

2023 MS4 Annual Report

Muncie Sanitary District/City of Muncie, Delaware County, Town of Yorktown, and Ivy Tech- Muncie

Certified by



James King, Delaware County Commissioner President

3/31/23

Date

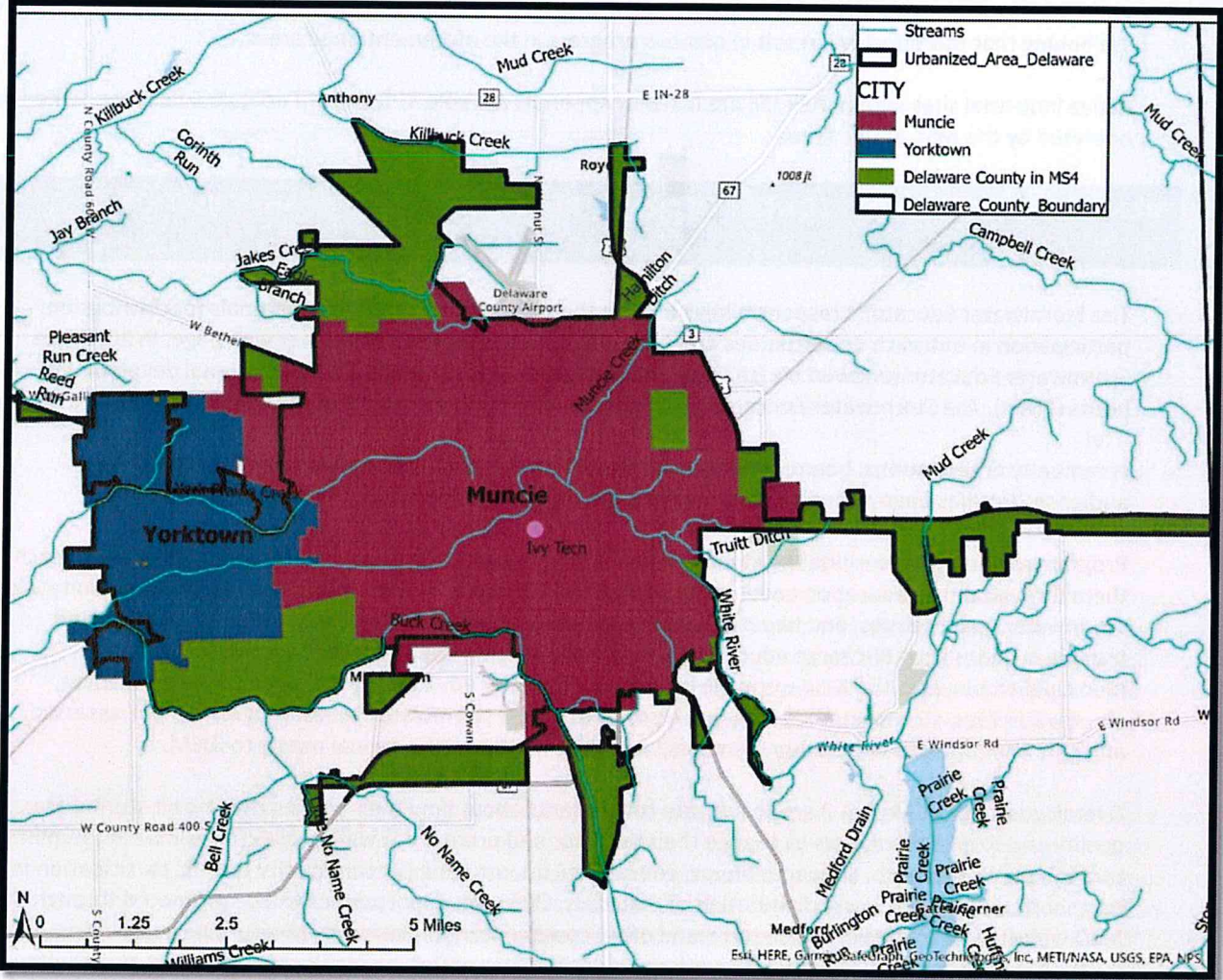


PROGRAM MANAGEMENT

The Municipal Separate Storm Sewer System (MS4) entity is comprised of the co-permitted areas of Delaware County, the City of Muncie/Muncie Sanitary District (MSD), the Town of Yorktown, and IVY Tech of Muncie (Figure 1), and is funded with utility fees. No boundary changes have been made since the urbanized area update following the 2020 census. The President of the Board of Delaware County Commissioners (currently James King) serves as MS4 Operator. The Stormwater Management Department consists of Laura Bowley, MS4 Coordinator and IDDE Specialist, Courtney Pruitt, Construction Compliance Inspector, and Jason Donati, Stormwater Educator.

Reviews and updates to ordinances and regulatory procedures are in progress to ensure consistency with the new MS4 General Permit. The goal is to present all required and recommended updates to the co-permitted entities by June 2023, present it to legal counsel and begin the process of getting all changes approved by the appropriate councils for each entity- for completion by June 2024. There have been no new funding sources or expenditures.

Figure 1. Entities within the MS4 (Urbanized Area) boundaries.



WATER QUALITY CHARACTERIZATIONS

Water quality characterizations include the many Fish and Aquatic Macroinvertebrate Community Reports published by the BWQ (archival reports date back to the 1970s), the Water Quality Characterization Report (WQCR), and the Stormwater Quality Management Report (SWQMP) submitted to IDEM in December of 2022. The BWQ has been monitoring water quality in the Muncie area for over 50 years. The BWQ's data represent the most extensive and consistent sampling data available in the area, which includes near daily sampling from three locations on the White River and monthly sampling from select tributaries within Muncie's city limits.

MS4 receiving waters and HUC-12 watersheds are listed in Appendix A, Table 1; 303d-listed waters within the MS4 are included in Figure 2 and listed in Appendix A, Table 2; and receiving waters with TMDLs are included in Figure 2 and listed in Appendix A, Table 3. Currently, the MS4 is working on determining the best way to assess progress in meeting Total Maximum Daily Limits, Waste Load Allocations and improvements to 303d listed waters. After reviewing results reported in the SWQMP and WQCR, the BWQ has decided to begin focused sampling efforts on a few high priority tributaries, Holt Ditch and Lennox Ditch. The intent is to pinpoint and address water quality issues, improving not only that stream's water quality, but the stream it converges with as well. Holt Ditch enters the West Fork of White River in a stretch with a 303d listing for PCBs/Fish tissue and a TMDL for E. coli. Lennox Ditch enters Buck Creek in a stretch that has a 303d listing for biological integrity. We are hoping that this effort will result in obvious progress in the aforementioned areas.

Active industrial sites within the MS4 are listed in Appendix A, Table 4. There are no Rule 6 facilities owned and operated by the MS4 at this time.

MCM 1 & MCM 2 PUBLIC EDUCATION & OUTREACH AND PUBLIC PARTICIPATION & INVOLVEMENT

The Stormwater Educator's responsibilities include the creation of educational materials for distribution, participation in outreach opportunities and updating/maintaining the stormwater web page. In 2022, the Stormwater Educator renewed his HAZWOPER certification and completed 20 professional development hours (PDHs). The Stormwater Educator and members of the Stormwater Department participate in a variety of community organizations, boards, and events in an effort to expand our network and reach a broader audience. This has been beneficial in developing strong relationships with community partners.

Program requirements include the identification of target constituents and development of a plan to reach them through public education and involvement. Also included is the identification of three community-wide stormwater quality issues, and two public events planned annually to address the issues. Outreach and training includes illicit discharge education and focused training opportunities for contractors and municipal employees. The MS4 webpage includes stormwater education, local stormwater ordinances, stormwater fees, stormwater reports, and a portal to report stormwater issues. Progress will be assessed annually and reported to advisory members, as well as written in the annual report to IDEM.

Overall goals for MCMs 1 & 2 are to educate constituents about how their actions can impact stormwater quality and to give them tools to change their behavior and protect our waterways. This will be accomplished through public outreach, annual cleanups, educational opportunities at community events, participation in neighborhood meetings, and distribution of materials. Outreach opportunities will be promoted through the MSD website, social media, newsletters, and other communication platforms. Measurable goals include the creation/modification of five education materials, attendance at five events (including at least two community-wide events), and three training events.

Target constituents identified by the MS4 include local homeowner's associations (HOAs), construction crews/contractors and commercial and industrial facilities. These constituents were chosen at the end of the first year of coverage under the new permit and thus did not have targeted outreach to each constituent group in the past year. Despite not specifically targeting these constituents, multiple community-wide events attended in 2022 would have reached these groups. Observed behavioral changes include improved stormwater awareness on construction sites, and enhanced communication and cooperation from HOAs.

Three community-wide stormwater quality issues have been identified: 1. Construction- tracking of sediment and debris onto public roadways, 2. Residential- grass-clippings/yard waste prohibiting drainage of stormwater and introducing nutrient pollution in neighborhood streams, and 3. Commercial and Industrial- overflowing waste dumpsters and grass clippings/yard waste left from landscaping companies. In 2023, contact will be made with target constituents, educational materials will be distributed, and meetings and events will be coordinated and attended.

The goal for Construction/Post-Construction education is to reduce the number and seriousness of site violations, as well as educate the construction community on how to comply with stormwater requirements effectively. The number of sites and violations per site will be tracked. Repeat violations from the same company on multiple sites will be noted and become the focus of future training. Measurable goals include providing at least one Contractor Workshop annually, holding a pre-construction meeting for all projects to discuss compliance requirements, and requiring all projects that receive Stop Work Orders to complete online training. The online self-inspection training is available for projects in need of a trained individual to perform the weekly and rain event inspections per the CSGP requirements. The Inspector is also available to walk the site with the project representative to provide training.

In 2022, all education goals were accomplished- target constituents and community-wide stormwater quality issues were identified, over 38 events (including four community-wide events) were attended with the goal of educating about stormwater issues. Educational materials were created or modified and distributed (Appendix B, Table 6). The annual Stormwater Contractor Workshop was offered by the MSD Stormwater Department with 36 contractors, engineers, and consultants in attendance. The online self-inspection training was taken and passed by 13 individuals. MS4 employees were trained in Good Housekeeping and IDDE by the MSD Stormwater Department with 37 attending the department head training, and 187 attending multiple employee training sessions. IDDE training was given to five employees that helped with IDDE inspections. Four partner meetings were held throughout the year. The attendance sheet from one meeting is included in Appendix B, Table 7. Advisory members were present, including the Tom Borchers- Delaware County Surveyor, Stephen Brand- President of the MSD board, Rick Conrad- BWQ Director and former MS4 Coordinator, and John Barlow- MSD Administrator.

Implementation problems for MCMs 1&2 involved training of new employees, hesitation among the public for in-person events, and limited understanding of construction permitting. Despite efforts to "catch" new employees and have them utilize previously recorded IDDE and Good Housekeeping training videos, we have had limited response. Efforts are underway to find a better way to reach these employees. Another issue is lingering hesitancy to allow outside guests in the classroom post-Covid. Hopefully, this will continue to slowly improve in the future. The largest implementation problem for construction/post-construction education is the lack of widespread knowledge of Construction Stormwater General Permit requirements. Many contractors are unaware of the new stabilization and self-monitoring requirements. This has and will continue to be addressed in the contractor workshop as well as during on-site inspections and training.

MCM 3 ILLICIT DISCHARGE DETECTION AND ELIMINATION

The IDDE Specialist's responsibilities include dry weather screening, sampling of flowing outfalls, tracking and eliminating illicit discharges, mapping conveyances and storm drains, responding to complaints and reports of illicit discharges/spills, IDDE training to those assisting with the IDDE program, and IDDE training for municipal employees. The program also includes providing household hazardous waste/auto fluid/medical/e-waste drop-offs and storm drain casting and stenciling. In 2022, the IDDE Specialist obtained 20.5 PDHs, and renewed her Certified Professional in Municipal Stormwater Management (CPMSM) and HAZWOPER certifications.

The BWQ IDDE Plan & Field Investigation Standard Operating Procedure was updated and reviewed in 2023 to reflect the new permit, including changes in procedure and/or protocol. Updates to ordinances and regulatory procedures are in progress to ensure consistency with the new permit requirements.

Program requirements for IDDE include dry weather screening, sampling of outfalls flowing during dry weather, tracking of outfalls found to be illicit, employee training, and elimination of illicit discharges. This also includes documentation of screening, sampling, tracking and elimination of outfalls as well as documentation of public reports of spills and illicit discharges. When an illicit discharge is discovered, an investigation is initiated within two business days of its discovery, the flow needs to be sampled, tracked to the source, and investigated until it is eliminated. Tracking begins by inspecting manholes along the storm drain network until there is no longer flow. At this point, televising or another form of testing (optical brighteners, smoke or dye testing) is necessary to finalize the point of discharge. Each tracked discharge will be classified as "Not Illicit", "Illicit and Eliminated" or "Needs Further Monitoring" and documented via spreadsheet. All new storm drain covers, private and public, are cast with "Dump No Waste, Drains to River", and all municipal facility storm drains are stenciled with the same statement.

Spill reports are handled immediately, including those reported on our 24-hour Report-a-Polluter Hotline. The source is tracked, and flow is eliminated. All information is documented in the Incident Response Report, including all pertinent information- photos, maps, a written description of the occurrence, investigator, and how it was addressed. If the flow is considered a threat to human health or the environment, IDEM is notified.

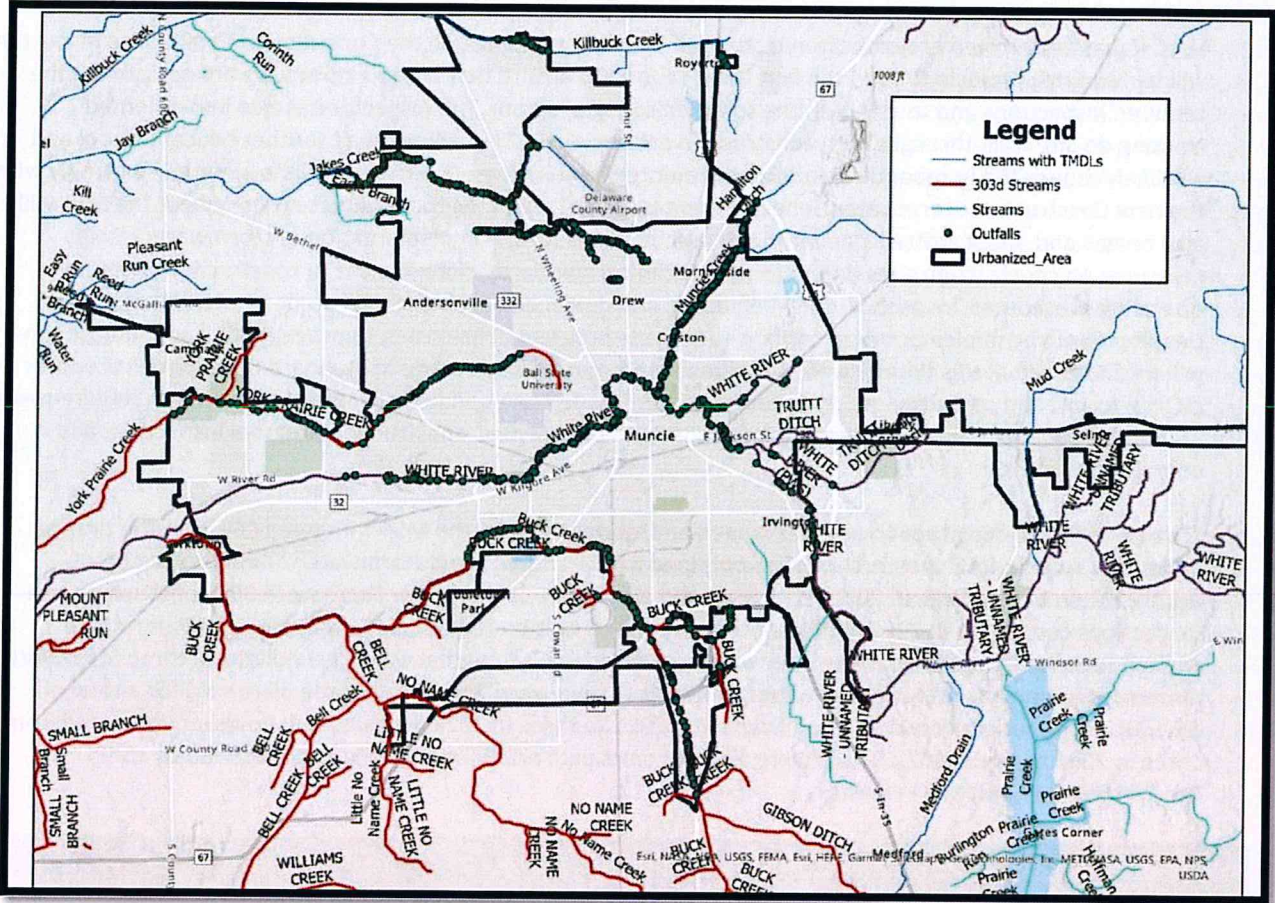
Measurable goals include dry weather screening of 100% of outfalls during the 5-year permit cycle, with the goal of screening 20% annually, weather and resource permitting.

In 2022, 9.41% (91) of the total 969 outfalls (Figure 2) were screened (66 outfalls added since the last annual report) due to limited time and resources. The goal is to screen a minimum of 31% in 2023, and sample all that were found to be flowing. Seven new outfalls were documented (all on Greenfarm Ditch), and nine outfalls were found to be flowing in dry weather. No outfalls were sampled or eliminated. This is less than the goal of dry weather screening 20% of all outfalls annually (and sampling those that are flowing). All outfalls are mapped with new and previously unknown conveyances mapped as they are discovered. Only one illicit discharge/spill was reported to us and required no enforcement action. Five employees (temporary interns) went through IDDE training to assist in dry weather screening.

The Muncie Sanitary District and East Central Recycling are dedicated to keeping harmful substances out of our sewers and waterways, resulting in collection programs for Household Hazardous Waste (HHW), used oil, tires, and e-waste. A total of 425,663 lbs. of hazardous and recyclable materials (19,214 lbs. HHW, 58,959 lbs. paint, 6830 lbs. motor oil, 183900 lbs. MSD electronics, 156760 MSD tires) were prevented from making their way to our waterways in 2022, with 1392 households participating in the HHW program.

Implementation problems for MCM 3 include screening/sampling when time, resources, and/or good weather are limited, and final tracking of illicit discharges. The goal for 2023 will be to screen at least 31% to bring our total to the goal of 20% screened annually. We will be utilizing trained summer interns to assist in screening and sampling. For much of our illicit discharge tracking, we need the assistance of the MSD televising crew, which is already overburdened with sanitary and levee line televising. We are hoping that additional hiring and equipment lead to some assistance. A new MSD-wide software, which includes a field app, will allow access to televising and repair data completed for other projects when tracking our illicit discharges, reducing the number that may need to be newly televised.

Figure 2. MS4 map with outfalls.



MCM 4 CONSTRUCTION STORMWATER RUN-OFF

The Stormwater Construction Inspector’s responsibilities include plan review, project inspections, compliance and enforcement, contractor training, post-construction inspections, good housekeeping/pollution prevention training, and annual MS4 facility inspections. In 2022, the Inspector obtained 24.5 PDHs, and obtained her HAZWOPER and Certified Erosion, Sediment, and Stormwater Inspector (CESSWI) certifications.

The goals of the Construction Stormwater Run-off program are to inspect all sites based on priority criteria, reduce the number and seriousness of site violations and enforcement actions taken, to educate the construction community on how to best comply with stormwater requirements, and to quickly investigate and resolve all complaints.

Measurable goals include holding one Contractor Training, one Municipal Employee Training, one Department Head Training, and investigating 100% of all complaints received, with follow-up inspections until violations are resolved. The goal for site inspections will be approximately once per month based on priority criteria with critical projects being inspected more frequently when able. This amount of inspection goes beyond the minimum requirements outlined in the MS4GP which are as follows: one hundred percent of all new construction sites will be inspected during the initial phase of construction, followed by one hundred percent of all active construction sites more than five acres of land disturbance inspected biannually, and fifty percent of active construction sites with land disturbance between one and five acres inspected annually. Types of violations observed are reviewed annually to determine future training needs.

In 2022, these goals were achieved, with some implementation problems encountered and changes made. First, it was determined projects often lacked self-inspection reports, so the Construction Compliance Inspector will be requiring projects to send the first three reports to ensure that trained individuals are performing the required inspections and to establish the self-monitoring program. The Inspector has also implemented tracking on-site walk-throughs with construction professionals. This will serve as another education tool and will likely reduce the number of violations and enforcement actions. Ordinances will be updated to comply with the new Construction Stormwater General Permit by June 1, 2024. As the ordinance is reviewed, the MS4 will also review and adopt written standards and specifications for the implementation of stormwater quality measures on construction sites (in the form of technical standards). Reviews of the construction program operating procedures, inspection documentation, and guidance documents will occur by April 1st each year. Development and implementation of plans to address program deficiencies, improvements and modifications will be addressed at this time as well. Additional updates have been made to Standard Operating Procedures (SOPs), forms, and spreadsheets. SOPs for MCM 4 & 5 have been updated to match the minimum requirements in the MS4 General Permit and the CSGP. SOPs include plan review, construction program inspection, and complaint tracking.

There are sixteen construction projects owned and/or operated by the MS4 with open CSGPs at the time of submittal. Twenty-four construction sites obtained a MS4 entity-issued stormwater run-off permit or authorization to discharge in 2022- 16 private and eight municipal entities. There were 909 construction site inspections completed in 2022: 369 inspections required written reports, 540 inspections did not require written reports. There were 794 written warnings/violations, 147 verbal warnings/violations, three Stop Work Orders for not having SWPPPs, and a total of five fines (two were waived and three were paid for a total of \$1,150). Stop Work Orders decreased from six in 2021 to three in 2022. Fines issued, however, increased from three in 2021 to five in 2022. There were also 34 complaints or information requests received by the Stormwater Construction Inspector.

MCM 5 POST-CONSTRUCTION STORMWATER RUN-OFF

The Stormwater Construction Inspector's responsibilities include plan review, construction project inspections, compliance and enforcement, post-construction inspections, and good housekeeping and pollution prevention facility inspections. In 2022, the Stormwater Construction Inspector obtained 24.5 professional development hours (PDHs), and obtained her HAZWOPER and Certified Erosion, Sediment, and Stormwater Inspector (CESSWI) certifications.

The goals for the Post-Construction Stormwater Run-off Program are to review all submitted SWPPPs for feasible practices that will protect water quality after the project is completed and to inspect installed practices for continued maintenance and functionality. Measurable goals include the inspection of 100% of post-construction measures per permit cycle (from the adoption of the MS4 post-construction ordinance to current) and investigate all complaints about post-construction measures. If compliance is not achieved, enforcement will be deemed necessary.

Eighteen sites receiving a MS4-issued permit required post-construction measures to be installed in 2022. The number, type and location of structural measures installed in 2022 can be found in Appendix C, Table 8 and includes 56 manholes, 78 catch basins, 104 inlets, and 18490.13 linear ft of conveyance. The number, type and location of structural measures modified to function properly or improve water quality benefits can be found in Appendix C, Table 9 and includes four structures. The number, type and location of structural measures inspected to ensure each meets design requirements and/or are being maintained can be found in Appendix C, Table 10. This includes 17 detention basins, six retention basins, 98 catch basins, 15 vegetated swales, 13 permanent rock check dams, 43 outfalls, three energy dissipation practices, 45 drop inlets, three rain gardens, four impervious disconnects, one wetland, and one concrete block armoring practice. A breakdown of post-construction controls can be found in the spreadsheet named "2022StructuralBMPs" maintained by the Construction Compliance Inspector.

Implementation challenges include ownership communication issues, ambiguous enforcement policies, and change of ownership issues/lack of knowledge of practice maintenance requirements. There have been issues with contacting owners to achieve compliance. To improve communication with owners, letters will be sent prior to post-construction inspections informing them of the upcoming inspection, opening the door for communication prior to the inspection report. This will allow the owner or owner representative to contact the inspector if they would like to walk the site with the inspector to have a better understanding of what is needed and to receive further education materials. Future plans include the development of a clear enforcement strategy for post-construction violations that is similar to the construction fine structure. This will be addressed and included in ordinance changes by June 2024. To address the lack of post-construction maintenance when there is a change of property ownership, the MS4 is exploring legal commitments to bind the modified post-construction agreement to the property deed.

Reviews of the post-construction program operating procedures, implementation challenges, and program deficiencies will occur by April 1st each year with modifications becoming implemented immediately. It is anticipated that most program deficiencies will be resolved by the review and update of our ordinances. These deficiencies include a discrepancy in drainage standards, a lack of legal responsibility in our current Post-Construction Agreement, and lack of technical standards.

MCM 6 MUNICIPAL OPERATIONS POLLUTION PREVENTION & GOOD HOUSEKEEPING

The overall goals of MCM 6 are to reduce or prevent polluted stormwater run-off from MS4-owned and/or operated facilities, to educate MS4 personnel on the federal, state, and local pollution prevention requirements, and to ensure that MS4 conveyances are receiving required maintenance. Annual measurable goals include the goal to train 100% of all MS4 employees, to assess and document 100% of all repaired stormwater outfalls and conveyances, and to inspect all facilities requiring a Stormwater Pollution Prevention Plan.

The Municipal Department Head training was attended by 32, and a total of 187 attended multiple Municipal Employee Trainings (full sign-in sheets available upon request). Online training was completed by four part-time employees and five full-time employees.

New employee training is accomplished by providing a flyer in all new-hire packets informing the employees stormwater training is mandatory and detailing how to use the included QR code to watch a recording of the annual Good Housekeeping/Pollution Prevention and complete the following quiz. Results of the quiz are sent to the Stormwater Educator and MS4 Coordinator. Unfortunately, the response has been underwhelming. The Stormwater Department is looking into new approaches to ensure cooperativeness. We will make access to training as easy as possible, ask department heads for assistance in pushing employees to complete training, and contact resistant employees repeatedly until training is completed. We have also asked department heads to assign a knowledgeable stormwater representative from their departments. This representative will be

tasked with ensuring employee training compliance, assisting in data tracking for annual reports, distribution of educational stormwater materials, and communication with the Stormwater Department.

In 2022, MSD installed 22 structures and 2326 linear feet of storm pipe and repaired 75 inlets and 1089 linear feet of storm pipe. Contractors on MSD engineering projects repaired or replaced nine inlets and 125 linear feet of old pipe. Scheduling for MSD inspections and repairs generally relies more on the street department's paving schedules and complaints or concerns from municipal workers or the public. Prior to paving projects, the storm structures and pipes in the area are cleaned and repaired. Delaware County repaired or replaced 37 culverts, three catch basins, four outfalls and 5551 linear feet of pipe. Both Yorktown and Ivy Tech had no repairs, replacements, or installations in 2022. Project locations are on file at the BWQ.

The estimated amount of material collected from the cleaning of storm structures in 2022 was 2203 tons by Delaware County (taken to East Central Recycling), and 741 tons by Muncie/MSD (taken to the Randolph County landfill). No material was collected by Yorktown or Ivy Tech in 2022. Each MS4 has developed a system for tracking maintenance. The MSD has its own Sewer Maintenance Department, which includes vacuum trucks and televising trucks. Yorktown uses a subcontractor and documents locations with the invoices received. Delaware County has a street sweeper with vacuum capabilities. Jet rod cleaning is contracted when necessary and information is kept with the County Engineer's office.

Estimated material collected from street sweeping included 11 dumps from the Delaware County Highway department, 35 dumps from Town of Yorktown, and 1,721.68 tons from Muncie Sanitary District Sanitation department. All debris collected from street sweeping is taken to East Central Recycling. Muncie's current schedule for street sweeping is to sweep every street in Muncie twice annually.

The MS4 has three de-icing salt and sand storage locations which are shown in Appendix D, Table 11. The amount of de-icing material used in 2022 was: 9,600 gallons of beet solution and 3,200 tons of salt by the City of Muncie/MSD, 1,000 gallons of brine solution and 320 tons of salt by the Town of Yorktown, and 1500 tons of salt by the Delaware County Highway Department. Ivy Tech contracts their snow removal or relies on Muncie Street Department depending on the location.

OVERALL ASSESSMENT OF THE MS4 PROGRAM

While generally pleased with our transition to the new permit and the stormwater goals accomplished in 2022, we feel that there are three areas of the program that require a different approach or additional focus in 2023—new employee training compliance, dry weather screening/sampling, and final tracking of illicit discharges. The MS4 has assessed these issues and formulated plans for attempting to address them, detailed in the MCM sections in this report. In 2023, we will also be heavily focused on reviewing and updating all MS4 entities' stormwater ordinances, as well as developing written standards for the Construction and Post-Construction programs.

APPENDIX A

Table 1. HUC 12 watersheds and receiving waters within the MS4:

HUC-12 Subwatershed		Receiving Waters	
51202010109	Mud Cr- White River	32 Ditch	Killbuck Cr
51202010110	Truitt Ditch- White River	Bell Cr	Lennox Ditch
51202010111	Hamilton Ditch- White River	Buck Cr	Little No Name Cr
51202010203	No Name Cr- Bell Cr	Eagle Branch Cr	Mud Cr
51202010204	Macedonia Cr- Buck Cr	Fuson Ditch	No Name Cr
51202010301	Mud Cr- Killbuck Cr	Greenfarm Ditch	Truitt Ditch
51202010302	Jake's Creek	Hamilton Ditch	Unnamed Trib to YPC
51202010303	Thurston- Killbuck Cr	Holt Ditch	York Prairie Cr
51202010305	York Prairie Cr- White River	Jake's Cr	West Fork White River

Table 2. 303d listed waters within the MS4:

Basin	HUC-12	Assessment Unit Name	Parameter	IR Cat
West Fork White River	51202010110	White River	PCBs/Fish Tissue	5B
West Fork White River	51202010110	White River (PWS)	PCBs/Fish Tissue	5B
West Fork White River	51202010110	Truitt Ditch	PCBs/Fish Tissue	5B
West Fork White River	51202010110	White River- unnamed trib	PCBs/Fish Tissue	5B
West Fork White River	51202010110	White River	PCBs/Fish Tissue	5B
West Fork White River	51202010111	White River	PCBs/Fish Tissue	5A
West Fork White River	51202010203	Bell Cr	E. coli	5A
West Fork White River	51202010203	No Name Cr	E. coli	5A
West Fork White River	51202010203	Little No Name	E. coli	5A
West Fork White River	51202010204	Buck Cr	E. coli	5A
West Fork White River	51202010204	Buck Cr	PCBs/Fish Tissue	5B
West Fork White River	51202010204	Buck Cr	Biol. Integrity	5A
West Fork White River	51202010305	York Prairie Cr	E. coli	5A
West Fork White River	51202010305	White River	PCBs/Fish Tissue	5B

Table 3. Receiving waters with TMDLs (all for *E. coli*):

HUC-12 and Stream			
51202010109	White River	51202010111	Muncie Cr
51202010109	Mud Cr	51202010301	Killbuck Cr
51202010109	White River - unnamed trib	51202010302	Jake's Cr
51202010110	White River	51202010303	Killbuck Cr
51202010110	White River (PWS)	51202010305	White River
51202010110	Truitt Ditch		
51202010110	White River- unnamed trib		

Table 4. Industries within the MS4.

Manufacturer	Address
A-1 Graphics	2500 W 7 th St. 47302
Advanced Sign & Graphics LLC	3939 W McGalliard Rd 47303
Allied Enterprises LLC	3228 W Kilgore Ave. 47304
Alm Service, Inc.	2100 N Granville Ave. 47303
Alro Steel Corp.	2301 S. Walnut 47302
American Lawn Mower Metal Parts	Kuhner Park Offices 47303
Arrowhead Plastic Engineering, Inc.	2909 Hoyt Ave. 47302
Artisan Tool & Die, Inc.	3085 IN-28 47303
Aul Brothers Tool & Die	9609 W Jackson St 47304
Beckett Bronze Co, Inc.	401 W. 23 rd St. 47302
Bridgestone Bandag LLC DBA Kendon	3904 S. Hoyt Ave. 47302
C & J Plating	411 E. 3 rd St. 47302
Calumet Paralogics, LLC/Sinflex	301 S. Butterfield 47303
CamTool	3690 S. Hoyt Ave. 47302
CANPAK	2451 W. Fuson Rd. 47302
Clearline Operations	3301 W. Mt Pleasant Blvd. 47302
DD Dannar, LLC	4620 W. Bethel Ave., Ste 1 47304
Diamond Plastics Corp.	4100 S. Niles Rd. 47302
DIY/Group, Inc.	2401 W. 26 th St. 47302
Engineered Solutions Group	710 W. Centennial Ave. 47303
Exide/Atlas/Element	2601 W. Mt. Pleasant Blvd. 47302
Franklin Stamping Industries, Inc.	105 W. Fuson Rd. 47302
GK Technologies	2200 E. Jackson St. 47302
GKN Aerospace	3901 S. Delaware Dr. 47302
Glass and More, LLC	1300 S. Batavia 47302
H&H Commercial Heat Treat	2200 E 8 th St. 47302
Henkel	3416 S. Hoyt Ave 47302
Hitachi Astemo Greenfield/Keihin LLC	4400 N. Superior Dr. 47303
Honeywell	201 E. 18 th St. 47302
IMA INOX Market America, LLC	4401 S. Cowan Rd. 47302
Indiana Bridge	1810 S. Macedonia Ave. 47302
Ken-Bar Tool & Engineering	3121 S. Walnut St. 47302
Keppler Steel & Fabricating, Inc.	1401 Macedonia Ave. 47302
Kern Cs Inc	3401 S. Hamilton Ave. 47302
Label Tech, Inc.	2601 S Walnut St. 47302
Lakemaster, Inc.	2407 S. Walnut St. 47302
LAL Acquisition, Lift-a-Loft Corporation	9501 S. Center Rd. 47302
Lifetouch	601 W. Ontario Dr. 47303

Table 4 (con't). Industries within the MS4.

Matrix Technologies, Inc./Delaware Dynamics	700 S. Mulberry St. 47302
McIntyre Concrete	4701 W. CR 1000 N. 47303
Miasa Automotive, LLC	2101 S. West St. 47396
Mid-City Plating	921 E. Charles St. 47305
Mid-West Metal Products Co., Inc.	3142 S. Cowan Rd. 47302
Mitch Dental Lab Inc.	1809 N. Walnut St. 47303
MPT Muncie, Div. of Magna Powertrain	4701 S. Cowan Rd. 47302
Muncie Casting Corp.	1406 E. 18 th St. 47302
Muncie Metal Spinning, Inc.	1100 E. 20 th St. 47302
Muncie Power Products	201 E. Jackson St. 47305
Munsee Meats, Inc.	1701 W. Kilgore Ave. 47304
Mursix Corp	2401 N. Executive Park Dr. 47396
North American Stamping Group	3401 W. 8 th St. 47302
Phillips Pattern & Casting	1001 W. Riggan Rd. 47303
Premier Label Company Inc.	1205 E. Washington St. 47305
Progress Rail Manufacturing	3500 S. Cowan Rd. 47302
Reber Machine & Tool Co., Inc	1112 S. Liberty Ave. 47302
Reliance Machine Co.	4605 S Walnut St. 47302
South Central Co., Inc.	3008 N. Walnut St. 47303
Sp Holdings, Inc.	3401 N. Commerce Dr. 47303
Spencer Printing, Inc.	4404 S. Madison St. 47302
Taurus Tool & Engineering	4401 S. Delaware St. 47302
Tomken Plastic Technologies, Inc.	4601 N. Superior Dr. 47303
Versatile Metal Works LLC	1403 S. Liberty St. 47302
Wearly Monuments, Inc.	4000 W. Kilgore Ave. 47304
Witt/AZZ Galvanizing	2415 S. Walnut St. 47302

Table 5. Stormwater-related outreach events attended (by Stormwater Educator unless specified):

- Indiana American Fisheries Society (IAFS)- presented on rapid trash assessments in waterways- 1/2/22 (BWQ Fisheries Biologist)
- IAS- presented on our freshwater mussel propagation project- 1/2/22 (MS4 Coordinator)
- Panel discussion on results of the White River 2020 project- 1/24/22 (BWQ Fisheries Biologist)
- Midwest Fish & Wildlife Conference- presented on rapid trash assessments in waterways- 1/15/22 (BWQ Fisheries Biologist)
- Met with Representative Sue Errington at Muncie Sanitation to discuss recycling and give tour- 2/2/22
- Attended IDEA Conference at BSU Student Center for Neighborhood Organizations and Leaders- 3/5/22
 - Info booth with information about recycling and stormwater BMPs
- Attended Delaware County Farm Festival; presented stormwater pollution prevention and recycling- 3/15-3/16/22
 - Info booth with educational materials and Enviroscape display, est. 2000 people
- Spoke on the history of White River organisms and water quality at Westside Park- 4/15/22 (with BWQ employees)
- Annual Shred Day during Earth Week, hosted- 4/18-4/22/22
 - Free and open to the public, shredding day for six hours
- Earth Day Celebration at Sanitation Facility- 4/22/22
 - Handed out free plants, educational materials, raffled off rain barrels
 - Estimated 200 in attendance
- Environmental and Recycling Presentation at League of Women Voters Meeting at Kennedy Library- 4/23/22
- Hosted a Build Your Own Rain Barrel Workshop at MadJax- 4/28/22
 - Educational presentation and built 25 rain barrels
 - Workshop was full and had a waiting list
- Led walking tours with 5 Muncie Central Classes to the levee and White River doing education and outreach related to water quality, government, and the history of the White River- 5/5/22, 9/27/22, 9/28/22
- Presented at the Joint Aquatic Sciences Meeting on all that we do at the BWQ and our freshwater mussel propagation project- 5/6/22 (MS4 Coordinator)
- Met with Muncie Senior Center to give educational materials- 5/11/22
- Presentation on White River organisms and the importance of water quality to 2nd graders- 5/13/22
- Hosted an educational activity at the East Washington Academy Field Day- 5/23/22
 - Met with every class pre-k through 5th grade
 - Lesson on recycling and pollution prevention
- Led Nature Play Days Canoe Float on the White River with Flatland Resources for Families- 6/11/22
 - 25 people participated
 - Guided educational canoe float talking about history of White River
- Hosted a Hillcroft ABA Summer Camp Field Trip at our Sanitation Facility- 6/13/22
- Worked with Howard County SWCD to sample locations for fish, macroinvertebrates and mussels to highlight diversity of Wildcat Creek- 6/24/22 (BWQ Fisheries Biologist and MS4 Coordinator)
- Delaware County Fair- 7/18-7/23/22
 - Handed out fat trappers for fats, grease, and oils
 - Handed out educational materials about recycling and stormwater
 - Handed out recycled water bottles
 - Handed out free food grade, reused 55-gallon barrels for use as rain barrels

Table 5 (con't). Stormwater-related outreach events attended (by Stormwater Educator unless specified):

- Camp Prairie Creek- 7/25-7/29/22
 - Environmental day camp for youth between 1st-8th grades
 - Activities educating them about stormwater, recycling, etc.
 - 115 kids participated
 - BWQ Macroinvertebrate Biologists spoke with children at Camp Prairie Creek about mussels, macroinvertebrates and water quality
- Participated in MSD's Touch-a-Truck program to highlight local water quality work- 7/29/22 (BWQ Aquatic Biologists and BWQ Surveillance)
- Spoke to local Wildlife Warriors (student group) about mussels, macroinvertebrates, fish and water quality- 8/10/22 (10-15 students) (BWQ Aquatic Biologists)
- Presented at the national American Fisheries Society meeting about freshwater mussel propagation program- 8/22/22 (BWQ Fisheries Biologist)
- Led a DIY Rain Barrel Workshop with Flatland Resources at the Sanitation Facility- 8/25/22.
 - Hosted a stormwater presentation and built rain barrels on site after presentation
 - 25 participants
- Worked with Howard County SWCD to teach high schoolers about the importance of water quality with an emphasis on fish, macroinvertebrates, and mussels- 8/31/22 (BWQ Fisheries Biologist)
- Presented to Selma Elementary School- 9/2/22
 - Lead a lesson for 4 1st grade classrooms on recycling and pollution prevention
- Annual White River Cleanup- 9/17/22
 - 205 volunteers
 - 7,200 lbs. (3.6 tons) of trash removed
 - 44 tires
 - 15 miles cleaned
- Attended Wellhead Protection Meeting with Indiana American Water Company- 9/29/22
- Spoke to Indiana Master Naturalist class on watershed protection and how it can affect our water quality and fish communities- 9/29/22 (BWQ Aquatic Biologists)
- MSD hosted Zero Waste IRONMAN Muncie event at Prairie Creek Reservoir- 10/05/22
 - Facilitated a new program that took all of the waste from a large IRONMAN event and recycled it or took it to a waste energy incinerator
 - Collected 1.3 tons of recyclables and incinerated .85 tons of trash converting it to steam energy
- Spoke to the Future Environmental Council's "Greening of the State House"- 10/1/225 (BWQ Director)
- Participated in the "State of Fisheries" talking about all work done at the BWQ, including stormwater- 10/18/22 (BWQ Director)
- Led a tour of 4 Longfellow Elementary classes of our new Sanitation Facility- 10/31/22
 - Did a lesson on recycling, pollution prevention, and environmental stewardship
- Spoke to IU class about aquatic biology/water quality with a focus on fisheries and importance of internships- 11/14/22 (BWQ Fisheries Biologist)
- Attended Nature Conservancy White River Film premier at Civic Theatre, had a display and talked about what the BWQ does, including water quality and stormwater- 12/6/22 (with BWQ Director and Fisheries Biologist)
- Led a lesson at Inspire Academy with two middle school classrooms- 12/12/22
 - Lesson on recycling, pollution prevention and environmental stewardship

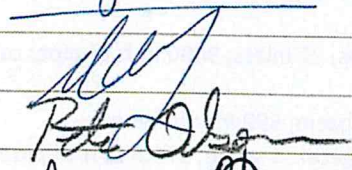
Table 6. Educational materials created, available in print or digital formats:


- Fueling and Refueling Factsheet
- Leaves and Yard Waste Factsheet
- Pet Waste Factsheet
- IDDE Factsheet
- Surface Cleaning & Pressure Washing Factsheet
- Stormwater 101 Factsheet
- MS4 Administration Facility SWPPP Informational Booklet
- Chemical Spill (Inside) Fact Sheet
- Chemicals Management Fact Sheet
- Exterior Operations Fact Sheet
- Interior Operations Fact Sheet
- Meth Lab Disposal Fact Sheet
- Fuel Island (Outside) Fact Sheet
- Mobile Ops Washout Management Fact Sheet
- Municipal Site Management Fact Sheet
- Proper Disposal Fact Sheet
- Yard Management Fact Sheet
- Street Highway Mobile Operations- Truck Beds Fact Sheet
- MS4 Fact Sheet for MCM 6- Measures Towards Compliance
- MS4 Fact Sheet for MCM 6- Inspection Areas- Outside and Inside
- Management of Dumpsters and Trash Fact Sheet
- Five variations of Residential Rain Garden Planting Instructions and Recommendations
 - Bird & Butterfly, Pink & White, Partial Shade, Purple & Yellow, Pink & Purple
- 4-page “How to Build Your Own Raingarden” handout
- 2-page “Every Drop Counts- Rain Barrel Benefits” handout
- A 6-page booklet titled “Stormwater Best Management Practices in Muncie & Delaware County”
- A 16-page booklet titled “Recycle- Make Muncie A City So Green You’ve Got to Go Blue”
- FOG Program brochures for our Fats, Oils and Greases education
- “Do the Blue” recycling board games for ages 8 and up
- “Do the Blue” recycling spin game for ages 8 and under
- A 12-page youth activity booklet titled “Little Blue’s Recycling Activity Book”
- A foldout brochure titled “Stream Fish of the West Fork of the White River Delaware County Indiana”
- A foldout brochure titled “Freshwater Mussels of the West Fork of the White River Delaware County Indiana”
- A foldout brochure titled “Aquatic Macroinvertebrates of the West Fork of the White River Delaware County Indiana”
- Accompanying electronic posters to the Stream Fish, Mussels, and Macros brochures for classrooms: <https://www.munciesanitary.org/departments/bureau-of-water-quality/>
- Electronic lessons were created in the “Stay at Home Lessons” series with the hashtag #LifeIntheWhiteRiver for teachers and families to use for E-learning and homeschooling during COVID-19. The series is posted on the MSD website and social media platforms. A list of the lessons and activities along with accompanying graphics:
- <https://www.munciesanitary.org/departments/stormwater-management/citizens/life-in-the-white-river-lessons/>

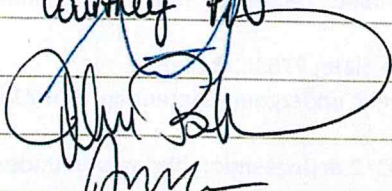
Table 7. Partner meeting with additional advisory board members

Sept. 12, 2022 Stormwater Partner Meeting
Attendees

Signature:

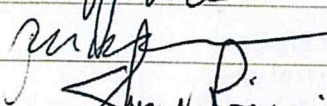


Courtney 

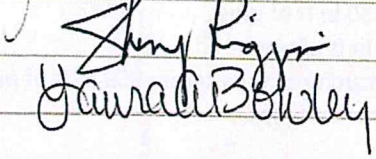


Stephen Brand
John Barlow MSD

Jason Donati



Tom Berube



Sherry Riggan
Laura A. Bowley

Table 8. Breakdown of post-construction controls

- Gillman Home Center: 1 manhole, 2 catch basins, 2 inlets; 1,783 In ft of pipe; bioswale; 1 inline water level control
- Riverview Park: Rain Garden, Pollinator Planting, Wet detention basin
- Jones Bros. Trucking Phase 2: 210 In ft of pipe; dry detention basin
- AEP Cowan Station: 1 inlet, 139 In ft of pipe; vegetated swale
- Clearline: 1 inlet; trench drain; 227 In ft of pipe; detention basin; vegetated swale
- Puerto Vallarta- Wheeling: 1 catch basin, 1 inlet, 287 In ft of pipe; detention basin, vegetated swale
- 3 Rivers Federal Credit Union: 2 catch basins, 7 inlets; 796 In ft of pipe; connects to existing underground storage
- Hoyt Ave. Drainage Improvements: 8 Manholes, 24 catch basins, 22 inlets; 3090 In ft of pipe; outfall protection at Buck Creek
- Casey's of Muncie- Jackson: 4 catch basins, 6 inlets; detention basin; 592 In ft of pipe
- Kitselman Trail Phase 3: 1 manhole, 2 catch basins, 2 inlets; vegetated swale; 572.5 In ft of pipe
- AEP Muncie Site Expansion: 18 manholes, 6 catch basins, 6 inlets; Detention Basin with pollinator planting; 3430 In ft of pipe
- Yorktown Commons: 5 detention basins, 12" vertical orifice plate; 776 In. ft of pipe
- Raising Cane's: 3 manholes, 2 catch basins, 4 inlets; Stormtech underground detention; 616.73 In ft of pipe
- Daugherty Preserve: 16 manholes, 22 catch basins, 24 inlets; 2 dry detention basins with underdrains; 381 In ft of pipe
- Iron Gate Section 3: 3 manholes, 9 inlets; retention basin; 19 In ft of pipe
- Coops Lawn Care: 5 catch basin, 7 inlets; retention basin; 1530 In ft of pipe
- Living Green Farms: 1 manhole, 8 catch basins, 8 inlets; 771 In ft of pipe
- Westview Elementary: 5 manholes, 4 inlets; outlet control structure in dry basin; 959 In ft of pipe
- TOTAL: 56 manholes, 78 catch basins, 104 inlets, 18490.13 In. ft. of pipe

Table 9. Structural measures modified or cleaned to function properly or improve water quality

- Jones Bros. Trucking Phase 2: Reworked existing dry basin (1)
- Tall Timber Coffee: replaced outlet orifice and reshaped existing basin (2)
- The Landings: Cleaned energy dissipation in detention basins (1)
(A breakdown of these structural measures can be found in plan reviews for the Jones Brothers Trucking and Tall Timber Coffee projects and in the post-construction inspection for The Landings project.)

Table 10. Structural measures inspected

- ABC Supply 2020: detention basin (1)
- Accutech: retention basin (1), Catch basin (2), vegetated swale (1)
- AEP Fuson Station: Vegetated swale (1), permanent rock check dams (5), Outfall protection (2), Energy dissipators (1), Dry detention basin (1)
- AEP Gaston Station: Vegetated swale (2), detention basin (2), Permanent rock check dams (8), Outfall (1)
- AEP Royerton Station: Detention basin (2), vegetated swale (2), Outfalls (4)
- AEP Strawboard Station: Vegetated swale (1), permanent riprap outfall structure (1)
- All Steel Carports: Vegetated swale (1), drop inlets (3), detention basin (1), outfall protection (1)
- Base Group: inlet (1)

Table 10 (con't). Structural measures inspected

- Bell Aquaculture/Aquabounty: Outfall (1)
 - Biolife Plasma: Catch basins (4), drop inlets (2)
 - Brad's Self Storage 1: rain garden (1)
 - Centennial Place: Catch basins (21), drop inlets (3), vegetated swale (3), dry detention basin (1), outfalls (4)
 - Concannon's West: Catch Basins (2), impervious disconnect (3), rock check dams (2)
 - Craddock Wetland: Wetland (1)
 - Granville Medical: Detention basin (1)
 - Kia Volkswagen: Catch Basins (4)
 - Laurel Meadows: Drop inlets (24), Retention Basin (1), Outfall (3)
 - Lifetime Skincare: Dry detention basin (1), Outfalls (2), Catch basins (2), drop inlet (1)
 - MSD Whitely Pond: Detention basin (1), Outfalls (2), Drop inlets (4), Concrete block armoring (1)
 - Muncie Music: Detention basin (1), catch basin (1), outfall (1)
 - Old Town Hill Church: Vegetated swale (1), Outfalls (2)
 - Panera: Catch basins (3), rain gardens (2), drop inlet (1), Impervious disconnect (1)
 - Pilgrim Place: Drop Inlets (2)
 - Prairie Creek Restroom: Drop inlets (3), vegetated swale (1), native plantings (1)
 - The Landings: Detention Basin (2), drop inlets (2), outfalls (4), Energy dissipators (2)
 - VA Building follow-up: Detention basin (1), outfalls (2)
 - Varsity House Apartments, The Grove: Vegetated swale (1), outfall (1), catch basins (6)
 - Wellington Knoll: Wet Detention basin (2), Outfalls (4), catch basins (15)
 - Wheeling Ave.: Catch basins (25)
 - Yorktown Sports Park: Retention basins (2), Outfalls (4), catch basins (13), drop inlets (2), vegetated swale (1)
- (Further information about these measures can be found in the post-construction inspections for each project.)

APPENDIX D

Table 11. Location of de-icing salt and sand storage areas

Entity	Location
Delaware Co	7700 E. Jackson St. Muncie, IN 47302
Muncie/MSD	100 blk S. Hoyt Ave. Muncie, IN 47302
Yorktown	2400 Edith St. Yorktown, IN 47396

