

5. Briefly describe in reports to MDE how the education programs complement and strengthen other programs of the MS4 permit.

B. Public Involvement and Participation

Permittees are required to create and foster opportunities for public participation in the MS4 management program for controlling stormwater discharges. Recommended activities include adopt-a-stream programs, public surveys, storm drain stenciling, stream cleanups, tree plantings, and Earth Day events. This program may be coordinated with other portions of the permittee's MS4 program or developed independent of other pollution control efforts.

Renewal permittees must update and continue to maintain their public involvement and participation program. New permittees must begin development of this program within the first year of permit issuance and initiate implementation thereafter. All permittees must provide program updates in accordance with the MS4 Progress Report specified for this MCM. MS4 Progress Reports must document program development and demonstrate full implementation of all permit requirements by the end of the five-year permit term.

In order to comply with this MCM, all permittees must:

1. Determine the target audience within the jurisdiction to promote public involvement and participation activities;
2. Specify activities appropriate for the target audience and promote participation;
3. Perform at least five public events during the permit term and report to MDE in accordance with reporting requirements;
4. Provide public access to the permittee's MS4 Progress Reports via website or other method and consider any substantive public comments received concerning the permittee's MS4 program; and
5. Comply with all State and federal public notice requirements for any regulated activity associated with this general permit.

C. Illicit Discharge Detection and Elimination (IDDE)

Permittees are required to develop, implement, and enforce a program to detect and eliminate illicit discharges into the MS4 in accordance with 40 CFR § 122.34(b)(3). A permittee will satisfy this MCM by field screening outfalls, inspecting the MS4 to identify sources of illicit discharges, eliminating illegal connections or illicit discharges, and enforcing penalties where appropriate. The illicit discharge program must also address illegal dumping and spills. Additional guidance is provided in Appendix B, Section II to assist permittees with the development of an acceptable IDDE program.

Renewal permittees must update and continue to maintain their IDDE program. New permittees must begin development of this program within the first year of permit issuance and initiate implementation thereafter. All permittees must provide program updates in accordance with the MS4 Progress Report specified for this MCM. MS4 Progress Reports must document program development and demonstrate full implementation of all permit requirements by the end of the five-year permit term.

In order to comply with this MCM, all permittees must:

1. Develop and maintain an updated map of the MS4 that identifies all stormwater conveyances, outfalls, stormwater best management practices (BMPs), and waters of the U.S. receiving stormwater discharges;
2. Adopt an ordinance or other regulatory means that prohibits illicit discharges into the MS4;
3. Establish and document legal means for gaining access to private property to investigate and eliminate illicit discharges (e.g., ordinance, easements);
4. Develop and implement written standard operating procedures (SOPs) that specify the following:
 - a. An inspection checklist describing how outfalls are screened for dry weather flows (see Figure B.2 of Appendix B for an example of an outfall screening checklist);
 - b. Screening of 20% of total outfalls per year, up to 100 outfalls;
 - c. Procedures for identifying the source, and eliminating spills, illegal dumping, and other suspected illicit discharges;
 - d. Identification of priority areas for illicit discharge screening based on pollution potential;
 - e. Enforcement and penalty procedures;
 - f. Procedures to inform employees, businesses, and the general public of the issues relating to illegal discharges and improper waste disposal; and
 - g. Coordination with adjacent/interconnected MS4 operator(s).
5. Submit SOPs to MDE for review and approval within two years of permit issuance. MDE will review for consistency with guidance in Appendix B, Section II;
6. Document results of illicit discharge screening efforts, including a description of how screening locations were prioritized and any necessary follow-up investigations, enforcement, and remediation measures implemented to address any suspected discharge. Submit to MDE in accordance with reporting requirements; and

7. Maintain complete records of IDDE program investigations and make available to MDE during field reviews of the permittee's MS4 program.

D. Construction Site Stormwater Runoff Control

Permittees are required to comply with Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland and State erosion and sediment control regulations under COMAR 26.17.01. The statute and COMAR specify the requirements for any construction activity that disturbs 5,000 square feet of land area or 100 cubic yards or more of earth movement. MDE considers compliance with the State statute to be compliance with this MCM of this general permit, and 40 CFR § 122.34(b)(4).

All permittees must provide program updates in accordance with the MS4 Progress Report specified for this MCM. MS4 Progress Reports must document program development and demonstrate full implementation of all permit requirements by the end of the five-year permit term. In order to comply with State and federal laws and regulations pertaining to an acceptable erosion and sediment control program, all permittees must:

1. Adopt an MDE approved ordinance that includes a process for plan review and approval of proposed construction drawings and erosion and sediment control plans, and inspection and enforcement procedures in accordance with COMAR 26.17.01. Subsequently, any proposed amendments to the ordinance must be submitted to MDE for review and approval;
2. A municipality may accept the program that is being implemented by its respective county or the State of Maryland. Each permittee that relies on its respective county for the implementation of an erosion and sediment control program must execute a binding agreement or resolution with said county. The agreement must clarify respective roles of all parties related to plan review and approval, construction site inspections, and enforcement;
3. Require compliance with requirements under MDE's *2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control* or most recent revision and COMAR 26.17.01;
4. Ensure all necessary permits have been obtained, including MDE's General Permit for Stormwater Associated with Construction Activity for projects disturbing one acre or more, and local sediment and erosion control plan approval;
5. Develop a process for receiving, investigating, and resolving complaints from any interested party related to construction activities within the jurisdiction. Notify the complainant of the investigation and findings within seven days;

measures that are more stringent than the conditions in 40 CFR § 122. Therefore, the statewide regulatory requirements under the Environment Article, Title 4, Subtitle 1, Annotated Code of Maryland for erosion and sediment control and Title 4, Subtitle 2 for stormwater management are considered to be “qualifying local programs”. Compliance with these laws will meet the “Construction Site Stormwater Runoff Control” and “Post Construction Stormwater Management” permit requirements. The permittee remains responsible for the implementation of these measures through compliance with Maryland’s erosion and sediment control and stormwater management laws.

C. Sharing Responsibility.

A permittee may rely on another entity such as a State, federal, or municipal partner to satisfy one or more of the permit obligations. All permit obligations of each entity must be noted in the NOI submitted to MDE according to Part II of this general permit and 40 CFR § 122.35. Other responsible entities must implement control measures that are at least as stringent as the corresponding requirements found in this NPDES general permit. Additionally, the other entity must agree to implement the minimum control measures on the permittee’s behalf. However, the permittee remains responsible for all regulatory obligations. Therefore, MDE encourages the permittee to enter into a legally binding agreement such as a memorandum of understanding with the other entity to minimize uncertainty about compliance with the permit. This information must be specified in the NOI (Appendix C).

Section II. Illicit Discharge Detection and Elimination (IDDE) Program Guidance

Small municipalities and State and federal agencies covered under this NPDES MS4 permit are required to implement an IDDE program. The goal of this program is to find and eliminate pollutants entering the MS4. IDDE program activities include mapping the stormwater conveyance system, inspecting outfalls to discover polluted discharges, investigating the source of pollution, and taking steps to eliminate the discharge, which may include enforcement actions. Permittees are required to develop SOPs that detail the steps to implement these activities. This section provides guidance that permittees may use as a starting point to develop and implement their programs.

A discharge to an MS4 is illicit if it is not composed entirely of stormwater (40 CFR § 122.26(b)(2)). Illicit discharges can originate from a number of different types of sources, including incorrect plumbing, broken infrastructure, inappropriate business practices, and illegal dumping. For example, sanitary sewer lines or car wash drains may be connected to the MS4 instead of the sanitary sewer system. Drinking water lines or sanitary sewer pipes may be broken and leaking effluent into the MS4. Businesses may be inappropriately washing vehicles, allowing wash water to drain into stormwater inlets. Illicit discharges may also result from purposeful dumping of pollutants into an MS4.

A. Mapping

As part of their IDDE programs, permittees must develop a map of the MS4 that they own or operate. Map features must include stormwater conveyances, outfalls, stormwater best management practices (BMPs), and waters of the U.S. receiving stormwater discharges. As defined in 40 CFR § 122.26(b)(9), an outfall is a point source “at the point where a municipal separate storm sewer discharges to waters of the United States” (see Figure B.1). Mapping outfalls, stormwater conveyances, and stormwater BMPs will assist the permittee with tracking the source of a suspected illicit discharge. In addition, permittees must add the locations of private outfalls as they are discovered in the field to allow more effective coordination with private property owners, document hotspots, and identify and require the elimination of third party discharges. In this permit term, permittees may prioritize their initial mapping efforts to areas with a higher potential to pollute, such as areas that are urbanized, commercial, or rapidly developing.

If submitting a map would compromise the operational security of a State or federal agency, the agency may indicate that the map is available for MDE review on site.

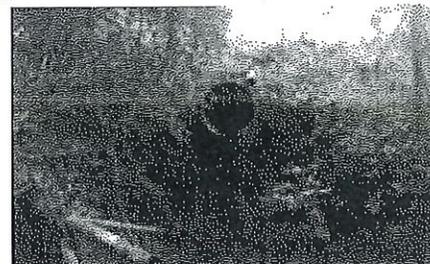
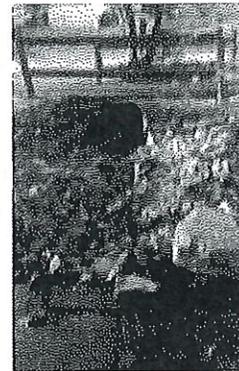


Figure B.1. The above outfalls are examples of different types of outfalls that must be identified on MS4 maps and included in the permittee's screening program. Areas with highly developed land uses (e.g., commercial business complexes, aging infrastructure) have a greater potential to pollute and must be prioritized. Structural stability and erosion concerns must also be identified as part of an effective IDDE program.

B. Standard Operating Procedures

Permittees must develop SOPs that outline methods to conduct dry weather outfall inspections, locate the source of a suspected illicit discharge, and address illicit discharges. Program implementation as detailed in the SOPs can be prioritized in the areas that have a higher potential to pollute (e.g., urbanized, commercial, or areas with older stormwater infrastructure) and must include a long-term schedule for completing a jurisdiction-wide map. The SOPs must identify the number of outfalls to be investigated per year and include an inspection checklist to document the outfall screening. A good resource for developing the IDDE program and field checklist is found in the 2004 *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, authored by the Center for Watershed Protection and Dr. Robert Pitt. Figure B.2, the “Outfall Reconnaissance Inventory/Sample Collection Field Sheet”, is one of several tools permittees may choose to use in their own programs. This checklist will assist a permittee in identifying any potential illicit discharge, determining the need for a more in-depth investigation, and noting any other outfall maintenance needs (e.g., cracks, erosion, excessive vegetation).

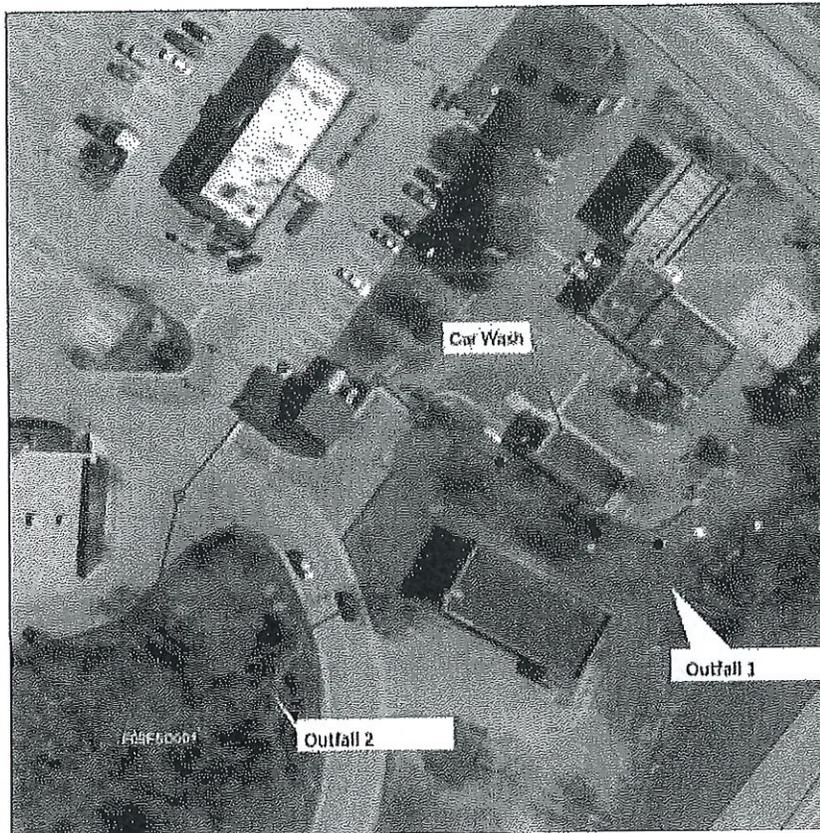
A Phase II MS4 municipality must screen 20% of total outfalls per year, up to 100 outfalls. Screening efforts for State and federal properties are tiered based on property size. For small properties (i.e., less than 100 acres), all outfalls must be screened each year. Medium size properties (i.e., 100 - 2,000 acres) must screen 50% of total outfalls. Large properties (i.e., more than 2,000 acres) must screen 20% per year, up to 100 outfalls. A tiered approach takes into consideration the scale of each State or federal property. For example, a small property with a total of five outfalls is expected to screen all five outfalls per year. Likewise, larger properties may screen a smaller percentage per year to account for the increased effort a greater number of outfalls would require.

C. Illicit Discharge Investigation

A dry weather screening is an outfall inspection conducted at a time when rain has not occurred recently, e.g., within the past 48 hours. During a period of dry weather, it is expected that any observed flow would be the result of some type of discharge other than precipitation. In some cases, the permittee may find that an outfall is not a useful inspection point to detect an illicit discharge (e.g., outfall is submerged, significant groundwater flow is present, the outfall serves a large drainage area). In these cases, the permittee has the discretion to pick an inspection point further up the system (e.g., a manhole or inlet, inflow to a stormwater BMP, or point source discharge in a commercial or industrial area) and document the adjustment in the inspection report. MDE encourages approaches where the permittee conducts screenings closer to the source of potential illicit discharges. When a dry weather flow is observed, a permittee must initiate an investigation to discover the source. If the source is determined to be illicit, the permittee is required to take corrective measures to eliminate the discharge and initiate enforcement actions when necessary. Two examples of illicit discharge

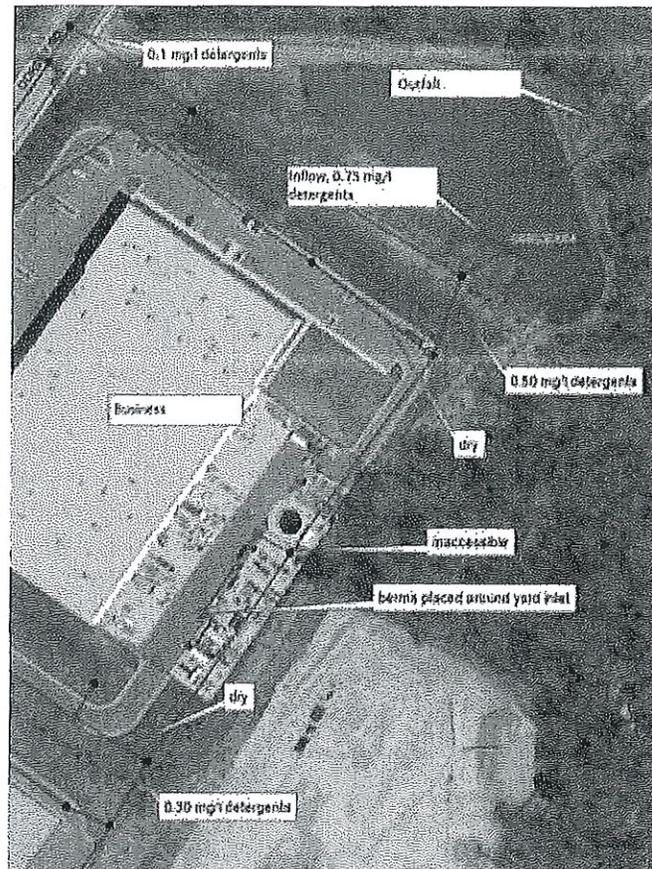
investigations are provided below to illustrate outfall identification, mapping, and discharge source tracking. These examples are taken from a Phase I MS4 annual report.

Example 1: Illicit Discharge Investigation for Discovered Wash Water



During a dry weather screening of Outfall 1, a flow was observed dripping into green sudsy water that had an oily odor. A chemical test indicated a high level of detergents. In the process of tracking the source, a high level of detergents was detected at Outfall 2, as well. The source was traced to a car wash that was believed to be discharging wash water into the MS4.

Example 2: Illicit Discharge Investigation for Detergents



A dry weather flow was discovered at the outfall of a stormwater BMP. A chemical test revealed the presence of chlorine and a high pH. A chemical test at the pond inflow indicated a high level of detergents. Upslope manholes were inspected to determine the path of the discharge. Starting at the point of discharge and inspecting contributing segments of stormwater conveyance pipes (sometimes called a trunk investigation), a single point of flow that exceeded the acceptable level of detergents was isolated. The investigation revealed that the source of the discharge was located within the segment connected to inlets protected by berms on a private commercial business property yard.

D. Illicit Discharge Elimination and Enforcement

After identifying the source of an illicit discharge, a municipal permittee is required to provide notice to the property owner and require that the responsible party takes appropriate action to eliminate the source of the illicit discharge. The permittee may exercise its legal authority to access the property and utilize enforcement. State and federal permittees are required to take appropriate action to eliminate the source of the illicit discharge. These IDDE investigation procedures and enforcement actions must be specified in the permittee's SOPs.

Figure B.2. Outfall Reconnaissance Inventory/Sample Collection Field Sheet
(from Center for Watershed Protection and Pitt, 2004)

OUTFALL RECONNAISSANCE INVENTORY/ SAMPLE COLLECTION FIELD SHEET

Section 1: Background Data

Subwatershed:		Outfall ID:	
Today's date:		Time (Military):	
Investigator(s):		Form completed by:	
Temperature (°F):	Rainfall (in):	Last 24 hours:	Last 48 hours:
Latitude:	Longitude:	GPS Unit:	GPS LMK #:
Camera:		Photos #s:	
Land Use in Drainage Area (Check all that apply):			
<input type="checkbox"/> Industrial		<input type="checkbox"/> Open Space	
<input type="checkbox"/> Ultra-Urban Residential		<input type="checkbox"/> Institutional	
<input type="checkbox"/> Suburban Residential		Other: _____	
<input type="checkbox"/> Commercial		Known Industries: _____	
Notes (e.g., origin of outfall, if known):			

Section 2: Outfall Description

LOCATION	MATERIAL	SHAPE		DIMENSIONS (IN.)	SUBMERGED
<input type="checkbox"/> Closed Pipe	<input type="checkbox"/> RCP <input type="checkbox"/> CMP <input type="checkbox"/> PVC <input type="checkbox"/> HDPE <input type="checkbox"/> Steel <input type="checkbox"/> Other: _____	<input type="checkbox"/> Circular <input type="checkbox"/> Elliptical <input type="checkbox"/> Box <input type="checkbox"/> Other: _____	<input type="checkbox"/> Single <input type="checkbox"/> Double <input type="checkbox"/> Triple <input type="checkbox"/> Other: _____	Diameter/Dimensions: _____	In Water: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully With Sediment: <input type="checkbox"/> No <input type="checkbox"/> Partially <input type="checkbox"/> Fully
<input type="checkbox"/> Open drainage	<input type="checkbox"/> Concrete <input type="checkbox"/> Earthen <input type="checkbox"/> Rip-rap <input type="checkbox"/> Other: _____	<input type="checkbox"/> Trapezoid <input type="checkbox"/> Parabolic <input type="checkbox"/> Other: _____		Depth: _____ Top Width: _____ Bottom Width: _____	
<input type="checkbox"/> In-Stream	(applicable when collecting samples)				
Flow Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>If No, skip to Section 3</i>				
Flow Description (if present)	<input type="checkbox"/> Trickle <input type="checkbox"/> Moderate <input type="checkbox"/> Substantial				

Section 3: Quantitative Characterization

FIELD DATA FOR FLOWING OUTFALLS				
	PARAMETER	RESULT	UNIT	EQUIPMENT
<input type="checkbox"/> Flow #1	Volume		Liter	Bottle
	Time to fill		Sec	
<input type="checkbox"/> Flow #2	Flow depth		In	Type measure
	Flow width		ft, In	Type measure
	Measured length		ft, In	Type measure
	Time of travel		s	Stop watch
	Temperature		°F	Thermometer
	pH		pH Units	Test strip/Probe
	Ammonia		mg/L	Test strip

Figure B.2. Outfall Reconnaissance Inventory/Sample Collection Field Sheet
(from Center for Watershed Protection and Pitt, 2004)

Outfall Reconnaissance Inventory Field Sheet

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	<input type="checkbox"/>	<input type="checkbox"/> Sewage	<input type="checkbox"/> 1 - Faint <input type="checkbox"/> 2 - Easily detected <input type="checkbox"/> 3 - Noticeable from a distance
		<input type="checkbox"/> Sulfide	
Color	<input type="checkbox"/>	<input type="checkbox"/> Rancid/sour	<input type="checkbox"/> 1 - Faint colors in sample bottle <input type="checkbox"/> 2 - Clearly visible in sample bottle <input type="checkbox"/> 3 - Clearly visible in outfall flow
		<input type="checkbox"/> Oilier	
Turbidity	<input type="checkbox"/>	<input type="checkbox"/> Brown	<input type="checkbox"/> 1 - Slight cloudiness <input type="checkbox"/> 2 - Cloudy <input type="checkbox"/> 3 - Opaque
		<input type="checkbox"/> Gray	
Flots/foils (Does Not Include Trash!)	<input type="checkbox"/>	<input type="checkbox"/> Yellow	<input type="checkbox"/> 1 - Few; slight origin not obvious <input type="checkbox"/> 2 - Some; indications of origin (e.g., possible sands or oil sludge) <input type="checkbox"/> 3 - Some; origin clear (e.g., obvious oil, steel sludge, or floating sanitary materials)
		<input type="checkbox"/> Red	
		See severity	
		<input type="checkbox"/> Sewage (tinted paper, etc.)	
		<input type="checkbox"/> Sulfide	
		<input type="checkbox"/> Petroleum (oil slick)	
		<input type="checkbox"/> Other	

Section 5: 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	<input type="checkbox"/>	<input type="checkbox"/> Spalling, Cracking or Chipping	<input type="checkbox"/> Pending Fault
		<input type="checkbox"/> Corrosion	
Deposits/Sludge	<input type="checkbox"/>	<input type="checkbox"/> Oily	<input type="checkbox"/> Odier
		<input type="checkbox"/> Flow Line	
Abnormal Vegetation	<input type="checkbox"/>	<input type="checkbox"/> Paint	
		<input type="checkbox"/> Excessive	
Poor pool quality	<input type="checkbox"/>	<input type="checkbox"/> Inhibited	
		<input type="checkbox"/> Colors	
Pipe benthic growth	<input type="checkbox"/>	<input type="checkbox"/> Sludge	<input type="checkbox"/> Filamentous <input type="checkbox"/> Oil Slick <input type="checkbox"/> Other
		<input type="checkbox"/> Excessive Algae	
		<input type="checkbox"/> Brown	<input type="checkbox"/> Green
		<input type="checkbox"/> Orange	<input type="checkbox"/> Other

Section 6: Overall Outfall Characterization

Unlikely Potential (presence of two or more indicators) Suspect (one or more indicators with a severity of 3) Obvious

Section 7: Data Collection

1. Sample for this lab?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. If yes, collected from:	<input type="checkbox"/> Flow <input type="checkbox"/> Pool
3. Intermittent flow trap set?	<input type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, type <input type="checkbox"/> OBM <input type="checkbox"/> Caulk-dam)

Section 8: Any Non-Illlicit Discharge Concerns (e.g., trash or needed infrastructure repairs)?