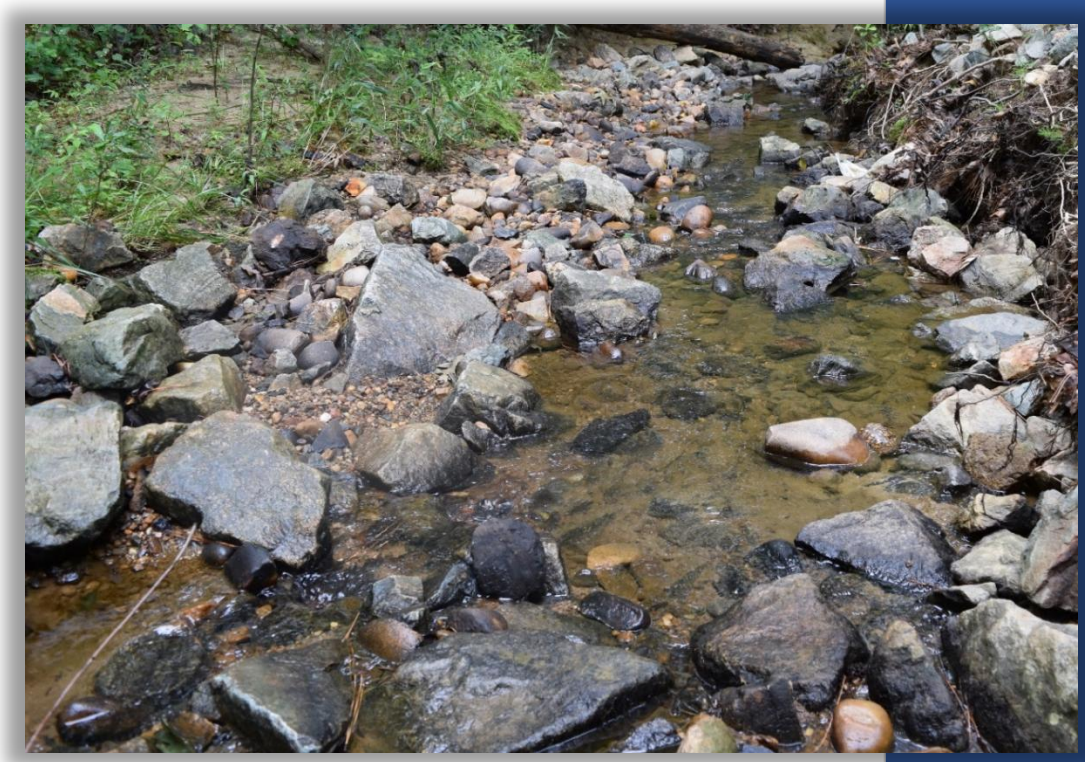
City of Hopewell
Virginia

ILLICIT DISCHARGE DETECTION AND ELIMINATION

A Programmatic Overview of Hopewell's Illicit Discharge Detection & Elimination (IDDE) Program and Process



September 2015
(Revised October 2017)

To report potential pollution draining to the City's storm drain or any surface waters contact City of Hopewell Public Works Department at 804-541-2295.

This Illicit Discharge Detection and Elimination Program Manual was developed for the City of Hopewell by

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Acronyms

DEQ	Virginia Department of Environmental Quality
EPA	Environmental Protection Agency
IDDE	Illicit Discharge Detection and Elimination
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
ORI	Outfall Reconnaissance Inventory
TMDL	Total Maximum Daily Load
VPDES	Virginia Pollutant Discharge Elimination System
VSMP	Virginia Stormwater Management Program
City	City of Hopewell

1.0 INTRODUCTION AND PURPOSE

This manual presents the standard protocols that the City of Hopewell (City) will utilize to implement its Illicit Discharge Detection and Elimination (IDDE) Program. These protocols were developed in general accordance with the EPA's *"Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments" and consist of* written procedures to detect, identify, and prevent unauthorized non-stormwater discharges, including illegal dumping, to the City's small municipal separate storm sewer system (MS4). The City's effective implementation of this IDDE program is a condition of the City's MS4 General Permit (MS4 Permit).

Figure 1. Generalized depiction of the regulatory framework for the MS4 permit.

The City's IDDE Program includes five distinct components:

- **IDDE Training** – Section 2.0 outlines procedures to train applicable field personnel..
- **Illicit Discharge Tracking** – Section 3.0 outlines procedures to track and document all efforts related to the IDDE process
- **Identification of an Illicit Discharge** – Sections 4.0 and 5.0 outlines procedures to screen, identify and report questionable illicit discharges.
- **Investigating the source of an Illicit Discharge** – Section 6.0 outlines procedures to investigate reported questionable illicit discharges.
- **Elimination of an Illicit Discharge** – Section 7.0 outlines procedures to eliminate illicit discharges that have been confirmed through the investigation effort.

Documentation of IDDE activities is required for the City to demonstrate compliance with the conditions of the MS4 Permit Section 7.0 describes the appropriate documentation procedures for activities described in this Manual.

2.0 IDDE TRAINING PROGRAM

The City's MS4 Program Plan requires the City to provide **annual training** to applicable field personnel in recognition and reporting of illicit discharges. As part of the City's Program, this manual serves as the annual training material to meet the permit requirement. Note that training is also required for Good Housekeeping Pollution Prevention practices to applicable employees and the City provides a separate manual as training material for those activities.

The written procedures herein serve as the foundation of the IDDE Program and help to achieve MS4 Permit compliance. However, compliance is dependent on effective implementation and documentation of these procedures. The goal of effective implementation **is to eliminate non-stormwater discharges** to the City's storm sewer system and downstream receiving waters. As referenced throughout this manual, the IDDE Program relies on supplemental materials to assist with implementation and documentation. Field personnel identified for IDDE training should be familiar with each Section of this Manual, the City's IDDE Field Guide, the City's MS4 Outfall Inventory and outfall mapping database, and supplemental materials provided in the Appendices of this Manual, which include:

- **Outfall Reconnaissance Inspection Form** – This form is for outfall screening to assist in determining the potential of an illicit discharge. The guide is located in Appendix A.
- **IDDE Tracking Form** – This form is for the inclusion of documentation required by the MS4 Permit for each investigation of any suspected illicit discharge. The Stormwater Program Manager or designee will complete this form, but field staff assist with obtaining the required information. The form is located in Appendix B.

3.0 DOCUMENTATION

As highlighted throughout this Manual, documentation of reported illicit discharge, investigations, and elimination actions is required for demonstrating compliance with the MS4 permit. In the case of an illicit discharge, the City's MS4 Permit requires, at a minimum, the following information:

- The date or dates that the illicit discharge was observed and reported;
- The results of the investigation;
- Any follow-up of the investigation;
- Resolution of the investigation; and
- The date that the investigation was closed.

The resolution of a discharge may be a referral to and acceptance by the VDEQ or local government for action; however, the action must be properly documented by the City. If the discharge is determined to be a permitted or allowable discharge, then the final action is documented and the information is included on the corresponding IDDE Tracking Inventory Form. This will enable the City to access this information if future requests are received concerning the discharge in question. It will also be included in annual reporting.

3.1 Annual Reporting to DEQ

The City must annually report to the DEQ specific information pertaining to its IDDE efforts. The information is included in the MS4 Annual Report due October 1st of each year. Information required for reporting includes:

1) A list of any written notifications of physical interconnection given by the operator to other MS4s;
2) The total number of outfalls screened during the reporting period, the screening results, and details of any necessary follow-up action;
3) A summary of each investigation conducted by the City regarding suspected illicit discharge. The summary must include:
    a. The date the suspected discharge was observed, reported, or both;
    b. How the investigation was resolved, including any follow-up; and
    c. Resolution of the investigation and the date(s) the investigation was closed.

4.0 IDENTIFICATION OF AN ILLICIT DISCHARGE

The MS4 means a conveyance, or system of conveyances, that discharges into jurisdictional surface waters and wetlands of the United States as defined by the United States Army Corps of Engineers (USACE). That is, any system of drainages from roads, parking lots, catch basins, curbs, gutters, ditches, man-made channels, or storm drains that direct stormwater into a stream, pond, wetland or other similar feature is part of the City's MS4. These conveyance systems are vulnerable to contamination, and can carry pollutants in stormwater runoff to the receiving waters or wetlands. Substances other than stormwater that enter receiving waters are considered an illicit discharge and are the focus of this Manual.

An illicit discharge can be:

1. a measurable flow from a storm drain during dry weather that contains pollutants or pathogens;
2. a unique frequency, composition, and mode of entry in the storm drain system;
3. caused when the sewage disposal system interacts with the storm drain system; or
4. discharge of pollutants from specific source areas and operations known as "generating sites."

4.1 Defining an Illicit Discharge

For the purposes of the IDDE Program, the VSMP regulation definition for an illicit discharge is generalized as:

> *<u>Illicit Discharge</u> - Any discharge to an MS4 that is not composed entirely of stormwater, except discharges specifically identified in the Virginia Administrative Code and determined not to be a significant contributor of pollutants to the MS4.*

Most sources of illicit discharges are likely to originate from a generating site or activity, such as a washing area or vehicle maintenance area and be the result of daily practices or a specific spill incident. Table 1 provides source pollutants generated from areas of the City.

Table 1. Examples of source pollutants of an illicit discharge.

• Automotive fluids (oil, fuel, antifreeze)	• Landscape waste (grass clippings, etc.)
• Cooking oil and grease	• Improperly applied fertilizer
• Solvents	• Sediment
• Paints	• Vehicle wash water
• Chemical cleansers (detergents, soaps)	• Sanitary sewer wastewaters
• Improperly applied pesticides/herbicides	• Dumpster leachate
• Improperly managed salts	• Trash

The Virginia regulations include exemptions for some non-stormwater discharges that are not considered an illicit discharge if they are not a significant contributor of pollutants to the City's MS4. Table 2 includes discharges relevant to the City that are not significant contributors of pollutants and <u>are not considered</u>

illicit discharges. If there is uncertainty of the source or constituents within an observed discharge, the Stormwater Program Manager should be contacted immediately so a determination can be made.

Table 2. Examples of sources that are not considered illicit discharges.

• Fire-fighting activities	• Air condition condensate
• Water line flushing	• Footing or foundation drains
• Landscape/lawn irrigation	• Springs
• Diverted stream flows	• Water from crawl space pumps
• Rising groundwater	• Dechlorinated swimming pool wastewater
• Uncontaminated groundwater infiltration	• Discharges from potable water sources
• Uncontaminated pumped groundwater	• Flows from riparian habitats and wetlands

Additional details for identification of an illicit discharge are provided in the *IDDE Field Guide*.

4.2 Stormwater Outfall Mapping/Inventory

An outfall is a point where the City's MS4 discharges concentrated flow to surface waters or wetlands, such as at the end of a pipe or open drainage channel. Generally, these locations drain large areas and can be routinely evaluated to identify potential pollutants being conveyed to the surface waters. Action can then be taken to prevent these pollutants from passing downstream. The most effective action is to eliminate the pollutant at its source.

The MS4 permit requires the City to maintain a storm sewer map as part of the IDDE Program that includes location and information of outfalls from the storm sewer system, including the drainage area to the outfall and the receiving water body. The mapping can be a critical tool for outfall screening and in identifying potential generating sites. Outfall information is maintained by the Stormwater Program Manager.

4.3 Awareness during Daily Activities and Operations

Potential illicit discharges can be identified and eliminated prior to entering the storm sewer with general good housekeeping and preventive action. The City public works employees are in the best position to identify these pollutants, such as those identified in Table 1. Figure 2 provides several examples of the observations and actions that can prevent an illicit discharge. If the observer is not qualified or appropriately trained to take the appropriate action, or if illegal dumping is observed, notify the Stormwater Program Manager. The Good Housekeeping/Pollution Prevention Manual can also be a reference for instruction on appropriate actions.

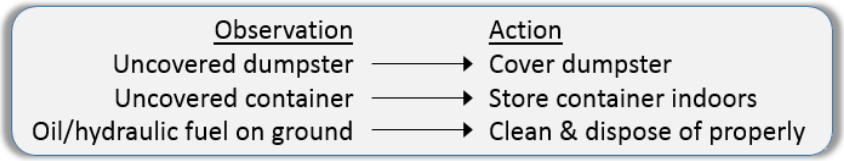

Figure 2. Examples of daily observations and subsequent actions that can prevent an illicit discharge.

4.4 Special Local Water Quality Concerns

The City's MS4 generally discharges to receiving waters that are identified by the DEQ as impaired or not meeting water quality standards. Subsequent Total Maximum Daily Load (TMDL) studies identify specific pollutants causing the impairments and designate the maximum amount of the pollutant the receiving water can assimilate and still meet water quality standards. Pollutant reductions are then assigned to the MS4s that drain to the impaired receiving waters. It is important that public works employees be aware of these pollutants, or pollutants of concern, that have been identified and are shown in Table 3.

Table 3. Special pollutants of concern.

TMDL	Pollutant of Concern	Approval Date
Appomattox River	E. Coli	2005
James River-Hopewell to Westover	E. Coli	2009
Chesapeake Bay	Nitrogen, Phosphorus, Sediment	2010

4.5 Reporting Procedures

Preemptive actions by City personnel to remove potential sources of an illicit discharge do not need to be reported unless it is suspected an illicit discharge has actually occurred, in which case the Stormwater Program Manager should be notified as soon as possible. The Stormwater Program Manager will then document the report in the tracking form provided in Appendix B and conduct a follow-up investigation to the maximum extent practicable.

An illicit discharge or potential source for an illicit discharge may also be reported by other individuals that are not trained or authorized to perform necessary actions, such as staff, residents or contractors. These individuals may recognize a potential illicit discharge after learning about pollution in stormwater runoff through the City's public education and outreach efforts. The City's stormwater webpage directs these individuals to contact the Stormwater Program. Program staff will subsequently perform the appropriate follow-up action and documentation in accordance with Section 6.0 of this Manual.

5.0 OUTFALL SCREENING

The City conducts outfall screening on a minimum of 50 outfalls within the City per year as an effort to identify illicit discharges into the City MS4. . The selection of outfalls to be screened is based on a prioritization that ranks outfalls by the potential for an illicit discharge (the prioritization methodology and schedule is available upon request). In the case that potential illicit discharges are observed at specific outfalls, subsequent screening at a higher frequency may be necessary if the source is not identified and eliminated.

Screening is performed at the outfall, as defined in Section 4.2. Where outfalls are inaccessible without special equipment the screening will occur at the most immediate accessible upstream location, and the immediate accessible location upstream of each point of entry of storm flows. (see Figure 3).

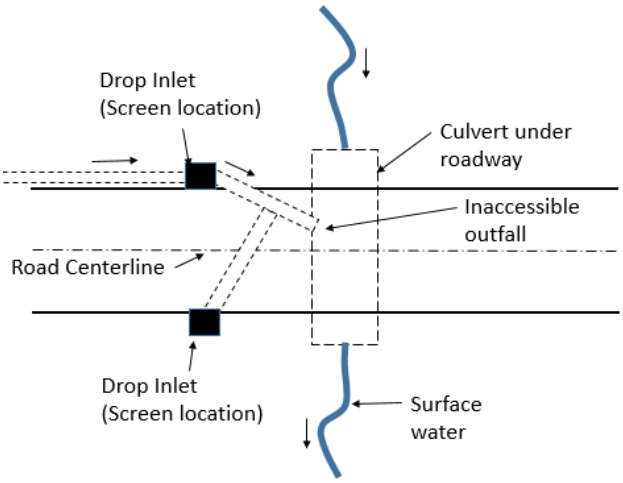

Figure 3. Screening location(s) example in the case of an inaccessible outfall.

5.1 Dry-Weather Outfall Screening

Outfall screening is performed during dry weather using the ***Outfall Reconnaissance Inspection*** (ORI) ***Form*** provided in Appendix A. Completion of the form for each outfall screened serves as the appropriate documentation that the required outfall screening has been performed and should be retained on file for a minimum of 3 years. Outfalls that are flowing during dry weather may indicate an active pollution issue depending on the time since the last rain, the presence of groundwater, etc. Outfalls that are flowing when no rain has occurred within the last 48 hours should be paid special attention.

The ORI Form is completed with each annual outfall screening. When the ORI indicates a potential illicit discharge based on color, odor, or other physical condition, the Stormwater Program Manager shall be notified so an outfall investigation can be performed using the ***Outfall Investigation & Sample Collection Form***, provided in Appendix A and described in Section 6.0.

5.2 Wet-Weather Screening

While dry-weather screening events can identify possible illicit interconnections that are continuous, wet weather screening events may identify pollutant discharges that are temporary and/or likely to result from improper storage of polluting materials or inadequate cleanup of off-site pollutant releases. Wet-weather screening may be appropriate if dry weather screening identifies physical indicators such as staining or other residue in the outfall channel.

6.0 INVESTIGATING ILLICIT DISCHARGE

In the case of the identification of an illicit discharge, it is necessary to conduct an investigation to identify and eliminate the source of the discharge as soon as possible to the maximum extent practicable. An investigation may result from:

- A report to City staff from the general public;
- A report from an interconnected MS4; or
- Results of outfall screening.

The Stormwater Program Manager will make the determination if an illicit discharge has occurred. ***In all cases of an illicit discharge, the Illicit Discharge Tracking Form, provided in Appendix A must be completed as documentation for MS4 permit annual reporting.***

During an investigation of an illicit discharge, the source may be easily identified or may be complex and should utilize instruction in this manual, the IDDE Field Guide, and storm sewer mapping. Coordination with administrators of interconnected MS4s may be required.

The following sections outline the illicit discharge investigation methodologies that should be followed and corresponding documentation using the **Outfall Investigation & Sample Collection Field Form.**

6.1 Investigation Triggers and Prioritization

Upon the identification of an illicit discharge, the date, location, and description must be reported in the IDDE Tracking Form. Note that Section 6 of the ORI Inspection Form should be referenced to estimate a severity index classification. The following shall trigger an investigation:

- The determination of the occurrence of an illicit discharge by the Stormwater Program Manager based on an observed illicit discharge by City staff, such as during daily activities, or a follow-up from a reported observation.
- A severity index classification of either potential, suspect, or obvious. If more than one outfall screening produces one of these classifications, investigation efforts shall be prioritized as:
    1. Obvious – Illicit discharge(s) suspected of being sanitary sewer discharges or significantly contaminated would have this classification.
    2. Suspect – Numerous physical indicators result in this classification.
    3. Potential – These discharges should not be expected to be hazardous to human health and safety.

6.2 Investigation Protocol

Based on the familiarity of the property and its drainage areas, an initial field evaluation may easily identify the source of an illicit discharge. Once found, the source should be documented on the Illicit Discharge Tracking Form. The remainder of the form shall be completed as appropriate to indicate the source has been eliminated, if applicable, and provide an ending date for the investigation and resolution.

It is critical that documentation on the Illicit Discharge Tracking Form is complete to demonstrate illicit discharges have been addressed in accordance with MS4 permit conditions.

If the source of an illicit discharge is not easily identified, further investigation is necessary and should be guided by the following procedures:

1) Track the illicit discharge to its point of entry into the storm sewer. Tracking can be supplemented with review of the City's outfall mapping to identify the drainage area at the outfall.
2) Conduct a field inspection of the drainage area near the point of entry to identify the potential pollutant source. Document potential sources with photos, ensuring the photos give the appropriate context from the location of the source to the outfall.

City staff will primarily rely upon visual inspections of the contributing drainage area above the outfall at which an illicit discharge is detected. Dry-weather testing at a discharge point assists in identification of abnormal conditions such as sporadic or continuous discharge, which can facilitate tracing the source. Sampling and analysis can be performed as necessary to determine the characteristics of the illicit discharge and to help identify the most likely source. Improper connections and unpermitted cross-connections to the storm sewer system can be detected by utilizing a combination of methods to investigate non-stormwater discharges, such as visual inspections of drainage structures and lines, video inspections, dye or smoke tracer testing and optical brightener monitoring traps. , .

Other more elaborate approaches include using remote sensing tools to identify soil moisture, water temperature, and vegetation anomalies associated with illegal dumping activities. It is not anticipated that these types of tracking strategies will be necessary and further discussion is outside of the scope of this Manual.

If the illicit discharge is determined to originate outside of the City, then the appropriate locality and/or MS4 Program authority should be contacted by City staff with the request made to investigate and eliminate the discharge. City staff will follow up with the responsible entity to verify the corrective action has been successfully implemented, and the final action will be documented and tracked on the IDDE Tracking Form.

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The start date of the investigation must be provided on the Illicit Discharge Tracking Form along with dates and descriptions of corrective actions and elimination of the source of the discharge to fulfill compliance to the MS4 General Permit.

Additional details for conducting an investigation are provided in the *IDDE Field Guide*.

6.3 Outfall Investigation & Sample Collection Field Form

The ***Outfall Investigation & Sample Collection Field Form*** is provided in Appendix A, and is completed with each annual outfall screening. The following provides a brief description of the form:

- ***Section 1: Background Data*** – Requires general information regarding when and where the screening was performed, weather conditions at the time of the screening and a reference to photos taken. Tips for completing Section 1 include:
    - ✓ The Outfall ID can be found on the City's outfall inventory mapping. The mapping will be updated from time to time to reflect new outfalls.
    - ✓ Take at least 1 photo of the outfall if there is potential of an illicit discharge or other concern for documentation purposes.
    - ✓ Rainfall data can be gathered from the link below by navigating to the vicinity of the outfall on the map and selecting the last day or last 2 days. The map will depict rainfall precipitation ranges using a color scale (See Figure 4): http://www.srh.noaa.gov/ridge2/RFC_Precip/

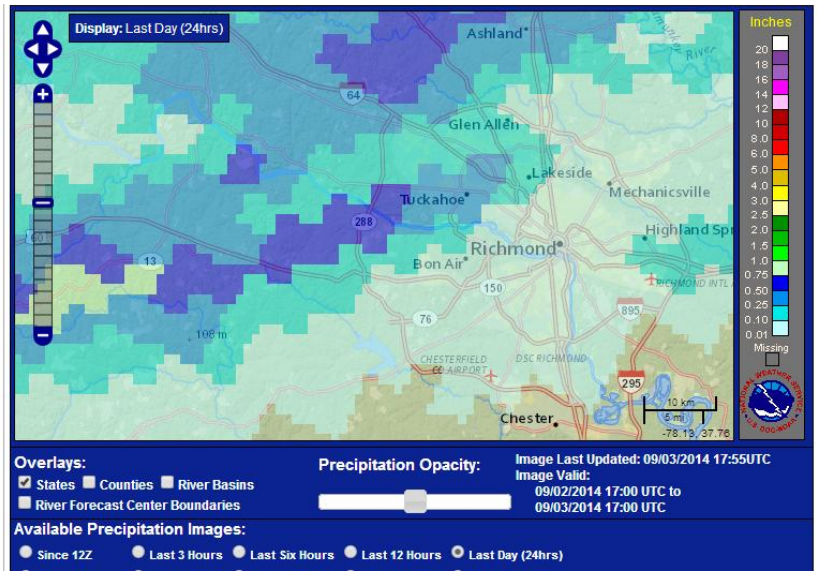

Figure 4. Sample Precipitation Summary

- ***Section 2: Outfall Description*** – Requires a description of the outfall and determination if flow is present during dry weather. If flow is not present, the inspector can skip to Section 6 of the form. Tips for completing Section 2 include:

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- ✓ If the cross-section of a pipe or channel is abnormal, provide a sketch in the available area of the dimension column and label measured dimensions.
- ✓ If submerged with sediment, attempt to measure the depth of sediment.
- ✓ The identification of flow is important since flow during dry weather would indicate a non-stormwater discharge. If a pipe is partially submerged, and it is difficult to identify dry-weather flow, a nearby leaf or blade of grass can be dropped onto the water surface near the outfall. The travel of the object on the surface can help indicate if flow is discharging from the outfall.
- ✓ Upon completion of this section, if no flow is present, skip to Section 5 of the form.

- ***Section 3: Quantitative Characterization for Flowing Outfalls*** – Requires quantitative information of the flow present at the outfall, including information to determine an estimate of the flow rate, the pH, and ammonia (the pH and ammonia levels require the use of test strips). The purpose of this information is to help identify the source of the discharge. Tips for completing Section 3 include:
  - ✓ pH can help determine whether a flow is industrial or commercial in nature. Normal stormwater has a pH of around 7.
  - ✓ High levels of ammonia (> 0.3 ppm) can indicate excess fertilizer or contamination by sanitary wastewater.
  - ✓ Flow rate can be estimated with the following equations. Measured data from the form is shown in **bold**. Tools such as an empty bottle with a known volume and measuring tape maybe required to assist with these calculations. Personal protective equipment (i.e. gloves) should be utilized at all times.

<u>Flow #1 (for pipes):</u>

$$\frac{\boldsymbol{'X' liters}}{\boldsymbol{'X' seconds}} \times \frac{1\ gallon}{3.78\ liters} \times \frac{60\ seconds}{minute} = Flow\ in\ gpm$$

- ✓ For the Flow #1 calculation, time in seconds is the time to fill the bottle to 'X' liters.

<u>Flow #2 (for open channels):</u>

$$\left[\left(\frac{\boldsymbol{bot.width\ (ft) + top\ width\ (ft)}}{2}\right) \times \boldsymbol{depth\ (ft)}\right] \times \frac{\boldsymbol{Length\ (ft)}}{\boldsymbol{travel\ time\ (seconds)}} \rightarrow$$
$$\times \frac{7.48\ gallons}{1\ cubic\ ft} \times \frac{60\ seconds}{minute} = Flow\ in\ gpm$$

- ✓ For the Flow #2 calculation, travel time is estimated by the time it takes a floating object to travel the defined length.

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- ***Section 4: Physical Indicators for Flowing Outfall*** – Requires the observance of physical indicators in the flow, such as odor and color, to assist with identifying the source of the discharge. Tips for completing Section 4 include:
  - ✓ Take photos of visible indicators.
  - ✓ Take detailed notes of odors related to illicit discharge.

- ***Section 5: General Physical Indicators for All Outfalls*** – Requires physical indicators be noted that are not related to flow, such as abnormal vegetation and staining, which can indicate that an intermittent discharge has occurred in the past, even if not currently flowing. Tips for completing Section 5 include:
  - ✓ Take photos of visible indicators.
  - ✓ Note benthic growth, such as algae or slime on channel surfaces, which can be an indicator of nutrients in the stormwater runoff (See Figure 5).

Figure 5: Example Photo showing algae growth

- ***Section 6: Outfall Severity Index*** – Requires the assignment of a severity score for prioritizing outfall follow-up investigation, if necessary. The rating system provided on the form is intended to provide consistency and guidance; but the intuition of the inspector overrides the scoring rules. Outfalls can be characterized as:
  - ✓ <u>Unlikely</u> to be subject to an illicit discharge. No further action is necessary.
  - ✓ <u>Potential</u> illicit discharge occurring at the outfall.
  - ✓ <u>Suspect</u> illicit discharge occurring at the outfall.
  - ✓ <u>Obvious</u> illicit discharge occurring at the outfall.

For all potential, suspect or obvious illicit discharges, report to the Stormwater Program Manager as soon as possible to the maximum extent practicable.

- ***Section 7: Any Non-illicit Discharge Concerns*** – Identify any other concerns such as trash, overgrowth prohibiting flow, or structural concerns of the outfall (e.g. collapsed pipe).

6.4 Timeframes for Performing Investigations

The investigation of a potential illicit discharge should initiate as soon as possible to the maximum extent practicable. Priority should be given to illicit discharges suspected of being sanitary sewage or

otherwise significantly contaminated. In all cases, investigation priority should be targeted as (1) “obvious” illicit discharge, (2) “suspect” illicit discharge and (3) “potential” illicit discharge as described in the Severity index described in Section 5.1.

If, after performing an investigation of an observed or reported illicit discharge, the source of the discharge has not been identified and has not been detected again after 6 months, investigation efforts will be documented and the discharge will be identified as “non-recurring” with “source not found” on the IDDE Tracking Form. At that time, no further action is necessary. However, investigatory due diligence should include (with documentation):

- The tracking and field inspection methods described in the previous Section were performed;
- At least one additional dry-weather screening during the 6 month time period; and
- At least one wet-weather screening.

If an observed discharge is intermittent, City staff will perform **three separate investigations** attempting to observe the discharge when it is flowing. If these attempts are unsuccessful, City staff will also document the occurrence and process and no further action is necessary.

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7.0 ELIMINATING VERIFIED ILLICIT DISCHARGES

The ultimate goal of the IDDE Program is to eliminate illicit discharges from the MS4. Once an illicit discharge has been identified and an investigation has determined the source of the discharge, the appropriate actions need to be taken and documented to eliminate the discharge.

7.1 Source Elimination

The City prohibits illicit discharge into its MS4 through the Illicit Discharge Detection and Elimination Ordinance. Prohibition of illicit discharge is also addressed through contract language with contractors performing work on City property. Further, the City's daily operations intend to prevent illicit discharges through the practices described in the Good Housekeeping/Pollution Prevention Manual. The City should utilize these mechanisms to eliminate illicit discharges at the source.

When an illicit discharge originates within the City, City staff will take the necessary corrective action to eliminate the discharge. Follow-up inspections may be necessary to ensure the discharge into the City storm drain system has ceased. Periodic inspections should be conducted, during both wet and dry-weather, after the initial illicit discharge is detected to confirm the identified discharge has been eliminated. Actions and resolutions must be documented and maintained on file for 3 years.

When the source of an illicit discharge originates outside of the City, and therefore the City does not have authority to eliminate the source, the Virginia Department of Environmental Quality (DEQ) and interconnected MS4s should be contacted by the Stormwater Program Manager, as applicable. Figure 6 provides the enforcement authorities to contact based on the type of illicit discharge. This list is not all-inclusive, but was developed in coordination with DEQ and is based on typical sources of illicit discharges.

Reports of illicit discharge to an outside agency should be maintained on file and include all information related to the case including dates, locations, photos, results of screenings and investigations, and identified sources. The report should also request confirmation from the locality or DEQ that the case has been resolved.

<u>Interconnected MS4</u>
(VDOT or Fort Lee, as applicable)
- Cooking oil & Grease
- Paints
- Chemical Cleansers (e. g. detergents, soaps)
- Landscape Wastes (e.g. leaves, grass clippings)
- Fertilizers
- Sediment from off-campus sources
- Septic/sewer wastewater
- Gray water (e.g. clothes washing, dishwasher)

<u>DEQ</u>
(Pollution Response & Preparedness Program)
- Automotive fluids
- Solvents
- Pesticides and herbicides
- Chlorinated swimming pool discharges
- Unknown/other

Figure 6. Illicit discharge enforcement contacts when sources are from outside the City.

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7.2 Follow-up on Source Elimination

Prior to closure of an illicit discharge investigation, to the City will conduct or request a follow-up investigation to ensure the illicit discharge has been eliminated. When the source originated within the City, the follow-up investigation may simply include a field inspection with documentation including photos where the source had previously been identified. In the case of an illicit discharge originating outside of the City, follow-up should include a request for information from the appropriate upstream enforcement entity. This documentation should be provided with the IDDE Tracking Form.

7.3 Administrative Action, Enforcement and Penalties

The City prohibits illicit discharge into its MS4 through language provided within City's Illicit Discharge Ordinance. If an individual or entity is identified during an illicit discharge investigation to be responsible for contributing to the discharge, the following binding documents will be utilized to conduct any necessary administrative action, enforcement, or penalties.

- Illicit Discharge Ordinance (Chapter 30, Article V of the City Code) – Causing an illicit discharge could be considered damage to City property or facilities and a violation of state and federal law under the Clean Water Act. The IDDE ordinance will dictate appropriate penalties.
- Contract Language – The City can pursue administrative actions within its authority, such as revocation with a Stop Work Order for construction sites or suspension or revocation of a contract.

The City may refer the complaint to DEQ for further investigation following their procedures, including enforcement provisions, in accordance with the Code of Virginia (§18.2-119) as appropriate.

7.4 Reportable Spills

If any unusual or extraordinary discharge should occur from a facility and the discharge enters or could be expected to enter surface waters, the operator shall promptly notify, in no case later than within 24 hours, DEQ by telephone after the discovery of the discharge. This notification shall provide all available details of the incident, including any adverse effects on aquatic life and the known number of fish killed. Unusual and extraordinary discharges include but are not limited to any discharge resulting from:

- Unusual spillage of materials resulting directly or indirectly from processing operations;
- Breakdown of processing or accessory equipment;
- Failure or taking out of service (some or all of the facilities); and
- Flooding or other acts of nature.

NOTE: The immediate (within 24 hours) reports required by DEQ may be made to the appropriate Regional Office Pollution Response Program as found at http://deq.virginia.gov/Programs/PollutionResponsePreparedness.aspx. Reports may be made by telephone or by fax. For reports outside normal working hours, leaving a message fulfills the immediate reporting requirement. For emergencies, the Virginia Department of Emergency Services maintains a 24-hour telephone service at 1-800-468-8892.

APPENDIX A: Outfall Reconnaissance Inspection Form

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Outfall Reconnaissance Data Sheet

Site ID	
Date	
Inspector	
Open Channel	
Shape	
Pipe Sizes	
Material	
Last Rainfall	
Seasonal Climate	
Standing Water (Y/N)	
Mosquito Larvae (Y/N)	
Outfall Submerged (Y/N)	
Debris Around	
Debris in Pipe	
Flow Volume	
Flow Color	
Flow Odor	
Pipe Condition	
Receiving Stream	
HUC	
Drainage Area (Acres)	
Action Taken	
Notes	
Impaired	
Longitude	
Latitude	
TMDL	
Photographs	

OUTFALL INVESTIGATION / SAMPLE COLLECTION FIELD FORM

Section 1: Background Data

Outfall ID:		
Today's date:		Time:
Investigators:		Form completed by:
Temperature (°F):	Rainfall (in.): Last 24 hours:	Last 48 hours:
Camera:		Photo #s:
Notes (e.g., origin of outfall, if known):		

Section 2: Outfall Description

LOCATION	MATERIAL	CROSS-SECTION (SHAPE)		DIMENSIONS (IN.)	SUBMERGED
☐ **Closed Pipe**	☐ Concrete ☐ Corrugated Metal ☐ Plastic ☐ Other: _____	☐ Circular ☐ Elliptical ☐ Box ☐ Other: _____	☐ Single ☐ Double ☐ Triple ☐ Other: _____	Diameter/Dimensions: _____	In Water: ☐ No ☐ Partially ☐ Fully With Sediment: ☐ No ☐ Partially ☐ Fully
☐ **Open channel**	☐ Concrete ☐ Earthen ☐ Rip-Rap ☐ Other: _____	☐ Trapezoid ☐ Parabolic ☐ Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
Flow Present?	☐ Yes ☐ No ***If No, Skip to Section 5***				
Flow Description (If present)	☐ Trickle ☐ Moderate ☐ Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
PARAMETER		**RESULT**	**UNIT**	**EQUIPMENT**
☐Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	Stop watch
☐Flow #2	Flow depth		In	Tape measure
	Flow width	_____' (Top) _____" (Bottom)	Ft	Tape measure
	Measured length	_____' _____"	Ft	Tape measure
	Time of travel		S	Stop watch
Temperature			°F	Thermometer
pH			pH Units	Test strip/Probe
Ammonia			mg/L	Test strip

Outfall Investigation / Sample Collection Field Form

Section 4: Physical Indicators for Flowing Outfalls Only

Are Any Physical Indicators Present in the flow? ☐ Yes ☐ No *(If No, Skip to Section 5)*

INDICATOR	CHECK if Present	DESCRIPTION	RELATIVE SEVERITY INDEX (1-3)		
Odor	☐	☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☐ Other:	☐ 1 – Faint	☐ 2 – Easily detected	☐ 3 – Noticeable from a distance
Color	☐	☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☐ Red ☐Other:	☐ 1 – Faint colors in sample bottle	☐ 2 – Clearly visible in sample bottle	☐ 3 – Clearly visible in outfall flow
Turbidity	☐	See severity	☐ 1 – Slight cloudiness	☐ 2 – Cloudy	☐ 3 – Opaque
Floatables -Does Not Include Trash!!	☐	☐ Sewage (Toilet Paper, etc.) ☐ Suds ☐ Petroleum (oil sheen) ☐ Other:	☐ 1 – Few/slight; origin not obvious	☐ 2 – Some; indications of origin (e.g., possible suds or oil sheen)	☐ 3 - Some; origin clear (e.g., obvious oil sheen, suds, or floating sanitary materials)

Section 5: General Physical Indicators for both Flowing and Non-Flowing Outfalls

Are physical indicators that are not related to flow present? ☐ Yes ☐ No *(If No, Skip to Section 6)*

INDICATOR	CHECK if Present	DESCRIPTION	COMMENTS
Outfall Damage	☐	☐ Spalling, Cracking or Chipping ☐ Peeling Paint ☐ Corrosion	
Deposits/Stains	☐	☐ Oily ☐ Flow Line ☐ Paint ☐ Other:	
Abnormal Vegetation	☐	☐ Excessive ☐ Inhibited	
Poor pool quality	☐	☐ Odors ☐ Colors ☐ Floatables ☐ Oil Sheen ☐ Suds ☐ Excessive Algae ☐ Other:	.
Pipe benthic growth	☐	☐ Brown ☐ Orange ☐ Green ☐ Other:	

Section 6: Severity Index

An IDDE score will be calculated by summing the Severity Indexes in section 4 and adding the number of indicators checked as present in section 5

☐ **Unlikely** (No indicator checked as present in Section 4 OR only **one (1)** indicator checked as present in Section 5)

☐ **Potential –** (one (1) indicator with a severity of **one (1)** in Section 4 OR **two (2)** indicators checked as present in Section 5)

☐ **Suspect - IDDE score of Three (3)** (one or more indicators checked in Section 4 with a total of severities **equal to three (3)** OR **more than two (2)** indicators checked as present in Section 5 OR a total of severities in Section 4 plus indicators checked as present in Section 5 is equal to three (3))

☐ **Obvious – IDDE score of greater than Three (3)** (one or more indicators checked in Section 4 with and the total of the severities **is greater than three (3)** OR a total of severities in Section 4 plus indicators checked as present in Section 5 **is greater than three (3)).**

IDDE Notes:

Section 7: Any Non-Illicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?

APPENDIX B: IDDE Tracking Form

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IDDE TRACKING Form

Date Illicit Discharge Observed/Reported:_____ **Outfall # (if applicable):**_____

Description of IDDE: _____

_____

Date of Investigation: _____

Was the Source found? ☐ **Yes** ☐ **No**

If "Yes", please describe: _____

_____

Was IDDE Resolved? ☐ **Yes** ☐ **No**

If "Yes", please explain how it was resolved (Please include any personnel or outside parties contacted or involved):

_____

_____

_____

If "No", please explain why it was not resolved: _____

_____

_____

Is any follow-up action required? ☐ **Yes** ☐ **No**

If "Yes", please explain: _____

_____

Date investigation closed: _____

Attach photos to this form and retain for records.