calendar into SAP Plant Maintenance System and create scheduled work orders for all activities, Provide completed O&M Manual and Calendar to Grounds/UEM, Utilize info to create reoccurring work orders in PM System

Other Related SWQMP Tasks

- 6.A.3 Develop procedures for rainwater harvesting system monitoring and reporting
 - The responsibilities and requirement regarding the management of these systems need to be clarified and discussed with those involved as these systems are not being operated and maintained properly.
 - Need to discuss filling the tanks with Potable water to “keep them from floating” as some of the tanks are strapped to slabs poured below the tanks to keep this from happening.
- 6.B – Update employee training
 - Discuss the need to train employees to properly inspect and maintain BMP’s.
- 10.A – Perform assessment to determine if all departments are adequately funded to perform stormwater duties as assigned
 - Section 2.8 of permit that requires funding to be established and maintained to ensure the accomplishment of the activities required by the permit.



STRAND
ASSOCIATES®

Excellence in Engineering Since 1946

APPENDIX G

Updated SWQMP Tables

| Activity | 2018 SWQMP Tasks | Responsibility | Measurable Goal | Evidence of Completion | Deadline/Frequency | | | | | |
|---|--|--|---|--|--------------------|---------------------|-----|--------------------|-----|------------|
| | | | | | PY1 | PY2 | PY3 | PY4 | PY5 | Complete |
| | The program must be formalized in a written Stormwater Quality Management Plan (SWQMP) that details how the required six minimum control measures will be implemented. This document must be modified as needed. | | | | X | = Original Schedule | X | = Updated Schedule | ✓ | = Complete |
| MCM 1 | Public Education and Outreach | | | | | | | | | |
| | 1.A – Strengthen Education, Outreach and Participation Program | EMD, TFISE | • Develop partnership with TFISE in year one | • Provide agreement between EMD and TFISE (MOU) | X | X | | | | ✓ |
| | | | • Develop MCM 1&2 budget in year one to determine operating constraints of program | • Provide copy of operational budget for MCM 1&2. | | | | | | |
| | | | • Develop MCM 1&2 program improvements in year one | • Provide detailed outline of program for MCM 1&2. | | | | | | |
| | | | • Hire interns to assist TFISE in education/outreach activities by year two | • Provide copies of intern final reports, presentations, data, etc. | | | | | | |
| | 1.B – Update and maintain stormwater website | EMD, TFISE | • Website redesigned | • Updated website launched, documentation of regular updates, page traffic information | | X | X | X | | |
| | | | • Website routinely updated | | | | | | | |
| | | | • Page visits are trackable/analytics package | | | | | | | |
| | 1.B.1 – Develop interactive MS4 Map | EMD/FIS | • Create a map for inclusion on the website that provides detailed MS4 information above and beyond the existing 2D map. Examples of information to include: stormwater flow direction, watershed information, post construction bmp information (photos, descriptions, etc.) | • Provide link to published map | | | | X | | |
| | | | • Develop interactive Story Map | | | | | | | |
| | 1.B.2 – Develop illicit discharge reporting system | EMD | • Create mobile friendly illicit discharge reporting web feature that allows the user to take photos, provide comments, and send information to EMD with minimal effort. | • Provide link of operational website that includes access to reporting system | | | X | X | | |
| | | | • Create content to include on the resource page | • Provide the number of complaints through website and copies of the submitted reports | | | | | | |
| | 1.B.3 – Develop educator resource page (in conjunction with task 1.C.3) | TFISE | • Create a portion of the website to include stormwater resources for educators | • Provide link to resource page | | | | X | | |
| | | | • Create content to include on the resource page | • Provide access to created educator resources | | | | | | |
| | 1.B.4 – Develop and maintain social media sites focused on UK stormwater | TFISE, EMD | • Develop notification of availability once completed | • Provide links to social media accounts | | | | X | | ✓ |
| | | | • Begin utilizing existing social media accounts (Facebook, Twitter, etc.) to promote UK stormwater | | | | | | | |
| | | | • Add account links to UK Stormwater page | | | | | | | |
| | | • Regularly update sites to keep information relevant | | | | | | | | |
| | 1.C – Develop and distribute public (faculty, staff, students, visitors) specific educational materials | TFISE | • Create education materials that specifically address how UK's public impacts and can protect stormwater. | • Provide a copy of the created materials, numbers distributed | | | X | X | X | X |
| | 1.C.1 – Extend program focus to visitors | TFISE | • Identify ways in which visitors can impact stormwater and develop an awareness campaign to target those actions | • Provide a copy of awareness program items (pamphlets, signage, etc.) | | | | X | X | |
| 1.C.1.a – Develop awareness materials to address illicit discharge prevention from tailgater RV's (No dumping of gray/black water holding tanks) – Coordinate with Task 8.A | TFISE, Athletics, EMD, Transportation Services | • Develop awareness materials and coordinate distribution with annual parking pass/ticket sales. | • Provide copy of awareness materials and number distributed | | | | X | X | | |
| 1.C.2 – Provide mechanism for incorporating students in stakeholder/planning process | EMD, Sustainability, TFISE | • Create meeting/forum/platform for students to provide input in campus stormwater management decisions | • Provide meeting dates, sign in sheets, meeting minutes, agendas, etc. | | | | | X | | |
| 1.C.3 - Focus on pollutants impairing local waterways | TFISE | • Create awareness materials that specifically address pollutants identified in the 303d list impairing local waters as well as existing TMDL's. | • Provide copy of materials created as well as numbers distributed. | | | | | X | X | |
| | | • Specify how those on campus can help reduce these problems. | | | | | | | | |
| 1.C.4 – Create stormwater education materials for staff/extension use | TFISE | • Create curriculum that can be used to educate University public on their impacts to campus stormwater, MS4 requirements, and how they can help | • Provide any materials developed | | | X | X | X | X | |
| 1.D – Participate in and/or facilitate special events/activities/joint sponsored events to increase stormwater awareness | TFISE | • Facilitate/Participate in one event per semester (minimum) that focuses on campus stormwater. | • Provide information on the events (dates, times, sign in sheets, photos, agendas, etc.) | X | X | X | X | X | | |
| 1.D.1 – Involve student organizations | TFISE | • Work with student organizations to get participation in a minimum of one event/activity per year. | • Provide name of special event/activity, name of student organization, sign in sheet/attendance numbers per activity, and photos | X | X | X | X | X | X | |
| | | • Devise incentive program to boost participation | • Provide description of incentive and names of qualifying groups | | | | | | | |
| 1.E – Create stormwater awareness articles/posts/podcasts/videos for campus wide distribution (e.g. UKNow/Website/Kernel/Social Media/News Letters) | TFISE | • Develop and publish at least 1 article/post/podcast/ video per year | • Provide copy of created items | | | X | X | X | X | |

| Activity | 2018 SWQMP Tasks | Responsibility | Measurable Goal | Evidence of Completion | Deadline/Frequency | | | | | |
|--------------|---|---|---|--|--------------------|-----|-----|-----|-----|----------|
| | | | | | PY1 | PY2 | PY3 | PY4 | PY5 | Complete |
| | 1.F – Update staff IDDE training and create method to ensure training is conducted annually | EMD, TFISE | <ul style="list-style-type: none"> Update training to make more user friendly and relevant to campus activities Integrate training into online training programs and routine staff meetings | <ul style="list-style-type: none"> Provide copy of training Provide sign in sheets and online training records annually | | | X | | | |
| | 1.F.1 – Develop short promotional video on the most frequent illicit discharges and how to report them | EMD, TFISE | <ul style="list-style-type: none"> Develop video/videos that can be utilized to train staff as well as promote the illicit discharge program and stormwater protection to general campus audiences to be shared through targeted outreach, social media, and other outlets. | <ul style="list-style-type: none"> Provide copy of the completed video/link to access video Provide distribution list/number of viewings, etc. | | | | X | | |
| | 1.G – Update individual departmental stormwater training and improve delivery system/participation | EMD, TFISE, Facility Operations, Utilities, Athletics | <ul style="list-style-type: none"> Work to improve/develop department specific (Facility Operations, Athletics, Utilities) stormwater training and include that training in online systems and in routine departmental trainings, minimum annually. Expand training to areas such as grad students, outdoor labs, etc. that may impact stormwater | <ul style="list-style-type: none"> Provide copy of/link to the developed training | | | X | X | X | |
| | 1.H – Update and conduct campus wide survey to determine effectiveness of the Outreach and Ed. program | TFISE | <ul style="list-style-type: none"> Determine if/which questions must be retained from previous survey, develop more campus relevant survey, and conduct survey of faculty, staff, and students to determine stormwater awareness and areas of program improvement. | <ul style="list-style-type: none"> Provide copy of survey along with results and analysis | | X | X | | | |
| | 1.H.1. – Conduct follow up survey every 2-4 years | TFISE | <ul style="list-style-type: none"> Utilizing updated survey, conduct survey of faculty/staff/students on routine basis to determine program effectiveness and areas needing improvement | <ul style="list-style-type: none"> Provide results and analysis of survey | | | | X | | |
| | 1.I – Regularly meet with LFUCG MS4 Coordinator to coordinate programs and provide updates | EMD | <ul style="list-style-type: none"> Set up meetings/calls (minimum quarterly) to discuss relevant issues from each MS4 that could benefit or impact the other. | <ul style="list-style-type: none"> Provide dates of the meeting/calls along with a summary of the discussion | | X | X | X | X | |
| | 1.J – Develop a consortium of stormwater professionals targeting universities | TFISE | <ul style="list-style-type: none"> Develop a network of individuals Meet with stormwater professionals to discuss campus stormwater and share ideas at least once annually. | <ul style="list-style-type: none"> Provide meeting date(s), attendees, and the agenda/list of topics discussed | | | | X | X | |
| | 1.K – Develop a stormwater steward certification program (StormCats) similar to the backyard stream steward certification process | TFISE | <ul style="list-style-type: none"> Develop program along with online modules that can be used to gain certification in stormwater protection. Center program around campus/MS4. | <ul style="list-style-type: none"> Provide link to program and modules (e.g. Canvas) | | | | X | | |
| MCM 2 | Public Involvement/Participation | | | | | | | | | |
| | 2.A – Update and Improve the stormdrain marking program | EMD/TFISE | <ul style="list-style-type: none"> Develop a redesign for the stormdrain marking program and plan in year two Coordinate the program and participation with the marked drain inventory and the interactive map completion. | <ul style="list-style-type: none"> Provide progress update of efforts/changes completed each year | | X | X | X | X | |
| | 2.A.1 – Update inventory of marked drains via intern program | EMD | <ul style="list-style-type: none"> Develop an outline for intern job responsibilities Begin/complete intern hiring process Work with FIS to create map/inventory for intern to document findings Assign duties to intern and train Continue with process annually until inventory is complete | <ul style="list-style-type: none"> Intern progress will be tracked via map/inventory system. Provide updates on progress via inventory/map versions and/or link. | | X | X | X | X | |
| | 2.A.2 – Develop interactive map to show/track drain marking activity | EMD/FIS | <ul style="list-style-type: none"> Work with FIS to develop interactive map to be added to webpage that indicates storm drain locations and which ones are marked/need to be marked. | <ul style="list-style-type: none"> Map added to website, link provided | | X | X | X | | |
| | 2.A.3 – Develop advertising/awareness campaign to improve program participation | TFISE | <ul style="list-style-type: none"> Create various advertising materials Market program to faculty, staff, students, and visitors through various means to increase awareness and participation annually once completed. | <ul style="list-style-type: none"> Provide # stormdrains marked annually Provide # of participants annually Provide copy of marketing materials | | | X | X | X | |
| | 2.B – Involve students, faculty, and staff in stormwater activities (e.g. drain marking, rain garden maintenance, new stream restoration project) | TFISE | <ul style="list-style-type: none"> Involve students in a minimum of two activities per year | <ul style="list-style-type: none"> Provide list of activities, list of participants, and photos | X | X | X | X | X | |
| | 2.B.1 – Develop procedures for alerting public (Faculty, Staff, Students, etc.) of program participation opportunities and changes/updates | TFISE | <ul style="list-style-type: none"> Determine notification preferences, including how best to utilize the webpage (see task 2.B.2) Create procedures outlining when and how notifications are used | <ul style="list-style-type: none"> Provide copy of notification methods and procedures/include in the Stormwater Operations Manual Provide copies of any notifications | | X | X | X | | |
| | 2.B.2 – Update webpage (see task 1.B) to include an events calendar or latest info | TFISE/EMD | <ul style="list-style-type: none"> Include public alerts, notifications, and updates on webpage/social media. | <ul style="list-style-type: none"> Provide link to webpage & copies/dates of notifications | | | X | | | |

| Activity | 2018 SWQMP Tasks | Responsibility | Measurable Goal | Evidence of Completion | Deadline/Frequency | | | | | | |
|---|---|---|--|---|--------------------|-----|-----|-----|-----|----------|---|
| | | | | | PY1 | PY2 | PY3 | PY4 | PY5 | Complete | |
| | 2.C. – Consider development of brief pre and post survey for activity participants | TFISE | <ul style="list-style-type: none"> Develop pre and post survey templates in year three and identify activities suitable to perform surveys Conduct at least one survey activity in years 4 and 5 to gain feedback on the stormwater program and/or the activity. | <ul style="list-style-type: none"> Provide a copy of any surveys conducted along with the results | | | X | X | X | | |
| MCM 3 | Illicit Discharge Detection and Elimination | | | | | | | | | | |
| | 3.A - Maintain and update MS4 and Utility Maps annually/as necessary | EMD, Utilities | <ul style="list-style-type: none"> Add recently installed bmp's, changes, and updates to MS4 system as they occur | <ul style="list-style-type: none"> Utility map updated online Latest version of MS4 map added to website | X | X | X | X | X | | |
| | 3.A.1. - Update Utility map to include Bell 2017 assessment/mapping info | Utilities | <ul style="list-style-type: none"> Provide the survey information from Bell's assessment to FIS for inclusion on the Utility map | <ul style="list-style-type: none"> Include the latest data on the utility map and provide the link | | X | X | X | X | | |
| | 3.A.2 – Develop clear procedures for recording/reporting of MS4 boundary expansion and inclusion of new territory in MS4/University O&M and add to the Stormwater Operations Manual | EMD, Facility Operations, Utilities, Real Estate | <ul style="list-style-type: none"> Determine steps and current procedures for adding property and notification to Utilities/Facility Operations/EMD in year two Develop/amend current procedures and include documentation of notification in year two/three Add procedures to Stormwater Operations Manual | <ul style="list-style-type: none"> Provide list of procedures | | X | X | | | | ✓ |
| | | | | <ul style="list-style-type: none"> Provide list/map of added properties (include link) | | | | | | | |
| | | | | | | | | | | | |
| | 3.B - Review IDDE Plan and update as necessary | EMD | <ul style="list-style-type: none"> Bring the plan up to date Include the updated MS4 map and adjust any references to the map | <ul style="list-style-type: none"> Provide copy of updated plan | X | | | | | | ✓ |
| | 3.B.1 – Update to include the new permit requirements | EMD | <ul style="list-style-type: none"> Compare contents of existing plan to the permit requirements Amend content as necessary | <ul style="list-style-type: none"> Provide copy of updated plan | X | | | | | | ✓ |
| | 3.B.2 – Develop SSO protocols and resolution timeframes | EMD, Facility Operations, Utilities | <ul style="list-style-type: none"> Develop a Sanitary Sewer Overflow response policy/procedures/guidelines that include clean up requirements, reasonable timeframes for clean-up/correction, and notification procedures Distribute protocols to those involved in SSO response, train as necessary | <ul style="list-style-type: none"> Provide copy of procedures Provide distribution list and/or training sign in sheet | | X | X | X | | | |
| | 3.B.3 – Incorporate procedures/requirements into the Stormwater Operations Manual | EMD | <ul style="list-style-type: none"> Add SSO section to the Stormwater Operations Manual | <ul style="list-style-type: none"> Provide copy of the Stormwater Operations Manual once completed | | | | | | X | |
| | 3.B.4 – Visually inspect outfalls from campus annually | EMD | <ul style="list-style-type: none"> Inspect outfalls during dry weather based on IDDE Manual requirements Input inspections into MS4 database | <ul style="list-style-type: none"> Provide copy of outfall inspection reports | X | X | X | X | X | | |
| | 3.B.5 – Evaluate the assessment of dry weather flows in known areas of concern on campus | EMD | <ul style="list-style-type: none"> Determine the need for dry weather flow assessment based on historical sampling data and outfall inspections Determine if resources are available this permit cycle for sampling efforts (time, budget) Develop/add to monitoring program as necessary | <ul style="list-style-type: none"> Provide summary of determination, timetables, and a copy of the monitoring plan/QAPP if/when developed. | | X | X | X | X | | |
| | 3.B.5.a – Evaluate assessment of UK based dry weather flows to the Manchester Street Culvert via confined space entry and sampling of E.coli, Ammonia, TSS, and other constituents | EMD | <ul style="list-style-type: none"> Review LFUCG sampling data Observe dry weather flows through system Discuss possibility of coordination with LFUCG Develop/add to monitoring program as necessary | <ul style="list-style-type: none"> Provide summary of evaluation and any assessment findings (if applicable) | | | | X | X | | |
| | 3.C – Update website and complaint reporting mechanism (see tasks 1.B and 1.B.2) | EMD, TFISE | <ul style="list-style-type: none"> Develop a reporting mechanism that allows the user to quickly snap a photo of an issue and send directly to EMD. | <ul style="list-style-type: none"> Provide link to reporting mechanism | | X | X | | | | |
| | 3.D – Update staff training on illicit discharge identification and reporting (see task 1.F) | EMD, TFISE, Facility Operations | <ul style="list-style-type: none"> Consolidate and update existing online staff training Develop staff protocols for reporting and include information on the new reporting mechanism Add protocols to IDDE Manual/Stormwater Operations Manual | <ul style="list-style-type: none"> Provide copy of/link to training | | | | | | | |
| <ul style="list-style-type: none"> Provide copy of protocols | | | | | | X | | | | | |
| | | | | | | | | | | | |
| 3.D.1 – Integrate illicit discharge detection and prevention into routine staff duties | Facility Operations, Utilities, Athletics | <ul style="list-style-type: none"> Evaluate activities already being performed by staff where the inspection of storm drains and reporting of issues can be easily integrated. Add inspection of surrounding storm drains to SPCC monthly inspection list Train grounds staff how to identify issues when mowing, etc. | <ul style="list-style-type: none"> Provide list/description of activities where IDDE has been integrated | | | X | X | | | | |
| 3.D.2 – Include all information/procedures into a comprehensive Stormwater Operations Manual | EMD | <ul style="list-style-type: none"> Integrate training and procedures developed into the Stormwater Operations Manual | <ul style="list-style-type: none"> Provide copies of any/all procedure updates being included in manual or a copy of the created/updated Stormwater Operations Manual | | | | X | | | | |
| 3.D.3 – Develop video on most frequent illicit discharges and how to report them (Task 1.F.1) | TFISE, EMD | <ul style="list-style-type: none"> Determine most frequent illicit discharges Work with TFISE to develop video Distribute/utilize video | <ul style="list-style-type: none"> Provide link to video | | | | | | X | | |
| | | | <ul style="list-style-type: none"> Provide distribution list and/or list of trainings/discussions where video is used | | | | | | | | |
| | | | | | | | | | | | |

| Activity | 2018 SWQMP Tasks | Responsibility | Measurable Goal | Evidence of Completion | Deadline/Frequency | | | | | |
|--------------|---|-----------------------------------|---|---|--------------------|-----|-----|-----|-----|----------|
| | | | | | PY1 | PY2 | PY3 | PY4 | PY5 | Complete |
| | 3.E – Update and maintain the illicit discharge tracking program as necessary | EMD | • Document all complaints and input into MS4 web as they occur | • Provide copy of complaint reports | X | X | X | X | X | |
| | 3.F – Evaluate performing additional/routine Thermal Imaging scans to locate possible discharges and develop procedures as necessary | EMD, Utilities | • Determine if additional/routine scans will be beneficial/economically viable • Determine protocols for how/when scans will be used. • Plan for future scans as necessary | • Provide summary of determination • Provide copy of protocols/include in Stormwater Operations Manual • Provide schedule of future scan (if applicable) | | X | | | | ✓ |
| | 3.F.1 – Locate, prioritize, and minimize heating/cooling system leaks | Utilities | • Investigate as necessary to determine source of leaks impacting the storm sewer system • Develop a prioritized repair list • Repair/maintain system as necessary to minimize leaks and impact to the storm sewer system | • Provide list of annual investigation efforts/repairs made/maintenance costs • Provide prioritized repair list | X | X | X | X | X | |
| | 3.G – Complete Greenhouse conversion to sanitary sewer | Facility Operations | • Divert remaining greenhouse drains from storm to sanitary | • Provide evidence of completion (project as-builts/invoices) | X | | X | X | | |
| | 3.H – Minimize cigarette butts entering storm drains | EMD, Facility Operations, Grounds | • Meet with UK Tobacco-free Taskforce to discuss cigarette butts entering storm drains, the impact on stormwater, and stormwater requirements. • Develop/implement bmp's to prevent cigarette butts from entering storm drains • Coordinate with LFUCG at campus boundaries | • Provide sign-in sheet/meeting minutes/copy of invite • Provide list/description of bmp's implemented | | | X | X | | |
| MCM 4 | Construction Site Stormwater Runoff Control | | | | | | | | | |
| | 4.A. – Improve the project notification/review process, including timing of notification and inclusion of appropriate departments | CPMD/Facility Operations | • Update the Capital Projects Typical Projects Step List • Educate CPMD Project Managers on updated project steps • Develop/verify Facility Operations procedures and update as necessary | • Provide copy of updated project steps list • Provide copy of presentation and/or meeting sign in sheet for PM training • Provide copy of updated Facility Operations procedures | | X | X | | | ✓ |
| | 4.B – Develop alternative to permit issuance as part of formal review process (i.e. – EMD Notification to Proceed) | CPMD, EMD | • Create project step that requires approval of water quality measures by CPMD and EMD before a project can proceed • Create procedures for how step will be utilized and enforced • Integrate step into MS4 web and project manager project step list | • Provide procedures for approval process | | X | X | | | ✓ |
| | 4.C – Strengthen contract language requiring contractors to implement SWPPP controls, obtain stormwater permit coverage, and maintain compliance with stormwater requirements | CPMD | • Update contract language to provide for better enforcement capability and correction of construction site stormwater deficiencies | • Provide copy of updated contract language | X | | | | | ✓ |
| | 4.D – Perform audit inspections on construction sites monthly | CPMD | • Inspect all active construction sites once per month minimum | • Provide number of inspections conducted as well as copies of the inspections/annual inspection report | X | X | X | X | X | |
| | 4.D.1 – Update construction site inspection checklist as necessary | CPMD, EMD | • Tailor existing checklist to better meet UK needs or develop new checklist • Update MS4 web with any changes | • Provide copy of updated checklist | | X | | | | ✓ |
| | 4.D.2 – Develop progressive/escalating enforcement policy and procedures for SWPPP/KYR10 violations (See task 3.A) | CPMD, EMD | • In conjunction with contract language changes, develop enforcement policy and procedures for SWPPP violations. • Update design standards to clarify requirements and expectations of contractors | • Provide copy of enforcement policy/procedures • Provide copy of updated design standards | | X | X | | | ✓ |
| | 4.D.2.a – Develop RFP for Stormwater Remediation and award contract | CPMD | • Draft and post Stormwater Remediation RFP • Review proposals and select contractor • Utilize contractor to repair stormwater deficiencies on active construction sites as needed | • Provide selected contractor information and description of duties • Provide list of construction sites contractor has been hired to repair along with list of deficiencies corrected | | X | | | | ✓ |
| | 4.D.3 – Update/maintain inspection and enforcement tracking mechanism as necessary | CPMD, EMD | • MS4 Web regularly updated with inspection and compliance information | • Provide an up to date inspection report | X | X | X | X | X | |
| | 4.D.4 – Develop and implement an internal QC process to ensure site inspections are being performed and KYR 10 requirements are being met | EMD | • Develop procedures for the auditing of UK's construction site stormwater inspection program to ensure MS4 permit requirements are being met • Conduct audit of program annually | • Provide copy of procedures • Provide audit results/report | | | | X | X | |
| | 4.E – Review construction plans to ensure SWPPP measures are being incorporated for all projects disturbing 1 acre or more | CPMD | • Review all applicable construction project plans to ensure stormwater requirements are being met • Update MS4 web with review information | • Provide list of all construction projects reviewed annually | X | X | X | X | X | |

| Activity | 2018 SWQMP Tasks | Responsibility | Measurable Goal | Evidence of Completion | Deadline/Frequency | | | | | |
|--------------|---|---|---|--|--------------------|-----|-----|-----|-----|----------|
| | | | | | PY1 | PY2 | PY3 | PY4 | PY5 | Complete |
| | 4.E.1 – Continue to utilize LFUCG’s most recent stormwater requirements, including their Stormwater Manual and LID guidelines | CPMD, EMD | <ul style="list-style-type: none"> Update contract/design standards as needed Review projects based on LFUCG guidelines Update MS4 Web as needed | <ul style="list-style-type: none"> Provide copy of updated contract/design standards Provide project review reports from MS4 web | X | X | X | X | X | |
| | 4.E.2 – Update SWPPP review checklists | CPMD, EMD | <ul style="list-style-type: none"> Adopt the LFUCG Land Disturbance Permit Application and Sediment Control Plan Checklist for project review, tailor to fit UK needs, and integrate into MS4 web Develop addition checklist for SWPPP requirement review based on KYR10 and integrate into MS4 Web | <ul style="list-style-type: none"> Provide copy of updated checklist(s) | | X | | | | ✓ |
| | 4.F – Have designated staff reviewing plans or performing inspections receive/maintain KEPSC Inspector Certification | EMD | <ul style="list-style-type: none"> Require designated staff to maintain current certification | <ul style="list-style-type: none"> Provide staff certification information | X | X | X | X | X | |
| | 4.G – Develop training program to educate contractors and designers on stormwater requirements | CPMD, EMD | <ul style="list-style-type: none"> Create training program procedures, goals, and guidelines | <ul style="list-style-type: none"> Provide copy of training procedures/goals/guidelines | | X | X | | | |
| | 4.G.1 – Develop UK construction process/requirement training | CPMD, Facility Operations | <ul style="list-style-type: none"> Develop training in year two Conduct training annually (minimum) | <ul style="list-style-type: none"> Provide training presentation/ information Provide training schedule & sign in sheets | | | X | X | X | |
| | 4.G.2 – Develop KYR10 Requirement training | CPMD, EMD | <ul style="list-style-type: none"> Develop training in year two/three Conduct training with each project/annually (minimum) | <ul style="list-style-type: none"> Provide training presentation/ information Provide training schedule & sign in sheets | | | X | X | X | |
| | 4.G.3 – Develop SWPPP development/requirement training | CPMD, EMD | <ul style="list-style-type: none"> Develop training in year three Conduct annually/as needed | <ul style="list-style-type: none"> Provide training presentation/ information Provide training schedule & sign in sheets | | | X | X | X | |
| | 4.G.4 – Work with the Kentucky Transportation Center to provide KEPSC Inspector Training on campus annually (minimum) | EMD | <ul style="list-style-type: none"> Contact the Kentucky Transportation Center and discuss possibility of providing training on campus annually Hold training annually (if possible) | <ul style="list-style-type: none"> Provide summary of discussion Provide training schedule (if applicable) | | X | | | | ✓ |
| | 4.G.5 – Develop stormwater site inspection review training to be provided for each project | CPMD, EMD | <ul style="list-style-type: none"> Develop training in year three to be provided during the preconstruction meeting of each project | <ul style="list-style-type: none"> Provide copy of training Provide list of projects and sign in/training acknowledgement sheet | | | X | X | | |
| | 4.H – Develop formal policy/guidance/procedure for small construction projects (<1 acre) | CPMD, Facility Operations | <ul style="list-style-type: none"> Create written procedures/policy for handling stormwater on small construction projects (review, approval, bmp selection, inspection, contractor training, etc.) Put policy in place for small construction projects (as appropriate) | <ul style="list-style-type: none"> Provide copy of developed policies/procedures | | X | X | X | | |
| MCM 5 | Post Construction Stormwater Management | | | | | | | | | |
| | 5.A – Continue the adoption of LFUCG Post Construction Requirements for New/Redevelopment | CPMD/EMD | <ul style="list-style-type: none"> Require the submittal of a narrative and Executive Summary for new or re-development for all applicable projects Review projects based on latest LFUCG standards Update design and construction standards with any changes to post construction stormwater quality requirements as necessary Update MS4 web with project information and approvals | <ul style="list-style-type: none"> Maintain submitted information for each project Provide copy of updated design and construction standards if applicable Provide list of approved projects/ MS4 web report | X | X | X | X | X | |
| | 5.A.1 – Review possibility of finalizing LFUCG Memorandum of Understanding | EMD | <ul style="list-style-type: none"> Begin discussions with UK and LFUCG regarding the completion of a MOU between the two MS4’s Complete and sign the MOU if applicable | <ul style="list-style-type: none"> Provide summary of the determination and/or copy of the completed/signed MOU | | | X | X | X | |
| | 5.A.2 – Evaluate the development of a Stormwater Masterplan for UK’s main campus | EMD, CPMD, Sustainability, Facility Operations, Utilities | <ul style="list-style-type: none"> Meet with applicable stakeholders to determine the need for a masterplan, it’s components, and development Begin development of masterplan or schedule development of masterplan as needed Create UK standards for stormwater post construction BMP selection (consider local water quality impairments) Evaluate adopting the UK Landscape Guidelines as policy and enforcement of the policy Incorporate into work flow and utilize the SITES review process (or equivalent) on all construction projects | <ul style="list-style-type: none"> Provide meeting minutes/summary, sign in sheet, and copy of masterplan or schedule (if applicable) Provide copy of post construction BMP selection standards Provide update on Landscape Guidelines as policy determination along with procedures for enforcement of policy if applicable Provide procedures for SITES review process (or equivalent) Provide documentation of review processes use on new construction sites (score cards, etc) | | X | X | X | | |
| | 5.B – Review plans to ensure post-construction stormwater quality treatment has been addressed | CPMD/EMD | <ul style="list-style-type: none"> Review plans in accordance with latest LFUCG requirements Document review of plans in MS4 Web | <ul style="list-style-type: none"> Provide report of reviewed projects | X | X | X | X | X | |
| | 5.B.1 – Have those employees responsible attend training regarding plan review and post construction BMP’s when available | CPMD/EMD | <ul style="list-style-type: none"> Attend training when available | <ul style="list-style-type: none"> Provide training information (dates, attendees, etc) | X | X | X | X | X | |

| Activity | 2018 SWQMP Tasks | Responsibility | Measurable Goal | Evidence of Completion | Deadline/Frequency | | | | | | |
|--|--|--|---|--|--------------------|-----|-----|-----|-----|----------|---|
| | | | | | PY1 | PY2 | PY3 | PY4 | PY5 | Complete | |
| | 5.B.2 – Adopt the LFUCG Land Disturbance Permit Application and Sediment Control Plan Checklist for project review and tailor to fit UK's needs. (Task 4.E.2.a) | CPMD/EMD | <ul style="list-style-type: none"> Checklist adopted, tailored to fit UK needs, and updated to include additional components for post construction requirements Update MS4 Web with new checklist Begin using new checklist for project review | <ul style="list-style-type: none"> Provide copy of updated checklist Provide MS4 web report and/or copies of completed project review checklists | | X | | | | | ✓ |
| | 5.C – Conduct inspections to ensure measures are being installed correctly | CPMD | <ul style="list-style-type: none"> Conduct punch list walkthrough and/or NOT inspection for all new construction projects upon project completion Document inspection in MS4 web | <ul style="list-style-type: none"> Provide list of completed inspections | X | X | X | X | X | | |
| | 5.D – Revise long-term post-construction stormwater quality BMP inspection program | Facility Operations, EMD, Utilities | <ul style="list-style-type: none"> Inspect 20% of above ground post construction BMPs annually Inspect 100% of underground BMP's annually | <ul style="list-style-type: none"> Provide report/list of all inspected bmp's along with findings Provide preventative maintenance program procedures/guidelines | X | X | X | X | X | | |
| | | | <ul style="list-style-type: none"> Develop preventative maintenance program for all UK owned post construction BMP's in year two | <ul style="list-style-type: none"> Provide copy of pm cost assessment | | | | | | | |
| | | | <ul style="list-style-type: none"> Develop tracking system to assess long term pm cost for bmp's in conjunction with PM program | <ul style="list-style-type: none"> Provide list of all maintenance performed on BMP's | | | | | | | |
| | | | <ul style="list-style-type: none"> Assist EDR with development of PM program for EDR owned bmp's in year two Document all inspections and maintenance in MS4 web or effective equivalent | <ul style="list-style-type: none"> Provide copy of EDR PM plan | | | | | | | |
| | 5.E – Incorporate all relevant post-construction information into new Stormwater Operations Manual | CPMD, EMD, Facility Operations | <ul style="list-style-type: none"> Include all inspection, bmp maintenance procedures and schedules, site plan review/post construction processes, etc. in new Stormwater Operations Manual | <ul style="list-style-type: none"> Provide copy of Stormwater Operations Manual/Procedures | | | X | X | | | |
| 5.F – Advise administrative staff on the benefits of green infrastructure and the costs of construction and maintenance as compared to that of gray infrastructure. Do this prior to/in conjunction with tasks 5.A.2 | EMD, Facility Operations Grounds, Sustainability | <ul style="list-style-type: none"> Develop comparison of green vs gray infrastructure to include costs and benefits Provide information to administrative staff via report and/or presentation | <ul style="list-style-type: none"> Provide copy of report/presentation | | X | X | X | | | | |
| 5.G – Incorporate Stormwater Program into Sustainability Strategic Plan | EMD, Sustainability | <ul style="list-style-type: none"> Update Sustainability Strategic Plan to include water section | <ul style="list-style-type: none"> Provide copy of updated Strategic Plan | X | | | | | | ✓ | |
| MCM 6 | Pollution Prevention/Good Housekeeping for Municipal Operations | | | | | | | | | | |
| | 6.A – Develop comprehensive UK Stormwater Operations Manual to include all policies/procedures/bmps utilized to meet permit requirements (all MCM's) | Facility Operations, Utilities, Athletics, EMD | <ul style="list-style-type: none"> Integrate all existing procedures/ departmental policies into new manual Update existing policies/procedures to improve permit compliance (Environmental Handbook, Factsheets, etc.) Create new policies/procedures as necessary Incorporate inventory of facilities, campus maintenance activities, and maintenance schedules | <ul style="list-style-type: none"> Provide completed Stormwater Operations Manual | | | | | | X | |
| | 6.A.1 – Update BMP O&M Manual to include specific maintenance requirements, calendar of required activities, and responsibilities for each existing post construction BMP | EMD, CPMD, Utilities, Facility Operations | <ul style="list-style-type: none"> Compile all O&M Manuals for new and recently installed bmp's Create bmp specific requirements based on manufacturer's recommendations and existing O&M manual Create calendar for completing required maintenance activities for all bmp's Assign/Update responsibilities for maintenance of each bmp Incorporate/Coordinate with BMP inspection program (see task 5.D) | <ul style="list-style-type: none"> Provide copy of O&M manual including the activity calendar and responsibility assignments to be integrated into comprehensive Stormwater Procedure Manual. | | | X | X | | | |
| | 6.A.1.a – Determine which activities will be contracted out (e.g. underground bmp annual inspections and maintenance, pervious pavement cleaning) and issue RFP as necessary (See task 5.D – Preventative Maintenance Program) | Facility Operations, Utilities | <ul style="list-style-type: none"> Determine which activities require contractor assistance Draft and issue RFP Hire contractor Schedule and perform inspections and maintenance as needed | <ul style="list-style-type: none"> Provide inspection reports and maintenance invoices | | X | X | X | X | | |
| | 6.A.1.b – Incorporate maintenance calendar into SAP Plant Maintenance system and create scheduled work orders for all activities | Facility Operations, Utilities | <ul style="list-style-type: none"> Provide completed O&M Manual and calendar to Facility Operations/Utilities Utilize information to create reoccurring work orders in PM system | <ul style="list-style-type: none"> Provide example reports of SAP data/work orders | | | | X | | | |
| | 6.A.2. – Evaluate incorporation of SPCC program into Stormwater Program | EMD | <ul style="list-style-type: none"> Determine if/how the two programs can be combined | <ul style="list-style-type: none"> Provide determination and integration plan (if available) | | | X | | | | ✓ |
| | | | <ul style="list-style-type: none"> Create plan to integrate two programs (as necessary) | | | | | | | | |

| Activity | 2018 SWQMP Tasks | Responsibility | Measurable Goal | Evidence of Completion | Deadline/Frequency | | | | | |
|--|--|--|---|--|--------------------|-----|-----|-----|-----|----------|
| | | | | | PY1 | PY2 | PY3 | PY4 | PY5 | Complete |
| | 6.A.3 – Develop procedures for rainwater harvesting system monitoring and reporting | Facility Operations, EMD | <ul style="list-style-type: none"> Utilizing LFUCG requirements and manufacturers O&M manuals, develop departmental procedures for monitoring the use of harvesting systems. Record monthly/annual use and total water harvested | <ul style="list-style-type: none"> Provide water harvesting data for all systems | | | | X | X | |
| | 6.A.4 – Create policy/procedures surrounding stormwater protection during emergency/unplanned events (water main breaks, etc.) | Facility Operations, Utilities, EMD | <ul style="list-style-type: none"> Develop SOP for bmp implementation in response to emergencies/ unplanned events | <ul style="list-style-type: none"> Provide copy of policy/ procedures | | X | X | X | | |
| | 6.A.5 – Create policy/procedures for unknown spill cleanup (dumpsters, etc.) | Facility Operations | <ul style="list-style-type: none"> Create SOP for response, notification, & proper clean-up of unknown spills | <ul style="list-style-type: none"> Provide copy of policy/ procedures | | X | X | X | | |
| | 6.A.6 – Develop SOP's for all Athletics activities that impact stormwater | Athletics, EMD | <ul style="list-style-type: none"> Assess Athletics maintenance activities and determine which activities (e.g. irrigation, fertilization, materials storage, etc.) have the potential to impact stormwater Develop SOP's/BMP's for those activities | <ul style="list-style-type: none"> Provide fact sheets/SOP's | | | X | X | | |
| | 6.B – Update Employee Training Program | EMD, Utilities, Facility Operations, Athletics | <ul style="list-style-type: none"> Evaluate employee training participation/documentation and improve as needed Update/consolidate training as necessary Train employees on new procedures developed during permit term Integrate training prescribed actions into departmental procedures & employee behaviors/actions | <ul style="list-style-type: none"> Provide list of updated training Provide sign in sheets for any training conducted Provide evidence of procedures that have been amended to alter employee behavior to protect stormwater | | | | | | X |
| | 6.C – Evaluate pollution prevention measures for coal stockpiles and upgrade, improve, or maintain as necessary | Utilities, EMD | <ul style="list-style-type: none"> Assess and improve coal pile discharge at Wildcat Court Evaluate remaining coal pile bmp's for effectiveness Determine alternate bmp's for ineffective bmps Install new bmp's as necessary | <ul style="list-style-type: none"> Provide assessment information and list of replacement bmp's installed | | X | X | X | | |
| | 6.D – Develop Waterfowl Management Program in response to local impairments (See task 8.C) | Facility Operations | <ul style="list-style-type: none"> Assess waterfowl impact on water quality Assess and move forward with alternative management techniques for Gluck Pond Develop area specific Waterfowl Management Program for impacted areas of campus as needed | <ul style="list-style-type: none"> Provide assessment results Provide description and photos of installed bmp's and measures put in place at Gluck Pond Provide copy of management plan | | | X | X | | ✓ |
| | 6.E – Develop steam/chilled water infrastructure repair priority list (See task 3.F.1) | Utilities | <ul style="list-style-type: none"> Create list of required maintenance based on leak detection efforts | <ul style="list-style-type: none"> Provide list of annual investigation efforts/repairs made/maintenance costs Provide prioritized repair list | X | X | X | X | X | |
| | 6.F – Create procedures to address/repair stormwater issues/problems on campus once they are identified | EMD, Utilities, Facility Operations, Athletics | <ul style="list-style-type: none"> Create general procedures for notification, responsibility assignment, bmp installation (temporary and permanent), repair/resolution, timeframes, and reporting. Add procedures to the Stormwater Operations Manual | <ul style="list-style-type: none"> Provide copy of procedures | | | | X | | |
| 6.G – Evaluate changes to administrative regulation 6:3 with regard to stormwater during upcoming review cycle in 2021 | EMD | <ul style="list-style-type: none"> During regular administrative regulation review cycle, determine if administrative regulation 6:3 needs to be amended based on stormwater program performance. | <ul style="list-style-type: none"> Provide assessment summary and/or any administrative regulation updates | | | | X | | | |
| SWQMP Review and Mod | | | | | | | | | | |
| | 7.A – Review SWQMP annually and update as required by permit | EMD | <ul style="list-style-type: none"> Determine completion of SWQMP tasks annually Evaluate bmp effectiveness and scheduling Modify SWQMP as needed (in accordance with permit) | <ul style="list-style-type: none"> Provide a summary of the SWQMP assessment along with a description of any modifications made. Include a description of any replacement BMP's along with an analysis of why the former bmp was ineffective or infeasible. Provide information regarding any modifications to the schedule <i>*See the permit for more details regarding the information to be included with this task</i> | X | X | X | X | X | |

| Activity | 2018 SWQMP Tasks | Responsibility | Measurable Goal | Evidence of Completion | Deadline/Frequency | | | | | |
|--------------------------|--|---|--|--|--------------------|-----|-----|-----|-----|----------|
| | | | | | PY1 | PY2 | PY3 | PY4 | PY5 | Complete |
| TMDL's & Impaired Waters | 8.A – Implement BMP's in Big Elm Fork Watershed in response to recent impairment | Utilities, Athletics | <ul style="list-style-type: none"> Continue sewer line evaluation/cross connection review Seal all manholes in Shawneetown/Greg Page area as needed Evaluate development of BMP's to prevent discharges of grey/blackwater from tailgating RV's. Implement as necessary. (Coordinate with Task 1.C.1.a) Perform monitoring to evaluate bmp implementation/need Develop additional bmps as necessary | <ul style="list-style-type: none"> Provide assessment reports/invoices/photos Provide photos/description of any bmp's implemented Provide monitoring results/assessment | X | X | X | X | X | |
| | 8.B – Begin/continue watershed focused monitoring as appropriate (see task 9.A) | EMD | <ul style="list-style-type: none"> Sample watershed dry weather flow to determine contribution to local impairments and direct bmp implementation (as appropriate) | <ul style="list-style-type: none"> Provide sample results/analysis and a description of any action taken as a result | | | | X | X | |
| | 8.C – Continue goose population control efforts at Gluck Pond and FEMA Basins/Big Elm Fork (See task 6.D) | Facility Operations | <ul style="list-style-type: none"> Reduce waterfowl populations | <ul style="list-style-type: none"> Provide a description of efforts taken along with an assessment of waterfowl populations | X | X | X | X | X | |
| Monitoring Plan | 9.A – Assess need/desire/ability to develop and implement watershed focused monitoring plan with emphasis on local watershed impairments | EMD | <ul style="list-style-type: none"> Evaluate the development of a watershed focused monitoring plan Create/Update monitoring plan as necessary Coordinate with LFUCG to determine their monitoring locations, monitoring dates, constituents, and historical data Develop/Update QAPP in association with monitoring plan as necessary Submit monitoring plan and QAPP to DOW for approval if/when developed Begin collecting water samples in accordance with written monitoring plan and QAPP if/when developed | <ul style="list-style-type: none"> Provide copy of Monitoring Plan, QAPP, DOW approval, and Water Quality Monitoring Data/Analysis or summary of determination to not pursue watershed focused monitoring | | | | X | X | |
| | 9.B – Evaluate/Plan completion of campus research monitoring database | TFISE, EMD | <ul style="list-style-type: none"> Work with TFISE Water Working Group to evaluate and complete the campus research monitoring database (as needed) | <ul style="list-style-type: none"> Provide summary of actions related to the database and link to completed database if applicable | | | | | X | |
| Fiscal Req.'s | 10.A – Perform assessment to determine if all departments are adequately funded to perform stormwater duties as assigned | Facility Operations, Utilities, Athletics, TFISE, EMD | <ul style="list-style-type: none"> As work is being done to complete SWQMP tasks, determine if departments are properly funded to accomplish tasks and reoccurring stormwater responsibilities Develop stormwater budget for Utilities Division Assess Grounds Department's ability to perform BMP/storm drain maintenance Develop initial/reoccurring training budget for specialized maintenance needs (if/as needed) | <ul style="list-style-type: none"> Provide annual stormwater budget information | X | X | X | X | X | |
| Reporting Req.'s | 11.A - Develop and submit the annual report by April 15th | EMD | <ul style="list-style-type: none"> Compile information regarding SWQMP task completion along with any additional stormwater efforts | <ul style="list-style-type: none"> Report submitted annually by April 15th | X | X | X | X | X | |
| | 11.A.1 – Develop reporting system for those providing annual report info | EMD/TFISE | <ul style="list-style-type: none"> Have stakeholders provide evidence of task completion along with any additional stormwater effort information in a timely manner | <ul style="list-style-type: none"> Information received and included in annual report | X | X | X | X | X | |